



VERSIFLEX PVC

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Versico, a division of Carlisle Construction Materials Incorporated

CODE APPROVAL GUIDE

September 2014

INTRODUCTION

This Code Approval Guide addresses both general information pertaining to Underwriters Laboratories (UL) and FM Approvals (FM) test criteria as well as specific UL and FM code approvals achieved with Versico's VersiFlex Adhered and Mechanically-Fastened Roofing Systems. Various independent test laboratory results along with national building code approvals are also identified in this guide. Code approvals available with Versico's VersiFleece, VersiFleece AC, VersiWeld and VersiGard Roofing Systems are identified in separately published Code Approval Guides.

Code ratings are categorized by roof system type (Mechanically-Fastened, Adhered) and are separated into 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 Approvals approved assemblies are categorized according to deck type and the specific type of construction (new, tear-off or retrofit).

The listed assemblies contained in this guide are grouped generically based on deck classification. Specific substrate requirements for each Versico Roofing System can be identified in the respective Versico 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 Recovery Board/Polyisocyanurate indicates the Recovery Board is installed directly under the membrane. A listing of Gypsum Board/Polystyrene indicates the Gypsum Board is installed directly under the membrane.

General Guidelines for 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 Versico published specifications reflect the minimum requirements necessary to obtain the applicable Versico warranty. **Code requirements are not specifically covered in the Versico specifications and are considered to be above and beyond the provisions of the Versico 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 obtained directly from UL and FM as follows:

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:

A. 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.

B. 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 Versico Roof Systems referenced within this document meet Class 1 construction and Severe Hail (SH) ratings.

C. APPROVED AMERICAN NATIONAL STANDARD ANSI/SPRI WD-1

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

SUMMARY

Due to complexity of the code documents and the variety of information that must be reviewed, it is important to consult with Versico 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 Versico Technical Representative to ensure compliance with Versico's current specification requirements for the issuance of the applicable warranty. However, this inspection is not for the purpose of verifying code compliance.

VersiFlex™ (PVC) Mechanically-Fastened Roofing System

Underwriters Laboratories Approvals

Membrane Type: .050", .060" or .080" VersiFlex PVC Reinforced Membrane (White, Gray or Tan)
.050", .060" or .080" VersiFlex-E KEE HP PVC Reinforced Membrane (White)

UL Class "A"			
Deck Type	Insulation (1)	Thickness	Maximum Slope
Non-Combustible and Combustible (For combustible decks, gypsum board must be installed beneath the insulations listed) (2)(3)(4)	Versico Polyisocyanurate MP-H or SecurShield	Any	2-1/2"
	Versico Polyiso MP-H over Insulfoam I or VIII	1" / Any	1"
	Versico Recovery Board	1/2" - 3"	1"
	Versico Recovery Board/Polyisocyanurate	1/2" Min./Any	
	Versico Recovery Board/Insulfoam I or VIII (5)	1/2" Min./Any	
	APA Rated Oriented Strand Board (OSB) OSB/Polyisocyanurate OSB/Insulfoam I or VIII	7/16" Min. 7/16" Min./Any 7/16" Min./Any	
	Versico FR Base Sheet 1S over InsulFoam EPS, Insultaper or R-Tech (5) (7)	Base Sheet/Any	1"
	Versico Insulfoam SP (5) (7)	Any	1/2"
One Layer Versico FR Base Sheet 1S over minimum Class A Smooth BUR, mineral cap sheet or modified bitumen	Base Sheet	1/2"	
Combustible (4)(6)	Dens-Deck	1/4" (2)(4)	Unlimited
	Dens-Deck or Securock/Polyisocyanurate	1/4"/Any (4)	
	Dens-Deck or Securock/Insulfoam I or VIII	1/4"/Any (4)	
	Versico SecurShield or SecurShield HD Composite	3" Min. (4)	1/2"
	Versico SecurShield HD or SecurShield HD Plus/Polyisocyanurate	1/2"Min./2.5" Min.	
	Versico SecurShield HD or SecurShield HD Plus/Polyisocyanurate Over 1 Layer FR Base Sheet 1S	1/2" Min / 1.4" Min. / 1 Layer	
	Versico SecurShield HD or SecurShield HD Plus/Insulfoam I or VIII(5)	1/2" / Any	
	Versico Polyiso SecurShield or SecurShield HD Composite / 1 layer FR Base Sheet 1S	1.9" Min. / 1 layer	
	Versico SecurShield HD EPS Composite	4.5" Min.	
	Versico SecurShield CD	1" Min.	
	Versico SecurShield CD Over Insulfoam I or VIII	1" Min. / 3.5" Min.	
	Polyisocyanurate listed above over 2 layers of Versico FR Base Sheet 1S	Any/2 layers	
Two layers Versico FR Base Sheet 1S	Two layers		

Notes:

- (1) When multiple insulation layers are listed (i.e., Recovery Board/Polyisocyanurate), the insulation listed first (Recovery Board) is directly under the membrane.
- (2) Securock can be used in this application; however, the minimum thickness is 1/2".
- (3) On Retrofit/No Tear-off projects, where the existing roof is Class A rated, gypsum board may be eliminated. Existing Class B or C rated roofs will require use of gypsum board to achieve a Class A rating, otherwise, the new roofing system will retain existing UL rating.
- (4) Insulation joints (bottom layer) are to be staggered a minimum of 6" from joints in wood deck.
- (5) Assembly not permitted on combustible decks, even with gypsum board underneath.
- (6) Combustible deck ratings can be used on non-combustible decks.
- (7) Assembly acceptable for white VersiFlex membrane only.

VersiFlex™ (PVC) Mechanically-Fastened Roofing System Underwriters Laboratories Approvals

**Membrane Type: .050", .060" or .080" VersiFlex PVC Reinforced Membrane (White, Gray or Tan)
.050", .060" or .080" VersiFlex-E KEE HP PVC Reinforced Membrane (White)**

UL Class "B"				
Deck Type	Insulation (1)	Thickness	Maximum Slope	
Combustible (2)(3)	Versico SecurShield (2) or SecurShield HD Composite	1.9" Min.	1/2"	
	Versico SecurShield HD or HD Plus / Polyiso	1/2" Min. / 1.4" Min.		
	Versico SecurShield CD/ Insulfoam I or VIII	1" Min. / Any		
		Polyisocyanurate (on Page 1) over G2 Base Sheet (4)	1-1/2" Min./ Base Sheet	1/2"
		Recovery Board/Polyisocyanurate over G2 Base Sheet (4)	1/2"/1" Min./ Base Sheet	1"
		Recovery Board/G2 Base Sheet (4)	1" Min./Base Sheet	1"
		One Layer Versico FR Base Sheet 1S	One Layer of Base Sheet	1/2"
		One Layer Versico FR Base Sheet 1S over minimum Class B Smooth BUR, mineral cap sheet or Modified Bitumen		
	Inverted G3 Cap Sheet	One Layer	1/2"	
Non-Combustible	Polyisocyanurate MP-H	Any	Unlimited	
UL Class "C"				
Combustible (2)(3)	Versico Polyiso MP-H or SecurShield	2" Min	Unlimited	
	Recovery Board	1/2" Min.	1"	
Non-Combustible	Versico Polyiso MP-H or SecurShield	Any	Unlimited	
Existing UL Rating Retained				
Non-Combustible or Combustible	Versico FR Base Sheet 1S or G2 Base Sheet (4) 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	Base Sheet	1/2"	

Notes:

- (1) When multiple insulation layers are listed (i.e., Recovery Board/Polyiso), the insulation listed first (Recovery Board) is directly under the membrane.
- (2) Insulation joints (bottom layer) are to be staggered a minimum of 6" from joints in wood deck.
- (3) Combustible deck ratings can be used on non-combustible decks.
- (4) **Acceptable G2 base sheets** can be one of the following; Celotex Type G2 Vaporbar GB, GAF Gafglas No. 75 Base Sheet, Manville Glasbase, Owens Corning Perma Ply No. 28 or Tamko Glass Base. Versico FR Base Sheet 2S may also be used.

VersiFlex™ (PVC) Mechanically-Fastened Roofing System Factory Mutual (FM) Approvals

A. FM Approvals - Field Sheet Securement Criteria (1)(2)

Membrane Type: .050", .060" or .080" VersiFlex PVC Reinforced Membrane (White, Gray or Tan)
.050", .060" or .080" VersiFlex-E KEE HP PVC Reinforced Membrane (White)(120"
only)

Membrane Width	Fastener/Plate (1)	Fastener Spacing	FM Ratings over Min. 22 Gauge Grade C Steel	FM Ratings over Min. 22 Gauge Grade E Steel (2) or Structural Concrete
120"	HPVX/HPVX Plate	6"	-	1-75 (307057-0-0)
	HPV-XL/HPV-XL Plate	12"	-	1-60 (307052-0-0)
	HPVX/Oval Barbed	6"	-	1-90 (323786-0-0)
81"	HPVX/HPVX Plate	6"	1-75	1-105 (143334-0-0)
		12"	1-75 (143339-0-0)	1-90 (143340-0-0)
	HPV-XL/HPV-XL Plate	12"	1-75 (336447-0-0)	1-90 (143337-0-0)
	HPVX/HPVX Plate	18"	1-60 (143349-0-0)	1-60 (143349-0-0)
	HPV-XL/HPV-XL Plate	18"	1-60 (143336-0-0)	1-60 (143336-0-0)
40.5"	HPVX/HPVX Plate	6"	1-135	1-165 (143335-0-0)
		12"	1-120 (353942-0-0)	1-120 (353942-0-0)

(RoofNAV Number) for systems over Polyiso MP-H

B. FM Approvals – RhinoBond Securement Criteria

Membrane Type: .050", .060" or .080" VersiFlex PVC Reinforced Membrane (White, Gray or Tan)
.050", .060" or .080" VersiFlex-E KEE HP PVC Reinforced Membrane (White)

FM Approvals – RhinoBond Grid Securement					
Deck Type	Fastener/Plate	Rating	Fasteners per 4' x 8' Board		
			Field	Perimeter	Corner
Min. 22 Gauge Grade C Steel	HPVX / RhinoBond PVC Plate	1-90 (341110-0-0)	6	10	15
		1-105 (341109-0-0)	8	14	20
	HPV-XL / RhinoBond PVC Plate	1-135 (346217-0-0)	8	14	20
Min. 22 Gauge Grade E Steel (2)	HPVX / RhinoBond PVC Plate	1-120 (341108-0-0)	8	14	20

(RoofNAV Number) for systems over Polyiso MP-H

FM Approvals – RhinoBond Linear Securement					
Deck Type	Fastener	Plate	Row Spacing	Fastener Spacing in Rows	Rating
Min. 22 Gauge Grade E Steel	HPVX	RhinoBond PVC Plate	5'	6"	1-180
			5'	12"	1-105
Structural Steel Purlin (Metal Retrofit)	Purlin		5'	18"	1-75
			10'	6"	1-120
			10'	12"	1-60

Notes:

- (1) On steel decks, Versico HPVX Fasteners and HPVX Plates or HPV-XL Fasteners and HPV-XL Plates are required as identified in the above chart. On structural concrete decks, CD-10 or MP 14-10 Fasteners are used with HPVX Plates.
- (2) Testing conducted on FM approved 22-gauge Grade E steel decking meeting ASTM Designation A611 or A653 Grade 80.
- (3) Reference ANSI-SPRI WD-1/ASCE 7-10 on page 5 for non-FM approved assemblies.

C. FM Class 1 Roof Deck Construction and Insulation Approvals (3)

**Membrane Type: .050", .060" or .080" VersiFlex PVC Reinforced Membrane (White, Gray or Tan)
 .050", .060" or .080" VersiFlex-E KEE HP PVC Reinforced Membrane (White)**

Deck Type	Insulation	Insulation Thickness	Maximum Slope for ASTM E-108 Class "A" Rating	
			VersiFlex	VersiFlex-E KEE HP
New Construction/Tear-off: Steel (Minimum 22 gauge) Structural Concrete	Versico Recovery Board or FM Approved High Density Wood Fiberboard	1/2" Min.	1"	2-1/2"
	Versico Recovery Board (min. 1/2"), Dens-Deck (min. 1/4") or Securock (min. 1/4") Over: FM Approved Insulation (1)	Refer to FM RoofNAV website	5" (with Dens-Deck overlay)	5" (with Dens-Deck overlay)
	Versico SecurShield HD or SecurShield HD Plus Over: FM Approved Insulation (1)	1/2" / Refer to FM RoofNAV website		
Retrofit (No Tear-off) (2): Structural Concrete	Versico Polyisocyanurate MP-H	1" - 12"	1"	2"
	Versico Insulfoam SP (1)	2" - 12"	2"	2"
Retrofit (No Tear-off) (2): Steel (Minimum 22 gauge)	Versico Recovery Board	1/2" - 1"	1"	2-1/2"
	Versico SecurShield HD or SecurShield HD Plus	1/2"		
	Versico Polyisocyanurate MP-H	1" Max.	1"	2"

Notes:

- (1) On steel decks, a thermal barrier of FM approved gypsum board (Type X or Type C) is required under these insulations. For specific thermal barrier requirements, refer to the current published FM Approval Guide or contact the respective manufacturer.
- (2) Existing roof must be FM Class 1 rated.
- (3) Severe Hail (SH) rating applies to all FM listed assemblies

VersiFlex™ (PVC) Mechanically-Fastened Roofing System ANSI-SPRI 4474 Approvals

**Membrane Type: .050", .060" or .080" VersiFlex PVC Reinforced Membrane (White, Gray or Tan)
.050", .060" or .080" VersiFlex-E KEE HP PVC Reinforced Membrane (White) (120" only)**

Membrane Width	Fastener/Plate (1)	Fastener Spacing	Ratings over Min. 22 Gauge Grade C Steel	Ratings over Min. 22 Gauge Grade E Steel or Structural Concrete
120"	HPVX/HPVX Plate	6"	1-75	1-75
	HPV-XL/HPV-XL Plate	12"	1-60	1-60
	HPVX/Oval Barbed	6"	1-90	1-90
81"	HPVX/HPVX Plate	6"	1-105	1-105
		12"	1-75	1-90
	HPV-XL/HPV-XL Plate	12"	1-90	1-90
	HPVX/HPVX Plate	18"	1-60	1-60
	HPV-XL/HPV-XL Plate	18"	1-60	1-60
40.5"	HPVX/HPVX Plate	6"	1-165	1-165
		12"	1-120	1-120

Notes:

- (1) On steel decks, Versico HPVX Fasteners and HPVX Plates or HPV-XL Fasteners and HPV-XL Plates are required as identified in the above chart. On structural concrete decks, CD-10 or MP 14-10 Fasteners are used with HPVX Plates.

VersiFlex™ (PVC) Adhered Roofing System Underwriters Laboratories Approvals

**Membrane Type: .050", .060" or .080" VersiFlex PVC Reinforced Membrane (White, Gray or Tan)
.050", .060" or .080" VersiFlex-E KEE HP PVC Reinforced Membrane (White)
Adhesive Type: Low VOC PVC Bonding Adhesive or HydroBond Water-Based Bonding Adhesive**

UL Class "A"			
Deck Type	Insulation (1)(2)	Thickness	Maximum Slope
Non-Combustible and Combustible (For combustible decks, gypsum board must be installed beneath the insulations listed) (3)(4)(5)	Versico Polyiso MP-H, SecurShield	Any	2"
	APA Rated Oriented Strand Board (OSB) OSB/Polyisocyanurate OSB/Insulfoam I or VIII	7/16" Min. 7/16" Min./Any 7/16" Min./Any	3"
	Versico SecurShield HD or SecurShield HD Plus / Polyisocyanurate Versico SecurShield HD or SecurShield HD Plus / Insulfoam I or VIII (8)	1/2" / Any	2"
	Versico Recovery Board Versico Recovery Board/Polyisocyanurate Versico Recovery Board/Insulfoam I or VIII (8)	1/2" - 3" 1/2" Min./Any 1/2" Min./Any	1-1/2"
	Versico Polyiso MP-H / Insulfoam I or VIII	1" / Any	1"
	Combustible (5)(7)	Dens-Deck Prime (6) Dens-Deck Prime or Securock/Polyisocyanurate Dens-Deck Prime/Insulfoam I or VIII	1/4" Min.(6) 1/4" Min./Any 1/4" Min./Any
Polyiso listed above over 2 layers of Versico FR Base Sheet 1S		Any/2 layers	3/4"
Versico SecurShield or SecurShield HD Composite		3" Min.	1/2"
Versico SecurShield HD or HD Plus / Polyisocyanurate		1/2" Min. / 2.5" Min.	
Versico SecurShield HD or HD Plus / Polyisocyanurate Over 1 layer FR Base Sheet 1S		1/2" Min. / 1.4" Min. / 1 layer	
Versico SecurShield HD or HD Plus / Insulfoam I or VIII		1/2" Min. / 4" Min.	
Versico Polyiso SecurShield or SecurShield HD Composite Over 1 layer FR Base Sheet 1S		1.9" Min. / 1 layer	
Versico SecurShield HD EPS Composite		4.5" Min.	
Versico SecurShield CD		1" Min	
Versico SecurShield CD/Insulfoam I or VIII		1" Min. / 3.5" Min.	
Structural Concrete or Approved Lgtwt. Ins. Conc.	None	N/A	Unlimited

Notes:

- (1) When multiple insulation layers are listed (i.e., Recovery Board/Polyisocyanurate), the insulation listed first (Recovery Board) is directly under the membrane.
- (2) Insulation may be mechanically fastened, attached with DASH/FAST Adhesive, OlyBond 500 BA, Versigrip Insulation Adhesive or Type III or IV III or IV asphalt or UL approved cold adhesive.
- (3) Minimum 1/2" thick gypsum board can be a classified or unclassified material with a minimum weight of 1.84 pounds per square foot. 1/4" thick Versico/Georgia Pacific Dens-Deck or Georgia Pacific Sound Deadening Board with a minimum weight of 1.09 pounds per square foot may be substituted for 1/2" thick gypsum board.
- (4) On **Retrofit/No Tear-off projects**, where the **existing roof is Class A** rated, the **gypsum board may be eliminated**. Existing Class B or C rated roofs will require the use of gypsum board to achieve a Class A rating, otherwise, the new roofing system will retain existing UL rating.
- (5) Insulation joints (bottom layer) are to be staggered a minimum of 6" from joints in wood deck.
- (6) Dens-Deck Prime cannot be installed directly over an existing roofing membrane.
- (7) Combustible deck ratings can be used on non-combustible decks.
- (8) Assembly not permitted on combustible decks, even with gypsum board underneath.

VersiFlex™ (PVC) Adhered Roofing System Underwriters Laboratories Approvals

**Membrane Type: .050", .060" or .080" VersiFlex PVC Reinforced Membrane (White, Gray or Tan)
.050", .060" or .080" VersiFlex-E KEE HP PVC Reinforced Membrane (White)**

Adhesive Type: Low VOC PVC Bonding Adhesive or HydroBond Water-Based Bonding Adhesive

UL Class "B"			
Deck Type	Insulation (1)(2)	Thickness	Maximum Slope
Combustible (3)(5)	Versico SecurShield	1.9" Min.	1/2"
	Versico SecurShield HD or HD Plus / Polyiso	1/2" Min. / 1.4" Min.	1/2"
	Versico Polyisocyanurate SecurShield or SecurShield HD Composite	1.9" Min.	1/2"
	Versico SecurShield CD / Insulfoam I or VIII	1" Min. / Any	1/2"
	Polyiso listed on previous page/G2 Base Sheet (4)	1-1/2" Min./ G2 Base	3/4"
	Recovery Board, SecurShield HD or SecurShield HD Plus/Polyiso/G2 Base Sheet (4)	1/2" Min./ 1" Min./G2 Base	1-1/2"
	Recovery Board, SecurShield HD or SecurShield HD Plus/G2 Base Sheet (4)	1" Min./G2 Base	
Non-Combustible	Versico Polyisocyanurate MP-H, SecurShield	Any	2-1/2"
UL Class "C"			
Combustible (3)(5)	Versico Polyiso MP-H or SecurShield	2" Min.	Unlimited
	Recovery Board	1/2" Min.	1"
Non-Combustible	Versico Polyiso MP-H or SecurShield	Any	Unlimited

Notes:

- (1) When multiple insulation layers are listed (i.e., Recovery Board/Polyisocyanurate), the insulation listed first (Recovery Board) is directly under the membrane.
- (2) Insulation may be mechanically fastened, attached with DASH/FAST Adhesive, OlyBond 500 BA or Type III or IV asphalt or UL approved cold adhesive.
- (3) Insulation joints (bottom layer) are to be staggered a minimum of 6" from joints in wood deck.
- (4) Acceptable G2 base sheets can be one of the following; Celotex Type G2 Vaporbar GB, GAF Gafglas No. 75 Base Sheet, Manville Glasbase, Owens Corning Perma Ply No. 28 or Tamko Glass Base.
- (5) Combustible deck ratings can be used on non-combustible decks.

VersiFlex™ (PVC) Adhered Roofing System Factory Mutual (FM) Approvals (5)

**Membrane Type: .050", .060" or .080" VersiFlex PVC Reinforced Membrane (White, Gray or Tan)
.050", .060" or .080" VersiFlex-E KEE HP PVC Reinforced Membrane (White)**

Adhesive Type: Low VOC PVC Bonding Adhesive or HydroBond Water-Based Bonding Adhesive

FM Class 1A-60 and 1A-90 Ratings Mechanically Fastened Insulation			
Deck Type	Insulation		Maximum Slope
New Construction/Tear-off: Steel (Min. 22 gauge) Structural Concrete Wood (1) Tectum (2) Gypsum (Tear-off only) (3)	Versico Polyisocyanurate MP-H	Insulation Thickness: 1.5" –12" Insulation Fastening Requirements for Steel and Struc. Conc. Decks: Minimum Top Layer Thickness 2" 8 Fasteners and plates per 4' x 8' board Minimum Top Layer Thickness 1.5" 16 Fasteners and Plates per 4' x 8' board	1" (187575-0-0)
Retrofit (No Tear-off) (4) Structural Concrete Gypsum (3)			

(RoofNAV Number) – steel deck using 2" thick minimum top layer

Notes:

- (1) On FM approved wood decks, minimum 1/4" thick gypsum board must be installed beneath the insulation listed.
- (2) FM approved Tectum decks must be minimum 2" thick. Insulation fasteners must penetrate the deck a minimum of 1-1/2" for Class 1-60 and 2" for Class 1-90.
- (3) Existing gypsum decks must be FM approved. Insulation fasteners must penetrate the deck a minimum of 1-1/2" for Class 1-60 and 1-90.
- (4) Existing roof must be FM Class 1 rated.
- (5) Severe Hail (SH) rating applied to all FM listed VersiFlex fully adhered roofing assemblies.

VersiFlex™ (PVC) Adhered Roofing System Factory Mutual (FM) Approvals

Membrane Type: .050", .060" or .080" VersiFlex PVC Reinforced Membrane (White, Gray or Tan)

.050", .060" or .080" VersiFlex-E KEE HP PVC Reinforced Membrane (White)

Adhesive Type: Low VOC PVC Bonding Adhesive or HydroBond Water-Based Bonding Adhesive

FM Class 1A-90 Ratings Mechanically Fastened Insulation				
Deck Type	Insulation	Insulation Thickness	Insulation Fast. / 4'x8' board (Steel & Conc. Only)	Maximum Slope
New Construction/Tear-off: Steel (Minimum 22 gauge) Structural Concrete Wood (2) Tectum (3) Gypsum (4) (Tear-off only) Retrofit (No Tear-off): (5) Structural Concrete Gypsum (4)	Versico Recovery Board (min. 1/2") or SecurShield HD Over: FM Approved Insulation (1)	1/2" Min / FM Approved	16	1-1/2" (143328-0-0)
	Versico Dens-Deck Prime (1/4" Min.) Over: FM Approved Insulation (1)	1/4" Min. / FM Approved	1/4" – 12 1/2" – 10 5/8" – 8	1-1/2"
	Versico Securock (1/4" Min.) Over: FM Approved Insulation (1)	1/4" Min. / FM Approved	1/4" – 12 (1-75) 1/4" – 16 (1-90) 1/2" – 10 5/8" – 8	1-1/2" (212271-0-0)
	SecurShield HD Plus Over: FM Approved Insulation	1/2"	8	1" (343627-0-0)
	Versico Recovery Board (No additional insulation permitted)	1/2" - 1"	16	1-1/2"
Retrofit (No Tear-off) (5): Steel (Minimum 22 gauge) Wood (2) Tectum (3)	Versico Polyiso MP-H	1" Max.	20	1" (164654-0-0)

(RoofNAV Number) – For selected systems

Notes:

- (1) On steel decks, a thermal barrier of FM approved gypsum board (Type X or Type C) is required under extruded or expanded polystyrene insulations. For specific thermal barrier requirements, consult the respective insulation manufacturer or refer to the current published FM Approval Guide.
- (2) On FM Approved wood decks, minimum 1/4" thick gypsum board must be installed beneath the insulation listed. Polystyrene insulations must incorporate 1/4" gypsum board in addition to standard thermal barrier requirements.
- (3) FM approved Tectum decks must be minimum 2" thick. Insulation fasteners must penetrate the deck a minimum of 1-1/2" for Class 1-60 rating.
- (4) Existing gypsum decks must be FM approved. Insulation fasteners must penetrate deck a minimum of 1-1/2" for Class 1-60 rating.
- (5) Existing roof must be FM Class 1 rated.

VersiFlex™ (PVC) Adhered Roofing System Factory Mutual (FM) Approvals

Membrane Type: .050", .060" or .080" VersiFlex PVC Reinforced Membrane (White, Gray or Tan)
.050", .060" or .080" VersiFlex-E KEE HP PVC Reinforced Membrane (White)
Adhesive Type: Low VOC PVC Bonding Adhesive or HydroBond Water-Based Bonding Adhesive
(9)

FM 1A-105, 1A-120, 1A-135, 1A-165 and 1A-225 (9) Mechanically Fastened Insulation				
Deck Type	Insulation (2)(3)(4)	FM Rating	Insulation Thickness	Maximum Slope
New Construction/Tear-off Steel (Min. 22 gauge)	Versico Polyiso SecurShield(6)	1A-225	2" – 12"	1" (325903-0-0)
	Versico Securock(6) / FM Approved Insulation	1A-225	1/2" Min. / FM Approved	5" (325909-0-0)
	Versico SecurShield HD Plus(7) / FM Approved Insulation	1A-225		1-1/2"
	Versico Securock (5) / FM Approved Insulation	1A-165	2" – 12"	5" (325914-0-0)
	Versico Polyiso MP-H(5) / SecurShield(5)	1A-135		1" (143333-0-0)
	OSB (1) / FM Approved Insulation	1A-135	7/16" Min / FM Approved	1-1/2" (143332-0-0)
	Versico SecurShield HD Plus(8) / FM Approved Insulation	1A-120	1/2" Min. / FM Approved	1-1/2"
	Versico Dens-Deck Prime (5) / FM Approved Insulation	1A-105		1-1/2" (345904-0-0)

(RoofNAV Number) – for selected systems

Notes:

- (1) OSB (oriented strand board) shall be APA rated. Provide minimum 1/8" gaps between OSB boards.
For FM 1-135 rating, OSB shall be fastened with 17 Versico Fasteners/Insulation Plates per 4' x 8' board.
- (2) On steel decks, a thermal barrier of FM approved gypsum board (Type X or Type C) is required under extruded or expanded polystyrene. For specific thermal barrier requirements, consult the respective insulation manufacturer or refer to the current published FM Approval Guide.
- (3) Care must be exercised during Bonding Adhesive application since 1/8" gaps are required between OSB Boards and solvent from adhesive will degrade polystyrene products.
- (4) EPS Insulation must be supplied by FM approved AFM, ARCO, BASF or Huntsman bead manufacturers.
- (5) Insulation is secured with 20 Versico HPV Fasteners/Insulation Plates per 4' x 8' board.
- (6) Insulation is secured with 32 Versico HPV Fasteners/Insulation Plates per 4' x 8' board. Limited to FM 1A-165 Rating on Grade C Steel Deck.
- (7) Insulation fastened with 24 InsulTite fasteners and Versico Insulation Plates per board limited to FM 1A-165 Rating on Grade C Steel Deck.
- (8) Insulation fastened with 18 InsulTite fasteners and Versico Insulation Plates per board.
- (9) HydroBond Water-Based Bonding Adhesive is limited to a maximum 1-120 uplift rating.

VersiFlex™ (PVC) Adhered Roofing System Factory Mutual (FM) Approvals

Membrane Type: .050", .060" or .080" VersiFlex PVC Reinforced Membrane (White, Gray or Tan)
.050", .060" or .080" VersiFlex-E KEE HP PVC Reinforced Membrane (White)

Adhesive Type: Low VOC PVC Bonding Adhesive or HydroBond Water-Based Bonding Adhesive

FM Ratings Insulation Attachment to Structural Concrete with DASH/FAST Adhesive				
Deck Type	Insulation (1)	Uplift Rating	Insulation Thickness	Maximum Slope
New Construction/ Tear-off: Structural Concrete	Versico Polyiso MP-H	1-450	1.5"-12"	1"
	Versico Dens-Deck Prime over Polyiso	1-660	1/4" Min/See above	1-1/2" (171082-0-0)
	Versico Dens-Deck Prime over Extruded Polystyrene (2)		1/4" Min/FM Approved	
	Versico Recovery Board, SecurShield HD or SecurShield HD Plus over: Polyisocyanurate EPS (3)	1-360	1/2"/FM Approved 1/2"/FM Approved	1-1/2"
	Versico Dens-Deck Prime over EPS (3)	1-645	Min. 1/4"/FM Approved	
	Versico Polyisocyanurate MP-H/OSB Composite (4)	1-360	1.9" - 4"	1-1/2"

(RoofNAV Number) – for selected systems

FM Class 1A-255 Rating Utilizing Versico 725 TR Vapor Retarder/ 702 LV or Cav-Grip Primer Insulation Attachment to Structural Concrete with DASH/FAST Adhesive Extruded or Full Coverage		
Deck Type	Insulation	Maximum Slope
New Construction/ Tear-off: Structural Concrete	Polyisocyanurate set in DASH/FAST Adhesive over Versico 725 TR Vapor Retarder	1"
	1/2" Recovery Board over Polyisocyanurate set in DASH/FAST Adhesive over Versico 725 TR Vapor Retarder	1-1/2"

Notes:

- (1) Versico 725 TR Vapor Retarder may be used beneath any of the insulations listed above and maintain the rating. Prior to installing Versico 725 TR Vapor Retarder, apply CCW 702-LV (1-195 max) or Cav-Grip Primer (1-255 max) as outlined in Versico's most current Specifications.
- (2) With DASH/FAST Adhesive, extruded polystyrene must be Owens Corning Foamular, Dow Styrofoam or Pactiv GreenGuard (unfaced). OlyBond 500 BA is approved with Thermapink 25.
- (3) When using DASH/FAST Adhesive, EPS must be FM approved and manufactured from BASF, Huntsman or Nova Beads. With OlyBond 500 BA, insulation must be FM approved, minimum 2" thick Western Insulfoam or Western EPS.

VersiFlex™ (PVC) Adhered Roofing System Factory Mutual (FM) Approvals

Membrane Type: .050", .060" or .080" VersiFlex PVC Reinforced Membrane (White, Gray or Tan)

.050", .060" or .080" VersiFlex-E KEE HP PVC Reinforced Membrane (White)

Adhesive Type: Low VOC PVC Bonding Adhesive or HydroBond Water-Based Bonding Adhesive

Insulation Attachment to Structural Concrete with OlyBond 500 BA				
Deck Type	Insulation	Uplift Rating	Insulation Thickness	Maximum Slope
New Construction/ Tear-off: Structural Concrete	Versico Polyiso MP-H	1-240	1.5"-12"	1"
	Versico Dens-Deck Prime over Polyiso	1-300	1/4" Min/See above	1-1/2"
	Versico Dens-Deck Prime over Extruded Polystyrene (4)	1-555	1/4" Min/FM Approved	
	Versico Recovery Board, SecurShield HD or SecurShield HD Plus over: Polyisocyanurate EPS (5)	1-240	1/2"/FM Approved 1/2"/FM Approved	1-1/2"
	Versico Dens-Deck Prime over EPS (5)	1-300	Min. 1/4"/FM Approved	
	Versico Polyisocyanurate MP-H/OSB Composite	1-240	1.9" - 4"	1-1/2"

FM Class 1A-90 Ratings Insulation Attachment to Tectum with DASH/FAST Adhesive or OlyBond 500 BA (1)			
Deck Type (2)	Insulation	Insulation Thickness	Maximum Slope
New Construction/ Tear-off: Tectum (2" min. deck thickness) Gypsum(6)	Versico Polyiso MP-H	1.5" - 12"	1"
	Versico Recovery Board, SecurShield HD or SecurShield HD Plus	1/2" Min.	1-1/2"
	Versico Recovery Board, SecurShield HD or SecurShield HD Plus over Polyiso	1/2" Min/ See above	
	Dens-Deck Prime over Polyiso	1/4" Min/ See Above	1-1/2"

Notes:

- (1) Bead spacing for OlyBond 500 BA shall be a maximum of 12" on center in the field of the roof. Additional beads of adhesive are required at perimeters and corners as identified in this guide. Bead spacing shall not exceed 6" on center at perimeter areas and 4" on center at corners.
- (2) FM approved minimum 2" thick by 31" wide Tectum deck secured to minimum 1/4" thick steel supports spaced a maximum of 3' on center with two Construction Fasteners, Inc. 2" diameter metal plates and #14 Dekfast Fasteners per panel per support. Screws are driven into 7/32" diameter pilot holes and are spaced 7-1/2" from panel edges.
- (3) Versico 725 TR Vapor Retarder may be used beneath any of the insulations listed above and maintain the rating. Prior to installing Versico 725 TR Vapor retarder, apply CCW 702-LV or Cav-Grip Primer as outlined in Versico's most current Specifications.
- (4) With DASH/FAST Adhesive, extruded polystyrene must be Owens Corning Foamular, Dow Styrofoam or Pactiv GreenGuard (unfaced). OlyBond 500 BA is approved with Thermapink 25.
- (5) When using DASH/FAST Adhesive, EPS must be FM approved and manufactured from BASF, Huntsman or Nova Beads. With OlyBond 500 BA, insulation must be FM approved, minimum 2" thick Western Insulfoam or Western EPS.
- (6) Existing Gypsum deck must be FM Approved.

VersiFlex™ (PVC) Adhered Roofing System Factory Mutual (FM) Approvals

**Membrane Type: .050", .060" or .080" VersiFlex PVC Reinforced Membrane (White, Gray or Tan)
.050", .060" or .080" VersiFlex-E KEE HP PVC Reinforced Membrane (White)**

Adhesive Type: Low VOC PVC Bonding Adhesive or HydroBond Water-Based Bonding Adhesive

FM Class 1A-90 Ratings Base Layer Insulation Mechanically Fastened; Top Layer of Insulation Attached with DASH/FAST Adhesive or OlyBond 500 BA (1)		
Deck Type	Insulation	Maximum Slope
New Construction or Tear-off: Steel (Min. 22 gauge) Wood (2) Tectum (3) Gypsum (4) (Tear-off Only)	<p>Base layer of 1/2" thick Dens-Deck/Dens-Deck Prime (5) or FM approved Polyisocyanurate insulation mechanically fastened to the deck per standard FM Class 1-90 requirements (including enhancements at perimeters and corners).</p> <p>Top Layer of minimum 1/2" thick Versico Recovery Board, 1/4" thick Dens-Deck Prime or FM Approved Polyiso secured over base layer with DASH/FAST Adhesive or OlyBond 500 BA Insulation Adhesive</p>	<p style="text-align: center;">1-1/2" with top layer of Recovery Board, OSB or Dens-Deck Prime</p> <p style="text-align: center;">1" with top layer of Polyiso</p>

Notes:

- (1) DASH/FAST Adhesive or OlyBond 500 BA Insulation Adhesive shall be applied in accordance with Versico Specifications. Bead spacing for OlyBond 500 BA Insulation Adhesive is a maximum of 12" o.c. in the field of the roof. Additional beads of adhesive are required at perimeters and corners as identified in this guide. Bead spacing shall not exceed 6" o.c. at perimeter areas and 4" o.c. at corners.
- (2) On FM approved wood decks, minimum 1/4" thick gypsum board must be installed beneath the insulation listed.
- (3) FM approved Tectum decks must be minimum 2" thick. Insulation fasteners must penetrate the deck a minimum 1-1/2" for FM 1-60 ratings.
- (4) Existing gypsum decks must be FM approved. Insulation fasteners must penetrate the deck a minimum of 1-1/2".
- (5) 1/2" Dens-Deck or Dens-Deck Prime must be fastened to the deck at 1 per 2 square feet (enhancements required at perimeters and corners).

VersiFlex™ (PVC) Adhered Roofing System Factory Mutual (FM) Approvals

Membrane Type: .050", .060" or .080" VersiFlex PVC Reinforced Membrane (White, Gray or Tan)
.050", .060" or .080" VersiFlex-E KEE HP PVC Reinforced Membrane (White)
Adhesive Type: Low VOC PVC Bonding Adhesive or HydroBond Water-Based Bonding Adhesive

FM Class 1A-300 Rating - Insulation Attachment with Hot Asphalt			
Deck Type (1)	Insulation	Insulation Thickness	Maximum Slope
New Construction/ Tear-off: Structural Concrete	Versico Polyiso MP-H	1.4" - 12"	1"
	Versico Recovery Board, SecurShield HD or SecurShield HD Plus	1/2" Min.	1-1/2"
	Versico Recovery Board, SecurShield HD or SecurShield HD Plus over Polyiso	1/2" Min/ See above	
	Dens-Deck Prime over Polyiso	1/4" Min/ See Above	

FM Class 1A-90 Rating - Insulation Attachment with Hot Asphalt		
Deck Type	Insulation	Maximum Slope
New Construction/ Tear-off: Steel (Min. 22 gauge) Wood (2) Tectum (3) Gypsum (4) (Tear-off Only)	Base layer of FM approved Polyisocyanurate insulation (minimum thickness listed above) mechanically fastened to the deck per standard FM Class 1-90 requirements (including enhancements at perimeters and corners). Top Layer of minimum 1/2" thick Versico Recovery Board, minimum 1/4" Dens-Deck Prime or FM Approved Polyisocyanurate (listed above) secured over base layer with hot asphalt	1-1/2" with top layer of Recovery Board or Dens-Deck Prime 1" with top layer of Polyiso

Notes:

- (1) Hot asphalt must be Type III or IV applied at a temperature within 25 F of EVT at the rate of 20-25 pounds per square.
- (2) On FM approved wood decks, minimum 1/4" thick gypsum board must be installed beneath the insulations listed.
- (3) FM approved Tectum decks must be minimum 2" thick. Fasteners must penetrate the deck a minimum 2".
- (4) Existing gypsum decks must be FM approved. Insulation fasteners must penetrate the deck a minimum of 1-1/2".

VersiFlex™ (PVC) Adhered Roofing System Factory Mutual (FM) Approvals

**Membrane Type: .050", .060" or .080" VersiFlex PVC Reinforced Membrane (White, Gray or Tan)
.050", .060" or .080" VersiFlex-E KEE HP PVC Reinforced Membrane (White)**

Adhesive Type: Low VOC PVC Bonding Adhesive or HydroBond Water-Based Bonding Adhesive

FM Uplift Ratings "Extruded" DASH/FAST Adhesive for Insulation Attachment			
Deck Type	Insulation Type	Thickness	FM Rating (1)
Structural Concrete (new or tear-off)	Min. 1/4" Securock/Dens-Deck Prime or Min. 7/16" OSB over: Dow, Owens Corning or Pactive Extruded Polystyrene FM approved EPS	FM approved	1-480 (XPS) 1-315 (EPS)
	Versico Polyiso MP-H Min. 1/4" Securock/Dens-Deck Prime or Min. 7/16" OSB over: Polyiso insulation listed above	For Polyiso, Min. 5" (all individual layers); Max. 12" (all layers combined)	1-315
	1/2" Versico Recovery Board, SecurShield HD or SecurShield HD Plus over: Polyiso insulation listed above Dow, Owens Corning or Pactive Extruded Polystyrene FM approved EPS	See above FM approved FM approved	1-315
	Optional: Versico 725 TR Vapor Barrier (with 702 LV or Cav-Grip Primer) adhered to Structural Concrete	FM approved	1-255 (Cav-Grip) 1-195 (702-LV)
Minimum 22 gauge, FM approved Steel (new or tear-off)	Base layer of 1/2" Dens-Deck Prime or 5/8" Securock mechanically fastened to the deck at the minimum rate of 1 per 2 square feet in the field of the roof (added fasteners at perimeter/corner areas per FM) Optional: Versico 725 TR Vapor Barrier (with Cav-Grip Primer) adhered to Base Layer Top layer of minimum 1.5" Versico Polyiso set in DASH/FAST Adhesive	For Polyiso, Min. 1.5" (all individual layers); Max. 12" (all layers combined)	1-105

Notes:

- (1) DASH/FAST Adhesive extruded spacing shall not exceed 12" on center in the field of the roof.

NATIONAL, STATE & CITY BUILDING CODE APPROVALS

Authority	Approval #
ICC – International Code Council	Report ESR-1463

State of Florida Evaluation Report

Evaluation Report Number	Evaluation Report Use
FL-14318	Not for use in High Velocity Hurricane Zone area
FL-16442	For use in High Velocity Hurricane Zone area

Dade County (South Florida) Approvals

Expire August 17, 2016

Deck Type	Acceptance #
Wood	11-0718.12
Steel	11-0718.11
Structural Concrete	11-0718.08
Cementitious Wood Fiber	11-0718.10
Gypsum	11-0718.07
Recover	11-0718.09

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