



Sure-Weld® (TPO) Roofing Systems
Code Approval Guide
 April 2022
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Carlisle SynTec Systems

A Division of Carlisle Construction Materials, LLC

CODE APPROVAL GUIDE

April 2022

INTRODUCTION

This Code Approval Guide addresses both general information pertaining to Underwriters Laboratories (UL) and FM Approvals (FM) test criteria as well as specific UL and FM code approvals achieved with Carlisle's Sure-Weld™ Adhered and Mechanically-Fastened Roofing Systems. Various independent test laboratory results along with national building code approvals are also identified in this guide. Code approvals available with Carlisle's FleeceBACK, Hot Mopped, Sure Flex and Sure-Seal® Roofing Systems are identified in separately published Code Approval Guides.

Code ratings are categorized by roof system type (Mechanically-Fastened Adhered) and are separated into two sections: UL Approvals and FM Approvals. UL rated roof assemblies are grouped according to deck type (non-combustible or combustible) and are further categorized according to deck type and the specific type of construction (new, recover, tear-off or retrofit).

The listed assemblies contained in the guide are grouped generically based on deck classification. Specific substrate requirements for each Carlisle roofing system can be identified in the respective Carlisle specifications.

In the UL and FM Approvals throughout this guide, when multiple layers of insulation are referenced, the product listed first identifies the insulation directly below the membrane. For example; a listing of HP Recovery Board/Polyisocyanurate indicates the HP Recovery Board is installed directly under the membrane. A listing of Gypsum Board/Polystyrene indicates the Gypsum Board is installed directly under the membrane.



GENERAL GUIDELINES FOR UL AND FM APPROVALS CODE COMPLIANCE

No table of figures entries found. Approvals (FM) approved assembly is specified. Generally, the Carlisle published specifications reflect the minimum requirements necessary to obtain the applicable Carlisle warranty. Code requirements are not specifically covered in the Carlisle specifications and are considered to be above and beyond the provisions of the Carlisle warranty.

Individuals specifying an approved assembly or selecting various products to achieve a specific UL/FM rating must recognize the importance of ensuring proper component selection to fully comply with the most current listings published. All materials used in the roofing systems must be UL and/or FM approved and must have been tested together as part of a complete roof assembly.

In addition to the code approval listings in this guide, information pertaining to approved assemblies can also be obtained directly from UL and FM as follows:

1. **Underwriters Laboratories On-Line Certification Directory** (<https://productiq.ulprospector.com/en>)
2. **FM Approvals RoofNAV website** (roofnav.com). FM RoofNAV assembly numbers can be obtained from this website.

Underwriters Laboratories

1. The criteria required to obtain **UL External fire ratings** (Class A, B or C) can be identified in this guide or can be searched for on the UL website using the UL Category Code TGFU. UL ratings approved for use on combustible decks are also acceptable on non-combustible decks.
2. For **UL internal fire ratings** (hourly constructions – P Numbers), search the UL website use the UL Category Code BXUV.

FM Approvals

Uplift ratings listed in this guide are for the field of the roof. Additional requirements/enhancements are required by FM in the perimeter and corner areas, for deck securement and for perimeter nailer/edge attachment. Refer to FM Property Loss Prevention Data Sheets 1-28, 1-29 and 1-49 for specific requirements. On FM insured projects, the FM insuring agent **MUST** review and approve the proposed roofing assembly prior to installation. When FM is not the insuring entity for the building, use the **Approved American National Standard ANSI/SPRI WD-1** for design purposes.

Note: All Carlisle roof systems referenced within this document meet Class 1 construction and Severe Hail (SH) rating.

Approved American National Standard ANSI/SPRI WD-1

The ANSI/SPRI Wind Design Standard Practice for Roofing Assemblies should be referenced when a project is not FM insured. This document was developed as a consensus National Standard and provides a methodology for designing for wind uplift resistance of roofing system assemblies. Insulation fastening patterns are included in this document. The fastening patterns are approved for use by Carlisle.

RECOVERS

Recover approvals in this document are based on the following existing roofing system assumption - the existing Smooth Asphalt BUR, Modified Bitumen or single-ply system was FM Approved at the time of installation.

SUMMARY

Due to complexity of the code documents and the variety of information that must be reviewed, it is important to consult with Carlisle and other respective manufactures concerning the most current available approvals.

- **Prior to project bid** – Products specified by the architect must be thoroughly investigated to determine if the specified rating can be achieved and local building codes must be consulted regarding any additional requirements.
- **Prior to installation** – Project managers should review the code requirements with field construction personnel to ensure compliance with project requirements.

Upon completion of the roofing installation, each project is inspected by a Carlisle Technical Representative to ensure compliance with Carlisle's current specification requirements for the issuance of the applicable warranty. However, this inspection is not for the purpose of verifying code compliance.

Sure-Weld® (TPO) Mechanically-Fastened or Induction Welding Roofing Systems

UL Approval - Non-Combustible - ANSI/UL 790 Spread of Flame Test (Class A)

Membrane Type: .045" or .060" Sure-Weld Standard Reinforced Membrane
 .045" or .060" Sure-Weld HS Reinforced Membrane
 .080" Sure-Weld EXTRA Reinforced Membrane
 .060" or .080" Spectro-Weld Reinforced Membrane

Non-Combustible: Steel; St. Concrete; Gypsum; Tectum (Min. 2" thick)

System ID	Deck Type	Insulation	Cover Board	Maximum Slope	
				Sure-Weld, Sure-Weld EXTRA or Spectro-Weld	Sure-Weld HS
1	Non-Combustible	InsulBase, or SecurShield- any combination, any thickness	N/A	1/2"	1-1/2"
2		Any UL Classified Insulation, any thickness (OPTIONAL)	Minimum 1/2" SecurShield HD, SecurShield HD Plus or SecurShield HD Composite	1/2"	1-1/2"
3		Minimum 1" layer of InsulBase or SecurShield over any UL Classified EPS or XPS Insulation, maximum 1.25 pcf, any thickness	N/A	1/2"	1"
4		Insulfoam SP or Insulfoam SP over Insulfoam EPS, any thickness and density.	N/A	1"	1"
5		Insulfoam HD Composite or Insulfoam HD Composite over Insulfoam EPS, any thickness and density.	N/A	1/2"	1/2"
5		Any UL Classified Insulation, any thickness (OPTIONAL)	Minimum 1/4" SECUROCK® Gypsum-Fiber Board & Glass Mat Roof Boards	3" Sure-Weld 2-1/2" Sure-Weld EXTRA	Unlimited
7		Any UL Classified Insulation, any thickness (OPTIONAL)	Minimum 1/4" DensDeck/DensDeck Prime Roof Boards	3" Sure-Weld 2-1/2" Sure-Weld EXTRA	Unlimited
8		Any UL Classified Insulation, any thickness (OPTIONAL)	Minimum 1/2" HP Recovery Board	1-1/2"	1-1/2"
9		Any UL Classified Insulation, any thickness (OPTIONAL)	Minimum 7/16" APA Rated OSB or Minimum 1-1/2" StormBase	1-1/2"	1-1/2"
10		Any UL Classified Insulation, any thickness (OPTIONAL)	Minimum 5/16" EcoStorm VSH	1/2"	1-1/2"
11		Any UL Classified Carlisle Polyisocyanurate Insulation- any combination, any thickness (OPTIONAL)	1/2" InsulBase HD	1/2"	1-1/2"
12		Any UL Classified Insulation, any combination, any thickness	Carlisle FR Base Sheet	1"	1"
13	Cellular Lightweight Concrete	N/A	N/A	1-1/2"	1-1/2"
14	Precast concrete with grouted joints	N/A	N/A	1-1/2"	1-1/2"
15	Structural (poured-in-place) concrete	N/A	N/A	1-1/2"	1-1/2"

Sure-Weld® (TPO) Mechanically-Fastened or Induction Welding Roofing Systems

UL Approval - Combustible (1) - ANSI/UL 790 Spread of Flame Test (Class A)

Membrane Type: .045" or .060" Sure-Weld Standard Reinforced Membrane
 .045" or .060" Sure-Weld HS Reinforced Membrane
 .080" Sure-Weld EXTRA Reinforced Membrane
 .060" or .080" Spectro-Weld Reinforced Membrane

Combustible: 7/16-in. (minimum) thick non-veneer APA-rated sheathing (oriented strand board panels, structural particleboard panels, composite panels or waferboard panels); 15/32-in. (minimum) thick plywood 3/4 in. (minimum) wood; Tectum (less than 2" thick)

System ID	Thermal Barrier/Base Sheet	Insulation	Cover Board	Maximum Slope	
				Sure-Weld, Sure-Weld EXTRA or Spectro-Weld	Sure-Weld HS
Combustible (1) - ANSI/UL 790 Spread of Flame Test-Class A					
1	Minimum 1/4" SECUROCK® Gypsum Fiber or Glass Mat Roof Board (2)	Any UL Classified Carlisle Polyisocyanurate Insulation, any combination, any thickness.	N/A	1/2"	1-1/2"
2	Minimum 1/4" DensDeck or DensDeck Prime Roof Boards (2)	Any UL Classified Carlisle Polyisocyanurate Insulation, any combination, any thickness.	N/A	1/2"	1-1/2"
3	N/A	Minimum 1" thick layer of SecurShield or SecurShield HD Composite is placed directly over a combustible roof deck. An optional layer or layers of any Carlisle Polyisocyanurate Insulation may be used below the minimum 1" thick top layer, any combination, any thickness. (3)	N/A	1/2"	1/2"
4	N/A	Minimum 1" thick layer of SecurShield or SecurShield HD Composite over a minimum 3-1/2" thick layer of any UL Classified EPS insulation is placed directly over a combustible roof deck. (3)	N/A	1/2"	1/2"
5	N/A	OPTIONAL layer or layers of any Carlisle Polyisocyanurate Insulation may be used below the minimum 1/2" thick top layer, any combination, any thickness. (3)	1/2" thick SecurShield HD or SecurShield HD Plus is placed directly over a combustible roof deck. (3)	1/2"	1/2"
6	N/A	Minimum 4" thick layer of any UL Classified EPS insulation is placed directly over a combustible roof deck. (3)	1/2" thick SecurShield HD or SecurShield HD Plus. (3)	1/2"	1/2"
7	N/A	Minimum 1-1/2" layer of Insulfoam HD Composite over a minimum 3" layer of Insulfoam EPS. (2)	N/A	1/2"	1/2"
8	N/A	Any UL Classified Carlisle Polyisocyanurate Insulation, any combination, any thickness.	Minimum 1/4" SECUROCK® Gypsum Fiber Roof Board (2)	3" Sure-Weld 2-1/2" Sure-Weld EXTRA	3"
9	N/A	Any UL Classified Insulation, any thickness (OPTIONAL)	Minimum 3/8" SECUROCK® Gypsum Fiber Roof Board (2)	2"	2"
10	N/A	Any UL Classified Insulation, any thickness (OPTIONAL)	Minimum 1/2" SECUROCK® Gypsum Fiber Roof Board (2)	3" Sure-Weld 2-1/2" Sure-Weld EXTRA	4"
11	N/A	Any UL Classified Insulation, any thickness (OPTIONAL)	Minimum 1/4" SECUROCK® Glass-Mat or Coated Glass Mat Roof Boards (2)	3" Sure-Weld 2-1/2" Sure-Weld EXTRA	Unlimited
12	N/A	Any UL Classified Insulation, any thickness (OPTIONAL)	Minimum 1/4" DensDeck/DensDeck Prime Roof Board (2)	3" Sure-Weld 2-1/2" Sure-Weld EXTRA	Unlimited
13	Two layers of Carlisle FR Base Sheet	Any UL Classified Carlisle Polyisocyanurate Insulation, any combination, any thickness. (OPTIONAL)	N/A	1/2"	3/4"

System ID	Thermal Barrier/Base Sheet	Insulation	Cover Board	Maximum Slope
				Sure-Weld FleeceBACK FR- Mechanically Fastened
Combustible - ANSI/UL 790 Spread of Flame Test-Class A				
14	6-mil polyethylene film (OPTIONAL)	N/A	N/A	1/4"

Sure-Weld® (TPO) Mechanically-Fastened or Induction Welding Roofing Systems

UL Approval - Combustible - ANSI/UL 790 Spread of Flame Test (Class B)

Membrane Type: .045" or .060" Sure-Weld Standard Reinforced Membrane
 .045" or .060" Sure-Weld HS Reinforced Membrane
 .080" Sure-Weld EXTRA Reinforced Membrane
 .060" or .080" Spectro-Weld Reinforced Membrane

Combustible: 7/16-in. (minimum) thick non-veneer APA-rated sheathing (oriented strand board panels, structural particleboard panels, composite panels or waferboard panels); 15/32-in. (minimum) thick plywood 3/4 in. (minimum) wood; Tectum (less than 2" thick)

System ID	Thermal Barrier/Base Sheet	Insulation	Cover Board	Maximum Slope	
				Sure-Weld, Sure-Weld EXTRA or Spectro-Weld	Sure-Weld HS
Combustible - ANSI/UL 790 Spread of Flame Test-Class B					
1	One Layer of Carlisle FR Base Sheet	Any UL Classified Carlisle Polyisocyanurate Insulation, any combination, any thickness. (OPTIONAL)	N/A	1/2"	1/2"
2	Inverted G3 cap sheet	N/A	N/A	1/2"	1/2"
System ID	Thermal Barrier/Base Sheet	Insulation	Cover Board	Maximum Slope	
				Sure-Weld FleeceBACK FR- Mechanically Fastened	
Combustible - ANSI/UL 790 Spread of Flame Test-Class B					
3	6-mil polyethylene film (OPTIONAL)	N/A	N/A	1/2"	

UL Approval - Combustible and Non-Combustible - ANSI/UL 790 Spread of Flame Test (Class C)

Membrane Type:
 .045" or .060" Sure-Weld Standard Reinforced Membrane
 .045" or .060" Sure-Weld HS Reinforced Membrane
 .080" Sure-Weld EXTRA Reinforced Membrane
 .060" or .080" Spectro-Weld Reinforced Membrane

Combustible: 7/16-in. (minimum) thick non-veneer APA-rated sheathing (oriented strand board panels, structural particleboard panels, composite panels or waferboard panels); 15/32-in. (minimum) thick plywood 3/4 in. (minimum) wood; Tectum (less than 2" thick)

Non-Combustible: Steel, St. Concrete, Gypsum or Tectum (Min. 2" thick)

System ID	Thermal Barrier/Base Sheet	Insulation	Cover Board	Maximum Slope	
				Sure-Weld, Sure-Weld EXTRA or Spectro-Weld	Sure-Weld HS
Non-Combustible or Combustible - ANSI/UL 790 Spread of Flame Test-Class C					
1	N/A	Any UL Classified Carlisle Polyisocyanurate Insulation, any combination, any thickness. Optionally, any UL Classified insulation, any combination, any thickness may be used below the Carlisle Polyisocyanurate Insulation.	N/A	Unlimited	Unlimited
2	N/A	Any UL Classified insulation, any combination, any thickness. (OPTIONAL)	Minimum 5/16" EcoStorm VSH (2)	1/2"	1/2"

**Existing UL Rating Retained
 Non-Combustible or Combustible
 (Directly over existing Class A, B or C)**

System ID	Deck Type	Existing Substrate	Insulation	Maximum Slope	
				Sure-Weld, Sure-Weld EXTRA or Spectro-Weld	Sure-Weld HS
1	Non-Combustible and Combustible	Any Class A, B or C roof covering system.	One layer of Carlisle FR Base Sheet (OPTIONAL)	1/2"	3/4"
2	Non-Combustible and Combustible	Class A, B or C built-up system, smooth surface, cap sheet or gravel surfaced (gravel maintained) to retain the existing Classification	Insulfoam "R-TECH" Type "I", "VIII", "II", "IX", "FanFold" or "Insulfoam" Type "I", "VIII", "II", "IX", 1 in. maximum thickness	1/2"	1/2"
3	Non-Combustible	Existing Class A, B or C built-up or modified bitumen system, (smooth surface, cap sheet or gravel surfaced with gravel maintained). Or Class A, B or C single-ply system (polystyrene in existing single-ply system must be below a coverboard or minimum 1 in. thickness of polyisocyanurate), to retain the existing Classification.	Insulfoam "R-TECH" Type "I", "VIII", "II", "IX" or "FanFold" 1 in. maximum thickness.	1/2"	1/2"

Sure-Weld® (TPO) Mechanically-Fastened or Induction Welding Roofing Systems
 FM Approvals and Equivalencies

FM Approval - Field Sheet Securement Criteria For InsulBase and SecurShield

(Please see notes 10, 11, 12 and 15)

Membrane Type:
 .045" or .060" Sure-Weld Standard Reinforced Membrane
 .045" or .060" Sure-Weld HS Reinforced Membrane
 .080" Sure-Weld EXTRA Reinforced Membrane
 .060" or .080" Spectro-Weld Reinforced Membrane

Membrane Width (11)	Fastener/Plate (12)	Spacing	Min. 22 Gauge Grade C Steel (33 ksi)		Min. 22 Gauge Grade E Steel (80 ksi) (13) or Structural Concrete	
			Sure-Weld	Sure-Weld EXTRA	Sure-Weld	Sure-Weld EXTRA
4 Feet (14)	HP-X /Piranha	6"	1-165 136102-0-0	1-165 136102-0-0	1-165 136102-0-0	1-165 136102-0-0
		12"	1-105 136101-0-0	1-105 136101-0-0	-	-
6 Feet	HP-X/Piranha	12"	1-90 392183-0-0	1-90 392183-0-0	-	-
8 Feet	HP-X /Piranha	6"	1-75 350392-0-0	1-75 350392-0-0	1-135 12496-0-0	1-135 12496-0-0
		12"	1-75 392184-0-0	1-75 392184-0-0	1-90 12562-0-0	1-90 12562-0-0
10 Feet	HP-X /Piranha	6"	-	-	1-90 107469-0-0	1-90 107469-0-0
		12"	-	-	1-75 107470-0-0	1-75 107470-0-0
	HP-Xtra /Piranha Xtra	6"	-	-	-	-
		12"	-	-	1-90 12788-0-0	1-90 12788-0-0
12 Feet	HP-X /Piranha	6"	-	-	-	-
		12"	-	-	-	-
	HP-Xtra /Piranha Xtra	6"	-	-	-	-
		12"	-	-	1-60 140550-0-0	1-60 140550-0-0

Sure-Weld® (TPO) Mechanically-Fastened or Induction Welding Roofing Systems
 FM Approvals and Equivalencies

FM Approval - Field Sheet Securement Criteria For InsulBase and SecurShield Recover

(Please see notes 10, 11, 12 and 15)

Membrane Type: .045" or .060" Sure-Weld Standard Reinforced Membrane
 .045" or .060" Sure-Weld HS Reinforced Membrane
 .080" Sure-Weld EXTRA Reinforced Membrane
 .060" or .080" Spectro-Weld Reinforced Membrane

Membrane Width (11)	Fastener/Plate (12)	Spacing	Min. 22 Gauge Grade C Steel (33 ksi)		Min. 22 Gauge Grade E Steel (80 ksi) (13) or Structural Concrete	
			Sure-Weld	Sure-Weld EXTRA	Sure-Weld	Sure-Weld EXTRA
4 Feet (14)	HP-X /Piranha	6"	1-165	1-165	1-165	1-165
		12"	1-105	1-105	-	-
6 Feet	HP-X/Piranha	12"	1-90 392185-0-0	1-90 392185-0-0	-	-
8 Feet	HP-X /Piranha	6"	1-75	1-75	1-135	1-135
		12"	1-75 392186-0-0	1-75 392186-0-0	1-90	1-90
10 Feet	HP-X /Piranha	6"	-	-	1-90	1-90
		12"	-	-	1-75	1-75
	HP-Xtra /Piranha Xtra	6"	-	-	-	-
		12"	-	-	1-90	1-90
12 Feet	HP-X /Piranha	6"	-	-	-	-
		12"	-	-	-	-
	HP-Xtra /Piranha Xtra	6"	-	-	-	-
		12"	-	-	1-60	1-60

Sure-Weld® (TPO) Mechanically-Fastened or Induction Welding Roofing Systems
FM Approvals and Equivalencies

FM Approval - Field Sheet Securement Criteria For SecurShield HD and InsulBase HD

(Please see notes 10, 11, 12 and 15)

Membrane Type: .045" or .060" Sure-Weld Standard Reinforced Membrane
.045" or .060" Sure-Weld HS Reinforced Membrane
.080" Sure-Weld EXTRA Reinforced Membrane
.060" or .080" Spectro-Weld Reinforced Membrane

Membrane Width (11)	Fastener/Plate (12)	Spacing	Min. 22 Gauge Grade C Steel (33 ksi)		Min. 22 Gauge Grade E Steel (80 ksi) (13) or Structural Concrete	
			Sure-Weld	Sure-Weld EXTRA	Sure-Weld	Sure-Weld EXTRA
4 Feet (14)	HP-X /Piranha	6"	1-165	-	1-165	-
		12"	1-105	-	-	-
6 Feet	HP-X/Piranha	12"	1-90 393936-0-0	1-90 393936-0-0	-	-
8 Feet	HP-X /Piranha	6"	1-75 332741-0-0	1-75 332741-0-0	1-135	1-135
		12"	1-75 393938-0-0	1-75 393938-0-0	1-90	1-90
10 Feet	HP-X /Piranha	6"	-	-	1-75 330173-0-0	1-75 330173-0-0
		12"	-	-	1-75	1-75
	HP-Xtra /Piranha Xtra	6"	-	-	-	-
		12"	-	-	1-90	1-90
12 Feet	HP-X /Piranha	6"	-	-	-	-
		12"	-	-	-	-
	HP-Xtra /Piranha Xtra	6"	-	-	-	-
		12"	-	-	1-60 282218-0-0	1-60 282218-0-0

Sure-Weld® (TPO) Mechanically-Fastened or Induction Welding Roofing Systems
 FM Approvals and Equivalencies

**FM Approval - Field Sheet Securement Criteria For SecurShield HD and InsulBase HD
 Recover**

(Please see notes 10, 11, 12 and 15)

Membrane Type:
 .045" or .060" Sure-Weld Standard Reinforced Membrane
 .045" or .060" Sure-Weld HS Reinforced Membrane
 .080" Sure-Weld EXTRA Reinforced Membrane
 .060" or .080" Spectro-Weld Reinforced Membrane

Membrane Width (11)	Fastener/Plate (12)	Spacing	Min. 22 Gauge Grade C Steel (33 ksi)		Min. 22 Gauge Grade E Steel (80 ksi) (13) or Structural Concrete	
			Sure-Weld	Sure-Weld EXTRA	Sure-Weld	Sure-Weld EXTRA
4 Feet (14)	HP-X /Piranha	6"	1-165	1-165	1-165	1-165
		12"	1-105	1-105	-	-
6 Feet	HP-X/Piranha	12"	1-90 392185-0-0	1-90 392185-0-0	-	-
8 Feet	HP-X /Piranha	6"	1-75	1-75	1-135	1-135
		12"	1-75 392186-0-0	1-75 392186-0-0	1-90	1-90
10 Feet	HP-X /Piranha	6"	-	-	1-90	1-90
		12"	-	-	1-75	1-75
	HP-Xtra /Piranha Xtra	6"	-	-	-	-
		12"	-	-	1-90 12800-0-0	1-90 12800-0-0
12 Feet	HP-X /Piranha	6"	-	-	-	-
		12"	-	-	-	-
	HP-Xtra /Piranha Xtra	6"	-	-	-	-
		12"	-	-	1-60	1-60

Sure-Weld® (TPO) Mechanically-Fastened or Induction Welding Roofing Systems
 FM Approvals and Equivalencies

FM Approval - Field Sheet Securement Criteria For DensDeck/Securock

(Please see notes 10, 11, 12 and 15)

Membrane Type: .045" or .060" Sure-Weld Standard Reinforced Membrane
 .045" or .060" Sure-Weld HS Reinforced Membrane
 .080" Sure-Weld EXTRA Reinforced Membrane
 .060" or .080" Spectro-Weld Reinforced Membrane

Membrane Width (11)	Fastener/Plate (12)	Spacing	Min. 22 Gauge Grade C Steel (33 ksi)		Min. 22 Gauge Grade E Steel (80 ksi) (13) or Structural Concrete	
			Sure-Weld	Sure-Weld EXTRA	Sure-Weld	Sure-Weld EXTRA
4 Feet (14)	HP-X /Piranha	6"	1-165 136104-0-0	1-165 136108-0-0	1-165 136104-0-0	1-165 136108-0-0
		12"	1-105 136103-0-0	1-105 136107-0-0	-	-
6 Feet	HP-X/Piranha	12"	1-90 392179-0-0	1-90 393937-0-0	-	-
8 Feet	HP-X /Piranha	6"	1-75 349303-0-0	-	1-135 12511-0-0	1-135 12511-0-0
		12"	1-75 392180-0-0	1-75 393939-0-0	1-90 12565-0-0	1-90 12565-0-0
10 Feet	HP-X /Piranha	6"	-	-	1-90	1-90
		12"	-	-	1-75 12546-0-0	1-75 12546-0-0
	HP-Xtra /Piranha Xtra	6"	-	-	-	-
		12"	-	-	1-90 12792-0-0	1-90 12792-0-0
12 Feet	HP-X /Piranha	6"	-	-	-	-
		12"	-	-	-	-
	HP-Xtra /Piranha Xtra	6"	-	-	-	-
		12"	-	-	1-60 140537 -0-0	1-60 140537 -0-0

Sure-Weld® (TPO) Mechanically-Fastened or Induction Welding Roofing Systems
 FM Approvals and Equivalencies

FM Approval - Field Sheet Securement Criteria For HP Recovery Board

(Please see notes 10, 11, 12 and 15)

Membrane Type: .045" or .060" Sure-Weld Standard Reinforced Membrane
 .045" or .060" Sure-Weld HS Reinforced Membrane
 .080" Sure-Weld EXTRA Reinforced Membrane
 .060" or .080" Spectro-Weld Reinforced Membrane

Membrane Width (11)	Fastener/Plate (12)	Spacing	Min. 22 Gauge Grade C Steel (33 ksi)		Min. 22 Gauge Grade E Steel (80 ksi) (13) or Structural Concrete	
			Sure-Weld	Sure-Weld EXTRA	Sure-Weld	Sure-Weld EXTRA
4 Feet (14)	HP-X /Piranha	6"	1-165	1-165	1-165	1-165
		12"	1-105 136113-0-0	1-105 136113-0-0	-	-
6 Feet	HP-X/Piranha	12"	1-90	1-90	-	-
8 Feet	HP-X /Piranha	6"	1-75 350380-0-0	1-75	1-135	1-135
		12"	1-75	1-75	1-90	1-90
10 Feet	HP-X /Piranha	6"	-	-	1-90	1-90
		12"	-	-	1-75	1-75
	HP-Xtra /Piranha Xtra	6"	-	-	-	-
		12"	-	-	1-90	1-90
12 Feet	HP-X /Piranha	6"	-	-	-	-
		12"	-	-	-	-
	HP-Xtra /Piranha Xtra	6"	-	-	-	-
		12"	-	-	1-60 140537-0-0	1-60 140537-0-0

FM Approvals – Induction Welding Grid Securement

.045" or .060" Sure-Weld Standard Reinforced Membrane
 .045" or .060" Sure-Weld HS Reinforced Membrane
 .080" Sure-Weld EXTRA Reinforced Membrane
 .060" or .080" Spectro-Weld Reinforced Membrane

Membrane Type:

Deck Type	Fastener/Plate	Fasteners per 4' x 8' Board	Rating	Insulation	RhinoBond	IsoWeld
Min. 22 gauge Grade C Steel Deck	HP-X/Induction Plate	Zone 1 - 6	1-90	SecurShield HD / InsulBase HD	312416-0-0	
		Zone 2 - 9		InsulBase/SecurShield	222555-0-0	378853-0-0
		Zone 3 - 12		DensDeck/Securock	312399-0-0	
	HP-X/Induction Plate	Zone 1 - 8	1-105 (RhinoBond) 1-90 (IsoWeld)	SecurShield HD / InsulBase HD	312412-0-0	
		Zone 2 - 12		InsulBase/SecurShield	222553-0-0	378881-0-0
		Zone 3 - 16		DensDeck/Securock	312325-0-0	
	HP-X/RhinoBond	Zone 1 - 12	1-135 (.060" or .080" only)	SecurShield HD / InsulBase HD		
		Zone 2 - 18		InsulBase/SecurShield	502832-0-0	
		Zone 3 - 24		DensDeck/Securock		
	HP-X/IsoWeld	Zone 1 - 10	1-150	SecurShield HD / InsulBase HD	N/A	
		Zone 2 - 15		InsulBase/SecurShield	N/A	378890-0-0
		Zone 3 - 20		DensDeck/Securock	N/A	
	HP-X/RhinoBond	Zone 1 - 16	1-165	SecurShield HD / InsulBase HD	387011-0-0	
		Zone 2 - 24		InsulBase/SecurShield	386367-0-0	
		Zone 3 - 32		DensDeck/Securock	387010-0-0	
Min. 22 gauge Grade E Steel Deck	HP-X / RhinoBond	Zone 1 - 8	1-120	SecurShield HD / InsulBase HD	312414-0-0	
		Zone 2 - 12		InsulBase/SecurShield	222375-0-0	
		Zone 3 - 16		DensDeck/Securock	312376-0-0	
	HP-X/Induction Plate	Zone 1 - 16	1-195	SecurShield HD / InsulBase HD	387159-0-0	
		Zone 2 - 24		InsulBase/SecurShield	387161-0-0	441954-0-0
		Zone 3 - 32		DensDeck/Securock	387158-0-0	
Concrete	HD 14-10/Induction Plate	Zone 1 - 6	1-90	SecurShield HD / InsulBase HD	312579-0-0	
		Zone 2 - 9		InsulBase/SecurShield		378850-0-0
		Zone 3 - 12		DensDeck/Securock	312577-0-0	
		Zone 1 - 8	1-105 (RhinoBond) 1-90 (IsoWeld)	SecurShield HD / InsulBase HD		
		Zone 2 - 12		InsulBase/SecurShield	311967-0-0	378839-0-0
		Zone 3 - 16		DensDeck/Securock		
		Zone 1 - 8	1-120	SecurShield HD / InsulBase HD	312569-0-0	
		Zone 2 - 12		InsulBase/SecurShield		
		Zone 3 - 16		DensDeck/Securock	312567-0-0	
		Zone 1 - 16	1-195	SecurShield HD / InsulBase HD	387015-0-0	
		Zone 2 - 24		InsulBase/SecurShield	386369-0-0	442231-0-0
		Zone 3 - 32		DensDeck/Securock	387014-0-0	

FM Approvals - Induction Welding Linear Securement

Deck Type	Fastener	Plate	Row Spacings	Fastener Spacing in Rows	Rating
Min. 22 gauge Grade E Steel Deck	HP-X	RhinoBond	5'	12"	1-75 323353-0-0
			5'	6"	1-135 323355-0-0
			10'	6"	1-75 323398-0-0

90 psf Uplift Resistance Test (1-90 Equivalency on 12' x 24' Table)

Wind uplift testing has been completed in accordance with the FM 4470 Test Procedure which is witnessed and certified by Architectural Testing, Incorporated, an industry recognized Independent Testing Laboratory. Over a 22 gauge Grade E Steel roof deck, the following results were obtained using HP-X Fasteners and Piranha Plates for membrane securement. The Performance Test Report is on file and available from Carlisle.

Membrane Type: .045" or .060" Sure-Weld Standard Reinforced Membrane .

Deck Type	Field Membrane Width	Fastener Spacing	Insulation Type and Thickness	Insulation Fastening
Min. 22 gauge	10' See notes 16 and 17.	12"	Per Carlisle Specification	Per Carlisle Specification

FM Class A Roof Deck Construction and Insulation Approvals (18)

Membrane Type:
 .045" or .060" Sure-Weld Standard Reinforced Membrane
 .045" or .060" Sure-Weld HS Reinforced Membrane
 .080" Sure-Weld EXTRA Reinforced Membrane
 .060" or .080" Spectro-Weld Reinforced Membrane

Deck Type	Insulation (19)	Insulation Thickness	Maximum Slope for ASTM E-108 Class "A" Rating	
			Sure-Weld, Sure-Weld EXTRA or Spectro-Weld	Sure-Weld HS
New Construction/Tear off: Steel (Minimum 22 gauge) Structural Concrete Retrofit (No Tear off) (21): Structural Concrete	Carlisle HP Recovery Board	1/2" Min.	1-1/2" (with Recovery Board or Securock overlay) 5" (with DensDeck overlay and Sure-Weld Standard) 3" (with DensDeck overlay and Sure-Weld EXTRA)	2" (with Recovery Board or Securock overlay) 5" (with DensDeck overlay)
	Carlisle HP Recovery Board (min. 1/2"), DensDeck (min. 1/4") or Securock (min. 1/4") Over: FM Approved Insulation (20)	Refer to FM RoofNAV website		
	Carlisle Polyisocyanurate InsulBase or SecurShield	1-1/2"-12"		
	Carlisle SecurShield HD or SecurShield HD Plus Over: FM Approved Insulation (20)	1/2" / Refer to FM RoofNAV website	1/2"	1-1/2"
Retrofit (No Tear off) (21): Steel (Minimum 22 gauge)	Carlisle HP Recovery Board	1/2"-1"	1-1/2"	2"
	Carlisle Polyisocyanurate InsulBase or SecurShield	1" Max.	1/2"	1-1/2"
	Carlisle SecurShield HD or SecurShield HD Plus	1/2"		

Sure-Weld® (TPO) Mechanically Fastened or Induction Welding Roofing Systems

ANSI-SPRI WD-1/ASCE 7-10 Approvals

Membrane Type:
 .045" or .060" Sure-Weld Standard Reinforced Membrane
 .045" or .060" Sure-Weld HS Reinforced Membrane
 .080" Sure-Weld EXTRA Reinforced Membrane
 .060" or .080" Spectro-Weld Reinforced Membrane

Membrane Width	Fastener/Plate	Spacing	Min. 22 Gauge Grade C Steel (33 ksi)		Min. 22 Gauge Grade E Steel (80 ksi) or Structural Concrete		Wood Deck	Min. 18 Gauge Steel
			Sure-Weld, Sure-Weld EXTRA or Spectro-Weld	Sure-Weld HS	Sure-Weld, Sure-Weld EXTRA or Spectro-Weld	Sure-Weld HS		
4 Feet	HP-X /Piranha	6"	1-165	-	1-165	-	-	-
		12"	1-105	-	1-105	-	-	-
6 Feet	HPX/Piranha	12"	1-90	-	-	-	-	-
8 Feet	HP-X /Piranha	6"	1-105	-	1-135	1-120	1-90	-
		12"	1-75	1-60	1-90	1-75	1-75	-
	HP-Xtra /Piranha Xtra	12"	1-90	1-75	1-90	1-75	-	-
10 Feet	HP-X /Piranha	6"	1-105	1-90	1-120	1-75	-	-
		9"	1-75	1-60	1-90	1-90	-	-
		12"	1-60	-	1-75	1-75	-	1-90
	HP-Xtra /Piranha Xtra	6"	1-120	-	1-120	-	-	-
		12"	1-60	-	1-90*	-	-	-
12 Feet	HP-X /Piranha	6"	1-105	-	1-120	1-75	-	-
		9"	1-75	1-60	1-75	-	-	-
		12"	1-60	-	1-60	1-60	-	-
	HP-Xtra /Piranha Xtra	6"	1-120	-	1-120	-	-	-
		9"	1-75	-	1-75	-	-	-
		12"	1-60	-	1-60	-	-	-

*Max 1-75 using Spectro-Weld

Sure-Weld® Metal Retrofit Roofing System

Underwriters Laboratories (UL) Approvals

The UL ratings achieved with the Metal Retrofit Roofing System are identical to the approvals listed for the Sure-Weld™ Mechanically-Fastened Roofing System over non-combustible decks depending on the membrane selected.

FM Approvals

As referenced in FM Approvals Loss Prevention Data Sheet 1-31, the method of recovering an existing metal roof system with a single-ply mechanically fastened roofing system where the membrane is secured through the existing metal roof directly to the structural purlins is recognized as an appropriate recovery system when installed per the recommendations of FM.

As a standard FM Approvals requirement, additional membrane and insulation securement is necessary in the corner and/or perimeter areas as outlined in FM Property Loss Prevention Data Sheets 1-28, 1-29 and 1-31. These bulletins should be reviewed in their entirety for specific requirements concerning insulation types, fastening enhancements and other items that may be necessary.

FM Approvals – Metal Retrofit (In Seam Securement)

Purlin Spacing	Fastener/Plate	Spacing	Coverboard	Rating	Sure-Weld, Sure-Weld EXTRA or Spectro-Weld	Rating	Sure-Weld HS
60 Inches	HP Purlin/Piranha	6"	InsulBase HD/SecurShield HD	1-135	272454-0-0	1-120	281696-0-0
			HP Recovery Board	1-135	272491-0-0	1-120	272501-0-0
			InsulBase/SecurShield				
		12"	DensDeck/SECUROCK	1-135	272456-0-0	1-120	272502-0-0
			InsulBase HD/SecurShield HD	1-120	393577-0-0	1-75	281716-0-0
			HP Recovery Board	1-60	242483-0-0	1-75	272504-0-0
120 Inches	HP Purlin/Piranha	6"	InsulBase/SecurShield	1-120	399954-0-0		
			DensDeck/SECUROCK	1-120	272513-0-0	1-75	272504-0-0
			InsulBase HD/SecurShield HD	1-120	393574-0-0	1-75	281692-0-0
		12"	HP Recovery Board	1-105	272661-0-0	1-75	272497-0-0
			InsulBase/SecurShield	1-120	399955-0-0		
			DensDeck/SECUROCK	1-120	272710-0-0	1-75	272498-0-0
138 inches	HP Purlin/Piranha	6"	InsulBase HD/SecurShield HD	1-60	393572-0-0	1-60	281694-0-0
			HP Recovery Board	1-60	272632-0-0	1-60	272499-0-0
			InsulBase/SecurShield	1-60	399950-0-0	1-60	
		12"	DensDeck/SECUROCK	1-60	272642-0-0	1-60	379730-0-0
			InsulBase HD/SecurShield HD	1-120	393574-0-0	1-75	281692-0-0
			HP Recovery Board	1-105	272661-0-0	1-75	272497-0-0
120 Inches	HP Purlin/Piranha	6"	InsulBase/SecurShield	1-120	399955-0-0		
			DensDeck/SECUROCK	1-105	272663-0-0	1-75	272498-0-0
			InsulBase HD/SecurShield HD	1-120	393574-0-0	1-75	281692-0-0

FM Approvals – Metal Retrofit with Pressure-Sensitive RUSS Strip

Purlin Spacing	Fastener/Plate	Spacing	Coverboard	Rating	Sure-Weld, Sure-Weld EXTRA or Spectro-Weld	Rating	Sure-Weld HS
60 Inches	HP Purlin/Piranha	12"	InsulBase HD/SecurShield HD	1-120	272568-0-0	1-75	281720-0-0
			HP Recovery Board			1-120	272587-0-0
			InsulBase/SecurShield				
			DensDeck/SECUROCK	1-120	272568-0-0	1-120	379735-0-0
120 Inches	HP Purlin/Piranha	6"	InsulBase HD/SecurShield HD			1-120	281719-0-0
			HP Recovery Board			1-120	272578-0-0
			InsulBase/SecurShield				
			DensDeck/SECUROCK	1-120	272563-0-0	1-120	212578-0-0
120 Inches	HP Purlin/Piranha	12"	InsulBase HD/SecurShield HD			1-75	281722-0-0
			HP Recovery Board			1-75	379736-0-0
			InsulBase/SecurShield				
			DensDeck/SECUROCK	1-75	272576-0-0	1-75	379736-0-0

FM Approvals – Induction Welding Metal Retrofit (.045" Min. thickness membrane)

Deck Type	Fastener	Plate	Row Spacings	Fastener Spacing in Rows	Rating	Coverboard	Rating	RoofNAV Number			
Structural Steel Purlin (Metal Retrofit)	HP Purlin	Rhino Bond	5'	12"	1-75	InsulBase HD / SecurShield HD	1-75	408547-0-0			
						HP Recovery Board		373502-0-0			
						InsulBase/SecurShield		373503-0-0			
						DensDeck/SECUROCK		373500-0-0			
			5'	6"	1-135	5'	6"	1-135	InsulBase HD / SecurShield HD	1-135	408560-0-0
									HP Recovery Board		373506-0-0
									InsulBase/SecurShield		373507-0-0
									DensDeck/SECUROCK		373504-0-0
			10'	6"	1-75	10'	6"	1-75	InsulBase HD / SecurShield HD	1-75	408558-0-0
									HP Recovery Board		373499-0-0
									InsulBase/SecurShield		373497-0-0
									DensDeck/SECUROCK		373496-0-0

FM Approvals – Induction Welding Metal Retrofit (.060" Min. thickness membrane)

Deck Type	Fastener	Plate	Row Spacings	Fastener Spacing in Rows	Rating	Coverboard	Rating	RoofNAV Number			
Structural Steel Purlin (Metal Retrofit)	HP Purlin	Rhino Bond	5'	12"	1-90	InsulBase HD / SecurShield HD	1-90	487712-0-0			
						InsulBase		487712-0-0			
						SecurShield		487713-0-0			
						DensDeck/SECUROCK		487715-0-0			
			10'	6"	1-105	10'	6"	1-105	InsulBase HD / SecurShield HD	1-105	487716-0-0
									Insulbase		487716-0-0
									SecurShield		487717-0-0
									DensDeck/SECUROCK		487719-0-0

Sure-Weld® (TPO) Adhered Roofing Systems

UL Approval - Non-Combustible - ANSI/UL 790 Spread of Flame Test (Class A)

Membrane Adhesive: Sure-Weld Bonding Adhesive, Low VOC Bonding Adhesive, Low VOC Bonding Adhesive 1168 or Cav-Grip III

.045" or .060" Sure-Weld Standard Reinforced Membrane
 .045" or .060" Sure-Weld HS Reinforced Membrane

Membrane Type: .080" Sure-Weld EXTRA Reinforced Membrane
 .060" or .080" Spectro-Weld Reinforced Membrane

Non-Combustible: Steel; St. Concrete; Gypsum; Tectum (Min. 2" thick)

System ID	Deck Type	Insulation	Cover Board	Maximum Slope		
				Sure-Weld or Spectro-Weld	Sure-Weld HS	Sure-Weld EXTRA
1	Non-Combustible	InsulBase, or SecurShield- any combination, any thickness	N/A	1/4"	1/2"	1/4"
2		Any UL Classified Insulation, any thickness (OPTIONAL)	Minimum 1/2" SecurShield HD, SecurShield HD Plus or SecurShield HD Composite	1/4"	1/2"	1/4"
3		Minimum 1" layer of InsulBase or SecurShield over any UL Classified EPS or XPS Insulation, maximum 1.25 pcf, any thickness	N/A	1/4"	1/2"	1/4"
4		Insulfoam HD Composite or Insulfoam HD Composite over Insulfoam EPS, any thickness and density.	N/A	1/4"	1/2"	1/4"
5		Any UL Classified Insulation, any thickness (OPTIONAL)	Minimum 1/4" SECUROCK® Gypsum-Fiber Roof Boards	3"	Unlimited	2-1/2" 3" w/ CGIII
6		Any UL Classified Insulation, any thickness (OPTIONAL)	Minimum 1/4" DensDeck Prime Roof Boards	3"	Unlimited	2-1/2" 3" w/ CGIII
7		Any UL Classified Insulation, any thickness (OPTIONAL)	Minimum 1/2" HP Recovery Board	1-1/2" 1" w/ CGIII	1"	1/4" 1" w/ CGIII
8		Any UL Classified Insulation, any thickness (OPTIONAL)	Minimum 7/16" APA Rated OSB or minimum 1-1/2" StormBase	1-1/2" 1" w/ CGIII	1"	1/4" 1" w/ CGIII
9		Any UL Classified Insulation, any thickness (OPTIONAL)	Minimum 5/16" EcoStorm VSH	1/4"	1/2"	1/4"
10	Cellular Lightweight Concrete	N/A	N/A	1-1/2" 1" w/ CGIII	1"	1/4" 1" w/ CGIII
11	Precast concrete with grouted joints	N/A	N/A	1-1/2" 1" w/ CGIII	1"	1/4" 1" w/ CGIII
12	Structural (poured-in-place) concrete	N/A	N/A	1-1/2" 1" w/ CGIII	1"	1/4" 1" w/ CGIII

Sure-Weld® (TPO) Adhered Roofing Systems

UL Approval - Combustible (1) - ANSI/UL 790 Spread of Flame Test (Class A)

Membrane Adhesive: Sure-Weld Bonding Adhesive, Low VOC Bonding Adhesive, Low VOC Bonding Adhesive 1168 or Cav-Grip III

.045" or .060" Sure-Weld Standard Reinforced Membrane

Membrane Type: .045" or .060" Sure-Weld HS Reinforced Membrane

.080" Sure-Weld EXTRA Reinforced Membrane
.060" or .080" Spectro-Weld Reinforced Membrane

Combustible: 7/16-in. (minimum) thick non-veneer APA-rated sheathing (oriented strand board panels, structural particleboard panels, composite panels or waferboard panels); 15/32-in. (minimum) thick plywood 3/4 in. (minimum) wood; Tectum (less than 2" thick)

System ID	Thermal Barrier/ Base Sheet	Insulation	Cover Board (26)	Maximum Slope		
				Sure-Weld or Spectro-Weld	Sure-Weld HS	Sure-Weld EXTRA
Combustible (1) - ANSI/UL 790 Spread of Flame Test-Class A						
1	Minimum 1/4" SECUROCK® Gypsum Fiber or Glass Mat Roof Board (2)	Any UL Classified Carlisle Polyisocyanurate Insulation, any combination, any thickness.	N/A	1/4"	1/2"	1/4"
2	Minimum 1/4" DensDeck or DensDeck Prime Roof Boards (2)	Any UL Classified Carlisle Polyisocyanurate Insulation, any combination, any thickness.	N/A	1/4"	1/2"	1/4"
3	N/A	Minimum 1" thick layer of SecurShield or SecurShield HD Composite is placed directly over a combustible roof deck. An optional layer or layers of any Carlisle Polyisocyanurate Insulation may be used below the minimum 1" thick top layer, any combination, any thickness. (3)	N/A	1/4"	1/2"	1/4"
4	N/A	Minimum 1" thick layer of SecurShield or SecurShield HD Composite over a minimum 3-1/2" thick layer of any UL Classified EPS insulation is placed directly over a combustible roof deck. (3)	N/A	1/4"	1/2"	1/4"
5	N/A	OPTIONAL layer or layers of any Carlisle Polyisocyanurate Insulation may be used below the minimum 1/2" thick top layer, any combination, any thickness. (3)	1/2" thick SecurShield HD or SecurShield HD Plus is placed directly over a combustible roof deck. (3)	1/4"	1/2"	1/4"
6	N/A	Minimum 4" thick layer of any UL Classified EPS insulation is placed directly over a combustible roof deck. (3)	1/2" thick SecurShield HD or SecurShield HD Plus. (3)	1/4"	1/2"	1/4"
7	N/A	Minimum 1-1/2" layer of Insulfoam HD Composite over a minimum 3" layer of Insulfoam EPS. (2)	N/A	1/4"	1/2"	1/4"
8	N/A	Any UL Classified Carlisle Polyisocyanurate Insulation, any combination, any thickness.	Minimum 1/4" SECUROCK® Gypsum Fiber Roof Board (2)	3"	3"	2-1/2" 3" w/ CGIII
9	N/A	Any UL Classified Insulation, any thickness (OPTIONAL)	Minimum 3/8" SECUROCK® Gypsum Fiber Roof Board (2)	2"	2"	2"
10	N/A	Any UL Classified Insulation, any thickness (OPTIONAL)	Minimum 1/2" SECUROCK® Gypsum Fiber Roof Board (2)	3"	4"	2-1/2" 3" w/ CGIII
11	N/A	Any UL Classified Insulation, any thickness (OPTIONAL)	Minimum 1/4" DensDeck Prime Roof Board (2)	3"	Unlimited	2-1/2" 3" w/ CGIII
12	Two layers of Carlisle FR Base Sheet	Any UL Classified Carlisle Polyisocyanurate Insulation, any combination, any thickness.	N/A	1/4"	1/2"	1/4"

Sure-Weld® (TPO) Adhered Roofing Systems

UL Approval - Combustible (1) - ANSI/UL 790 Spread of Flame Test (Class B)

Membrane Adhesive: Sure-Weld Bonding Adhesive, Low VOC Bonding Adhesive, Low VOC Bonding Adhesive 1168 or Cav-Grip III

.045" or .060" Sure-Weld Standard Reinforced Membrane
 .045" or .060" Sure-Weld HS Reinforced Membrane

Membrane Type: .080" Sure-Weld EXTRA Reinforced Membrane
 .060" or .080" Spectro-Weld Reinforced Membrane

Combustible: 7/16-in. (minimum) thick non-veneer APA-rated sheathing (oriented strand board panels, structural particleboard panels, composite panels or waferboard panels); 15/32-in. (minimum) thick plywood 3/4 in. (minimum) wood; Tectum (less than 2" thick)

System ID	Thermal Barrier/Base Sheet	Insulation	Cover Board	Maximum Slope		
				Sure-Weld or Spectro-Weld	Sure-Weld HS	Sure-Weld EXTRA
Combustible - ANSI/UL 790 Spread of Flame Test-Class B						
1	One Layer of Carlisle FR Base Sheet	Any UL Classified Carlisle Polyisocyanurate Insulation, any combination, any thickness.	N/A	1/4"	1/2"	1/4"

Sure-Weld® (TPO) Adhered Roofing Systems

UL Approval - Combustible and Non-Combustible - ANSI/UL 790 Spread of Flame Test (Class C)

Membrane Adhesive: Sure-Weld Bonding Adhesive, Low VOC Bonding Adhesive, Low VOC Bonding Adhesive 1168 or Cav-Grip III

Membrane Type: .045" or .060" Sure-Weld Standard Reinforced Membrane
 .045" or .060" Sure-Weld HS Reinforced Membrane
 .080" Sure-Weld EXTRA Reinforced Membrane
 .060" or .080" Spectro-Weld Reinforced Membrane

Combustible: 7/16-in. (minimum) thick non-veneer APA-rated sheathing (oriented strand board panels, structural particleboard panels, composite panels or waferboard panels); 15/32-in. (minimum) thick plywood 3/4 in. (minimum) wood; Tectum (less than 2" thick)

Non-Combustible: Steel, St. Concrete, Gypsum or Tectum (Min. 2" thick)

System ID	Thermal Barrier/Base Sheet	Insulation	Cover Board	Maximum Slope		
				Sure-Weld or Spectro-Weld	Sure-Weld HS	Sure-Weld EXTRA
Non-Combustible or Combustible - ANSI/UL 790 Spread of Flame Test-Class C						
1	N/A	Any UL Classified Carlisle Polyisocyanurate Insulation, any combination, any thickness. Optionally, any UL Classified insulation, any combination, any thickness may be used below the Carlisle Polyisocyanurate Insulation.	N/A	Unlimited	Unlimited	Unlimited
2	N/A	Any UL Classified insulation, any combination, any thickness. (OPTIONAL)	Minimum 5/16" EcoStorm VSH (2)	1/2"	1/2"	1/2"

FM Approvals
Design "A" Adhered Roofing Systems

SecurShield HD Ratings - New Construction

Membrane Type: .045" or .060" Sure-Weld Standard Reinforced Membrane
.045" or .060" Sure-Weld HS Reinforced Membrane
.080" Sure-Weld EXTRA Reinforced Membrane
.060" or .080" Spectro-Weld Reinforced Membrane

Membrane Adhesive: Sure-Weld Bonding Adhesive (SWBA), Cav-Grip III (CGIII) or Low VOC Bonding Adhesive (LVOC)

Base and Top Layer Adhesive: FAST = Flexible FAST and Flexible FAST Dual Tank

Base Insulation Layer (Max. thickness 36")	Base Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Rating	Sure-Weld or Spectro-Weld	Sure-Weld EXTRA	Sure-Weld HS
					RoofNAV Number		
Steel Deck (Min. 22 Gauge)							
Min. 1-1/2" InsulBase Polyiso or SecurShield	Loose laid	1/2" SecurShield HD	12 (2.67 sq. ft)	1-75	295747-0-0	295747-0-0	295747-0-0
Min. 1-1/2" InsulBase Polyiso or SecurShield	Loose laid	1/2" SecurShield HD	16 (2 sq. ft)	1-90	385909-0-0	-	-
Min. 1-1/2" InsulBase Polyiso or SecurShield	Loose laid	1/2" SecurShield HD	8 (4 sq. ft.) AccuTrac Plates only	1-60	454501-0-0 60 mil only	454502-0-0	-
Min. 1-1/2" InsulBase Polyiso or SecurShield	Loose laid	1/2" SecurShield HD	11 (2.9 sq. ft.) AccuTrac Plates only	1-90	454506-0-0 60 mil only	454507-0-0	-
Min. 1-1/2" InsulBase Polyiso	10 (3.2 sq. ft.)	1/2" SecurShield HD	12" ribbons of FAST	1-90	353874-0-0	353916-0-0 (SWBA)	353918-0-0 (SWBA)
Min. 2" InsulBase Polyiso	8 (4 sq. ft)	1/2" SecurShield HD	12" ribbons of FAST	1-90	353875-0-0	353917-0-0 (LVOC)	353919-0-0 (LVOC)
Min. 1-1/2" InsulBase Polyiso	18 (1.8 sq. ft.)	1/2" SecurShield HD	12" ribbons of FAST	1-105	485952-0-0	-	-
Min. 1-1/2" InsulBase Polyiso	18 (1.8 sq. ft.)	1/2" SecurShield HD	6" ribbons of FAST	1-105	325939-0-0 (LVOC)	326014-0-0 (LVOC)	-
Min. 1-1/2" InsulBase Polyiso	24 (1.33 sq. ft.)	1/2" SecurShield HD	6" ribbons of FAST	1-150	325941-0-0 (SWBA)	326019-0-0 (SWBA)	-
Min. 2" InsulBase Polyiso	16 (2 sq. ft.)	1/2" SecurShield HD	12" ribbons of FAST	1-120	454516-0-0	454520-0-0	-
Min. 2" InsulBase Polyiso	20 (1.6 sq. ft.)	1/2" SecurShield HD	6" ribbons of FAST	1-135	454518-0-0	454524-0-0	-
Min. 2" InsulBase Polyiso	32 (1 sq. ft.)	1/2" SecurShield HD	4" ribbons of FAST	1-225	454538-0-0	454540-0-0	-
Min. 1-1/2" InsulBase Polyiso	24 (1.33 sq. ft.)	1/2" SecurShield HD	4" ribbons of FAST	1-165	325940-0-0 (LVOC)	326017-0-0 (LVOC)	-
Min. 1/2" DensDeck Prime or Securock	16 (2 sq. ft.)	1/2" SecurShield HD over InsulBase Polyiso	6" ribbons FAST	1-90	-	-	-
Steel Deck (Min. 22 Gauge)/VapAir Seal 72STR with Cav-Grip III or 702 Primer							
Min. 1/2" DensDeck Prime or Securock	8 (4 sq. ft.)	1/2" SecurShield HD over InsulBase Polyiso	12" ribbons of FAST	1-90	404100-0-0	404113-0-0	404114-0-0
Min. 1/2" DensDeck Prime or Securock	20 (1.6 sq. ft.)	1/2" SecurShield HD over InsulBase Polyiso	6" ribbons of FAST	1-135	-	-	-
Steel Deck (Min. 22 Gauge)/SureMB 90TG or 120TG Base Torch Applied							
Min. 1/2" DensDeck Prime or Securock	8 (4 sq. ft.)	1/2" SecurShield HD over InsulBase Polyiso	12" ribbons of FAST	1-90	-	-	-
Min. 1/2" DensDeck Prime or Securock	20 (1.6 sq. ft.)	1/2" SecurShield HD over InsulBase Polyiso	6" ribbons of FAST	1-135	-	-	-
Steel Deck (Min. 22 Gauge)/SureMB 70 SA with Cav-Grip III							
Min. 1/2" DensDeck Prime or Securock	8 (4 sq. ft.)	1/2" SecurShield HD over InsulBase Polyiso	12" ribbons of FAST	1-90	-	-	-
Min. 1/2" DensDeck Prime or Securock	20 (1.6 sq. ft.)	1/2" SecurShield HD over InsulBase Polyiso	6" ribbons of FAST	1-135	-	-	-

FM Approvals
Design "A" Adhered Roofing Systems

SecurShield HD Ratings - New Construction

Membrane Type: .045" or .060" Sure-Weld Standard Reinforced Membrane
.045" or .060" Sure-Weld HS Reinforced Membrane
.080" Sure-Weld EXTRA Reinforced Membrane
.060" or .080" Spectro-Weld Reinforced Membrane

Membrane Adhesive: Sure-Weld Bonding Adhesive (SWBA), Cav-Grip III (CGIII) or Low VOC Bonding Adhesive (LVOC)

Base and Top Layer Adhesive: FAST = Flexible FAST and Flexible FAST Dual Tank

Base Insulation Layer (Max. thickness 36")	Base Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Rating	Sure-Weld or Spectro-Weld	Sure-Weld EXTRA	Sure-Weld HS
					RoofNAV Number		
Concrete Deck							
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	1/2" SecurShield HD	12" ribbons of FAST	1-225	381226-0-0	382997-0-0	382998-0-0
3/4" Optim-R	6" ribbons of FAST	1/2" SecurShield HD	6" ribbons of FAST	1-120	438104-0-0	438107-0-0 (SWBA)	438108-0-0
Min. 2" Insulfoam EPS	12" ribbons of FAST	1/2" SecurShield HD	12" ribbons of FAST	1-225	429710-0-0	429711-0-0	-
Min. 2" ChannelDry EPS adhered to deck with min. 1" Insulfoam EPS adhered to ChannelDry	12" ribbons of FAST	1/2" SecurShield HD	12" ribbons of FAST	1-225	490709-0-0	490710-0-0	-
Min. 1-1/2" InsulBase Polyiso	8 (4 sq. ft.)	1/2" SecurShield HD	6" ribbons of FAST	1-90	423342-0-0	-	-
Min. 1-1/2" InsulBase Polyiso	10 (3.2 sq. ft.)	1/2" SecurShield HD	6" ribbons of FAST	1-90	423338-0-0	-	423333-0-0
Concrete Deck/VapAir Seal 725TR with Cav-Grip III, 702-LV or 702 Primer							
3/4" Optim-R	6" ribbons of FAST	1/2" SecurShield HD	6" ribbons of FAST	1-165 702	437589-0-0	437591-0-0 (SWBA)	437592-0-0
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	1/2" SecurShield HD	12" ribbons of FAST	1-240	364507-0-0 (SWBA)	364508-0-0 (SWBA)	364509-0-0 (SWBA)
Min. 2" Insulfoam EPS	12" ribbons of FAST	1/2" SecurShield HD	12" ribbons of FAST	1-255	429712-0-0	429713-0-0	429714-0-0
Min. 1/2" InsulBase Polyiso	6" ribbons of FAST	1/2" SecurShield HD	6" ribbons of FAST	1-315	-	-	-
Min. 1-1/2" InsulBase Polyiso	6" ribbons of FAST	1/2" SecurShield HD	6" ribbons of FAST	1-465	-	-	-
Concrete Deck/SureMB 90TG or 120TG Base Torch Applied/Cut-Back Asphalt Primer							
Min. 1/2" InsulBase Polyiso or Min. 1-1/2" SecurShield	12" ribbons of FAST	1/2" SecurShield HD	12" ribbons of FAST	1-240	394501-0-0	394540-0-0 (SWBA)	392967-0-0 (SWBA)
				1-225	-	394536-0-0	-
				1-195	394514-0-0	394538-0-0	394548-0-0
Min. 1/2" InsulBase Polyiso	6" ribbons of FAST	1/2" SecurShield HD	6" ribbons of FAST	1-315	-	-	-
Min. 1-1/2" InsulBase Polyiso	6" ribbons of FAST	1/2" SecurShield HD	6" ribbons of FAST	1-465	-	-	-
Concrete Deck/SureMB 70 SA with Cav-Grip III Primer							
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	1/2" SecurShield HD	12" ribbons of FAST	1-285	519842-0-0	519846-0-0	-
Gypsum Deck Tear-Off							
Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	1/2" SecurShield HD	12" ribbons of FAST	1-90	-	-	-
Min. 1-1/2" InsulBase Polyiso	16 (2 sq. ft.)	1/2" SecurShield HD	12" ribbons of FAST	1-90	466951-0-0	466956-0-0	-
Gypsum Deck Tear-Off/VapAir Seal 725TR with Cav-Grip III, 702-LV or 702 Primer							
Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	1/2" SecurShield HD	12" ribbons of FAST	1-90	466952-0-0	466967-0-0	-
Cellular Lightweight Insulating Concrete/Steel Decking (Min. 22 Gauge)							
FM Approved	Loose laid	1/2" SecurShield HD	12 (2.67 sq. ft)	1-75	-	-	-
FM Approved	Loose laid	1/2" SecurShield HD	16 (2 sq. ft)	1-90	-	-	-
-	-	1/2" SecurShield HD	12 (2.67 sq. ft)	1-75	-	-	-
-	-	1/2" SecurShield HD	16 (2 sq. ft)	1-90	-	-	-

FM Approvals
Design "A" Adhered Roofing Systems

SecurShield HD Ratings - Recover

Membrane Type: .045" or .060" Sure-Weld Standard Reinforced Membrane
 .045" or .060" Sure-Weld HS Reinforced Membrane
 .080" Sure-Weld EXTRA Reinforced Membrane
 .060" or .080" Spectro-Weld Reinforced Membrane

Membrane Adhesive: Sure-Weld Bonding Adhesive (SWBA), Cav-Grip III (CGIII) or Low VOC Bonding Adhesive (LVOC)

Base and Top Layer Adhesive: FAST = Flexible FAST and Flexible FAST Dual Tank

Base Insulation Layer	Base Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Rating	Sure-Weld or Spectro-Weld	Sure-Weld EXTRA	Sure-Weld HS
					RoofNAV Number		
Steel Deck (Min. 22 Gauge)							
-	-	1/2" SecurShield HD	12 (2.67 sq. ft)	1-75	299384-0-0	299384-0-0	299384-0-0
-	-	1/2" SecurShield HD	16 (2 sq. ft)	1-90	427475-0-0	427485-0-0	427477-0-0
-	-	1/2" SecurShield HD	6" ribbons of FAST	1-150	430659-0-0	430661-0-0	-
Concrete Deck							
-	-	1/2" SecurShield HD	6" ribbons of FAST	1-150	389428-0-0	389430-0-0	389429-0-0
Gypsum Deck							
-	-	1/2" SecurShield HD	6" ribbons of FAST	1-90	386254-0-0	386255-0-0	-

FM Approvals
Design "A" Adhered Roofing Systems

SecurShield HD Plus Ratings - New Construction

Membrane Type: .045" or .060" Sure-Weld Standard Reinforced Membrane
.045" or .060" Sure-Weld HS Reinforced Membrane
.080" Sure-Weld EXTRA Reinforced Membrane
.060" or .080" Spectro-Weld Reinforced Membrane

Membrane Adhesive: Sure-Weld Bonding Adhesive (SWBA), Cav-Grip III (CGIII) or Low VOC Bonding Adhesive (LVOC)

Base and Top Layer Adhesive: FAST = Flexible FAST and Flexible FAST Dual Tank

Base Insulation Layer (Max. thickness 36")	Base Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Rating	Sure-Weld or Spectro- Weld	Sure-Weld EXTRA	Sure-Weld HS
					RoofNA V Number		
Steel Deck (Min. 22 Gauge)							
Min. 1-1/2" InsulBase Polyiso or SecurShield	Loose laid	1/2" SecurShield HD Plus	8 (4 sq. ft)	1-90	325933-0-0	326002-0-0	-
Min. 1-1/2" InsulBase Polyiso or SecurShield	Loose laid	1/2" SecurShield HD Plus	18 (1.8 sq. ft)	1-120	325934-0-0	326005-0-0 (LVOC)	-
Min. 1-1/2" InsulBase Polyiso or SecurShield	Loose laid	1/2" SecurShield HD Plus	24 (1.33 sq. ft)	1-150	325936-0-0 (SWBA)	326024-0-0 (SWBA)	-
Min. 1-1/2" InsulBase Polyiso or SecurShield	Loose laid	1/2" SecurShield HD Plus	24 (1.33 sq. ft)	1-225 (35)	325937-0-0	326010-0-0 (LVOC)	-
Min. 1-1/2" InsulBase Polyiso or SecurShield	10 (3.2 sq. ft.)	1/2" SecurShield HD Plus	6" ribbons of FAST	1-90	353874-0-0	353916-0-0 (SWBA)	353918-0-0 (SWBA)
Min. 2" InsulBase Polyiso	8 (4 sq. ft)	1/2" SecurShield HD Plus	6" ribbons of FAST	1-90	353875-0-0	353917-0-0 (LVOC)	353919-0-0 (LVOC)
Min. 1-1/2" InsulBase Polyiso	18 (1.8 sq. ft.)	1/2" SecurShield HD Plus	6" ribbons of FAST	1-105	-	-	-
Min. 1-1/2" InsulBase Polyiso	24 (1.33 sq. ft.)	1/2" SecurShield HD Plus	4" ribbons of FAST	1-150	-	-	-
Min. 2" InsulBase Polyiso	16 (2 sq. ft.)	1/2" SecurShield HD Plus	12" ribbons of FAST	1-120	-	-	-
Min. 2" InsulBase Polyiso	20 (1.6 sq. ft.)	1/2" SecurShield HD Plus	6" ribbons of FAST	1-135	-	-	-
Min. 2" InsulBase Polyiso	32 (1 sq. ft.)	1/2" SecurShield HD Plus	4" ribbons of FAST	1-225	-	-	-
Min. 1-1/2" InsulBase Polyiso	24 (1.33 sq. ft.)	1/2" SecurShield HD Plus	4" ribbons of FAST	1-165	-	-	-
Min. 1/2" DensDeck Prime or Securock	16 (2 sq. ft.)	1/2" SecurShield HD Plus over InsulBase Polyiso	6" ribbons of FAST	1-90	-	-	-
Steel Deck (Min. 22 Gauge)/VapAir Seal 725TR with Cav-Grip III or 702 Primer							
Min. 1/2" DensDeck Prime or Securock	8 (4 sq. ft.)	1/2" SecurShield HD Plus over InsulBase Polyiso	12" ribbons of FAST	1-90	485959-0-0	-	-
Min. 1/2" DensDeck Prime or Securock	20 (1.6 sq. ft.)	1/2" SecurShield HD Plus over InsulBase Polyiso	6" ribbons of FAST	1-135	-	-	-
Steel Deck (Min. 22 Gauge)/SureMB 90TG or 120TG Base Torch Applied							
Min. 1/2" DensDeck Prime or Securock	8 (4 sq. ft.)	1/2" SecurShield HD Plus over InsulBase Polyiso	12" ribbons of FAST	1-90	-	-	-
Min. 1/2" DensDeck Prime or Securock	20 (1.6 sq. ft.)	1/2" SecurShield HD Plus over InsulBase Polyiso	6" ribbons of FAST	1-135	-	-	-

FM Approvals
Design "A" Adhered Roofing Systems

SecurShield HD Plus Ratings - New Construction

Membrane Type: .045" or .060" Sure-Weld Standard Reinforced Membrane
.045" or .060" Sure-Weld HS Reinforced Membrane
.080" Sure-Weld EXTRA Reinforced Membrane
.060" or .080" Spectro-Weld Reinforced Membrane

Membrane Adhesive: Sure-Weld Bonding Adhesive (SWBA), Cav-Grip III (CGIII) or Low VOC Bonding Adhesive (LVOC)

Base and Top Layer Adhesive: FAST = Flexible FAST and Flexible FAST Dual Tank

Base Insulation Layer (Max. thickness 36")	Base Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Rating	Sure-Weld or Spectro- Weld	Sure-Weld EXTRA	Sure-Weld HS
					RoofNAV Number		
Steel Deck (Min. 22 Gauge)/SureMB 70 SA with Cav-Grip III Primer							
Min. 1/2" DensDeck Prime or Securock	8 (4 sq. ft.)	1/2" SecurShield HD Plus over InsulBase Polyiso	12" ribbons of FAST	1-90	-	-	-
Min. 1/2" DensDeck Prime or Securock	20 (1.6 sq. ft.)	1/2" SecurShield HD Plus over InsulBase Polyiso	6" ribbons of FAST	1-135	-	-	-
Concrete Deck							
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	1/2" SecurShield HD Plus	12" ribbons of FAST	1-225	381226-0-0	382997-0-0	382998-0-0
Min. 2" InsulBase Polyiso or SecurShield over Min. 2" ChannelDry EPS	8 (4 sq. ft.)	1/2" SecurShield HD Plus	6" ribbons of FAST	1-90	486752-0-0	-	-
Concrete Deck/VapAir Seal 725TR with Cav-Grip III, 702-LV or 702 Primer							
Min. 1/2" InsulBase Polyiso or Min. 1-1/2" SecurShield	12" ribbons of FAST	1/2" SecurShield HD Plus	12" ribbons of FAST	1-255	364507-0-0 (SWBA)	364508-0-0 (SWBA)	364509-0-0 (SWBA)
					364523-0-0 (LVOC)	-	-
Min. 2" Insulfoam EPS	12" ribbons of FAST	1/2" SecurShield HD Plus	12" ribbons of FAST	1-225	429715-0-0	429716-0-0	429717-0-0
Min. 1/2" InsulBase Polyiso	6" ribbons of FAST	1/2" SecurShield HD Plus	6" ribbons of FAST	1-315	-	-	-
Min. 1-1/2" InsulBase Polyiso	6" ribbons of FAST	1/2" SecurShield HD Plus	6" ribbons of FAST	1-465	-	-	-
Concrete Deck/SureMB 90TG or 120TG Base Torch Applied/Cut-Back Asphalt Primer							
Min. 1/2" InsulBase Polyiso or Min. 1-1/2" SecurShield	12" ribbons of FAST	1/2" SecurShield HD Plus	12" ribbons of FAST	1-240	394501-0-0	394540-0-0 (SWBA)	392967-0-0 (SWBA)
Min. 1/2" InsulBase Polyiso	6" ribbons of FAST	1/2" SecurShield HD Plus	6" ribbons of FAST	1-315	-	-	-
Min. 1-1/2" InsulBase Polyiso	6" ribbons of FAST	1/2" SecurShield HD Plus	6" ribbons of FAST	1-465	-	-	-
Concrete Deck/SureMB 70 SA with Cav-Grip III Primer							
Min. 1/2" InsulBase Polyiso or Min. 1-1/2" SecurShield	12" ribbons of FAST	1/2" SecurShield HD Plus	12" ribbons of FAST	1-285	519842-0-0	519846-0-0	-
Gypsum Deck Tear-Off							
Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	1/2" SecurShield HD Plus	12" ribbons of FAST	1-90	-	-	-
Gypsum Deck Tear-Off/VapAir Seal 725TR with Cav-Grip III, 702-LV or 702 Primer							
Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	1/2" SecurShield HD Plus	12" ribbons of FAST	1-90	-	-	-
(Celcore) Cellular Lightweight Insulating Concrete/Steel Decking (Min. 22 Gauge)							
FM Approved	Loose laid	1/2" SecurShield HD Plus	12 (2.67 sq. ft)	1-75	-	-	-
FM Approved	Loose laid	1/2" SecurShield HD Plus	16 (2 sq. ft)	1-90	-	-	-
-	-	1/2" SecurShield HD Plus	12 (2.67 sq. ft)	1-75	-	-	-
-	-	1/2" SecurShield HD Plus	16 (2 sq. ft)	1-90	-	-	-

FM Approvals
Design "A" Adhered Roofing Systems

SecurShield HD Plus Ratings - Recover

Membrane Type: .045" or .060" Sure-Weld Standard Reinforced Membrane
.045" or .060" Sure-Weld HS Reinforced Membrane
.080" Sure-Weld EXTRA Reinforced Membrane
.060" or .080" Spectro-Weld Reinforced Membrane

Membrane Adhesive: Sure-Weld Bonding Adhesive (SWBA), Cav-Grip III (CGIII) or Low VOC Bonding Adhesive (LVOC)

Base and Top Layer Adhesive: FAST = Flexible FAST and Flexible FAST Dual Tank

Base Insulation Layer	Base Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Rating	Sure-Weld or Spectro-Weld	Sure-Weld EXTRA	Sure-Weld HS
					RoofNAV Number		
Steel Deck (Min. 22 Gauge)							
-	-	1/2" SecurShield HD Plus	18 (1.8 sq. ft)	1-120	466155-0-0 (LVOC)	466156-0-0 (LVOC)	-
-	-	1/2" SecurShield HD Plus	18 (1.8 sq. ft)	1-120	466157-0-0 (CAV-GRIP III)	-	-
-	-	1/2" SecurShield HD Plus	24 (1.33 sq. ft)	1-225	466158-0-0 (LVOC)	466159-0-0 (LVOC)	-
-	-	1/2" SecurShield HD Plus	24 (1.33 sq. ft)	1-225	466160-0-0 (CAV-GRIP III)	-	-
-	-	1/2" SecurShield HD Plus	8 (4 sq. ft)	1-90	325932-0-0	-	-
-	-	1/2" SecurShield HD Plus	6" ribbons of FAST	1-90	-	-	-
-	-	1/2" SecurShield HD Plus	4" ribbons of FAST	1-150	-	-	-
Concrete Deck							
Min. 1/2" InsulBase Polyiso	6" ribbons of FAST	1/2" SecurShield HD Plus	6" ribbons of FAST	1-150	-	-	-
-	-	1/2" SecurShield HD Plus	6" ribbons of FAST	1-150	-	-	-
Gypsum Deck							
Min. 1-1/2" InsulBase Polyiso	Full-Coverage FAST	1/2" SecurShield HD Plus	12" ribbons of FAST	1-90	458915-0-0	458918-0-0	-

FM Approvals
Design "A" Adhered Roofing Systems

InsulBase Polyiso Ratings - New Construction

Membrane Type: .045" or .060" Sure-Weld Standard Reinforced Membrane
.045" or .060" Sure-Weld HS Reinforced Membrane
.080" Sure-Weld EXTRA Reinforced Membrane
.060" or .080" Spectro-Weld Reinforced Membrane

Membrane Adhesive: Sure-Weld Bonding Adhesive (SWBA), Cav-Grip III (CGIII) or Low VOC Bonding Adhesive (LVOC)

Base and Top Layer Adhesive: FAST = Flexible FAST and Flexible FAST Dual Tank

Base Insulation Layer (Max. thickness 36")	Base Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Rating	Sure-Weld or Spectro- Weld	Sure-Weld EXTRA	Sure-Weld HS
					RoofNAV Number		
Steel Deck (Min. 22 Gauge)							
Min. 1-1/2" InsulBase Polyiso	16 (2 sq. ft.)	-	-	1-90	13221-0-0	13256-0-0	63400-0-0
Min. 2" InsulBase Polyiso	8 (4 sq. ft.)	-	-	1-90	13222-0-0	13259-0-0	63401-0-0
Min. 2" InsulBase Polyiso	20 (1.6 sq. ft.)	-	-	1-150	135476-0-0 (SWBA)	135474-0-0 (SWBA)	135477-0-0 (SWBA)
Min. 1-1/2" InsulBase Polyiso	10 (3.2 sq. ft.)	Min. 1" InsulBase Polyiso	12" ribbons of FAST	1-90	459121-0-0	459122-0-0	-
Min. 2" InsulBase Polyiso	8 (4 sq. ft.)	Min. 2" InsulBase Polyiso	12" ribbons of FAST	1-90	188863-0-0	188878-0-0	188900-0-0
Min. 2" InsulBase Polyiso	16 (2 sq. ft.)	Min. 1/2" InsulBase Polyiso	6" ribbons of FAST	1-105	454517-0-0	454522-0-0	-
Min. 2" InsulBase Polyiso	20 (1.6 sq. ft.)	Min. 1" InsulBase Polyiso	6" ribbons of FAST	1-150	455832-0-0	455872-0-0	-
Min. 2" InsulBase Polyiso	32 (1 sq. ft.)	Min. 1" InsulBase Polyiso	4" ribbons of FAST	1-270	455869-0-0	455873-0-0	-
Min. 1/2" DensDeck Prime or Securock	16 (2 sq. ft.)	Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	1-90	-	-	-
Steel Deck (Min. 22 Gauge)/VapAir Seal 725TR with Cav-Grip III or 702 Primer							
Min. 1/2" DensDeck Prime or Securock	8 (4 sq. ft.)	Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	1-90	352057-0-0	-	-
Min. 1/2" DensDeck Prime or Securock	20 (1.6 sq. ft.)	Min. 1-1/2" InsulBase Polyiso	6" ribbons of FAST	1-135	-	-	-
Steel Deck (Min. 22 Gauge)/SureMB 90TG or 120TG Base Torch Applied							
Min. 1/2" DensDeck Prime or Securock	8 (4 sq. ft.)	Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	1-90	454497-0-0	454498-0-0	-
Min. 1/2" DensDeck Prime or Securock	20 (1.6 sq. ft.)	Min. 1-1/2" InsulBase Polyiso	6" ribbons of FAST	1-135	-	-	-
Steel Deck (Min. 22 Gauge)/SureMB 70 SA with Cav-Grip III Primer							
Min. 1/2" DensDeck Prime or Securock	8 (4 sq. ft.)	Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	1-90	-	-	-
Min. 1/2" DensDeck Prime or Securock	20 (1.6 sq. ft.)	Min. 1-1/2" InsulBase Polyiso	6" ribbons of FAST	1-135	-	-	-
Concrete Deck							
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	-	-	1-315	279654-0-0	279656-0-0	279705-0-0
Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	-	-	1-480	222698-0-0	222698-0-0	222698-0-0
Concrete Deck/VapAir Seal 725TR with Cav-Grip III, 702-LV or 702 Primer							
Min. 1/2" InsulBase Polyiso	6" ribbons of FAST	-	-	1-315	462904-0-0	462910-0-0	-
Min. 1-1/2" InsulBase Polyiso	6" ribbons of FAST	-	-	1-465	462905-0-0	462911-0-0	-
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	-	-	1-255	445235-0-0	-	-

FM Approvals
Design "A" Adhered Roofing Systems

InsulBase Polyiso Ratings - New Construction

Membrane Type: .045" or .060" Sure-Weld Standard Reinforced Membrane
.045" or .060" Sure-Weld HS Reinforced Membrane
.080" Sure-Weld EXTRA Reinforced Membrane
.060" or .080" Spectro-Weld Reinforced Membrane

Membrane Adhesive: Sure-Weld Bonding Adhesive (SWBA), Cav-Grip III (CGIII) or Low VOC Bonding Adhesive (LVOC)

Base and Top Layer Adhesive: FAST = Flexible FAST and Flexible FAST Dual Tank

Base Insulation Layer (Max. thickness 36")	Base Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Rating	Sure-Weld or Spectro- Weld	Sure-Weld EXTRA	Sure-Weld HS
					RoofNAV Number		
Concrete Deck/SureMB 90TG or 120TG Base Torch Applied/Cut-Back Asphalt Primer							
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	1-315	519988-0-0	519988-0-0	-
Min. 1-1/2" InsulBase Polyiso	6" ribbons of FAST	-	-	1-465	462940-0-0	462944-0-0	-
Min. 1/2" InsulBase Polyiso	Full-Coverage FAST	-	-	1-195	392380-0-0	392380-0-0	392380-0-0
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	-	-	1-90	392375-0-0	392375-0-0	392375-0-0
Concrete Deck/SureMB 70 SA with Cav-Grip III Primer							
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	-	-	1-285	519878-0-0	519879-0-0	-
Gypsum Deck Tear-Off							
Min. 1-1/2" InsulBase Polyiso	16 (2 sq. ft)	-	-	1-90	93423-0-0	95309-0-0	-
Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	-	-	1-90	459955-0-0	459958-0-0	-
Gypsum Deck Tear-Off VapAir Seal 725TR with Cav-Grip III Primer, Carlisle 702 LV Primer or Carlisle 702 Primer							
Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	-	-	1-90	459954-0-0	459956-0-0	-
Cellular Lightweight Insulating Concrete/Steel Decking (Min. 22 Gauge)							
Min. 1-1/2" InsulBase Polyiso	16 (2 sq. ft)	-	-	1-90	-	-	-
Min. 2" InsulBase Polyiso	8 (4 sq. ft)	-	-	1-90	-	-	-
Min. 2" InsulBase Polyiso	20 (1.6 sq. ft)	-	-	1-150	-	-	-

FM Approvals
Design "A" Adhered Roofing Systems

InsulBase Polyiso Ratings - Recover

Membrane Type: .045" or .060" Sure-Weld Standard Reinforced Membrane
.045" or .060" Sure-Weld HS Reinforced Membrane
.080" Sure-Weld EXTRA Reinforced Membrane
.060" or .080" Spectro-Weld Reinforced Membrane

Membrane Adhesive: Sure-Weld Bonding Adhesive (SWBA), Cav-Grip III (CGIII) or Low VOC Bonding Adhesive (LVOC)

Base and Top Layer Adhesive: FAST = Flexible FAST and Flexible FAST Dual Tank

Base Insulation Layer	Base Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Rating	Sure-Weld or Spectro-Weld	Sure-Weld EXTRA	Sure-Weld HS
					RoofNAV Number		
Steel Deck (Min. 22 Gauge)							
1" InsulBase Polyiso	20 (1.6 sq. ft)	-	-	1-90	164685-0-0	164687-0-0	164695-0-0
1/2" InsulBase Polyiso	6" ribbons of FAST	-	-	1-90	-	430066-0-0	-
Concrete Deck							
1/2" InsulBase Polyiso	12" ribbons of FAST	-	-	1-90	-	-	-
Gypsum Deck							
1" InsulBase Polyiso	20 (1.6 sq. ft)	-	-	1-90	-	-	-
1" InsulBase Polyiso	12" ribbons of FAST	-	-	1-90	-	-	-

FM Approvals
Design "A" Adhered Roofing Systems

SecurShield and SecurShield HD Composite Ratings - New Construction

Membrane Type: .045" or .060" Sure-Weld Standard Reinforced Membrane
.045" or .060" Sure-Weld HS Reinforced Membrane
.080" Sure-Weld EXTRA Reinforced Membrane
.060" or .080" Spectro-Weld Reinforced Membrane

Membrane Adhesive: Sure-Weld Bonding Adhesive (SWBA), Cav-Grip III (CGIII) or Low VOC Bonding Adhesive (LVOC)

Base and Top Layer Adhesive: FAST = Flexible FAST and Flexible FAST Dual Tank

Base Insulation Layer (Max. thickness 36")	Base Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Rating	Sure-Weld or Spectro- Weld	Sure-Weld EXTRA	Sure-Weld HS
					RoofNAV Number		
Steel Deck (Min. 22 Gauge)							
Min. 1-1/2" SecurShield or SecurShield HD Composite	16 (2 sq. ft.)	-	-	1-90	188569-0-0	188569-0-0	188569-0-0
Min. 2" SecurShield or SecurShield HD Composite	8 (4 sq. ft.)	-	-	1-90	188870-0-0	188870-0-0	188870-0-0
Min. 2" SecurShield or SecurShield HD Composite	20 (1.6 sq. ft.)	-	-	1-150	135476-0-0 (SWBA)	135476-0-0 (SWBA)	135476-0-0 (SWBA)
Min. 2" SecurShield Only	32 (1 sq. ft.)	-	-	1-225 (35)	399364-0-0	399364-0-0	399364-0-0
Min. 1-1/2" InsulBase Polyiso	10 (3.2 sq. ft.)	Min. 1-1/2" SecurShield or SecurShield HD Composite	12" ribbons of FAST	1-90	-	-	-
Min. 2" InsulBase Polyiso or SecurShield	8 (4 sq. ft.)	Min. 2" SecurShield or SecurShield HD Composite	12" ribbons of FAST	1-90	254630-0-0	254630-0-0	254630-0-0
Min. 2" InsulBase Polyiso	16 (2 sq. ft.)	Min. 1/2" SecurShield	6" ribbons of FAST	1-105	454517-0-0	454522-0-0	-
Min. 2" InsulBase Polyiso	20 (1.6 sq. ft.)	Min. 1" SecurShield	6" ribbons of FAST	1-150	455832-0-0	455833-0-0	-
Min. 2" InsulBase Polyiso	32 (1 sq. ft.)	Min. 1" SecurShield	4" ribbons of FAST	1-270	455869-0-0	455873-0-0	-
Min. 1/2" DensDeck Prime or Securock	16 (2 sq. ft.)	Min. 1-1/2" SecurShield or SecurShield HD Composite	6" ribbons of FAST	1-90	-	-	-
Steel Deck (Min. 22 Gauge)/VapAir Seal 725TR with Cav-Grip III or 702 Primer							
Min. 1/2" DensDeck Prime or Securock	8 (4 sq. ft.)	Min. 1-1/2" SecurShield or SecurShield HD Composite	12" ribbons of FAST	1-90	352057-0-0	-	-
Min. 1/2" DensDeck Prime or Securock	20 (1.6 sq. ft.)	Min. 1-1/2" SecurShield or SecurShield HD Composite	6" ribbons of FAST	1-90	-	-	-
Steel Deck (Min. 22 Gauge)/SureMB 120TG or 90TG Base Torch Applied							
Min. 1/2" DensDeck Prime	8 (4 sq. ft.)	Min. 1-1/2" SecurShield or SecurShield HD Composite	12" ribbons of FAST	1-90	454497-0-0	454598-0-0	-
Min. 1/2" DensDeck Prime or Securock	20 (1.6 sq. ft.)	Min. 1-1/2" SecurShield or SecurShield HD Composite	6" ribbons of FAST	1-90	-	-	-
Steel Deck (Min. 22 Gauge)/SureMB 70 SA with Cav-Grip III Primer							
Min. 1/2" DensDeck Prime	8 (4 sq. ft.)	Min. 1-1/2" SecurShield or SecurShield HD Composite	12" ribbons of FAST	1-90	-	-	-
Min. 1/2" DensDeck Prime or Securock	20 (1.6 sq. ft.)	Min. 1-1/2" SecurShield or SecurShield HD Composite	6" ribbons of FAST	1-90	-	-	-
Concrete Deck							
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 2" SecurShield or SecurShield HD Composite	12" ribbons of FAST	1-225	323655-0-0	-	-

FM Approvals
Design "A" Adhered Roofing Systems

SecurShield and SecurShield HD Composite Ratings - New Construction

Membrane Type: .045" or .060" Sure-Weld Standard Reinforced Membrane
.045" or .060" Sure-Weld HS Reinforced Membrane
.080" Sure-Weld EXTRA Reinforced Membrane
.060" or .080" Spectro-Weld Reinforced Membrane

Membrane Adhesive: Sure-Weld Bonding Adhesive (SWBA), Cav-Grip III (CGIII) or Low VOC Bonding Adhesive (LVOC)

Base and Top Layer Adhesive: FAST = Flexible FAST and Flexible FAST Dual Tank

Base Insulation Layer (Max. thickness 36")	Base Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Rating	Sure-Weld or Spectro- Weld	Sure-Weld EXTRA	Sure-Weld HS
					RoofNAV Number		
Concrete Deck/VapAir Seal 725TR with Cav-Grip III Primer, Carlisle 702 LV Primer or Carlisle 702 Primer							
Min. 1/2" SecurShield or SecurShield HD Composite	12" ribbons of FAST	-	-	1-255	445235-0-0	-	-
Min. 1/2" SecurShield	6" ribbons of FAST	-	-	1-315	-	-	-
Min. 1-1/2" SecurShield	6" ribbons of FAST	-	-	1-465	-	-	-
Min. 1/2" InsulBase or SecurShield	12" ribbons of FAST	Min. 2" SecurShield HD Composite	12" ribbons of FAST	1-300	483491-0-0	483491-0-0	-
Concrete Deck/SureMB 90TG or 120TG Base Torch Applied/Cut-Back Asphalt Primer							
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 2" SecurShield or SecurShield HD Composite	12" ribbons of FAST	1-330	-	-	-
Min. 1/2" SecurShield	6" ribbons of FAST	-	-	1-315	-	-	-
Min. 1-1/2" SecurShield	6" ribbons of FAST	-	-	1-465	-	-	-
Concrete Deck/SureMB 70 SA with Cav-Grip III Primer							
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 2" SecurShield or SecurShield HD Composite	12" ribbons of FAST	1-285	-	-	-
Gypsum Deck Tear-Off							
Min. 1-1/2" SecurShield or SecurShield HD Composite	16 (2 sq. ft)	-	-	1-90	-	-	-
Min. 1-1/2" SecurShield or SecurShield HD Composite	12" ribbons of FAST	-	-	1-90	-	-	-
Gypsum Deck Tear-Off/VapAir Seal 725TR with Cav-Grip III, 702-LV or 702 Primer							
Min. 1-1/2" SecurShield or SecurShield HD Composite	12" ribbons of FAST	-	-	1-90	-	-	-
Cellular Lightweight Insulating Concrete/Steel Decking (Min. 22 Gauge)							
Min. 1-1/2" SecurShield or SecurShield HD Composite	16 (2 sq. ft)	-	-	1-75	-	-	-
Min. 2" SecurShield or SecurShield HD Composite	8 (4 sq. ft)	-	-	1-90	-	-	-
Min. 2" SecurShield or SecurShield HD Composite	20 (1.6 sq. ft.)	-	-	1-150	-	-	-
Min. 2" SecurShield or SecurShield HD Composite	32 (1 sq. ft.)	-	-	1-225	-	-	-

FM Approvals
Design "A" Adhered Roofing Systems

SecurShield Ratings - Recover

Membrane Type: .045" or .060" Sure-Weld Standard Reinforced Membrane
.045" or .060" Sure-Weld HS Reinforced Membrane
.080" Sure-Weld EXTRA Reinforced Membrane
.060" or .080" Spectro-Weld Reinforced Membrane

Membrane Adhesive: Sure-Weld Bonding Adhesive (SWBA), Cav-Grip III (CGIII) or Low VOC Bonding Adhesive (LVOC)

Base and Top Layer Adhesive: FAST = Flexible FAST and Flexible FAST Dual Tank

Base Insulation Layer	Base Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Rating	Sure-Weld or Spectro-Weld	Sure-Weld EXTRA	Sure-Weld HS
					RoofNAV Number		
Steel Deck (Min. 22 Gauge)							
1" SecurShield	20 (1.6 sq. ft)	-	-	1-90	-	-	-
Concrete Deck							
1/2" SecurShield	12" ribbons of FAST	-	-	1-90	-	-	-
Gypsum Deck							
1" SecurShield	20 (1.6 sq. ft)	-	-	1-90	-	-	-
1" SecurShield	12" ribbons of FAST	-	-	1-90	-	-	-

FM Approvals
Design "A" Adhered Roofing Systems

Securock Ratings - New Construction

Membrane Type: .045" or .060" Sure-Weld Standard Reinforced Membrane
.045" or .060" Sure-Weld HS Reinforced Membrane
.080" Sure-Weld EXTRA Reinforced Membrane
.060" or .080" Spectro-Weld Reinforced Membrane

Membrane Adhesive: Sure-Weld Bonding Adhesive (SWBA), Cav-Grip III (CGIII) or Low VOC Bonding Adhesive (LVOC)

Base and Top Layer Adhesive: FAST = Flexible FAST and Flexible FAST Dual Tank

Base Insulation Layer (Max. thickness 36")	Base Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Rating	Sure-Weld or Spectro-Weld	Sure-Weld EXTRA	Sure-Weld HS
					RoofNAV Number		
Steel Deck (Min. 22 Gauge)							
Min. 1-1/2" InsulBase Polyiso	Loose laid	Min. 1/4" Securock	12 (2.66 sq. ft)	1-75	269962-0-0 (LVOC)	269964-0-0 (LVOC)	269968-0-0 (LVOC)
Min. 1-1/2" InsulBase Polyiso	Loose laid	Min. 1/4" Securock	10 (3.2 sq. ft) SecurFAST Plate	1-90	-	-	-
Min. 1-1/2" InsulBase Polyiso	Loose laid	Min. 3/8" Securock	8 (4 sq. ft) SecurFAST Plate	1-90	-	-	-
Min. 1-1/2" InsulBase Polyiso	Loose laid	Min. 1/2" Securock	10 (3.2 sq. ft)	1-90	269985-0-0	269986-0-0 (LVOC)	269988-0-0 (LVOC)
Min. 1-1/2" InsulBase Polyiso	Loose laid	Min. 1/2" Securock	8 (4 sq. ft) SecurFAST Plate	1-90	443300-0-0	443314-0-0	443303-0-0
Min. 1-1/2" InsulBase Polyiso	Loose laid	Min. 1/2" Securock	6 (5.33 sq. ft) SecurFAST Plate	1-75	443360-0-0	443361-0-0	443350-0-0
Min. 1-1/2" InsulBase Polyiso	Loose laid	Min. 5/8" Securock	8 (4 sq. ft)	1-90	269989-0-0 (LVOC)	269990-0-0 (LVOC)	269992-0-0 (LVOC)
Min. 1-1/2" InsulBase Polyiso	Loose laid	Min. 5/8" Securock	6 (5.33 sq. ft)	1-90	443331-0-0	443332-0-0	443334-0-0
Min. 1" InsulBase Polyiso	Loose laid	Min. 1/2" Securock	20 (1.6 sq. ft)	1-150	269993-0-0	269994-0-0	269996-0-0 (LVOC)
Min. 1-1/2" InsulBase Polyiso	Loose laid	Min. 1/2" Securock	32 (1 sq. ft)	1-255	239271-0-0 (LVOC)	239272-0-0 (LVOC)	269952-0-0 (LVOC)
Min. 1-1/2" InsulBase Polyiso	10 (3.2 sq. ft.)	Min. 1/4" Securock	12" ribbons of FAST	1-90	301750-0-0	301750-0-0	301753-0-0 (LVOC)
Min. 2" InsulBase Polyiso	8 (4 sq. ft)	Min. 1/4" Securock	12" ribbons of FAST	1-90	488181-0-0	488180-0-0	-
Min. 2" InsulBase Polyiso	16 (2 sq. ft.)	1/2" SecurShield HD	12" ribbons of FAST	1-120	455769-0-0 (SWBA)	455773-0-0	-
Min. 2" InsulBase Polyiso	20 (1.6 sq. ft.)	1/2" SecurShield HD	6" ribbons of FAST	1-135	455772-0-0	455772-0-0	-
Min. 2" InsulBase Polyiso	32 (1 sq. ft.)	1/2" SecurShield HD	4" ribbons of FAST	1-225	455811-0-0	455811-0-0	-
Min. 1/2" DensDeck Prime or Securock	16 (2 sq. ft.)	Min. 1/4" Securock over Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	1-90	-	-	-
Steel Deck (Min. 22 Gauge)/VapAir Seal 725TR with Cav-Grip III or 702 Primer							
Min. 1/2" DensDeck Prime or Securock	8 (4 sq. ft.)	Min. 1/4" Securock over Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	1-90	327597-0-0	396795-0-0	437319-0-0
Min. 1/2" DensDeck Prime or Securock	20 (1.6 sq. ft.)	Min. 1/2" Securock over Min. 1/2" InsulBase Polyiso	6" ribbons of FAST	1-135	-	-	-
Steel Deck (Min. 22 Gauge)/SureMB 90TG or 120TG Base Torch Applied							
Min. 1/2" DensDeck Prime or Securock	8 (4 sq. ft.)	Min. 1/4" Securock over Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	1-90	-	-	-
Min. 1/2" DensDeck Prime or Securock	20 (1.6 sq. ft.)	Min. 1/2" Securock over Min. 1/2" InsulBase Polyiso	6" ribbons of FAST	1-135	-	-	-

FM Approvals
Design "A" Adhered Roofing Systems

Securock Ratings - New Construction

Membrane Type: .045" or .060" Sure-Weld Standard Reinforced Membrane
.045" or .060" Sure-Weld HS Reinforced Membrane
.080" Sure-Weld EXTRA Reinforced Membrane
.060" or .080" Spectro-Weld Reinforced Membrane

Membrane Adhesive: Sure-Weld Bonding Adhesive (SWBA), Cav-Grip III (CGIII) or Low VOC Bonding Adhesive (LVOC)

Base and Top Layer Adhesive: FAST = Flexible FAST and Flexible FAST Dual Tank

Base Insulation Layer (Max. thickness 36")	Base Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Rating	Sure-Weld or Spectro-Weld	Sure-Weld EXTRA	Sure-Weld HS
					RoofNAV Number		
Steel Deck (Min. 22 Gauge)/SureMB 70 SA with Cav-Grip III Primer							
Min. 1/2" DensDeck Prime or Securock	8 (4 sq. ft.)	Min. 1/4" Securock over Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	1-90	-	-	-
Min. 1/2" DensDeck Prime or Securock	20 (1.6 sq. ft.)	Min. 1/2" Securock over Min. 1/2" InsulBase Polyiso	6" ribbons of FAST	1-135	-	-	-
Concrete Deck							
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 1/4" Securock	12" ribbons of FAST	1-315	307662-0-0 (SWBA)	307751-0-0 (SWBA)	307702-0-0 (SWBA)
Min. 1/2" InsulBase Polyiso	Hot Asphalt	Min. 1/4" Securock	Hot Asphalt	1-495	282246-0-0	-	-
Min. 1/2" InsulBase Polyiso	Loose laid	Min. 1/2" Securock	10 (3.2 sq. ft)	1-90	393508-0-0	-	-
Min. 1-1/2" InsulBase Polyiso	Loose laid	Min. 1/2" Securock	32 (1 sq. ft)	1-255	398846-0-0	398848-0-0	398849-0-0
Concrete Deck/VapAir Seal 725TR with Cav-Grip III, 702-LV or 702 Primer							
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 1/4" Securock	12" ribbons of FAST	1-255	333171-0-0	364616-0-0 (LVOC)	364627-0-0 (LVOC)
Min. 1" Insulfoam EPS	12" ribbons of FAST	Min. 1/4" Securock	12" ribbons of FAST	1-315	501707-0-0	501756-0-0	-
Min. 1-1/2" InsulBase Polyiso	6" ribbons of FAST	Min. 1/4" Securock	6" ribbons of FAST	1-465	-	-	-
Concrete Deck/SureMB 90TG or 120TG Base Torch Applied/Cut-Back Asphalt Primer							
Min. 1/2" InsulBase Polyiso or Min 1-1/2" SecurShield	12" ribbons of FAST	Min. 1/4" Securock	12" ribbons of FAST	1-255	394468-0-0	394544-0-0	394544-0-0
Min. 1/2" InsulBase Polyiso	6" ribbons of FAST	Min. 1/4" Securock	6" ribbons of FAST	1-315	-	-	-
Min. 1-1/2" InsulBase Polyiso	6" ribbons of FAST	Min. 1/4" Securock	6" ribbons of FAST	1-465	-	-	-
Concrete Deck/SureMB 70 SA with Cav-Grip III Primer							
Min. 1/2" InsulBase Polyiso or Min 1-1/2" SecurShield	12" ribbons of FAST	Min. 1/4" Securock	12" ribbons of FAST	1-285	-	519845-0-0	-
Gypsum Deck Tear-Off							
Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 1/4" Securock	12" ribbons of FAST	1-90	-	-	-
Min. 1-1/2" InsulBase Polyiso	8 (2 sq. ft)	Min. 1/4" Securock	12" ribbons of FAST	1-90	466958-0-0	466958-0-0	-
Gypsum Deck Tear-Off/VapAir Seal 725TR with Cav-Grip III, 702-LV or 702 Primer							
Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 1/4" Securock	12" ribbons of FAST	1-90	466959-0-0	466963-0-0	-
Cellular Lightweight Insulating Concrete/Steel Decking (Min. 22 Gauge)							
FM Approved	Loose laid	Min. 1/4" Securock	12 (2.67 sq. ft)	1-75	-	-	-
FM Approved	Loose laid	Min. 1/2" Securock	10 (3.2 sq. ft)	1-90	-	-	-
FM Approved	Loose laid	Min. 5/8" Securock	8 (4 sq. ft)	1-90	-	-	-
FM Approved	Loose laid	Min. 1/2" Securock	20 (1.6 sq. ft)	1-150	-	-	-
FM Approved	Loose laid	Min. 1/2" Securock	32 (1 sq. ft)	1-225	-	-	-

FM Approvals
Design "A" Adhered Roofing Systems

Securock Ratings - Recover

Membrane Type: .045" or .060" Sure-Weld Standard Reinforced Membrane
 .045" or .060" Sure-Weld HS Reinforced Membrane
 .080" Sure-Weld EXTRA Reinforced Membrane
 .060" or .080" Spectro-Weld Reinforced Membrane

Membrane Adhesive: Sure-Weld Bonding Adhesive (SWBA), Cav-Grip III (CGIII) or Low VOC Bonding Adhesive (LVOC)

Base and Top Layer Adhesive: FAST = Flexible FAST and Flexible FAST Dual Tank

Base Insulation Layer	Base Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Rating	Sure-Weld or Spectro-Weld	Sure-Weld EXTRA	Sure-Weld HS
					RoofNAV Number		
Steel Deck (Min. 22 Gauge)							
1/2" InsulBase Polyiso	10 (3.2 sq. ft)	Min. 1/4" Securock	12" ribbons of FAST	1-90	301766-0-0 (LVOC)	288835-0-0 (LVOC)	288837-0-0 (LVOC)

FM Approvals
Design "A" Adhered Roofing Systems

DensDeck Prime Ratings - New Construction

Membrane Type: .045" or .060" Sure-Weld Standard Reinforced Membrane
.045" or .060" Sure-Weld HS Reinforced Membrane
.080" Sure-Weld EXTRA Reinforced Membrane
.060" or .080" Spectro-Weld Reinforced Membrane

Membrane Adhesive: Sure-Weld Bonding Adhesive (SWBA), Cav-Grip III (CGIII) or Low VOC Bonding Adhesive (LVOC)

Base and Top Layer Adhesive: FAST = Flexible FAST and Flexible FAST Dual Tank

Base Insulation Layer (Max. thickness 36")	Base Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Rating	Sure-Weld or Spectro- Weld	Sure-Weld EXTRA	Sure-Weld HS
					RoofNAV Number		
Steel Deck (Min. 22 Gauge)							
Min. 1-1/2" InsulBase Polyiso or SecurShield	Loose laid	Min. 1/4" DensDeck Prime	12 (2.67 sq. ft)	1-90	92102-0-0	95279-0-0	92103-0-0
Min. 1-1/2" InsulBase Polyiso or SecurShield	Loose laid	Min. 1/2" DensDeck Prime	10 (3.2 sq. ft)	1-60	92073-0-0	95221-0-0	92074-0-0
Min. 1-1/2" InsulBase Polyiso or SecurShield	Loose laid	5/8" DensDeck Prime	8 (4 sq. ft)	1-90	92098-0-0	95274-0-0	92099-0-0
Min. 1-1/2" InsulBase Polyiso	Loose laid	Min. 1/2" DensDeck Prime	8 (4 sq.ft)	1-90	388249-0-0	388251-0-0	-
Min. 1-1/2" InsulBase Polyiso	Loose laid	Min. 1/4" DensDeck Prime	18 (1.8 sq. ft)	1-105	382309-0-0	382310-0-0	-
Min. 1-1/2" InsulBase Polyiso	Loose laid	Min. 1/2" DensDeck Prime	18 (1.8 sq. ft)	1-135	383699-0-0	383700-0-0	-
Min. 1-1/2" InsulBase Polyiso	Loose laid	Min. 1/2" DensDeck Prime	20 (1.6 sq. ft)	1-150	383709-0-0	383710-0-0	-
Min. 1-1/2" InsulBase Polyiso	Loose laid	Min. 1/2" DensDeck Prime	32 (1 sq. ft)	1-165	387927-0-0	384594-0-0	-
Min. 1-1/2" InsulBase Polyiso	Loose laid	Min. 1/2" DensDeck Prime	32 (1 sq. ft)	1-180 (34)	384593-0-0	384595-0-0	-
Min. 1-1/2" InsulBase Polyiso	Loose laid	Min. 1/2" DensDeck Prime	32 (1 sq. ft)	1-255 (35)	387928-0-0	387931-0-0	-
Min. 1-1/2" InsulBase Polyiso	10 (3.2 sq. ft.)	Min. 1/4" DensDeck Prime	12" ribbons of FAST	1-90	437158-0-0	437158-0-0	-
Min. 2" InsulBase Polyiso	8 (4 sq. ft)	Min. 1/4" DensDeck Prime	12" ribbons of FAST	1-90	467869-0-0	467869-0-0	467869-0-0
Min. 1-1/2" InsulBase Polyiso	16 (2 sq. ft.)	Min. 1/2" DensDeck Prime	12" ribbons of FAST	1-120	479670-0-0	455772-0-0	-
Min. 2" InsulBase Polyiso	20 (1.6 sq. ft.)	Min. 1/2" DensDeck Prime	6" ribbons of FAST	1-135	455722-0-0	455723-0-0 (SWBA)	-
Min. 2" InsulBase Polyiso	32 (1 sq. ft.)	Min. 1/2" DensDeck Prime	4" ribbons of FAST	1-225	455811-0-0	455811-0-0	-
Min. 1/2" DensDeck Prime	16 (2 sq. ft.)	Min. 1/4" DensDeck Prime over Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	1-90	303447-0-0	303448-0-0	303451-0-0
Steel Deck (Min. 22 Gauge)/VapAir Seal 725TR with Cav-Grip III or 702 Primer							
Min. 1/2" DensDeck Prime	8 (4 sq. ft.)	1/4" DensDeck Prime over Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	1-90	327597-0-0	396795-0-0	437319-0-0
Min. 1/2" DensDeck Prime	20 (1.6 sq. ft.)	1/2" DensDeck Prime over Min. 1/2" InsulBase Polyiso	6" ribbons of FAST	1-135	-	-	-
Steel Deck (Min. 22 Gauge)/SureMB 90TG or 120TG Base Torch Applied							
Min. 1/2" DensDeck Prime	8 (4 sq. ft.)	1/4" DensDeck Prime over Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	1-90	-	-	-
Min. 1/2" DensDeck Prime	20 (1.6 sq. ft.)	1/2" DensDeck Prime over Min. 1/2" InsulBase Polyiso	6" ribbons of FAST	1-135	-	-	-

FM Approvals
Design "A" Adhered Roofing Systems

DensDeck Prime Ratings - New Construction

Membrane Type: .045" or .060" Sure-Weld Standard Reinforced Membrane
.045" or .060" Sure-Weld HS Reinforced Membrane
.080" Sure-Weld EXTRA Reinforced Membrane
.060" or .080" Spectro-Weld Reinforced Membrane

Membrane Adhesive: Sure-Weld Bonding Adhesive (SWBA), Cav-Grip III (CGIII) or Low VOC Bonding Adhesive (LVOC)

Base and Top Layer Adhesive: FAST = Flexible FAST and Flexible FAST Dual Tank

Base Insulation Layer (Max. thickness 36")	Base Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Rating	Sure-Weld or Spectro- Weld	Sure-Weld EXTRA	Sure-Weld HS
					RoofNAV Number		
Steel Deck (Min. 22 Gauge)/SureMB 70 SA with Cav-Grip III Primer							
Min. 1/2" DensDeck Prime	8 (4 sq. ft.)	1/4" DensDeck Prime over Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	1-90	-	-	-
Min. 1/2" DensDeck Prime	20 (1.6 sq. ft.)	1/2" DensDeck Prime over Min. 1/2" InsulBase Polyiso	6" ribbons of FAST	1-135	-	-	-
Concrete Deck							
Min. 1-1/2" InsulBase Polyiso	Full-Coverage FAST	Min. 1/4" DensDeck Prime	12" ribbons of FAST	1-195	298143-0-0	298143-0-0	298143-0-0
Concrete Deck/VapAir Seal 725TR with Cav-Grip III, 702-LV or 702 Primer							
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 1/4" DensDeck Prime	12" ribbons of FAST	1-315	333171-0-0	364616-0-0	-
Min. 1" Insulfoam EPS	12" ribbons of FAST	Min. 1/4" DensDeck Prime	12" ribbons of FAST	1-315	501707-0-0	501756-0-0	-
Min. 1-1/2" InsulBase Polyiso	6" ribbons of FAST	Min. 1/4" DensDeck Prime	6" ribbons of FAST	1-465	512628-0-0	512629-0-0	-
Concrete Deck/SureMB 90TG or 120TG Base Torch Applied/Cut-Back Asphalt Primer							
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 1/4" DensDeck Prime	12" ribbons of FAST	1-315	-	434646-0-0	-
Min. 1/2" InsulBase Polyiso	6" ribbons of FAST	Min. 1/4" DensDeck Prime	6" ribbons of FAST	1-315	-	-	-
Min. 1-1/2" InsulBase Polyiso	6" ribbons of FAST	Min. 1/4" DensDeck Prime	6" ribbons of FAST	1-465	-	-	-
Concrete Deck/SureMB 70 SA with Cav-Grip III Primer							
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 1/4" DensDeck Prime	12" ribbons of FAST	1-285	-	519845-0-0	-
Gypsum Deck Tear-Off							
Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 1/4" DensDeck Prime	12" ribbons of FAST	1-90	173520-0-0	173525-0-0	173520-0-0
Min. 1-1/2" InsulBase Polyiso	8 (2 sq. ft.)	Min. 1/4" DensDeck Prime	12" ribbons of FAST	1-90	-	466958-0-0	-
Gypsum Deck Tear-Off/VapAir Seal 725TR with Cav-Grip III, 702-LV or 702 Primer							
Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 1/4" DensDeck Prime	12" ribbons of FAST	1-90	466959-0-0	466963-0-0	-
Cellular Lightweight Insulating Concrete/Steel Decking (Min. 22 Gauge)							
FM Approved	Loose laid	Min. 1/4" DensDeck Prime	12 (2.67 sq. ft)	1-90	-	-	-
FM Approved	Loose laid	Min. 1/2" DensDeck Prime	10 (3.2 sq. ft)	1-90	-	-	-
FM Approved	Loose laid	Min. 5/8" DensDeck Prime	8 (4 sq. ft)	1-90	-	-	-
Min. 1" InsulBase or SecurShield	4" ribbons of Dual Tank	Min. 1/4" DensDeck Prime	12" ribbons of Dual Tank	1-135	507749-0-50918	507749-0-50918	-

FM Approvals
Design "A" Adhered Roofing Systems

DensDeck Prime Ratings - Recover

Membrane Type: .045" or .060" Sure-Weld Standard Reinforced Membrane
 .045" or .060" Sure-Weld HS Reinforced Membrane
 .080" Sure-Weld EXTRA Reinforced Membrane
 .060" or .080" Spectro-Weld Reinforced Membrane

Membrane Adhesive: Sure-Weld Bonding Adhesive (SWBA), Cav-Grip III (CGIII) or Low VOC Bonding Adhesive (LVOC)

Base and Top Layer Adhesive: FAST = Flexible FAST and Flexible FAST Dual Tank

Base Insulation Layer	Base Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Rating	Sure-Weld or Spectro- Weld	Sure-Weld EXTRA	Sure-Weld HS
					RoofNAV Number		
Steel Deck							
Min. 1/2" InsulBase Polyiso	20 (1.6 sq. ft)	Min. 1/4" DensDeck Prime	Hot Asphalt	1-90	265212-0-0	265212-0-0	265212-0-0
-	-	Min. 1/2" DensDeck Prime	10 (3.2 sq. ft)	1-90	430067-0-0	430068-0-0	-
Min. 1" InsulBase Polyiso or Min 1" SecurShield	Loose Laid	Min. 1/4" DensDeck Prime	16 (2 sq. ft.)	1-90	391004-0-0	391442-0-0	391443-0-0

FM Approvals
Design "A" Adhered Roofing Systems

StormBase Ratings - New Construction

Membrane Type: .045" or .060" Sure-Weld Standard Reinforced Membrane
.045" or .060" Sure-Weld HS Reinforced Membrane
.080" Sure-Weld EXTRA Reinforced Membrane
.060" or .080" Spectro-Weld Reinforced Membrane

Membrane Adhesive: Sure-Weld Bonding Adhesive (SWBA), Cav-Grip III (CGIII) or Low VOC Bonding Adhesive (LVOC)

Base and Top Layer Adhesive: FAST = Flexible FAST and Flexible FAST Dual Tank

Base Insulation Layer	Base Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Rating	Sure-Weld or Spectro- Weld	Sure-Weld EXTRA	Sure-Weld HS
					RoofNAV Number		
Steel Deck (Min. 22 Gauge)							
Min. 1-1/2" InsulBase Polyiso	Sure-seal Insulation and Sure-Seal HP 10 (3.2 sq. ft)	Min. 2" StormBase	12" ribbons of FAST	1-90	-	427172-0-0 VSH	-
Min. 2" InsulBase Polyiso	Sure-seal Insulation and Sure-Seal HP 8 (4 sq. ft)	Min. 2" StormBase	12" ribbons of FAST	1-90	-	427201-0-0 VSH	-
Min. 1-1/2" Polyiso	Loose laid	Min. 2" StormBase	Full-Coverage FAST	1-90	-	419427-0-0 VSH	-
Min. 1/2" DensDeck Prime or 5/8" Securock	Sure-seal Insulation and Sure-Seal HP 16 (2 sq. ft)	Min. 2" StormBase	12" ribbons of FAST	1-90	-	427202-0-0 VSH	-
Min. 3" Insulfoam VIII over 1/2" Dens Deck	16 (2 sq. ft)	Min. 1-1/2" Insulam OSB	6" ribbons of FAST	1-150	-	434590-0-0 VSH	-
Steel Deck (Min. 22 Gauge)/VapAir Seal 725TR with Cav-Grip III or 702 Primer							
Min. 1/2" DensDeck Prime or Securock	8 (4 sq. ft)	Min. 2" StormBase	12" ribbons of FAST	1-90	-	434469-0-0 VSH	-
Steel Deck (Min. 22 Gauge)/SureMB 90TG or 120TG Base Torch Applied							
Min. 1/2" DensDeck Prime or Securock	8 (4 sq. ft)	Min. 2" StormBase	12" ribbons of FAST	1-90	-	-	-
Steel Deck (Min. 22 Gauge)/SureMB 70 SA with Cav-Grip III Primer							
Min. 1/2" DensDeck Prime or Securock	8 (4 sq. ft)	Min. 2" StormBase	12" ribbons of FAST	1-90	-	-	-
Concrete Deck							
Min. 1/2" InsulBase Polyiso or SecurShield	12" ribbons of FAST	Min. 2" StormBase	12" ribbons of FAST	1-315	-	427190-0-0 VSH	-
Min. 2" ChannelDry EPS under Insulfoam VIII	16 (2 sq. ft)	Min. 2" Insulam OSB	6" ribbons of FAST	1-90	427784-0-0	427784-0-0	427786-0-0
-	-	Min. 2" StormBase	12" ribbons of FAST	1-165	-	434470-0-0 VSH	-
Concrete Deck/VapAir Seal 725TR with Cav-Grip III, 702-LV or 702 Primer							
Min. 1/2" InsulBase Polyiso or SecurShield	12" ribbons of FAST	Min. 2" StormBase	12" ribbons of FAST	1-255	-	427203-0-0	-
Concrete Deck/SureMB 90TG or 120TG Base Torch Applied with Cut-Back Asphalt Primer							
Min. 1/2" InsulBase Polyiso or SecurShield	12" ribbons of FAST	Min. 2" StormBase	12" ribbons of FAST	1-255	-	-	-
Concrete Deck/SureMB 70 SA with Cav-Grip III Primer							
Min. 1/2" InsulBase Polyiso or SecurShield	12" ribbons of FAST	Min. 2" StormBase	12" ribbons of FAST	1-255	-	-	-
Gypsum Deck Tear-Off							
Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 2" StormBase	12" ribbons of FAST	1-90	-	-	-
Gypsum Deck Tear-Off/VapAir Seal 725TR with Cav-Grip III, 702-LV or 702 Primer							
Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 2" StormBase	12" ribbons of FAST	1-90	-	-	-
Cellular Lightweight Insulating Concrete/Steel Decking (Min. 22 Gauge)							
FM Approved	Loose laid	Min. 2" StormBase	17 (1.8 sq. ft)	1-150	-	-	-

FM Approvals
Design "A" Adhered Roofing Systems

HP Recovery Board Ratings - New Construction

Membrane Type: .045" or .060" Sure-Weld Standard Reinforced Membrane
 .045" or .060" Sure-Weld HS Reinforced Membrane
 .080" Sure-Weld EXTRA Reinforced Membrane
 .060" or .080" Spectro-Weld Reinforced Membrane

Membrane Adhesive: Sure-Weld Bonding Adhesive (SWBA), Cav-Grip III (CGIII) or Low VOC Bonding Adhesive (LVOC)

Base Insulation Layer (Max. thickness 36")	Base Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Rating	Sure-Weld or Spectro-Weld	Sure-Weld EXTRA	Sure-Weld HS
					RoofNAV Number		
Steel Deck (Min. 22 Gauge)							
Min. 1-1/2" InsulBase Polyiso	Loose laid	Min. 1/2" HP Recovery Board	16 (2 sq. ft)	1-90	212437-0-0	-	-
Concrete Deck							
Min. 1-1/2" InsulBase Polyiso	Hot Asphalt	Min. 1/2" HP Recovery Board	Hot Asphalt	1-300	224117-0-0	224118-0-0	224117-0-0
Cellular Lightweight Insulating Concrete/Steel Decking (Min. 22 Gauge)							
FM Approved	Loose laid	Min. 1/2" HP Recovery Board	16 (2 sq. ft)	1-90	-	-	-

FM Approvals
Design "A" Adhered Roofing Systems

HP Recovery Board Ratings - Recover

Membrane Type: .045" or .060" Sure-Weld Standard Reinforced Membrane
 .045" or .060" Sure-Weld HS Reinforced Membrane
 .080" Sure-Weld EXTRA Reinforced Membrane
 .060" or .080" Spectro-Weld Reinforced Membrane

Membrane Adhesive: Sure-Weld Bonding Adhesive (SWBA), Cav-Grip III (CGIII) or Low VOC Bonding Adhesive (LVOC)

Base and Top Layer Adhesive: FAST = Flexible FAST and Flexible FAST Dual Tank

Base Insulation Layer	Base Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Rating	Sure-Weld or Spectro-Weld	Sure-Weld EXTRA	Sure-Weld HS
					RoofNAV Number		
Steel Deck							
Min. 1/2" InsulBase Polyiso	20 (1.6 sq. ft)	1/2" HP Recovery Board	Hot Asphalt	1-90	265212-0-0	265214-0-0	265212-0-0
Concrete Deck							
Min. 1" InsulBase Polyiso	20 (1.6 sq. ft)	1/2" HP Recovery Board	Hot Asphalt	1-90	265217-0-0	265218-0-0	265217-0-0

FM Approvals

EcoStorm VSH Ratings - New Construction

Membrane Type: .045" or .060" Sure-Weld Standard Reinforced Membrane
 .045" or .060" Sure-Weld HS Reinforced Membrane
 .080" Sure-Weld EXTRA Reinforced Membrane
 .060" or .080" Spectro-Weld Reinforced Membrane

Membrane Adhesive: Sure-Weld Bonding Adhesive (SWBA), Cav-Grip III (CGIII) or Low VOC Bonding Adhesive (LVOC)

Base and Top Layer Adhesive: FAST = Flexible FAST and Flexible FAST Dual Tank

Base Insulation Layer (Max. thickness 36")	Base Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Rating	Sure-Weld or Spectro-Weld	Sure-Weld EXTRA	Sure-Weld HS
					RoofNAV Number		
Steel Deck (Min. 22 Gauge)							
Min. 1-1/2" InsulBase Polyiso or SecurShield	Loose laid	1/2" EcoStorm VSH	8 (4 sq. ft)	1-90	465630-0-0	-	-
Min. 1-1/2" InsulBase Polyiso or SecurShield	Loose laid	1/2" EcoStorm VSH	18 (1.8 sq. ft)	1-120	-	-	-
Min. 1-1/2" InsulBase Polyiso or SecurShield	Loose laid	1/2" EcoStorm VSH	24 (1.33 sq. ft)	1-150	-	-	-
Min. 1-1/2" InsulBase Polyiso or SecurShield	Loose laid	1/2" EcoStorm VSH	24 (1.33 sq. ft)	1-225 (35)	463866-0-0	-	-
Min. 1-1/2" InsulBase Polyiso or SecurShield	10 (3.2 sq. ft.)	1/2" EcoStorm VSH	6" ribbons of FAST	1-90	465603-0-0	461118-0-0 VSH	467774-0-0
Min. 2" InsulBase Polyiso	8 (4 sq. ft)	1/2" EcoStorm VSH	6" ribbons of FAST	1-90	466514-0-0	461123-0-0 VSH	467771-0-0
Min. 1-1/2" InsulBase Polyiso	18 (1.8 sq. ft.)	1/2" EcoStorm VSH	6" ribbons of FAST	1-105	463867-0-0	461115-0-0 VSH	-
Min. 1-1/2" InsulBase Polyiso	24 (1.33 sq. ft.)	1/2" EcoStorm VSH	4" ribbons of FAST	1-150	463869-0-0	461117-0-0 VSH	-
Min. 2" InsulBase Polyiso	16 (2 sq. ft.)	1/2" EcoStorm VSH	12" ribbons of FAST	1-120	-	-	-
Min. 2" InsulBase Polyiso	20 (1.6 sq. ft.)	1/2" EcoStorm VSH	6" ribbons of FAST	1-135	-	-	-
Min. 2" InsulBase Polyiso	32 (1 sq. ft.)	1/2" EcoStorm VSH	4" ribbons of FAST	1-225	-	-	-
Min. 2" InsulBase Polyiso	24 (1.33 sq. ft.)	1/2" EcoStorm VSH	4" ribbons of FAST	1-180	-	461214-0-0 VSH	-
Min. 1/2" DensDeck Prime or Securock	16 (2 sq. ft.)	1/2" EcoStorm VSH over InsulBase Polyiso	6" ribbons of FAST	1-90	-	-	-
Steel Deck (Min. 22 Gauge)/VapAir Seal 725TR with Cav-Grip III or 702 Primer							
Min. 1/2" DensDeck Prime or Securock	8 (4 sq. ft.)	1/2" EcoStorm VSH over InsulBase Polyiso	6" ribbons of FAST	1-90	466775-0-0	461154-0-0 VSH	467801-0-0
Min. 1/2" DensDeck Prime or Securock	16 (2 sq. ft.)	1/2" EcoStorm VSH over Insulfoam Roofing EPS	6" ribbons of FAST	1-90	465656-0-0	461121-0-0 VSH	-
Min. 1/2" DensDeck Prime or Securock	20 (1.6 sq. ft.)	1/2" EcoStorm VSH over InsulBase Polyiso	6" ribbons of FAST	1-135	-	-	-
Steel Deck (Min. 22 Gauge)/SureMB 90TG or 120TG Base Torch Applied							
Min. 1/2" DensDeck Prime or Securock	8 (4 sq. ft.)	1/2" EcoStorm VSH over InsulBase Polyiso	6" ribbons of FAST	1-90	-	-	-
Min. 1/2" DensDeck Prime or Securock	20 (1.6 sq. ft.)	1/2" EcoStorm VSH over InsulBase Polyiso	6" ribbons of FAST	1-135	-	-	-

FM Approvals

EcoStorm VSH Ratings - New Construction

Membrane Type: .045" or .060" Sure-Weld Standard Reinforced Membrane
 .045" or .060" Sure-Weld HS Reinforced Membrane
 .080" Sure-Weld EXTRA Reinforced Membrane
 .060" or .080" Spectro-Weld Reinforced Membrane

Membrane Adhesive: Sure-Weld Bonding Adhesive (SWBA), Cav-Grip III (CGIII) or Low VOC Bonding Adhesive (LVOC)

Base and Top Layer Adhesive: FAST = Flexible FAST and Flexible FAST Dual Tank

Base Insulation Layer (Max. thickness 36")	Base Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Rating	Sure-Weld or Spectro-Weld	Sure-Weld EXTRA	Sure-Weld HS
					RoofNAV Number		
Steel Deck (Min. 22 Gauge)/SureMB 70 SA with Cav-Grip III Primer							
Min. 1/2" DensDeck Prime or Securock	8 (4 sq. ft.)	1/2" EcoStorm VSH over InsulBase Polyiso	6" ribbons of FAST	1-90	-	-	-
Min. 1/2" DensDeck Prime or Securock	20 (1.6 sq. ft.)	1/2" EcoStorm VSH over InsulBase Polyiso	6" ribbons of FAST	1-135	-	-	-
Concrete Deck							
Min. 1-1/2" InsulBase Polyiso or SecurShield	Loose laid	1/2" EcoStorm VSH	8 (4 sq. ft)	1-90	479667-0-0	479668-0-0	-
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	1/2" EcoStorm VSH	12" ribbons of FAST	1-225	465627-0-0	461120-0-0 VSH	-
Min. 2" ChannelDry EPS with Min. 1" Insulfoam EPS in adhesive	12" ribbons of FAST	1/2" EcoStorm VSH	12" ribbons of FAST	1-285	-	490971-0-0 VSH	-
Min. 2" Insulfoam Roofing EPS	12" ribbons of FAST	1/2" EcoStorm VSH	12" ribbons of FAST	1-285	466520-0-0	461129-0-0 VSH	-
Concrete Deck/VapAir Seal 725TR with Cav-Grip III, 702-LV or 702 Primer							
Min. 1/2" InsulBase Polyiso or Min. 1-1/2" SecurShield	12" ribbons of FAST	1/2" EcoStorm VSH	12" ribbons of FAST	1-240	466522-0-0	461135-0-0 VSH	-
Min. 2" Insulfoam EPS	12" ribbons of FAST	1/2" EcoStorm VSH	12" ribbons of FAST	1-225	-	461131-0-0 VSH	-
Min. 1/2" InsulBase Polyiso	6" ribbons of FAST	1/2" EcoStorm VSH	6" ribbons of FAST	1-315	-	-	-
Min. 1-1/2" InsulBase Polyiso	6" ribbons of FAST	1/2" EcoStorm VSH	6" ribbons of FAST	1-465	-	-	-
Concrete Deck/SureMB 90TG or 120TG Base Torch Applied/Cut-Back Asphalt Primer							
Min. 1/2" InsulBase Polyiso or Min. 1-1/2" SecurShield	12" ribbons of FAST	1/2" EcoStorm VSH	12" ribbons of FAST	1-240	466770-0-0	461141-0-0 VSH	-
Min. 1/2" InsulBase Polyiso	6" ribbons of FAST	1/2" EcoStorm VSH	6" ribbons of FAST	1-315	-	-	-
Min. 1-1/2" InsulBase Polyiso	6" ribbons of FAST	1/2" EcoStorm VSH	6" ribbons of FAST	1-465	-	-	-
Concrete Deck/SureMB 70 SA with Cav-Grip III Primer							
Min. 1/2" InsulBase Polyiso or Min. 1-1/2" SecurShield	12" ribbons of FAST	1/2" EcoStorm VSH	12" ribbons of FAST	1-285	-	-	-
Gypsum Deck Tear-Off							
Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	1/2" EcoStorm VSH	12" ribbons of FAST	1-90	-	486677-0-0 VSH	-
Gypsum Deck Tear-Off/VapAir Seal 725TR with Cav-Grip III, 702-LV or 702 Primer							
Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	1/2" EcoStorm VSH	12" ribbons of FAST	1-90	-	486041-0-0 VSH	-
(Celcore) Cellular Lightweight Insulating Concrete/Steel Decking (Min. 22 Gauge)							
FM Approved	Loose laid	1/2" EcoStorm VSH	12 (2.67 sq. ft)	1-75	-	-	-
FM Approved	Loose laid	1/2" EcoStorm VSH	16 (2 sq. ft)	1-90	-	-	-
-	-	1/2" EcoStorm VSH	12 (2.67 sq. ft)	1-75	-	-	-
-	-	1/2" EcoStorm VSH	16 (2 sq. ft)	1-90	-	-	-

FM Approvals

EcoStorm VSH Ratings - Recover

- Membrane Type:** .045" or .060" Sure-Weld Standard Reinforced Membrane
 .045" or .060" Sure-Weld HS Reinforced Membrane
 .080" Sure-Weld EXTRA Reinforced Membrane
 .060" or .080" Spectro-Weld Reinforced Membrane
- Membrane Adhesive:** Sure-Weld Bonding Adhesive (SWBA), Cav-Grip III (CGIII) or Low VOC Bonding Adhesive (LVOC)
- Base and Top Layer Adhesive:** FAST = Flexible FAST and Flexible FAST Dual Tank

Base Insulation Layer	Base Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 22, 23 & 24)	Rating	Sure-Weld or Spectro-Weld	Sure-Weld EXTRA	Sure-Weld HS
					RoofNAV Number		
Steel Deck (Min. 22 Gauge)							
-	-	1/2" EcoStorm VSH	18 (1.8 sq. ft)	1-120	-	-	-
-	-	1/2" EcoStorm VSH	18 (1.8 sq. ft)	1-120	-	-	-
-	-	1/2" EcoStorm VSH	24 (1.33 sq. ft)	1-225	-	-	-
-	-	1/2" EcoStorm VSH	24 (1.33 sq. ft)	1-225	-	-	-
-	-	1/2" EcoStorm VSH	8 (4 sq. ft)	1-90	-	-	-
-	-	1/2" EcoStorm VSH	6" ribbons of FAST	1-90	-	-	-
-	-	1/2" EcoStorm VSH	4" ribbons of FAST	1-150	-	-	-
Concrete Deck							
Min. 1/2" InsulBase Polyiso	6" ribbons of FAST	1/2" EcoStorm VSH	6" ribbons of FAST	1-150	-	489958-0-0 VSH	-
-	-	1/2" EcoStorm VSH	6" ribbons of FAST	1-150	-	-	-

FM Approvals
Design "A" Adhered Roofing Systems

Lightweight Insulating Concrete - New Construction

Membrane Type: .045" or .060" Sure-Weld Standard Reinforced Membrane
 .045" or .060" Sure-Weld HS Reinforced Membrane
 .080" Sure-Weld EXTRA Reinforced Membrane
 .060" or .080" Spectro-Weld Reinforced Membrane

Membrane Adhesive: Sure-Weld Bonding Adhesive (SWBA) or Low VOC Bonding Adhesive (LVOC)

Deck Type	Lightweight Insulating Concrete	Rating	Maximum Slope		
			Sure-Weld or Spectro-Weld	Sure-Weld EXTRA	Sure-Weld HS
			RoofNAV Number		
Steel	Celcore	1-135	243956-0-194470 1-1/2" Slope	244212-0-194470 3/4" Slope	-
Concrete	Elastizell	1-180	191311-0-50936 1-1/2" Slope SWBA Only	-	-
			173455-0-50936 3/4" Slope SWBA Only	-	-

National, State & City Building Code Approvals

Authority	Approval	Approved Systems
ICC - International Code Council	Report ESR 1463	“A” and “MF”
SBCCI	These Code Bodies merged to form ICC as of March 2003 Refer to ICC approval	-
BOCA		-
NES – National Evaluation Service, Inc.		“A” and “MF”
ICBO		“A” and “MF”

Dade County (South Florida) Approvals Expires August, 2023

Deck Type	Acceptance #
Lightweight Concrete	19-0521.16
Wood	19-0521.13
Steel	19-0521.17
Structural Concrete	19-0521.15
Cementitious Wood Fiber	19-0521.14
Gypsum	19-0521.12
Recover	19-0521.18

(Using Sure-Weld™ Standard or EXTRA Reinforced Membrane)

1. **Sure-Weld™ White and Tan TPO Membranes** exceed the requirements for the **U.S.E.P.A. ENERGY STAR® Program** for reflective roofing materials.
2. **Sure-Weld™ TPO Membranes** conform to requirements of the **U.S.E.P.A. Toxic Leachate Test** (40 CFR part 136) performed by an independent analytical laboratory.

Carlisle SynTec Systems, a division of Carlisle Construction Materials LLC, P.O. Box 7000, Carlisle, PA 17013
(800)-4SYNTEC (800-479-6832)

Sure-Weld, SpectroWeld, Sure-Weld EXTRA and Sure-Weld HS are Trademarks of Carlisle Corporation
DensDeck Prime is a Trademark of Georgia-Pacific

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SURE-WELD® TPO

Reference Notes

1. Any roof covering system listed for use over a combustible roof deck can be installed over a non-combustible roof deck and achieve the same classification.
2. All insulation joints must be staggered a minimum of 6 inches from the deck joints or from the insulation joints directly below.
3. All insulation joints must be staggered a minimum of 12 inches from the deck joints or from the insulation joints directly below.
4. DELETED
5. DELETED
6. DELETED
7. DELETED
8. DELETED
9. DELETED
10. For roof deck construction (new, tear-off or retrofit), approved insulations and maximum roof slopes, [click here](#).
11. Refer to Carlisle specifications for minimum requirements regarding sheet widths and fastener spacing.
12. On steel decks, Carlisle HP-X Fasteners and Piranha Plates or HP-Xtra Fasteners and Piranha Xtra Plates are required as identified in this chart. On structural concrete decks, CD-10, HP Concrete Spikes or HD 14-10 Fasteners are used with Piranha Plates.
13. Testing conducted on FM approved 22-gauge Grade E Steel decking (ASTM Designation A611 or A653 Grade 80). Refer to FM requirements for deck installation. ([click here for FM requirements](#))
14. Ratings achieved using steel decking attached to structural purlins spaced 5' o.c.
15. Please reference for ANSI-SPRI WD-1/ASCE 7-10 for non-FM insured projects, [click here](#).
16. For roof deck construction (new, tear-off or retrofit), approved insulations and maximum roof slopes, [click here](#).
17. On steel decks, Carlisle HP-X Fasteners and Piranha Plates or HP-Xtra Fasteners and Piranha Xtra Plates are required as identified in this chart. On structural concrete decks, CD-10, HP Concrete Spikes or HD 14-10 Fasteners are used with Piranha Plates.
18. The fastener spacing for membrane securement is dependent on the deck type, desired wind uplift rating and the Carlisle Fastening Plate and Fastener utilized as identified, [click here for more information](#).
19. Insulation shall be fastened in accordance with Carlisle Specifications.
20. On steel decks, a thermal barrier of FM approved gypsum board is required under expanded or extruded polystyrene. For specific thermal barrier requirements, refer to FM's RoofNAV web-site.
21. Existing roof must be FM Class 1 rated.
22. Sure-Seal HP fastener/Sure-Seal Insulation plate.
23. InsulFAST fastener/Sure-Seal Insulation plate.
24. InsulFAST fastener/SecurFAST Insulation Fastening plate.
25. DELETED
26. DELETED
27. DELETED
28. DELETED
29. DELETED
30. DELETED
31. DELETED
32. DELETED
33. DELETED
34. 80 ksi with one fastener per attachment point.
35. 80 ksi with two fasteners per attachment point.