

# **Firestone**

Firestone Building Products

## **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 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.GuidelInfo](#)

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.)
- 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](http://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" DensDeck® 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.
- ISOGARD HG 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\*\*)
- ISOGARD GL™ is trademarked.

**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)	“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	A/B/C, Mechanically Attached or Fully Adhered
1A.	C-15/32	“V-Force”, self adhered	Insulation (Optional): Firestone ISOGARD GL – Any Thickness Barrier Board: 1” min. ISOGARD CG 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	A/B/C, Mechanically Attached or Fully Adhered
1B.	C-15/32	“V-Force”, self adhered	Insulation (Optional): Firestone ISOGARD GL – Any Thickness Barrier Board: ½” thick DensDeck, DensDeck 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	A/B/C, Mechanically Attached or Fully Adhered
<b>NOTE:</b> 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	Membrane	Class, Type
143.	NC	<u>Insulation (Optional):</u> Firestone ISOGARD 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	2½"	UltraPly TPO	A, Fully Adhered
144.	NC	Lightweight Insulated (LWIC) or Structural Concrete	Any	2½"	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"	1¼"	UltraPly TPO	A, Fully Adhered
123.	C	<u>Slip Sheet:</u> 2 layers VersaShield® FB-1S <u>Insulation:</u> Firestone ISOGARD GL, mechanically attached	--- Any	½"	UltraPly TPO	A, Fully Adhered
160.	NC	<u>Insulation:</u> Any Classified Poly I.S.O., any thickness <u>Cover Board:</u> Firestone ISOGARD CG or Firestone ISOGARD HD	Any ½"	¼"	UltraPly TPO	A, Fully Adhered
163.	C	<u>Insulation:</u> Firestone ISOGARD GL <u>Insulation:</u> Firestone ISOGARD CG or Firestone ISOGARD HD	Any ½"	¼"	UltraPly TPO	A, Fully Adhered
166/167.	C/NC	<u>Insulation:</u> Firestone ISOGARD 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	NOTE	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> ISOGARD CG	Any	¼"	*DensDeck, ¼", required	A, Fully Adhered
183.	NC/C*	<u>Insulation:</u> Firestone ISOGARD 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 sqft/gal  
**Construction:** New, Retrofit or Tear-off  
**Classification:** Class A

UL Assembly Number	Deck Type	Insulation Assembly	Insulation Minimum Thickness	Maximum Slope	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

Deck Type	Insulation Assembly	Insulation Minimum Thickness	Maximum Slope	Class, Type
NC	None	---	1"	A, Fully Adhered
C/NC	<u>Insulation (Optional):</u> Firestone ISOGARD™ 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 I.S.O. Spray or Firestone XR Stick Adhesive

**Construction:** New, Retrofit or Tear-off

**Classification:** Class A

Deck Type	Insulation Assembly	Insulation Minimum Thickness	Maximum Slope	NOTE	Class, Type
NC C*	<u>Insulation (Optional):</u> Firestone ISOGARD GL, ISOGARD CG, or ISOGARD HD	Any	¼"	*DensDeck, ¼"	A, Fully Adhered
NC C*	Structural Concrete or Lightweight Concrete decks only	---	¼" / ½"	*DensDeck, ¼"	A, Fully Adhered
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 ISOGARD 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 ISOGARD CG	Any ½"	1"	UltraPly TPO	A, Mechanically Attached



## UL Internal Fire Ratings

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 lath (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. For a structure to qualify for a "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 numbers:

[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' (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' (180 m) in total length measured radially from the building and 165' [50 m] in width, use surface roughness exposure C.
- D. For buildings whose height is less than or equal to 30' (9.1 m), the prevailing exposure B distance may be reduced to 1500' (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' (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' (180 m) in total length measured radially from the building and exceeding 165' (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 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' (1500 m) or 20 times the building height, and
- B. The building must be within the greater of 600' (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 Category 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 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](http://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 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 the following are true:

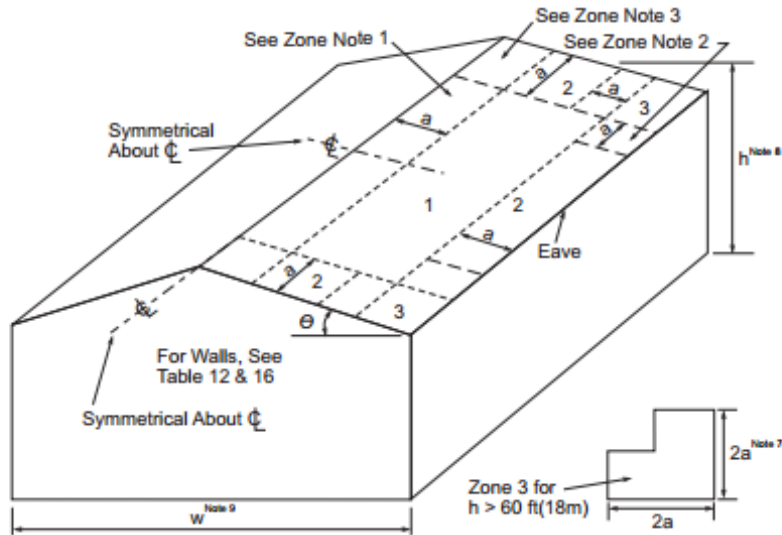
- All layers are the same insulation;
- The total insulation thickness is not greater than the maximum FM Approved thickness of the insulation;
- The mechanical fastening and wind uplift rating are per the FM Approval of the top layer; and,
- The roof cover/insulation/fastener combination is FM Approved.

\*\*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, <i>h</i>	Roof Slope	Enclosed Building			Partially Enclosed Building <sup>6</sup>		
		Zone 1	Zone 2	Zone 3	Zone 1	Zone 2	Zone 3
<i>h</i> ≤ 60 ft (18 m); and when <i>h/w</i> ≤ 1 for 60 < <i>h</i> < 90 ft (18 < <i>h</i> < 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 <i>h/w</i> > 1 for 60 ft < <i>h</i> < 90 ft (18 < <i>h</i> < 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
<i>h</i> ≥ 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

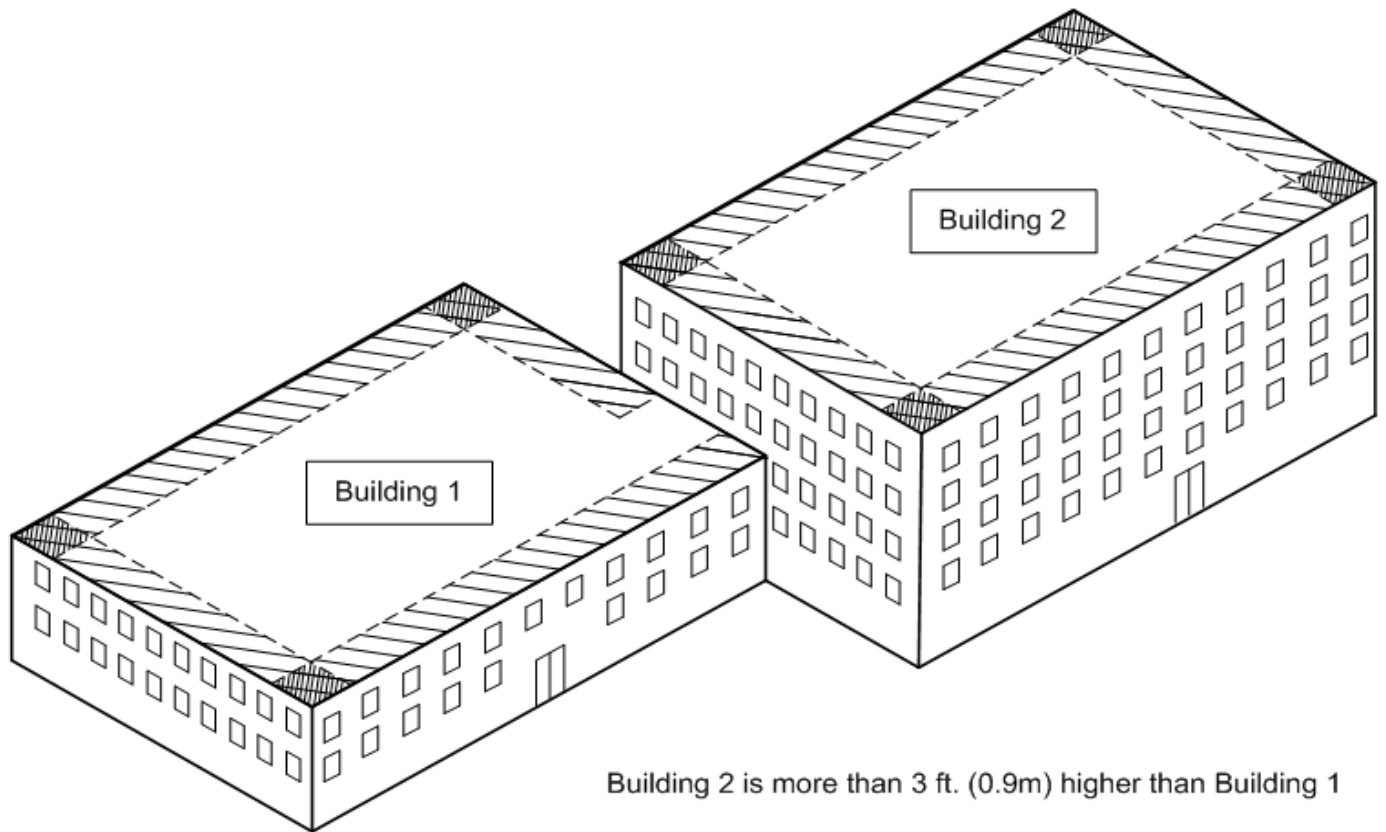
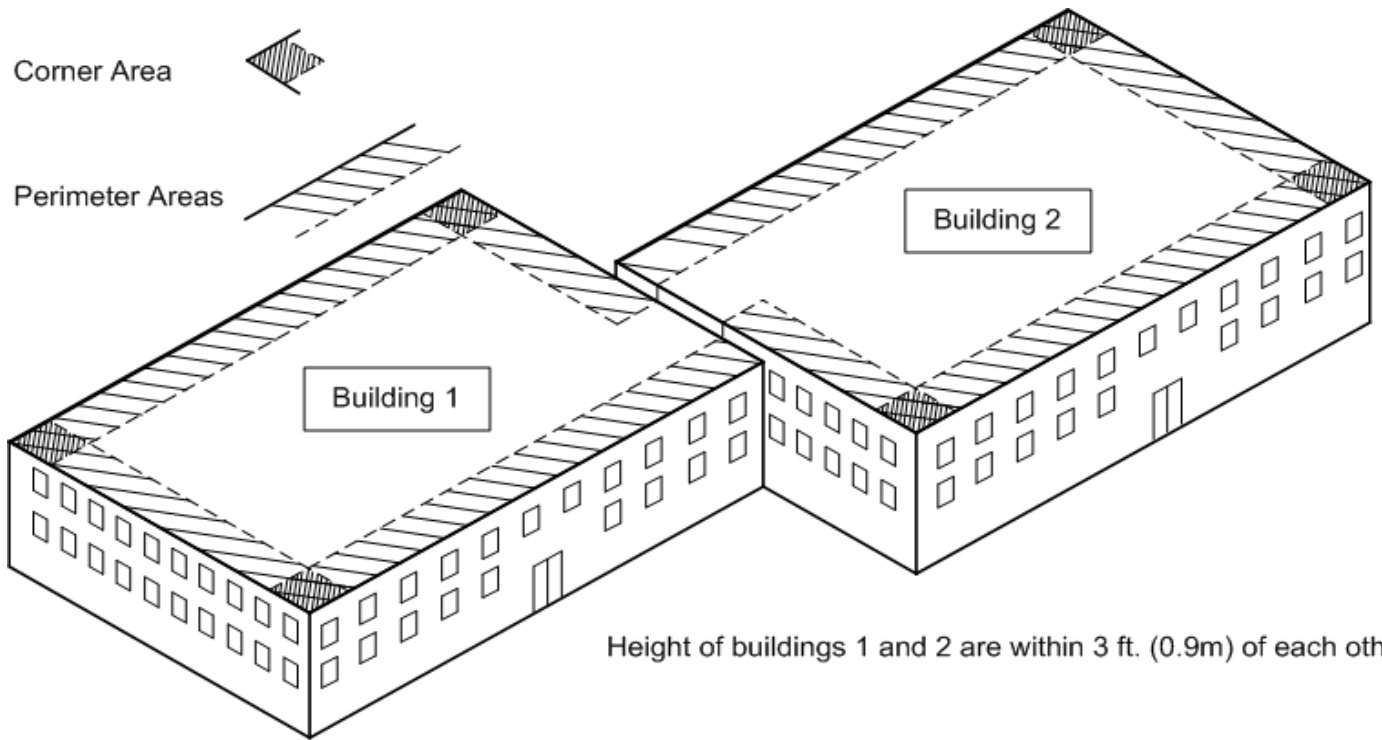
- Zone Notes:
- Zone 1 except Zone 2 if  $\theta > 7^\circ$ .
  - Zone 2 except Zone 3 if  $\theta \leq 7^\circ$  and *h* > 60 ft (18 m).
  - Zone 2 except Zone 3 if  $\theta > 7^\circ$  and *h* ≤ 60 ft (18 m).
  - If a parapet height ≥ 3 ft (1 m) is provided around the perimeter of the roof with  $\theta \leq 7^\circ$  for *h* ≤ 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* ≤ 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 ≤  $10^\circ$ , *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, if 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.
- The recommended field of roof rating needed per DS 1-28 does not exceed Class 1-75 (3.6 kPa).
- 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 ft<sup>2</sup>. (1 per 0.19 m<sup>2</sup>). It is not necessary to install fasteners closer than one per 1 ft<sup>2</sup> (1 per 0.09 m<sup>2</sup>).
- One fastener per 1 ft<sup>2</sup> (1 per 0.09 m<sup>2</sup>) 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 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 ISOGARD 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" DensDeck	1"-12" thick ISOGARD GL Tapered I.S.O. ISOGARD CG	Min. 12 HD fasteners per 4' x 8' boards	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" DensDeck	2"-12" thick ISOGARD GL Tapered I.S.O. ISOGARD CG	Min. 8 HD fasteners per 4' x 8' boards	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" DensDeck	1.5"-12" thick ISOGARD GL Tapered I.S.O.	Min. 18 HD fasteners per 4' x 8' boards	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" DensDeck	2"-12" thick ISOGARD GL Tapered I.S.O.	Min. 16 HD fasteners per 4' x 8' boards	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" DensDeck	2"-12" thick ISOGARD GL Tapered I.S.O.	Min. 20 HD fasteners per 4' x 8' boards	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" DensDeck	1.5"-12" thick ISOGARD GL Tapered I.S.O.	Min. 24 HD fasteners per 4' x 8' boards	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. 72" span 33 ksi 22-ga. 69" span 33 ksi	Optional: 4/6 mil. Polyethylene or V-Force SA over ¼" DensDeck	1.5"-12" thick ISOGARD GL Tapered I.S.O.	Min. 24 HD fasteners per 4' x 8' boards	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"	<u>Steel:</u> 22-16-ga. 33 ksi 72" span	<u>Optional:</u> 4/6 mil. Polyethylene or V-Force SA over ¼" DensDeck	<u>Cover Board:</u> Min. ½" DensDeck/Securock <u>Insulation:</u> 1.5"-12" Thick ISOGARD GL Tapered I.S.O. ISOGARD CG	<u>Cover Board:</u> Min. 10 HD fasteners per 4' x 8' boards <u>Insulation:</u> 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"	<u>Steel:</u> 22-16-ga. 33 ksi 72" span	<u>Optional:</u> 4/6 mil. Polyethylene or V-Force SA over ¼" DensDeck	<u>Cover Board:</u> Min. ½" Securock <u>Insulation:</u> 1.5"-12" thick ISOGARD GL Tapered I.S.O. ISOGARD CG	<u>Cover Board:</u> Min. 10 HD fasteners per 4' x 8' boards <u>Insulation:</u> Loose Laid	45-80 mil. UltraPly TPO SA	SA – Self Adhered	400815-0-0
1-75 IF: 1 EF: A Slope: ½"	<u>Steel:</u> 22-16-ga. 33 ksi 72" span	<u>Optional:</u> 4/6 mil. Polyethylene or V-Force SA over ¼" DensDeck	<u>Cover Board:</u> Min. ½" Structodek HD® <u>Insulation:</u> 1"-12" thick ISOGARD GL Tapered I.S.O. ISOGARD CG	<u>Cover Board:</u> Min. 12 HD fasteners per 4' x 8' boards <u>Insulation:</u> 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"	<u>Steel:</u> 22-16-ga. 33 ksi 72" span	<u>Optional:</u> 4/6 mil. Polyethylene or V-Force SA over ¼" DensDeck	<u>Cover Board:</u> Min. ¼" DensDeck/ ½" Securock <u>Insulation:</u> 1.5"-12" thick ISOGARD GL Tapered I.S.O. ISOGARD CG	<u>Cover Board:</u> Min. 12 HD fasteners per 4' x 8' boards <u>Insulation:</u> 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"	<u>Steel:</u> 22-16-ga. 33 ksi 72" span	<u>Optional:</u> 4/6 mil. Polyethylene or V-Force SA over ¼" DensDeck	<u>Cover Board:</u> ½" ISOGARD HD <u>Insulation:</u> 1.5"-12" thick ISOGARD GL Tapered I.S.O. ISOGARD CG	<u>Cover Board:</u> Min. 12 HD fasteners per 4' x 8' boards <u>Insulation:</u> 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"	<u>Steel:</u> 22-18-ga. 33 ksi 72" span	<u>Optional:</u> 4/6 mil. Polyethylene or V-Force SA over ¼" DensDeck	<u>Cover Board:</u> Min. ¼" DensDeck <u>Insulation:</u> 1.5"-12" thick ISOGARD GL Tapered I.S.O. ISOGARD CG	<u>Cover Board:</u> Min. 18 HD fasteners per 4' x 8' boards <u>Insulation:</u> 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"	<u>Steel:</u> 22-18-ga. 33 ksi 72" span	<u>Optional:</u> 4/6 mil. Polyethylene or V-Force SA over ¼" DensDeck	<u>Cover Board:</u> ½" ISOGARD HD <u>Insulation:</u> 1.5"- 4" thick ISOGARD GL Tapered I.S.O. ISOGARD CG	<u>Cover Board:</u> Min. 24 HD fasteners per 4' x 8' boards <u>Insulation:</u> 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"	<u>Steel:</u> 22-18-ga. 33 ksi 72" span	<u>Optional:</u> 4/6 mil. Polyethylene or V-Force SA over ¼" DensDeck	<u>Cover Board:</u> Min. ½" DensDeck <u>Insulation:</u> 1.5"-12" thick ISOGARD GL Tapered I.S.O. ISOGARD CG	<u>Cover Board:</u> Min. 18 HD fasteners per 4' x 8' boards <u>Insulation:</u> Loose Laid	45-80 mil. UltraPly TPO UltraPly TPO SA	Single-Ply LVOC Single-Ply LVOC (1168) SA – Self Adhered	395478-0-0



Continued

**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
1-150 IF: 1 EF: A Slope: 2.5"	<u>Steel:</u> 22-18-ga. 33 ksi 72" span	<u>Optional:</u> 4/6 mil. Polyethylene or V-Force SA over ¼" DensDeck	<u>Cover Board:</u> Min. ½" DensDeck Prime/Securock <u>Insulation:</u> 1.5" -12" thick ISOGARD GL Tapered I.S.O.	<u>Cover Board:</u> Min. 24 HD fasteners per 4' x 8' boards <u>Insulation:</u> 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"	<u>Steel:</u> 22-18-ga. 33 ksi 72" span	<u>Optional:</u> 4/6 mil. Polyethylene or V-Force SA over ¼" DensDeck	<u>Cover Board:</u> Min. 7/16" OSB <u>Insulation:</u> 1.5" -12" thick ISOGARD GL Tapered I.S.O.	<u>Cover Board:</u> Min. 16 HD fasteners per 4' x 8' boards <u>Insulation:</u> 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 EF: A Slope: 2.5"	<u>Steel:</u> 22-18-ga. 33 ksi 72" span	<u>Optional:</u> 4/6 mil. Polyethylene or V-Force SA over ¼" DensDeck	<u>Cover Board:</u> Min. ½" DensDeck Prime/Securock <u>Insulation:</u> 1.5" -12" thick ISOGARD GL Tapered I.S.O.	<u>Cover Board:</u> Min. 32 HD fasteners per 4' x 8' boards <u>Insulation:</u> Loose Laid	45-80 mil. UltraPly TPO UltraPly TPO SA EZ TPO	Single-Ply LVOC Single-Ply LVOC (1168) UltraPly Bonding SA – Self Adhered	328645-0-0
1-165 IF: 1 EF: A Slope: ½"	<u>Steel:</u> 22-18-ga. 33 ksi 72" span	<u>Optional:</u> 4/6 mil. Polyethylene or V-Force SA over ¼" DensDeck	<u>Cover Board:</u> Min. 7/16" OSB <u>Insulation:</u> 1.5" -12" thick ISOGARD GL Tapered I.S.O.	<u>Cover Board:</u> Min. 32 HD fasteners per 4' x 8' boards <u>Insulation:</u> 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"	<u>Steel:</u> 20-18-ga. 33 ksi 72" span 22-ga. 33 ksi 64" span	<u>Optional:</u> 4/6 mil. Polyethylene or V-Force SA over ¼" DensDeck	<u>Cover Board:</u> Min. ½" DensDeck Prime/Securock <u>Insulation:</u> 1.5" -12" thick ISOGARD GL Tapered I.S.O.	<u>Cover Board:</u> Min. 32 HD fasteners per 4' x 8' boards <u>Insulation:</u> 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"	<u>Steel:</u> 22-18-ga. 80 ksi 72" span	N/A	<u>Cover Board:</u> Min. ½" DensDeck Prime <u>Insulation:</u> 1.5" -12" thick ISOGARD GL	<u>Cover Board:</u> Min. 32 HD fasteners per 4' x 8' boards <u>Insulation:</u> 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"	<u>Steel:</u> 22-18-ga. 80 ksi 72" span	<u>Optional:</u> 4/6 mil. Polyethylene or V-Force SA over ¼" DensDeck	<u>Cover Board:</u> Min. 7/16" OSB <u>Insulation:</u> 1.5" -12" thick ISOGARD GL Tapered I.S.O.	<u>Cover Board:</u> Min. 32 HD fasteners per 4' x 8' boards <u>Insulation:</u> 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"	<u>Steel:</u> 22-16-ga. 33 ksi 72" span	<u>Optional:</u> 4/6 mil. Polyethylene or V-Force SA over ¼" DensDeck	<u>Cover Board:</u> ½" ISOGARD HD  <u>Insulation:</u> 2"-12" thick ISOGARD GL Tapered I.S.O. ISOGARD CG	<u>Cover Board:</u> 12" o.c. bead I.S.O. FIX I.S.O. Spray Twin Pack I.S.O.Stick/Twin Jet  <u>Insulation:</u> Min. 8 HD Fasteners per 4' x 8' boards	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"	<u>Steel:</u> 22-16-ga. 33 ksi 72" span	<u>Optional:</u> 4/6 mil. Polyethylene or V-Force SA over ¼" DensDeck	<u>Cover Board:</u> ½" ISOGARD HD  <u>Insulation:</u> 1.5" -12" thick ISOGARD GL Tapered I.S.O. ISOGARD CG	<u>Cover Board:</u> 12" o.c. bead I.S.O. Spray Twin Pack  <u>Insulation:</u> Min. 16 HD Fasteners per 4' x 8' boards	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"	<u>Steel:</u> 22-16-ga. 33 ksi 72" span	<u>Optional:</u> ¼" minimum DensDeck DensDeck Prime Securock	<u>Cover Board:</u> ½" ISOGARD HD  <u>Insulation:</u> 2.2"-12" thick ISOGARD GL Tapered I.S.O. ISOGARD CG	<u>Cover Board:</u> 12" o.c. bead I.S.O. Spray R Twin Pack  <u>Insulation:</u> Min. 8 HD Fasteners per 4' x 8' boards	45-80 mil. UltraPly TPO UltraPly TPO SA	Single-Ply LVOC Single-Ply LVOC (1168) UltraPly Bonding SA – Self Adhered	400915-0-0
1-90 IF: 1 EF: A Slope: 2.5"	<u>Steel:</u> 22-16-ga. 33 ksi 72" span	<u>Optional:</u> 4/6 mil. Polyethylene or V-Force SA over ¼" DensDeck	<u>Cover Board:</u> Min. ¼" thick DensDeck Prime/ Securock  <u>Insulation:</u> 1.5" -12" thick ISOGARD GL Tapered I.S.O.	<u>Cover Board:</u> 12" o.c. bead I.S.O. Spray R Twin Pack  <u>Insulation:</u> Min. 16 HD Fasteners per 4' x 8' boards	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"	<u>Steel:</u> 22-16-ga. 33 ksi 72" span	<u>Optional:</u> ¼" minimum DensDeck DensDeck Prime Securock	<u>Cover Board:</u> Min. ½" thick DensDeck Prime/ Securock  <u>Insulation:</u> 2.2"-12" thick ISOGARD GL Tapered I.S.O.	<u>Cover Board:</u> 12" o.c. bead I.S.O. Spray R Twin Pack  <u>Insulation:</u> Min. 8 HD Fasteners per 4' x 8' boards	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"	<u>Steel:</u> 22-18-ga. 33 ksi 72" span	<u>Optional:</u> 4/6 mil. Polyethylene or V-Force SA over ¼" DensDeck	<u>Cover Board:</u> ½" ISOGARD HD  <u>Insulation:</u> 2"-8" thick ISOGARD GL Tapered I.S.O.	<u>Cover Board:</u> 6" o.c. bead I.S.O. Fix I.S.O. Spray R Twin Pack I.S.O.Stick/Twin Jet  <u>Insulation:</u> Min. 20 HD Fasteners per 4' x 8' boards	45-80 mil. UltraPly TPO UltraPly TPO SA	Single-Ply LVOC Single-Ply LVOC (1168) UltraPly Bonding SA – Self Adhered	342142-0-0

Continued

**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
1-165  IF: 1 EF: A Slope: ¼"	<u>Steel:</u> 22-18-ga. 33 ksi 72" span	<u>Optional:</u> 4/6 mil. Polyethylene or V-Force SA over ¼" DensDeck	<u>Cover Board:</u> ½" ISOGARD HD  <u>Insulation:</u> 2"-12" thick ISOGARD GL Tapered I.S.O.	<u>Cover Board:</u> 4" o.c. bead I.S.O. Fix I.S.O. Spray R Twin Pack I.S.O.Stick/Twin Jet  <u>Insulation:</u> Min. 32 HD Fasteners per 4' x 8' boards	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"	<u>Steel:</u> 22-18-ga. 33 ksi 72" span	<u>Optional:</u> 4/6 mil. Polyethylene or V-Force SA over ¼" DensDeck	<u>Cover Board:</u> Min. ½" thick DensDeck Prime/ Securock  <u>Insulation:</u> 2"-12" thick ISOGARD GL Tapered I.S.O.	<u>Cover Board:</u> 4" o.c. bead I.S.O. Fix I.S.O. Spray R Twin Pack I.S.O.Stick/Twin Jet  <u>Insulation:</u> Min. 32 HD Fasteners per 4' x 8' board s	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"	<u>Steel:</u> 20-18-ga. 33 ksi 72" span  22-18 ga 80 ksi 72" span	<u>Optional:</u> 4/6 mil. Polyethylene or V-Force SA over ¼" DensDeck	<u>Cover Board:</u> ½" ISOGARD HD  <u>Insulation:</u> 2"-12" thick ISOGARD GL Tapered I.S.O.	<u>Cover Board:</u> 4" o.c. bead I.S.O. Fix I.S.O. Spray R Twin Pack I.S.O.Stick/Twin Jet  <u>Insulation:</u> Min. 32 HD Fasteners per 4' x 8' boards	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"	<u>Steel:</u> 20-18-ga. 33 ksi 72" span  22-18-ga. 80 ksi 72" span	<u>Optional:</u> 4/6 mil. Polyethylene or V-Force SA over ¼" DensDeck	<u>Cover Board:</u> Min. ½" thick DensDeck Prime/ Securock  <u>Insulation:</u> 2"-12" thick ISOGARD GL Tapered I.S.O.	<u>Cover Board:</u> 4" o.c. bead I.S.O. Fix Twin Pack I.S.O.Stick/Twin Jet  <u>Insulation:</u> Min. 32 HD Fasteners per 4' x 8' boards	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"	<u>Steel:</u> 22-18 ga 80 ksi 72" span	<u>Optional:</u> 4/6 mil. Polyethylene or V-Force SA over ¼" DensDeck	<u>Cover Board:</u> ½" ISOGARD HD  <u>Insulation:</u> 2"-8" thick ISOGARD GL Tapered I.S.O.	<u>Cover Board:</u> 4" o.c. bead I.S.O. Fix I.S.O. Spray R Twin Pack I.S.O.Stick/Twin Jet  <u>Insulation:</u> Min. 32 HD Fasteners per 4' x 8' boards	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 DensDeck – 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" DensDeck Min. ½" Securock Min. 8 HD fasteners per 4' x 8' boards	<u>Insulation:</u> 1.5"-12" thick ISOGARD GL Tapered I.S.O. ISOGARD CG	<u>Insulation:</u> 12" o.c. bead I.S.O. Spray R Twin Pack I.S.O.Stick/Twin Jet	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" DensDeck Min. ½" Securock Min. 8 HD fasteners per 4' x 8' boards	<u>Cover Board:</u> ¼" min. DensDeck Prime/ Securock <u>Insulation:</u> 1.5"-12" thick ISOGARD GL Tapered I.S.O. ISOGARD CG	<u>Cover Board &amp; Insulation:</u> 12" o.c. bead I.S.O. Spray R Twin Pack I.S.O.Stick/Twin Jet	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: ¾"	20-16-ga. 33 ksi 72" span 22-ga. 33 ksi 60" span 22-ga. 80 ksi 72" span	<u>Optional:</u> 4/6 mil. Polyethylene or V-Force or BASEGARD SA over ¼" DensDeck (possible primer)	<u>Insulation:</u> 1.5"-12" thick ISOGARD GL Tapered I.S.O.	Min. 5 HD fasteners per 4' x 8' boards	45-80 mil. UltraPly TPO	<u>Sheet Size:</u> 10' sheets Row Spacing: 114" Fastener spacing: 12" o.c. Firestone HD Fasteners and HD Seam Plates	170476-0-0
1-60 IF: 1 EF: A Slope: 1"	20-16-ga. 33 ksi 72" span 22-ga. 33 ksi 60" span 22-ga. 80 ksi 72" span	<u>Optional:</u> 4/6 mil. Polyethylene or V-Force or BASEGARD SA over ¼" DensDeck (possible primer)	<u>Cover Board:</u> ½" ISOGARD HD ½" Structodek HD <u>Insulation:</u> 1.5"-12" thick ISOGARD GL Tapered I.S.O.	Min. 5 HD fasteners per 4' x 8' boards	45-80 mil. UltraPly TPO	<u>Sheet Size:</u> 10' sheets Row Spacing: 114" Fastener spacing: 12" o.c. Firestone HD Fasteners and HD Seam Plates	266089-0-0
1-60 IF: 1 EF: A Slope: ¾"	18-ga. 33 ksi 72" span 20-ga. 33 ksi 60" span 22-ga. 33 ksi 48" span 20-ga. 80 ksi 72" span 22-ga. 80 ksi 72" span	<u>Optional:</u> 4/6 mil. Polyethylene or V-Force or BASEGARD SA over ¼" DensDeck (possible primer)	<u>Insulation:</u> 1.5"-12" thick ISOGARD GL Tapered I.S.O.	Min. 5 HD fasteners per 4' x 8' boards	45-80 mil. UltraPly TPO	<u>Sheet Size:</u> 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

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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: 5"	20-16-ga. 33 ksi 72" span  22-ga. 33 ksi 60" span  22-ga. 80 ksi 72" span	<u>Optional:</u> 4/6 mil. Polyethylene or V-Force or BASEGARD SA over ¼" DensDeck (possible primer)	<u>Cover Board:</u> ¼" min. thick DensDeck, Prime or Securock  <u>Insulation:</u> 1.5" -12" thick ISOGARD GL Tapered I.S.O.	Min. 5 HD fasteners per 4' x 8' boards	45-80 mil. UltraPly TPO	<u>Sheet Size:</u> 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
1-75  IF: 1 EF: A Slope: 1"	22-18-ga. 33 ksi 72" span	<u>Optional:</u> 4/6 mil. Polyethylene	<u>Insulation:</u> 1.5" -12" thick ISOGARD GL Tapered I.S.O. ISOGARD CG or 1.5"-4" ISOGARD HD Composite <u>Insulation (Optional):</u> 1.5"-9.5" ISOGARD GL Tapered I.S.O. ISOGARD CG	Min. 5 HD fasteners per 4' x 8' boards	45-80 mil. UltraPly TPO	<u>Sheet Size:</u> 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	<u>Optional:</u> 4/6 mil. Polyethylene	<u>Cover Board:</u> ½" ISOGARD HD ½" Structodek HD <u>Insulation:</u> (2) 1.5" -12" thick ISOGARD GL Tapered I.S.O. or 1.5"-8" ISOGARD HD Composite	Min. 5 HD fasteners per 4' x 8' boards	45-80 mil. UltraPly TPO	<u>Sheet Size:</u> 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	<u>Optional:</u> 4/6 mil. Polyethylene or V-Force or BASEGARD SA over ¼" DensDeck (possible primer)	<u>Insulation:</u> 1.5" -12" thick ISOGARD GL Tapered I.S.O. ISOGARD CG	Min. 5 HD fasteners per 4' x 8' boards	60-80 mil. UltraPly TPO	<u>Sheet Size:</u> 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	<u>Optional:</u> 4/6 mil. Polyethylene or V-Force over ¼" DensDeck (possible primer)	<u>Cover Board:</u> ½" ISOGARD HD ½" Structodek HD <u>Insulation:</u> 1.5" -12" thick ISOGARD GL Tapered I.S.O. ISOGARD CG	Min. 5 HD fasteners per 4' x 8' boards	60-80 mil. UltraPly TPO	<u>Sheet Size:</u> 10' sheets Row Spacing: 114" Fastener spacing: 12" o.c.  Firestone HD Fasteners and HD Seam Plates	381672-0-0

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**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
1-75  IF: 1 EF: A Slope: 1¾"	22-18-ga. 80 ksi 72" span	<u>Optional:</u> 4/6 mil. Polyethylene or V-Force over ¼" DensDeck (possible primer)	<u>Cover Board:</u> ½" Structodek HD ½" FiberTop B  <u>Insulation:</u> 1.5" -12" thick ISOGARD GL Tapered I.S.O. ISOGARD CG	Min. 5 HD fasteners per 1.5" -12" thick	60-80 mil. UltraPly TPO	<u>Sheet Size:</u> 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	<u>Optional:</u> 4/6 mil. Polyethylene or V-Force or BASEGARD SA over ¼" DensDeck (possible primer)	<u>Insulation:</u> 1.5" -12" thick ISOGARD GL Tapered I.S.O.	Min. 5 HD fasteners per 4' x 8' boards	45-80 mil. UltraPly TPO	<u>Sheet Size:</u> 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	<u>Optional:</u> 4/6 mil. Polyethylene or V-Force or BASEGARD SA over ¼" DensDeck (possible primer)	<u>Insulation:</u> 1.5" -12" thick ISOGARD GL Tapered I.S.O. ISOGARD CG or 1.5"-4" ISOGARD HD Composite Insulation <u>(Optional):</u> 1.5"-9.5" thick ISOGARD GL Tapered I.S.O. ISOGARD CG	Min. 5 HD fasteners per 4' x 8' boards	45-80 mil. UltraPly TPO	<u>Sheet Size:</u> 78"  <u>Row Spacing:</u> 72"  <u>Fastener Spacing:</u> 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	<u>Optional:</u> 4/6 mil. Polyethylene	<u>Insulation:</u> 1.5"-12" thick ISOGARD GL Tapered I.S.O. ISOGARD CG	Min. 5 HD fasteners per 4' x 8' boards	45-80 mil. UltraPly TPO	<u>Sheet Size:</u> 12' sheets <u>Row Spacing:</u> 71" <u>Fastener spacing:</u> 12" o.c. *Intermediate Batten Rows Firestone HD Fasteners and Batten Strip (M/P)	343386-0-0
1-90  IF: 1 EF: A Slope: ¾"	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	<u>Optional:</u> 4/6 mil. Polyethylene or V-Force or BASEGARD SA over ¼" DensDeck (possible primer)	<u>Insulation:</u> 1.5"-12" thick ISOGARD GL Tapered I.S.O.	Min. 5 HD fasteners per 4' x 8' boards	45-80 mil. UltraPly TPO	<u>Sheet Size:</u> 10' sheets <u>Row Spacing:</u> 114" <u>Fastener spacing:</u> 6" o.c.  Firestone HD Fasteners and HD Seam Plates	166431-0-0



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**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
1-90 IF: 1 EF: A Slope: ¾"	22-18-ga. 80 ksi 72" span	<u>Optional:</u> 4/6 mil. Polyethylene or V-Force or BASEGARD SA over ¼" DensDeck (possible primer)	<u>Insulation:</u> 1.5"-12" thick ISOGARD GL Tapered I.S.O.	Min. 5 HD fasteners per 4' x 8' boards	45-80 mil. UltraPly TPO	<u>Sheet Size:</u> 8' sheets <u>Row Spacing:</u> 90" <u>Fastener spacing:</u> 12" o.c. Firestone HD Fasteners and HD Seam Plates <b>*WIDE WELD*</b>	76731-0-0
1-90 IF: 1 EF: A Slope: 1"	22-18-ga. 80 ksi 72" span	<u>Optional:</u> 4/6 mil. Polyethylene or V-Force or BASEGARD SA over ¼" DensDeck (possible primer)	<u>Cover Board:</u> ½" ISOGARD HD ½" Structodek HD <u>Insulation:</u> 1.5"-12" thick ISOGARD GL Tapered I.S.O.	Min. 5 HD fasteners per 4' x 8' boards	45-80 mil. UltraPly TPO	<u>Sheet Size:</u> 8' sheets <u>Row Spacing:</u> 90" <u>Fastener spacing:</u> 12" o.c. Firestone HD Fasteners and HD Seam Plates	266129-0-0
1-90 IF: 1 EF: A Slope: 1"	22-16-ga. 33 ksi 72" span	<u>Optional:</u> 4/6 mil. Polyethylene or V-Force SA over ¼" DensDeck (possible primer)	<u>Insulation:</u> 1.5"-12" thick ISOGARD GL Tapered I.S.O. ISOGARD CG	Min. 5 HD fasteners per 4' x 8' boards	45-80 mil. UltraPly TPO	<u>Sheet Size:</u> 10' sheets <u>Row Spacing:</u> 72" <u>Fastener spacing:</u> 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	<u>Optional:</u> 4/6 mil. Polyethylene or V-Force SA over ¼" DensDeck (possible primer)	<u>Insulation:</u> 1.5"-12" thick ISOGARD GL Tapered I.S.O. ISOGARD CG	Min. 5 HD fasteners per 4' x 8' boards	60-80 mil. UltraPly TPO	<u>Sheet Size:</u> 5' sheets <u>Row Spacing:</u> 54" <u>Fastener spacing:</u> 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 20-18-ga. 80 ksi 72" span 22-ga. 80 ksi 60" span	<u>Optional:</u> 4/6 mil. Polyethylene or V-Force or BASEGARD SA over ¼" DensDeck (possible primer)	<u>Insulation:</u> 1.5"-12" thick ISOGARD GL Tapered I.S.O.	Min. 5 HD fasteners per 4' x 8' boards	45-80 mil. UltraPly TPO	<u>Sheet Size:</u> 10' sheets <u>Row Spacing:</u> 114" <u>Fastener spacing:</u> 6" o.c. Firestone HD Fasteners and HD Seam Plates	3081-0-0
1-105 IF: 1 EF: A Slope: 1"	22-18-ga. 80 ksi 72" span	<u>Optional:</u> 4/6 mil. Polyethylene	<u>Insulation:</u> 1.5"-12" thick ISOGARD GL Tapered I.S.O. ISOGARD CG or 1.5"-12" thick ISOGARD HD Composite	Min. 5 HD fasteners per 4' x 8' boards	45-80 mil. UltraPly TPO	<u>Sheet Size:</u> 8' sheets <u>Row Spacing:</u> 90" <u>Fastener spacing:</u> 6" o.c. Firestone HD Fasteners and HD Seam Plates	364311-0-0



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**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
1-105  IF: 1 EF: A Slope: 1"	22-18-ga. 33 ksi 72" span	<u>Optional:</u> 4/6 mil. Polyethylene or V-Force SA over ¼" DensDeck (possible primer)	<u>Cover Board:</u> ½" ISOGARD HD ½" Structodek HD  <u>Insulation:</u> 1.5"-12" thick ISOGARD GL Tapered I.S.O. ISOGARD CG	Min. 5 HD fasteners per 4' x 8' boards	60-80 mil. UltraPly TPO	<u>Sheet Size:</u> 60' sheets <u>Row Spacing:</u> 54" <u>Fastener spacing:</u> 12" o.c.  Firestone HD Fasteners and HD Seam Plates	381676-0-0
1-105  IF: 1 EF: A Slope: 1¼"	22-18-ga. 33 ksi 72" span	<u>Optional:</u> 4/6 mil. Polyethylene or V-Force SA over ¼" DensDeck (possible primer)	<u>Cover Board:</u> ½" Structodek HD ½" FiberTop B  <u>Insulation:</u> 1.5"-12" thick ISOGARD GL Tapered I.S.O. ISOGARD CG	Min. 5 HD fasteners per 4' x 8' boards	60-80 mil. UltraPly TPO	<u>Sheet Size:</u> 60' sheets <u>Row Spacing:</u> 54" <u>Fastener spacing:</u> 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: ¼"	<u>Concrete:</u> (New or recover)	DensDeck/Securock, ¼" min. 8 HD or Concrete Drive fasteners and plates per 4' x 8' boards	Primed thermal barrier with V- Force	ISOGARD GL, 1.5" min., 4' x 4' boards, <u>Adhered at 12" o.c.:</u> I.S.O. Spray R I.S.O. Twin Pack I.S.O.Stick/Twin Jet	UltraPly TPO: Single-Ply LVOC S.P. LVOC 1168 UltraPly Bonding UltraPly TPO SA	294593-0-0
1-90  IF: NC EF: A Slope: ¼"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick	DensDeck, ¼" min. Securock ½" min. 8 HD or Concrete Drive fasteners and plates per 4' x 8' boards	Primed thermal barrier with V- Force	2 Layers - ISOGARD GL (Flat or Tapered), 1.5" min., 4' x 4' boards, <u>Adhered at 12" o.c.:</u> I.S.O. Spray R I.S.O. Twin Pack I.S.O.Stick/Twin Jet	UltraPly TPO Single-Ply LVOC S.P. LVOC 1168 UltraPly Bonding UltraPly TPO SA	294633-0-0
1-525  IF: NC EF: A Slope: ¼"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick	None	Primed substrate with V-Force	<u>Cover Board:</u> ISOGARD HD, ½" min., 4' x 4' board, adhered with I.S.O.Stick, I.S.O. Spray or Twin Pack at 12" o.c. <u>Insulation:</u> 2 Layers - ISOGARD GL, 1.5" min., 4' x 4' 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"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick	None	Primed substrate with V-Force	<u>Insulation:</u> ISOGARD GL, 1.5" min., 4' x 4' boards <u>Adhered at 12" o.c.:</u> I.S.O. Spray R I.S.O. Twin Pack I.S.O.Stick/Twin Jet	UltraPly TPO: Single-Ply LVOC S.P. LVOC 1168 UltraPly Bonding	294948-0-0

### 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
1-525 IF: NC EF: A Slope: ¼"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick	None	Primed substrate with V-Force	<u>Insulation:</u> 2 Layers ISOGARD GL, 1.5" min., 4' x 4' boards, <u>Adhered at 12" o.c.:</u> I.S.O. Spray R I.S.O. Twin Pack I.S.O. Stick/Twin Jet	UltraPly TPO: Single-Ply LVOC S.P. LVOC 1168 UltraPly Bonding	294949-0-0
1-495 IF: NC EF: A Slope: 2.5"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick	None	Primed substrate with V-Force	<u>Cover Board:</u> DensDeck Prime or Securock ¼" min. <u>Insulation:</u> ISOGARD GL, 1.5" min., 4' x 4' boards <u>Adhered at 12" o.c.:</u> I.S.O. Spray R I.S.O. Twin Pack I.S.O. Stick/Twin Jet	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"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick	SBS Glass Torch Base SBS Poly Torch Base SBS Smooth <u>Primer:</u> Concrete Primer, Asphaltic	Tapered ISOGARD GL, 1.5" min., 12" o.c. beads of Twin Pack Adhesive	<u>Cover Board:</u> ¼" min. DensDeck, DensDeck Prime, or Securock, 4' x 4' boards, 12" o.c. beads of I.S.O. Spray or Twin Pack Adhesive	<u>Cover Board/Insulation:</u> 12" o.c. beads I.S.O. 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"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick	<u>Insulation (2 Layers):</u> ISOGARD GL(Taper), 1" (.5") min., ISOGARD GL, 1"-36", 4' x 4' boards	Adhered at 12" o.c.: I.S.O. 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"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick	<u>Insulation:</u> ISOGARD GL, 1.5"-36", 4' x 4' boards	Adhered at 12" o.c.: I.S.O. 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"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick	<u>Insulation:</u> ISOGARD GL, 1.5"-36", 4' x 4' boards	Adhered with full application: I.S.O. Spray	.045 mil. min. UltraPly membrane	Single-Ply LVOC Bonding Single-Ply LVOC Bonding 1168 UltraPly Bonding Adhesive	80684-0-0

## 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
1-360 IF: NC EF: A Slope: ¼"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick	<u>Insulation:</u> ISOGARD GL, 1.5"-36" 4' x 4' boards	Adhered with full application: Hot Asphalt	.060 mil. min. UltraPly membrane	Single-Ply LVOC Bonding Single-Ply LVOC Bonding 1168 UltraPly Bonding Adhesive	245813-0-0
1-480 IF: NC EF: A Slope: ¼"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick	<u>Insulation:</u> ISOGARD GL, 1.5"-36" 4' x 4' boards	Adhered at 8" o.c.: I.S.O. 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"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick Primed: Asphaltic	<u>Insulation:</u> ISOGARD GL, 1.5"-36", 4' x 4' 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"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick	<u>Insulation:</u> ISOGARD GL, 1.5"-36", 4' x 4' boards	Adhered at 4" o.c.: I.S.O. 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"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick  <u>Primer:</u> Asphaltic	<u>Cover Board:</u> ¼" min. DensDeck (Prime) or Securock <u>Insulation:</u> ISOGARD GL, 1.5"-36", 4' x 4' boards	<u>Adhered at 12" o.c.:</u> 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"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick	<u>Cover Board:</u> ½" ISOGARD HD <u>Insulation:</u> ISOGARD GL, 1.5"-36", 4' x 4' boards	<u>Adhered at 12" o.c.:</u> I.S.O. Spray R I.S.O. Twin Pack	.045 mil. min. UltraPly membrane	Water Based Bonding Adhesive	233376-0-0
1-255 IF: NC EF: A Slope: 2.5"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick	<u>Cover Board:</u> ¼" min. DensDeck Prime or Securock <u>Insulation:</u> ISOGARD GL (ISOGARD CG), ½"-36", 4' x 4' boards	<u>Adhered at 12" o.c.:</u> I.S.O. Spray R I.S.O. 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

Continued

**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
1-90 IF: NC EF: A Slope: 2.5"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick V-Force (req.): Self Adhered <u>Primer:</u> Asphaltic <u>Thermal (opt.):</u> DensDeck, ¼" min.	<u>Cover Board:</u> ¼" min. DensDeck Prime <u>Insulation (Top):</u> Tapered ISOGARD GL, ISOGARD CG, ½"-4", 4' x 4' board <u>Insulation (Bottom):</u> ISOGARD GL 1.5"-8"	<u>Cover Board and Top Insulation Adhered at 12" o.c.:</u> I.S.O. Fix II I.S.O. Spray R I.S.O. Twin Pack I.S.O.Stick/Twin Jet <u>Bottom Insulation:</u> Min. 16 HD fasteners per 4' x 8' boards <u>Thermal:</u> 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"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick	<u>Cover Board:</u> ¼" min. DensDeck Prime <u>Insulation:</u> ISOGARD GL, ISOGARD CG, ½"-36", 4' x 4' boards	<u>Adhered at 12" o.c.:</u> I.S.O. Spray R I.S.O. 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
1-270 IF: NC EF: A Slope: ¼"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick	<u>Cover Board:</u> ½" ISOGARD HD <u>Insulation:</u> ISOGARD GL, 1.5"-36", 4' x 4' boards	<u>Adhered at 12" o.c.:</u> I.S.O. Spray R I.S.O. Twin Pack	.045 mil. min. UltraPly TPO	Water Based Bonding Adhesive	233376-0-0
1-270 IF: NC EF: A Slope: ¼"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick	<u>Cover Board:</u> ½" ISOGARD HD <u>Insulation:</u> ISOGARD GL, 1.5"-36", 4' x 4' boards	<u>Adhered at 12" o.c.:</u> I.S.O.Stick/Twin Jet	.045 mil. min. UltraPly TPO	Water Based Bonding Adhesive	233380-0-0
1-375 IF: NC EF: A Slope: 2.5"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick	<u>Cover Board:</u> ¼" DensDeck Prime or Securock <u>Insulation:</u> ISOGARD GL, 1.5"-36", 4' x 4' boards	<u>Adhered at 8" o.c.:</u> I.S.O.Stick/Twin Jet	.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"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick	<u>Cover Board:</u> ¼" DensDeck Prime or Securock <u>Insulation:</u> ISOGARD GL, 1.5"-36", 4' x 4' boards	<u>Adhered at 12" o.c.:</u> I.S.O. 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"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick <u>Primer:</u> Asphaltic	<u>Cover Board:</u> ¼" DensDeck Prime Or Securock <u>Insulation:</u> ISOGARD GL, 1.5"-36", 4' x 4' boards	I.S.O. 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"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick	<u>Cover Board:</u> ¼" DensDeck Prime or Securock <u>Insulation:</u> ISOGARD GL, 1.5"-36", 4' x 4' 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

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**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
1-495 IF: NC EF: A Slope: ½"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick  <u>Primer:</u> Asphaltic	<u>Cover Board:</u> APA Rated OSB, 7/16" min., 4' x 4' boards <u>Insulation:</u> ISOGARD GL, 1.5"-36", 4' x 4' boards	<u>Adhered at 12" o.c.:</u> I.S.O.Stick/Twin Jet	.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: ¼"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick	<u>Cover Board:</u> ½" ISOGARD HD <u>Insulation:</u> ISOGARD GL, 1.5"-36", 4' x 4' boards	<u>Adhered at 12" o.c.:</u> I.S.O.Stick/Twin Jet	.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"	<u>Cover Board:</u> ¼" DensDeck Prime or Securock  <u>Insulation:</u> ISOGARD GL, 1.5"-12", 4' x 4' boards	<u>Adhered at 12" o.c.:</u> 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"	<u>Steel:</u> 22-16-ga. 33 ksi 72" span	<u>Insulation:</u> ISOGARD GL, 1.5"-12" thick, 4' x 8' boards <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) over ¼" DensDeck	Attached with 12 AP or HD fasteners per 4' x 8' boards	.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"	<u>Concrete:</u> Min. 2,500 PSI Min. 2" thick	<u>Insulation:</u> ISOGARD GL, 2"-12" thick, 4' x 8' boards <u>Optional:</u> V-Force (SA) w/Primer or SBS Torch	Attached with 12 HD fasteners per 4' x 8' boards	.045 mil. min. UltraPly TPO	Single-Ply LVOC Bonding Single-Ply LVOC Bonding 1168 UltraPly Bonding Adhesive Water Based P	2106-0-0

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**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"	<u>Steel:</u> 22-16-ga. 33 ksi 72" span	<u>Insulation:</u> ISOGARD GL, 2"-12" thick, 4' x 8' boards <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) over ¼" DensDeck	Attached with 8 AP or HD fasteners per 4' x 8' boards	.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"	<u>Steel:</u> 22-18-ga. 33 ksi 72" span	<u>Insulation:</u> ISOGARD GL, 2"-12" thick, 4' x 8' boards <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) over ¼" DensDeck	Attached with 18 AP or HD fasteners per 4' x 8' boards	.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"	<u>Steel (WR):</u> 20-18-ga. WR 33 ksi 72" span  22-18-ga. 80 ksi 72" span	<u>Insulation:</u> ISOGARD GL, 1.5"-12" thick, 4' x 8' boards <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) over ¼" DensDeck	Attached with 24 AP or HD fasteners per 4' x 8' boards	.045 mil. min. UltraPly TPO	Single-Ply LVOC Bonding 1168 UltraPly Bonding Adhesive	233194-0-0
1-120 IF: NC EF: A Slope: ¼"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick	<u>Insulation:</u> ISOGARD GL, 2"-12" thick, 4' x 8' boards <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) or SBS Torch	Attached with 20 Concrete Drive or HD fasteners per 4' x 8' boards	.045 mil. min. UltraPly TPO	Water Based Bonding Adhesive	296301-0-0
1-150 IF: 1 EF: A Slope: ¼"	<u>Steel (WR):</u> 22-18-ga. 33 ksi 72" span	<u>Insulation:</u> ISOGARD GL, 2"-12" thick, 4' x 8' boards <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) over ¼" DensDeck	Attached with 20 AP or HD fasteners per 4' x 8' boards	.045 mil. min. UltraPly TPO	Single-Ply LVOC Bonding 1168 UltraPly Bonding Adhesive	233195-0-0
1-225 IF: 1 EF: A Slope: ¼"	<u>Steel (WR):</u> 18-ga. 33 ksi 72" span  22-18-ga. 80 ksi 72" span	<u>Insulation:</u> ISOGARD GL, 2"-12" thick, 4' x 8' boards <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) over ¼" DensDeck	Attached with 32 AP or HD fasteners per 4' x 8' boards	.045 mil. min. UltraPly TPO	Single-Ply LVOC Bonding Single-Ply LVOC Bonding 1168 UltraPly Bonding Adhesive	228346-0-0



**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"	<u>Steel:</u> 22-16-ga. 33 ksi 72" span	<u>Cover Board:</u> ½" min. Structodek HD Fiberboard HD <u>Insulation:</u> ISOGARD GL, 2"-12" thick, 4' x 8' boards <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) over ¼" DensDeck	<u>Cover Board:</u> 12 AP or HD fasteners per 4' x 8' boards  <u>Insulation:</u> 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"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick	<u>Cover Board:</u> ½" min. Structodek HD Fiberboard HD  <u>Insulation:</u> ISOGARD GL, 1.5"-12"	<u>Cover Board:</u> 12 HD fasteners per 4' x 8' boards  <u>Insulation:</u> 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"	<u>Steel:</u> 22-16-ga. 33 ksi 72" span	<u>Cover Board:</u> DensDeck, ¼" min. Securock, ½" min. <u>Insulation:</u> ISOGARD GL, 1.5"-12" <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) over ¼" DensDeck	<u>Cover Board:</u> 16 AP or HD fasteners per 4' x 8' board  <u>Insulation:</u> 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"	<u>Steel:</u> 22-16-ga. 33 ksi 72" span	<u>Cover Board:</u> DensDeck, ¼" min. Securock, ½" min. <u>Insulation:</u> ISOGARD GL, 1.5"-12" <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) over ¼" DensDeck	<u>Cover Board:</u> 12 AP or HD fasteners per 4' x 8' boards  <u>Insulation:</u> 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
1-90 IF: NC EF: A Slope: 2.5"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick	<u>Cover Board:</u> DensDeck, ¼" min. Securock, ¼" min. <u>Insulation:</u> ISOGARD GL, 1"-12"	<u>Cover Board:</u> 18 AP or HD fasteners per 4' x 8' boards  <u>Insulation:</u> 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



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**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
1-150 IF: 1 EF: A Slope: 2.5"	<u>Steel:</u> 22-18-ga. 33 ksi 72" span	<u>Cover Board:</u> DensDeck, ½" min. Securock, ½" min. <u>Insulation:</u> ISOGARD GL, 1.5"-12" <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) over ¼" DensDeck	<u>Cover Board:</u> 24 AP or HD fasteners per 4' x 8' boards  <u>Insulation:</u> 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"	<u>Steel:</u> 22-18-ga. 33 ksi 72" span	<u>Cover Board:</u> DensDeck, ½" min. Securock, ½" min. <u>Insulation:</u> ISOGARD GL, 1.5"-12" <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) over ¼" DensDeck	<u>Cover Board:</u> 32 AP or HD fasteners per 4' x 8' boards  <u>Insulation:</u> Loose Laid	.045 mil. min. UltraPly TPO	Single-Ply LVOC Bonding Single-Ply LVOC Bonding 1168 UltraPly Bonding Adhesive	200414-0-0
	22-ga. 33 ksi 64" span					
	22-18-ga. 80 ksi 72" span					
1-90 IF: 1 EF: A Slope: ½"	<u>Steel:</u> 20-18-ga. 33 ksi 72" span	<u>Cover Board:</u> APA Rated OSB 7/16" min. <u>Insulation:</u> ISOGARD GL, 1.5"-12" <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) over ¼" DensDeck	<u>Cover Board:</u> 12 HD ISOGARD HG Fasteners per 4' x 8' boards  <u>Insulation:</u> 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"	<u>Steel (WR):</u> 22-18-ga. 33 ksi 72" span	<u>Cover Board:</u> APA Rated OSB 7/16" min. <u>Insulation:</u> ISOGARD GL, 1.5"-12" <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) over ¼" DensDeck	<u>Cover Board:</u> 20 HD ISOGARD HG Fasteners per 4' x 8' boards  <u>Insulation:</u> 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"	<u>Steel (WR):</u> 22-18-ga. 33 ksi 72" span	<u>Cover Board:</u> APA Rated OSB 7/16" min. <u>Insulation:</u> ISOGARD GL, 1.5"-12" <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) over ¼" DensDeck	<u>Cover Board:</u> 16 HD ISOGARD HG Fasteners per 4' x 8' boards  <u>Insulation:</u> 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

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**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
1-300 IF: 1 EF: A Slope: ½"	<u>Steel (WR):</u> 22-18-ga. 80 ksi 72" span	<u>Cover Board:</u> APA Rated OSB 7/16" min. <u>Insulation:</u> ISOGARD GL, 1.5"-12" <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) over ¼" DensDeck	<u>Cover Board:</u> 32 HD ISOGARD HG Fasteners per 4' x 8' boards <u>Insulation:</u> 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"	<u>Steel (WR):</u> 20-18-ga. 33 ksi 72" span	<u>Insulation:</u> ISOGARD HG, 2"-4" <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) over ¼" DensDeck	<u>Insulation:</u> 12 HD ISOGARD HG Fasteners per 4' x 8' boards	.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"	<u>Steel (WR):</u> 22-18-ga. 33 ksi 72" span	<u>Insulation:</u> ISOGARD HG, 2"-4" <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) over ¼" DensDeck	<u>Insulation:</u> 20 HD ISOGARD HG Fasteners per 4' x 8' boards	.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"	<u>Steel (WR):</u> 22-18-ga. 33 ksi 72" span	<u>Insulation:</u> ISOGARD HG, 1.5"-4" <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) over ¼" DensDeck	<u>Insulation:</u> 32 HD ISOGARD HG Fasteners per 4' x 8' boards	.045 mil. min. UltraPly TPO	Single-Ply LVOC Bonding 1168 UltraPly Bonding Adhesive	328832-0-0
1-300 IF: 1 EF: A Slope: ½"	<u>Steel (WR):</u> 18-ga. 33 ksi 70" span <u>20-ga.</u> 33 ksi 60" span <u>22-18-ga.</u> 80 ksi 72" span	<u>Insulation:</u> ISOGARD HG, 1.5"-4" <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) over ¼" DensDeck	<u>Insulation:</u> 32 HD ISOGARD HG Fasteners per 4' x 8' boards	.045 mil. min. UltraPly TPO	Single-Ply LVOC Bonding 1168 UltraPly Bonding Adhesive	171662-0-0
1-90 IF: 1 EF: A Slope: ¼"	<u>Steel:</u> 22-16-ga. 33 ksi 72" span	<u>Cover Board:</u> ISOGARD HD, ½" min. <u>Insulation:</u> ISOGARD GL, 1.5"-12" <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) over ¼" DensDeck	<u>Cover Board:</u> 12 HD or AP Fasteners per 4' x 8' boards <u>Insulation:</u> 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

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**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
1-90 IF: 1 EF: A Slope: ¼"	<u>Steel:</u> 22-16-ga. 33 ksi 72" span	<u>Cover Board:</u> ISOGARD HD, ½" min. <u>Insulation:</u> ISOGARD GL, 1.5"-12" <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) over ¼" DensDeck	<u>Cover Board:</u> Adhered at 12" o.c.: I.S.O. Spray R I.S.O. Twin Pack <u>Insulation:</u> 16 HD or AP Fasteners per 4' x 8' boards	.045 mil. min. UltraPly TPO UltraPly TPO SA	Single-Ply LVOC Bonding 1168 UltraPly Bonding Adhesive Self Adhered	233373-0-0
1-90 IF: 1 EF: A Slope: ¼"	<u>Steel:</u> 22-18-ga. 33 ksi 72" span	<u>Cover Board:</u> DensDeck Prime, ¼" min. <u>Insulation:</u> ISOGARD GL, 2"-12"	<u>Cover Board:</u> Adhered at 12" o.c.: I.S.O. Twin Pack <u>Insulation:</u> 8 HD or AP Fasteners per 4' x 8' boards	.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"	<u>Steel:</u> 22-16-ga. 33 ksi 72" span	<u>Cover Board:</u> DensDeck, DensDeck Prime, Securock ¼" min. <u>Insulation:</u> ISOGARD GL, 1.5"-12"	<u>Cover Board:</u> Adhered at 12" o.c.: I.S.O. Spray R I.S.O. Twin Pack <u>Insulation:</u> 16 HD or AP Fasteners per 4' x 8' boards	.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"	<u>Steel:</u> 22-16-ga. 33 ksi 72" span	<u>Insulation (Top):</u> ISOGARD GL, 1.5"-4" <u>Insulation (Bottom):</u> ISOGARD GL, 1.5"-4"	<u>Insulation (Top):</u> Adhered at 12" o.c.: I.S.O. Twin Pack <u>Insulation (Bottom):</u> 16 HD or AP Fasteners per 4' x 8' boards	.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"	<u>Steel:</u> 22-16-ga. 33 ksi 72" span	<u>Insulation:</u> ISOGARD GL, 2"-12" <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) over ¼" DensDeck	<u>Insulation:</u> 8 HD or AP Fasteners per 4' x 8' boards	.045 mil. min. UltraPly TPO SA	373219-0-0
1-120 IF: 1 EF: A Slope: ¼"	<u>Steel (WR):</u> 22-18-ga. 33 ksi 72" span	<u>Insulation:</u> ISOGARD GL, 1.5"-12" <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) over ¼" DensDeck	<u>Insulation:</u> 18 HD or AP Fasteners per 4' x 8' boards	.045 mil. min. UltraPly TPO SA	373217-0-0
1-165 IF: 1 EF: A Slope: ¼"	<u>Steel (WR):</u> 22-18-ga. 33 ksi 72" span	<u>Insulation:</u> ISOGARD GL, 1.5"-12" <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) over ¼" DensDeck	<u>Insulation:</u> 24 HD or AP Fasteners per 4' x 8' boards	.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"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick	<u>Insulation:</u> ISOGARD GL, 1.25"-12" <u>Optional:</u> V-Force (SA) Primer or SBS Torch	<u>Insulation:</u> 12 Concrete Drive or HP Fasteners per 4' x 8' boards	.045 mil. min. UltraPly TPO SA	373390-0-0
1-150 IF: NC EF: A Slope: ¼"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick	<u>Insulation:</u> ISOGARD GL, 2"-4" <u>Optional:</u> ISOGARD GL, ½"-12" Or V-Force (SA) Primer or SBS Torch	<u>Insulation:</u> 20 Concrete Drive or HP Fasteners per 4' x 8' boards	.045 mil. min. UltraPly TPO SA	373397-0-0
1-300 IF: NC EF: A Slope: ¼"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick	<u>Insulation (Top):</u> ISOGARD GL, 2"-4" <u>Optional (Bottom):</u> ISOGARD GL, ½"-12" <u>Optional:</u> V-Force (SA) Primer or SBS Torch	<u>Insulation:</u> 32 Concrete Drive or HP Fasteners per 4' x 8' boards	.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"	<u>Steel:</u> 22-18-ga. 33 ksi 72" span	<u>Insulation (Top):</u> ISOGARD GL, 1.5"-8" <u>Insulation (Bottom):</u> ISOGARD GL, 1.5"-4" <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) over ¼" DensDeck	<u>(Top) Adhered at 12" o.c.:</u> I.S.O. Fix I.S.O. Spray R Twin Pack I.S.O.Stick/Twin Jet <u>(Bottom):</u> 12 AP or HD fasteners and plates per 4' x 8' boards Optional Vapor/Thermal: Loose Laid	.045 mil. min. UltraPly TPO SA	373224-0-0
1-75 IF: 1 EF: A Slope: ¼"	<u>Steel:</u> 22-16-ga. 33 ksi 72" span	<u>Insulation (Top):</u> ISOGARD GL, 1.5"-8" <u>Insulation (Bottom):</u> ISOGARD GL, 2"-4" <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) over ¼" DensDeck	<u>(Top) Adhered at 12" o.c.:</u> I.S.O. Fix I.S.O. Spray R Twin Pack I.S.O.Stick/Twin Jet <u>(Bottom):</u> 8 AP or HD fasteners and plates per 4' x 8' boards <u>Optional Vapor/Thermal:</u> Loose Laid	.045 mil. min. UltraPly TPO SA	373230-0-0

**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
1-90 IF: 1 EF: A Slope: ¼"	<u>Steel:</u> 22-16-ga. 33 ksi 72" span	<u>Insulation (Top):</u> ISOGARD GL, 1.5"-4" <u>Insulation (Bottom):</u> ISOGARD GL, 2.25"-4" <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) over ¼" DensDeck	<u>(Top) Adhered at 12" o.c.:</u> I.S.O. Fix Twin Pack I.S.O.Stick/Twin Jet <u>(Bottom):</u> 8 AP or HD fasteners and plates per 4' x 8' boards Optional Vapor/Thermal: Loose Laid	.045 mil. min. UltraPly TPO SA	373236-0-0
1-150 IF: 1 EF: A Slope: ¼"	<u>Steel:</u> 22-18-ga. 33 ksi 72" span	<u>Insulation (Top):</u> ISOGARD GL, ¼" <u>Insulation (Bottom):</u> ISOGARD GL, 1.5"-4" <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) over ¼" DensDeck	<u>(Top)</u> <u>Adhered at 12" o.c.:</u> Twin Pack <u>(Bottom):</u> 20 AP or HD fasteners and plates per 4' x 8' boards <u>Optional Vapor/Thermal:</u> 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"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick	<u>Insulation:</u> Firestone ISOGARD GL, 1.5"-4" thick <u>Insulation (Bottom):</u> ISOGARD GL, 2.25"-8" <u>Optional:</u> V-Force or SBS Torch	<u>(Top):</u> <u>Adhered at 12" o.c.:</u> I.S.O. Fix I.S.O. Twin Pack I.S.O.Stick/Twin Jet <u>(Bottom):</u> 8 HD fasteners and plates per 4' x 8' boards <u>Optional:</u> Self Adhered or Torched	.045 mil. min. UltraPly TPO SA	373371-0-0
1-255 IF: NC EF: A Slope: ¼"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick	<u>Insulation:</u> Firestone ISOGARD GL, 1"-4" Thick <u>Insulation (Bottom):</u> ISOGARD GL, 2"-8" <u>Optional:</u> V-Force or SBS Torch	<u>(Top):</u> <u>Adhered at 4" o.c.:</u> I.S.O. Fix I.S.O. Spray R I.S.O. Twin Pack I.S.O.Stick/Twin Jet <u>(Bottom):</u> 32 HD or Concrete Drive fasteners and plates 4' x 8' boards <u>Optional:</u> 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	<u>Steel:</u> 22-16-ga. 33 ksi 72" span	<u>Cover Board:</u> DensDeck, ¼" min. or Securock, ½" min. <u>Insulation:</u> ISOGARD GL, 1.5"-12" <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) over ¼" DensDeck	<u>Cover Board:</u> 12 HD or AP fasteners per 4' x 8' boards <u>Insulation:</u> Loose Laid <u>Optional:</u> Loose Laid V-Force – Self Adhered	.045 mil. min. UltraPly TPO AS or UltraPly TPO (SP LVOC, SP LVOC 1168, UltraPly, WB P)	271664-0-0
1-90 IF: 1 EF: A Slope: 2.5	<u>Steel:</u> 22-16-ga. 33 ksi 72" span	<u>Cover Board:</u> ISOGARD HD, ½" min. <u>Insulation:</u> ISOGARD GL, 1.5"-12" <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) over ¼" DensDeck	<u>Cover Board:</u> 12 HD or AP fasteners per 4' x 8' boards <u>Insulation:</u> Loose Laid <u>Optional:</u> 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"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick	<u>Cover Board:</u> ISOGARD HD, 1" min. <u>Insulation:</u> ISOGARD GL, 1.5"-4"	<u>Cover Board:</u> 18 Concrete Drive or HD fasteners per 4' x 8' boards <u>Insulation:</u> Loose Laid	.045 mil. min. UltraPly TPO AS or UltraPly TPO (SP LVOC, SP LVOC 1168, UltraPly, WB P)	290613-0-0
1-90 IF: NC EF: A Slope: ¼"	Concrete <u>Optional:</u> V-Force and DensDeck or Polyethylene	<u>Cover Board:</u> Securock, ½" min. <u>Insulation:</u> ISOGARD GL, 1.5"-12" <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) over ¼" DensDeck	<u>Cover Board:</u> 8 Concrete Drive or HD fasteners per 4' x 8' boards <u>Insulation:</u> Loose Laid <u>Optional:</u> 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"	<u>Steel:</u> 22-1-ga. 33 ksi 72" span	<u>Insulation:</u> ISOGARD GL, 1.5"-4" <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) over ¼" DensDeck	<u>Insulation:</u> 16 HD or AP fasteners per 4' x 8' boards <u>Optional:</u> Poly - Loose Laid V-Force – Self Adhered DD – Loose Laid	UltraPly XR: 100, 115 or 135  12" o.c. ribbons: I.S.O. Spray R XR Stick	289254-0-0



**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: NC EF: A Slope: ½"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick	<u>Insulation:</u> ISOGARD GL, 1.5"-12" <u>Optional:</u> V-Force (SA) or SBS Torch	<u>Insulation:</u> 16 Concrete Drive or HD fasteners per 4' x 8' boards <u>Optional:</u> V-Force – Self Adhered SBS Torch - Torched	UltraPly XR 100, 115 or 135 12" o.c. ribbons: I.S.O. Spray R XR Stick	289250-0-0
1-165 IF: 1 EF: A Slope: ½"	<u>Steel:</u> 22-18-ga. 33 ksi 72" span	<u>Insulation:</u> ISOGARD GL, 2"-12" <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) over ¼" DensDeck	<u>Insulation:</u> 20 HD or AP fasteners per 4' x 8' boards <u>Optional:</u> Poly - Loose Laid V-Force – Self Adhered DD – Loose Laid	UltraPly XR 100, 115 or 135 6" o.c. ribbons: I.S.O. Spray R XR Stick	292119-0-0
1-165 IF: NC EF: A Slope: ½"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick	<u>Insulation:</u> ISOGARD GL, 2"-12" <u>Optional:</u> V-Force (SA) or SBS Torch	<u>Insulation:</u> 20 Concrete Drive or HD fasteners per 4' x 8' boards <u>Optional:</u> V-Force – Self Adhered SBS Torch - Torched	UltraPly XR 100, 115 or 135 6" o.c. ribbons: I.S.O. Spray R XR Stick	289292-0-0
1-285 IF: NC EF: A Slope: ½"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick	<u>Insulation:</u> ISOGARD GL, 2"-12" <u>Optional:</u> V-Force (SA) or SBS Torch	<u>Insulation:</u> 32 Concrete Drive or HD fasteners per 4' x 8' boards <u>Optional:</u> V-Force – Self Adhered SBS Torch - Torched	UltraPly XR 100, 115 or 135 4" o.c. ribbons: I.S.O. Spray R XR Stick	289295-0-0
1-285 IF: 1 EF: A Slope: ½"	<u>Steel:</u> 18-ga., 33 ksi 72" span	<u>Insulation:</u> ISOGARD GL, 2"-12" <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) over ¼" DensDeck	<u>Insulation:</u> 32 HD or AP fasteners per 4' x 8' boards  <u>Optional:</u> Poly - Loose Laid V-Force – Self Adhered DD – Loose Laid	UltraPly XR 100, 115 or 135 4" o.c. ribbons: I.S.O. Spray R XR Stick	292137-0-0
	<u>Steel:</u> 22-18-ga. 80 ksi 72" span				

**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"	<u>Steel:</u> 22-16-ga. 33 ksi 72" span	<u>Cover Board:</u> DensDeck, ¼" min. or Securock, ½" min. <u>Insulation:</u> ISOGARD GL, 1.5"-12" <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) over ¼" DensDeck	<u>Cover Board:</u> 15 HD or AP fasteners per 4' x 8' boards <u>Insulation:</u> Loose Laid <u>Optional:</u> 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"	<u>Steel:</u> 22-16-ga. 33 ksi 72" span	<u>Cover Board:</u> DensDeck, ¼" min. or Securock, ½" min. <u>Insulation:</u> ISOGARD GL, 1.5"-12" <u>Optional:</u> 4-6 mil. Polyethylene Or V-Force (SA) over ¼" DensDeck	<u>Cover Board:</u> 12 HD or AP fasteners per 4' x 8' boards <u>Insulation:</u> Loose Laid <u>Optional:</u> Poly - Loose Laid V-Force – Self Adhered DD – Loose Laid	UltraPly XR 100 or 115 Full Coverage: XR Bonding Adhesive	243482-0-0

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**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
1-90 IF: NC EF: A Slope: 2"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick	<u>Cover Board:</u> DensDeck, ¼" min. or Securock, ¼" min. <u>Insulation:</u> ISOGARD GL, 2"-12" <u>Optional:</u> V-Force (SA) or SBS Torch	<u>Cover Board:</u> 16 Concrete Drive or HD fasteners per 4' x 8' boards <u>Insulation:</u> Loose Laid <u>Optional:</u> V-Force – Self Adhered or SBS Torch - Torched	UltraPly XR 100, 115 or 135  12" o.c. ribbons: I.S.O. Spray R XR Stick	292001-0-0
1-90 IF: 1 EF: A Slope: ½"	<u>Steel:</u> 22-16-ga. 33 ksi 72" span	<u>Cover Board:</u> ISOGARD HD, ½" min. <u>Insulation:</u> ISOGARD GL, 1.5"-12" <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) over ¼" DensDeck	<u>Cover Board:</u> 15 HD or AP fasteners per 4' x 8' boards <u>Insulation:</u> Loose Laid <u>Optional:</u> Poly - Loose Laid V-Force – Self Adhered DD – Loose Laid	UltraPly XR 100, 115 or 135  12" o.c. ribbons: I.S.O. Spray R XR Stick	320509-0-0
1-90 IF: 1 EF: A Slope: ½"	<u>Steel:</u> 22-16-ga. 33 ksi 72" span	<u>Cover Board:</u> APA Rated OSB, 7/16" min. <u>Insulation:</u> ISOGARD GL, 1.5"-12" <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) over ¼" DensDeck	<u>Cover Board:</u> 16 HD or AP fasteners per 4' x 8' boards <u>Insulation:</u> Loose Laid <u>Optional:</u> Poly - Loose Laid V-Force – Self Adhered DD – Loose Laid	UltraPly XR 100, 115 or 135  12" o.c. ribbons: I.S.O. Spray R XR Stick	291981-0-0
1-90 IF: NC EF: A Slope: ½"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick	<u>Cover Board:</u> APA Rated OSB, 7/16" min. <u>Insulation:</u> ISOGARD GL, 1.5"-12" <u>Optional:</u> V-Force (SA) or SBS Torch	<u>Cover Board:</u> 16 Concrete Drive or HD fasteners per 4' x 8' boards <u>Insulation:</u> Loose Laid <u>Optional:</u> V-Force – Self Adhered or SBS Torch - Torched	UltraPly XR 100, 115 or 135  12" o.c. ribbons: I.S.O. Spray R XR Stick	289274-0-0
1-120 IF: NC EF: A Slope: 2"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick	<u>Cover Board:</u> DensDeck, ½" min. or Securock, ½" min. <u>Insulation:</u> ISOGARD GL, 1.5"-12" <u>Optional:</u> V-Force (SA) or SBS Torch	<u>Cover Board:</u> 4' x 4' boards attached w/ 6" o.c. beads: I.S.O. Fix I.S.O. Spray R I.S.O. Twin Pack I.S.O. Stick/Twin Jet <u>Insulation:</u> 20 Concrete Drive or HD fasteners per 4' x 8' board <u>Optional:</u> V-Force – Self Adhered or SBS Torch - Torched	UltraPly XR 100, 115 or 135  6" o.c. ribbons: I.S.O. Spray R XR Stick	289300-0-0

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**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
1-120 IF: 1 EF: A Slope: 2"	<u>Steel (WR):</u> 22-18-ga. 33 ksi 72" span	<u>Cover Board:</u> DensDeck, ½" min. or Securock, ½" min.  <u>Insulation:</u> ISOGARD GL, 1.5"-12"  <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) over ¼" DensDeck	<u>Cover Board:</u> 4' x 4' boards attached w/6" o.c. beads I.S.O. Fix I.S.O. Spray R I.S.O. Twin Pack I.S.O.Stick/Twin Jet <u>Insulation:</u> 20 HD or AP fasteners per 4' x 8' board <u>Optional:</u> Poly - Loose Laid V-Force – Self Adhered DD – Loose Laid	UltraPly XR 100, 115 or 135  6" o.c. ribbons: I.S.O. Spray R XR Stick	292145-0-0
1-165 IF: 1 EF: A Slope: ½"	<u>Steel (WR):</u> 22-18-ga. 33 ksi 72" span	<u>Cover Board:</u> ISOGARD HD, ½" min.  <u>Insulation:</u> ISOGARD GL, 2"-12"  <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) over ¼" DensDeck	<u>Cover Board:</u> 4' x 4' boards attached w/6" o.c. beads I.S.O. Fix I.S.O. Spray R I.S.O. Twin Pack I.S.O.Stick/Twin Jet <u>Insulation:</u> 20 HD or AP fasteners per 4' x 8' boards <u>Optional:</u> Poly - Loose Laid V-Force – Self Adhered DD – Loose Laid	UltraPly XR 100, 115 or 135  6" o.c. ribbons: I.S.O. Spray R XR Stick	320536-0-0
1-165 IF:NC EF: A Slope: ½"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick	<u>Cover Board:</u> ISOGARD HD, ½" min.  <u>Insulation:</u> ISOGARD GL, 2"-12"  <u>Optional:</u> V-Force (SA) or SBS Torch	<u>Cover Board:</u> 4' x 4' boards attached w/6" o.c. beads I.S.O. Fix I.S.O. Spray R I.S.O. Twin Pack I.S.O.Stick/Twin Jet <u>Insulation:</u> 20 Concrete Drive or HD fasteners per 4' x 8' boards <u>Optional:</u> V-Force – Self Adhered or SBS Torch - Torched	UltraPly XR 100, 115 or 135  6" o.c. ribbons: I.S.O. Spray R XR Stick	320464-0-0
1-255 IF:NC EF: A Slope: 2"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick	<u>Cover Board:</u> DensDeck, ½" min. or Securock, ½" min.  <u>Insulation:</u> ISOGARD GL, 2"-12"  <u>Optional:</u> V-Force (SA) or SBS Torch	<u>Cover Board:</u> 4' x 4' boards attached w/6" o.c. beads I.S.O. Fix I.S.O. Spray R I.S.O. Twin Pack I.S.O.Stick/Twin Jet <u>Insulation:</u> 32 Concrete Drive or HD fasteners per 4' x 8' board <u>Optional:</u> V-Force – Self Adhered or SBS Torch - Torched	UltraPly XR 100, 115 or 135  4" o.c. ribbons: I.S.O. 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"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick	<u>Insulation:</u> DensDeck, ¼" min. or Securock, ¼" min.	<u>Insulation:</u> Full Coverage, Hot Asphalt, 4' x 4' 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"	<u>Concrete:</u> 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"	<u>Concrete:</u> 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 IF:NC EF: A Slope: 1"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick	UltraPly TPO XR 115 or 135	Full Coverage: Hot Asphalt	243438-0-0

**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"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick Vapor Barrier (Required): MB Base, SBS Poly Base, SBS Premium Base SBS Smooth or Type IV or VI	<u>Insulation:</u> ISOGARD HD, ½" thick, 4' x 4' boards	<u>Insulation:</u> 4' x 4' 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: I.S.O. Spray XR Stick	292419-0-0
1-345 IF:NC EF: A Slope: ½"	<u>Concrete:</u> Min. 2,500 psi Min. 2" thick	<u>Insulation:</u> DensDeck, ¼" min. or Securock, ¼" min.	<u>Insulation:</u> 4' x 4' 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: I.S.O. 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"	<u>Concrete:</u> 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"	<u>Concrete:</u> 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, Lightweight Insulating Concrete over Steel, Nailed Base Sheet with Adhesively Attached Insulation and 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"	LWIC over Steel (Re-Cover)  Base Sheet: Channel Venting Base MB Base SBS Base (Various)	<u>Cover Board (4' x 4' boards):</u> DensDeck, ¼" min. or Securock, ¼" min.  <u>Insulation (4' x 4' boards):</u> ISOGARD GL, 1"-8" thick Tapered I.S.O., 1"-8" thick (ISOGARD CG)	<u>Insulation:</u> 4' x 4' boards, 12" o.c. beads I.S.O. Fix II I.S.O. Twin Pack I.S.O.Stick  <u>Base Sheet:</u> Two Piece Impact Nail, Seams – 35.4" Rows, 7" o.c. 2 Field Rows – 11.75" o.c. staggered	.045 mil. min. UltraPly TPO UltraPly TPO SA	Single-Ply LVOC Single-Ply LVOC 1168 UltraPly Bonding WBBA P Self Adhered	327092-0-0

**Firestone Fully Adhered Uplift Ratings**  
**New Construction, Lightweight Insulating Concrete over Structural Concrete, with Adhesively Attached Insulation and Cover Board**

Uplift	Deck Type	Cover Board / Insulation	Insulation Attachment	Membrane	Membrane Attachment	RoofNav Assembly Number
1-375 IF:NC EF: A Slope: 2.5"	Celcore LWIC over Structural Concrete Min. 2,500 psi Min. 2" thick	<u>Cover Board (4' x 4' boards):</u> DensDeck, ¼" min. or Securock, ¼" min.  <u>Insulation (4' x 4' boards):</u> ISOGARD GL, 1"-12" thick Tapered I.S.O., 1"-8" thick (ISOGARD CG)	<u>Insulation:</u> 4' x 4' boards, 12" o.c. beads I.S.O.Stick	.045 mil. min. UltraPly TPO UltraPly TPO SA	Single-Ply LVOC Single-Ply LVOC 1168 UltraPly Bonding Self Adhered	339642-0- 339279

**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: ¼"	Gypsum (Re-Cover)	<u>Insulation (4' x 4' boards):</u> ISOGARD GL, 1"-12" thick Tapered I.S.O., 1"-12" thick ½" ISOGARD HD	<u>Insulation:</u> 4' x 4' boards, 12" o.c. beads I.S.O. 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' x 4' boards) <u>Cover Board:</u> DensDeck, 1/4" min., Securock, 1/4" min. <u>Second Layer Insulation:</u> ISOGARD GL, 1.5"-8" thick, Tapered I.S.O., 1.5"-8" thick <u>Base Layer Insulation:</u> ISOGARD GL, 1.5"-4" thick, Tapered I.S.O., 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 EF: A Slope: 1/4"	Gypsum (Re-Roof)	(All layers 4' x 4' boards) <u>Insulation:</u> ISOGARD GL, 1.5"-12" thick, or Tapered I.S.O., 1.5"-12" thick, 4' x 4' boards	12" o.c. beads: Twin Pack Adhesive	UltraPly TPO membrane	Water Basted UltraPly Single-Ply LVOC Single-Ply LVOC (1168)	113389-0-0
1-90 IF: 1 EF: A Slope: 2.5"	Gypsum	(All layers 4' x 4' boards) <u>Cover Board:</u> DensDeck, 1/4" min., Securock, 1/4" min. <u>Insulation:</u> ISOGARD GL, 1.5"-8" thick, Tapered I.S.O., 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' x 4' boards: DensDeck 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)	ISOGARD GL, .5"-12", 4' x 4' boards	12" o.c. beads of I.S.O.Stick Adhesive	1/4" minimum, 4' x 4' boards: DensDeck DensDeck 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: ¼"	Treated Wood	ISOGARD GL ½"-1" thick	None	12 AP fasteners Plates per 4' x 8' boards	UltraPly TPO membrane, Single weld	UltraPly or Single-Ply LVOC Bonding Adhesive	129268-0-0
1-75 IF: 1 EF: A Slope: ¼"	Treated Wood	ISOGARD GL ½"-1" thick	None	12 AP fasteners Plates per 4' x 8' boards	UltraPly TPO SA membrane, Single weld	None	374222-0-0
1-90 IF: 1 EF: A Slope: ¼"	Treated Wood	ISOGARD GL Min. 1" thick	None	16 AP fasteners Plates per 4' x 8' boards	UltraPly TPO membrane, Single weld	UltraPly or Single-Ply LVOC Bonding Adhesive	326804-0-0
1-90 IF: 1 EF: A Slope: ¼"	Treated Wood	ISOGARD GL ½"-1" thick	None	16 AP fasteners Plates per 4' x 8' boards	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: ¾"	<u>Steel</u> 22-18-ga. 80 ksi 72" span	<u>Insulation:</u> ISOGARD GL, 1.5"-12" Pre-securement – min. 5/board <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) or BASEGARD SA over ¼" DensDeck	UltraPly TPO membrane, 10' sheet	12" o.c. HD fastener and HD or Barbed Seam Plate, Single weld	3080-0-0
1-60 IF: 1 EF: A Slope: ¾"	<u>Steel:</u> 20-16-ga., 33 ksi 72" span <u>Optional:</u> 22-ga., 33 ksi 60" span 22-ga., 80 ksi 72" span <u>Optional:</u> V-Force or BASEGARD SA and DensDeck or Polyethylene	<u>Insulation:</u> ISOGARD GL, 1.5"-12" Pre-securement – min. 5/board <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) or BASEGARD SA over ¼" DensDeck	UltraPly TPO membrane, 10' sheet	12" o.c. HD fastener and HD Seam Plate, Single weld	170476-0-0
1-90 IF: 1 EF: A Slope: ¾"	<u>Steel:</u> 22-18-ga., 80 ksi 72" span <u>Optional:</u> V-Force or BASEGARD SA and DensDeck or Polyethylene	ISOGARD GL, 1.5"-12", Preliminary Securement or ISOGARD GL (Tapered) 1.5"-4"	UltraPly TPO membrane, 10' sheet	12" o.c. HD+ fastener and HD+ Seam Plate, Single weld	76911-0-0

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**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
1-90 IF: 1 EF: A Slope: ¾"	<u>Steel:</u> 18-16-ga., 33 ksi 72" span	<u>Insulation:</u> ISOGARD GL, 1.5"-12" Pre-securement – min. 5/board  <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) or BASEGARD SA over ¼" DensDeck	UltraPly TPO membrane, 10' sheets	6" o.c. HD fastener and HD or Barbed Seam Plate, Single weld	166431-0-0
	20-ga., 33 ksi 48" span				
	20-ga., 80 ksi 72" span				
	22-ga., 80 ksi 72" span				
1-90 IF: 1 EF: A Slope: ¾"	<u>Steel:</u> 20-16-ga., 33 ksi 72" span	<u>Insulation:</u> ISOGARD GL, 1.5"-12" Pre-securement – min. 5/board  <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) or BASEGARD SA over ¼" DensDeck	UltraPly TPO membrane, 8' sheets	12" o.c. HD+ fastener and HD+ Seam Plate, Single weld	213747-0-0
	22-ga., 33 ksi 48" span				
	22-ga., 80 ksi 72" span				
1-105 IF: 1 EF: A Slope: ¾"	<u>Steel (WR):</u> 18-ga., 33 ksi 54" span	<u>Insulation:</u> ISOGARD GL, 1.5"-12" Pre-securement – min. 5/board  <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) or BASEGARD SA over ¼" DensDeck	UltraPly TPO membrane, 10' sheets	6" o.c. HD fastener and HD or Barbed Seam Plate, Single weld	3081-0-0
	20-16-ga., 80 ksi 72" span				
	22-ga., 80 ksi 60" span				
1-105 IF: 1 EF: A Slope: ¾"	<u>Steel (WR):</u> 20-18-ga., 33 ksi 72" span	<u>Insulation:</u> ISOGARD GL, 1.5"-12" Pre-securement – min. 5/board  <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) or BASEGARD SA over ¼" DensDeck	UltraPly TPO membrane, 6'-6" sheets	6" o.c. HD fastener and HD Plate, Single weld	3074-0-0
	22-ga., 33 ksi 66" span				
	22-ga., 80 ksi 72" span				
1-105 IF: 1 EF: A Slope: 1"	<u>Steel (WR):</u> 22-18-ga. 33 ksi 72" span	<u>Insulation (Top):</u> ISOGARD GL, 1.5"-4", Preliminary Securement.  <u>Insulation (Bottom):</u> ISOGARD GL, 1.5"-8"  <u>Optional:</u> 4-6 mil. Polyethylene	UltraPly TPO membrane, 8' sheets	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" [2.9 m] o.c.) and an intermediate batten placed centered in the field of the roof cover.)	343455-0-0
1-105 IF: 1 EF: A Slope: 1"	<u>Steel (WR):</u> 22-18-ga. 33 ksi 72" span	<u>Insulation (Top):</u> ISOGARD GL, 1.5"-4" Preliminary Securement.  <u>Insulation (Bottom):</u> ISOGARD GL, 1.5"-8"  <u>Optional:</u> 4-6 mil. Polyethylene	UltraPly TPO 120 membrane, 10' sheets	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" [2.9 m] o.c.) and an intermediate batten placed centered in the field of the roof cover.)	343459-0-0

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**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
1-105 IF: 1 EF: A Slope: 1"	<u>Steel:</u> 22-18-ga. 33 ksi, 72" o.c. span	<u>Insulation (Top) Required:</u> ISOGARD GL, 1.5"-4" <u>Insulation (Bottom) Optional:</u> ISOGARD GL, 1.5"-8" <u>Optional:</u> 4-6 mil. Polyethylene	UltraPly TPO 10' sheets w/intermediate attachment. See note.	114" row spacing at 6" o.c. spacing, HD Fasteners, Single Weld <b>NOTE:</b> Additional intermediate Batten Securement required at 57" o.c. row spacing at 6" o.c. fasteners spacing.	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
1-60 IF: 1 EF: A Slope: 5"	<u>Steel:</u> 20-16-ga., 33 ksi, 72" o.c. span	<u>Insulation:</u> ISOGARD GL, 1.5"-12" <u>Attachment:</u> Preliminary Securement	<u>Cover Board:</u> ¼" min., DensDeck DensDeck Prime Securock	UltraPly TPO membrane, 10' sheet	12" o.c. HD fastener and HD Seam Plate or UltraPly TPO Barbed Seam Plate, Single weld	264245-0-0
	22-ga., 33 ksi, 60" o.c. span					
	22-ga., 80 ksi, 72" o.c. span					
1-60 IF: 1 EF: A Slope: 1"	<u>Steel:</u> 20-16-ga., 33 ksi, 72" o.c. span	<u>Insulation:</u> ISOGARD GL, 1.5"-12" <u>Attachment:</u> Preliminary Securement <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) or BASEGARD SA over ¼"DensDeck	<u>Cover Board:</u> ½" ISOGARD HD ½" Structodek HD <u>Attachment:</u> Preliminary Securement	UltraPly TPO membrane, 10' sheet	114" row spacing, 12" o.c. HD fastener and HD Seam Plate, Single weld	266089-0-0
	22-ga., 33 ksi, 60" o.c. span					
	22-ga., 80 ksi, 72" o.c. span					
1-75 IF: 1 EF: A Slope: 5"	<u>Steel:</u> 22-18-ga. 80 ksi, 72" o.c. span	<u>Insulation:</u> ISOGARD GL, 1.5"-12" <u>Attachment:</u> Common Fastened <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) over ¼" DensDeck	<u>Cover Board:</u> ¼" min. DensDeck DensDeck Prime Securock <u>Attachment:</u> 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"	<u>Steel:</u> 22-18-ga., 80 ksi, 72" o.c. span	<u>Insulation:</u> ISOGARD GL, 1.5"-12" <u>Attachment:</u> Common Fastened <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) over ¼" DensDeck	<u>Cover Board:</u> ½" min. Structodek HD FiberTop B <u>Attachment:</u> Preliminary Securement	UltraPly TPO membrane, 10' sheets	12" o.c. HD fastener and HD Seam Plate, Single weld	381629-0-0

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**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
1-75 IF: 1 EF: A Slope: 1"	<u>Steel:</u> 22-18-ga., 80 ksi, 72" o.c. span	<u>Insulation:</u> ISOGARD GL, 1.5"-12" <u>Attachment:</u> Common Fastened <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) over ¼" DensDeck	<u>Cover Board:</u> ½" min. Structodek HD FiberTop B <u>Attachment:</u> 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"	<u>Steel:</u> 22-18-ga., 33 ksi, 72" o.c. span	<u>Insulation:</u> ISOGARD GL, 3"-12" <u>Attachment:</u> Preliminary Securement <u>Optional:</u> 4-6 mil. Polyethylene	<u>Cover Board:</u> ¼" min. DensDeck Securock <u>Attachment:</u> Preliminary Securement	UltraPly TPO membrane, 8' sheets	12" o.c. HD fastener and HD Seam Plate, Single weld	339004-0-0
1-75 IF: 1 EF: A Slope: 1"	<u>Steel:</u> 22-18-ga., 33 ksi, 72" o.c. span	<u>Insulation:</u> ISOGARD GL, 3"-12" <u>Attachment:</u> Preliminary Securement <u>Optional:</u> 4-6 mil. Polyethylene	<u>Cover Board:</u> ½" ISOGARD HD ½" Structodek HD <u>Attachment:</u> Preliminary Securement	UltraPly TPO membrane, 8' sheets	12" o.c. HD fastener and HD Seam Plate, Single weld	338538-0-0
1-90 IF: 1 EF: A Slope: 5"	<u>Steel:</u> 22-18-ga. 33 ksi, 72" o.c. span	<u>Insulation:</u> ISOGARD GL, 1.5"-12" <u>Attachment:</u> Preliminary Securement <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) or BASEGARD SA over ¼" DensDeck	<u>Cover Board:</u> ¼" min. DensDeck Securock <u>Attachment:</u> Preliminary Securement	UltraPly TPO membrane, 6'-6" sheets	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"	<u>Steel:</u> 22-18-ga. 33 ksi, 72" o.c. span	<u>Insulation:</u> ISOGARD GL, 1.5"-12" <u>Attachment:</u> Preliminary Securement <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) or BASEGARD SA over ¼" DensDeck	<u>Cover Board:</u> ½" ISOGARD HD ½" Structodek HD <u>Attachment:</u> 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"	<u>Steel (WR):</u> 22-18-ga. 33 ksi, 72" o.c. span	<u>Insulation:</u> Optional Top Layer: ISOGARD GL, 1.5"-4" Required Bottom Layer: ISOGARD GL, 1.5"-8" <u>Attachment:</u> Preliminary Securement <u>Optional:</u> 4-6 mil. Polyethylene	<u>Cover Board:</u> ¼" min. DensDeck Securock <u>Attachment:</u> Preliminary Securement	UltraPly TPO membrane, 10' sheets	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

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**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
1-105 IF: 1 EF: A Slope: 1"	<u>Steel (WR):</u> 22-18-ga. 33 ksi, 72" o.c. span	<u>Insulation:</u> Optional Top Layer: ISOGARD GL, 1.5"-4" Required Bottom Layer: ISOGARD GL, 1.5"-8" <u>Attachment:</u> Preliminary Securement <u>Optional:</u> 4-6 mil. Polyethylene	<u>Cover Board:</u> ½" ISOGARD HD ½" Structodek HD <u>Attachment:</u> Preliminary Securement	UltraPly TPO membrane, 10' sheets	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" [2.9 m] o.c. w/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"	<u>Concrete:</u> 2,500 psi Min. 2" thick	<u>Insulation:</u> ISOGARD GL, 1.5"-12" <u>Attachment:</u> Preliminary Securement	<u>Cover Board:</u> ¼" min. DensDeck Securock <u>Attachment:</u> 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"	<u>Concrete:</u> 2,500 psi Min. 2" thick	<u>Insulation:</u> ISOGARD GL, 1.5"-12" <u>Attachment:</u> Preliminary Securement	<u>Cover Board:</u> ½" ISOGARD HD ½" Structodek HD <u>Attachment:</u> 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"	<u>Concrete:</u> 2,500 psi Min. 2" thick	<u>Insulation:</u> ISOGARD GL, 1.5"-12" <u>Attachment:</u> Preliminary Securement	<u>Cover Board:</u> ¼" min. DensDeck Securock <u>Attachment:</u> 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"	<u>Concrete:</u> 2,500 psi Min. 2" thick	<u>Insulation:</u> ISOGARD GL, 1.5"-12" <u>Attachment:</u> Preliminary Securement	<u>Cover Board:</u> ½" ISOGARD HD ½" Structodek HD <u>Attachment:</u> 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

**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)	ISOGARD GL, 1" min.	ISOGARD GL .5"-1" thick	<u>Cover Board:</u> ½" ISOGARD HD ½" Structodek HD <u>Attachment:</u> Preliminary Securement	UltraPly TPO membrane, 10' sheet	12" o.c. with Firestone Purlin Fasteners and HD Seam Plates, Single Weld	305074-0-0

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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: 5"	Standing/ Lap Seam Roof (Insulated)	ISOGARD GL, 1" min.	ISOGARD GL .5"-1" thick	<u>Cover Board:</u> ¼" min. DensDeck Securock <u>Attachment:</u> 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)	ISOGARD GL, 1" min.	ISOGARD GL .5"-1" thick	<u>Cover Board:</u> ½" ISOGARD HD ½" Structodek HD <u>Attachment:</u> 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)	ISOGARD GL, 1" min.	ISOGARD GL .5"-1" thick	<u>Cover Board:</u> ¼" min. DensDeck DensDeck Prime Securock <u>Attachment:</u> 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)	ISOGARD GL, 1" min.	ISOGARD GL .5"-1" thick	<u>Cover Board:</u> ½" ISOGARD HD ½" Structodek HD <u>Attachment:</u> 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)	ISOGARD GL, 1" min.	ISOGARD GL 1"-12" thick	<u>Cover Board:</u> ½" ISOGARD HD ½" Structodek HD <u>Attachment:</u> 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)	ISOGARD GL 1" min.	ISOGARD GL 1"-12" thick	<u>Cover Board:</u> ¼" min. DensDeck DensDeck Prime Securock <u>Attachment:</u> Preliminary Attachment	UltraPly TPO membrane,	6" o.c. with Firestone Purlin Fasteners and HD Seam Plates, Single Weld	265296-0-0
1-105 IF: 1 EF: A Slope: 1"	Standing/ Lap Seam Roof (Insulated)	ISOGARD GL 1" min.	ISOGARD GL .5"-1" thick	<u>Cover Board:</u> ½" ISOGARD HD ½" Structodek HD <u>Attachment:</u> 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)	ISOGARD GL, 1" min.	ISOGARD GL .5"-1" thick	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	305237-0-0
1-105 IF: 1 EF: A Slope: 5"	Standing/ Lap Seam Roof (Uninsulated)	None	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)	ISOGARD GL, 1", loose laid	ISOGARD GL, .5"-1" thick, pre- securement, minimum 5 fasteners per 4' x 8' 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)	ISOGARD GL, 1", loose laid	ISOGARD GL, .5"-1" thick, pre- securement, minimum 5 fasteners per 4' x 8' 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)	ISOGARD GL	½" ISOGARD HD ½" Structodek HD 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"	<u>Steel:</u> 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"	<u>Steel:</u> 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"	<u>Steel:</u> 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"	<u>Steel:</u> 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

**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"	<u>Concrete:</u> 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"	<u>Concrete:</u> 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"	<u>Steel:</u> 22-16-ga. 33 ksi 72" span	<u>Insulation:</u> ISOGARD GL 1.5"-12" thick <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) or BASEGARD SA over ¼" DensDeck	None	6 HD fasteners and Invisiweld Plates per 4' x 8' boards	UltraPly TPO membrane, Single weld	Invisiweld System	250651-0-0
1-90 IF: 1 EF: A Slope: ¾"	<u>Steel:</u> 22-16-ga. 33 ksi, 72" span	<u>Insulation:</u> ISOGARD GL 1.5"-12" thick 4' x 8' boards <u>Thermal Barrier:</u> DensDeck ¼" thick 4' x 8' boards	None	6 HD fasteners and Invisiweld Plates per 4' x 8' boards	UltraPly TPO membrane, Single weld	Invisiweld System	399280-0-0

**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: 1"	<u>Steel:</u> 22-16-ga. 33 ksi 72" span	<u>Insulation:</u> ISOGARD GL 1.5"-12" thick <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) or BASEGARD SA over ¼" DensDeck	<u>Cover Board:</u> ½" ISOGARD HD ½" Structodek HD	6 HD fasteners and Invisiweld Plates per 4' x 8' boards	UltraPly TPO membrane, Single weld	Invisiweld System	277978-0-0
1-90 IF: 1 EF: A Slope: 5"	<u>Steel:</u> 22-16-ga. 33 ksi 72" span	<u>Insulation:</u> ISOGARD GL 1.5"-12" thick <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) or BASEGARD SA over ¼" DensDeck	<u>Cover Board:</u> ¼" min. DensDeck Securock	6 HD fasteners and Invisiweld Plates per 4' x 8' boards	UltraPly TPO membrane, Single weld	Invisiweld System	277977-0-0
1-90 IF: NC EF: A Slope: ¾"	<u>Concrete:</u> 2500 psi Min. 2" thick	<u>Insulation:</u> ISOGARD GL 1.5"-12" thick	None	6 HD or Concrete Drive fasteners and Invisiweld Plates per 4' x 8' boards	UltraPly TPO membrane, Single weld	Invisiweld System	250819-0-0
1-90 IF: NC EF: A Slope: 1"	<u>Concrete:</u> 2500 psi Min. 2" thick	<u>Insulation:</u> ISOGARD GL 1.5"-12" thick	<u>Cover Board:</u> ½" ISOGARD HD ½" Structodek HD	6 HD or Concrete Drive fasteners and Invisiweld Plates per 4' x 8' boards	UltraPly TPO membrane, Single weld	Invisiweld System	251817-0-0

Continued

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: NC EF: A Slope: 5"	<u>Concrete:</u> 2500 psi Min. 2" thick	<u>Insulation:</u> ISOGARD GL 1.5"-12" thick	<u>Cover Board:</u> ¼" DensDeck ¼" DensDeck Prime ¼" Securock	6 HD or Concrete Drive fasteners and Invisiweld Plates per 4' x 8' board	UltraPly TPO membrane, Single weld	Invisiweld System	251833-0-0
1-120 IF: 1 EF: A Slope: ¾"	<u>Steel:</u> 22-18-ga. 33 ksi 72" span	<u>Insulation:</u> 4' x 8' boards ISOGARD GL 1.5"-12" thick <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) or BASEGARD SA over ¼" DensDeck	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"	<u>Steel (WR):</u> 22-18-ga. 33 ksi 72" span	<u>Insulation:</u> 4' x 8' boards ISOGARD GL 1.5"-12" thick <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) or BASEGARD SA over ¼" DensDeck	<u>Cover Board:</u> 4' x 8' boards ½" ISOGARD HD ½" Structodek HD	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"	<u>Steel (WR):</u> 22-18-ga. 33 ksi 72" span	<u>Insulation:</u> 4' x 8' boards ISOGARD GL 1.5"-12" thick <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) or BASEGARD SA over ¼" DensDeck	<u>Cover Board:</u> 4' x 8' boards ¼" DensDeck ¼" DensDeck 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"	<u>Concrete:</u> 2500 psi Min. 2" thick	<u>Insulation:</u> 4' x 8' boards ISOGARD GL 1.5"-12" thick	None	8 HD or Concrete Drive fasteners and Invisiweld Plates per 4' x 8' board	UltraPly TPO membrane, Single weld	Invisiweld System	254075-0-0
1-120 IF: NC EF: A Slope: 1"	<u>Concrete:</u> 2500 psi Min. 2" thick	<u>Insulation:</u> 4' x 8' boards ISOGARD GL 1.5"-12" thick	<u>Cover Board:</u> ½" ISOGARD HD ½" Structodek HD	8 HD or Concrete Drive fasteners and Invisiweld Plates per 4' x 8' board	UltraPly TPO membrane, Single weld	Invisiweld System	254076-0-0
1-120 IF: NC EF: A Slope: 5"	<u>Concrete:</u> 2500 psi Min. 2" thick	<u>Insulation:</u> 4' x 8' boards ISOGARD GL 1.5"-12" thick	<u>Cover Board:</u> 4' x 8' boards ¼" DensDeck ¼" DensDeck Prime ¼" Securock	8 HD or Concrete Drive fasteners and Invisiweld Plates per 4' x 8' board	UltraPly TPO membrane, Single weld	Invisiweld System	254078-0-0

Continued

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
1-150 IF: 1 EF: A Slope: ¾"	<u>Steel (WR):</u> 22-18-ga. 33 ksi 72" span	<u>Insulation:</u> 4' x 8' boards ISOGARD GL 1.5"-12" thick <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) or BASEGARD SA over ¼" DensDeck	None	12 HD fasteners and Invisiweld Plates per 4'x8' board	UltraPly TPO membrane, Single weld	Invisiweld System	253954-0-0
1-150 IF: 1 EF: A Slope: 1"	<u>Steel (WR):</u> 22-18-ga. 33 ksi 72" span	<u>Insulation:</u> 4' x 8' boards ISOGARD GL 1.5"-12" thick <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) or BASEGARD SA over ¼" DensDeck	<u>Cover Board:</u> 4' x 8' boards ½" ISOGARD HD ½" Structodek HD	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"	<u>Steel (WR):</u> 22-18-ga. 33 ksi 72" span	<u>Insulation:</u> 4' x 8' boards ISOGARD GL 1.5"-12" thick <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) or BASEGARD SA over ¼" DensDeck	<u>Cover Board:</u> 4' x 8' boards ¼" DensDeck ¼" DensDeck Prime ¼" Securock	12 HD fasteners and Invisiweld Plates per 4' x 8' board	UltraPly TPO membrane, Single weld	Invisiweld System	254055-0-0
1-150 IF: NC EF: A Slope: ¾"	<u>Concrete:</u> 2500 psi Min. 2" thick	<u>Insulation:</u> 4' x 8' boards ISOGARD GL 1.5"-12" thick	None	12 HD or Concrete Drive fasteners and Invisiweld Plates per 4' x 8' board	UltraPly TPO membrane, Single weld	Invisiweld System	254056-0-0
1-150 IF: NC EF: A Slope: 1"	<u>Concrete:</u> 2500 psi Min. 2" thick	<u>Insulation:</u> 4' x 8' boards ISOGARD GL 1.5"-12" thick	<u>Cover Board:</u> 4' x 8' boards ½" ISOGARD HD ½" Structodek HD	12 HD Concrete Drive fasteners and Invisiweld Plates per 4' x 8' board	UltraPly TPO membrane, Single weld	Invisiweld System	254057-0-0
1-150 IF: NC EF: A Slope: 5"	<u>Concrete:</u> 2500 psi Min. 2" thick	<u>Insulation:</u> 4' x 8' boards ISOGARD GL 1.5"-12" thick	<u>Cover Board:</u> 4' x 8' boards ¼" DensDeck ¼" DensDeck Prime ¼" Securock	12 HD Concrete Drive fasteners and Invisiweld Plates per 4' x 8' board	UltraPly TPO membrane, Single weld	Invisiweld System	254059-0-0

Continued

**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
1-210 IF: 1 EF: A Slope: ¾"	<u>Steel (WR):</u> 20-18-ga. 33 ksi, 72" span	<u>Insulation:</u> 4' x 8' boards ISOGARD GL 1.5"-12" thick <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) or BASEGARD SA over ¼" DensDeck	<u>Cover Board:</u> 4' x 8' boards ½" ISOGARD HD ½" Structodek HD	24" rows spacing 12" on center Invisiweld Plates and HD Fasteners	UltraPly TPO membrane, Single weld	Invisiweld System	254090-0-0
	22-ga. 33 ksi 64" span						
	22-18-ga. 80 ksi 72" span						
1-210 IF: 1 EF: A Slope: 1"	<u>Steel (WR):</u> 20-18-ga. 33 ksi 72" span	<u>Insulation:</u> 4' x 8' boards ISOGARD GL 1.5"-12" thick <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) or BASEGARD SA over ¼" DensDeck	<u>Cover Board:</u> 4' x 8' boards ½" ISOGARD HD ½"-1" Structodek HD	24" rows spacing 12" on center Invisiweld Plates and HD Fasteners	UltraPly TPO membrane, Single weld	Invisiweld System	278067-0-0
	22-ga. 33 ksi 64" span						
	22-18-ga. 80 ksi 72" span						
1-210 IF: 1 EF: A Slope: 5"	<u>Steel (WR):</u> 20-18-ga. 33 ksi 72" span	<u>Insulation:</u> 4' x 8' boards ISOGARD GL 1.5"-12" thick <u>Optional:</u> 4-6 mil. Polyethylene or V-Force (SA) or BASEGARD SA over ¼" DensDeck	<u>Cover Board:</u> 4' x 8' boards ¼" DensDeck ¼" Securock	24" rows spacing 12" on center Invisiweld Plates and HD Fasteners	UltraPly TPO membrane, Single weld	Invisiweld System	278066-0-0
	22-ga. 33 ksi 64" span						
	22-18-ga. 80 ksi 72" span						
1-210 IF: NC EF: A Slope: ¾"	<u>Concrete:</u> 2500 psi Min. 2" thick	<u>Insulation:</u> 4' x 8' boards ISOGARD GL 1.5"-12" thick	None	16 HD or Concrete Drive fasteners and Invisiweld Plates per 4' x 8' board	UltraPly TPO membrane, Single weld	Invisiweld System	254112-0-0
1-210 IF: NC EF: A Slope: 1"	<u>Concrete:</u> 2500 psi Min. 2" thick	<u>Insulation:</u> 4' x 8' boards ISOGARD GL 1.5"-12" thick	<u>Cover Board:</u> 4' x 8' boards ISOGARD HD ½" or Structodek HD ½"-1"	16 HD Concrete Drive fasteners and Invisiweld Plates per 4' x 8' board	UltraPly TPO membrane, Single weld	Invisiweld System	254115-0-0
1-210 IF: NC EF: A Slope: 5"	<u>Concrete:</u> 2500 psi Min. 2" thick	<u>Insulation:</u> 4' x 8' boards ISOGARD GL 1.5"-12" thick	<u>Cover Board:</u> 4' x 8' boards ¼" DensDeck ¼" DensDeck Prime ¼" Securock	16 HD Concrete Drive fasteners and Invisiweld Plates per 4' x 8' 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"	<u>Steel:</u> Standing Seam Insulated	ISOGARD GL, ½" thick	ISOGARD GL, ½" thick, 5 HD fasteners and Insulation Plates per 4' x 8' 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"	<u>Steel:</u> Standing Seam	ISOGARD GL, 1.5"-8" thick	ISOGARD GL, 1.5"-4" thick, 5 HD fasteners and Insulation Plates per 4' x 8' 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"	<u>Steel:</u> Standing Seam	ISOGARD GL, 1"-4" thick	ISOGARD HD, ½" or Structodek HD ½"-1" thick 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: 1¼"	<u>Steel:</u> Standing Seam	ISOGARD GL, 1"-4" thick	OSB, ¾"- ½" thick, 5 HD fasteners and Insulation Plates per 4' x 8' 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"	<u>Steel:</u> Standing Seam	ISOGARD GL, 1"-12" thick	DensDeck/DensDeck Prime, or Securock, ¼" min., 5 HD fasteners and Insulation Plates per 4' x 8' 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"	<u>Concrete:</u> 2500 psi Min. 2" thick	<u>Insulation:</u> 4' x 8' boards, ISOGARD GL 1.5"-12" thick	None	10 HD or Concrete Drive fasteners and Invisiweld-S Plates per 4' x 8' board	UltraPly TPO membrane, Single weld	Invisiweld-S System	382976-0-0
1-150	<u>Steel Deck (WR):</u> 22-18 ga. 33 ksi. 72" span	<u>Required:</u> ISOGARD GL 1.5"-12" thick <u>Optional:</u> 4-6 mil. Poly or V-Force SA over DensDeck	None	10 HD fasteners and Invisiweld-S Plates per 4' x 8' 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)	ISOGARD GL ½"-1" thick	None	6 AP fasteners and Invisiweld Plates per 4' x 8' board	.045 mil. min. UltraPly TPO	InvisiWeld System	250823-0-0
1-90 IF: 1 EF: A Slope: 1"	Treated Wood	ISOGARD GL ½" min. thick	½" ISOGARD HD or Structodek HD Fiberboard	6 AP fasteners and Invisiweld Plates per 4' x 8' 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 1-2" [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)					
		2½ (63)	2 (50)	1½ (38)	1 (25)	¾ (19)	½ (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.