



CARLISLE'S SURE-SEAL

Code Approval Guide

January, 2017

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CARLISLE SynTec

A Division of Carlisle Construction Materials, Incorporated

CODE APPROVAL GUIDE

January, 2017

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, SecurShield, 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, SecurShield, 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 | 1/2" | 3/4" |
| 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 |
| Combustible - ANSI/UL 790 Spread of Flame Test-Class A | | | | | |
| 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 or SecurShield HD Composite. (1)(3) | N/A | 1/2" | 1/2" |
| 4 | N/A | Minimum 2-1/2" layer SecurShield 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 | Minimum 1.9" layer of SecurShield 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 | 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" |
| 12 | 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" |
| 13 | N/A | Any UL Classified Carlisle Polyisocyanurate Insulation, any combination, any thickness. | Minimum 1/4" SECUROCK® Gypsum Fiber Roof Board (1) | 3" | 3" |
| 14 | N/A | Any UL Classified Insulation, any thickness (OPTIONAL) | Minimum 3/8" SECUROCK® Gypsum Fiber Roof Board (1) | 2" | 2" |
| 15 | N/A | Any UL Classified Insulation, any thickness (OPTIONAL) | Minimum 1/2" SECUROCK® Gypsum Fiber Roof Board (1) | 3" | 4" |
| 16 | One Ply of Type G2 | Any UL Classified Insulation, any thickness (OPTIONAL) | Minimum 1/4" SECUROCK® Glass Mat Roof Board (1) | 3" | 4" |
| 17 | N/A | Any UL Classified Insulation, any thickness (OPTIONAL) | Minimum 1/4" DensDeck/DensDeck Prime Roof Boards (1) | 3" | 4" |
| 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" |

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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 |
| Combustible - ANSI/UL 790 Spread of Flame Test-Class B | | | | | |
| 1 | N/A | Minimum 1.9" layer of SecurShield 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 | N/A | Minimum 1" layer of SecurShield CD. (7)(9) | N/A | 1/2" | 1/2" |
| 4 | One Layer of Carlisle FR Base Sheet | Any UL Classified Carlisle Polyisocyanurate Insulation, any combination, any thickness (OPTIONAL) | N/A | 1/2" | 1/2" |
| 5 | 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 |
| Combustible - ANSI/UL 790 Spread of Flame Test-Class C | | | | | |
| 1 | N/A | Any combination, any thickness of UL Classified Carlisle Polyisocyanurate Insulation | N/A | Unlimited | Unlimited |
| Non-Combustible - ANSI/UL 790 Spread of Flame Test-Class C | | | | | |
| 1 | N/A | Any combination, any thickness of UL Classified Carlisle Polyisocyanurate Insulation. | 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 | N/A | Carlisle FR Base Sheet IS over existing min. UL Class "C" rated Type III or IV Smooth Asphalt BUR, Mineral Cap Sheet, Modified Bitumen or approved single-ply to remain | Slip Sheet | 1/2" | 1/2" |
| 2 | N/A | Existing min. UL Class "C" rated Type III or IV Smooth Asphalt BUR, Mineral Cap Sheet, Modified Bitumen or approved single-ply to remain | None | 1/2" | 1/2" |
| 3 | N/A | Carlisle FR Base Sheet IS over existing minimum Class C rated adhered or mechanically fastened single-ply systems (excluding PVC) | Slip Sheet | 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" | 1-90 (350373-0-0) | 1-90 | 1-90 | 1-90 |
| | | 12" | 1-60 | 1-60 | 1-60 | 1-60 |
| 5' | HP Fastener / 2" Polymer Plate | 6" | 1-105 (350372-0-0) | 1-105 | 1-105 | 1-105 |
| | | 12" | 1-60 | 1-60 | 1-60 | 1-60 |
| 6'-6" | HP Fastener / 2" Polymer Plate | 6" | 1-90 | 1-90 | 1-90 | 1-90 |
| | HP-Xtra Fastener / 2-3/8" HP-Xtra Polymer Seam Plate | 12" | 1-90 (381749-0-0) | 1-90 | 1-90 | 1-90 |
| 8' | HP Fastener / 2" Polymer Plate | 6" | 1-75 (350375-0-0) | 1-75 | 1-105 (179770-0-0) | 1-105 (179094-0-0) |
| | | 12" | - | - | 1-60 (182024-0-0) | 1-60 (182017-0-0) |
| | HP-Xtra Fastener / 2-3/8" HP-Xtra Polymer Seam Plate | 12" | 1-75 | 1-75 | 1-90 (222334-0-0) | 1-90 (222332-0-0) |
| 10' | HP Fastener / 2" Polymer Plate | 6" | - | - | 1-90 (5460-0-0) | 1-90 (5146-0-0) |
| | HP-Xtra Fastener / 2-3/8" HP-Xtra Polymer Seam Plate | 12" | - | - | 1-90 (222334-0-0) | 1-90 (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. | 1-90 (144041-0-0) | - | Polymer Batten | HP-X Fasteners (steel decks); CD-10 or HD 14-10 (Concrete Decks) |
| | 8' | 6" o.c. | 1-120 (181911-0-0) | 1-75 (333566-0-0) | Polymer Batten | |
| | 8' | 12" o.c. | 1-60 (181530-0-0) | 1-60 (181530-0-0) | Polymer Batten | |
| | 5' | 12" o.c. | 1-90 | 1-90 (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 |
| New Construction/Tearoff: Steel (Min. 22-gauge) Structural Concrete Wood (18) Tectum Retrofit (No Tearoff) (19) Structural Concrete | 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"-12" | 1/2" | 1-1/2" |

| Deck Type | Insulation | Insulation Thickness | Maximum Slope for ASTM E-108 Class "A" Rating | |
|---|--|----------------------|--|---------------|
| | | | Sure-Tough | Sure-Tough FR |
| Retrofit (No Tearoff) (19): Steel (Min. 22 gauge) Wood (18) Tectum | 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. *

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

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

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Sure-Tough Mechanically-Fastened Roofing System

ANSI-SPRI 4474 Approvals With Plates

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

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

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Sure-Tough Mechanically-Fastened Roofing System

ANSI-SPRI 4474 Approvals With Bars

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

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

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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 |
|------------------|----------------------------|---------|------------------------------|
| 60 Inches | HP Purlin/2" Polymer Plate | 6" | 1-90 |
| | | 12" | 1-60 |

(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 |
|------------------|----------------------------|---------|------------------------------|
| 60 Inches | HP Purlin/2" Polymer Plate | 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 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 | Non-Combustible | 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" | 4" | 3" |
| 6 | | Any UL Classified Insulation, any thickness (OPTIONAL) | Minimum 1/4" DensDeck Prime Roof Board | Unlimited | 3" | 4" | 3" |
| 7 | | Any UL Classified Insulation, any thickness (OPTIONAL) | Minimum 1/2" HP Recovery Board | 1" | 1" | 2-1/2" | 1-1/2" |
| 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" |
| 9 | Cellular Lightweight Concrete | N/A | N/A | 1" | 1" | 2-1/2" | 1-1/2" |
| 10 | Precast concrete with grouted joints | N/A | N/A | 1" | 1" | 2-1/2" | 1-1/2" |
| 11 | Structural (poured-in-place) concrete | N/A | N/A | 1" | 1" | 2-1/2" | 1-1/2" |

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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 Sure-Seal FR Nonreinforced .045", .060" or .090"
Type: 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 |
| Combustible - ANSI/UL 790 Spread of Flame Test-Class A | | | | | | | |
| 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" | 4" | 3" |
| 14 | N/A | Any UL Classified Insulation, any thickness (OPTIONAL) | Minimum 3/8" SECUROCK® Gypsum Fiber Roof Board (29) | 2" | 2" | 2" | 2" |
| 15 | N/A | Any UL Classified Insulation, any thickness (OPTIONAL) | Minimum 1/2" SECUROCK® Gypsum Fiber Roof Board (29) | Unlimited | 3" | 4" | 3" |

Underwriters Laboratories Approvals
Design "A" Adhered Roofing Systems

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

Membrane Sure-Seal FR Nonreinforced .045", .060" or .090"
Type: 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 |
| Combustible - ANSI/UL 790 Spread of Flame Test-Class A | | | | | | | |
| 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" |
| 17 | N/A | Any UL Classified Insulation, any thickness (OPTIONAL) | Minimum 1/4" DensDeck Prime Roof Boards (29) | Unlimited | 3" | 4" | 3" |
| 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" |

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Underwriters Laboratories Approvals
Design "A" Adhered Roofing Systems

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

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 |
| Combustible - ANSI/UL 790 Spread of Flame Test-Class 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 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 |
| Combustible - ANSI/UL 790 Spread of Flame Test-Class C | | | | | | | |
| 1 | N/A | Any combination, any thickness of UL Classified Carlisle Polyisocyanurate Insulation | N/A | Unlimited | Unlimited | Unlimited | Unlimited |
| Non-Combustible - ANSI/UL 790 Spread of Flame Test-Class C | | | | | | | |
| 1 | N/A | Any combination, any thickness 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 | | | |
| Steel Deck (Min. 22-Gauge) | | | | | | | | |
| 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 (90-8-30A) | 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 Olybond 500 BA | 1-90 | 351267-0-0 | 351268-0-0 | - | 351269-0-0 |
| Min. 2" InsulBase Polyiso | 8 (4 sq. ft) | 1/2" SecurShield HD | 6" ribbons of FAST | 1-90 | - | - | - | - |
| Min. 1/2" InsulBase Polyiso | 18 (1.8 sq. ft.) | 1/2" SecurShield HD | 6" ribbons of FAST | 1-105 | - | - | - | - |
| Min. 1-1/2" InsulBase Polyiso | 24 (1.33 sq. ft.) | 1/2" SecurShield HD | 4" ribbons of FAST | 1-150 | 341962-0-0 | - | - | - |
| 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 | - | - | - | - |
| Steel Deck (Min. 22 Gauge) with VapAir Seal 725TR and Cav-Grip Primer | | | | | | | | |
| Min. 1/2" DensDeck Prime or 5/8" Securock | 16 (2 sq. ft.) | 1/2" SecurShield HD over Min. 1-1/2" InsulBase Polyiso | 12" ribbons of FAST | 1-90 | 389422-0-0 | - | - | - |
| Concrete Deck | | | | | | | | |
| 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 FAST | 1/2" SecurShield HD | 12" ribbons of FAST | 1-225 | - | - | - | - |
| 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. 1/2" InsulBase Polyiso | 12" ribbons of Carlisle One Step | 1/2" SecurShield HD | 12" ribbons of Carlisle One Step | 1-255 | - | - | - | - |
| Concrete Deck with VapAir Seal 725TR/Cav-Grip Primer, 702 LV Primer or 702 Primer | | | | | | | | |
| Min. 1/2" InsulBase Polyiso | 12" ribbons of FAST | 1/2" SecurShield HD | 12" ribbons of FAST | 1-240 Cav-Grip | - | - | - | - |
| | | | | 1-150 702 LV | 364530-0-0 | 364572-0-0 | 364609-0-0 | 364613-0-0 |
| | | | | 1-90 702 | - | - | - | - |

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 | | | |
| Concrete Deck with SureMB 90TG and 120TG Base Torch Applied/Cut-Back Asphalt Primer | | | | | | | | |
| 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 | 392998-0-0 |
| Tectum Deck | | | | | | | | |
| Min. 1-1/2" InsulBase Polyiso | Full-Coverage FAST | 1/2" SecurShield HD | Full-Coverage FAST | 1-150 | - | - | - | - |
| Min. 1-1/2" InsulBase Polyiso | 12" ribbons of Olybond 500 BA | 1/2" SecurShield HD | 12" ribbons of Olybond 500 BA | 1-90 | - | - | - | - |
| Gypsum Deck Tear-Off | | | | | | | | |
| 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 | - | - | - | - |
| Cellular Lightweight Insulating Concrete Over Steel Decking (Min. 22 Gauge) | | | | | | | | |
| FM Approved | Loose laid | 1/2" SecurShield HD | 12 (2.67 sq. ft) | 1-75 | - | - | - | - |
| FM Approved | Loose laid | 1/2" SecurShield HD | 16 (2 sq. ft) | 1-90 | - | - | - | - |
| - | - | 1/2" SecurShield HD | 12 (2.67 sq. ft) | 1-75 | - | - | - | - |
| - | - | 1/2" SecurShield HD | 16 (2 sq. ft) | 1-90 | - | - | - | - |
| 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 | - | - | - | - |
| (Celcore) Cellular Lightweight Insulating Concrete Over Concrete Decking | | | | | | | | |
| 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 | | | |
| Steel Deck (Min. 22-Gauge) | | | | | | | | |
| - | - | 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 | - | - | - | - |
| - | - | 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 | - | - | - | - |
| Concrete Deck | | | | | | | | |
| 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 | - | - | - | - |
| Tectum Deck | | | | | | | | |
| - | - | 1/2" SecurShield HD | Full-Coverage FAST | 1-150 | - | - | - | - |
| - | - | 1/2" SecurShield HD | 6" ribbons of FAST | 1-90 | - | - | - | - |
| - | - | 1/2" SecurShield HD | 4" ribbons of FAST | 1-150 | - | - | - | - |
| - | - | 1/2" SecurShield HD | 12" ribbons of Olybond 500 BA | 1-90 | - | - | - | - |
| Gypsum Deck Tear-Off | | | | | | | | |
| - | - | 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 | | | |
| Steel Deck (Min. 22-Gauge) | | | | | | | | |
| 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 | - | - | - | - |
| 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. 1-1/2" InsulBase Polyiso | 24 (1.33 sq. ft.) | 1/2" SecurShield HD Plus | 4" ribbons of FAST | 1-150 | - | - | - | - |
| Min. 1-1/2" InsulBase Polyiso | 24 (1.33 sq. ft.) | 1/2" SecurShield HD Plus | 4" ribbons of FAST | 1-165 | - | - | - | - |
| Min. 1/2" DensDeck Prime or Securock | 16 (2 sq. ft.) | SecurShield HD Plus over InsulBase Polyiso | 6" ribbons of FAST | 1-90 | - | - | - | - |
| Steel Deck (Min. 22 Gauge) with VapAir Seal 725TR and Cav-Grip Primer | | | | | | | | |
| 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 | - | - | - |
| Concrete Deck | | | | | | | | |
| 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 | | | |
| Concrete Deck with VapAir Seal 725TR/Cav-Grip Primer, 702 LV Primer or 702 Primer | | | | | | | | |
| Min. 1/2" InsulBase Polyiso or SecurShield | 12" ribbons of FAST | 1/2" SecurShield HD Plus | 12" ribbons of FAST | 1-255 Cav-Grip | - | - | - | - |
| | | | | 1-150 702 LV | 364530-0-0 (all 3 primers listed above) | 364572-0-0 (all 3 primers listed above) | 364609-0-0 (all 3 primers listed above) | 364613-0-0 (all 3 primers listed above) |
| | | | | 1-90 702 | - | - | - | - |
| Concrete Deck with SureMB 90TG and 120TG Base Torch Applied/Cut-Back Asphalt Primer | | | | | | | | |
| 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 |
| Tectum Deck | | | | | | | | |
| Min. 1-1/2" InsulBase Polyiso | Full-Coverage FAST | 1/2" SecurShield HD Plus | Full-Coverage FAST | 1-150 | - | - | - | - |
| 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 | - | - | - | - |
| Gypsum Deck Tear-Off | | | | | | | | |
| 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 | - | - | - | - |
| Cellular Lightweight Insulating Concrete Over Steel Decking (Min. 22 Gauge) | | | | | | | | |
| 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 | - | - | - | - |
| (Celcore) Cellular Lightweight Insulating Concrete Over Concrete Decking | | | | | | | | |
| 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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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 | | | |
| Steel Deck (Min. 22-Gauge) | | | | | | | | |
| - | - | 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 | - | - | - | - |
| Concrete Deck | | | | | | | | |
| Min. 1/2" InsulBase Polyiso | 6" ribbons of FAST | 1/2" SecurShield HD Plus | 6" ribbons of FAST | 1-150 | - | - | - | - |
| | | 1/2" SecurShield HD Plus | 6" ribbons of FAST | 1-150 | - | - | - | - |
| Tectum Deck | | | | | | | | |
| Min. 1-1/2" InsulBase Polyiso | Full-Coverage FAST | 1/2" SecurShield HD Plus | Full-Coverage FAST | 1-150 | - | - | - | - |
| 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 | - | - | - | - |
| Gypsum Deck Tear-Off | | | | | | | | |
| 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 | | | |
| Steel Deck (Min. 22-Gauge) | | | | | | | | |
| Min. 1-1/2" InsulBase Polyiso | 16 (2 sq. ft) | - | - | 1-90 | 6310-0-0 (90-8-30A) | 4069-0-0 | 4069-0-0 | - |
| Min. 2" InsulBase Polyiso | 8 (4 sq. ft) | - | - | 1-90 | 4089-0-0 (90-8-30A) | 4089-0-0 (90-8-30A) | 4089-0-0 (90-8-30A) | - |
| Min. 2" InsulBase Polyiso | 20 (1.6 sq. ft) | - | - | 1-150 | 131096-0-0 (90-8-30A) | 131096-0-0 (90-8-30A) | 131096-0-0 (90-8-30A) | 131118-0-0 (90-8-30A) |
| 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 | - | - | - |
| Min. 1-1/2" InsulBase Polyiso | 18 (1.8 sq. ft.) | Min. 1-1/2" InsulBase Polyiso | 6" ribbons of FAST | 1-105 | - | - | - | - |
| Min. 1-1/2" InsulBase Polyiso | 24 (1.33 sq. ft.) | Min. 1-1/2" InsulBase Polyiso | 4" ribbons of FAST | 1-165 | - | - | - | - |
| Min. 1/2" DensDeck Prime or Securock | 16 (2 sq. ft.) | Min. 1-1/2" InsulBase Polyiso | 12" ribbons of FAST | 1-90 | - | - | - | - |
| Steel Deck (Min. 22 Gauge) with VapAir Seal 725TR and Cav-Grip Primer | | | | | | | | |
| Min. 1/2" DensDeck Prime or Securock | 16 (2 sq. ft.) | Min. 1-1/2" InsulBase Polyiso | 12" ribbons of FAST | 1-105 | - | - | - | - |
| Concrete Deck | | | | | | | | |
| 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) |
| Concrete Deck with VapAir Seal 725TR/Cav-Grip Primer, 702 LV Primer or 702 Primer | | | | | | | | |
| 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) |

FM Approvals
Design "A" Adhered Roofing Systems

InsulBase Polyiso Ratings - New Construction

Membrane Type: Sure-Seal FR Nonreinforced .045', .060" or .090"
Sure-Tough .045", .060", or .075"
Sure-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 | | | |
| Concrete Deck with SureMB 90TG and 120TG Base Torch Applied/Cut-Back Asphalt Primer | | | | | | | | |
| Min. 1/2" InsulBase Polyiso | 12" ribbons of FAST | Min. 1-1/2" InsulBase Polyiso | 12" ribbons of FAST | 1-330 | - | - | - | - |
| Tectum Deck | | | | | | | | |
| Min. 1-1/2" InsulBase Polyiso | 16 (2 sq. ft) | - | - | 1-90 | 83126-0-0 (90-8-30A) | 83126-0-0 (90-8-30A) | 83126-0-0 (90-8-30A) | - |
| Min. 2" InsulBase Polyiso | Full-Coverage FAST | - | - | 1-150 | 205459-0-0 (90-8-30A) | 205459-0-0 (90-8-30A) | 205459-0-0 (90-8-30A) | - |
| Min. 1-1/2" InsulBase Polyiso | 12" ribbons of Olybond 500 BA | - | - | 1-90 | - | - | - | - |
| Gypsum Deck Tear-Off | | | | | | | | |
| 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) |
| Cellular Lightweight Insulating Concrete Over Steel Decking (Min. 22 Gauge) | | | | | | | | |
| Min. 1-1/2" InsulBase Polyiso | 16 (2 sq. ft) | - | - | 1-90 | - | - | - | - |
| Min. 2" InsulBase Polyiso | 8 (4 sq. ft) | - | - | 1-90 | - | - | - | - |
| Min. 2" InsulBase Polyiso | 20 (1.6 sq. ft) | - | - | 1-150 | - | - | - | - |
| Min. 1" InsulBase Polyiso | 4" ribbons of FAST | - | - | 1-135 | - | - | - | - |
| (Celcore) Cellular Lightweight Insulating Concrete Over Concrete Decking | | | | | | | | |
| 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 | | | |
| Steel Deck (Min. 22-Gauge) | | | | | | | | |
| Min. 1" InsulBase Polyiso | 20 (1.6 sq. ft) | - | - | 1-90 | 164635-0-0 | 164635-0-0 | 164635-0-0 | - |
| 1" InsulBase Polyiso | 6" ribbons of FAST | - | - | 1-90 | - | - | - | - |
| 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) | - | - |
| Concrete Deck | | | | | | | | |
| Min. 1/2" InsulBase Polyiso | 12" ribbons of FAST | - | - | 1-90 | - | - | - | - |
| Tectum Deck | | | | | | | | |
| 1" InsulBase Polyiso | 20 (1.6 sq. ft) | - | - | 1-90 | 371856-0-0 | 371856-0-0 | - | - |
| 1" InsulBase Polyiso | Full-Coverage FAST | - | - | 1-150 | - | - | - | - |
| 1" InsulBase Polyiso | 12" ribbons of Olybond 500 BA | - | - | 1-90 | - | - | - | - |
| Gypsum Deck Tear-Off | | | | | | | | |
| Min. 1-1/2" InsulBase Polyiso | 16 (2 sq. ft) | - | - | 1-90 | 9519-0-0 (90-8-30A) | 9519-0-0 (90-8-30A) | 9519-0-0 (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 | | | |
| Steel Deck (Min. 22-Gauge) | | | | | | | | |
| Min. 1-1/2" SecurShield or SecurShield HD Composite | 16 (2 sq. ft.) | - | - | 1-90 | 6310-0-0 (90-8-30A) | 6314-0-0 (90-8-30A) | 6310-0-0 (90-8-30A) | 6307-0-0 (90-8-30A) SecurShield Only |
| 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 or SecurShield HD Composite | 20 (1.6 sq. ft.) | - | - | 1-150 | 301420-0-0 | 247402-0-0 (90-8-30A) | 247401-0-0 (90-8-30A) SecurShield Only | 131118-0-0 (90-8-30A) SecurShield Only |
| Min. 2" SecurShield or SecurShield HD Composite | 32 (1 sq. ft.) | - | - | 1-225 (42) | 245502-0-0 (90-8-30A) SecurShield Only | 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. 1-1/2" InsulBase Polyiso | 18 (1.8 sq. ft.) | Min. 1-1/2" SecurShield or SecurShield HD Composite | 6" ribbons of FAST | 1-105 | - | - | - | - |
| Min. 1-1/2" InsulBase Polyiso | 24 (1.33 sq. ft.) | Min. 1-1/2" SecurShield or SecurShield HD Composite | 4" ribbons of FAST | 1-165 | - | - | - | - |
| 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 | - |
| Steel Deck (Min. 22 Gauge) with VapAir Seal 725TR and Cav-Grip Primer | | | | | | | | |
| Min. 1/2" DensDeck Prime or 5/8" Securock | 16 (2 sq. ft.) | Min. 1-1/2" SecurShield or SecurShield HD Composite | 12" ribbons of FAST | 1-90 | 296822-0-0 (90-8-30A) | 296822-0-0 (90-8-30A) | 296822-0-0 (90-8-30A) | - |
| Concrete Deck | | | | | | | | |
| Min. 1/2" SecurShield or SecurShield HD Composite | 12" ribbons of FAST | - | - | 1-225 | - | - | - | - |
| 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 SecurShield HD Composite | Hot Asphalt | - | - | 1-300 | - | - | - | - |

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 | | | |
| Concrete Deck with VapAir Seal 725TR/Cav-Grip Primer, 702 LV Primer or 702 Primer | | | | | | | | |
| Min. 1/2" SecurShield or SecurShield HD Composite | 12" ribbons of FAST | - | - | 1-255 Cav-Grip | - | - | - | - |
| | | | | 1-195 702 LV | - | - | - | - |
| | | | | 1-90 702 | - | - | - | - |
| Concrete Deck with SureMB 90TG and 120TG Base Torch Applied/Cut-Back Asphalt Primer | | | | | | | | |
| 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 | - | - | - | - |
| Tectum Deck | | | | | | | | |
| 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 | - | - | 1-150 | - | - | - | - |
| Min. 1-1/2" SecurShield or SecurShield HD Composite | 12" ribbons of Olybond 500 BA | - | - | 1-90 | - | - | - | - |
| Gypsum Deck Tear-Off | | | | | | | | |
| Min. 1-1/2" SecurShield or SecurShield HD Composite | 16 (2 sq. ft) | - | - | 1-90 | - | - | - | - |
| Min. 1-1/2" SecurShield or SecurShield HD Composite | Full-Coverage FAST | - | - | 1-90 | - | - | - | - |
| Min. 1-1/2" SecurShield or SecurShield HD Composite | 12" ribbons of Olybond 500 BA | - | - | 1-90 | - | - | - | - |
| (Celcore) Cellular Lightweight Insulating Concrete Over Steel Decking (Min. 22 Gauge) | | | | | | | | |
| Min. 1-1/2" SecurShield or SecurShield HD Composite | 16 (2 sq. ft) | - | - | 1-75 | - | - | - | - |
| Min. 2" SecurShield or SecurShield HD Composite | 8 (4 sq. ft) | - | - | 1-90 | - | - | - | - |
| Min. 2" SecurShield or SecurShield HD Composite | 20 (1.6 sq. ft.) | - | - | 1-150 | - | - | - | - |
| Min. 2" SecurShield or SecurShield HD Composite | 32 (1 sq. ft.) | - | - | 1-225 | - | - | - | - |
| Min. 1-1/2" SecurShield or SecurShield HD Composite | 4" ribbons of FAST | - | - | 1-135 | - | - | - | - |
| Cellular Lightweight Insulating Concrete Over Concrete Decking | | | | | | | | |
| 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 | | | |
| Steel Deck (Min. 22-Gauge) | | | | | | | | |
| 2" SecurShield | 20 (1.6 sq. ft) | - | - | 1-150 | 325737-0-0 (90-8-30A) | - | - | - |
| Concrete Deck | | | | | | | | |
| Min. 1/2" SecurShield | 12" ribbons of FAST | - | - | 1-90 | - | - | - | - |
| Tectum Deck | | | | | | | | |
| 1" SecurShield | 20 (1.6 sq. ft) | - | - | 1-90 | - | - | - | - |
| 1" SecurShield | Full-Coverage FAST | - | - | 1-150 | - | - | - | - |
| 1" SecurShield | 12" ribbons of Olybond 500 BA | - | - | 1-90 | - | - | - | - |
| Gypsum Deck Tear-Off | | | | | | | | |
| 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 | | | |
| Steel Deck (Min. 22-Gauge) | | | | | | | | |
| 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. 1/2" 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 | 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. 1-1/2" InsulBase Polyiso | 18 (1.8 sq. ft.) | Min. 1/4" Securock | 6" ribbons of FAST | 1-105 | - | - | - | - |
| Min. 1-1/2" InsulBase Polyiso | 24 (1.33 sq. ft.) | Min. 1/4" Securock | 4" ribbons of FAST | 1-165 | - | - | - | - |
| 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 | - | - | - | - |
| Steel Deck (Min. 22 Gauge) with VapAir Seal 725TR and Cav-Grip Primer | | | | | | | | |
| 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 | - |
| Concrete Deck | | | | | | | | |
| 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 | | | |
| Concrete Deck with VapAir Seal 725TR/Cav-Grip Primer, 702 LV Primer or 702 Primer | | | | | | | | |
| Min. 1-1/2" InsulBase Polyiso | 12" ribbons of FAST | Min. 1/4" Securock | 12" ribbons of FAST | 1-255 Cav-Grip | - | - | - | - |
| | | | | 1-195 702 LV | - | - | - | - |
| | | | | 1-90 702 | - | - | - | - |
| Concrete Deck with SureMB 90TG and 120TG Base Torch Applied/Cut-Back Asphalt Primer | | | | | | | | |
| Min. 1/2" InsulBase Polyiso | 12" ribbons of FAST | Min. 1/4" Securock | 12" ribbons of FAST | 1-330 | - | - | - | - |
| Tectum Deck | | | | | | | | |
| Min. 1-1/2" InsulBase Polyiso | Full-Coverage FAST | Min. 1/4" Securock | Full-Coverage FAST | 1-150 | - | - | - | - |
| Min. 1-1/2" InsulBase Polyiso | 12" ribbons of Olybond 500 BA | Min. 1/4" Securock | 12" ribbons of Olybond 500 BA | 1-90 | - | - | - | - |
| Gypsum Deck Tear-Off | | | | | | | | |
| 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 | - | - | - | - |
| Cellular Lightweight Insulating Concrete Over Steel Decking (Min. 22 Gauge) | | | | | | | | |
| FM Approved | Loose laid | Min. 1/4" Securock | 12 (2.67 sq. ft) | 1-75 | - | - | - | - |
| FM Approved | Loose laid | Min. 1/2" Securock | 10 (3.2 sq. ft) | 1-90 | - | - | - | - |
| FM Approved | Loose laid | Min. 5/8" Securock | 8 (4 sq. ft) | 1-90 | - | - | - | - |
| FM Approved | Loose laid | Min. 1/2" Securock | 20 (1.6 sq. ft) | 1-150 | - | - | - | - |
| FM Approved | Loose laid | Min. 1/2" Securock | 32 (1 sq. ft) | 1-225 | - | - | - | - |
| Min. 1-1/2" InsulBase Polyiso | 4" ribbons of FAST | Min. 1/2" Securock | 4" ribbons of FAST | 1-135 | - | - | - | - |
| (Celcore) Cellular Lightweight Insulating Concrete Over Concrete Decking | | | | | | | | |
| 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 | | | |
| Concrete Deck | | | | | | | | |
| 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 | | | |
| Steel Deck (Min. 22-Gauge) | | | | | | | | |
| 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 | - | - | - |
| Min. 1-1/2" InsulBase Polyiso | Loose laid | Min. 1/2" DensDeck Prime | 32 (1 sq. ft) | 1-165 | 384588-0-0 | - | - | - |
| 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 | 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. 1-1/2" InsulBase Polyiso | 18 (1.8 sq. ft.) | Min. 1/4" DensDeck Prime | 6" ribbons of FAST | 1-105 | - | - | - | - |
| Min. 1-1/2" InsulBase Polyiso | 24 (1.33 sq. ft.) | Min. 1/4" DensDeck Prime | 4" ribbons of FAST | 1-165 | - | - | - | - |
| 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 |
|--|--|---|---|-------------------|-------------------------------|--------------------------|---------------------------|--------------------------|
| | | | | | RoofNA V Number | | | |
| Steel Deck (Min. 22 Gauge) with VapAir Seal 725TR and Cav-Grip Primer | | | | | | | | |
| 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 | - |
| Concrete Deck | | | | | | | | |
| 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 | - | - | - | - |
| Concrete Deck with VapAir Seal 725TR/Cav-Grip Primer, 702 LV Primer or 702 Primer | | | | | | | | |
| 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) | - | - |
| Concrete Deck with SureMB 90TG and 120TG Base Torch Applied/Cut-Back Asphalt Primer | | | | | | | | |
| Min. 1/2" InsulBase Polyiso | 12" ribbons of FAST | Min. 1/4" DensDeck Prime | 12" ribbons of FAST | 1-330 | - | - | - | - |
| Tectum Deck | | | | | | | | |
| Min. 1-1/2" InsulBase Polyiso | Full-Coverage FAST | Min. 1/4" DensDeck Prime | Full-Coverage FAST | 1-150 | - | - | - | - |
| 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 | 91835-0-0 | 83894-0-0 (90-8-30A) | 134240-0-0 (90- 8-30A) | 97327-0-0 (90-8-30A) |
| Gypsum Deck Tear-Off | | | | | | | | |
| 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 |
|--|--|--------------------------|---|--------|-------------------------------|------------|------------------|------------|
| | | | | | RoofNA V Number | | | |
| Cellular Lightweight Insulating Concrete Over Steel Decking (Min. 22 Gauge) | | | | | | | | |
| FM Approved | Loose laid | Min. 1/4" DensDeck Prime | 12 (2.67 sq. ft) | 1-90 | - | - | - | - |
| FM Approved | Loose laid | Min. 1/2" DensDeck Prime | 10 (3.2 sq. ft) | 1-90 | - | - | - | - |
| FM Approved | Loose laid | Min. 5/8" DensDeck Prime | 8 (4 sq. ft) | 1-90 | - | - | - | - |
| Min. 1-1/2" InsulBase Polyiso | 4" ribbons of FAST | Min. 1/2" DensDeck Prime | 4" ribbons of FAST | 1-135 | - | - | - | - |
| (Celcore) Cellular Lightweight Insulating Concrete Over Concrete Decking | | | | | | | | |
| 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 | | | |
| Concrete Deck | | | | | | | | |
| 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 | | | |
| Steel Deck (Min. 22-Gauge) | | | | | | | | |
| Min. 1-1/2" InsulBase Polyiso | Loose laid | Min. 1/2" HP Recovery Board | 16 (2 sq. ft) | 1-90 | 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 | - | - | - | - |
| Steel Deck (Min. 22 Gauge) with VapAir Seal 725TR and Cav-Grip Primer | | | | | | | | |
| 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 | - |
| Concrete Deck | | | | | | | | |
| 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 | - | - | - | - |
| Concrete Deck with VapAir Seal 725TR/Cav-Grip Primer, 702 LV Primer or 702 Primer | | | | | | | | |
| 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 (90-8-30A) | 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 | - | - | - | - |
| Concrete Deck with SureMB 90TG and 120TG Base Torch Applied/Cut-Back Asphalt Primer | | | | | | | | |
| Min. 1/2" InsulBase Polyiso | 12" ribbons of FAST | Min. 1/2" HP Recovery Board | 12" ribbons of FAST | 1-330 | - | - | - | - |

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 | | | |
| Tectum Deck | | | | | | | | |
| Min. 1-1/2" InsulBase Polyiso | Full-Coverage FAST | Min. 1/2" HP Recovery Board | Full-Coverage FAST | 1-90 | - | - | - | - |
| 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 | 84581-0-0 (90-8-30A) | 83894-0-0 (90-8-30A) | - | 97327-0-0 (90-8-30A) |
| Gypsum Deck Tear-Off | | | | | | | | |
| 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) |
| Cellular Lightweight Insulating Concrete Over Steel Decking (Min. 22 Gauge) | | | | | | | | |
| 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 | - | - | - | - |
| (Celcore) Cellular Lightweight Insulating Concrete Over Concrete Decking | | | | | | | | |
| 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 | | | |
| Concrete Deck | | | | | | | | |
| Min. 1/2" InsulBase Polyiso | 12" ribbons of FAST | Min. 1/2" HP Recovery Board | 12" ribbons of FAST | 1-90 | - | - | - | - |

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 | | | |
| Steel Deck (Min. 22-Gauge) | | | | | | | | |
| FM Approved | Loose laid | 7/16" OSB | 17 (1.8 sq. ft) | 1-150 | - | - | - | - |
| Steel Deck (Min. 22 Gauge) with VapAir Seal 725TR and Cav-Grip Primer | | | | | | | | |
| Min. 1/2" DensDeck Prime or Securock | 16 (2 sq. ft.) | 7/16" OSB over InsulBase Polyiso | 6" ribbons of FAST | 1-90 | - | - | - | - |
| Concrete Deck | | | | | | | | |
| 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 | - | - | - | - |
| Concrete Deck with VapAir Seal 725TR/Cav-Grip Primer, 702 LV Primer or 702 Primer | | | | | | | | |
| 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 | - | - | - | - |
| Steel Deck (Min. 22 Gauge)/VapAir Seal 725TR with Cav-Grip Concrete Deck/SureMB 90TG or 120TG Base Torch Applied/Cut-Back Asphalt Primer | | | | | | | | |
| Min. 1/2" DensDeck Prime or Securock | 16 (2 sq. ft.) | 7/16" OSB over InsulBase Polyiso | 6" ribbons of FAST | 1-90 | - | - | - | - |
| Concrete Deck with SureMB 90TG and 120TG Base Torch Applied/Cut-Back Asphalt Primer | | | | | | | | |
| Min. 1/2" InsulBase Polyiso | 12" ribbons of FAST | 7/16" OSB | 12" ribbons of FAST | 1-330 | - | - | - | - |
| Tectum Deck | | | | | | | | |
| Min. 1-1/2" InsulBase Polyiso | Full-Coverage FAST | 7/16" OSB | Full-Coverage FAST | 1-150 | - | - | - | - |
| Min. 1-1/2" InsulBase Polyiso | 12" ribbons of Olybond 500 BA | 7/16" OSB | 12" ribbons of Olybond 500 BA | 1-90 | - | - | - | - |
| Gypsum Deck Tear-Off | | | | | | | | |
| 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 | - | - | - | - |
| (Celcore) Cellular Lightweight Insulating Concrete Over Steel Decking | | | | | | | | |
| FM Approved | Loose laid | 7/16" OSB | 17 (1.9 sq. ft) | 1-105 | - | - | - | - |
| (Celcore) Cellular Lightweight Insulating Concrete Over Concrete Decking | | | | | | | | |
| 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 | | | |
| Steel Deck (Min. 22-Gauge) | | | | | | | | |
| FM Approved | Loose laid | 7/16" OSB | 17 (1.8 sq. ft) | 1-105 | - | - | - | - |
| Concrete Deck | | | | | | | | |
| 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 | - | - | - | - |
| 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.

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

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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 Incorporated, P. O. Box 7000, Carlisle, PA 17013

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

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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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