



# CARLISLE'S SURE-SEAL

## Code Approval Guide

December 2018

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## **CARLISLE SynTec**

A Division of Carlisle Construction Materials, LLC

### **CODE APPROVAL GUIDE**

December, 2018

### **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. 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.

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# 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 (ul.com)*
2. *FM Approvals RoofNav website (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.**

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Underwriters Laboratories Approvals  
Sure-Tough Mechanically-Fastened Roofing System

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

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

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

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

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Underwriters Laboratories Approvals  
Sure-Tough Mechanically-Fastened Roofing System

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

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

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

System ID	Thermal Barrier/Base Sheet	Insulation	Cover Board (2)	Maximum Slope	
				Sure-Tough	Sure-Tough FR
<b>Combustible - ANSI/UL 790 Spread of Flame Test-Class A</b>					
1	Minimum 1/4" SECUROCK® Gypsum Fiber or Glass Mat Roof Boards (1)	Any UL Classified Carlisle Polyisocyanurate Insulation, any combination, any thickness.	N/A	1/2"	3/4"
2	Minimum 1/4" DensDeck/DensDeck Prime Roof Boards (1)	Any UL Classified Carlisle Polyisocyanurate Insulation, any combination, any thickness.	N/A	1/2"	3/4"
3	N/A	Minimum 3" layer or two layers of 1.5" SecurShield, SecurShield NH or SecurShield HD Composite. (1)(3)	N/A	1/2"	1/2"
4	N/A	Minimum 2-1/2" layer SecurShield, SecurShield NH or SecurShield HD Composite over a 2-1/2" (minimum) layer of Carlisle InsulBase Insulation. (1)(4)	N/A	1/2"	1/2"
5	Carlisle FR Base Sheet 1S	Minimum 1.9" layer of SecurShield, SecurShield NH or SecurShield HD Composite. (1)(4)	N/A	1/2"	1/2"
6	N/A	Minimum 2-1/2" layer of any UL Classified Carlisle Polyisocyanurate Insulation, any combination. (1)	Minimum 1/2" SecurShield HD or SecurShield HD Plus	1/2"	1/2"
7	Carlisle FR Base Sheet	Minimum 1.4" layer of any UL Classified Carlisle Polyisocyanurate Insulation, any combination. (1)	Minimum 1/2" SecurShield HD or SecurShield HD Plus	1/2"	1/2"
8	N/A	Minimum 1" layer of SecurShield CD. (1)(5)	N/A	1/2"	1/2"
9	N/A	Minimum 4" layer of any UL Classified EPS Insulation. (1)(6)	Minimum 1/2" SecurShield HD or SecurShield HD Plus	1/2"	1/2"
10	N/A	Minimum 1" layer of SecurShield CD over a minimum 3-1/2" layer of any UL Classified EPS Insulation. (1)(6)	N/A	1/2"	1/2"
11	N/A	Any UL Classified Carlisle Polyisocyanurate Insulation, any combination, any thickness. (OPTIONAL)	Minimum 1/2" SecurShield HD FR	1/2"	1/2"
12	N/A	Minimum 3-1/2 in. layer of any UL Classified EPS insulation. Any UL Classified insulation, any combination, any thickness, may be used below the 4-1/2 in. minimum total thickness	Minimum 1/2" SecurShield HD FR	1/2"	1/2"
13	N/A	Minimum 1-1/2" layer of Insulfoam HD Composite over a minimum 3" layer of Insulfoam EPS. (1)(6)	N/A	1/2"	1/2"
14	N/A	Minimum 2" layer of Insulfoam HD Composite over a minimum 2-1/2" layer of Insulfoam EPS. (1)(6)	N/A	1/2"	1/2"
15	One Ply of Type G2 (Optional)	Any UL Classified Carlisle Polyisocyanurate Insulation, any combination, any thickness.	Minimum 1/4" SECUROCK® Gypsum Fiber Roof Board (1)	3"	3"
16	N/A	Any UL Classified Insulation, any thickness (OPTIONAL)	Minimum 3/8" SECUROCK® Gypsum Fiber Roof Board (1)	2"	2"
17	N/A	Any UL Classified Insulation, any thickness (OPTIONAL)	Minimum 1/2" SECUROCK® Gypsum Fiber Roof Board (1)	3"	4"
18	N/A	Any UL Classified Insulation, any thickness (OPTIONAL)	Minimum 1/4" SECUROCK® Glass Mat Roof Board (1)	3"	4"
19	N/A	Any UL Classified Insulation, any thickness (OPTIONAL)	Minimum 1/4" DensDeck/DensDeck Prime Roof Boards (1)	3"	4"
20	Three layers of Carlisle FR Base Sheet	Any UL Classified Carlisle Polyisocyanurate Insulation, any combination, any thickness (OPTIONAL)	N/A	1/2"	3/4"

Underwriters Laboratories Approvals  
Sure-Tough Mechanically-Fastened Roofing System

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

**Membrane Type:** .045", .060" or .075" Sure-Tough or Sure-Tough FR EPDM Membrane

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

System ID	Thermal Barrier/Base Sheet	Insulation	Cover Board (2)	Maximum Slope	
				Sure-Tough	Sure-Tough FR
<b>Combustible - ANSI/UL 790 Spread of Flame Test-Class A</b>					
21	N/A	Any UL Classified Polyiso Insulation, any thickness (OPTIONAL)	SecurShield HD FR	1/2'	1/2"
22	N/A	Minimum 3.5" Layer of and UL Classified EPS Insulation (OPTIONAL)	SecurShield HD FR	1/2'	1/2"

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

**Membrane Type:** .045", .060" or .075" Sure-Tough or Sure-Tough FR EPDM Membrane

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

System ID	Thermal Barrier/Base Sheet	Insulation	Cover Board	Maximum Slope	
				Sure-Tough	Sure-Tough FR
<b>Combustible - ANSI/UL 790 Spread of Flame Test-Class B</b>					
1	N/A	Minimum 1.9" layer of SecurShield, SecurShield NH or SecurShield HD Composite. (7)(8)	N/A	1/2"	1/2"
2	N/A	Minimum 1.4" layer of any UL Classified Carlisle Polyisocyanurate Insulation. (7)	Minimum 1/2" SecurShield HD or SecurShield HD Plus	1/2"	1/2"
3	One Layer of Carlisle FR Base Sheet	Any UL Classified Carlisle Polyisocyanurate Insulation, any combination, any thickness (OPTIONAL)	N/A	1/2"	1/2"
4	Inverted G3 cap sheet	N/A	N/A	1/2"	1/2"

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Underwriters Laboratories Approvals  
Sure-Tough Mechanically-Fastened Roofing System

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

**Membrane Type:** .045", .060" or .075" Sure-Tough or Sure-Tough FR EPDM 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-Tough FR
<b>Combustible - ANSI/UL 790 Spread of Flame Test-Class C</b>					
1	N/A	Any combination, any thickness of UL Classified Carlisle Polyisocyanurate Isulation	N/A	Unlimited	Unlimited
<b>Non-Combustible - ANSI/UL 790 Spread of Flame Test-Class C</b>					
1	N/A	Any combination, any thickness of UL Classified Carlisle Polyisocyanurate Isulation	N/A	Unlimited	Unlimited

**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-Tough FR
1	Non-Combustible and Combustible	Existing Class A, B or C roofing System	Carlisle FR Base Sheet 1S (Optional)	Maximum slope shall be in accordance with Classification established for the existing roofing system but cannot exceed 1-1/2:12	
2	Non-Combustible and Combustible	Existing Class A, B or C built-up or modified bitumen system, (smooth surface, cap sheet or gravel surfaced with gravel maintained). Or Class A, B or C single-ply system (polystyrene in existing single-ply system must be below a coverboard or minimum 1 in. thickness of polyisocyanurate), to retain the existing Classification.	Insulfoam "R-TECH" Type "I", "VIII", "II", "IX" or "FanFold" 1 in. max thickness.	1/2"	1/2"

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FM Approvals

**Sure-Tough Mechanically Fastened Roofing System with Plates**

Membrane Type: .045", .060" or .075" Sure-Tough or Sure-Tough FR 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 FR	Sure-Tough	Sure-Tough FR
10' with 9" PS RUSS splitting sheet	HP Fastener / 2" Polymer Plate	6"	<b>1-90</b> (350373-0-0)	<b>1-90</b>	<b>1-90</b>	<b>1-90</b>
		12"	<b>1-60</b>	<b>1-60</b>	<b>1-60</b>	<b>1-60</b>
5'	HP Fastener / 2" Polymer Plate	6"	<b>1-105</b> (350372-0-0)	<b>1-105</b>	<b>1-105</b>	<b>1-105</b>
		12"	<b>1-60</b> (5186-0-0)	<b>1-60</b>	<b>1-60</b>	<b>1-60</b>
6'-6"	HP Fastener / 2" Polymer Plate	6"	<b>1-90</b>	<b>1-90</b>	<b>1-90</b>	<b>1-90</b>
	HP-Xtra Fastener / 2-3/8" HP-Xtra Polymer Seam Plate	12"	<b>1-90</b> (381749-0-0)	<b>1-90</b>	<b>1-90</b>	<b>1-90</b>
8'	HP Fastener / 2" Polymer Plate	6"	<b>1-75</b> (350375-0-0)	<b>1-75</b>	<b>1-105</b> (179770-0-0)	<b>1-105</b> (179094-0-0)
		12"	-	-	<b>1-60</b> (182024-0-0)	<b>1-60</b> (182017-0-0)
	HP-Xtra Fastener / 2-3/8" HP-Xtra Polymer Seam Plate	12"	<b>1-75</b> (409511-0-0)	<b>1-75</b>	<b>1-90</b> (222334-0-0)	<b>1-90</b> (222332-0-0)
10'	HP Fastener / 2" Polymer Plate	6"	-	-	<b>1-90</b> (5460-0-0)	<b>1-90</b> (5146-0-0)
	HP-Xtra Fastener / 2-3/8" HP-Xtra Polymer Seam Plate	12"	-	-	<b>1-90</b> (222334-0-0)	<b>1-90</b> (222332-0-0)

(RoofNAV numbers) for steel decks

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FM Approvals

**Sure-Tough Mechanically Fastened Roofing System with Bars**

Membrane Type: .045", .060" or .075" Sure-Tough or Sure-Tough FR 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)

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FM Fire Ratings

**Sure-Tough Mechanically Fastened Roofing Systems**

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

Deck Type	Insulation	Insulation Thickness	Maximum Slope for ASTM E-108 Class "A" Rating	
			Sure-Tough	Sure-Tough FR
<b>New Construction/Tearoff:</b> <b>Steel (Min. 22-gauge)</b> <b>Structural Concrete</b> <b>Wood (18)</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"	3-1/2"
	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"	1-1/2"

Deck Type	Insulation	Insulation Thickness	Maximum Slope for ASTM E-108 Class "A" Rating	
			Sure-Tough	Sure-Tough FR
<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"	3-1/2"
	Polyisocyanurate InsulBase	1" Max.	1/2"	1-1/2"

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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. \***

<b>120 psf Uplift Resistance* (1-120 Approval Equivalency on 12' X 24' Table) (20)</b>		
<b>Insulation</b>	<b>Minimum Thickness</b>	<b>Insulation Fastening Density</b>
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.**

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Sure-Tough Mechanically-Fastened Roofing System

**ANSI-SPRI 4474 Approvals With Plates**

Membrane Type: (22) .045", .060" or .075" Sure-Tough or Sure-Tough FR 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);	1-90
				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

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Sure-Tough Mechanically-Fastened Roofing System

**ANSI-SPRI 4474 Approvals With Bars**

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

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	

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# SURE-SEAL 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). [Click here for ratings.](#)

## 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 Sure-Seal 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

Purlin Spacing	Fastener/Plate	Spacing	Sure-Tough and Sure-Tough FR
<b>60 Inches</b>	HP Purlin/2" Polymer	6"	1-105 (273639-0-0)
		12"	1-60 (273732-0-0)

(RoofNAV Number) - For selected systems using 1/4" thick Gypsum top layer.

### FM Approvals – Metal Retrofit Pressure-Sensitive RUSS Strip

Purlin Spacing	Fastener/Plate	Spacing	Sure-Tough and Sure-Tough FR
<b>60 Inches</b>	HP Purlin/2" Polymer	6"	1-90
		12"	1-60

(RoofNAV Number) - For selected systems using 1/4" thick Gypsum top layer.

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**Underwriters Laboratories Approvals  
Design "B" Loose Laid Ballasted Roofing Systems (24)(25)**

**Membrane Type:** .045" or .060" Sure-Seal FR Non-Reinforced EPDM Membrane  
.060" or .075" Sure-Tough EPDM Membrane

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

**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	Average
FM Class 1 Standard	385	365	340	270
Allowable Deviation	25	25	20	15
Test Panel No. 2 *	124	103	88	31

\* 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.

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Underwriters Laboratories Approvals

**Design "C" Loose Laid Protected Roofing System (26)(27)**

**Membrane Type:** .045" or .060 Sure-Seal FR Non-Reinforced EPDM Membrane  
 .060" or .075" Sure-Though EPDM Membrane

UL Class "A"			
Deck Type	Insulation (28)	Insulation Thickness	Maximum Slope
Non-Combustible and Combustible	Foamular 404	8" Max.	2"
	Dow Styrofoam Roofmate or Plazamate	4" Max.	2"

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Underwriters Laboratories Approvals  
Design "A" Adhered Roofing Systems

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

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

**Membrane Type:** Sure-Seal FR Nonreinforced .045", .060" or .090"  
Sure Tough .045", .060", or .075"  
Sure-Tough FR .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-Tough FR	Sure-White
1	<b>Non-Combustible</b>	InsulBase, SecurShield, SecurShield HD, SecurShield HD Plus or SecurShield HD Composite-any combination, any thickness	N/A	1/2"	1/2"	3/4"	1/2"
2		Any UL Classified EPS or XPS Insulation, any thickness	Minimum 1/2" SecurShield HD, SecurShield HD Plus or SecurShield HD Composite	1"	1"	2"	1-1/2"
3		Minimum 1" layer of InsulBase, SecurShield, or SecurShield HD Composite over any UL Classified EPS or XPS Insulation, maximum 1.25 pcf, any thickness	N/A	1/2"	1/2"	3/4"	1/2"
4		Insulfoam HD Composite or Insulfoam HD Composite over Insulfoam EPS, any thickness and density.	N/A	1/2"	1/2"	3/4"	1/2"
5		Any UL Classified Insulation, any thickness (OPTIONAL)	Minimum 1/4" SECUROCK® Gypsum-Fiber Roof Board	Unlimited (3"-CGIII)	3"	4"	3" (2"-CGIII)
6		Any UL Classified Insulation, any thickness (OPTIONAL)	Minimum 1/4" DensDeck Prime Roof Board	Unlimited (3"-CGIII)	3"	4"	3" (2"-CGIII)
7		Any UL Classified Insulation, any thickness (OPTIONAL)	Minimum 1/2" HP Recovery Board	1"	1"	2-1/2"	1-1/2" (1"-CGIII)
8		Any UL Classified Insulation, any thickness (OPTIONAL)	Minimum 7/16" APA Rated OSB or minimum 1.5" StormBase	1"	1"	2-1/2"	1-1/2" (1"-CGIII)
9	<b>Cellular Lightweight Concrete</b>	N/A	N/A	1"	1"	2-1/2"	1-1/2" (1"-CGIII)
10	<b>Precast concrete with grouted joints</b>	N/A	N/A	1"	1"	2-1/2"	1-1/2" (1"-CGIII)
11	<b>Structural (poured-in-place) concrete</b>	N/A	N/A	1"	1"	2-1/2"	1-1/2" (1"-CGIII)

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Underwriters Laboratories Approvals  
Design "A" Adhered Roofing Systems

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

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

**Membrane Type:** Sure-Seal FR Nonreinforced .045", .060" or .090"  
Sure Tough .045", .060", or .075"  
Sure-Tough FR .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-Tough FR	Sure-White
<b>Combustible - ANSI/UL 790 Spread of Flame Test-Class A</b>							
1	Minimum 1/4" SECUROCK® Gypsum Fiber Roof Boards (29)	Any UL Classified Carlisle Polyisocyanurate Insulation, any combination, any thickness.	N/A	1/2"	1/2"	1/2"	1/2"
2	Minimum 1/4" DensDeck Prime Roof Boards (29)	Any UL Classified Carlisle Polyisocyanurate Insulation, any combination, any thickness.	N/A	1/2"	1/2"	1/2"	1/2"
3	N/A	Minimum 3" layer or two layers of 1.5" SecurShield or SecurShield HD Composite. (29)(31)	N/A	1/2"	1/2"	1/2"	1/2"
4	N/A	Minimum 2.5" layer SecurShield or SecurShield HD Composite over a 2.5" (minimum) layer of Carlisle InsulBase Insulation. (29)(32)	N/A	1/2"	1/2"	1/2"	1/2"
5	Carlisle FR Base Sheet	Minimum 1.9" layer of SecurShield or SecurShield HD Composite. (29)(32)	N/A	1/2"	1/2"	1/2"	1/2"
6	N/A	Minimum 2.5" layer of any UL Classified Carlisle Polyisocyanurate Insulation, any combination. (29)	Minimum 1/2" SecurShield HD or SecurShield HD Plus	1/2"	1/2"	1/2"	1/2"
7	Carlisle FR Base Sheet	Minimum 1.4" layer of any UL Classified Carlisle Polyisocyanurate Insulation, any combination. (29)	Minimum 1/2" SecurShield HD or SecurShield HD Plus	1/2"	1/2"	1/2"	1/2"
8	N/A	Minimum 1" layer of SecurShield CD. (29)(33)	N/A	1/2"	1/2"	1/2"	1/2"
9	N/A	Minimum 4" layer of any UL Classified EPS Insulation. (29)(34)	Minimum 1/2" SecurShield HD or SecurShield HD Plus	1/2"	1/2"	1/2"	1/2"
10	N/A	Minimum 1" layer of SecurShield CD over a minimum 3-1/2" layer of any UL Classified EPS Insulation. (29)(34)	N/A	1/2"	1/2"	1/2"	1/2"
11	N/A	Minimum 1-1/2" layer of Insulfoam HD Composite over a minimum 3" layer of Insulfoam EPS. (29)(34)	N/A	1/2"	1/2"	1/2"	1/2"
12	N/A	Minimum 2" layer of Insulfoam HD Composite over a minimum 2.5" layer of Insulfoam EPS. (29)(34)	N/A	1/2"	1/2"	1/2"	1/2"
13	N/A	Any UL Classified Carlisle Polyisocyanurate Insulation, any combination, any thickness.	Minimum 1/4" SECUROCK® Gypsum Fiber Roof Board (29)	Unlimited (3"-CGIII)	3"	4"	3" (2"-CGIII)
14	N/A	Any UL Classified Insulation, any thickness (OPTIONAL)	Minimum 3/8" SECUROCK® Gypsum Fiber Roof Board (29)	2"	2"	2"	2"

Underwriters Laboratories Approvals  
Design "A" Adhered Roofing Systems

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

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

**Membrane Type:** Sure-Seal FR Nonreinforced .045", .060" or .090"  
Sure Tough .045", .060", or .075"  
Sure-Tough FR .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-Tough FR	Sure-White
<b>Combustible - ANSI/UL 790 Spread of Flame Test-Class A</b>							
15	N/A	Any UL Classified Insulation, any thickness (OPTIONAL)	Minimum 1/2" SECUROCK® Gypsum Fiber Roof Board (29)	Unlimited (3"-CGIII)	3"	4"	3" (2"-CGIII)
16	One Ply of Type G2	Any UL Classified Insulation, any thickness (OPTIONAL)	Minimum 1/4" SECUROCK® Gypsum Fiber Roof Board (29)	3"	3"	3"	3" (2"-CGIII)
17	N/A	Any UL Classified Insulation, any thickness (OPTIONAL)	Minimum 1/4" DensDeck Prime Roof Boards (29)	Unlimited (3"-CGIII)	3"	4"	3" (2"-CGIII)
18	Three or 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"	1/2"
19	N/A	Any UL Classified Carlisle Polyisocyanurate Insulation, any combination, any thickness.	SecurShield HD FR	1/2"	1/2"	1/2"	1/2"
20	N/A	Minimum 3.5" layer of Any UL Classified EPS insulation (Optional)	SecurShield HD FR	1/2"	1/2"	1/2"	1/2"

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Underwriters Laboratories Approvals  
Design "A" Adhered Roofing Systems

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

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

**Membrane Type:** Sure-Seal FR Nonreinforced .045", .060" or .090"  
Sure Tough .045", .060", or .075"  
Sure-Tough FR .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-Tough FR	Sure-White
<b>Combustible - ANSI/UL 790 Spread of Flame Test-Class B</b>							
1	N/A	Minimum 1.9" layer of SecurShield or SecurShield HD Composite. (35)(36)	N/A	1/2"	1/2"	1/2"	1/2"
2	N/A	Minimum 1.4" layer of any UL Classified Carlisle Polyisocyanurate Insulation. (35)	Minimum 1/2" SecurShield HD or SecurShield HD Plus	1/2"	1/2"	1/2"	1/2"
3	N/A	Minimum 1" layer of SecurShield CD. (35)(37)	N/A	1/2"	1/2"	1/2"	1/2"

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Underwriters Laboratories Approvals  
Design "A" Adhered Roofing Systems

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

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

**Membrane Type:** Sure-Seal FR Nonreinforced .045", .060" or .090"  
Sure Tough .045", .060", or .075"  
Sure-Tough FR .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-Tough FR	Sure-White
<b>Combustible - ANSI/UL 790 Spread of Flame Test-Class C</b>							
1	N/A	2" layer of any UL Classified Carlisle Polyisocyanurate Insulation	N/A	Unlimited	Unlimited	Unlimited	Unlimited
<b>Non-Combustible - ANSI/UL 790 Spread of Flame Test-Class C</b>							
1	N/A	Any layer of UL Classified Carlisle Polyisocyanurate Insulation.	N/A	Unlimited	Unlimited	Unlimited	Unlimited

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

**Membrane Type:** Sure-Seal FR Nonreinforced .045", .060" or .090"  
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	Bonding Adhesive	Maximum Slope	
					Sure-Seal FR Nonreinforced	Sure-White
1	N/A	Existing min. UL Class "C" rated Type III or IV Smooth Asphalt BUR, Mineral Cap Sheet or Modified Bitumen to remain	None	90-8-30A/Low VOC	1/2"	1/2"

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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-Tough FR .045', .060" or .075"  
Sure-White .060" or .090"

**Membrane Adhesive:** Sure-Seal 90-8-30A (90-8-30A) or EPDM x-23 LVOC Bonding Adhesive (LVOC)

**Base and Top Layer Adhesive:** FAST = FAST 100LV, Flexible FAST, FAST Bag in a Box, FAST Dual Cartridge and FAST Dual Tank  
(FAST Dual Tank can only be used on Steel and Concrete Decking)

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-Tough FR	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)	-	-	-
FM Approved	Loose laid	1/2" SecurShield HD	16 (2 sq. ft)	1-90	385922-0-0	385912-0-0	385923-0-0 (90-8-30A)	385913-0-0
Min. 1-1/2" InsulBase Polyiso	10 (3.2 sq. ft.)	1/2" SecurShield HD	6" ribbons of FAST	1-90	<a href="#">409971-0-0</a>	410028-0-0	410008-0-0	<a href="#">410009-0-0</a>
Min. 2" InsulBase Polyiso	8 (4 sq. ft)	1/2" SecurShield HD	6" ribbons of FAST	1-90	<a href="#">409983-0-0</a>	410031-0-0	410032-0-0	<a href="#">410033-0-0</a>
Min. 2" Insulfoam EPS over 1/2" Dens-Deck	16 (2 sq. ft.)	1/2" SecurShield HD	6" ribbons of FAST	1-90	<a href="#">427332-0-0</a>	427351-0-0	427352-0-0	<a href="#">427353-0-0</a>
Min. 1-1/2" InsulBase Polyiso	24 (1.33 sq. ft.)	1/2" SecurShield HD	4" ribbons of FAST	1-165	325931-0-0 (90-8-30A)	325996-0-0 (90-8-30A)	325998-0-0 (90-8-30A)	-
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 Primer</b>								
Min. 1/2" DensDeck Prime or 5/8" Securock	16 (2 sq. ft.)	1/2" SecurShield HD over Min. 1-1/2" InsulBase Polyiso	6" ribbons of FAST	1-90	<a href="#">389422-0-0</a>	404115-0-0	404116-0-0	<a href="#">404125-0-0</a>
<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	12" ribbons of Olybond 500 BA	1/2" SecurShield HD	12" ribbons of Olybond 500 BA	1-240	-	-	-	-
Min. 1/2" InsulBase Polyiso	Hot Asphalt	1/2" SecurShield HD	Hot Asphalt	1-240	-	-	-	-
Min. 2" Insulfoam EPS	12" ribbons of FAST	1/2" SecurShield HD	12" ribbons of FAST	1-285	<a href="#">429674-0-0</a>	429685-0-0	429686-0-0	<a href="#">429687-0-0</a>
Min. 1/2" InsulBase Polyiso	12" ribbons of Carlisle One Step	1/2" SecurShield HD	12" ribbons of Carlisle One Step	1-255	-	-	-	-
<b>Concrete Deck with VapAir Seal 725TR/Cav-Grip Primer, 702 LV Primer or 702 Primer</b>								
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	1/2" SecurShield HD	12" ribbons of FAST	1-255 Cav-Grip	-	-	-	<a href="#">424132-0-0</a>
				1-150 702 LV	<a href="#">364530-0-0</a>	364572-0-0	364609-0-0	364613-0-0
				1-90 702	-	-	-	-
Min. 2" Insulfoam EPS	12" ribbons of FAST	1/2" SecurShield HD	12" ribbons of FAST	1-255 Cav- Grip	<a href="#">429677-0-0</a>	429694-0-0	429696-0-0	<a href="#">429697-0-0</a>
				1-195 702 LV	<a href="#">429679-0-0</a>	429701-0-0	429702-0-0	<a href="#">429703-0-0</a>
				1-135 702	<a href="#">429680-0-0</a>	429704-0-0	429705-0-0	<a href="#">429706-0-0</a>
<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	392991-0-0	<a href="#">392998-0-0</a>



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-Tough FR .045", .060" or .075"  
Sure-White .060" or .090"

**Membrane Adhesive:** Sure-Seal 90-8-30A (90-8-30A) or EPDM x-23 LVOC Bonding Adhesive (LVOC)

**Base and Top Layer Adhesive:** FAST = FAST 100LV, Flexible FAST, FAST Bag in a Box, FAST Dual Cartridge and FAST Dual Tank  
(FAST Dual Tank can only be used on Steel and Concrete Decking)

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-Tough FR	Sure-White
					RoofNAV Number			
<b>Gypsum Deck Tear-Off</b>								
Min. 1-1/2" InsulBase Polyiso	Full-Coverage FAST	1/2" SecurShield HD	Full-Coverage FAST	1-90	-	-	-	-
Min. 1-1/2" InsulBase Polyiso	12" ribbons of Olybond 500 BA	1/2" SecurShield HD	12" ribbons of Olybond 500 BA	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	-	-	-	-
Min. 1-1/2" InsulBase Polyiso	4" ribbons of FAST	1/2" SecurShield HD	4" ribbons of FAST	1-135	-	-	-	-
-	-	1/2" SecurShield HD	4" ribbons of FAST	1-135	-	-	-	-
<b>(Celcore) Cellular Lightweight Insulating Concrete Over Concrete Decking</b>								
Min. 1/2" InsulBase Polyiso	4" ribbons of FAST	1/2" SecurShield HD	4" ribbons of FAST	1-135	-	-	-	-
-	-	1/2" SecurShield HD	4" ribbons of FAST	1-135	-	-	-	-

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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-Tough FR .045', .060" or .075"  
 Sure-White .060" or .090"

**Membrane Adhesive:** Sure-Seal 90-8-30A (90-8-30A) or EPDM x-23 LVOC Bonding Adhesive (LVOC)

**Base and Top Layer Adhesive:** FAST = FAST 100LV, Flexible FAST, FAST Bag in a Box, FAST Dual Cartridge and FAST Dual Tank  
 (FAST Dual Tank can only be used on Steel and Concrete Decking)

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-Tough FR	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)	296329-0-0 (90-8-30A)	-
-	-	1/2" SecurShield HD	16 (2 sq. ft)	1-90	<a href="#">427370-0-0</a>	427472-0-0	427473-0-0	<a href="#">427474-0-0</a>
-	-	1/2" SecurShield HD	6" ribbons of FAST	1-90	309444-0-0	309401-0-0	309461-0-0	-
-	-	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 Tear-Off</b>								
-	-	1/2" SecurShield HD	6" ribbons of FAST	1-90	-	-	-	-
-	-	1/2" SecurShield HD	12" ribbons of Olybond 500 BA	1-90	-	-	-	-

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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-Tough FR .045", .060" or .075"  
Sure-White .060" or .090"

**Membrane Adhesive:** Sure-Seal 90-8-30A (90-8-30A) or EPDM x-23 LVOC Bonding Adhesive (LVOC)

**Base and Top Layer Adhesive:** FAST = FAST 100LV, Flexible FAST, FAST Bag in a Box, FAST Dual Cartridge and FAST Dual Tank  
(FAST Dual Tank can only be used on Steel and Concrete Decking)

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-Tough FR	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	325972-0-0 (90-8-30A)	341325-0-0
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)	325983-0-0 (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)	325985-0-0 (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)	325987-0-0 (90-8-30A)	-
Min. 1-1/2" InsulBase Polyiso	10 (3.2 sq. ft.)	1/2" SecurShield HD Plus	6" ribbons of FAST	1-90	-	-	-	-
Min. 2" InsulBase Polyiso	8 (4 sq. ft)	1/2" SecurShield HD Plus	6" ribbons of FAST	1-90	409983-0-0	410034-0-0	-	-
Min. 1-1/2" InsulBase Polyiso	18 (1.8 sq. ft.)	1/2" SecurShield HD Plus	6" ribbons of FAST	1-105	325930-0-0 (90-8-30A)	325991-0-0 (90-8-30A)	325993-0-0 (90-8-30A)	-
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 Primer</b>								
Min. 1/2" DensDeck Prime or 5/8" Securock	16 (2 sq. ft.)	1/2" SecurShield HD Plus over Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	1-90	389422-0-0	404115-0-0	404116-0-0	404125-0-0
<b>Concrete Deck</b>								
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	12" ribbons of Olybond 500 BA	1/2" SecurShield HD Plus	12" ribbons of Olybond 500 BA	1-240	-	-	-	-
Min. 1/2" InsulBase Polyiso	Hot Asphalt	1/2" SecurShield HD Plus	Hot Asphalt	1-240	-	-	-	-
Min. 1/2" InsulBase Polyiso	12" ribbons of Carlisle One Step	1/2" SecurShield HD Plus	12" ribbons of Carlisle One Step	1-255	-	-	-	-

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-Tough FR .045', .060" or .075"  
Sure-White .060" or .090"

**Membrane Adhesive:** Sure-Seal 90-8-30A (90-8-30A) or EPDM x-23 LVOC Bonding Adhesive (LVOC)

**Base and Top Layer Adhesive:** FAST = FAST 100LV, Flexible FAST, FAST Bag in a Box, FAST Dual Cartridge and FAST Dual Tank  
(FAST Dual Tank can only be used on Steel and Concrete Decking)

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-Tough FR	Sure-White
					RoofNAV Number			
<b>Concrete Deck with VapAir Seal 725TR/Cav-Grip 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 of FAST	1-255 Cav-Grip	-	-	-	424132-0-0
Min. 1/2" InsulBase Polyiso or SecurShield				1-150 702 LV	364530-0-0	364572-0-0	364609-0-0	364613-0-0
Min. 1/2" InsulBase Polyiso or SecurShield				1-90 702	-	-	-	-
<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	392991-0-0	392998-0-0
<b>Gypsum Deck Tear-Off</b>								
Min. 1-1/2" InsulBase Polyiso	Full-Coverage FAST	1/2" SecurShield HD Plus	Full-Coverage FAST	1-90	-	-	-	-
Min. 1-1/2" InsulBase Polyiso	12" ribbons of Olybond 500 BA	1/2" SecurShield HD Plus	12" ribbons of Olybond 500 BA	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	-	-	-	-
Min. 1-1/2" InsulBase Polyiso	4" ribbons of FAST	1/2" SecurShield HD Plus	4" ribbons of FAST	1-135	-	-	-	-
-	-	1/2" SecurShield HD Plus	4" ribbons of FAST	1-135	-	-	-	-
<b>(Celcore) Cellular Lightweight Insulating Concrete Over Concrete Decking</b>								
Min. 1/2" InsulBase Polyiso	4" ribbons of FAST	1/2" SecurShield HD Plus	4" ribbons of FAST	1-135	-	-	-	-
-	-	1/2" SecurShield HD Plus	4" ribbons of FAST	1-135	-	-	-	-

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Design "A" Adhered Roofing Systems

**SecurShield HD Plus Ratings - Recover**

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

**Membrane Adhesive:** Sure-Seal 90-8-30A (90-8-30A) or EPDM x-23 LVOC Bonding Adhesive (LVOC)

**Base and Top Layer Adhesive:** FAST = FAST 100LV, Flexible FAST, FAST Bag in a Box, FAST Dual Cartridge and FAST Dual Tank  
(FAST Dual Tank can only be used on Steel and Concrete Decking)

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-Tough FR	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	325979-0-0 (90-8-30A)	-
-	-	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	394208-0-0	394209-0-0
-	-	1/2" SecurShield HD Plus	24 (1.33 sq. ft.)	1-165	394216-0-0	394217-0-0	394218-0-0	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	-	-	-	-
<b>Gypsum Deck Tear-Off</b>								
Min. 1-1/2" InsulBase Polyiso	Full-Coverage FAST	1/2" SecurShield HD Plus	Full-Coverage FAST	1-90	-	-	-	-
Min. 1-1/2" InsulBase Polyiso	12" ribbons of Olybond 500 BA	1/2" SecurShield HD Plus	12" ribbons of Olybond 500 BA	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-Tough FR .045", .060" or .075"  
Sure-White .060" or .090"

**Membrane Adhesive:** Sure-Seal 90-8-30A (90-8-30A) or EPDM x-23 LVOC Bonding Adhesive (LVOC)

**Base and Top Layer Adhesive:** FAST = FAST 100LV, Flexible FAST, FAST Bag in a Box, FAST Dual Cartridge and FAST Dual Tank  
(FAST Dual Tank can only be used on Steel and Concrete Decking)

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-Tough FR	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	4069-0-0	4069-0-0	400111-0-0
Min. 2" InsulBase Polyiso	8 (4 sq. ft)	-	-	1-90	4089-0-0 (90-8-30A)	384640-0-0	384641-0-0	-
Min. 2" InsulBase Polyiso	20 (1.6 sq. ft)	-	-	1-150	384670-0-0	384671-0-0	384672-0-0	384674-0-0
Min. 1-1/2" InsulBase Polyiso	10 (3.2 sq. ft.)	Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	1-90	-	-	-	-
Min. 2" InsulBase Polyiso	8 (4 sq. ft)	Min. 2" InsulBase Polyiso	12" ribbons of FAST	1-90	344604-0-0	344603-0-0	187049-0-0	187056-0-0 (90-8-30A)
Min. 1/2" DensDeck Prime or Securock	16 (2 sq. ft.)	Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	1-90	-	-	-	-
<b>Steel Deck (Min. 22 Gauge) with VapAir Seal 725TR and Cav-Grip Primer</b>								
Min. 1/2" DensDeck Prime or Securock	16 (2 sq. ft.)	Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	1-105	-	-	-	-
<b>Concrete Deck</b>								
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	-	-	1-315	-	-	-	-
Min. 1/2" InsulBase Polyiso	12" ribbons of Olybond 500 BA	-	-	1-315	269891-0-0 (90-8-30A)	269891-0-0 (90-8-30A)	-	-
Min. 1-1/2" InsulBase Polyiso	Carlisle One Step	-	-	1-465	83581-0-0 (90-8-30A)	83581-0-0 (90-8-30A)	83581-0-0 (90-8-30A)	-
Min. 1" InsulBase Polyiso	Hot Asphalt	-	-	1-300	240000-0-0 (90-8-30A)	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 Primer, 702 LV Primer or 702 Primer</b>								
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	-	-	1-255 Cav-Grip	-	-	-	-
				1-195 702 LV	-	-	-	-
				1-90 702	343380-0-0 (all 3 primers listed above)	343380-0-0 (all 3 primers listed above)	343380-0-0 (all 3 primers listed above)	343381-0-0 (all 3 primers listed above)

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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-Tough FR .045", .060" or .075"  
Sure-White .060" or .090"

**Membrane Adhesive:** Sure-Seal 90-8-30A (90-8-30A) or EPDM x-23 LVOC Bonding Adhesive (LVOC)

**Base and Top Layer Adhesive:** FAST = FAST 100LV, Flexible FAST, FAST Bag in a Box, FAST Dual Cartridge and FAST Dual Tank  
(FAST Dual Tank can only be used on Steel and Concrete Decking)

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-Tough FR	Sure-White
					RoofNAV Number			
<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. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	1-330	-	-	-	-
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	-	-	1-90	394469-0-0	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)	7451-0-0 (90-8-30A)	7418-0-0 (90-8-30A)
Min. 1" InsulBase Polyiso	Full-Coverage FAST	-	-	1-90	193358-0-0 (90-8-30A)	1933858-0-0 (90-8-30A)	1933858-0-0 (90-8-30A)	193373-0-0 (90-8-30A)
Min. 1-1/2" InsulBase Polyiso	12" ribbons of Carlisle One Step	Min. 1-1/2" InsulBase Polyiso	12" ribbons of Carlisle One Step	1-90	83278-0-0 (90-8-30A)	83278-0-0 (90-8-30A)	83278-0-0 (90-8-30A)	97896-0-0 (90-8-30A)
Min. 1-1/2" InsulBase Polyiso	12" ribbons of Olybond 500 BA	-	-	1-240	82850-0-0 (90-8-30A)	82850-0-0 (90-8-30A)	82850-0-0 (90-8-30A)	97401-0-0 (90-8-30A)
<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	-	-	-	-
Min. 1" InsulBase Polyiso	4" ribbons of FAST	-	-	1-135	-	-	-	-
<b>(Celcore) Cellular Lightweight Insulating Concrete Over Concrete Decking</b>								
Min. 1/2" InsulBase Polyiso	4" ribbons of FAST	-	-	1-135	-	-	-	-

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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-Tough FR .045', .060" or .075"  
 Sure-White .060" or .090"

**Membrane Adhesive:** Sure-Seal 90-8-30A (90-8-30A) or EPDM x-23 LVOC Bonding Adhesive (LVOC)

**Base and Top Layer Adhesive:** FAST = FAST 100LV, Flexible FAST, FAST Bag in a Box, FAST Dual Cartridge and FAST Dual Tank  
 (FAST Dual Tank can only be used on Steel and Concrete Decking)

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-Tough FR	Sure-White
					RoofNAV Number			
<b>Steel Deck (Min. 22-Gauge)</b>								
Min. 1" InsulBase Polyiso	20 (1.6 sq. ft)	-	-	1-90	164635-0-0	164635-0-0	164635-0-0	164639-0-0 (90-8-30A)
1/2" InsulBase Polyiso	Full-Coverage FAST	-	-	1-150	417298-0-0	417301-0-0	417305-0-0	417311-0-0
Min. 1/2" InsulBase Polyiso	12" ribbons of Olybond 500 BA	-	-	1-90	278907-0-0 (90-8-30A)	278907-0-0 (90-8-30A)	-	-
<b>Concrete Deck</b>								
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	-	-	1-90	-	-	-	-
<b>Gypsum Deck Tear-Off</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)	9519-0-0 (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	144196-0-0	-
1" InsulBase Polyiso	12" ribbons of Olybond 500 BA	-	-	1-90	-	-	-	-

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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-Tough FR .045', .060" or .075"  
Sure-White .060" or .090"

**Membrane Adhesive:** Sure-Seal 90-8-30A (90-8-30A) or EPDM x-23 LVOC Bonding Adhesive (LVOC)

**Base and Top Layer Adhesive:** FAST = FAST 100LV, Flexible FAST, FAST Bag in a Box, FAST Dual Cartridge and FAST Dual Tank  
(FAST Dual Tank can only be used on Steel and Concrete Decking)

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-Tough FR	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	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) SecuShield HD Comp. Only	4089-0-0 (90-8-30A) SecuShield HD Comp. Only	4089-0-0 (90-8-30A) SecuShield HD Comp. Only	-
Min. 2" SecurShield	32 (1 sq. ft.)	-	-	1-225 (42)	399359-0-0	245201-0-0 (90-8-30A)	245502-0-0 (90-8-30A) SecurShield Only	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 of FAST	1-90	-	-	-	-
Min. 2" InsulBase Polyiso	8 (4 sq. ft.)	Min. 2" SecurShield or SecurShield HD Composite	12" ribbons 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	-	252110-0-0 (90-8-30A) SecurShield Only	-
<b>Steel Deck (Min. 22 Gauge) with VapAir Seal 725TR and Cav-Grip Primer</b>								
Min. 1/2" DensDeck Prime or 5/8" Securock	16 (2 sq. ft.)	Min. 1/2" SecurShield or SecurShield HD Composite	12" ribbons of FAST	1-90	296822-0-0 (90-8-30A)	400818-0-0	296822-0-0 (90-8-30A)	-
Min. 1/2" DensDeck Prime or 5/8" Securock	16 (2 sq. ft.)	Min. 2" SecurShield HD Composite	12" ribbons of FAST	1-90	400791-0-0	-	-	400790-0-0
<b>Concrete Deck</b>								
Min. 1-1/2" SecurShield or SecurShield HD Composite	12" ribbons of Olybond 500 BA	-	-	1-300	222685-0-0 (90-8-30A) SecurShield Only	-	222685-0-0 (90-8-30A) SecurShield Only	222686-0-0 (90-8-30A) SecurShield Only
Min. 1/2" SecurShield or Secur Shield 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 Primer, 702 LV Primer or 702 Primer</b>								
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 2" SecurShield HD Composite	12" ribbons of FAST	1-255 Cav-Grip	394769-0-0	395863-0-0	395866-0-0	395870-0-0
				1-195 702 LV	394768-0-0	395862-0-0	395865-0-0	395869-0-0

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-Tough FR .045', .060" or .075"  
Sure-White .060" or .090"

**Membrane Adhesive:** Sure-Seal 90-8-30A (90-8-30A) or EPDM x-23 LVOC Bonding Adhesive (LVOC)

**Base and Top Layer Adhesive:** FAST = FAST 100LV, Flexible FAST, FAST Bag in a Box, FAST Dual Cartridge and FAST Dual Tank  
(FAST Dual Tank can only be used on Steel and Concrete Decking)

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-Tough FR	Sure-White
					RoofNAV Number			
				1-135 702	394767-0-0	395861-0-0	395864-0-0	395868-0-0
<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	-	-	-
<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	Full-Coverage FAST	-	-	1-90	-	-	-	-
Min. 1-1/2" SecurShield or SecurShield HD Composite	12" ribbons of Olybond 500 BA	-	-	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	-	-	-	-
Min. 1-1/2" SecurShield or SecurShield HD Composite	4" ribbons of FAST	-	-	1-135	-	-	-	-
<b>Cellular Lightweight Insulating Concrete Over Concrete Decking</b>								
Min. 1/2" SecurShield or SecurShield HD Composite	4" ribbons of FAST	-	-	1-135	-	-	-	-

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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-Tough FR .045', .060" or .075"  
 Sure-White .060" or .090"

**Membrane Adhesive:** Sure-Seal 90-8-30A (90-8-30A) or EPDM x-23 LVOC Bonding Adhesive (LVOC)

**Base and Top Layer Adhesive:** FAST = FAST 100LV, Flexible FAST, FAST Bag in a Box, FAST Dual Cartridge and FAST Dual Tank  
 (FAST Dual Tank can only be used on Steel and Concrete Decking)

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-Tough FR	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	400222-0-0	-
1" SecurShield	Full-Coverage FAST	-	-	1-150	-	-	417309-0-0	-
<b>Concrete Deck</b>								
Min. 1/2" SecurShield	12" ribbons of FAST	-	-	1-90	-	-	-	-
<b>Gypsum Deck Tear-Off</b>								
1" SecurShield	20 (1.6 sq. ft)	-	-	1-90	-	-	-	-
1" SecurShield	Full-Coverage FAST	-	-	1-90	-	-	-	-
1" SecurShield	12" ribbons of Olybond 500 BA	-	-	1-90	-	-	-	-

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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-Tough FR .045', .060" or .075"  
Sure-White .060" or .090"

**Membrane Adhesive:** Sure-Seal 90-8-30A (90-8-30A) or EPDM x-23 LVOC Bonding Adhesive (LVOC)

**Base and Top Layer Adhesive:** FAST = FAST 100LV, Flexible FAST, FAST Bag in a Box, FAST Dual Cartridge and FAST Dual Tank  
(FAST Dual Tank can only be used on Steel and Concrete Decking)

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-Tough FR	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	212270-0-0 (90-8-30A)	270074-0-0 (90-8-30A)	270076-0-0 (90-8-30A)	270077-0-0 (90-8-30A)
FM Approved	Loose laid	Min. 1/4" Securock	10 (3.2 sq. ft)	1-90	-	405772-0-0	405773-0-0	405774-0-0
FM Approved	Loose laid	Min. 1/2" Securock	10 (3.2 sq. ft)	1-90	302948-0-0	302946-0-0	302949-0-0	302947-0-0
FM Approved	Loose laid	Min. 1/2" Securock	8 (4 sq. ft) SecurFAST Plates	1-90	-	-	-	-
FM Approved	Loose laid	Min. 1/2" Securock	8 (4 sq. ft) SecurFAST Plates	1-90	-	-	-	-
FM Approved	Loose laid	Min. 5/8" Securock	8 (4 sq. ft)	1-90	-	-	-	-
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	224151-0-0 (90-8-30A)	225287-0-0 (90-8-30A)	225291-0-0 (90-8-30A)	225294-0-0 (90-8-30A)
FM Approved	Loose laid	Min. 1/2" Securock	32 (1 sq. ft)	1-255	-	-	-	-
Min. 1-1/2" InsulBase Polyiso	10 (3.2 sq. ft.)	Min. 1/4" Securock	12" ribbons of FAST	1-90	386968-0-0	-	-	-
Min. 2" InsulBase Polyiso	8 (4 sq. ft)	Min. 1/2" Securock	12" ribbons of FAST	1-90	-	187061-0-0 (90-8-30A)	-	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 of FAST	1-90	-	-	-	-
<b>Steel Deck (Min. 22 Gauge) with VapAir Seal 725TR and Cav-Grip Primer</b>								
Min. 1/2" InsulBase Polyiso	16 (2 sq. ft.)	Min. 1/2" Securock over Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	1-90	323293-0-0	323293-0-0	323293-0-0	-
<b>Concrete Deck</b>								
Min. 2" InsulBase Polyiso	8 (4 sq. ft)	Min. 1/2" Securock	12" ribbons of FAST	1-90	403959-0-0	-	403959-0-0	-
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 1/4" Securock	12" ribbons of FAST	1-315	307927-0-0 (90-8-30A)	304589-0-0 (90-8-30A)	307963-0-0 (90-8-30A)	-

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-Tough FR .045", .060" or .075"  
Sure-White .060" or .090"

**Membrane Adhesive:** Sure-Seal 90-8-30A (90-8-30A) or EPDM x-23 LVOC Bonding Adhesive (LVOC)

**Base and Top Layer Adhesive:** FAST = FAST 100LV, Flexible FAST, FAST Bag in a Box, FAST Dual Cartridge and FAST Dual Tank  
(FAST Dual Tank can only be used on Steel and Concrete Decking)

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-Tough FR	Sure-White
					RoofNAV Number			
<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. 1/4" Securock	6" ribbons of FAST	1-255 Cav-Grip	396669-0-0 (LVOC)	396689-0-0 (LVOC)	396697-0-0 (LVOC)	396708-0-0 (LVOC)
Min. 1" Insulfoam EPS	6" ribbons of FAST	Min. 1/4" Securock	6" ribbons of FAST	1-150 Cav-Grip	-	396684-0-0 (90-8-30A)	-	-
Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 1/4" Securock	12" ribbons of FAST	1-195 702 LV	-	-	396702-0-0 (LVOC)	-
				1-90 702	-	-	-	-
<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
<b>Gypsum Deck Tear-Off</b>								
Min. 1-1/2" InsulBase Polyiso	Full-Coverage FAST	Min. 1/4" Securock	Full-Coverage FAST	1-90	-	-	-	-
Min. 1-1/2" InsulBase Polyiso	12" ribbons of Olybond 500 BA	Min. 1/4" Securock	12" ribbons of Olybond 500 BA	1-90	-	-	-	-
<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	-	-	-	-
Min. 1-1/2" InsulBase Polyiso	4" ribbons of FAST	Min. 1/2" Securock	4" ribbons of FAST	1-135	-	-	-	-
<b>(Celcore) Cellular Lightweight Insulating Concrete Over Concrete Decking</b>								
Min. 1/2" InsulBase Polyiso	4" ribbons of FAST	Min. 1/2" Securock	4" ribbons of FAST	1-135	-	-	-	-
Min. 1/2" InsulBase Polyiso	12" ribbons of Olybond 500 BA	Min. 1/2" Securock	12" ribbons of Olybond 500 BA	1-240	-	-	-	-

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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-Tough FR .045', .060" or .075"  
 Sure-White .060" or .090"

**Membrane Adhesive:** Sure-Seal 90-8-30A (90-8-30A) or EPDM x-23 LVOC Bonding Adhesive (LVOC)

**Base and Top Layer Adhesive:** FAST = FAST 100LV, Flexible FAST, FAST Bag in a Box, FAST Dual Cartridge and FAST Dual Tank  
 (FAST Dual Tank can only be used on Steel and Concrete Decking)

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-Tough FR	Sure-White
					RoofNAV Number			
<b>Concrete Deck</b>								
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 1/4" Securock	12" ribbons of FAST	1-90	-	-	-	-

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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-Tough FR .045', .060" or .075"  
Sure-White .060" or .090"

**Membrane Adhesive:** Sure-Seal 90-8-30A (90-8-30A) or EPDM x-23 LVOC Bonding Adhesive (LVOC)

**Base and Top Layer Adhesive:** FAST = FAST 100LV, Flexible FAST, FAST Bag in a Box, FAST Dual Cartridge and FAST Dual Tank  
(FAST Dual Tank can only be used on Steel and Concrete Decking)

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-Tough FR	Sure-White
					RoofNA V 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)	134403-0-0 (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	350411-0-0	350410-0-0
Min. 1" 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	224156-0-0	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)	134402-0-0 (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	-	-	-	-
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. 1-1/2" InsulBase Polyiso	10 (3.2 sq. ft.)	Min. 1/4" DensDeck Prime	12" ribbons of FAST	1-90	-	-	-	-
Min. 2" InsulBase Polyiso	8 (4 sq. ft)	Min. 1/4" DensDeck Prime	12" ribbons of FAST	1-90	428854-0-0	187061-0-0 (90-8-30A)	428855-0-0	428856-0-0
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)	303440-0-0 (90-8-30A)	303441-0-0 (90-8-30A)

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-Tough FR .045", .060" or .075"  
Sure-White .060" or .090"

**Membrane Adhesive:** Sure-Seal 90-8-30A (90-8-30A) or EPDM x-23 LVOC Bonding Adhesive (LVOC)

**Base and Top Layer Adhesive:** FAST = FAST 100LV, Flexible FAST, FAST Bag in a Box, FAST Dual Cartridge and FAST Dual Tank  
(FAST Dual Tank can only be used on Steel and Concrete Decking)

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-Tough FR	Sure-White
					RoofNAV Number			
<b>Steel Deck (Min. 22 Gauge) with VapAir Seal 725TR and Cav-Grip Primer</b>								
Min. 1/2" DensDeck Prime or 5/8" Securock	16 (2 sq. ft.)	Min. 1/4" DensDeck Prime over 1-1/2" InsulBase Polyiso	12" ribbons of FAST	1-90	323293-0-0	323293-0-0	323293-0-0	-
<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)	160631-0-0 (90-8-30A)	160633-0-0 (90-8-30A)
-	-	Min. 1/4" DensDeck Prime	12" ribbons of Olybond 500 BA	1-465	-	-	-	-
Min. 1-1/2" InsulBase Polyiso	12" ribbons of Carlisle One Step	Min. 1/4" DensDeck Prime	12" ribbons of Carlisle One Step	1-465	86769-0-0 (90-8-30A)	83587-0-0 (90-8-30A)	86769-0-0 (90-8-30A)	98207-0-0 (90-8-30A)
Min. 1/2" InsulBase Polyiso	Hot Asphalt	Min. 1/4" DensDeck Prime	Hot Asphalt	1-300	-	-	-	-
<b>Concrete Deck with VapAir Seal 725TR/Cav-Grip Primer, 702 LV Primer or 702 Primer</b>								
Min. 1" InsulBase Polyiso	Full-Coverage FAST	Min. 1/4" DensDeck Prime	Full-Coverage FAST	1-255 Cav-Grip	274598-0-0 (90-8-30A)	274610-0-0 (90-8-30A)	274606-0-0 (90-8-30A)	-
				1-195 702 LV	-	-	-	-
				1-90 702	274603-0-0 (90-8-30A)	274611-0-0 (90-8-30A)	-	-
Min. 1-1/2" InsulBase Polyiso	6" ribbons of FAST	Min. 1/2" DensDeck Prime	12" ribbons of FAST	1-225 Cav-Grip	-	-	-	424135-0-0
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	395961-0-0	395962-0-0
<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
<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	163461-0-0 (90-8-30A)	157782-0-0 (90-8-30A)	-	157783-0-0 (90-8-30A)
Min. 1-1/2" InsulBase Polyiso	12" ribbons of Carlisle One Step	Min. 1/4" DensDeck Prime	12" ribbons of Carlisle One Step	1-90	85902-0-0 (90-8-30A)	83272-0-0 (90-8-30A)	134289-0-0 (90-8-30A)	97820-0-0 (90-8-30A)
Min. 1-1/2" InsulBase Polyiso	12" ribbons of Olybond 500 BA	Min. 1/4" DensDeck Prime	12" ribbons of Olybond 500 BA	1-90	84593-0-0 (90-8-30A)	82831-0-0 (90-8-30A)	134241-0-0 (90-8-30A)	98382-0-0 (90-8-30A)



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-Tough FR .045', .060" or .075"  
 Sure-White .060" or .090"

**Membrane Adhesive:** Sure-Seal 90-8-30A (90-8-30A) or EPDM x-23 LVOC Bonding Adhesive (LVOC)

**Base and Top Layer Adhesive:** FAST = FAST 100LV, Flexible FAST, FAST Bag in a Box, FAST Dual Cartridge and FAST Dual Tank  
 (FAST Dual Tank can only be used on Steel and Concrete Decking)

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-Tough FR	Sure-White
					RoofNAV Number			
<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	-	-	-	-
Min. 1-1/2" InsulBase Polyiso	4" ribbons of FAST	Min. 1/2" DensDeck Prime	4" ribbons of FAST	1-135	-	-	-	-
<b>(Celcore) Cellular Lightweight Insulating Concrete Over Concrete Decking</b>								
Min. 1/2" InsulBase Polyiso	4" ribbons of FAST	Min. 1/4" DensDeck Prime	4" ribbons of FAST	1-135	-	-	-	-

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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-Tough FR .045", .060" or .075"  
 Sure-White .060" or .090"

**Membrane Adhesive:** Sure-Seal 90-8-30A (90-8-30A) or EPDM x-23 LVOC Bonding Adhesive (LVOC)

**Base and Top Layer Adhesive:** FAST = FAST 100LV, Flexible FAST, FAST Bag in a Box, FAST Dual Cartridge and FAST Dual Tank  
 (FAST Dual Tank can only be used on Steel and Concrete Decking)

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-Tough FR	Sure-White
					RoofNAV Number			
<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)

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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-Tough FR .045", .060" or .075"  
Sure-White .060" or .090"

**Membrane Adhesive:** Sure-Seal 90-8-30A (90-8-30A) or EPDM x-23 LVOC Bonding Adhesive (LVOC)

**Base and Top Layer Adhesive:** FAST = FAST 100LV, Flexible FAST, FAST Bag in a Box, FAST Dual Cartridge and FAST Dual Tank  
(FAST Dual Tank can only be used on Steel and Concrete Decking)

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-Tough FR	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)	270072-0-0 (x-23 Only)	270073-0-0 (x-23 Only)
Min. 1-1/2" InsulBase Polyiso	10 (3.2 sq. ft.)	Min. 1/2" HP Recovery Board	6" ribbons of FAST	1-90	-	-	-	-
Min. 2" InsulBase Polyiso	8 (4 sq. ft)	1/2"-1" HP Recovery Board	12" ribbons of FAST	1-90	187065-0-0 (90-8-30A)	187061-0-0 (90-8-30A)	187071-0-0 (90-8-30A)	187105-0-0 (90-8-30A)
Min. 1/2" DensDeck Prime or Securock	16 (2 sq. ft.)	Min. 1/2" HP Recovery Board	6" ribbons of FAST	1-90	-	-	-	-
<b>Steel Deck (Min. 22 Gauge) with VapAir Seal 725TR and Cav-Grip Primer</b>								
Min. 1/2" DensDeck Prime or 5/8" Securock	16 (2 sq. ft.)	Min. 1/2" HP Recovery Board over Min. 1-1/2" InsulBase Polyiso	6" ribbons of FAST	1-90	387389-0-0	387390-0-0	323293-0-0	-
<b>Concrete Deck</b>								
Min. 1-1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 1/2" HP Recovery Board	12" ribbons of FAST	1-315	-	160648-0-0 (90-8-30A)	160979-0-0 (90-8-30A)	160981-0-0 (90-8-30A)
Min. 1-1/2" InsulBase Polyiso	12" ribbons of Olybond 500 BA	Min. 1/2" HP Recovery Board	12" ribbons of Olybond 500 BA	1-240	229682-0-0 (90-8-30A)	229665-0-0 (90-8-30A)	229684-0-0 (90-8-30A)	229685-0-0 (90-8-30A)
Min. 1-1/2" InsulBase Polyiso	12" ribbons of Carlisle One Step	Min. 1/2" HP Recovery Board	12" ribbons of Carlisle One Step	1-255	86730-0-0 (90-8-30A)	83491-0-0 (90-8-30A)	134301-0-0 (90-8-30A)	97965-0-0 (90-8-30A)
Min. 1" InsulBase Polyiso	Hot Asphalt	Min. 1/2" HP Recovery Board	Hot Asphalt	1-300	-	-	-	-
<b>Concrete Deck with VapAir Seal 725TR/Cav-Grip Primer, 702 LV Primer or 702 Primer</b>								
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 1/2" HP Recovery Board	12" ribbons of FAST	1-255 Cav-Grip	392406-0-0	394204-0-0 (90-8-30A)	394205-0-0 (90-8-30A)	394206-0-0 (90-8-30A)
				1-195 702 LV	-	-	-	-
				1-90 702	-	-	-	-
<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" HP Recovery Board	12" ribbons of FAST	1-330	-	-	-	-
Min. 1/2" InsulBase Polyiso or Min. 1" Insulfoam	12" ribbons of FAST	Min. 1/2" HP Recovery Board	12" ribbons of FAST	1-255	394582-0-0	394583-0-0 (90-8-30A)	394584-0-0 (90-8-30A)	394585-0-0
<b>Gypsum Deck Tear-Off</b>								

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-Tough FR .045", .060" or .075"  
 Sure-White .060" or .090"

**Membrane Adhesive:** Sure-Seal 90-8-30A (90-8-30A) or EPDM x-23 LVOC Bonding Adhesive (LVOC)

**Base and Top Layer Adhesive:** FAST = FAST 100LV, Flexible FAST, FAST Bag in a Box, FAST Dual Cartridge and FAST Dual Tank  
 (FAST Dual Tank can only be used on Steel and Concrete Decking)

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-Tough FR	Sure-White
					RoofNAV Number			
Min. 1-1/2" InsulBase Polyiso	Full-Coverage FAST	Min. 1/2" HP Recovery Board	Full-Coverage FAST	1-90	163461-0-0 (90-8-30A)	157782-0-0 (90-8-30A)	-	157783-0-0 (90-8-30A)
Min. 1-1/2" InsulBase Polyiso	12" ribbons of Olybond 500 BA	Min. 1/2" HP Recovery Board	12" ribbons of Olybond 500 BA	1-90	84593-0-0 (90-8-30A)	82831-0-0 (90-8-30A)	134241-0-0 (90-8-30A)	98382-0-0 (90-8-30A)
<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	-	-	-	-
Min. 1-1/2" InsulBase Polyiso	4" ribbons FAST	Min. 1/2" HP Recovery Board	4" ribbons of FAST	1-90	-	-	-	-
<b>(Celcore) Cellular Lightweight Insulating Concrete Over Concrete Decking</b>								
Min. 1" InsulBase Polyiso	12" ribbons FAST	Min. 1/2" HP Recovery Board	12" ribbons FAST	1-135	309956-0-50914	309932-0-50914	309960-0-50914	309964-0-50914

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FM Approvals  
Design "A" Adhered Roofing Systems

**HP Recovery Board Ratings - Recover**

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

**Membrane Adhesive:** Sure-Seal 90-8-30A (90-8-30A) or EPDM x-23 LVOC Bonding Adhesive (LVOC)

**Base and Top Layer Adhesive:** FAST = FAST 100LV, Flexible FAST, FAST Bag in a Box, FAST Dual Cartridge and FAST Dual Tank  
 (FAST Dual Tank can only be used on Steel and Concrete Decking)

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-Tough FR	Sure-White
					RoofNAV Number			
<b>Concrete Deck</b>								
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	Min. 1/2" HP Recovery Board	12" ribbons of FAST	1-90	-	-	-	-

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

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

**Membrane Adhesive:** Sure-Seal 90-8-30A (90-8-30A) or EPDM x-23 LVOC Bonding Adhesive (LVOC)

**Base and Top Layer Adhesive:** FAST = FAST 100LV, Flexible FAST, FAST Bag in a Box, FAST Dual Cartridge and FAST Dual Tank  
(FAST Dual Tank can only be used on Steel and Concrete Decking)

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-Tough FR	Sure-White
					RoofNAV Number			
<b>Steel Deck (Min. 22-Gauge)</b>								
FM Approved	Loose laid	7/16" OSB	17 (1.8 sq. ft)	1-150	-	-	-	-
FM Approved	Loose laid	7/16" OSB	32 (1 sq. ft)	1-210	399373-0-0	-	-	-
<b>Steel Deck (Min. 22 Gauge) with VapAir Seal 725TR and Cav-Grip Primer</b>								
Min. 1/2" DensDeck Prime or 5/8" Securock	16 (2 sq. ft.)	7/16" OSB over InsulBase Polyiso	4" ribbons of FAST	1-90	-	-	396723-0-0	396724-0-0
<b>Concrete Deck</b>								
Min. 1/2" InsulBase Polyiso	Loose laid	7/16" OSB	32 (1 sq. ft)	1-210	430149-0-0	-	-	-
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	7/16" OSB	12" ribbons of FAST	1-315	-	-	-	-
Min. 1/2" InsulBase Polyiso	12" ribbons of Olybond 500 BA	7/16" OSB	12" ribbons of Olybond 500 BA	1-240	-	-	-	-
<b>Concrete Deck with VapAir Seal 725TR/Cav-Grip Primer, 702 LV Primer or 702 Primer</b>								
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	7/16" OSB	12" ribbons of FAST	1-255 Cav-Grip	-	-	-	-
				1-195 702 LV	-	-	-	-
				1-90 702	-	-	-	-
<b>Steel Deck (Min. 22 Gauge)/VapAir Seal 725TR with Cav-Grip Concrete Deck/SureMB 90TG or 120TG Base Torch Applied/Cut-Back Asphalt Primer</b>								
Min. 1/2" DensDeck Prime or Securock	16 (2 sq. ft.)	7/16" OSB over InsulBase Polyiso	6" ribbons of FAST	1-90	-	-	-	-
<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	7/16" OSB	12" ribbons of FAST	1-330	-	-	-	-
<b>Gypsum Deck Tear-Off</b>								
Min. 1-1/2" InsulBase Polyiso	Full-Coverage FAST	7/16" OSB	Full-Coverage FAST	1-90	-	-	-	-
Min. 1-1/2" InsulBase Polyiso	12" ribbons of Olybond 500 BA	7/16" OSB	12" ribbons of Olybond 500 BA	1-90	-	-	-	-
<b>(Celcore) Cellular Lightweight Insulating Concrete Over Steel Decking</b>								
FM Approved	Loose laid	7/16" OSB	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	7/16" OSB	4" ribbons of FAST	1-135	-	-	-	-

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FM Approvals  
Design "A" Adhered Roofing Systems

**OSB Ratings - Recover**

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

**Membrane Adhesive:** Sure-Seal 90-8-30A (90-8-30A) or EPDM x-23 LVOC Bonding Adhesive (LVOC)

**Base and Top Layer Adhesive:** FAST = FAST 100LV, Flexible FAST, FAST Bag in a Box, FAST Dual Cartridge and FAST Dual Tank  
 (FAST Dual Tank can only be used on Steel and Concrete Decking)

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-Tough FR	Sure-White
					RoofNAV Number			
<b>Steel Deck (Min. 22-Gauge)</b>								
FM Approved	Loose laid	7/16" OSB	17 (1.8 sq. ft)	1-105	-	-	-	-
<b>Concrete Deck</b>								
Min. 1/2" InsulBase Polyiso	12" ribbons of FAST	7/16" OSB	12" ribbons of FAST	1-90	-	-	-	-

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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-Tough FR .045', .060" or .075"  
 Sure-White .060" or .090"

**Membrane Adhesive:** Sure-Seal 90-8-30A (90-8-30A) or EPDM x-23 LVOC Bonding Adhesive (LVOC)

**Base and Top Layer Adhesive:** FAST = FAST 100LV, Flexible FAST, FAST Bag in a Box, FAST Dual Cartridge and FAST Dual Tank  
 (FAST Dual Tank can only be used on Steel and Concrete Decking)

Deck Type	Lightweight Insulating Concrete	Rating	Sure-Seal FR Nonreinforced	Sure-Tough	Sure-Tough FR	Sure-White
			RoofNAV Number			
Steel	Celcore	1-135	-	-	-	243813-0-194470 (90-8-30A)
Concrete	Celcore	1-270	-	-	-	-
Concrete	Elastizell	1-180	173454-0-50936 (90-8-30A)	173568-0-50936 (90-8-30A)	173566-0-50936 (90-8-30A)	192446-0-50936 (90-8-30A)

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Sure-Seal/Sure-White Adhered Roofing Systems

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

**Membrane Type:** Sure-Seal/Sure-White .060" 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.

<b>165 psf Uplift Resistance (1-165 Approval Equivalency on 12' X 24' Table) (43)(44)</b>	
<b>Insulation</b>	<b>Insulation Fastening Density</b>
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

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**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.		"B" "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

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**Carlisle SynTec, a division of Carlisle Construction Materials LLC, P. O. Box 7000, Carlisle, PA 17013**

**(800)-4SYNTEC (800-479-6832)**

Carlisle Sure-Seal FR Nonreinforced, Sure-White, Sure-Tough, Sure-Tough FR, FAST and RUSS are Trademarks of Carlisle Construction Materials LLC.

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## Sure-Seal EPDM

### Reference Notes

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1. All insulation joints must be staggered a minimum of 6 inches from the deck joints or from the insulation joints directly below. [\(return to table\)](#)
2. 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. [\(return to table\)](#)
3. Any UL Classified Carlisle Polyisocyanurate Insulation, any combination, any thickness may be used below the 3" minimum total thickness of SecurShield or SecurShield HD Composite. [\(return to table\)](#)
4. Any UL Classified Carlisle Polyisocyanurate Insulation, any combination, any thickness may be used below the 1.9" thickness of SecurShield or SecurShield HD Composite. [\(return to table\)](#)
5. Any UL Classified Carlisle Polyisocyanurate Insulation, any combination, any thickness may be used below the 1" thickness of SecurShield CD. [\(return to table\)](#)
6. Any UL Classified Insulation, any combination, any thickness, may be used below the 4-1/2" minimum total thickness. [\(return to table\)](#)
7. All insulation joints must be staggered a minimum of 6 inches from the deck joints or from the insulation joints directly below. [\(return to table\)](#)
8. Any thickness of UL Classified Carlisle Polyisocyanurate Insulation may be used below the 1.9" thickness of SecurShield or SecurShield HD Composite. [\(return to table\)](#)
9. Any UL Classified insulation, any combination, any thickness, may be used below the SecurShield CD. [\(return to table\)](#)
10. For insulation requirements, maximum roof slopes and acceptable roof construction types (new, Tear-off or retrofit), [click here](#). [\(return to table\)](#)
11. Testing conducted on FM approved 22-gauge Grade E steel decking meeting ASTM A653 or A446 Grade 80. [\(return to table\)](#)
12. Please reference ANSI-SPRI WD-1/ASCE 7-10 for non-FM insured projects, [click here](#). [\(return to table\)](#)
13. Steel decking shall be FM approved minimum 22-gauge meeting ASTM designation A611 Grade E or A653 Grade 80. [\(return to table\)](#)
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. [\(return to table\)](#)
15. For FM 1-90 ratings, deck securement requirements are outlined in the FM Approval Guide under the respective deck manufacturer approval listing. [\(return to table\)](#)
16. Refer to the following pages for insulation requirements, maximum roof slopes, approved insulation and acceptable roof construction types (new, Tear-off or retrofit), [click here](#). [\(return to table\)](#)
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. [\(return to table\)](#)
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. [\(return to table\)](#)
19. Existing roof must be FM Class 1 rated. [\(return to table\)](#)
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. [\(return to table\)](#)
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. [\(return to table\)](#)
22. Refer to the following pages for insulation requirements, maximum roof slopes and acceptable roof construction types (new, Tear-off or retrofit), [click here](#). [\(return to table\)](#)
23. Refer to the following pages for insulation requirements, maximum roof slopes, approved insulation and acceptable roof construction types (new, Tear-off or retrofit), [click here](#). [\(return to table\)](#)
24. Ballast to be nominal 1-1/2" diameter, river washed stone at a minimum 10 pounds per square foot. Individual concrete pavers (minimum 18 pounds per square foot) or approved lightweight interlocking pavers (minimum 10 pounds per square foot) may also be used. 1/8" maximum spacing between pavers is permitted. [\(return to table\)](#)
25. Carlisle HP Protective Mat may be used between the ballast and the membrane without altering the rating. [\(return to table\)](#)
26. Ballast to be nominal 1-1/2" diameter, river washed stone at a minimum 10 pounds per square foot. Individual concrete pavers (minimum 18 pounds per square foot) or approved lightweight interlocking pavers (minimum 10 pounds per square foot) may also be used. 1/8" maximum spacing between pavers is permitted. [\(return to table\)](#)
27. Carlisle HP Protective Mat must be used between the ballast and the extruded polystyrene insulation. [\(return to table\)](#)
28. Insulation products listed are for use above the EPDM membrane. One layer of any UL classified insulation may be added below the membrane without altering the rating. [\(return to table\)](#)

## Reference Notes

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29. All insulation joints must be staggered a minimum of 6 inches from the deck joints or from the insulation joints directly below. [\(return to table\)](#)
30. 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. [\(return to table\)](#)
31. Any UL Classified Carlisle Polyisocyanurate Insulation, any combination, any thickness may be used below the 3" minimum total thickness of SecurShield or SecurShield HD Composite. [\(return to table\)](#)
32. Any UL Classified Carlisle Polyisocyanurate Insulation, any combination, any thickness may be used below the 1.9" thickness of SecurShield or SecurShield HD Composite. [\(return to table\)](#)
33. Any UL Classified Carlisle Polyisocyanurate Insulation, any combination, any thickness may be used below the 1" thickness of SecurShield CD. [\(return to table\)](#)
34. Any UL Classified Insulation, any combination, any thickness, may be used below the 4-1/2" minimum total thickness. [\(return to table\)](#)
35. All insulation joints must be staggered a minimum of 6 inches from the deck joints or from the insulation joints directly below. [\(return to table\)](#)
36. Any thickness of UL Classified Carlisle Polyisocyanurate Insulation may be used below the 1.9" thickness of SecurShield or SecurShield HD Composite. [\(return to table\)](#)
37. Any UL Classified insulation, any combination, any thickness, may be used below the SecurShield CD. [\(return to table\)](#)
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. [\(return to table\)](#)
42. 80 ksi with two fasteners per attachment point. [\(return to table: SecurShield HD Plus, DensDeck Prime or SecurShield\)](#)
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. [\(return to table\)](#)
44. Failure occurred upon pressurization at 180 psf. System passed 165 psf resistance cycle. [\(return to table\)](#)



Click on one of the following to return to chart: SecurShield HD, SecurShield HD Plus, InsulBase Polyiso, SecurShield, SecurShield HD Composite, Securock, DensDeck Prime, OSB or HP Recovery Board

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