

# Sure-Seal® EPDM

## Roofing Systems

### Code Approval Guide

August 2024

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## **Carlisle SynTec Systems**

A Division of Carlisle Construction Materials, LLC

### **CODE APPROVAL GUIDE**

August 2024

### **INTRODUCTION**

This Code Approval Guide addresses both general information pertaining to Underwriters Laboratories (UL) and FM Approvals test criteria as well as specific UL and FM code approvals achieved with Carlisle's Design "A" Adhered, Design "B" Ballasted and Mechanically-Fastened EPDM Roofing Systems. In addition, 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-Weld™ Roofing Systems are identified in separately published Code Approval Guides.

Code ratings are categorized by roof system type (Adhered, Ballasted, Mechanically-Fastened) and are separated into 2 sections; UL Approvals and FM Approvals. Underwriters Laboratories rated roof assemblies are grouped according to deck type (non-combustible or combustible) and are further categorized by the severity of fire exposure (Class A, B or C). FM Approval assemblies are categorized according to deck type and the specific type of construction (new, tear-off or retrofit). These ratings can also be found at the FM Approvals web site using RoofNAV (free subscription) at <http://roofnav.fmglobal.com/roofnav/login.aspx>.

The listed assemblies contained in this 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.

The Table of Contents on the previous pages identifies the sections contained in this publication.

# General Guidelines for Underwriters Laboratories and FM Approvals Code Compliance

These guidelines are intended to focus on the essential criteria to be followed when an Underwriters Laboratories (UL) and/or FM 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 system must be UL and/or FM approved and must have been tested together as part of a complete roofing assembly.**

In addition to the code approval listings in this guide, information pertaining to approved assemblies can also be referenced in the following directories:

1. *Underwriters Laboratories On-Line Certifications Directory (<https://iq.ulprospector.com/en>)*
2. *FM Approvals RoofNav website ([roofnav.com](http://roofnav.com)). FM RoofNav assembly numbers can be obtained from this website.*

## Underwriters Laboratories, FM Approvals and ANSI/SPRI WD-1 Clarifications/Enhancements

### 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 using 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 local 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) ratings.**

### 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 resistances of roofing system assemblies. Insulation fastening patterns are included in this document. The fastening patterns are approved for use by Carlisle.

## RECOVER

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 manufacturers 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.**

Underwriters Laboratories Approvals  
 Sure-Tough and Sure-White Reinforced Mechanically-Fastened Roofing System  
**Non-Combustible - ANSI/UL 790 Spread of Flame Test (Class A)**

Membrane .045", .060" or .075" Sure-Tough Membrane  
 Type: .060" Sure-White Reinforced

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

System ID	Deck Type	Insulation	Cover Board	Maximum Slope	
				Sure-Tough	Sure-White Reinforced
1	<b>Non-Combustible</b>	InsulBase, or SecurShield- any combination, any thickness	N/A	1/2"	1/2"
2		Any UL Classified Insulation, any thickness (OPTIONAL)	Minimum 1/2" SecurShield HD, SecurShield HD Plus or SecurShield HD Composite	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"	1/2"
4		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 or Glass-Mat Roof Boards	3"	2"
6		Any UL Classified Insulation, any thickness (OPTIONAL)	Minimum 1/4" DensDeck/DensDeck Prime Roof Boards	3"	2"
7		Any UL Classified Insulation, any thickness (OPTIONAL)	Minimum 1/2" HP Recovery Board	1"	1"
8		Any UL Classified Insulation, any thickness (OPTIONAL)	Minimum 7/16" APA Rated OSB or minimum 1-1/2" StormBase	1"	1"
9		Any UL Classified Insulation, any thickness (OPTIONAL)	Minimum 5/16" EcoStorm VSH	1/2"	1/2"
10		Any UL Classified Carlisle Polyisocyanurate Insulation- any combination, any thickness (OPTIONAL)	1/2" InsulBase HD	1/2"	1/2"
11	<b>Cellular Lightweight Concrete</b>	N/A	N/A	1"	1"
12	<b>Precast concrete with grouted joints</b>	N/A	N/A	1"	1"
13	<b>Structural (poured-in-place) concrete</b>	N/A	N/A	1"	1"

Underwriters Laboratories Approvals  
Sure-Tough and Sure-White Reinforced Mechanically-Fastened Roofing System

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

Membran .045", .060" or .075" Sure-Tough Membrane  
e Type: .060" Sure-White Reinforced

**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-Tough	Sure-White Reinforced
<b>Combustible (1) - ANSI/UL 790 Spread of Flame Test-Class A</b>					
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"	1/2"
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"	1/2"
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"	2"
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"	2"
11	N/A	Any UL Classified Insulation, any thickness (OPTIONAL)	Minimum 1/4" SECUROCK® Glass-Mat or Coated Glass Mat Roof Boards (2)	3"	2"
12	N/A	Any UL Classified Insulation, any thickness (OPTIONAL)	Minimum 1/4" DensDeck/ DensDeck Prime Roof Board (2)	3"	2"
13	Two layers of Carlisle FR Base Sheet	Any UL Classified Carlisle Polyisocyanurate Insulation, any combination, any thickness.	N/A	1/2"	1/2"
14	N/A	Any UL Classified Carlisle Polyisocyanurate Insulation, any combination, minimum 2" thickness. (2)	Minimum 7/16" EcoStorm VSH	1/2" *(Minimum 60-mil membrane only)	1/2"

Underwriters Laboratories Approvals  
 Sure-Tough and Sure-White Mechanically-Fastened Roofing System  
**Combustible - ANSI/UL 790 Spread of Flame Test - Class B**

Membrane Type: .045", .060" or .075" Sure-Tough Membrane  
 .060 Sure-White Reinforced

**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-Tough	Sure-White Reinforced
<b>Combustible - ANSI/UL 790 Spread of Flame Test-Class B</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	One layer of Carlisle G2 Base Sheet	N/A	N/A	1"	-
3	One layer of Carlisle FR Base Sheet or Inverted G3 cap sheet	N/A	N/A	1/2"	-

Underwriters Laboratories Approvals  
Sure-Tough Mechanically-Fastened Roofing System

**Combustible (1) and Non-Combustible - ANSI/UL 790 Spread of Flame Test (Class C)**

**Membrane Type:** .045", .060" or .075" Sure-Tough 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-Tough	Sure-White Reinforced
<b>Non-Combustible or Combustible (1) - ANSI/UL 790 Spread of Flame Test-Class C</b>					
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	1/2"
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 and Combustible  
(Directly over existing Class A, B or C)**

System ID	Deck Type	Existing Substrate	Insulation	Maximum Slope	
				Sure-Tough	Sure-White Reinforced
1	Non-Combustible and Combustible	Class A, B or C mineral or smooth surfaced non-modified asphalt coated cap sheet roof covering system	Carlisle FR Base Sheet (Optional)	1/2"	1/2"
2	Non-Combustible	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"
3	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"



FM Approvals

**Sure-Tough or Sure-White Reinforced EPDM Mechanically Fastened Roofing System with Plates for InsulBase and SecurShield**

Membrane Type: .045", .060" or .075" Sure-Tough or .060" Sure-White Reinforced EPDM Membrane (12)  
(10)

Membrane Width	Fastener/Plate	Spacing	Min. 22-gauge Grade C Steel	Min. 22-gauge Grade E Steel or Structural Concrete (11)
			Sure-Tough	Sure-Tough
10' with 9" PS RUSS splitting sheet	HP Fastener / 2" Polymer Plate	6"	<b>1-90</b> (350373-0-0)	<b>1-90</b> (350373-0-0)
5'	HP Fastener / 2" Polymer Plate	6"	<b>1-105</b> (350372-0-0)	<b>1-105</b> (350372-0-0)
		12"	<b>1-60</b> (5186-0-0)	<b>1-60</b> (5186-0-0)
6'-6"	HP Fastener / 2" Polymer Plate	6"	<b>1-90</b> (434648-0-0)	<b>1-90</b> (434648-0-0)
	HP-Xtra Fastener / 2-3/8" HP-Xtra Polymer Seam Plate	12"	<b>1-90</b> (381749-0-0)	<b>1-90</b> (381749-0-0)
8'	HP Fastener / 2" Polymer Plate	6"	<b>1-75</b> (350375-0-0)	<b>1-105</b> (179770-0-0)
		12"	-	<b>1-60</b> (182024-0-0)
	HP-Xtra Fastener / 2-3/8" HP-Xtra Polymer Seam Plate	12"	<b>1-75</b> (409511-0-0)	<b>1-90</b> (222334-0-0)
10'	HP Fastener / 2" Polymer Plate	6"	-	<b>1-90</b> (5460-0-0)
	HP-Xtra Fastener / 2-3/8" HP-Xtra Polymer Seam Plate	12"	-	<b>1-90</b> (222334-0-0)

(RoofNAV numbers) for steel decks

FM Approvals

**Sure-Tough and Sure-White Reinforced EPDM Mechanically Fastened Roofing System with Plates for InsulBase and SecurShield Recover**

Membrane Type: .045", .060" or .075" Sure-Tough or .060" Sure-White Reinforced EPDM Membrane (12)  
(10)

Membrane Width	Fastener/Plate	Spacing	Min. 22-gauge Grade C Steel	Min. 22-gauge Grade E Steel or Structural Concrete (11)
			Sure-Tough	Sure-Tough
10' with 9" PS RUSS splitting sheet	HP Fastener / 2" Polymer Plate	6"	1-90	1-90
5'	HP Fastener / 2" Polymer Plate	6"	1-105	1-105
		12"	1-60 (5188-0-0)	1-60 (5188-0-0)
6'-6"	HP Fastener / 2" Polymer Plate	6"	1-90 (6405-0-0)	1-90 (6405-0-0)
		12"	1-60 (5188-0-0)	1-60 (5188-0-0)
	HP-Xtra Fastener / 2-3/8" HP-Xtra Polymer Seam Plate	12"	1-90 (434477-0-0)	1-90 (434477-0-0)
8'	HP Fastener / 2" Polymer Plate	6"	1-75	1-105
		12"	-	1-60
	HP-Xtra Fastener / 2-3/8" HP-Xtra Polymer Seam Plate	12"	1-75	1-90
10'	HP Fastener / 2" Polymer Plate	6"	-	1-90 (5468-0-0)
	HP-Xtra Fastener / 2-3/8" HP-Xtra Polymer Seam Plate	12"	-	1-90

(RoofNAV numbers) for steel decks

FM Approvals

**Sure-Tough and Sure-White Reinforced EPDM Mechanically Fastened Roofing System with Plates For SecurShield HD and InsulBase HD**

Membrane Type: .045", .060" or .075" Sure-Tough or .060" Sure-White Reinforced EPDM Membrane (12)  
(10)

Membrane Width	Fastener/Plate	Spacing	Min. 22-gauge Grade C Steel	Min. 22-gauge Grade E Steel or Structural Concrete (11)
			Sure-Tough	Sure-Tough
10' with 9" PS RUSS splitting sheet	HP Fastener / 2" Polymer Plate	6"	<b>1-90</b> (348870-0-0)	<b>1-90</b> (348870-0-0)
5'	HP Fastener / 2" Polymer Plate	6"	<b>1-105</b> (349271-0-0)	<b>1-105</b> (349271-0-0)
		12"	<b>1-60</b> (18952-0-0)	<b>1-60</b> (18952-0-0)
6'-6"	HP Fastener / 2" Polymer Plate	6"	<b>1-90</b>	<b>1-90</b>
		12"	<b>1-60</b> 18952-0-0	<b>1-60</b> 18952-0-0
	HP-Xtra Fastener / 2-3/8" HP-Xtra Polymer Seam Plate	12"	<b>1-90</b> 381748-0-0	<b>1-90</b> 381748-0-0
8'	HP Fastener / 2" Polymer Plate	6"	<b>1-75</b>	<b>1-105</b> (179772-0-0)
		12"	-	<b>1-60</b> (182026-0-0)
	HP-Xtra Fastener / 2-3/8" HP-Xtra Polymer Seam Plate	12"	<b>1-75</b> (349278-0-0)	<b>1-90</b>
10'	HP Fastener / 2" Polymer Plate	6"	-	<b>1-90</b> (18999-0-0)
	HP-Xtra Fastener / 2-3/8" HP-Xtra Polymer Seam Plate	12"	-	-

(RoofNAV numbers) for steel decks

FM Approvals

**Sure-Tough and Sure-White Reinforced EPDM Mechanically Fastened Roofing System  
with Plates For SecurShield HD and InsulBase HD Recover**

Membrane Type: .045", .060" or .075" Sure-Tough or .060" Sure-White Reinforced EPDM Membrane (12)  
(10)

Membrane Width	Fastener/Plate	Spacing	Min. 22-gauge Grade C Steel	Min. 22-gauge Grade E Steel or Structural Concrete (11)
			Sure-Tough	Sure-Tough
10' with 9" PS RUSS splitting sheet	HP Fastener / 2" Polymer Plate	6"	<b>1-90</b>	<b>1-90</b>
		12"	<b>1-60</b>	<b>1-60</b>
5'	HP Fastener / 2" Polymer Plate	6"	<b>1-105</b> (5470-0-0)	<b>1-105</b> (5470-0-0)
		12"	<b>1-60</b> (5188-0-0)	<b>1-60</b> (5188-0-0)
6'-6"	HP Fastener / 2" Polymer Plate	6"	<b>1-90</b> (5468-0-0)	<b>1-90</b> (5468-0-0)
		12"	<b>1-60</b> (5188-0-0)	<b>1-60</b> (5188-0-0)
	HP-Xtra Fastener / 2-3/8" HP-Xtra Polymer Seam Plate	12"	<b>1-90</b> (434477-0-0)	<b>1-90</b> (434477-0-0)
8'	HP Fastener / 2" Polymer Plate	6"	<b>1-75</b>	<b>1-105</b> (18624-0-0)
		12"	-	<b>1-60</b>
	HP-Xtra Fastener / 2-3/8" HP-Xtra Polymer Seam Plate	12"	<b>1-75</b>	<b>1-90</b>
10'	HP Fastener / 2" Polymer Plate	6"	-	<b>1-90</b> (5468-0-0)
	HP-Xtra Fastener / 2-3/8" HP-Xtra Polymer Seam Plate	12"	-	<b>1-90</b>

(RoofNAV numbers) for steel decks

FM Approvals

**Sure-Tough and Sure-White Reinforced EPDM Mechanically Fastened Roofing System  
with Plates For Dens-Deck/Securock**

Membrane Type: .045", .060" or .075" Sure-Tough or .060" Sure- White Reinforced EPDM Membrane (12)  
(10)

Membrane Width	Fastener/Plate	Spacing	Min. 22-gauge Grade C Steel	Min. 22-gauge Grade E Steel or Structural Concrete (11)
			Sure-Tough	Sure-Tough
10' with 9" PS RUSS splitting sheet	HP Fastener / 2" Polymer Plate	6"	<b>1-90</b> (348870-0-0)	<b>1-90</b> (348870-0-0)
		12"	<b>1-60</b>	<b>1-60</b>
5'	HP Fastener / 2" Polymer Plate	6"	<b>1-105</b> (349271-0-0)	<b>1-105</b> (349271-0-0)
		12"	<b>1-60</b>	<b>1-60</b>
6'-6"	HP Fastener / 2" Polymer Plate	6"	<b>1-90</b>	<b>1-90</b>
	HP-Xtra Fastener / 2-3/8" HP-Xtra Polymer Seam Plate	12"	<b>1-90</b> (381748-0-0)	<b>1-90</b> (381748-0-0)
8'	HP Fastener / 2" Polymer Plate	6"	<b>1-75</b>	<b>1-105</b> (179772-0-0)
		12"	-	<b>1-60</b> (182026-0-0)
	HP-Xtra Fastener / 2-3/8" HP-Xtra Polymer Seam Plate	12"	<b>1-75</b> (349278-0-0)	<b>1-90</b>
10'	HP Fastener / 2" Polymer Plate	6"	-	<b>1-90</b>
	HP-Xtra Fastener / 2-3/8" HP-Xtra Polymer Seam Plate	12"	-	<b>1-90</b>

(RoofNAV numbers) for steel decks

FM Approvals

**Sure-Tough and Sure-White Reinforced EPDM Mechanically Fastened Roofing System  
with Plates for HP Recovery Board**

Membrane Type: .045", .060" or .075" Sure-Tough or .060" Sure- White Reinforced EPDM Membrane (12)  
(10)

Membrane Width	Fastener/Plate	Spacing	Min. 22-gauge Grade C Steel	Min. 22-gauge Grade E Steel or Structural Concrete (11)
			Sure-Tough	Sure-Tough
10' with 9" PS RUSS splitting sheet	HP Fastener / 2" Polymer Plate	6"	1-90	1-90
		12"	1-60	1-60
5'	HP Fastener / 2" Polymer Plate	6"	1-105 (349271-0-0)	1-105 (349271-0-0)
		12"	1-60	1-60
6'-6"	HP Fastener / 2" Polymer Plate	6"	1-90	1-90
	HP-Xtra Fastener / 2-3/8" HP-Xtra Polymer Seam Plate	12"	1-90 (381748-0-0)	1-90 (381748-0-0)
8'	HP Fastener / 2" Polymer Plate	6"	1-75	1-105 (179772-0-0)
		12"	-	1-60 (182026-0-0)
	HP-Xtra Fastener / 2-3/8" HP-Xtra Polymer Seam Plate	12"	1-75 (349278-0-0)	1-75 (349278-0-0)
10'	HP Fastener / 2" Polymer Plate	6"	-	1-90 (263285-0-0)
	HP-Xtra Fastener / 2-3/8" HP-Xtra Polymer Seam Plate	12"	-	1-90

(RoofNAV numbers) for steel decks

FM Approvals

**Sure-Tough or Sure-White Reinforced Mechanically Fastened Roofing System with Bars**

Membrane Type: .045", .060" or .075" Sure-Tough or .060" Sure-White Reinforced EPDM Membrane  
(16)

FM Approved Deck Type	Field Sheet Width	Max. Fastener Spacing	FM Uplift Rating (16)		Carlisle HP-X Fastener With Polymer Batten or Metal Fastening Bars	
			Grade E Steel Decks (13)(15) or Structural Concrete	Steel (Min.22-gauge) Decks (14)(15)		
Steel (15) or Structural Concrete	10'	6" o.c.	<b>1-90</b> (144041-0-0)	-	Polymer Batten	HP-X Fasteners (steel decks); CD-10 or HD 14-10 (Concrete Decks)
	8'	6" o.c.	<b>1-120</b> (181911-0-0)	<b>1-75</b> (333566-0-0)	Polymer Batten	
	8'	12" o.c.	<b>1-60</b> (181530-0-0)	<b>1-60</b> (181530-0-0)	Polymer Batten	
	5'	12" o.c.	<b>1-90</b> (305374-0-0)	<b>1-90</b> (350374-0-0)	Metal Fastening Bar	

(RoofNAV Number)

FM Fire Ratings

**Sure-Tough or Sure-White Reinforced EPDM Mechanically Fastened Roofing Systems**

Membrane Type: .045", .060" or .075" Sure-Tough or .060" Sure-White Reinforced EPDM Membrane

Deck Type	Insulation	Insulation Thickness	Maximum Slope for ASTM E-108 Class "A" Rating	
			Sure-Tough	Sure-White
<b>New Construction/Tearoff:</b> <b>Steel (Min. 22-gauge)</b> <b>Structural Concrete</b> <b>Wood (18)</b> <b>Tectum</b>  <b>Retrofit (No Tearoff) (19)</b> <b>Structural Concrete</b>	HP Recovery Board, SecurShield HD or SecurShield HD Plus over FM approved Insulation	1/2" Min.	1"	1"
	HP Recovery Board (min. 1/2"), SecurShield HD, or SecurShield HD Plus or (min. 1/4") DensDeck Prime or Securock over: FM approved Insulation (17)	Refer to FM RoofNav website		
	Polyisocyanurate InsulBase	1-1/2"-36"	1/2"	1/2"

Deck Type	Insulation	Insulation Thickness	Maximum Slope for ASTM E-108 Class "A" Rating	
			Sure-Tough	Sure-White
<b>Retrofit (No Tearoff) (19):</b> <b>Steel (Min. 22 gauge)</b> <b>Wood (18)</b> <b>Tectum</b>	HP Recovery Board, SecurShield HD or SecurShield HD Plus	1/2"-1"	1"	1"
	Polyisocyanurate InsulBase	1" Max.	1/2"	1/2"



Sure-Tough Mechanically-Fastened Roofing Systems

**1-120 (120 psf) Wind Uplift Equivalency Ratings\***

Wind uplift testing has been completed in accordance with the FM Approvals 4470 Test Procedure which was witnessed and certified by Architectural Testing, Incorporated, an industry recognized Independent Testing Laboratory. Over a 22-gauge steel roof deck, the following results were obtained. (Performance Test Report is on file and available from Carlisle.)

**Membrane Requirements:**

**Maximum 7 foot wide Sure-Tough .060" thick EPDM membrane with Carlisle HP Fasteners and 2" diameter Polymer Seam Plates spaced 6" on center. \***

120 psf Uplift Resistance* (1-120 Approval Equivalency on 12' X 24' Table) (20)		
Insulation	Minimum Thickness	Insulation Fastening Density
Any approved insulation	Minimum Approved Thickness (21)	1 per 8 square feet

**\* A formal FM Approvals (FM) Class 1-120 rating is available using 10-foot wide Sure-Tough .075" EPDM membrane and HP Fasteners/Polymer Plates.**

Sure-Tough Mechanically-Fastened Roofing System

**ANSI-SPRI 4474 Approvals With Plates**

Membrane Type: (22) .045", .060" or .075" Sure-Tough EPDM Membrane

Approved Deck Type	Field Sheet Width	Max. Fastener Spacing	Required Fastening Plates	Carlisle Fastener	Uplift
Wood or Structural Concrete	10'	6" o.c.	Seam Fastening Plates	HP Fasteners (wood);	1-90
				CD-10 or HD 14-10 (concrete)	
Grade E Steel or Structural Concrete	8'	12" o.c.	Polymer	HP Fasteners (wood);	
				CD-10 or HD 14-10 (concrete)	
Steel (min. 22-gauge), Wood or Structural Concrete	10'	6" o.c.	Polymer	HP Fasteners (steel/wood);	1-90
				CD-10 or HD 14-10 (concrete)	
Grade E Steel or Structural Concrete	10'	6" o.c.	Polymer	HP Fasteners (steel);	1-105
				CD-10 or HD 14-10 (concrete)	
Steel (min. 22-gauge)	10'	6" o.c.	Polymer	HP Fastener	1-105
Steel (min. 22-gauge) or Structural Concrete	8'	6" o.c.	Polymer	HP Fasteners (steel/wood);	1-105
				CD-10 or HD 14-10 (concrete)	
Grade E Steel or Structural Concrete	10'	6" o.c.	Polymer	HP Fasteners (steel);	1-120
		12" o.c.		CD-10 or HD 14-10 (concrete)	1-60
Steel (min. 22-gauge)	10'	12" o.c.	2-3/8" HP-Xtra Polymer Seam Plate	HP-Xtra Fastener	1-75
Grade E Steel	10' Sure-Tough .060" or .075" only	12" o.c.	2-3/8" HP-Xtra Polymer Seam Plate	HP-Xtra Fastener	1-90

Sure-Tough Mechanically-Fastened Roofing System

**ANSI-SPRI 4474 Approvals With Bars**

Membrane Type: .045", .060" or .075" Sure-Tough EPDM Membrane  
(23)

Approved Deck Type	Field Sheet Width	Max. Fastener Spacing	Uplift Rating		Carlisle HP-X Fastener With Polymer Batten or Metal Fastening Bars
			Grade E Steel Decks or Structural Concrete	Steel (Min.22-gauge) Decks	
Steel or Structural Concrete	10'	6" o.c.	1-90	1-90	HP-X Fasteners (steel decks); CD-10 or HD 14-10 (Concrete Decks)
	8'	6" o.c.	1-120	1-120	
	8'	12" o.c.	1-60	1-60	

# 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-Tough Mechanically-Fastened Roofing System over non-combustible decks depending on the membrane selected (Standard Reinforced or FR Reinforced EPDM).

## 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.

FM Approvals has accepted the securement of Carlisle's reinforced EPDM membrane with RUSS (Reinforced Universal Securement Strip) as an alternate to "in-seam fastening" as used in our Sure-Tough Mechanically-Fastened Roofing System. As such, the wind uplift resistance of the Metal Retrofit Roofing System will be equivalent to an FM 1-90 system when structural purlins are spaced a maximum of 6-1/2' on center and the RUSS is secured with Carlisle HP or Purlin Fasteners and Polymer Seam Plates a maximum of 6" on center into the purlins. For FM Class 60 wind uplift equivalency, the purlins could be spaced a maximum of 6-1/2' on center with the RUSS secured with Carlisle Fasteners and 2" diameter Polymer Seam Plates spaced a maximum of 12" on center into the purlins.

As a standard FM Approvals requirement, additional membrane and insulation securement is necessary in the corner and/or perimeter areas as outlined in FM 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	Rating	Coverboard	RoofNAV Number
<b>60 Inches</b>	HP Purlin/2" Polymer	6"	1-105	SecurShield HD / InsulBase HD	397957-0-0
				HP Recovery Board	273639-0-0
				InsulBase/SecurShield	397958-0-0
				DensDeck	
				SECUROCK	
		12"	1-60	SecurShield HD / InsulBase HD	397965-0-0
				HP Recovery Board	273732-0-0
				InsulBase/SecurShield	397966-0-0
				DensDeck	
				SECUROCK	

**FM Approvals – Metal Retrofit with Pressure-Sensitive RUSS Strip**

Purlin Spacing	Fastener/Plate	Spacing	Rating	Coverboard	RoofNAV Number
<b>60 Inches</b>	HP Purlin/2" Polymer	6"	1-90	SecurShield HD / InsulBase HD	443188-0-0
				HP Recovery Board	
				InsulBase/SecurShield	443187-0-0
				DensDeck	
				SECUROCK	
		12"	1-60	SecurShield HD / InsulBase HD	443186-0-0
				HP Recovery Board	
				InsulBase/SecurShield	443185-0-0
				DensDeck	
				SECUROCK	

## Underwriters Laboratories Approvals Design "B" Loose Laid Ballasted Roofing Systems

**Membrane Type:** Any UL Classified Carlisle EPDM Membrane

UL Class "A"			
Deck Type	Insulation	Insulation Thickness	Maximum Slope
Non-Combustible and Combustible	Any UL Classified Insulation	Any	2"
New Construction:	None or HP Protective Mat (Refer to Carlisle Specifications for requirements)	N/A	2"
Approved Lightweight Insulating Concrete			

The insulation and the membrane are laid loosely and surfaced with river bottom stone, nominal 1-1/2 in. diameter, at 1000-lbs/100-ft.2 minimum. Suitable alternates are size Nos. 1, 2, 3, 4 and 24 (as per ASTM D448), also at 1000-lbs/100-ft.2 minimum. In addition, concrete pavers or crushed stone may be used. Pavers must weigh 1000-lbs/100-ft.2 minimum and spaced no more than 1/8-in. apart and the crushed stone must meet the above size and weight requirements. Carlisle HP Protective mat (not Classified) weighing, 4oz./yd.2 may be used between membrane and ballast, insulation and ballast (Irma System) or membrane and deck.

### FM Laboratories Approvals Calorimeter Tests for the Design "B" Ballasted Roofing System

All constructions listed in the FM Approvals (FM) Approval Guide are Class 1 A, B or C fire rated and minimum Class 60 uplift rated.

Because of the nature of the uplift testing (pressurizing the underside of the deck to minimum 60 pounds per square foot), ballasted systems cannot be tested. If the ballasted system was tested, it would only require approximately 10-15 pounds per square foot of uplift pressure before movement of the stone and membrane would occur. In reality, ballasted systems are capable of resisting much higher wind forces.

Although ballasted systems are not formally FM approved, FM Approvals conducted research fire tests on Carlisle's Sure-Seal Design "B" Ballasted Roofing System. Two (2) test panels were constructed which consisted of a 22-gauge steel deck, 5/8" thick Type X core gypsum board, 0.0015" aluminum vapor retarded and 4-1/4" Sure-Seal EPS insulation. The following results were obtained:

#### Maximum Average Rate of Fuel Contribution (Btu/Square Feet/Minutes) for various intervals of time

	3 Minutes	5 Minutes	10 Minutes
FM Class 1 Standard	385	365	340
Allowable Deviation	25	25	20
Test Panel No. 2 *	124	103	88

\* The fuel contribution rates developed for Test Panel No. 2 were equivalent to Test Panel No. 1

The conclusion of the research report was that the Ballasted System Panels had met the fire hazard requirement for Class 1 insulated steel deck roof construction.

Additionally, FM Approvals has published Loss Prevention Data Sheet 1-29, Above Deck Roof components that outlines general guidelines for ballast criteria depending on project conditions (building height, parapet height, location, etc.). According to this bulletin, FM Approvals' loss experience has been very favorable for single-ply Ballasted Roofing Systems when designed in accordance with this published criteria.

Although FM does not formally approve Ballasted Systems, job-by-job acceptance can be obtained when FM Approvals is the insurance underwriter by contacting the local FM office for requirements.

Underwriters Laboratories Approvals

**Design "C" Loose Laid Protected Roofing System**

**Membrane Type:** Any UL Classified Carlisle EPDM Membrane

UL Class "A"			
Deck Type	Insulation	Insulation Thickness	Maximum Slope
Non-Combustible and Combustible	Foamular 404	8" Max.	2"
	Dow Styrofoam Roofmate or Plazamate	4" Max.	2"

The insulation and the membrane are laid loosely and surfaced with river bottom stone, nominal 1-1/2 in. diameter, at 1000-lbs/100-ft.2 minimum. Suitable alternates are size Nos. 1, 2, 3, 4 and 24 (as per ASTM D448), also at 1000-lbs/100-ft.2 minimum. In addition, concrete pavers or crushed stone may be used. Pavers must weigh 1000-lbs/100-ft.2 minimum and spaced no more than 1/8-in. apart and the crushed stone must meet the above size and weight requirements. Carlisle HP Protective mat (not Classified) weighing, 4oz./yd.2 may be used between membrane and ballast, insulation and ballast (Irma System) or membrane and deck.

Underwriters Laboratories Approvals  
Design "A" Adhered Roofing Systems

**Non-Combustible - ANSI/UL 790 Spread of Flame Test - Class A**

**Membrane:** 90-8-30A, Cav-Grip III (CGIII) or EPDM x-23 LVOC Bonding Adhesive (LVOC)  
**Adhesive:**

**Membrane Type:** Sure-Seal FR Nonreinforced .045", .060" or .090"  
Sure Tough .045", .060", or .075"  
Sure-White .060" or .090"

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

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

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

**Membrane Adhesive:** 90-8-30A, Cav-Grip III (CGIII) or EPDM x-23 LVOC Bonding Adhesive (LVOC)

**Membrane Type:** Sure-Seal FR Nonreinforced .045", .060" or .090"  
Sure Tough .045", .060", or .075"  
Sure-White .060" or .090"

**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 (30)	Maximum Slope			
				Sure-Seal FR Nonreinforced	Sure-Tough	Sure-White	Sure-Seal Gray
<b>Combustible (1) - ANSI/UL 790 Spread of Flame Test-Class A</b>							
1	Minimum 1/4" SEUROCK® Gypsum Fiber or Glass Mat Roof Board (2)	Any UL Classified Carlisle Polyisocyanurate Insulation, any combination, any thickness.	N/A	1/2"	1/2"	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"	1/2"	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"	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"	1/2"	1-1/2"
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"	1/2"	1-1/2"
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"	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"	1/2"	-
8	N/A	Any UL Classified Carlisle Polyisocyanurate Insulation, any combination, any thickness.	Minimum 1/4" SEUROCK® Gypsum Fiber Roof Board (2)	3"	3"	2"	-
9	N/A	Any UL Classified Insulation, any thickness (OPTIONAL)	Minimum 3/8" SEUROCK® Gypsum Fiber Roof Board (2)	2"	2"	2"	-
10	N/A	Any UL Classified Insulation, any thickness (OPTIONAL)	Minimum 1/2" SEUROCK® Gypsum Fiber Roof Board (2)	4" (3" w/ CGIII)	3"	2"	-
11	N/A	Any UL Classified Insulation, any thickness (OPTIONAL)	Minimum 1/4" DensDeck Prime Roof Board (2)	Unlimited (3" w/ CGIII)	3"	2"	-
12	Two layers of Carlisle FR Base Sheet	Any UL Classified Carlisle Polyisocyanurate Insulation, any combination, any thickness.	N/A	1/2"	1/2"	1/2"	-
13	N/A	Any UL Classified Carlisle Polyisocyanurate Insulation, any combination, minimum 2" thickness. (2)	Minimum 7/16" EcoStorm VSH	1/2" *(Minimum 60 mil membrane only)	1/2" *(Minimum 60 mil membrane only)	1/2" *(Minimum 60 - mil membrane only)	-



Underwriters Laboratories Approvals  
Design "A" Adhered Roofing Systems

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

**Membrane Adhesive:** 90-8-30A, Cav-Grip III (CGIII) or EPDM x-23 LVOC Bonding Adhesive (LVOC)

**Membrane Type:** Sure-Seal FR Nonreinforced .045", .060" or .090"  
Sure Tough .045", .060", or .075"  
Sure-White .060" or .090"

**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-Seal FR Nonreinforced	Sure-Tough	Sure-White
<b>Combustible (1) - ANSI/UL 790 Spread of Flame Test-Class B</b>						
1	One layer of Carlisle FR Base Sheet	Any UL Classified Carlisle Polyisocyanurate Insulation, any combination, any thickness.	N/A	1/2"	1/2"	1/2"
2	One layer of Carlisle G2 Base Sheet	Any UL Classified Carlisle Polyisocyanurate Insulation, any combination, minimum 1-1/2" thickness.	N/A	1/2"	1/2"	1/2"

Underwriters Laboratories Approvals  
Design "A" Adhered Roofing Systems

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

**Membrane Adhesive:** 90-8-30A, Cav-Grip III (CGIII) or EPDM x-23 LVOC Bonding Adhesive (LVOC)

**Membrane Type:** Sure-Seal FR Nonreinforced .045', .060" or .090"  
Sure Tough .045", .060", or .075"  
Sure-White .060" or .090"

**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-Seal FR Nonreinforced, Sure-Tough & Sure-White EPDM
<b>Non-Combustible or Combustible (1) - ANSI/UL 790 Spread of Flame Test-Class C</b>				
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
2	N/A	Any UL Classified insulation, any combination, any thickness. (OPTIONAL)	Minimum 5/16" EcoStorm VSH (2)	1/2"

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

**Membrane Type:** Sure-Seal FR Nonreinforced .045', .060" or .090"  
Sure Tough .045", .060", or .075"  
Sure-White .060" or .090"

**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	Deck Type	Existing Substrate	Insulation	Maximum Slope
				Sure-Seal FR Nonreinforced, Sure-Tough & Sure-White EPDM
1	Combustible or Non-Combustible	Existing Class A, B or C mineral or smooth surfaced non-modified asphalt coated cap sheet roof covering system, to retain the existing Classification	None	1/2"

FM Approvals  
Design "A" Adhered Roofing Systems

**SecurShield HD Ratings - New Construction**

**Membrane Type:** Sure-Seal FR Nonreinforced .045", .060" or .090"  
Sure-Tough .045", .060", or .075"  
Sure-White .060" or .090"

**Membrane Adhesive:** 90-8-30A, Cav-Grip III (CGIII) or EPDM x-23 LVOC 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 38, 39 & 40)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 38, 39 & 40)	Rating	Sure-Seal FR Nonreinforced	Sure-Tough	Sure-White
					RoofNAV Number		
<b>Steel Deck (Min. 22-Gauge)</b>							
FM Approved	Loose laid	1/2" SecurShield HD	12 (2.67 sq. ft)	1-75	284927-0-0 (90-8-30A)	293986-0-0	-
FM Approved	Loose laid	1/2" SecurShield HD	16 (2 sq. ft)	1-90	385922-0-0	385912-0-0	385913-0-0
Min. 1-1/2" InsulBase Polyiso	10 (3.2 sq. ft.)	1/2" SecurShield HD	12" ribbons or Rig Splatter of FAST	1-90	409971-0-0	-	410009-0-0
Min. 1-1/2" InsulBase Polyiso	10 (3.2 sq. ft.)	1/2" SecurShield HD over Min. 1" InsulBase	12" ribbons or Rig Splatter of FAST	1-90	409982-0-0	410028-0-0	410030-0-0
Min. 2" InsulBase Polyiso	8 (4 sq. ft)	1/2" SecurShield HD	12" ribbons or Rig Splatter of FAST	1-90	409983-0-0	410031-0-0	410033-0-0
Min. 2" InsulBase Polyiso	8 (4 sq. ft)	1/2" SecurShield HD over Min. 1" InsulBase	12" ribbons or Rig Splatter of FAST	1-90	409996-0-0	410034-0-0	410036-0-0
Min. 2" Insulfoam EPS over 1/2" Dens-Deck	16 (2 sq. ft.)	1/2" SecurShield HD	6" ribbons of FAST	1-90	427332-0-0	427351-0-0	427353-0-0
Min. 2" InsulBase Polyiso	16 (2 sq. ft.)	1/2" SecurShield HD	12" ribbons or Rig Splatter of FAST	1-120	454478-0-0	454477-0-0	454479-0-0
Min. 2" InsulBase Polyiso	20 (1.6 sq. ft.)	1/2" SecurShield HD	6" ribbons or Rig Splatter of FAST	1-135	454484-0-0 (TRU GROUND)	454483-0-0	454485-0-0
Min. 2" InsulBase Polyiso	20 (1.6 sq. ft.)	1/2" SecurShield HD over Min. 1" InsulBase	6" ribbons or Rig Splatter of FAST	1-135	-	-	551830-0-0
Min. 2" InsulBase Polyiso	32 (1 sq. ft.)	1/2" SecurShield HD	4" ribbons or Rig Splatter of FAST	1-165	454476-0-0	454476-0-0	454488-0-0
Min. 2" InsulBase Polyiso	32 (1 sq. ft.)	1/2" SecurShield HD over Min. 1" InsulBase	4" ribbons or Rig Splatter of FAST	1-165	-	-	551831-0-0
Min. 2" InsulBase Polyiso	32 (1 sq. ft.)	1/2" SecurShield HD	4" ribbons or Rig Splatter of FAST	1-225	454536-0-0	454486-0-0	454537-0-0
Min. 2" InsulBase Polyiso	32 (1 sq. ft.)	1/2" SecurShield HD over Min. 1" InsulBase	4" ribbons or Rig Splatter of FAST	1-225	-	-	551832-0-0
Min. 1/2" DensDeck Prime or Securock	16 (2 sq. ft.)	SecurShield HD over InsulBase Polyiso	6" ribbons of FAST	1-90	-	-	-
<b>Steel Deck (Min. 22 Gauge) with VapAir Seal 725TR and Cav-Grip III or 702 Primer</b>							
Min. 1/2" DensDeck Prime or Securock	8 (4 sq. ft.)	1/2" SecurShield HD over Min. 1-1/2" InsulBase Polyiso	12" ribbons or Rig Splatter of FAST	1-90	389422-0-0	404115-0-0	404125-0-0
Min. 1/2" DensDeck Prime or Securock	20 (1.6 sq. ft.)	1/2" SecurShield HD over Min. 1-1/2" InsulBase Polyiso	FAST Rig Splatter	1-135	-	-	-
<b>Steel Deck (Min. 22 Gauge) with SureMB 70 SA and Cav-Grip III Primer</b>							
Min. 1/2" DensDeck Prime or Securock	8 (4 sq. ft.)	1/2" SecurShield HD over Min. 1-1/2" 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 Min. 1-1/2" InsulBase Polyiso	6" ribbons of FAST	1-135	-	-	-
<b>Steel Deck (Min. 22 Gauge) with SureMB 90TG</b>							
Min. 1/2" DensDeck Prime or Securock	8 (4 sq. ft.)	1/2" SecurShield HD over Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	1-90	-	-	466199-0-0
Min. 1/2" DensDeck Prime or Securock	20 (1.6 sq. ft.)	1/2" SecurShield HD over Min. 1-1/2" InsulBase Polyiso	6" ribbons of FAST	1-135	-	-	-

FM Approvals  
Design "A" Adhered Roofing Systems  
**SecurShield HD Ratings - New Construction**

**Membrane Type:** Sure-Seal FR Nonreinforced .045", .060" or .090"  
Sure-Tough .045", .060", or .075"  
Sure-White .060" or .090"

**Membrane Adhesive:** 90-8-30A, Cav-Grip III (CGIII) or EPDM x-23 LVOC 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 38, 39 & 40)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 38, 39 & 40)	Rating	Sure-Seal FR Nonreinforced	Sure-Tough	Sure-White
					RoofNAV Number		
<b>Concrete Deck</b>							
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	1/2" SecurShield HD	12" ribbons of FAST	1-315	343383-0-0	344366-0-0	344369-0-0
Min. 1/2" InsulBase Polyiso	Hot Asphalt	1/2" SecurShield HD	Hot Asphalt	1-240	-	-	-
Min. 3/4" Optim-R	6" ribbons of FAST	1/2" SecurShield HD	6" ribbons of FAST	1-120	438091-0-0 (90-8-30A)	-	-
Min. 3/4" Optim-R	6" ribbons of FAST	1/2" SecurShield HD	6" ribbons of FAST	1-120	-	-	438103-0-0
Min. 3/4" Optim-R	6" ribbons of FAST	1/2" SecurShield HD	6" ribbons of FAST	1-90	-	438097-0-0 (LVOC)	-
Min. 2" Insulfoam EPS	12" ribbons of FAST	1/2" SecurShield HD	12" ribbons of FAST	1-285	429674-0-0	429685-0-0	429687-0-0
Min. 2" ChannelDry EPS	Loose laid	1/2" SecurShield HD over Min. 2" SecurShield Polyiso	8 (4 sq. ft)	1-90	441959-0-0	441960-0-0	441962-0-0
<b>Concrete Deck with VapAir Seal 725TR/Cav-Grip III Primer, 702 LV Primer or 702 Primer</b>							
Min. 3/4" Optim-R	6" ribbons of FAST	1/2" SecurShield HD	6" ribbons of FAST	1-165 702	-	437582-0-0 (90-8-30A)	437587-0-0
Min. 3/4" Optim-R	6" ribbons of FAST	1/2" SecurShield HD	6" ribbons of FAST	1-105 702	437577-0-0 (90-8-30A)	-	-
Min. 3/4" Optim-R	6" ribbons of FAST	1/2" SecurShield HD	6" ribbons of FAST	1-90 702	-	437583-0-0 (LVOC)	-
Min. 3/4" Optim-R	6" ribbons of FAST	1/2" SecurShield HD	6" ribbons of FAST	1-120 702	-	-	-
Min. 3/4" Optim-R	6" ribbons of FAST	1/2" SecurShield HD	6" ribbons of FAST	1-150 702	-	-	-
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	1/2" SecurShield HD	12" ribbons of FAST	1-255	452713-0-0	364572-0-0 (1-315)	424132-0-0
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	-	-	-
Min. 2" Insulfoam EPS	12" ribbons of FAST	1/2" SecurShield HD	12" ribbons of FAST	1-255	429677-0-0	429694-0-0	429697-0-0
<b>Concrete Deck with SureMB 70 SA with Cav-Grip III Primer</b>							
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	1/2" SecurShield HD	12" ribbons of FAST	1-285	519861-0-0	Pending	Pending
<b>Concrete Deck with SureMB 90TG and 120TG Base Torch Applied/Cut-Back Asphalt Primer</b>							
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	1/2" SecurShield HD	12" ribbons of FAST	1-150	392983-0-0	392987-0-0	392998-0-0
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	-	-	-
<b>Gypsum Deck Tear-Off</b>							
Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	1/2" SecurShield HD	12" ribbons of FAST	1-90	461030-0-0	-	461033-0-0
<b>Gypsum Deck Tear-Off with VapAir Seal 725 TR / Cav-Grip III, 702-LV or 702 Primer</b>							
Min. 1-1/2" InsulBase Polyiso	12" ribbons or Rig Splatter of FAST	1/2" SecurShield HD	12" ribbons or Rig Splatter of FAST	1-90	-	-	-
<b>Cellular Lightweight Insulating Concrete Over Steel Decking (Min. 22 Gauge)</b>							
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:** Sure-Seal FR Nonreinforced .045", .060" or .090"  
 Sure-Tough .045", .060", or .075"  
 Sure-White .060" or .090"

**Membrane Adhesive:** 90-8-30A, Cav-Grip III (CGIII) or EPDM x-23 LVOC 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 38, 39 & 40)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 38, 39 & 40)	Rating	Sure-Seal FR Nonreinforced	Sure-Tough	Sure-White
					RoofNAV Number		
<b>Steel Deck (Min. 22-Gauge)</b>							
-	-	1/2" SecurShield HD	12 (2.67 sq. ft)	1-75	295759-0-0 (90-8-30A)	299369-0-0 (90-8-30A)	-
-	-	1/2" SecurShield HD	16 (2 sq. ft)	1-90	427370-0-0	427472-0-0	427474-0-0
-	-	1/2" SecurShield HD	6" ribbons of FAST	1-90	309444-0-0	309401-0-0	-
-	-	1/2" SecurShield HD	4" ribbons of FAST	1-150	-	-	-
<b>Concrete Deck</b>							
Min. 1/2" InsulBase Polyiso	6" ribbons of FAST	1/2" SecurShield HD	6" ribbons of FAST	1-150	-	-	-
-	-	1/2" SecurShield HD	6" ribbons of FAST	1-150	-	-	-
<b>Gypsum Deck</b>							
-	-	1/2" SecurShield HD	6" ribbons of FAST	1-90	-	-	-

FM Approvals  
Design "A" Adhered Roofing Systems

**SecurShield HD Plus Ratings - New Construction**

**Membrane Type:** Sure-Seal FR Nonreinforced .045", .060" or .090"  
Sure-Tough .045", .060", or .075"  
Sure-White .060" or .090"

**Membrane Adhesive:** 90-8-30A, Cav-Grip III (CGIII) or EPDM x-23 LVOC 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 38, 39 & 40)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 38, 39 & 40)	Rating	Sure-Seal FR Nonreinforced	Sure-Tough	Sure-White
					RoofNAV Number		
<b>Steel Deck (Min. 22-Gauge)</b>							
Min. 1-1/2" InsulBase Polyiso	Loose laid	1/2" SecurShield HD Plus	8 (4 sq. ft.)	1-90	325739-0-0 (90-8-30A)	341318-0-0	345078-0-0
Min. 1-1/2" InsulBase Polyiso	Loose laid	1/2" SecurShield HD Plus	18 (1.8 sq. ft.)	1-120	325772-0-0 (90-8-30A)	325981-0-0 (90-8-30A)	-
Min. 1-1/2" InsulBase Polyiso	Loose laid	1/2" SecurShield HD Plus	24 (1.33 sq. ft.)	1-150	374515-0-0	-	-
Min. 1-1/2" InsulBase Polyiso	Loose laid	1/2" SecurShield HD Plus	24 (1.33 sq. ft.)	1-165	325920-0-0 (90-8-30A)	325984-0-0 (90-8-30A)	-
Min. 1-1/2" InsulBase Polyiso or SecurShield	Loose laid	1/2" SecurShield HD Plus	24 (1.33 sq. ft.)	1-225 (42)	325921-0-0 (90-8-30A)	325986-0-0 (90-8-30A)	-
Min. 1-1/2" InsulBase Polyiso	10 (3.2 sq. ft.)	1/2" SecurShield HD Plus	12" ribbons or Rig Splatter of FAST	1-90	-	-	-
Min. 2" InsulBase Polyiso	8 (4 sq. ft.)	1/2" SecurShield HD Plus	12" ribbons or Rig Splatter of FAST	1-90	485950-0-0 (TRU GROUND)	410034-0-0	-
Min. 2" InsulBase Polyiso	8 (4 sq. ft.)	1/2" SecurShield HD Plus with 1" InsulBase	12" ribbons or Rig Splatter of FAST	1-90	409996-0-0	-	-
Min. 2" InsulBase Polyiso	8 (4 sq. ft.)	1/2" SecurShield HD Plus	12" ribbons or Rig Splatter of FAST	1-90	-	-	-
Min. 1-1/2" InsulBase Polyiso	18 (1.8 sq. ft.)	1/2" SecurShield HD Plus	6" ribbons or Rig Splatter of FAST	1-105	325930-0-0 (90-8-30A)	325991-0-0 (90-8-30A)	-
Min. 2" InsulBase Polyiso	20 (1.6 sq. ft.)	1/2" SecurShield HD Plus	6" ribbons or Rig Splatter of FAST	1-135	-	-	-
Min. 2" InsulBase Polyiso	32 (1 sq. ft.)	1/2" SecurShield HD Plus	4" ribbons or Rig Splatter of FAST	1-225	-	-	-
Min. 1/2" DensDeck Prime or SECUROCK	16 (2 sq. ft.)	SecurShield HD Plus over InsulBase Polyiso	6" ribbons of FAST	1-90	-	-	-
<b>Steel Deck (Min. 22 Gauge) with VapAir Seal 725TR and Cav-Grip III or 702 Primer</b>							
Min. 1/2" DensDeck Prime or SECUROCK	8 (4 sq. ft.)	1/2" SecurShield HD Plus over Min. 1-1/2" InsulBase Polyiso	12" ribbons or Rig Splatter of FAST	1-90	389422-0-0	404115-0-0	404125-0-0
Min. 1/2" DensDeck Prime or SECUROCK	20 (1.6 sq. ft.)	1/2" SecurShield HD Plus over Min. 1-1/2" InsulBase Polyiso	FAST Rig Splatter	1-135	-	-	-
<b>Steel Deck (Min. 22 Gauge) with SureMB 70 SA and Cav-Grip III Primer</b>							
Min. 1/2" DensDeck Prime or SECUROCK	8 (4 sq. ft.)	1/2" SecurShield HD Plus over Min. 1-1/2" 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 Min. 1-1/2" InsulBase Polyiso	6" ribbons of FAST	1-135	-	-	-
<b>Steel Deck (Min. 22 Gauge) with SureMB 90TG</b>							
Min. 1/2" DensDeck Prime or SECUROCK	8 (4 sq. ft.)	1/2" SecurShield HD Plus over Min. 1-1/2" 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 Min. 1-1/2" InsulBase Polyiso	6" ribbons of FAST	1-135	-	-	-

FM Approvals  
Design "A" Adhered Roofing Systems

**SecurShield HD Plus Ratings - New Construction**

**Membrane Type:** Sure-Seal FR Nonreinforced .045", .060" or .090"  
Sure-Tough .045", .060", or .075"  
Sure-White .060" or .090"

**Membrane Adhesive:** 90-8-30A, Cav-Grip III (CGIII) or EPDM x-23 LVOC 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 38, 39 & 40)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 38, 39 & 40)	Rating	Sure-Seal FR Nonreinforced	Sure-Tough	Sure-White
					RoofNAV Number		
<b>Concrete Deck</b>							
Min. 1/2" InsulBase Polyiso	Loose laid	1/2" SecurShield HD Plus	16 (2 sq. ft)	1-90	434256-0-0	-	-
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	1/2" SecurShield HD Plus	12" ribbons of FAST	1-315	343383-0-0	344366-0-0	344369-0-0
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	1/2" SecurShield HD Plus	12" ribbons of FAST	1-225	-	-	-
Min. 1/2" InsulBase Polyiso	Hot Asphalt	1/2" SecurShield HD Plus	Hot Asphalt	1-240	-	-	-
<b>Concrete Deck with VapAir Seal 725TR/Cav-Grip III Primer, 702 LV Primer or 702 Primer</b>							
Min. 1-1/2" InsulBase Polyiso or SecurShield	12" ribbons of FAST	1/2" SecurShield HD Plus	12" ribbons or Rig Splatter of FAST	1-255	-	-	424132-0-0
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	-	-	-
<b>Concrete Deck with SureMB 70 SA with Cav-Grip III Primer</b>							
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	1/2" SecurShield HD Plus	12" ribbons of FAST	1-285	519861-0-0	-	-
<b>Concrete Deck with SureMB 90TG and 120TG Base Torch Applied/Cut-Back Asphalt Primer</b>							
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	1/2" SecurShield HD Plus	12" ribbons of FAST	1-150	392983-0-0	392987-0-0	392998-0-0
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	-	-	-
<b>Gypsum Deck Tear-Off</b>							
Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	1/2" SecurShield HD Plus	12" ribbons of FAST	1-90	-	-	-
<b>Gypsum Deck Tear-Off / VapAir Seal 725 TR with Cav-Grip III, 702-LV or 702 Primer</b>							
Min. 1-1/2" InsulBase Polyiso	12" ribbons or Rig Splatter of FAST	1/2" SecurShield HD Plus	12" ribbons or Rig Splatter of FAST	1-90	-	-	-
<b>Cellular Lightweight Insulating Concrete Over Steel Decking (Min. 22 Gauge)</b>							
FM Approved	Loose laid	1/2" SecurShield HD Plus	8 (4 sq. ft)	1-90	-	-	-
-	-	1/2" SecurShield HD Plus	8 (4 sq. ft)	1-90	-	-	-

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### SecurShield HD Plus Ratings - Recover

**Membrane Type:** Sure-Seal FR Nonreinforced .045", .060" or .090"  
 Sure-Tough .045", .060", or .075"  
 Sure-White .060" or .090"

**Membrane Adhesive:** 90-8-30A, Cav-Grip III (CGIII) or EPDM x-23 LVOC 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 38, 39 & 40)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 38, 39 & 40)	Rating	Sure-Seal FR Nonreinforced	Sure-Tough	Sure-White
					RoofNAV Number		
<b>Steel Deck (Min. 22-Gauge)</b>							
-	-	1/2" SecurShield HD Plus	8 (4 sq. ft)	1-90	325757-0-0	325976-0-0	-
-	-	1/2" SecurShield HD Plus	6" ribbons of FAST	1-90	-	-	-
-	-	1/2" SecurShield HD Plus	4" ribbons of FAST	1-150	-	-	-
-	-	1/2" SecurShield HD Plus	18 (1.78 sq. ft.)	1-120	392435-0-0	394207-0-0	394209-0-0
-	-	1/2" SecurShield HD Plus	24 (1.33 sq. ft.)	1-165	394216-0-0	394217-0-0	394219-0-0
<b>Concrete Deck</b>							
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	-	-	-
-	-	1/2" SecurShield HD Plus	24 (1.33 sq. ft.)	1-225	501475-0-0	-	-
<b>Gypsum Deck</b>							
Min. 1-1/2" InsulBase Polyiso	Full-Coverage FAST	1/2" SecurShield HD Plus	Full-Coverage FAST	1-90	-	-	-



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Design "A" Adhered Roofing Systems

**InsulBase Polyiso Ratings - New Construction**

**Membrane Type:** Sure-Seal FR Nonreinforced .045", .060" or .090"  
Sure-Tough .045", .060", or .075"  
Sure-White .060" or .090"

**Membrane Adhesive:** 90-8-30A, Cav-Grip III (CGIII) or EPDM x-23 LVOC 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 38, 39 & 40)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 38, 39 & 40)	Rating	Sure-Seal FR Nonreinforced	Sure-Tough	Sure-White
					RoofNAV Number		
<b>Steel Deck (Min. 22-Gauge)</b>							
Min. 1-1/2" InsulBase Polyiso	16 (2 sq. ft)	-	-	1-90	400122-0-0 (LVOC)	4069-0-0	400111-0-0
Min. 2" InsulBase Polyiso	8 (4 sq. ft)	-	-	1-90	224172-0-0	384640-0-0	-
Min. 2" InsulBase Polyiso	20 (1.6 sq. ft)	-	-	1-150	131096-0-0	384671-0-0	384674-0-0
Min. 1-1/2" InsulBase Polyiso	10 (3.2 sq. ft.)	Min. 1" InsulBase Polyiso	12" ribbons or Rig Splatter of FAST	1-90	437159-0-0	437161-0-0	437162-0-0
Min. 2" InsulBase Polyiso	8 (4 sq. ft)	Min. 2" InsulBase Polyiso	12" ribbons or Rig Splatter of FAST	1-90	344604-0-0	344603-0-0	187056-0-0 (90-8-30A)
Min. 2" InsulBase Polyiso	16 (2 sq. ft.)	Min. 1/2" InsulBase Polyiso	6" ribbons or Rig Splatter of FAST	1-105	454480-0-0	-	454482-0-0
Min. 2" InsulBase Polyiso	20 (1.6 sq. ft)	Min. 1" InsulBase Polyiso	6" ribbons or Rig Splatter of FAST	1-150	455826-0-0	455823-0-0	455830-0-0
Min. 2" InsulBase Polyiso	32 (1 sq. ft)	Min. 1" InsulBase Polyiso	4" ribbons of FAST	1-270	455862-0-0	455856-0-0	455866-0-0
Min. 1/2" DensDeck Prime	16 (2 sq. ft.)	Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	1-90	181102-0-0	181102-0-0	181105-0-0
<b>Steel Deck (Min. 22 Gauge) with VapAir Seal 725TR and Cav-Grip III or 702 Primer</b>							
Min. 1/2" DensDeck Prime or Securock	8 (4 sq. ft.)	Min. 1-1/2" InsulBase Polyiso	12" ribbons or Rig Splatter of FAST	1-90	445221-0-0	445295-0-0	445292-0-0
Min. 1/2" DensDeck Prime or Securock	20 (1.6 sq. ft.)	Min. 1-1/2" InsulBase Polyiso	FAST Rig Splatter	1-135	-	-	-
<b>Steel Deck (Min. 22 Gauge) with SureMB 70 SA and Cav-Grip III Primer</b>							
Min. 1/2" DensDeck Prime or Securock	8 (4 sq. ft.)	Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	1-90	509651-0-0	509654-0-0	509656-0-0
Min. 1/2" DensDeck Prime or Securock	20 (1.6 sq. ft.)	Min. 1-1/2" InsulBase Polyiso	6" ribbons of FAST	1-135	-	-	-
<b>Steel Deck (Min. 22 Gauge) with SureMB 90TG</b>							
Min. 1/2" DensDeck Prime or Securock	8 (4 sq. ft.)	Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	1-90	454489-0-0	-	454490-0-0
Min. 1/2" DensDeck Prime or Securock	20 (1.6 sq. ft.)	Min. 1-1/2" InsulBase Polyiso	6" ribbons of FAST	1-135	-	-	-

FM Approvals  
Design "A" Adhered Roofing Systems

**InsulBase Polyiso Ratings - New Construction**

**Membrane Type:** Sure-Seal FR Nonreinforced .045", .060" or .090"  
Sure-Tough .045", .060", or .075"  
Sure-White .060" or .090"

**Membrane Adhesive:** 90-8-30A, Cav-Grip III (CGIII) or EPDM x-23 LVOC 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 38, 39 & 40)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 38, 39 & 40)	Rating	Sure-Seal FR Nonreinforced	Sure-Tough	Sure-White
					RoofNAV Number		
<b>Concrete Deck</b>							
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	-	-	1-315	269891-0-0	269891-0-0	269945-0-0
Min. 1" InsulBase Polyiso	Hot Asphalt	-	-	1-300	240000-0-0 (90-8-30A)	240000-0-0 (90-8-30A)	241715-0-0 (90-8-30A)
<b>Concrete Deck with VapAir Seal 725TR/Cav-Grip III Primer, 702 LV Primer or 702 Primer</b>							
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	-	-	1-315	454371-0-0	454371-0-0	343381-0-0
Min. 1/2" InsulBase Polyiso	6" ribbons of FAST	-	-	1-315	462895-0-0	462895-0-0	-
Min. 1-1/2" InsulBase Polyiso	6" ribbons of FAST	-	-	1-465	462896-0-0	462896-0-0	-
<b>Concrete Deck with SureMB 70 SA and Cav-Grip III Primer</b>							
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	-	-	1-285	509657-0-0	509658-0-0	509660-0-0
Min. 1-1/2" InsulBase Polyiso	6" ribbons of FAST	-	-	1-510	509661-0-0	509662-0-0	509664-0-0
<b>Concrete Deck with SureMB 90TG and 120TG Base Torch Applied/Cut-Back Asphalt Primer</b>							
Min. 1-1/2" InsulBase Polyiso	6" ribbons of FAST	-	-	1-465	462932-0-0	462932-0-0	-
Min. 1-1/2" InsulBase Polyiso	6" ribbons of FAST	-	-	1-345	-	-	454391-0-0
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	1-315	-	-	-
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	-	-	1-90	394469-0-0	394469-0-0	394470-0-0
<b>Gypsum Deck Tear-Off</b>							
Min. 1-1/2" InsulBase Polyiso	16 (2 sq. ft)	-	-	1-90	7451-0-0 (90-8-30A)	7451-0-0 (90-8-30A)	7418-0-0 (90-8-30A)
Min. 1" InsulBase Polyiso	12" ribbons of FAST	-	-	1-90	193356-0-0	193356-0-0	193375-0-0
<b>Gypsum Deck Tear-Off / VapAir Seal 725 TR with Cav-Grip III, 702-LV or 702 Primer</b>							
Min. 1-1/2" InsulBase Polyiso	12" ribbons or Rig Splatter of FAST	-	-	1-90	445220-0-0	445294-0-0	445290-0-0
<b>Cellular Lightweight Insulating Concrete Over Steel Decking (Min. 22 Gauge)</b>							
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:** Sure-Seal FR Nonreinforced .045", .060" or .090"  
 Sure-Tough .045", .060", or .075"  
 Sure-White .060" or .090"

**Membrane Adhesive:** 90-8-30A, Cav-Grip III (CGIII) or EPDM x-23 LVOC 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 38, 39 & 40)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 38, 39 & 40)	Rating	Sure-Seal FR Nonreinforced	Sure-Tough	Sure-White
					RoofNAV Number		
<b>Steel Deck (Min. 22-Gauge)</b>							
1" InsulBase Polyiso	20 (1.6 sq. ft)	-	-	1-90	164635-0-0	164635-0-0	164639-0-0 (90-8-30A)
1" InsulBase Polyiso	Full-Coverage FAST	-	-	1-150	417298-0-0	417301-0-0	417311-0-0
1" InsulBase Polyiso	6" ribbons of FAST	-	-	1-90	437208-0-0	-	-
1" InsulBase Polyiso	6" ribbons of FAST	-	-	1-150	466153-0-0	-	-
1" InsulBase Polyiso	12" ribbons of FAST	-	-	1-90	193356-0-0	193356-0-0	-
<b>Concrete Deck</b>							
Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	-	-	1-90	445220-0-0	-	-
<b>Gypsum Deck</b>							
Min. 1-1/2" InsulBase Polyiso	16 (2 sq. ft)	-	-	1-90	83131-0-0 (90-8-30A)	83131-0-0 (90-8-30A)	97712-0-0 (90-8-30A)
Min. 1/2" InsulBase Polyiso	Full-Coverage FAST	-	-	1-90	144196-0-0	144196-0-0	-

FM Approvals  
Design "A" Adhered Roofing Systems

**SecurShield and SecurShield HD Composite Ratings - New Construction**

**Membrane Type:** Sure-Seal FR Nonreinforced .045", .060" or .090"  
Sure-Tough .045", .060", or .075"  
Sure-White .060" or .090"

**Membrane Adhesive:** 90-8-30A, Cav-Grip III (CGIII) or EPDM x-23 LVOC 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 38, 39 & 40)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 38, 39 & 40)	Rating	Sure-Seal FR Nonreinforced	Sure-Tough	Sure-White
					RoofNAV Number		
<b>Steel Deck (Min. 22-Gauge)</b>							
Min. 1-1/2" SecurShield or 2" SecurShield HD Composite	16 (2 sq. ft.)	-	-	1-90	400122-0-0	400122-0-0	400111-0-0
Min. 2" SecurShield or SecurShield HD Composite	8 (4 sq. ft.)	-	-	1-90	4089-0-0 (90-8-30A) SecurShield HD Comp. Only	4089-0-0 (90-8-30A) SecurShield HD Comp. Only	-
Min. 2" SecurShield	32 (1 sq. ft.)	-	-	1-225 (42)	399359-0-0	245201-0-0 (90-8-30A)	245503-0-0 (90-8-30A) SecurShield Only
Min. 1-1/2" InsulBase Polyiso	10 (3.2 sq. ft.)	Min. 1-1/2" SecurShield or SecurShield HD Composite	12" ribbons or Rig Splatter of FAST	1-90	-	-	-
Min. 2" InsulBase Polyiso	8 (4 sq. ft.)	Min. 2" SecurShield or SecurShield HD Composite	12" ribbons or Rig Splatter of FAST	1-90	344604-0-0	344603-0-0	-
Min. 1/2" DensDeck Prime	16 (2 sq. ft.)	Min. 1-1/2" SecurShield or SecurShield HD Composite	12" ribbons of FAST	1-90	252110-0-0 (90-8-30A) SecurShield Only	-	-
<b>Steel Deck (Min. 22 Gauge) with VapAir Seal 725TR and Cav-Grip III or 702 Primer</b>							
Min. 1/2" DensDeck Prime or Securock	8 (4 sq. ft.)	Min. 1-1/2" SecurShield or SecurShield HD Composite	12" ribbons or Rig Splatter of FAST	1-90	296822-0-0 (90-8-30A)	400818-0-0	400790-0-0
Min. 1/2" DensDeck Prime or Securock	20 (1.6 sq. ft.)	Min. 1-1/2" SecurShield or SecurShield HD Composite	FAST Rig Splatter	1-135	-	-	-
<b>Steel Deck (Min. 22 Gauge) with SureMB 70 SA and Cav-Grip III Primer</b>							
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	-	-	-
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	1-135	-	-	-
<b>Steel Deck (Min. 22 Gauge) with SureMB 90TG or 120 TG Base Torch Applied</b>							
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	454489-0-0	-	454490-0-0
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	1-135	-	-	-

FM Approvals  
Design "A" Adhered Roofing Systems

**SecurShield and SecurShield HD Composite Ratings - New Construction**

**Membrane Type:** Sure-Seal FR Nonreinforced .045", .060" or .090"  
Sure-Tough .045", .060", or .075"  
Sure-White .060" or .090"

**Membrane Adhesive:** 90-8-30A, Cav-Grip III (CGIII) or EPDM x-23 LVOC 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 38, 39 & 40)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 38, 39 & 40)	Rating	Sure-Seal FR Nonreinforced	Sure-Tough	Sure-White
					RoofNAV Number		
<b>Concrete Deck</b>							
Min. 1/2" SecurShield or SecurShield HD Composite	Hot Asphalt	-	-	1-300	-	-	-
Min. 2" SecurShield or SecurShield HD Composite	32 (1 sq. ft.)	-	-	1-255	430148-0-0	-	-
Min. 2" SecurShield or SecurShield HD Composite	20 (1.6 sq. ft.)	-	-	1-150	430147-0-0	-	-
Min. 1-1/2" InsulBase Polyiso	-	Min. 2" SecurShield HD Composite	16 (2 sq. ft.)	1-120	-	-	349806-0-0
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 2" SecurShield HD Composite	12" ribbons of FAST	1-315	399892-0-0	-	-
<b>Concrete Deck with VapAir Seal 725TR/Cav-Grip III Primer, 702 LV Primer or 702 Primer</b>							
Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 2" SecurShield HD Composite	12" ribbons of FAST	1-315	394769-0-0	395863-0-0	395870-0-0
Min. 1-1/2" SecurShield Polyiso	6" ribbons of FAST	-	-	1-465	-	-	-
Min. 1/2" SecurShield Polyiso	6" ribbons of FAST	-	-	1-315	-	-	-
<b>Concrete Deck with SureMB 70 SA and Cav-Grip III Primer</b>							
Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 1-1/2" SecurShield or SecurShield HD Composite	12" ribbons of FAST	1-285	519850-0-0	519877-0-0	519853-0-0
<b>Concrete Deck with SureMB 90TG and 120TG Base Torch Applied/Cut-Back Asphalt Primer</b>							
Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 1-1/2" SecurShield or SecurShield HD Composite	12" ribbons of FAST	1-150	-	-	-
Min. 2" SecurShield	12" ribbons of FAST	-	-	1-195	392301-0-0	-	-
Min. 1-1/2" SecurShield Polyiso	6" ribbons of FAST	-	-	1-465	-	-	-
Min. 1/2" SecurShield Polyiso	6" ribbons of FAST	-	-	1-315	-	-	-
<b>Gypsum Deck Tear-Off</b>							
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	-	-	-
<b>Gypsum Deck Tear-Off / VapAir Seal 725 TR with Cav-Grip III, 702-LV or 702 Primer</b>							
Min. 1-1/2" SecurShield or SecurShield HD Composite	12" ribbons or Rig Splatter of FAST	-	-	1-90	-	-	-
<b>(Celcore) Cellular Lightweight Insulating Concrete Over Steel Decking (Min. 22 Gauge)</b>							
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:** Sure-Seal FR Nonreinforced .045", .060" or .090"  
 Sure-Tough .045", .060", or .075"  
 Sure-White .060" or .090"

**Membrane Adhesive:** 90-8-30A, Cav-Grip III (CGIII) or EPDM x-23 LVOC 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 38, 39 & 40)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 38, 39 & 40)	Rating	Sure-Seal FR Nonreinforced	Sure-Tough	Sure-White
					RoofNAV Number		
<b>Steel Deck (Min. 22-Gauge)</b>							
2" SecurShield	20 (1.6 sq. ft)	-	-	1-150	325737-0-0 (90-8-30A)	-	-
1" SecurShield	16 (2 sq. ft)	-	-	1-90	400222-0-0	400222-0-0	-
1" SecurShield	Full-Coverage FAST	-	-	1-150	-	-	-
<b>Concrete Deck</b>							
Min. 1/2" SecurShield	12" ribbons of FAST	-	-	1-90	-	-	-
<b>Gypsum Deck</b>							
1" SecurShield	20 (1.6 sq. ft)	-	-	1-90	-	-	-
1" SecurShield	Full-Coverage FAST	-	-	1-90	-	-	-

FM Approvals  
Design "A" Adhered Roofing Systems  
**Securock Ratings - New Construction**

**Membrane Type:** Sure-Seal FR Nonreinforced .045", .060" or .090"  
Sure-Tough .045", .060", or .075"  
Sure-White .060" or .090"

**Membrane Adhesive:** 90-8-30A, Cav-Grip III (CGIII) or EPDM x-23 LVOC 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 38, 39 & 40)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 38, 39 & 40)	Rating	Sure-Seal FR Nonreinforced	Sure-Tough	Sure-White
					RoofNAV Number		
<b>Steel Deck (Min. 22-Gauge)</b>							
FM Approved	Loose laid	Min. 1/4" Securock	12 (2.66 sq. ft)	1-75	-	-	-
FM Approved	Loose laid	Min. 1/4" Securock	16 (2 sq. ft) SecurFAST Plates	1-90	-	270074-0-0 (90-8-30A)	270077-0-0 (90-8-30A)
FM Approved	Loose laid	Min. 1/4" Securock	10 (3.2 sq. ft) SecurFAST Plates	1-90	212270-0-0	405772-0-0	405774-0-0
FM Approved	Loose laid	Min. 1/2" Securock	10 (3.2 sq. ft)	1-90	302948-0-0	302946-0-0	302947-0-0
FM Approved	Loose laid	Min. 1/2" Securock	8 (4 sq. ft) SecurFAST Plates	1-90	319024-0-0	-	-
FM Approved	Loose laid	Min. 5/8" Securock	8 (4 sq. ft)	1-90	-	-	-
FM Approved	Loose laid	Min. 1/2" Securock	6 (5.33 sq. ft) SecurFAST Plates	1-75	443353-0-0	-	-
FM Approved	Loose laid	Min. 5/8" Securock	6 (5.33 sq. ft) SecurFAST Plates	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)	1-255	-	-	-
fin. 1-1/2" InsulBase Polyis	10 (3.2 sq. ft.)	Min. 1/4" Securock	12" ribbons or Rig Splatter of FAST	1-90	386968-0-0	-	-
fin. 1-1/2" InsulBase Polyis	10 (3.2 sq. ft.)	Min. 1/4" Securock over Min. 1" InsulBase	12" ribbons or Rig Splatter of FAST	1-90	386968-0-0	-	-
Min. 2" InsulBase Polyiso	8 (4 sq. ft)	Min. 1/4" Securock over Min. 1 InsulBase	12" ribbons or Rig Splatter of FAST	1-90	340814-0-0	507492-0-0	388301-0-0
Min. 2" InsulBase Polyiso	16 (2 sq. ft.)	Min. 1/2" Securock	12" ribbons or Rig Splatter of FAST	1-120	455759-0-0	455762-0-0	455767-0-0
Min. 2" InsulBase Polyiso	16 (2 sq. ft.)	Min. 1/2" Securock over Min. 1-1/2" InsulBase Polyiso	12" ribbons or Rig Splatter of FAST	1-120	-	-	519204-0-0
Min. 2" InsulBase Polyiso	20 (1.6 sq. ft.)	Min. 1/2" Securock	6" ribbons or Rig Splatter of FAST	1-135	455719-0-0	455717-0-0	455720-0-0
Min. 2" InsulBase Polyiso	32 (1 sq. ft.)	Min. 1/2" Securock	4" ribbons or Rig Splatter of FAST	1-225	455794-0-0	455789-0-0	455797-0-0
Min. 2" InsulBase Polyiso	8 (4 sq. ft.)	Min. 1/2" Securock	12" ribbons or Rig Splatter of FAST	1-90	-	187061-0-0	388301-0-0
Min. 1/2" DensDeck Prime or 5/8" Securock	16 (2 sq. ft.)	Min. 1/4" Securock over Min. 2" InsulBase Polyiso	12" ribbons or Rig Splatter of FAST	1-90	-	-	-
Min. 1/2" Securock	16 (2 sq. ft.)	Min. 1/4" Securock over Min. 1" Insulfoam EPS	6" ribbons of FAST	1-90	517257-0-0	-	-
<b>Steel Deck (Min. 22 Gauge) with VapAir Seal 725TR and Cav-Grip III or 702 Primer</b>							
Min. 1/2" DensDeck Prime or Securock	8 (4 sq. ft.)	Min. 1/2" Securock over Min. 1-1/2" InsulBase Polyiso	12" ribbons or Rig Splatter of FAST	1-90	323293-0-0	323293-0-0	459084-0-0
Min. 1/2" DensDeck Prime or Securock	20 (1.6 sq. ft.)	Min. 1/2" Securock over Min. 1-1/2" InsulBase Polyiso	FAST Rig Splatter	1-135	-	-	-
<b>Steel Deck (Min. 22 Gauge) with SureMB 70 SA and Cav-Grip III Primer</b>							
Min. 1/2" DensDeck Prime or Securock	8 (4 sq. ft.)	Min. 1/2" Securock over 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. 1/2" Securock over Min. 1-1/2" InsulBase Polyiso	6" ribbons of FAST	1-135	-	-	-

FM Approvals  
Design "A" Adhered Roofing Systems  
**Securock Ratings - New Construction**

**Membrane Type:** Sure-Seal FR Nonreinforced .045", .060" or .090"  
Sure-Tough .045", .060", or .075"  
Sure-White .060" or .090"

**Membrane Adhesive:** 90-8-30A, Cav-Grip III (CGIII) or EPDM x-23 LVOC 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 38, 39 & 40)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 38, 39 & 40)	Rating	Sure-Seal FR Nonreinforced	Sure-Tough	Sure-White
					RoofNAV Number		
<b>Steel Deck (Min. 22 Gauge) with SureMB 90TG or 120TG Base Torch Applied</b>							
Min. 1/2" DensDeck Prime or Securock	8 (4 sq. ft.)	Min. 1/2" Securock over 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. 1/2" Securock over Min. 1-1/2" InsulBase Polyiso	6" ribbons of FAST	1-135	-	-	-
<b>Concrete Deck</b>							
Min. 2" InsulBase Polyiso	8 (4 sq. ft.)	Min. 1/2" Securock	12" ribbons or Rig Splatter of FAST	1-90	403959-0-0	-	-
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 1/4" Securock	12" ribbons or Rig Splatter of FAST	1-315	307927-0-0 (90-8-30A)	304589-0-0 (90-8-30A)	-
<b>Concrete Deck with VapAir Seal 725TR/Cav-Grip III Primer, 702 LV Primer or 702 Primer</b>							
Min. 1" Insulfoam EPS	12" ribbons of FAST	Min. 1/4" Securock	6" ribbons of FAST	1-255	396669-0-0 (LVOC)	396689-0-0 (LVOC)	396708-0-0 (LVOC)
Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 1/4" Securock	12" ribbons of FAST	1-315	364529-0-0	364502-0-0 (1-150)	364504-0-0 (1-150)
Min. 1/2" InsulBase Polyiso	6" ribbons of FAST	Min. 1/4" Securock	6" ribbons of FAST	1-315	-	519882-0-0 (1-150)	-
Min. 1-1/2" InsulBase Polyiso	6" ribbons of FAST	Min. 1/4" Securock	6" ribbons of FAST	1-465	-	-	-
<b>Concrete Deck with SureMB 70 SA with Cav-Grip III Primer</b>							
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 1/4" Securock	12" ribbons of FAST	1-285	519843-0-0	-	519839-0-0
<b>Concrete Deck with SureMB 90TG and 120TG Base Torch Applied/Cut-Back Asphalt Primer</b>							
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 1/4" Securock	12" ribbons of FAST	1-150	392916-0-0	-	392919-0-0
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	-	-	-
<b>Gypsum Deck Tear-Off</b>							
Min. 1-1/2" InsulBase Polyiso	Full-Coverage FAST	Min. 1/4" Securock	Full-Coverage FAST	1-90	515237-0-0	515237-0-0	-
<b>Gypsum Deck Tear-Off with VapAir Seal 725TR/Cav-Grip III Primer, 702 LV Primer or 702 Primer</b>							
Min. 1-1/2" InsulBase Polyiso	12" ribbons or Rig Splatter of FAST	Min. 1/4" Securock	12" ribbons or Rig Splatter of FAST	1-90	458122-0-0	458123-0-0	458125-0-0
<b>Cellular Lightweight Insulating Concrete Over Steel Decking (Min. 22 Gauge)</b>							
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:** Sure-Seal FR Nonreinforced .045', .060" or .090"  
 Sure-Tough .045", .060", or .075"  
 Sure-White .060" or .090"

**Membrane Adhesive:** 90-8-30A, Cav-Grip III (CGIII) or EPDM x-23 LVOC 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 38, 39 & 40)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 38, 39 & 40)	Rating	Sure-Seal FR Nonreinforced	Sure-Tough	Sure-White
					RoofNAV Number		
<b>Steel Deck</b>							
Max. 1" InsulBase Polyiso	Loose laid	Min. 1/2" Securock	10 (3.2 sq. ft)	1-90	437209-0-0	-	-
<b>Concrete Deck</b>							
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 1/4" Securock	12" ribbons of FAST	1-90	-	-	-

FM Approvals  
Design "A" Adhered Roofing Systems

**DensDeck Prime Ratings - New Construction**

**Membrane Type:** Sure-Seal FR Nonreinforced .045", .060" or .090"  
Sure-Tough .045", .060", or .075"  
Sure-White .060" or .090"

**Membrane Adhesive:** 90-8-30A, Cav-Grip III (CGIII) or EPDM x-23 LVOC 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 38, 39 & 40)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 38, 39 & 40)	Rating	Sure-Seal FR Nonreinforced	Sure-Tough	Sure-White
					RoofNAV Number		
<b>Steel Deck (Min. 22-Gauge)</b>							
FM Approved	Loose laid	Min. 1/4" DensDeck Prime	12 (2.67 sq. ft)	1-90	-	83097-0-0 (90-8-30A)	97691-0-0 (90-8-30A)
FM Approved	Loose laid	Min. 1/2" DensDeck Prime	10 (3.2 sq. ft)	1-90	350409-0-0	350408-0-0	350410-0-0
Min. 1-1/2" InsulBase Polyiso	Loose Laid	Min. 1/2" DensDeck Prime	20 (1.6 sq. ft)	1-105	224154-0-0 (90-8-30A)	224152-0-0	224159-0-0
FM Approved	Loose laid	Min. 5/8" DensDeck Prime	8 (4 sq. ft)	1-90	85854-0-0 (90-8-30A)	83095-0-0 (90-8-30A)	97689-0-0 (90-8-30A)
Min. 1-1/2" InsulBase Polyiso	Loose laid	Min. 1/2" DensDeck Prime	8 (4 sq.ft)	1-90	454398-0-0	-	-
Min. 1-1/2" InsulBase Polyiso	Loose laid	Min. 1/4" DensDeck Prime	18 (1.8 sq. ft)	1-105	382307-0-0	-	-
Min. 1-1/2" InsulBase Polyiso	Loose laid	Min. 1/2" DensDeck Prime	18 (1.8 sq. ft)	1-135	383697-0-0	-	-
Min. 1-1/2" InsulBase Polyiso	Loose laid	Min. 1/2" DensDeck Prime	20 (1.6 sq. ft)	1-150	383707-0-0	-	394644-0-0
Min. 1-1/2" InsulBase Polyiso	Loose laid	Min. 1/2" DensDeck Prime	32 (1 sq. ft)	1-165	424136-0-0	-	-
Min. 1-1/2" InsulBase Polyiso	Loose laid	Min. 1/2" DensDeck Prime	32 (1 sq. ft)	1-180 (41)	384589-0-0	-	-
Min. 1-1/2" InsulBase Polyiso	Loose laid	Min. 1/2" DensDeck Prime	32 (1 sq. ft)	1-255 (42)	387896-0-0	-	394645-0-0
Min. 2" InsulBase Polyiso	8 (4 sq. ft)	Min. 1/4" DensDeck Prime	12" ribbons or Rig Splatter of FAST	1-90	428854-0-0	187061-0-0 (90-8-30A)	428856-0-0
Min. 2" InsulBase Polyiso	8 (4 sq. ft)	Min. 1/4" DensDeck Prime over Min. 1-1/2" InsulBase	12" ribbons or Rig Splatter of FAST	1-90	428851-0-0	507492-0-0	428858-0-0
Min. 1-1/2" InsulBase Polyiso	10 (3.2 sq. ft.)	Min. 1/4" DensDeck Prime	12" ribbons or Rig Splatter of FAST	1-90	-	-	-
Min. 2" InsulBase Polyiso	16 (2 sq. ft.)	Min. 1/2" DensDeck Prime	12" ribbons or Rig Splatter of FAST	1-120	455759-0-0	455762-0-0	455767-0-0
Min. 2" InsulBase Polyiso	20 (1.6 sq. ft.)	Min. 1/2" DensDeck Prime	6" ribbons or Rig Splatter of FAST	1-135	455716-0-0	455717-0-0	455720-0-0
Min. 2" InsulBase Polyiso	32 (1 sq. ft.)	Min. 1/2" DensDeck Prime	4" ribbons or Rig Splatter of FAST	1-225	455785-0-0	455789-0-0	455797-0-0
Min. 2" Insulfoam Roofing EPS over 1/2" DensDeck	16 (2 sq. ft.)	Min. 1/4" DensDeck Prime	6" ribbons of FAST	1-90	444733-0-0	444734-0-0	444736-0-0
Min. 1/2" DensDeck Prime	16 (2 sq. ft.)	Min. 1/4" DensDeck Prime over 1-1/2" InsulBase Polyiso	12" ribbons of FAST	1-90	303439-0-0	303438-0-0 (90-8-30A)	303441-0-0 (90-8-30A)
Min. 1/2" DensDeck Prime	16 (2 sq. ft.)	Min. 1/4" DensDeck Prime over Min. 1" Insulfoam EPS	6" ribbons of FAST	1-90	517257-0-0	-	-
<b>Steel Deck (Min. 22 Gauge) with VapAir Seal 725TR and Cav-Grip III or 702 Primer</b>							
Min. 1/2" DensDeck Prime or Securock	8 (4 sq. ft.)	Min. 1/4" DensDeck Prime over 1-1/2" InsulBase Polyiso	12" ribbons or Rig Splatter of FAST	1-90	323293-0-0	323293-0-0	459084-0-0
Min. 1/2" DensDeck Prime or Securock	20 (1.6 sq. ft.)	Min. 1/4" DensDeck Prime over 1-1/2" InsulBase Polyiso	FAST Rig Splatter	1-135	-	-	-
<b>Steel Deck (Min. 22 Gauge) with SureMB 70 SA and Cav-Grip III Primer</b>							
Min. 1/2" DensDeck Prime or Securock	8 (4 sq. ft.)	Min. 1/4" DensDeck Prime over 1-1/2" InsulBase Polyiso	12" ribbons of FAST	1-90	-	-	-
Min. 1/2" DensDeck Prime or Securock	20 (1.6 sq. ft.)	Min. 1/4" DensDeck Prime over 1-1/2" InsulBase Polyiso	6" ribbons of FAST	1-135	-	-	-

FM Approvals  
Design "A" Adhered Roofing Systems

**DensDeck Prime Ratings - New Construction**

**Membrane Type:** Sure-Seal FR Nonreinforced .045", .060" or .090"  
Sure-Tough .045", .060", or .075"  
Sure-White .060" or .090"

**Membrane Adhesive:** 90-8-30A, Cav-Grip III (CGIII) or EPDM x-23 LVOC 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 38, 39 & 40)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 38, 39 & 40)	Rating	Sure-Seal FR Nonreinforced	Sure-Tough	Sure-White
					RoofNAV Number		
<b>Steel Deck (Min. 22 Gauge) with SureMB 90TG Base Torch Applied</b>							
Min. 1/2" DensDeck Prime or Securock	8 (4 sq. ft.)	Min. 1/4" DensDeck Prime over	12" ribbons of FAST	1-90	470102-0-0	470103-0-0	470105-0-0
Min. 1/2" DensDeck Prime or Securock	20 (1.6 sq. ft.)	Min. 1/4" DensDeck Prime over 1-1/2" InsulBase Polyiso	6" ribbons of FAST	1-135	-	-	-
<b>Concrete Deck</b>							
Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 1/4" DensDeck Prime	12" ribbons of FAST	1-465	160628-0-0 (90-8-30A)	160610-0-0 (90-8-30A)	160633-0-0 (90-8-30A)
Min. 1/2" InsulBase Polyiso	Hot Asphalt	Min. 1/4" DensDeck Prime	Hot Asphalt	1-300	519989-0-0	-	-
<b>Concrete Deck with VapAir Seal 725TR/Cav-Grip III Primer, 702 LV Primer or 702 Primer</b>							
Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 1/4" DensDeck Prime	12" ribbons of FAST	1-255	274598-0-0 (90-8-30A)	274610-0-0 (90-8-30A)	-
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 1/4" DensDeck Prime	12" ribbons of FAST	1-315	364529-0-0	364531-0-0	364610-0-0
Min. 1-1/2" InsulBase Polyiso	6" ribbons of FAST	Min. 1/4" DensDeck Prime	6" ribbons of FAST	1-465	-	-	-
Min. 1" Insulfoam EPS	6" ribbons of FAST	Min. 1/4" DensDeck Prime	6" ribbons of FAST	1-165	395957-0-0	395960-0-0	395962-0-0
<b>Concrete Deck with SureMB 70 SA with Cav-Grip III Primer</b>							
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 1/4" DensDeck Prime	12" ribbons of FAST	1-285	519843-0-0	-	519844-0-0
<b>Concrete Deck with SureMB 90TG and 120TG Base Torch Applied/Cut-Back Asphalt Primer</b>							
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 1/4" DensDeck Prime	12" ribbons of FAST	1-330	-	-	-
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 1/4" DensDeck Prime	12" ribbons of FAST	1-105	-	-	392993-0-0
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	-	-	-
<b>Gypsum Deck Tear-Off</b>							
Min. 1-1/2" InsulBase Polyiso	Full-Coverage FAST	Min. 1/4" DensDeck Prime	Full-Coverage FAST	1-90	515237-0-0	515237-0-0	157783-0-0 (90-8-30A)
<b>Gypsum Deck Tear-Off with VapAir Seal 725TR/Cav-Grip III Primer, 702 LV Primer or 702 Primer</b>							
Min. 1-1/2" InsulBase Polyiso	12" ribbons or Rig Splatter of FAST	Min. 1/4" DensDeck Prime	12" ribbons or Rig Splatter of FAST	1-90	458122-0-0	458123-0-0	458125-0-0
<b>Cellular Lightweight Insulating Concrete Over Steel Decking (Min. 22 Gauge)</b>							
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	-	-	-

FM Approvals  
Design "A" Adhered Roofing Systems

### DensDeck Prime Ratings - Recover

**Membrane Type:** Sure-Seal FR Nonreinforced .045", .060" or .090"  
 Sure-Tough .045", .060", or .075"  
 Sure-White .060" or .090"

**Membrane Adhesive:** 90-8-30A, Cav-Grip III (CGIII) or EPDM x-23 LVOC 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 38, 39 & 40)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 38, 39 & 40)	Rating	Sure-Seal FR Nonreinforced	Sure-Tough	Sure-White
					RoofNAV Number		
<b>Steel Deck (Min. 22 Gauge) with VapAir Seal 725TR and Cav-Grip Primer</b>							
Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 1/4" DensDeck Prime	12" ribbons of FAST	1-90	458122-0-0	458123-0-0	458125-0-0
<b>Concrete Deck</b>							
-	-	Min. 1/2" DensDeck Prime	10 (3.2 sq. ft)	1-90	-	-	428852-0-0
Min. 1" InsulBase Polyiso	12" ribbons of FAST	Min. 1/4" DensDeck Prime	12" ribbons of FAST	1-75	-	-	173671-0-0 (90-8-30A)

FM Approvals  
Design "A" Adhered Roofing Systems

### HP Recovery Board Ratings - New Construction

**Membrane Type:** Sure-Seal FR Nonreinforced .045", .060" or .090"  
 Sure-Tough .045", .060", or .075"  
 Sure-White .060" or .090"

**Membrane Adhesive:** 90-8-30A, Cav-Grip III (CGIII) or EPDM x-23 LVOC Bonding Adhesive (LVOC)

Base Insulation Layer (Max. thickness 36")	Base Layer Fastening (mechanically fastened see notes 38, 39 & 40)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 38, 39 & 40)	Rating	Sure-Seal FR Nonreinforced	Sure-Tough	Sure-White
					RoofNAV Number		
<b>Steel Deck (Min. 22-Gauge)</b>							
Min. 1-1/2" InsulBase Polyiso	Loose laid	Min. 1/2" HP Recovery Board	16 (2 sq. ft)	1-90	270071-0-0 (x-23 Only)	270070-0-0 (x-23 Only)	270073-0-0 (x-23 Only)
<b>Cellular Lightweight Insulating Concrete Over Steel Decking (Min. 22 Gauge)</b>							
FM Approved	Loose laid	Min. 1/2" HP Recovery Board	16 (2 sq. ft)	1-90	-	-	-

FM Approvals  
Design "A" Adhered Roofing Systems  
**StormBase Ratings - New Construction**

**Membrane Type:** Sure-Seal FR Nonreinforced .045", .060" or .090"  
Sure-Tough .045", .060", or .075"  
Sure-White .060" or .090"

**Membrane Adhesive:** 90-8-30A, Cav-Grip III (CGIII) or EPDM x-23 LVOC 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 38, 39 & 40)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 38, 39 & 40)	Rating	Sure-Seal FR Nonreinforced	Sure-Tough	Sure-White
					RoofNAV Number		
<b>Steel Deck (Min. 22-Gauge)</b>							
FM Approved	Loose laid	Min. 2" StormBase	17 (1.8 sq. ft)	1-105	-	-	-
FM Approved	Loose laid	Min. 2" StormBase	32 (1 sq. ft)	1-210	-	-	-
<b>Steel Deck (Min. 22 Gauge) with VapAir Seal 725TR and Cav-Grip III or 702 Primer</b>							
Min. 1/2" DensDeck Prime or Securock	8 (4 sq. ft.)	Min. 2" StormBase	12" ribbons of FAST	1-90	-	-	-
Min. 1/2" DensDeck Prime or Securock	20 (1.6 sq. ft.)	Min. 2" StormBase	6" ribbons of FAST	1-135	-	-	-
<b>Steel Deck (Min. 22 Gauge) with SureMB 70 SA and Cav-Grip III Primer</b>							
Min. 1/2" DensDeck Prime or Securock	8 (4 sq. ft.)	Min. 2" StormBase	12" ribbons of FAST	1-90	-	-	-
Min. 1/2" DensDeck Prime or Securock	20 (1.6 sq. ft.)	Min. 2" StormBase	6" ribbons of FAST	1-135	-	-	-
<b>Steel Deck (Min. 22 Gauge) with SureMB 90TG or 120TG Base Torch Applied</b>							
Min. 1/2" DensDeck Prime or Securock	8 (4 sq. ft.)	Min. 2" StormBase	12" ribbons of FAST	1-90	-	-	-
Min. 1/2" DensDeck Prime or Securock	20 (1.6 sq. ft.)	Min. 2" StormBase	6" ribbons of FAST	1-135	-	-	-
<b>Concrete Deck</b>							
Min. 1/2" InsulBase Polyiso	Loose laid	Min. 2" StormBase	32 (1 sq. ft)	1-210	-	-	-
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 2" StormBase	12" ribbons of FAST	1-315	-	-	-
Min. 2" ChannelDry EPS	6" ribbons of FAST	Min. 2" Insulam OSB	6" ribbons of FAST	1-930	491532-0-0	491533-0-0	491535-0-0
<b>Concrete Deck with VapAir Seal 725TR/Cav-Grip III, 702 LV or 702 Primer</b>							
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 2" StormBase	12" ribbons of FAST	1-255	-	-	-
<b>Concrete Deck with SureMB 70 SA with Cav-Grip III Primer</b>							
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 2" StormBase	12" ribbons of FAST	1-285	-	-	-
<b>Concrete Deck with SureMB 90TG and 120TG Base Torch Applied/Cut-Back Asphalt Primer</b>							
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 2" StormBase	12" ribbons of FAST	1-330	-	-	-
<b>Gypsum Deck Tear-Off</b>							
Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 2" StormBase	12" ribbons of FAST	1-90	-	-	-
<b>Gypsum Deck Tear-Off with VapAir Seal 725TR / Cav-Grip III, 702-LV or 702 Primer</b>							
Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 2" StormBase	12" ribbons of FAST	1-90	-	-	-
<b>(Celcore) Cellular Lightweight Insulating Concrete Over Steel Decking</b>							
FM Approved	Loose laid	Min. 2" StormBase	17 (1.9 sq. ft)	1-105	-	-	-
<b>(Celcore) Cellular Lightweight Insulating Concrete Over Concrete Decking</b>							
Min. 1/2" InsulBase Polyiso	4" ribbons of FAST	Min. 2" StormBase	4" ribbons of FAST	1-135	-	-	-

FM Approvals  
Design "A" Adhered Roofing Systems

**StormBase Ratings - Recover**

**Membrane Type:** Sure-Seal FR Nonreinforced .045', .060" or .090"  
 Sure-Tough .045", .060", or .075"  
 Sure-White .060" or .090"

**Membrane Adhesive:** 90-8-30A, Cav-Grip III (CGIII) or EPDM x-23 LVOC 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 38, 39 & 40)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 38, 39 & 40)	Rating	Sure-Seal FR Nonreinforced	Sure-Tough	Sure-White
					RoofNAV Number		
<b>Concrete Deck</b>							
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 2" StormBase	12" ribbons of FAST	1-90	-	-	-

FM Approvals  
Design "A" Adhered Roofing Systems

**EcoStorm VSH - New Construction (SH RATING ONLY)**

**Membrane Type:** Sure-Seal FR Nonreinforced .045", .060" or .090"  
Sure-Tough .045", .060", or .075"  
Sure-White .060" or .090"

**Membrane Adhesive:** 90-8-30A, Cav-Grip III (CGIII) or EPDM x-23 LVOC 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 38, 39 & 40)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 38, 39 & 40)	Rating	Sure-Seal FR Nonreinforced	Sure-Tough	Sure-White
					RoofNAV Number		
<b>Steel Deck (Min. 22-Gauge)</b>							
FM Approved	Loose laid	Min. 1/2" EcoStorm VSH	8 (4 sq. ft.)	1-90	325739-0-0	325970-0-0	345078-0-0
FM Approved	Loose laid	Min. 1/2" EcoStorm VSH	18 (1.8 sq. ft.)	1-120	325772-0-0	325981-0-0	-
FM Approved	Loose laid	Min. 1/2" EcoStorm VSH	20 (1.6 sq. ft.)	1-150	-	-	-
FM Approved	Loose laid	Min. 1/2" EcoStorm VSH	24 (1.33 sq. ft.)	1-225	325921-0-0	325986-0-0	-
FM Approved	Loose laid	Min. 1/2" EcoStorm VSH	32 (1 sq. ft.)	1-255	-	-	-
Min. 1-1/2" InsulBase Polyiso	10 (3.2 sq. ft.)	Min. 1/2" EcoStorm VSH	12" ribbons of FAST	1-90	-	-	-
Min. 2" InsulBase Polyiso	8 (4 sq. ft.)	Min. 1/2" EcoStorm VSH	6" ribbons of FAST	1-90	450413-0-0 (TRU GROUND)	-	-
Min. 2" InsulBase Polyiso	8 (4 sq. ft.)	Min. 1/2" EcoStorm VSH over Min. 1-1/2" InsulBase Polyiso	6" ribbons of FAST	1-90	409996-0-0	410034-0-0	-
Min. 1-1/2" InsulBase Polyiso	18 (1.8 sq. ft.)	Min. 1/2" EcoStorm VSH	6" ribbons of FAST	1-105	325930-0-0	325991-0-0	-
Min. 1/2" DensDeck Prime or 5/8" SECUROCK	16 (2 sq. ft.)	Min. 1/2" EcoStorm VSH over Min. 2" InsulBase Polyiso	12" ribbons of FAST	1-90	-	-	-
<b>Steel Deck (Min. 22 Gauge) with VapAir Seal 725TR and Cav-Grip III or 702 Primer</b>							
Min. 1/2" DensDeck Prime or SECUROCK	8 (4 sq. ft.)	Min. 1/2" EcoStorm VSH over Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	1-90	-	-	-
Min. 1/2" DensDeck Prime or SECUROCK	8 (4 sq. ft.)	Min. 1/2" EcoStorm VSH over Min. 1" Insulfoam Roofing EPS	6" ribbons of FAST	1-90	374034-0-0	-	-
Min. 1/2" DensDeck Prime or SECUROCK	20 (1.6 sq. ft.)	Min. 1/2" EcoStorm VSH over Min. 1-1/2" InsulBase Polyiso	6" ribbons of FAST	1-135	-	-	-
<b>Steel Deck (Min. 22 Gauge) with SureMB 70 SA and Cav-Grip III Primer</b>							
Min. 1/2" DensDeck Prime or SECUROCK	8 (4 sq. ft.)	Min. 1/2" EcoStorm VSH over 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. 1/2" EcoStorm VSH over Min. 1-1/2" InsulBase Polyiso	6" ribbons of FAST	1-135	-	-	-
<b>Steel Deck (Min. 22 Gauge) with SureMB 90TG or 120TG Base Torch Applied</b>							
Min. 1/2" DensDeck Prime or SECUROCK	8 (4 sq. ft.)	Min. 1/2" EcoStorm VSH over 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. 1/2" EcoStorm VSH over Min. 1-1/2" InsulBase Polyiso	6" ribbons of FAST	1-135	-	-	-



FM Approvals  
Design "A" Adhered Roofing Systems

**EcoStorm VSH - New Construction (SH RATING ONLY)**

**Membrane Type:** Sure-Seal FR Nonreinforced .045", .060" or .090"  
Sure-Tough .045", .060", or .075"  
Sure-White .060" or .090"

**Membrane Adhesive:** 90-8-30A, Cav-Grip III (CGIII) or EPDM x-23 LVOC 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 38, 39 & 40)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 38, 39 & 40)	Rating	Sure-Seal FR Nonreinforced	Sure-Tough	Sure-White
					RoofNAV Number		
<b>Concrete Deck</b>							
Min. 2" InsulBase Polyiso	8 (4 sq. ft)	Min. 1/2" EcoStorm VSH	12" ribbons of FAST	1-90	-	-	-
Min. 2" Insulfoam Roofing EPS	12" ribbons of FAST	Min. 1/2" EcoStorm VSH	12" ribbons of FAST	1-285	429674-0-0	429685-0-0	429687-0-0
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 1/2" EcoStorm VSH	12" ribbons of FAST	1-315	343383-0-0	344366-0-0	344369-0-0
<b>Concrete Deck with VapAir Seal 725TR/Cav-Grip Primer, 702 LV Primer or 702 Primer</b>							
Min. 1" Insulfoam EPS	12" ribbons of FAST	Min. 1/2" EcoStorm VSH	6" ribbons of FAST	1-255	429677-0-0	429694-0-0	429697-0-0
Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 1/2" EcoStorm VSH	12" ribbons of FAST	1-315	452713-0-0	364572-0-0	-
Min. 1/2" InsulBase Polyiso	6" ribbons of FAST	Min. 1/2" EcoStorm VSH	6" ribbons of FAST	1-315	-	-	-
Min. 1-1/2" InsulBase Polyiso	6" ribbons of FAST	Min. 1/2" EcoStorm VSH	6" ribbons of FAST	1-465	-	-	-
<b>Concrete Deck with SureMB 70 SA and Cav-Grip III Primer</b>							
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 1/2" EcoStorm VSH	12" ribbons of FAST	1-285	519861-0-0	-	-
<b>Concrete Deck with SureMB 90TG and 120TG Base Torch Applied/Cut-Back Asphalt Primer</b>							
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 1/2" EcoStorm VSH	12" ribbons of FAST	1-150	-	-	-
Min. 1/2" InsulBase Polyiso	6" ribbons of FAST	Min. 1/2" EcoStorm VSH	6" ribbons of FAST	1-315	-	-	-
Min. 1-1/2" InsulBase Polyiso	6" ribbons of FAST	Min. 1/2" EcoStorm VSH	6" ribbons of FAST	1-465	-	-	-
<b>Gypsum Deck Tear-Off</b>							
Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 1/2" EcoStorm VSH	12" ribbons of FAST	1-90	-	-	-
<b>Gypsum Deck Tear-Off with VapAir Seal 725 TR/Cav-Grip III 702 LV Primer or 702 Primer</b>							
Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 1/2" EcoStorm VSH	12" ribbons of FAST	1-90	-	-	-
<b>Cellular Lightweight Insulating Concrete Over Steel Decking (Min. 22 Gauge)</b>							
FM Approved	Loose laid	Min. 1/2" EcoStorm VSH	12 (2.67 sq. ft)	1-75	-	-	-
FM Approved	Loose laid	Min. 1/2" EcoStorm VSH	10 (3.2 sq. ft)	1-90	-	-	-
FM Approved	Loose laid	Min. 1/2" EcoStorm VSH	8 (4 sq. ft)	1-90	-	-	-
FM Approved	Loose laid	Min. 1/2" EcoStorm VSH	20 (1.6 sq. ft)	1-150	-	-	-
FM Approved	Loose laid	Min. 1/2" EcoStorm VSH	32 (1 sq. ft)	1-225	-	-	-

FM Approvals  
Design "A" Adhered Roofing Systems

**EcoStorm VSH Ratings - Recover (SH RATINGS ONLY)**

**Membrane Type:** Sure-Seal FR Nonreinforced .045', .060" or .090"  
 Sure-Tough .045", .060", or .075"  
 Sure-White .060" or .090"

**Membrane Adhesive:** 90-8-30A, Cav-Grip III (CGIII) or EPDM x-23 LVOC 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 38, 39 & 40)	Top Insulation Layer	Top Layer Fastening (mechanically fastened see notes 38, 39 & 40)	Rating	Sure-Seal FR Nonreinforced	Sure-Tough	Sure-White
					RoofNAV Number		
<b>Steel Deck</b>							
Max. 1" InsulBase Polyiso	Loose laid	Min. 1/2" EcoStorm VSH	10 (3.2 sq. ft)	1-90	-	-	-
<b>Concrete Deck</b>							
Min. 1/2" InsulBase Polyiso	6" ribbons of FAST	Min. 1/2" EcoStorm VSH	6" ribbons of FAST	1-90	-	-	-

FM Approvals  
Design "A" Adhered Roofing Systems

**Lightweight Insulating Concrete - New Construction**

**Membrane Type:** Sure-Seal FR Nonreinforced .045", .060" or .090"  
 Sure-Tough .045", .060", or .075"  
 Sure-White .060" or .090"

**Membrane Adhesive:** 90-8-30A

Deck Type	Lightweight Insulating Concrete	Rating	Sure-Seal FR Nonreinforced	Sure-Tough	Sure-White
			RoofNAV Number		
Steel	Celcore	1-135	-	-	243813-0-194470
Concrete	Celcore	1-270	-	-	-
Concrete	Elastizell	1-180	173454-0-50936	173568-0-50936	192446-0-50936

Adhered Roofing Systems

**1-165 (165 psf) Wind Uplift Equivalency Ratings (over OSB)**

**Membrane Type:** Sure-Seal/Sure-White .060" or .090" Non-Reinforced EPDM Membrane  
Sure-Tough .045", .060" or .075" Reinforced EPDM Membrane

Wind uplift testing has been completed in accordance with the FM Approvals 4470 Test Procedure which was witnessed and certified by Architectural Testing, Incorporated, an industry recognized Independent Testing Laboratory. Over a 22-gauge steel roof deck, the following results were obtained. Performance Test Reports are on file and available from Carlisle.

165 psf Uplift Resistance (1-165 Approval Equivalency on 12' X 24' Table) (43)(44)	
Insulation	Insulation Fastening Density
Polyisocyanurate insulation overlaid with minimum 7/16" thick APA grade non-veneer oriented strand board (OSB).	17 fasteners per 4' X 8' board per Carlisle Detail A-27-D

**NATIONAL, STATE & CITY BUILDING CODE APPROVALS**

Authority	Approval	Approved Systems
ICC - International Code Council	Report ESR 1184 Report ESR-1463	"B" "A" and "MF"
SBCCI	These Code Bodies merged to form ICC as of March 2003 Refer to ICC approval	"B"
BOCA		"B"
NES – National Evaluation Service, Inc.		"A" and "MF"
ICBO		"B" "A" and "MF"

**State of Florida Evaluation Report**

Evaluation Report Number	Evaluation Report Use
FL1601	Not for use in High Velocity Hurricane Zone area
FL16441	For use in High Velocity Hurricane Zone area

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

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## Sure-Seal EPDM

### 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 insulation requirements, maximum roof slopes and acceptable roof construction types (new, Tear-off or retrofit).
11. Testing conducted on FM approved 22-gauge Grade E steel decking meeting ASTM A653 or A446 Grade 80.
12. Please reference ANSI-SPRI WD-1/ASCE 7-10 for non-FM insured projects.
13. Steel decking shall be FM approved minimum 22-gauge meeting ASTM designation A611 Grade E or A653 Grade 80.
14. Testing conducted on standard FM approved 22-gauge steel decking secured as outlined in the FM Approval Guide and FM Loss Prevention Data Sheet 1-29.
15. For FM 1-90 ratings, deck securement requirements are outlined in the FM Approval Guide under the respective deck manufacturer approval listing.
16. Refer to the following pages for insulation requirements, maximum roof slopes, approved insulation and acceptable roof construction types (new, Tear-off or retrofit).
17. On steel decks, a thermal barrier of FM approved perlite or gypsum board (Type "X" or Type "C") is required under expanded and extruded polystyrene insulations. For specific thermal barrier requirements, consult the respective insulation manufacturer or current published FM Approval Guide.
18. On FM approved wood decks, minimum 1/4" thick gypsum board must be installed beneath the insulations listed. Polystyrene insulations must incorporate 1/4" gypsum board in addition to standard thermal barrier requirements.
19. Existing roof must be FM Class 1 rated.
20. Testing conducted on minimum 22-gauge steel roof deck secured to the structural steel supports having a maximum span of 6' on center. The deck is fastened to the minimum 1/4" thick steel supports with ITW Buildex Traxx/5 fasteners spaced a maximum of 6" on center. Deck side laps are secured with Traxx/1 Fasteners spaced a maximum of 30" on center.
21. 1/2" thick HP Recovery Board cannot be installed as a single layer directly over wide rib (type B) or intermediate rib (type F) steel decks. For flute spanability criteria with Polyisocyanurate insulation, contact the respective insulation manufacturer.
22. Refer to the following pages for insulation requirements, maximum roof slopes and acceptable roof construction types (new, Tear-off or retrofit).
23. Refer to the following pages for insulation requirements, maximum roof slopes, approved insulation and acceptable roof construction types (new, Tear-off or retrofit).
24. DELETED
25. DELETED
26. DELETED
27. DELETED
28. DELETED
29. DELETED
30. DELETED
31. DELETED
32. DELETED
33. DELETED
34. DELETED
35. DELETED
36. DELETED
37. DELETED
38. Sure-Seal HP fastener/Sure-Seal Insulation plate.
39. InsulFAST fastener/Sure-Seal Insulation plate.
40. InsulFAST fastener/SecurFAST Insulation Fastening plate.
41. 80 ksi with one fastener per attachment point.
42. 80 ksi with two fasteners per attachment point.
43. Testing conducted on 22-gauge steel roof deck secured to the structural steel supports having a maximum span of 6' on center. The deck is fastened to the minimum 1/4" thick steel supports with ITW Buildex Traxx/5 fasteners spaced a maximum of 6" on center. Deck side laps are secured with Traxx/1 Fasteners spaced a maximum of 30" on center.
44. Failure occurred upon pressurization at 180 psf. System passed 165 psf resistance cycle.