

Florida Building Code Product Approval

Updated 4/7/10



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Product Approval

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- ▶ COMMUNITY PLANNING
- ▶ HOUSING & COMMUNITY DEVELOPMENT
- ▶ EMERGENCY MANAGEMENT
- ▶ OFFICE OF THE SECRETARY

FL # FL13464
 Application Type New
 Code Version 2007
 Application Status Approved
 Comments
 Archived

Product Manufacturer GAF Materials Corporation
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Category Roofing
 Subcategory Modified Bitumen Roof System

Compliance Method Evaluation Report from a Florida Registered Architect or a Licensed
Florida Professional Engineer
 Evaluation Report - Hardcopy Received

Florida Engineer or Architect Name who developed the Evaluation Report Robert Nieminen
 Florida License PE-59166
 Quality Assurance Entity FM Approvals - QA
 Quality Assurance Contract Expiration Date 02/03/2013
 Validated By John W. Knezevich, PE
 Validation Checklist - Hardcopy Received

Certificate of Independence [FL13464_R0_COI_Trinity_ERD_CI - Nieminen.pdf](#)

Referenced Standard and Year (of Standard)	<u>Standard</u>	<u>Year</u>
	ASTM D3909	1997
	ASTM D6222	2002
	ASTM G155	2004
	FM 4470	1992

Equivalence of Product Standards



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EVALUATION REPORT

GAF Materials Corporation
 1361 Alps Road
 Wayne, NJ 07470

Evaluation Report G01506.02.10-R1
FL13464
Date of Issuance: 02/03/2010
Revision 1: 02/10/2010

SCOPE:

This Evaluation Report is issued under Rule 9B-72 and the applicable rules and regulations governing the use of construction materials in the State of Florida. The documentation submitted has been reviewed by Robert Nieminen, P.E. for use of the product under the Florida Building Code. The product described herein has been designed to comply with the 2007 Florida Building Code sections noted herein.

DESCRIPTION: Tri-Ply® Modified Bitumen Roof Systems

LABELING: Each unit shall bear labeling in accordance with the requirements the Accredited Quality Assurance Agency noted herein.

CONTINUED COMPLIANCE: This Evaluation Report is valid until such time as the named product(s) changes, the referenced Quality Assurance documentation changes, or provisions of the Code that relate to the product change. Acceptance of this Evaluation Report by the named client constitutes agreement to notify Robert Nieminen, P.E. if the product changes or the referenced Quality Assurance documentation changes. Trinity|ERD requires a complete review of this Evaluation Report relative to updated Code requirements with each Code Cycle.

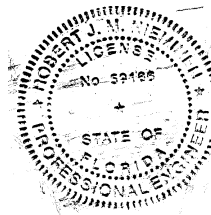
ADVERTISEMENT: The Evaluation Report number preceded by the words "Trinity|ERD Evaluated" may be displayed in advertising literature. If any portion of the Evaluation Report is displayed, then it shall be done in its entirety.

INSPECTION: Upon request, a copy of this entire Evaluation Report shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.

This Evaluation Report consists of pages 1 through 3, plus a 13-page Appendix.

Prepared by:

Robert J.M. Nieminen, P.E.
 Florida Registration No. 59166, Florida DCA ANE1983



The facimile seal appearing was authorized by Robert Nieminen, P.E. on 02/10/2010. This does not serve as an electronically signed document. Signed, sealed hardcopies have been transmitted to the Product Approval Administrator and to the named client.

CERTIFICATION OF INDEPENDENCE:

1. Exterior Research & Design, LLC. d/b/a Trinity|ERD does not have, nor does it intend to acquire or will it acquire, a financial interest in any company manufacturing or distributing products it evaluates.
2. Exterior Research & Design, LLC. d/b/a Trinity|ERD is not owned, operated or controlled by any company manufacturing or distributing products it evaluates.
3. Robert Nieminen, P.E. does not have nor will acquire, a financial interest in any company manufacturing or distributing products for which the evaluation reports are being issued.
4. Robert Nieminen, P.E. does not have, nor will acquire, a financial interest in any other entity involved in the approval process of the product.

ROOFING SYSTEMS EVALUATION:
1. SCOPE:

Product Category: Roofing
Sub-Category: Modified Bitumen Roof Systems
Compliance Statement: Tri-Ply® Modified Bitumen Roof Systems, as produced by GAF Materials Corporation, have demonstrated compliance with the following sections of the Florida Building Code through testing in accordance with the following Standards. Compliance is subject to the Installation Requirements and Limitations / Conditions of Use set forth herein.

2. STANDARDS:

<u>Section</u>	<u>Property</u>	<u>Standard</u>	<u>Year</u>
1504.3.1	Wind	FM 4470	1992
1504.6	Weathering	ASTM G155	2004
1504.7	Impact	FM 4470	1992
1507.10.2	Physical Properties	ASTM D3909	1997
1507.11.2	Physical Properties	ASTM D6222	2002

3. REFERENCES:

<u>Entity</u>	<u>Examination</u>	<u>Reference</u>	<u>Date</u>
ERD (TST 6049)	FM 4470 – Wind	3600.02.95	02/01/1995
ERD (TST 6049)	FM 4470 – Wind	4482.02.95-1	02/01/1995
ERD (TST 6049)	FM 4470 – Wind	4483.04.97-1	04/01/1997
ERD (TST 6049)	ASTM G155 – Weathering ASTM D3909 – Physicals ASTM D6222 – Physicals	G30250.02.10	02/01/2010
FM Approvals (TST1867)	FM 4470	3D4Q2.AM	05/20/1997
FM Approvals (TST1867)	FM 4470	1B9A8.AM	09/04/1997
FM Approvals (TST1867)	FM 4470	3011140	08/14/2001
FM Approvals (TST1867)	FM 4470	3013788	01/10/2003
FM Approvals (TST1867)	FM 4470	3020703	07/30/2004
FM Approvals (TST1867)	FM 4470	3023458	07/18/2006
FM Approvals (TST1867)	FM 4470	3032172	06/12/2009
FM Approvals (QUA1860)	Quality Assurance	RoofNav Listings	Current

4. PRODUCT DESCRIPTION:

This Evaluation Report covers Tri-Ply® Modified Bitumen Roof Systems installed in accordance with GAF Materials Corporation published installation instructions and the Limitations / Conditions of Use herein. The following products make up the subject systems.

Type	Product	Specification		
		Reference	Grade	Type
Base/ Ply Sheets:	Tri-Ply # 75 Base Sheet	ASTM D4601	N/A	II
	Tri-Ply Ply 4	ASTM D2178	N/A	IV
	Tri-Ply Ultra-Flexible Ply 6	ASTM D2178	N/A	VI
Cap Membranes:	Tri-Ply Mineral Surfaced Cap Sheet	ASTM D3909	N/A	N/A
	Tri-Ply TP-4	ASTM D6222	S	I
	Tri-Ply TP-4G	ASTM D6222	G	I

5. LIMITATIONS:

- 5.1 This Evaluation Report is not for use in HVHZ jurisdictions.
- 5.2 Refer to a current Roofing Materials Directory for fire ratings of this product.

- 5.3 For steel deck installations, foam plastic insulation shall be separated from the building interior in accordance with FBC 2603.4 unless the exceptions stated in FBC 2603.4.1 and 2603.8 apply.
- 5.4 Unless otherwise noted in Appendix 1, roof decking and its attachment shall be specified and installed to meet project design criteria to the satisfaction of the AHJ.
- 5.5 For recover installations, the existing roof shall be examined in accordance with FBC 1510.
- 5.6 For mechanically attached insulation or membrane or strip-bonded insulation, the maximum design pressure for the selected assembly shall meet or exceed the Zone 1 design pressure determined in accordance with FBC Chapter 16. Zones 2 and 3 shall employ an attachment density designed by a qualified design professional to resist the elevated pressure criteria. Commonly used methods are RAS 117 and FM LPDS 1-29.
- 5.7 For fully-adhered insulation, the maximum design pressure for the selected assembly shall meet or exceed critical design pressure determined in accordance with FBC Chapter 16. No rational analysis is permitted for these systems
- 5.8 For mechanically attached insulation or membrane over existing roof decks, fasteners shall be tested in the existing deck for withdrawal resistance. A qualified design professional shall review the data for comparison to the minimum requirements for the system. Testing and analysis shall be in accordance with TAS 105 or ANSI/SPRI FX-1.
- 5.9 For bonded insulation or membrane over existing substrates in a re-roof (tear off) or recover installation, the existing deck or existing roof surface shall be examined for compatibility with the adhesive to be installed. If any surface conditions exist that bring system performance into question, field uplift testing in accordance with ASTM E907 or FM LPDS 1-52 shall be conducted on mock-ups of the proposed new roof assembly.
- 5.10 For bonded insulation or membrane over existing substrates in a recover installation, the existing roof system shall be capable of resisting project design pressures on its own merit to the satisfaction of the AHJ, as documented through field uplift testing in accordance with ASTM E907 or FM LPDS 1-52.
- 5.11 Metal edge attachment (except gutters), shall be designed and installed for wind loads in accordance with FBC Chapter 16 and tested for resistance in accordance with ANSI/SPRI ES-1 or RAS 111, except the basic wind speed shall be determined from FBC Figure 1609.
- 5.12 All products in the roof assembly shall have quality assurance audit in accordance with the FBC and F.A.C. Rule 9B-72.

6. INSTALLATION:

- 6.1 Tri-Ply® Modified Bitumen Roof Systems shall be installed in accordance with GAF Materials Corporation current, published installation instructions, subject to the Limitations / Conditions of Use noted herein.
- 6.2 System attachment requirements for wind load resistance are set forth in Appendix 1.

7. BUILDING PERMIT REQUIREMENTS:

As required by the Building Official or Authority Having Jurisdiction in order to properly evaluate the installation of this product.

8. MANUFACTURING PLANTS:

Contact the named QA entity for manufacturing facilities covered by F.A.C. Rule 9B-72 QA requirements.

9. QUALITY ASSURANCE ENTITY:

FM Approvals – QUA1860: (781) 255-4783

- THE 13-PAGES THAT FOLLOW FORM PART OF THIS EVALUATION REPORT -

APPENDIX 1: ATTACHMENT REQUIREMENTS FOR WIND UPLIFT RESISTANCE

Table	Deck	Application	Type	Description	Page
1A	Wood	New or Reroof (Tear-Off)	A-2	Mech. Attached Anchor Sheet, Bonded Insulation, Bonded Roof Cover	3
1B	Wood	New, Reroof (Tear-Off) or Recover	B	Mech. Attached Base Insulation, Bonded Top Insulation, Bonded Roof Cover	3
1C	Wood	New, Reroof (Tear-Off) or Recover	C	Mech. Attached Insulation, Bonded Roof Cover	3
1D	Wood	New, Reroof (Tear-Off) or Recover	D	Insulated, Mech. Attached Base Sheet, Bonded Roof Cover	4
1E-1	Wood	New or Reroof (Tear-Off)	E	Non-Insulated, Mech. Attached Base Sheet, Bonded Roof Cover	5
1E-2	Wood	New, Reroof (Tear-Off) or Recover	E	Non-Insulated, Mech. Attached Base Sheet, Bonded Roof Cover	5
2A	Steel or Conc.	New, Reroof (Tear-Off) or Recover	B	Mech. Attached Base Insulation, Bonded Top Insulation, Bonded Roof Cover	6
2B	Steel or Conc.	New, Reroof (Tear-Off) or Recover	C	Mech. Attached Insulation, Bonded Roof Cover	7-8
2C	Steel or Conc.	New, Reroof (Tear-Off) or Recover	D	Insulated, Mech. Attached Base Sheet, Bonded Roof Cover	9
3A	Concrete	New or Reroof (Tear-Off)	A-1	Bonded Insulation, Bonded Roof Cover	10-11
3B	Concrete	New or Reroof (Tear-Off)	F	Non-Insulated, Bonded Roof Cover	11
4A	Various	Recover	A-1	Bonded Insulation, Bonded Roof Cover	12-13

The following notes apply to the systems outlined herein:

1. Roof decks shall be in accordance with FBC requirements to the satisfaction of the AHJ. Wind load resistance of the roof deck shall be documented through proper codified and/or FBC Approval documentation.
2. Unless otherwise noted, insulation / base sheet fasteners shall be the following with the noted minimum fastener engagement for each deck type. For deck-types not listed, refer to the specific system listings herein:
 - Wood: Drill-Tec 3" Steel Plates with Drill-Tec # 12 or # 14. Minimum ¾-inch plywood penetration or minimum 1-inch wood plank embedment.
 - Steel: Drill-Tec 3" Steel Plates with Drill-Tec # 12 or # 14. Minimum ¾-inch steel penetration and engage the top flute of the steel deck.
 - Concrete: Drill-Tec 3" Metal Plates with Drill-Tec # 14. Minimum 1-inch embedment into pilot hole in accordance with published installation instructions.
3. Unless otherwise noted, the insulation may be any polyisocyanurate, polystyrene, fiberboard, perlite and/or gypsum-based insulation board that meets the QA requirements of F.A.C. Rule 9B-72 and is documented as meeting FBC 1505.1 and, for foam plastic, FBC 2603.4.1 or 2603.8, when installed with the roof cover.
4. Minimum 200 psi, minimum 2-inch thick lightweight insulating concrete may be substituted for rigid insulation board for System Type D (mechanically attached base sheet, bonded roof cover), whereby the base sheet fasteners are installed through the LWIC to engage the structural steel or concrete deck. The structural deck shall be of equal or greater configuration to the steel and concrete deck listings.
5. Unless otherwise noted, insulation adhesive application rates are as follows. Ribbon or bead width is at the time of application; the ribbons/beads shall expand as noted in the manufacturer's published instructions:
 - Asphalt-Applied [AA]: Full coverage, 20-40 lbs/square.
 - OlyBond500 / OlyBond500 Green [OB500]: Continuous ¾ to 1-inch wide ribbons, 12-inch o.c.
 - Polyfoam TITSETE Insulation Adhesive [TITSETE]: Continuous 2½-3½-inch wide ribbons, 12-inch o.c.



6. Unless otherwise noted, all insulation references are flat stock. Tapered polyisocyanurate may be substituted for flat stock board with the following Maximum Design Pressure (MDP) limitations:
 - OlyBond500 or OlyBond500 Green: MDP -120.0 psf
 - Polyfoam TITASET Insulation Adhesive: MDP -117.5 psf
7. Bonded polyisocyanurate insulation boards shall be maximum 4 x 4 ft.
8. For mechanically attached components, the maximum design pressure for the selected assembly shall meet or exceed the Zone 1 design pressure determined in accordance with FBC Chapter 16, and Zones 2 and 3 shall employ a tighter attachment density designed by a qualified design professional to resist the elevated pressure criteria.
9. For fully bonded assemblies, the maximum design pressure for the selected assembly shall meet or exceed critical design pressure determined in accordance with FBC Chapter 16, and no rational analysis is permitted.
10. For mechanically attached components over existing decks, fasteners shall be tested in the existing deck for withdrawal resistance. A qualified design professional shall review the data for comparison to the minimum requirements for the system. Testing and analysis shall be in accordance with TAS 105 or ANSI/SPRI FX-1.
11. For existing substrates in a bonded recover installation, the existing roof system shall be capable of resisting project design pressures on its own merit to the satisfaction of the AHJ, as documented through field uplift testing in accordance with ASTM E907, FM LPDS 1-52 or ANSI/SPRI IA-1.
12. For Recover Applications using System Type D, the insulation is optional; however, the existing roof system shall be suitable for a recover application.
13. For mechanically attached base sheets, refer to the systems tables herein. For bonded base, ply or cap sheet applications, use the following references.

Reference	Layer	Material	Application
BP-AA (Base or Ply sheets, Asphalt-Applied)	Base:	Tri-Ply # 75 Base Sheet	Hot asphalt at 25 lbs/square.
	Ply:	Tri-Ply Ply 4, Tri-Ply Ultra-Flexible Ply 6	
Strata-AA (Base Sheet, Partially Asphalt-Applied)	Base:	Stratavent Eliminator (Perforated)	Loose laid, followed by asphalt-applied ply sheets
BP-CA	Base:	Tri-Ply # 75 Base Sheet	Tri-Ply Modified Bitumen Membrane Adhesive at 1.5 – 2.0 gal/sq.
C-AA (Cap sheet, Asphalt-Applied)	Cap:	Tri-Ply Mineral Surfaced Cap Sheet	Hot asphalt at 25 lbs/square.
APP-TA (SBS, Torch-Applied)	Cap:	Tri-Ply TP-4 or Tri-Ply TP-4G	Torch applied

TABLE 1A: WOOD DECKS – NEW CONSTRUCTION or REROOF (Tear-Off)											
SYSTEM TYPE A-2: MECHANICALLY ATTACHED ANCHOR SHEET, BONDED INSULATION, BONDED ROOF COVER											
System No.	Deck (See Note 1)	Anchor Sheet			Insulation			Roof Cover			MDP (psf)
		Type	Fasteners	Attach	Base	Top	Attach	Base	Ply	Cap	
W-1	Min. 19/32" plywood at max. 24" spans attached with 8d common or ring shank nails 6" o.c.	Tri-Ply Ply 4, Tri-Ply Ultra-Flexible Ply 6 or Tri-Ply # 75 Base Sheet	FBC HVHZ 1519.5.1 nails & tin caps	9" o.c. in the 4" side lap and 12" o.c. in two staggered rows in the center of the sheet	One or more layers min. 1.0-inch EnergyGuard	Min. 0.75-inch EnergyGuard Perlite Roof Insulation (homogeneous) or Min. 0.5-inch EnergyGuard High Density Roof Fiberboard or EnergyGuard Perlite Recover Board	AA	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-45.0

TABLE 1B: WOOD DECKS – NEW CONSTRUCTION, REROOF (Tear-Off) or RECOVER										
SYSTEM TYPE B: MECHANICALLY ATTACHED BASE INSULATION, BONDED TOP INSULATION, BONDED ROOF COVER										
System No.	Deck (See Note 1)	Base Insulation Layer			Top Insulation Layer		Roof Cover			MDP (psf)
		Type	Fasteners	Attach	Type	Attach	Base	Ply	Cap	
W-2	Min. 19/32" plywood at max. 24" spans attached with 8d common or ring shank nails 6" o.c.	Min. 1.5-inch EnergyGuard ISO	See Note 2	1 per 2 ft ²	Min. 0.75-inch EnergyGuard Perlite Roof Insulation (homogeneous) or Min. 0.5-inch EnergyGuard High Density Roof Fiberboard or EnergyGuard Perlite Recover Board	AA	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-45.0

TABLE 1C: WOOD DECKS – NEW CONSTRUCTION, REROOF (Tear-Off) or RECOVER									
SYSTEM TYPE C: MECHANICALLY ATTACHED INSULATION, BONDED ROOF COVER									
System No.	Deck (See Note 1)	Base Insulation Layer	Top Insulation Layer			Roof Cover			MDP (psf)
			Type	Fasteners	Attach	Base	Ply	Cap	
W-3	Min. 19/32" plywood at max. 24" spans attached with 8d common or ring shank nails 6" o.c.	One or more layers, any combination, loose laid	Min. 0.5-inch EnergyGuard High Density Roof Fiberboard	See Note 2	1 per 2 ft ²	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-45.0

TABLE 1D: WOOD DECKS – NEW CONSTRUCTION, REROOF (Tear-Off) or RECOVER
SYSTEM TYPE D: INSULATED, MECHANICALLY ATTACHED BASE SHEET, BONDED ROOF COVER

System No.	Deck (See Note 1)	Insulation Layer(s)		Base or Anchor Sheet			Roof Cover		MDP (psf)
		Type	Attach	Base	Fasteners	Attach	Ply	Cap	
W-4	Min. 19/32" plywood at max. 24" spans attached with 8d common or ring shank nails 6" o.c.	One or more layers, any combination	Prelim. Attached	Tri-Ply # 75 Base Sheet	See Note 2	12" o.c. in the 2" side lap and 12" o.c. in two, equally-spaced, staggered rows in the center of the sheet	(Optional) One or more BP-AA	C-AA or APP-TA	-45.0
W-5	Min. 19/32" plywood at max. 24" spans attached with 8d common or ring shank nails 6" o.c.	One or more layers, any combination	Prelim. Attached	Tri-Ply # 75 Base Sheet	See Note 2	12" o.c. in the 2" side lap and 12" o.c. in three, equally-spaced, staggered rows in the center of the sheet	(Optional) One or more BP-AA	C-AA or APP-TA	-60.0
W-6	Min. 19/32" plywood at max. 24" spans attached with 8d common or ring shank nails 6" o.c.	One or more layers, any combination	Prelim. Attached	Tri-Ply # 75 Base Sheet	See Note 2	8" o.c. in the 2" side lap and 8" o.c. in three, equally-spaced, staggered rows in the center of the sheet	(Optional) One or more BP-AA	C-AA or APP-TA	-75.0

TABLE 1E-1: WOOD DECKS – NEW CONSTRUCTION or REROOF (Tear-Off) SYSTEM TYPE E: MECHANICALLY ATTACHED BASE SHEET, BONDED ROOF COVER							
System No.	Roof Deck	Base Sheet			Roof Cover		MDP (psf)
		Type	Fasteners	Attach	Ply	Cap	
W-7	Min. 19/32" plywood at max. 24" spans attached with 8d common or ring shank nails 6" o.c.	Tri-Ply Ply 4, Tri-Ply Ultra-Flexible Ply 6 or Tri-Ply # 75 Base Sheet	12 ga. annular ring shank nails and min. 32 ga., 1-5/8" diameter tin-caps (FBC HVHZ 1519.5.1 nails & tin caps)	9-inch o.c. in the 2-inch lap and 12-inch o.c. in two, equally-spaced, staggered center rows	(Optional) One or more BP-AA	C-AA or APP-TA	-45.0

TABLE 1E-2: WOOD DECKS – NEW CONSTRUCTION, REROOF (Tear-Off) or RECOVER SYSTEM TYPE E: MECHANICALLY ATTACHED BASE SHEET, BONDED ROOF COVER							
System No.	Roof Deck	Base Sheet			Roof Cover		MDP (psf)
		Type	Fasteners	Attach	Ply	Cap	
W-8	Min. 19/32" plywood at max. 24" spans attached with 8d common or ring shank nails 6" o.c.	Tri-Ply # 75 Base Sheet	See Note 2	12" o.c. in the 2" side lap and 12" o.c. in two, equally-spaced, staggered rows in the center of the sheet	(Optional) One or more BP-AA	C-AA or APP-TA	-45.0
W-9	Min. 19/32" plywood at max. 24" spans attached with 8d common or ring shank nails 6" o.c.	Tri-Ply # 75 Base Sheet	See Note 2	12" o.c. in the 2" side lap and 12" o.c. in three, equally-spaced, staggered rows in the center of the sheet	(Optional) One or more BP-AA	C-AA or APP-TA	-60.0
W-10	Min. 19/32" plywood at max. 24" spans attached with 8d common or ring shank nails 6" o.c.	Tri-Ply # 75 Base Sheet	See Note 2	8" o.c. in the 2" side lap and 8" o.c. in three, equally-spaced, staggered rows in the center of the sheet	(Optional) One or more BP-AA	C-AA or APP-TA	-75.0

TABLE 2A: STEEL or CONCRETE DECKS – NEW CONSTRUCTION, REROOF (Tear-Off) or RECOVER
SYSTEM TYPE B: MECHANICALLY ATTACHED BASE INSULATION, BONDED TOP INSULATION, BONDED ROOF COVER

System No.	Deck (See Note 1)	Base Insulation Layer			Top Insulation Layer		Roof Cover			MDP (psf)
		Type	Fasten	Attach	Type	Attach	Base	Ply	Cap	
SC-1.	Min. 22 ga., type B, Grade 33 steel or structural concrete	Min. 1.5-inch EnergyGuard ISO	See Note 2	1 per 2 ft ²	Min. 0.25-inch SECUROCK	AA	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-45.0
SC-2.	Min. 22 ga., type B, Grade 33 steel or structural concrete	Min. 2.0-inch EnergyGuard ISO	See Note 2	1 per 4 ft ²	Min. 0.25-inch SECUROCK	AA	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-45.0
SC-3.	Min. 22 ga., type B, Grade 33 steel or structural concrete	Min. 1.5-inch EnergyGuard ISO	See Note 2	1 per 2 ft ²	Min. 0.75-inch EnergyGuard Perlite Roof Insulation (homogeneous) or Min. 0.5-inch EnergyGuard High Density Roof Fiberboard or EnergyGuard Perlite Recover Brd	AA	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-45.0
SC-4.	Min. 22 ga., type B, Grade 33 steel or structural concrete	Min. 2.0-inch EnergyGuard ISO	See Note 2	1 per 4 ft ²	Min. 0.75-inch EnergyGuard Perlite Roof Insulation (homogeneous) or Min. 0.5-inch EnergyGuard High Density Roof Fiberboard or EnergyGuard Perlite Recover Brd	AA	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-45.0
SC-5.	Min. 22 ga., type B, Grade 33 steel or structural concrete	Min. 2.0-inch EnergyGuard ISO	See Note 2	1 per 1.45 ft ²	Min. 1.0-inch EnergyGuard Perlite Roof Insulation (homogeneous)	AA	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-60.0
SC-6.	Min. 22 ga., type B, Grade 33 steel or structural concrete	Min. 2.0-inch EnergyGuard ISO	See Note 2	1 per 1.6 ft ²	Min. 0.25-inch SECUROCK	AA	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-60.0
SC-7.	Min. 22 ga., type B, Grade 33 steel or structural concrete	Min. 1.5-inch EnergyGuard ISO	See Note 2	1 per 2 ft ²	Min. 0.25-inch SECUROCK	OB500	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-45.0
SC-8.	Min. 22 ga., type B, Grade 33 steel or structural concrete	Min. 2.0-inch EnergyGuard ISO	See Note 2	1 per 4 ft ²	Min. 0.25-inch SECUROCK	OB500	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-45.0
SC-9.	Min. 22 ga., type B, Grade 33 steel or structural concrete	Min. 2.0-inch EnergyGuard ISO	See Note 2	1 per 1.6 ft ²	Min. 0.25-inch SECUROCK	OB500	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-60.0
SC-10.	Min. 22 ga., type B, Grade 33 steel or structural concrete	Min. 1.5-inch EnergyGuard ISO	See Note 2	1 per 2 ft ²	Min. 0.25-inch SECUROCK	TITASET	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-45.0
SC-11.	Min. 22 ga., type B, Grade 33 steel or structural concrete	Min. 2.0-inch EnergyGuard ISO	See Note 2	1 per 4 ft ²	Min. 0.25-inch SECUROCK	TITASET	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-45.0
SC-12.	Min. 22 ga., type B, Grade 33 steel or structural concrete	Min. 2.0-inch EnergyGuard ISO	See Note 2	1 per 1.6 ft ²	Min. 0.25-inch SECUROCK	TITASET	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-60.0

TABLE 2B: STEEL OR CONCRETE DECKS – NEW CONSTRUCTION, REROOF (Tear-Off) or RECOVER
SYSTEM TYPE C: MECHANICALLY ATTACHED INSULATION, BONDED ROOF COVER

System No.	Deck (See Note 1)	Base Insulation Layer	Top Insulation Layer			Roof Cover			MDP (psf)
			Type	Fasteners	Attach	Base	Ply	Cap	
SC-13.	Min. 22 ga., type B, Grade 33 steel or structural concrete	(Optional) One or more layers, any combination, loose laid	Min. 0.5-inch EnergyGuard High Density Roof Fiberboard	See Note 2	1 per 2 ft ²	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-45.0
SC-14.	Min. 22 ga., type B, Grade 33 steel or structural concrete	(Optional) One or more layers, any combination, loose laid	Min. ¼-inch SECUROCK	See Note 2	1 per 4 ft ²	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-45.0
SC-15.	Min. 22 ga., type B, Grade 33 steel or structural concrete	(Optional) One or more layers, any combination, loose laid	Min. ½-inch SECUROCK	See Note 2	1 per 1.78 ft ²	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-60.0
SC-16.	Min. 22 ga., type B, Grade 33 steel or structural concrete	(Optional) One or more layers, any combination, loose laid	Min. 1.5-inch EnergyGuard ISO	See Note 2	1 per 2 ft ²	Strata-AA	(Optional) One or more BP-AA	C-AA	-45.0
SC-17.	Min. 22 ga., type B, Grade 33 steel or structural concrete	(Optional) One or more layers, any combination, loose laid	Min. 1.5-inch EnergyGuard ISO	See Note 2	1 per 2 ft ²	Strata-AA	One or more BP-AA	APP-TA	-45.0
SC-18.	Min. 22 ga., type B, Grade 33 steel or structural concrete	(Optional) One or more layers, any combination, loose laid	Min. 1.5-inch EnergyGuard Ultra	See Note 2	1 per 3.2 ft ²	Strata-AA	(Optional) One or more BP-AA	C-AA	-45.0
SC-19.	Min. 22 ga., type B, Grade 33 steel or structural concrete	(Optional) One or more layers, any combination, loose laid	Min. 1.5-inch EnergyGuard Ultra	See Note 2	1 per 3.2 ft ²	Strata-AA	One or more BP-AA	APP-TA	-45.0
SC-20.	Min. 22 ga., type B, Grade 33 steel or structural concrete	(Optional) One or more layers, any combination, loose laid	Min. 2.0-inch EnergyGuard Ultra	See Note 2	1 per 2.0 ft ²	Strata-AA	(Optional) One or more BP-AA	C-AA	-60.0
SC-21.	Min. 22 ga., type B, Grade 33 steel or structural concrete	(Optional) One or more layers, any combination, loose laid	Min. 2.0-inch EnergyGuard Ultra	See Note 2	1 per 2.0 ft ²	Strata-AA	One or more BP-AA	APP-TA	-60.0
SC-22.	Min. 22 ga., type B, Grade 33 steel or structural concrete	(Optional) One or more layers, any combination, loose laid	Min. 2.0-inch EnergyGuard ISO	See Note 2	1 per 1.45 ft ²	Strata-AA	(Optional) One or more BP-AA	C-AA	-67.5

TABLE 2B: STEEL OR CONCRETE DECKS – NEW CONSTRUCTION, REROOF (Tear-Off) or RECOVER
SYSTEM TYPE C: MECHANICALLY ATTACHED INSULATION, BONDED ROOF COVER

System No.	Deck (See Note 1)	Base Insulation Layer	Top Insulation Layer			Roof Cover			MDP (psf)
			Type	Fasteners	Attach	Base	Ply	Cap	
SC-23.	Min. 22 ga., type B, Grade 33 steel or structural concrete	(Optional) One or more layers, any combination, loose laid	Min. 2.0-inch EnergyGuard ISO	See Note 2	1 per 1.45 ft ²	Strata-AA	One or more BP-AA	APP-TA	-67.5
SC-24.	Min. 22 ga., type B, Grade 33 steel or structural concrete	(Optional) One or more layers, any combination, loose laid	Min. 2.0-inch EnergyGuard Ultra	See Note 2	1 per 1.45 ft ²	Strata-AA	(Optional) One or more BP-AA	C-AA	-75.0
SC-25.	Min. 22 ga., type B, Grade 33 steel or structural concrete	(Optional) One or more layers, any combination, loose laid	Min. 2.0-inch EnergyGuard Ultra	See Note 2	1 per 1.45 ft ²	Strata-AA	One or more BP-AA	APP-TA	-75.0
SC-26.	Min. 22 ga., type B, Grade 33 steel or structural concrete	Min. 1.5-inch EnergyGuard ISO	Min. 0.25-inch DensDeck	See Note 2	1 per 1 ft ²	Strata-AA	One or more BP-AA	APP-TA	-82.5
SC-27.	Min. 22 ga., type B, Grade 33 steel or structural concrete	Min. 1.5-inch EnergyGuard ISO	Min. 0.25-inch DensDeck Prime or Securock	See Note 2	1 per 1 ft ²	Strata-AA	One or more BP-AA	APP-TA	-97.5

TABLE 2C: STEEL OR CONCRETE DECKS – NEW CONSTRUCTION, REROOF (Tear-Off) or RECOVER
SYSTEM TYPE D: LOOSE LAID INSULATION, MECHANICALLY ATTACHED BASE SHEET, BONDED ROOF COVER

System No.	Roof Deck	Insulation Layer		Base Sheet			Roof Cover		MDP (psf)
		Type	Attach	Type	Fasteners	Attach	Ply	Cap	
SC-28.	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi concrete	One or more layers, any combination	Prelim. Attached	Tri-Ply # 75 Base Sheet	See Note 2	12" o.c. in the 2" side lap and 12" o.c. in two, equally-spaced, staggered rows in the center of the sheet	(Optional) One or more BP-AA	C-AA or APP-TA	-45.0
SC-29.	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi concrete	One or more layers, any combination	Prelim. Attached	Tri-Ply # 75 Base Sheet	See Note 2	12" o.c. in the 2" side lap and 12" o.c. in three, equally-spaced, staggered rows in the center of the sheet	(Optional) One or more BP-AA	C-AA or APP-TA	-60.0
SC-30.	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi concrete	One or more layers, any combination	Prelim. Attached	Tri-Ply # 75 Base Sheet	See Note 2	8" o.c. in the 2" side lap and 8" o.c. in three, equally-spaced, staggered rows in the center of the sheet	(Optional) One or more BP-AA	C-AA or APP-TA	-75.0

TABLE 3A: CONCRETE DECKS - NEW CONSTRUCTION or REROOF (Tear-Off)
SYSTEM TYPE A-1: BONDED INSULATION, BONDED ROOF COVER
 (REFER TO FOOTNOTE 'A' FOR OPTIONS ON VAPOR BARRIER / TEMPORARY ROOF)

System No.	Roof Deck (See Note 1)	Base Insulation Layer		Top Insulation Layer		Roof Cover			MDP (psf)
		Type	Attach	Type	Attach	Base	Ply	Cap	
No BASE INSULATION LAYER – TOP LAYER ONLY									
C-1.	Concrete	None	N/A	Min. 0.75-inch EnergyGuard Perlite	AA	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-140.0
C-2.	Concrete	None	N/A	Min. 0.5-inch EnergyGuard Perlite Recover Board	AA	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-165.0
C-3.	Concrete	None	N/A	Min. 0.5-inch EnergyGuard HD Fiberboard	AA	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-165.0
C-4.	Concrete	None	N/A	Min. 1.5-inch EnergyGuard Composite	AA	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-360.0
C-5.	Concrete	None	N/A	Min. 0.25-inch DensDeck or DensDeck Prime	OB500	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-150.0
C-6.	Concrete	None	N/A	Min. 0.5-inch EnergyGuard HD Fiberboard	OB500	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-165.0
BASE INSULATION LAYER WITH COVERBOARD:									
C-7.	Concrete	Min. 1.5-inch EnergyGuard ISO	AA	Min. 0.5-inch EnergyGuard Perlite Recover Board	AA	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-165.0
C-8.	Concrete	Min. 1.5-inch EnergyGuard ISO	AA	Min. 0.75-inch EnergyGuard Perlite	AA	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-172.5
C-9.	Concrete	Min. 1.5-inch EnergyGuard ISO	AA	Min. 0.25-inch SECUROCK	AA	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-225.0
C-10.	Concrete	Min. 1.5-inch EnergyGuard ISO	AA	Min. 0.25-inch DensDeck or DensDeck Prime	AA	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-240.0
C-11.	Concrete	Min. 1.5-inch EnergyGuard ISO	AA	Min. 0.5-inch EnergyGuard HD Fiberboard	AA	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-307.5
C-12.	Concrete	Min. 2.0-inch EnergyGuard ISO	AA	Min. 0.5-inch EnergyGuard Perlite Recover Board	AA	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-322.5
C-13.	Concrete	Min. 1.5-inch EnergyGuard ISO	AA	Min. 1.5-inch EnergyGuard Composite	AA	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-360.0
C-14.	Concrete	Min. 1.5-inch EnergyGuard ISO EnergyGuard Ultra	OB500	Min. 0.25-inch DensDeck or DensDeck Prime	OB500	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-150.0
C-15.	Concrete	Min. 1.5-inch EnergyGuard ISO EnergyGuard Ultra	OB500	Min. 0.5-inch EnergyGuard HD Fiberboard	OB500	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-165.0

TABLE 3A: CONCRETE DECKS - NEW CONSTRUCTION or REROOF (Tear-Off)
SYSTEM TYPE A-1: BONDED INSULATION, BONDED ROOF COVER
 (REFER TO FOOTNOTE 'A' FOR OPTIONS ON VAPOR BARRIER / TEMPORARY ROOF)

System No.	Roof Deck (See Note 1)	Base Insulation Layer		Top Insulation Layer		Roof Cover			MDP (psf)
		Type	Attach	Type	Attach	Base	Ply	Cap	
C-16.	Concrete	Min. 2.0-inch EnergyGuard ISO or EnergyGuard Ultra	OB500	Min. 0.25-inch SECUROCK	OB500	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-225.0
C-17.	Concrete	Min. 1.0-inch EnergyGuard ISO or EnergyGuard Ultra	TITESET	Min. 0.5-inch EnergyGuard HD Fiberboard	TITESET	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-180.0
C-18.	Concrete	Min. 1.0-inch EnergyGuard ISO or EnergyGuard Ultra	TITESET	Min. 0.25-inch DensDeck or DensDeck Prime	TITESET	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-240.0
C-19.	Concrete	Min. 1.0-inch EnergyGuard ISO or EnergyGuard Ultra	TITESET	Min. 0.25-inch SECUROCK	TITESET	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-240.0

A. The following are options for installation of a vapor barrier / temporary roof on the concrete deck prior to insulation placement. If vapor barrier / temp roof is installed, concrete deck shall be primed with ASTM D41 primer prior to its installation. Unless otherwise noted, system Maximum Design Pressure (MDP) is unaffected.

1. For use with asphalt-applied insulation:
 - One or two plies BP-AA base and/or ply sheet
 - One or two BP-AA base or ply sheet with granule surfaced C-AA or APP-TA cap membrane
2. For use with OlyBond 500 applied insulation:
 - One or two plies BP-AA base and/or ply sheet (MDP -352.5 psf)
3. For use with TITESET applied insulation:
 - One or two plies BP-AA base and/or ply sheet (MDP -262.5 psf)
 - One or two BP-AA base or ply sheet with granule surfaced C-AA or APP-TA cap membrane (MDP -270.0 psf)

TABLE 3B: CONCRETE DECKS – NEW CONSTRUCTION or REROOF (Tear-Off)
SYSTEM TYPE F: NON-INSULATED, BONDED ROOF COVER

System No.	Deck (See Note 1)	Primer	Roof Cover			MDP (psf)
			Base	Ply	Cap	
C-20.	Concrete	ASTM D41	Strata-AA	One or more BP-AA	APP-TA	-90.0
C-21.	Concrete	ASTM D41	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-457.5

TABLE 4A: RECOVER APPLICATIONS
SYSTEM TYPE A: BONDED INSULATION, BONDED ROOF COVER

System No.	Substrate (See Notes 1 & 11)	Base Insulation Layer		Top Insulation Layer		Roof Cover			MDP (psf)
		Type	Attach	Type	Attach	Base	Ply	Cap	
NO BASE INSULATION LAYER – TOP LAYER ONLY									
R-1.	Existing asphalt BUR or mineral surfaced cap sheet	None	N/A	Min. 0.75-inch EnergyGuard Perlite	AA	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-140.0
R-2.	Existing asphalt BUR or mineral surfaced cap sheet	None	N/A	Min. 0.5-inch EnergyGuard Perlite Recover Board	AA	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-165.0
R-3.	Existing asphalt BUR or mineral surfaced cap sheet	None	N/A	Min. 0.5-inch EnergyGuard HD Fiberboard	AA	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-165.0
R-4.	Existing asphalt BUR or mineral surfaced cap sheet	None	N/A	Min. 1.5-inch EnergyGuard Composite	AA	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-360.0
R-5.	Existing asphalt BUR or mineral surfaced cap sheet	None	N/A	Min. 0.25-inch DensDeck or DensDeck Prime	OB500	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-120.0
R-6.	Existing asphalt BUR or mineral surfaced cap sheet	None	N/A	Min. 0.5-inch EnergyGuard HD Fiberboard	OB500	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-120.0
R-7.	Existing asphalt BUR or mineral surfaced cap sheet	None	N/A	Min. 0.25-inch DensDeck Prime or Securock	OB500	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-165.0
BASE INSULATION LAYER WITH COVERBOARD:									
R-8.	Existing asphalt BUR or mineral surfaced cap sheet	Min. 1.5-inch EnergyGuard ISO	AA	Min. 0.5-inch EnergyGuard Perlite Recover Board	AA	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-165.0
R-9.	Existing asphalt BUR or mineral surfaced cap sheet	Min. 1.5-inch EnergyGuard ISO	AA	Min. 0.75-inch EnergyGuard Perlite	AA	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-172.5
R-10.	Existing asphalt BUR or mineral surfaced cap sheet	Min. 1.5-inch EnergyGuard ISO	AA	Min. 0.25-inch SECUROCK	AA	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-225.0
R-11.	Existing asphalt BUR or mineral surfaced cap sheet	Min. 1.5-inch EnergyGuard ISO	AA	Min. 0.25-inch DensDeck or DensDeck Prime	AA	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-240.0
R-12.	Existing asphalt BUR or mineral surfaced cap sheet	Min. 1.5-inch EnergyGuard ISO	AA	Min. 0.5-inch EnergyGuard HD Fiberboard	AA	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-307.5

TABLE 4A: RECOVER APPLICATIONS
SYSTEM TYPE A: BONDED INSULATION, BONDED ROOF COVER

System No.	Substrate (See Notes 1 & 11)	Base Insulation Layer		Top Insulation Layer		Roof Cover			MDP (psf)
		Type	Attach	Type	Attach	Base	Ply	Cap	
R-13.	Existing asphalt BUR or mineral surfaced cap sheet	Min. 2.0-inch EnergyGuard ISO	AA	Min. 0.5-inch EnergyGuard Perlite Recover Board	AA	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-322.5
R-14.	Existing asphalt BUR or mineral surfaced cap sheet	Min. 1.5-inch EnergyGuard ISO	AA	Min. 1.5-inch EnergyGuard Composite	AA	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-360.0
R-15.	Existing asphalt BUR or mineral surfaced cap sheet	Min. 1.5-inch EnergyGuard ISO EnergyGuard Ultra	OB500	Min. 0.5-inch EnergyGuard HD Fiberboard	OB500	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-120.0
R-16.	Existing asphalt BUR or mineral surfaced cap sheet	Min. 1.5-inch EnergyGuard ISO EnergyGuard Ultra	OB500	Min. 0.25-inch DensDeck or DensDeck Prime	OB500	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-165.0
R-17.	Existing asphalt BUR or mineral surfaced cap sheet	Min. 2.0-inch EnergyGuard ISO or EnergyGuard Ultra	OB500	Min. 0.25-inch SECUROCK	OB500	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-165.0
R-18.	Existing asphalt BUR or mineral surfaced cap sheet	Min. 1.5-inch EnergyGuard ISO	OB500 6-inch o.c.	Min. 0.25-inch DensDeck Prime or SECUROCK	OB500 6-inch o.c.	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-210.0
R-19.	Existing asphalt BUR or mineral surfaced cap sheet	Min. 1.0-inch EnergyGuard ISO or EnergyGuard Ultra	TITASET	Min. 0.5-inch EnergyGuard HD Fiberboard	TITASET	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-180.0
R-20.	Existing asphalt BUR or mineral surfaced cap sheet	Min. 1.0-inch EnergyGuard ISO or EnergyGuard Ultra	TITASET	Min. 0.25-inch DensDeck or DensDeck Prime	TITASET	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-240.0
R-21.	Existing asphalt BUR or mineral surfaced cap sheet	Min. 1.0-inch EnergyGuard ISO or EnergyGuard Ultra	TITASET	Min. 0.25-inch SECUROCK	TITASET	BP-AA	(Optional) One or more BP-AA	C-AA or APP-TA	-240.0