

UL Evaluation Report



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UL Category Code: ULFB

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DIVISION: 07 00 00 THERMAL AND MOISTURE PROTECTION

Sub-level 2: 07 50 00 – Membrane Roofing

Sub-level 2: 07 51 00 – Built-Up Bituminous Roofing

Sub-level 3: 07 51 13 – Built-Up Asphalt Roofing

Sub-level 2: 07 52 00 – Modified Bituminous Membrane Roofing

Sub-level 3: 07 52 16 – Styrene-Butadiene-Styrene Modified Bituminous Sheet Roofing

COMPANY:

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1. SUBJECT: AWAPLAN, AWASTAR SA, SA CAP, TAM-CAP, AWA NAILBASE, AWABASE SA, GLASS BASE, SA BASE, TAM-PLY IV, TAM-PRO 856 PREMIUM SBS ADHESIVE, TYPE 43, AND VERSA-BASE

2. SCOPE OF EVALUATION

- 2015, 2012, 2009 and 2006 *International Building Code*® (IBC)
- 2015, 2012, 2009 and 2006 *International Residential Code*® (IRC)
- ICC ES Acceptance Criteria for Roof-Covering Systems (AC75), Dated July 2010 (Editorially revised April 2014)
- ICC ES Acceptance Criteria for Quality Documentation (AC10), Dated June 2014

The products were evaluated for the following properties:

- Roofing Systems for Exterior Fire Exposure (ANSI/UL 790)
- Roofing Systems, Wind Uplift Resistance (ANSI/UL 1897, ANSI/FM 4474)
- Physical Properties (ASTM D1970, ASTM D2178 Type IV, ASTM D2626, ASTM D4601 Type II, ASTM D3019, ASTM D3909, ASTM D6163 Type I Grade S, ASTM D6164 Type I Grade S and G, and ASTM G155)
- Impact Resistance (FM 4470)

3. REFERENCED DOCUMENTS

- ANSI/UL 790, Eighth Edition, Standard Test Methods for Fire Tests of Roof Coverings
- ANSI/UL 1897, Seventh Edition, Standard for Tests for Uplift Tests for Roofing Systems
- ASTM D1970-14, Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection
- ASTM D2178-04, Standard Specification for Asphalt Glass Felt Used in Roofing and Waterproofing
- ASTM D2626-04, Standard Specification for Asphalt-Saturated and Coated Organic Felt Base Sheet Used in Roofing
- ASTM D4601-04, Standard Specification for Asphalt-Coated Glass Fiber Base Sheet Used in Roofing
- ASTM D3019-94, Standard Specification for Lap Cement Used with Asphalt Roll Roofing, Non-Fibred, Asbestos-Fibred, and Non-Asbestos-Fibred
- ASTM D3909-97b, Standard Specification for Asphalt Roll Roofing (Glass Felt) Surfaced With Mineral Granules
- ASTM D6163-00, Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Glass Fiber Reinforcements
- ASTM D6164-11, Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Polyester Reinforcements
- ASTM G155-05a, Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Non-Metallic Materials
- ANSI/FM 4470-2012, Single-Ply, Polymer-Modified Bitumen Sheet, Built-Up Roof (BUR) and Liquid Applied Roof Assemblies for use in Class 1 and Noncombustible Roof Deck Construction
- ANSI/FM 4474-2004, Standard for Evaluating the Simulated Wind Uplift Resistance of Roof Assemblies Using Static Positive and/or Negative Differential Pressures
- ICC ES Acceptance Criteria for Membrane Roof-Covering Systems (AC75), Dated April 2014
- ICC ES Acceptance Criteria for Quality Documentation (AC10), Dated June 2014

4. USES

The styrene-butadiene-styrene (SBS) modified bitumen and built-up roofing felts and base sheets described in this report are used as roof coverings in mechanically fastened or fully adhered Class A, B, or C roof assemblies installed on combustible or non-combustible roof decks.

5. PRODUCT DESCRIPTION

The membrane roofing systems described in this report consist of asphaltic roofing membranes, base sheets and ply sheets, insulation where used, barrier board or slip sheet where used, flashing, mechanical fasteners and adhesives that are installed on a combustible or non-combustible roof decks.

The roofing assemblies incorporating the membranes comply with the following properties when installed as described in this report.

Fire Classification: Roofing assemblies covered under this report have been tested for fire classification Class A, B, or C in accordance with ANSI/UL790, as required by [Section 1505.1](#) of 2015, 2012, 2009 and 2006 IBC and [Section R902.1](#) of the 2015, 2012, 2009 and 2006 IRC.

The roofing assemblies incorporating the membranes comply with the following properties when installed as described in this report.

Wind Uplift Resistance: Roofing assemblies covered in this report have been tested for wind uplift resistance in accordance with ANSI/UL 1897 or ANSI/FM Approvals 4474 Appendix D: 12x24 Simulated Wind Uplift Pressure Test Procedure and Florida Building Code Test Protocols for the High Velocity Hurricane Zone (HVHZ) Testing Application Standard (TAS) No. 114-95, Appendix J: Test Procedure for 12 Foot By 24 Foot Simulated Uplift Pressure Resistance of Roof System Assemblies, and therefore qualify for use as roofing systems under [Section 1504.3.1](#) of the 2015, 2012, 2009 and 2006 IBC.

The roofing assemblies shall be designed to resist the design wind load pressures for components and cladding in accordance with [Section 1609.1](#) of the 2015, 2012, 2009 and 2006 IBC and [Section R905.1](#) of the 2015, 2012, 2009 and 2006 IRC.

Physical Properties: The roofing membranes covered under this Report have been tested for physical properties in accordance with ASTM D2178 Type IV, ASTM D4601 Type II, ASTM D3019, ASTM D3909, ASTM D2626, ASTM D 6163, Type I, ASTM D6164, Type I, and ASTM G155, and therefore qualify for use under [Section 1507.10.2](#) and [Section 1504.6](#) of the 2015, 2012, 2009 and 2006 IBC and [Section R905.9.2](#) of the 2015, 2012, 2009 and 2006 IRC.

Impact Test: The asphaltic roofing membranes covered under this report have been tested for impact resistance in accordance with "Resistance to Foot Traffic Test" in Section 5.5 of FM 4470 and therefore qualify for use as low-slope roof coverings covered under [Section 1504.7](#) of the 2015, 2012, 2009 and 2006 IBC.

5.1 Built-up Roofing Felts and Membranes:

- 5.1.1 **SA CAP:** Self-adhering, granule surfaced roof covering with polyester mat reinforcement coated in modified asphalt. The membrane is supplied in 142 mils thick rolls 3.28 Feet (1 m) wide by 33.52 feet (10.22 m) long and complies with ASTM D6164, Type I.
- 5.1.2 **AWAPLAN:** Granule-surfaced modified bitumen roof covering with polyester mat reinforcement coated in modified asphalt. The membrane is supplied in 141 mils thick rolls 3.28 Feet (1 m) wide by 33.42 feet (10.19 m) long and complies with ASTM D6164, Type I.
- 5.1.3 **AWASTAR SA:** Self-adhering, smooth surfaced roof covering with polyester mat reinforcement coated in modified asphalt. The membrane is supplied in 141 mils thick rolls 3.28 Feet (1 m) wide by 33.42 feet (10.19 m) long and complies with ASTM D6164, Type I.
- 5.1.4 **TAM-CAP:** A mineral-surfaced BUR roofing cap sheet with nonwoven fiberglass reinforcement coated with asphalt. The membrane is supplied in rolls 3.28 feet (1 m) wide by 32.92 feet (10.03 m) long and complies with ASTM D3909.

- 5.1.5 VERSA-BASE:** SBS-modified bitumen base sheet with asphalt coated fiberglass reinforcement. The membrane is supplied in rolls 3.28 feet (1 m) wide by 48.17 feet (14.68 m) long and complies with ASTM D6163, Type I.
- 5.1.6 GLASS BASE:** Asphalt coated fiberglass reinforced base sheet with fiberglass mat reinforcement coated with asphalt. The base sheet is supplied in rolls 3.28 feet (1 m) wide by 97.5 feet (29.72 m) long and complies with ASTM D4601, Type II.
- 5.1.7 TAM-PLY IV:** Asphalt coated fiberglass reinforced G1 ply sheet. The ply sheet is supplied in rolls 3.28 feet (1 m) wide by 161.75 feet (49.30 m) long and complies with ASTM D2178, Type IV.
- 5.1.8 TYPE 43:** Asphalt coated felt Type 15 ply sheet. The base sheet is supplied in rolls 3 feet (1 m) wide by 72 feet (21.95 m) long and complies with ASTM D2626.
- 5.1.9 AWA NAILBASE:** SBS-modified bitumen base sheet with asphalt coated fiberglass reinforcement. The membrane is supplied in rolls 3.28 feet (1 m) wide by 97.5 feet (29.72 m) long and complies with ASTM D4601, Type II.
- 5.1.10 AWABASE SA:** Self-adhering, smooth surfaced base sheet with fiberglass mat reinforcement coated in modified asphalt. The base sheet is supplied in rolls 3.28 feet (1 m) wide by 67.83 feet (20.68 m) long and complies with ASTM D4601, Type II.
- 5.1.11 SA BASE:** Self-adhering, fiberglass reinforced SBS-modified bitumen membrane. The membrane is supplied in rolls 3.26 feet (1m) wide by 65.83 (20.1 m) long and complies with ASTM D1970.

5.2 Adhesive:

5.2.1 TAMPRO 856 PREMIUM SBS ADHESIVE: Brush or squeegee applied Adhesive asphaltic lap cement with reinforcing minifibers and rubberized polymers. The adhesive is supplied in 3, 5, and 55 gallon containers, and is ASTM D3019 compliant.

5.3 Insulation:

Foam plastic insulation when used shall have a flame spread index of not more than 75 when tested at the maximum thickness intended for the use in accordance with ANSI/UL 723 or ASTM E 84 to qualify for use under [Section 2603.3](#) and Exception 3 of the 2015, 2012, 2009 and 2006 IBC. To qualify for use under [Section 2603.4.1.5](#) of the 2015, 2012, 2009 and 2006 IBC, a thermal barrier is not required for foam plastic insulation that is part of a Class A, B or C roof-covering assembly, provided the assembly with foam plastic insulation complies with FM 4450 or UL 1256.

5.4 Fasteners:

Fasteners used to mechanically fasten insulation, membranes, and base and ply sheets to the roof deck, shall be corrosion resistant and shall be one of the fasteners identified in the Tables of this Report.

5.5 Asphalts and Adhesive:

When specified in the roofing assemblies, hot roofing asphalt shall conform to ASTM D312, Type III or Type IV. TAM-PRO 856 Premium SBS adhesive used to bond TAMKO membranes to the insulation or roofing substrate shall be as noted in the Tables of this Report.

6. INSTALLATION

TAMKO roofing felts, base sheets, membranes and cap sheets shall be installed in accordance with the applicable code, this report and the manufacturer's published installation instructions. The roof covering materials shall be installed in accordance with [Section 1507.10](#) of the 2015, 2012, 2009 and 2006 IBC or [Section R905.9](#) of the 2015, 2012, 2009 and 2006 IRC as applicable, except as noted in this report.

The manufacturer's published installation instructions shall be available at all times on the jobsite during installation.

The slope of the roof on which the membranes are installed in accordance with [Table 1](#) shall not be more than the maximum slope indicated. These roofs shall be a minimum of $1/4:12$ (2% slope) for drainage.

Penetrations and terminations of the roof covering shall be flashed and made watertight in accordance with the requirements of the membrane manufacturer, [Section 1503.2](#) of 2015, 2012, 2009 and 2006 IBC or [Section R903.2](#) of 2015, 2012, 2009 and 2006 IRC and applicable code.

7. FIRE CLASSIFICATION

7.1 New Construction: Roof assemblies utilizing TAMKO roof coverings are described in UL Certification Category for Roofing Systems, ([TGfU](#)) File R3225 and in Tables of this Report.

7.2 Reroofing: The existing roof shall be inspected in accordance with the provisions and limitations of [Section 1510](#) of the 2015, 2012, 2009 and 2006 or [Section R907](#) of the 2015, 2012, 2009 and 2006 IRC, as applicable. The existing deck shall be inspected to verify that the structure to be reroofed is structurally sound and adequate to support and secure the roofing membrane. Prior to installation of new roof coverings, inspection by and approval from the code official having jurisdiction is required.

TAMKO roof coverings may be installed over existing Classified Class A roof assemblies as described in the Tables of this Report.

Class A, B or C roof coverings may be installed over existing classified roof assemblies under the following conditions without additional roof classification tests, provided the resulting classification is the lower of the new and existing roof classifications under the following conditions:

- New uninsulated roof coverings installed only over existing uninsulated assemblies.
- New insulated roof coverings installed over existing uninsulated assemblies only.

8. WIND RESISTANCE

8.1 New Construction: The allowable wind uplift pressures for the roof assemblies are noted in the Tables in this Report. Metal edge securement for all systems shall be designed in accordance with ANSI/SPRI ES-1, complying with [Section 1504.5](#) of 2015, 2012, 2009 and 2006 IBC. For certifications of metal edge securement systems in accordance with ANSI/SPRI ES-1, See UL Online Certifications Directory Roof-edge Systems, Metal for Use with Low-slope Roofing Systems ([TGJZ](#)).

8.2 Reroofing: Roof covering systems employing mechanical fasteners shall be qualified, to the satisfaction of the code official, as to the adequacy of fasteners penetrating through existing roof coverings into structural substrates. Since the composition and/or conditions of any particular underlying existing roofing materials may vary and reroofing material may vary, reroofing with adhered systems is outside the scope of this report.

9. CONDITIONS OF USE

The TAMKO roof covering materials described in this Report comply with, or are suitable alternatives to, what is specified in those codes listed in Section 2 of this Report, subject to the following conditions:

- 9.1 Materials and methods of installation shall comply with this Report and the manufacturer's published installation instructions. In the event of a conflict between the installation instructions and this Report, this Report governs.
- 9.2 See UL Online Certification Directory Roofing Systems (TGFU), and Roofing Systems, Uplift Resistance (TGIK) under File R3225, and also refer to the Tables of this Report.
- 9.3 Above-deck thermal insulation board shall comply with the applicable standards listed in Table 1508.2 in [Section 1508.2](#) of 2015, 2012, 2009 and 2006 IBC.
- 9.4 For mechanically attached components, the maximum design pressure for the selected assembly shall meet or exceed the Zone 1 design pressure as determined in accordance with [Section 1609.6.4.4](#) of 2015 and 2012 IBC. To resist enhanced wind uplift pressures, Zones 2 and 3 shall employ a fastener density specified by a qualified design professional.
- 9.5 The allowable wind uplift pressures listed in the Tables of this Report are for the roof systems only. The deck and framing to which the roofing system is attached shall be designed for the applicable components and cladding, and wind loads in accordance with the applicable codes.
- 9.6 When application is over an existing roof, documentation of the wind uplift resistance of the composite roof construction shall be submitted to the code official.
- 9.7 The metal edge securement shall be designed and installed for wind loads in accordance with [Chapter 16](#) of 2015, 2012, 2009 and 2006 IBC and tested for resistance in accordance with Test Methods RE-1, RE-2 and RE-3 of ANSI/SPRI ES-1, except V_{ult} wind speed shall be determined from Figure 1609A, 1609B, or 1609C of 2015, 2012, 2009 and 2006 IBC as applicable.
- 9.8 The TAMKO roofing felts, base sheets, membranes and cap sheets covered under this report are produced under the UL LLC Classification and Follow-Up Service Program in Joplin, MO and Columbus, KS, which includes audits in accordance with quality elements of ICC-ES Acceptance Criteria for Quality Documentation, AC10.

10. SUPPORTING EVIDENCE

- 10.1 Data in accordance with ICC-ES Acceptance Criteria for Membrane Roof-Covering Systems, AC75.
- 10.2 Manufacturer's descriptive product literature, including installation instructions.
- 10.3 UL Classification Reports in accordance with ANSI/UL 790. See UL Product Certification Category for Roofing Systems ([TGFU](#)), and Roofing Systems, Uplift Resistance ([TGIK](#)) under File R3225.
- 10.4 Data in accordance with ANSI/FM 4470, and ANSI/FM 4474 Appendix D.
- 10.5 Data in accordance with Florida Building Code (TAS) No. 114-95, Appendix J*
- 10.6 Data in accordance with ASTM D1970, ASTM D2178 Type IV, ASTM D2626, ASTM D4601 Type II, ASTM D3909, ASTM D6163 Type I Grade S, ASTM D6164 Type I Grade G and S, and ASTM G155.
- 10.7 Documentation of quality system elements in accordance with ICC-ES Acceptance Criteria for Quality Documentation, AC10.

11. IDENTIFICATION

The TAMKO roofing felts, base sheets, membranes, cap sheets, and adhesives described in this evaluation report are identified by a marking bearing the report holder's name (TAMKO), the plant identification, the product designation, the UL Classification Mark, and the evaluation report number UL ER3225-01. The validity of the evaluation report is contingent upon this identification appearing on the product or UL Classification Mark certificate.

12. USE OF UL EVALUATION REPORT

- 12.1** The approval of building products, materials or systems is under the responsibility of the applicable authorities having jurisdiction.
- 12.2** UL Evaluation Reports shall not be used in any manner that implies an endorsement of the product, material or system by UL.
- 12.3** The current status of this report, as well as a complete directory of UL Evaluation Reports may be found at UL.com via our On-Line Certifications Directory at www.ul.com/erdirectory.

Deck Number	Deck Type
1	Minimum 22 MSG Steel
2	Minimum ¹⁵ / ₃₂ " Plywood
3	Nominal ⁵ / ₈ " Plywood
4	Lightweight Concrete
5	Gypsum
6	Nominal 2" Wood Plank
7	Structural Concrete

TABLE 1: NEW CONSTRUCTION or REROOF (Tear-Off)

SYSTEM NO.	ALLOWABLE UPLIFT CAPACITY ¹ (lbs/ft ²)	DECK	INSULATION/BARRIER	BASE SHEET/PLY SHEET	ATTACHMENT	Lap Width	Fastener Spacing	INSULATION	PLY SHEETS	ROOF COVER	FIRE RATING UL790/ASTM E108	
											Class	Maximum Incline
1	-37.5	1, 3 ² , 7	Any UL Classified glass faced polyisocyanurate or perlite, any thickness, fastened to deck with base sheet fasteners	Versa-Base	Minimum No. 12-11 coated steel screws w. minimum 3 inch diameter 26 ga. plate	Minimum 2 inches	8 inches oc in the lap, two staggered rows 13 inches from each edge 16 inches oc	N/A	One or more plies Type G1, G2, or Versa-Base ³	Awaplan ³	B ⁷ A C	1/4 ⁸ 1/4 1/2
2	-45	1	Optional, minimum 5/8 inch thick gypsum board through fastened with base sheet	43 lb	Minimum No. 12-13 coated steel screws w. minimum 3.25 inch diameter plastic plate	Minimum 2 inches	6 inches oc in the lap, two staggered rows 12 inches from each edge 12 inches oc	N/A	N/A	Awaplan ⁴	A ⁷ C	1/4 1/2
3	-22.5	1, 2	Any UL Classified glass faced polyisocyanurate, any thickness, fastened to deck with base sheet fasteners ²	Versa-Base			8 inches oc in the lap, two staggered rows 13 inches from each edge 16 inches oc	Optional, any UL Classified glass faced polyisocyanurate, polystyrene, cellular glass, wood fiber or perlite, any thickness, fully adhered in hot roofing asphalt	Awaplan ³	B ⁷ C	1/4 ⁸ 1/2	
4	-37.5	1, 2	Optional, minimum 5/8 inch thick gypsum board through fastened with base sheet	Versa-Base	Minimum No. 12-13 coated steel truss head screws w. minimum 3 inch diameter 26 ga. plate	Minimum 2 inches	8 inches oc in the lap, two staggered rows 13 inches from each edge 16 inches oc		N/A	Awaplan ³	B ⁷ C	1/4 ⁸ 1/2

TABLE 1: NEW CONSTRUCTION or REROOF (Tear-Off) (continued)

SYSTEM NO.	ALLOWABLE UPLIFT CAPACITY ¹ (lbs/ft ²)	DECK	INSULATION/BARRIER	BASE SHEET/PLY SHEET	ATTACHMENT	Lap Width	Fastener Spacing	INSULATION	PLY SHEETS	ROOF COVER	FIRE RATING UL790/ASTM E108	
											Class	Maximum Incline
5	-60	1, 3 ¹⁶	Minimum 5/8 inch thick gypsum board through fastened 16 per board ⁵ with any glass faced polyisocyanurate, minimum 1.3 inches and second layer high density wood fiber or perlite coverboard, minimum 1/2 inch, adhered in hot asphalt	One or more layers G1, G2, Type 15, Type 30 or Versa-Base	Fully adhered in hot asphalt	N/A	N/A	N/A	Optional, one or more layers Type G1, G2, Versa-Base, Type 15 or Type 30 fully adhered in hot asphalt	One or more layers Awaplan in hot asphalt or cold applied ³ , or flood coat and gravel, cold applied coating, or Type G3 Tam-Cap in hot asphalt	B ⁷	1/4
											A	3 ¹⁰
											A	3 ¹⁰
											B B	2 ¹¹ 3 1/2 ¹²
6	-45	1, 3 ¹⁶ , 7	Minimum 5/8 inch thick gypsum board through fastened 16 per board ⁵ with any combination faced polyisocyanurate, EPS, cellular glass, perlite, or wood fiber adhered in hot asphalt	One or more layers G1, G2, Type 15, Type 30 or Versa-Base	Fully adhered in hot asphalt	N/A	N/A	Optional, one or more layers Type G1, G2, Versa-Base, Type 15 or Type 30 fully adhered in hot asphalt	One or more layers Awaplan in hot asphalt or cold applied ³ , or flood coat and gravel, cold applied coating, or Type G3 Tam-Cap in hot asphalt	B ⁷	1/4	
										A	3 ¹⁰	
										A	3 ¹⁰	
										B B	2 ¹⁰ 3 1/2 ¹¹	

TABLE 1: NEW CONSTRUCTION or REROOF (Tear-Off) (continued)

SYSTEM NO.	ALLOWABLE UPLIFT CAPACITY ¹ (lbs/ft ²)	DECK	INSULATION/BARRIER	BASE SHEET/PLY SHEET	ATTACHMENT	Lap Width	Fastener Spacing	INSULATION	PLY SHEETS	ROOF COVER	FIRE RATING UL790/ASTM E108			
											Class	Maximum Incline		
7	-52.5	1, 3	UL Classified glass faced polyisocyanurate, minimum 1.3 inches mechanically fastened 16 per board, second layer minimum ½ inch high density wood fiber or perlite fully adhered in hot asphalt ⁶	One or more layers G1, G2, Type 15, Type 30 or Versa-Base	Fully adhered in hot asphalt	N/A	N/A	N/A	Optional, one or more layers Type G1, G2, Versa-Base, Type 15 or Type 30 fully adhered in hot asphalt	One or more layers Awaplan in hot asphalt or cold applied ³	B ⁷	¼ ⁸		
										or flood coat and gravel,			A	3 ¹⁰
										cold applied coating,			A	3 ¹⁰
										or Type G3 Tam-Cap in hot asphalt			B B C	2 ¹¹ 3½ ¹² ½
8	-45	1 ² , 3	Any UL Classified glass faced polyisocyanurate or perlite, any thickness, fastened to deck with base sheet fasteners	Versa-Base	Minimum No. 12-11 coated steel screws w. minimum 3 inch diameter 26 ga. plate	Minimum 2 inches	8 inches oc in the lap, two staggered rows 13 inches from each edge 16 inches oc	N/A	One or more layers Type G1 or	One or more layers Awaplan fully adhered in hot asphalt	B	½		
									G2, or Versa-Base fully adhered in hot asphalt				B ⁷ C ⁹	½
9	-37.5	1	UL Classified glass faced polyisocyanurate, minimum 1.3 inches loose laid with top layer UL Classified minimum ½ inch wood fiber board through fastened 5 per 4X4 board ⁵	Optional, Glass Base or Versa-Base	Fully adhered in hot asphalt	N/A	N/A	N/A	One or more layers Type G1 or G2, or Versa-Base fully adhered in hot asphalt	Awaplan ³	A ⁷ C	¼ ½		
10	-45	1	Any UL Classified glass faced polyisocyanurate, minimum ¼ inch thick, mechanically fastened with minimum 12-11 screws and 3 inch diameter steel plates 16 per 4X8 board followed by minimum ¹⁵ / ₁₆ inch fiberglass roof insulation board fully adhered in hot asphalt	One or more plies Type G1, G2, Versa-Base, Type 15 or Type 30	Fully adhered in hot asphalt	N/A	N/A	N/A	One or more layers Type G1, G2, Versa-Base, Type 15 or Type 30 fully adhered in hot asphalt	Hot asphalt adhered or torch applied modified bitumen membrane, or fully cold applied or hot asphalt adhered BUR	A B C	¼ 3½ ½		

TABLE 1: NEW CONSTRUCTION or REROOF (Tear-Off) (continued)

SYSTEM NO.	ALLOWABLE UPLIFT CAPACITY ¹ (lbs/ft ²)	DECK	INSULATION/BARRIER	BASE SHEET/PLY SHEET	ATTACHMENT	Lap Width	Fastener Spacing	INSULATION	PLY SHEETS	ROOF COVER	FIRE RATING UL790/ASTM E108	
											Class	Maximum Incline
11	-30	1	Any UL Classified minimum ¹⁵ / ₁₆ inch fiberglass roof insulation board mechanically fastened with minimum 12-11 screws and 3 inch diameter steel plates 8 per 4X8 board followed by minimum ¹⁵ / ₁₆ inch fiberglass roof insulation board fully adhered in hot asphalt	One or more plies Type G1, G2, Type 15 or Type 30	Fully adhered in hot asphalt	N/A	N/A	N/A	One or more layers Type G1, G2, Type 15 or Type 30 fully adhered in hot asphalt	Hot asphalt adhered or torch applied modified bitumen membrane, or fully cold applied or hot asphalt adhered BUR	A B C	¼ 3½ ½
12	-45	1	UL Classified glass faced polyisocyanurate, minimum 1.3 inches mechanically fastened with minimum 12-11 screws and 3 inch diameter steel plates or 3.25 inch plastic plates 16 per 4X8 board	Type G1, G2, or Versa-Base	Spot attached with hot asphalt in 12 inch diameter spots every 24 inches in all directions	N/A	N/A	N/A	One or more layers G1,	One or more layers Awaplan ³	B B C	½ ¼ ½
									G2, Versa-Base, or			
									Type 15, Type 30 or fully adhered in hot asphalt			
13	-37.5	3, 4, 5	Minimum 2 inch thick Atlas Roofing AC Foam III mechanically fastened with minimum 12-11 screws and 3 inch diameter steel plates 16 per 4X8 board	Versa-Base	Minimum No. 12-11 coated steel screws w. minimum 3 inch diameter 26 ga. plate	Minimum 2 inches	8 inches oc in the lap, two staggered rows 13 inches from each edge 16 inches oc	N/A	One or more plies Type G1,	Awaplan ³	B B ⁷ C	½ ¼ ½
									G2, or Versa-Base ³			
14	-55	2	N/A	Versa-Base	Minimum No. 12-11 coated steel screws w. minimum 3 inch diameter 26 ga. plate	Minimum 2 inches	8 inches oc in the lap, two staggered rows 13 inches from each edge 16 inches oc	Optional, any combination, any thickness glass faced polyisocyanurate, polystyrene, cellular glass, wood fiber or perlite fully adhered in hot asphalt	One or more layers Versa-Base, fully adhered in hot asphalt	One or more layers Awaplan fully adhered in hot asphalt	B ⁷	¼

TABLE 1: NEW CONSTRUCTION or REROOF (Tear-Off) (continued)

SYSTEM NO.	ALLOWABLE UPLIFT CAPACITY ¹ (lbs/ft ²)	DECK	INSULATION/BARRIER	BASE SHEET/PLY SHEET	ATTACHMENT	Lap Width	Fastener Spacing	INSULATION	PLY SHEETS	ROOF COVER	FIRE RATING UL790/ASTM E108	
											Class	Maximum Incline
15 ¹⁷	-52.5	2	Tam-Pro 813 Asphalt Primer applied at .75 gallons per 100 square feet	SA Base	Self-adhered	Minimum 2 inches	N/A	N/A	N/A	SA Cap or	C	2
										Awastar SA	C	3
16 ¹⁷	-45	2	Tam-Pro 813 or Tam-Pro 814 Low VOC Asphalt Primer applied at .75 gallons per 100 square feet	Awabase SA	Self-adhered	Minimum 4 inches	N/A	N/A	Optional one or more plies of Awabase SA or SA Base adhered	SA Cap or	C	2
										Awastar SA	C	3
17 ¹⁷	-120	2	Tam-Pro 813 or Tam-Pro 814 Low VOC Asphalt Primer applied at .75 gallons per 100 square feet	SA Base	Self-adhered	Minimum 2 inches	N/A	N/A	Optional one or more plies of Awabase SA or SA Base adhered	SA Cap or	C	2
										Awastar SA	C	3
18	-37.5	2	N/A	Minimum one layer Glass Base	Minimum No. 13 roofing screws with 2.875 inch diameter steel plates	Minimum 2 inches	8 inches oc in the lap, two staggered rows 13 inches from each edge 16 inches oc	N/A	N/A	One layer Awaplan fully adhered in hot asphalt	B⁷	¼
19	-67.5	2	N/A	Minimum one layer Glass Base	Minimum No. 13 roofing screws with 2.875 inch diameter steel plates	Minimum 2 inches	7 inches oc in the lap, two staggered rows 13 inches from each edge 7 inches oc	N/A	N/A	One layer Awaplan fully adhered in hot asphalt	B⁷	¼
20 ¹⁷	-45	2	N/A	SA Base or Awabase SA	Minimum 12 ga. ring shank nails with 32 ga. 1.675 inch diameter tin tabs	Minimum 2 inches	6 inches oc in the lap and 6 inches oc in three equally spaced field rows	N/A	Optional one or more plies of Awabase SA adhered	SA Cap or	C	2
										Awastar SA	C	3

TABLE 1: NEW CONSTRUCTION or REROOF (Tear-Off) (continued)

SYSTEM NO.	ALLOWABLE UPLIFT CAPACITY ¹ (lbs/ft ²)	DECK	INSULATION/BARRIER	BASE SHEET/PLY SHEET	ATTACHMENT	Lap Width	Fastener Spacing	INSULATION	PLY SHEETS	ROOF COVER	FIRE RATING UL790/ASTM E108	
											Class	Maximum Incline
21 ¹⁷	-60	2	N/A	Awa Nailbase or Awabase SA	Minimum 12 ga. ring shank nails with 32 ga. 1.675 inch diameter tin tabs	Minimum 2 inches	6 inches oc in the lap and 6 inches oc in three equally spaced field rows	N/A	Optional one or more plies of Awabase SA or SA Base adhered	SA Cap or Awastar SA	C	2
											C	3
22 ¹⁷	-22.5	2	N/A	SA Base	Minimum 12 ga. ring shank nails with 32 ga. 1 inch diameter tin caps	Minimum 2 inches	8 inches oc in the lap, two staggered rows 8 inches oc	N/A	N/A	SA Cap or Awastar SA	C	2
											C	3
23	-80	4, 5, 8	Any combination, any thickness glass faced polyisocyanurate, polystyrene, cellular glass, wood fiber or perlite fully adhered in hot asphalt	One or more plies Type G1, G2, Type 15 or Type 30	Fully adhered in hot asphalt	N/A	N/A	N/A	Two or more layers Type G1, G2, Type 15 or Type 30 fully adhered in hot asphalt	One or more layers ³ Awaplan ³ , or flood coat and gravel, or cold applied coating	B ⁷	1/4 ⁸
											A	3 ¹⁰
											A A C	1 1/2 ¹⁰ 3 ¹³ 1/2
24	-45	4	N/A	Versa-Base	ES Products FM-60 Fastener with FM-30 Disc, or Olympic C-R Base Ply Fastener with 2.5 inch diameter galvanized steel plates	Minimum 2 inches	8 inches oc in the lap, two staggered rows 13 inches from each edge 16 inches oc	Optional, any combination, any thickness glass faced polyisocyanurate, polystyrene, cellular glass, wood fiber or perlite fully adhered in hot asphalt	Type G1 or Type 15 fully adhered in hot asphalt	One or more layers Awaplan fully adhered in hot asphalt, or Type G3 Tam-Cap in hot asphalt	C	1/2
											B	3 ^{8,15}

TABLE 1: NEW CONSTRUCTION or REROOF (Tear-Off) (continued)

SYSTEM NO.	ALLOWABLE UPLIFT CAPACITY ¹ (lbs/ft ²)	DECK	INSULATION/BARRIER	BASE SHEET/PLY SHEET	ATTACHMENT	Lap Width	Fastener Spacing	INSULATION	PLY SHEETS	ROOF COVER	FIRE RATING UL790/ASTM E108	
											Class	Maximum Incline
25	-45	5	N/A	Versa-Base	Simplex Tube Lok Fastener with 2.5 inch diameter, minimum 30 ga. galvanized steel plates	Minimum 2 inches	8 inches oc in the lap, two staggered rows 13 inches from each edge 16 inches oc	Optional, any combination, any thickness glass faced polyisocyanurate, polystyrene, cellular glass, wood fiber or perlite fully adhered in hot asphalt	Type G1 or Type 15 fully adhered in hot asphalt	One or more layers Awaplan fully adhered in hot asphalt, or	C	1/2 ¹⁴
										Type G3 Tam-Cap in hot asphalt		
26	-52.5	4	Any combination, any thickness faced polyisocyanurate, wood fiber or Dens Deck fully adhered in hot asphalt	One or more plies Type G1, G2, Versa-Base	Fully adhered in hot asphalt	N/A	N/A	N/A	N/A	One or more layers Awaplan fully adhered in hot asphalt	C	1/2
27 ¹⁷	-37.5 ¹³	2	Minimum 1" thick UL Classified polyisocyanurate roofing insulation with Tam-Pro 813 Asphalt Primer applied at .75 gallons per 100 square feet	SA Base	Self-adhered	Minimum 2 inches	N/A	N/A	Optional, one or more plies of Awabase SA or SA Base	SA Cap or Awastar SA	C	1/2
										SA Cap or Awastar SA	C	3
28 ¹⁷	-67.5	2	Minimum 1/2" UL Classified polyisocyanurate roofing insulation	Awa Nailbase	Mechanically fastened to deck	Minimum 2 inches	Fastened 8" o.c. in the lap and in 2 evenly staggered rows	N/A	Optional, one or more plies of Awabase SA or SA Base	SA Cap or Awastar SA	C	1/2
29 ¹⁷	-52.5	2	Minimum 1/2" UL Classified polyisocyanurate roofing insulation	Awa Nailbase, SA Base, or Awabase SA	Mechanically fastened to deck	Minimum 2 inches	Fastened 8" o.c. in the lap and in 2 evenly staggered rows	N/A	Optional, one or more plies of Awabase SA or SA Base	SA Cap or Awastar SA	C	1/2
											C	3

TABLE 1: NEW CONSTRUCTION or REROOF (Tear-Off) (continued)

SYSTEM NO.	ALLOWABLE UPLIFT CAPACITY ¹ (lbs/ft ²)	DECK	INSULATION/BARRIER	BASE SHEET/PLY SHEET	ATTACHMENT	Lap Width	Fastener Spacing	INSULATION	PLY SHEETS	ROOF COVER	FIRE RATING UL790/ASTM E108		
											Class	Maximum Incline	
30 ¹⁷	-52.5	1	Minimum 1" thick UL Classified polyisocyanurate roofing insulation	Awa Nailbase or Awabase SA	Mechanically fastened to deck	Minimum 2 inches	Fastened 12" o.c. in the lap and in 2 evenly staggered rows	N/A		Optional, one or more plies of Awabase SA or SA Base	SA Cap or Awastar SA	C C	½ 3
31 ¹⁷	-30	1	Minimum 1-½ inch thick UL Classified polyisocyanurate roofing insulation mechanically fastened with minimum 8 fasteners per 4'x8' board, followed by minimum ½ inch perlite roof insulation board fully adhered in hot asphalt	One or more plies Type G1, G2, Versa-Base, Type 15 or Type 30	Fully adhered in hot asphalt	Minimum 2 inches	N/A	N/A	N/A		One layer of Awaplan fully adhered in hot asphalt	C	½
32 ¹⁷	-45	1	Minimum 1-½ inch thick UL Classified polyisocyanurate roofing insulation mechanically fastened with minimum 10 fasteners per 4'x8' board, followed by minimum ½ inch perlite roof insulation board fully adhered in hot asphalt	One or more plies Type G1, G2, Versa-Base, Type 15 or Type 30	Fully adhered in hot asphalt	Minimum 2 inches	N/A	N/A	N/A		One layer of Awaplan fully adhered in hot asphalt	C	½
33 ¹⁷	-180	7	Minimum 1-½ inch thick UL Classified polyisocyanurate roofing insulation mechanically fastened in hot asphalt followed by minimum ½ inch perlite roof insulation board fully adhered in hot asphalt	One or more plies Type G1, G2, Versa-Base, Type 15 or Type 30	Fully adhered in hot asphalt	Minimum 2 inches	N/A	N/A	N/A		One layer of Awaplan fully adhered in hot asphalt	C	½
34 ¹⁷	-30	1, 7	Optional, UL Classified, minimum ¾ inch perlite or polyisocyanurate mechanically fastened at a rate of 1 fastener per 2 ft ²	One or more plies Type G1, G2, or Versa-Base	Fully adhered in hot asphalt	Minimum 2 inches	N/A	N/A	N/A		One layer of Awaplan fully adhered in hot asphalt	C	½
35 ¹⁷	-45	1, 7	Minimum 1 inch thick UL Classified perlite or wood fiber mechanically fastened at a rate of 1 fastener per 2 ft ²	One or more plies Type G1, G2, or Versa-Base	Fully adhered in hot asphalt	Minimum 2 inches	N/A	N/A	N/A		One layer of Awaplan fully adhered in hot asphalt	C	½

TABLE 1: NEW CONSTRUCTION or REROOF (Tear-Off) (continued)

SYSTEM NO.	ALLOWABLE UPLIFT CAPACITY ¹ (lbs/ft ²)	DECK	INSULATION/BARRIER	BASE SHEET/PLY SHEET	ATTACHMENT	Lap Width	Fastener Spacing	INSULATION	PLY SHEETS	ROOF COVER	FIRE RATING UL790/ASTM E108	
											Class	Maximum Incline
36 ¹⁷	-45	1, 7	Optional, UL Classified polyisocyanurate or perlite loose laid, followed by minimum 1 inch UL Classified perlite mechanically fastened at a rate of 1 fastener per 2 ft ²	One or more plies Type G1, G2, or Versa-Base	Fully adhered in hot asphalt	Minimum 2 inches	N/A	N/A	N/A	One layer of Awaplan fully adhered in hot asphalt	C	½
37 ¹⁷	-30	1	Minimum 1-½ inch UL Classified polyisocyanurate roofing insulation mechanically fastened at a rate of 1 fastener per 3 ft ² followed by minimum ¾ inch UL Classified perlite fully adhered in hot asphalt	One or more plies Type G1, G2, or Versa-Base	Fully adhered in hot asphalt	Minimum 2 inches	N/A	N/A	N/A	One layer of Awaplan fully adhered in hot asphalt	C	½
38 ¹⁷	-45	1	Minimum ½ inch UL Classified roofing insulation loose laid followed by minimum 1 inch wood fiber mechanically fastened at a rate of 1 fastener per 2 ft ²	One or more plies Type G1, G2, or Versa-Base	Fully adhered in hot asphalt	Minimum 2 inches	N/A	N/A	N/A	One layer of Awaplan fully adhered in hot asphalt	C	½
39 ¹⁷	-45	7	Minimum UL Classified ¾ inch perlite or 1 inch wood fiber fully adhered in hot asphalt	One or more plies Type G1, G2, or Versa-Base	Fully adhered in hot asphalt	Minimum 2 inches	N/A	N/A	N/A	One layer of Awaplan fully adhered in hot asphalt	C	½
40 ¹⁷	-382.5	7	Minimum ½ inch UL Classified high density wood fiber insulation fully adhered in hot asphalt over primed deck	One or more plies Type G1, G2, or Versa-Base	Fully adhered in hot asphalt	Minimum 2 inches	N/A	N/A	N/A	One layer of Awaplan fully adhered in hot asphalt	C	½
41 ¹⁷	-240	7	Minimum ½ inch UL Classified perlite insulation fully adhered in hot asphalt over primed deck	One or more plies Type G1, G2, or Versa-Base	Fully adhered in hot asphalt	Minimum 2 inches	N/A	N/A	N/A	One layer of Awaplan fully adhered in hot asphalt	C	½

TABLE 1: NEW CONSTRUCTION or REROOF (Tear-Off) (continued)

SYSTEM NO.	ALLOWABLE UPLIFT CAPACITY1 (lbs/ft ²)	DECK	INSULATION/BARRIER	BASE SHEET/PLY SHEET	ATTACHMENT	Lap Width	Fastener Spacing	INSULATION	PLY SHEETS	ROOF COVER	FIRE RATING UL790/ASTM E108	
											Class	Maximum Incline
42 ¹⁷	-67.5	1,7	Minimum 2 inch thick UL Classified polyisocyanurate roofing insulation mechanically fastened at a rate of 1 fastener per 1.45 ft ² followed by minimum ½ inch thick UL Classified perlite fully adhered in hot asphalt	One or more plies Type G1, G2, or Versa-Base	Fully adhered in hot asphalt	Minimum 2 inches	N/A	N/A	N/A	One layer of Awaplan fully adhered in hot asphalt	C	½
43 ¹⁷	-150	7	Minimum 1-½ inch UL Classified polyisocyanurate roofing insulation fully adhered in hot asphalt followed by minimum ½ inch UL Classified wood fiber fully adhered in hot asphalt over primed deck	One or more plies Type G1, G2, or Versa-Base	Fully adhered in hot asphalt	Minimum 2 inches	N/A	N/A	N/A	One layer of Awaplan fully adhered in hot asphalt	C	½
44 ¹⁷	-195	7	Minimum 1-½ inch UL Classified polyisocyanurate roofing insulation fully adhered in hot asphalt followed by minimum ½ inch UL Classified perlite fully adhered in hot asphalt over primed deck	One or more plies Type G1, G2, or Versa-Base	Fully adhered in hot asphalt	Minimum 2 inches	N/A	N/A	N/A	One layer of Awaplan fully adhered in hot asphalt	C	½
45 ¹⁷	-45	1, 2, 7	Minimum 1-½ inch UL Classified polyisocyanurate roofing insulation mechanically fastened at a rate of 1 fastener per 2 sq ft ² followed by minimum ¾ inch UL Classified perlite fully adhered in hot asphalt	One or more plies Type G1, G2, or Versa-Base	Fully adhered in hot asphalt	Minimum 2 inches	N/A	N/A	N/A	One layer of Awaplan fully adhered in hot asphalt	C	½
46 ¹⁷	-52.5	1	Minimum ¼" Georgia-Pacific DensDeck Prime mechanically fastened at a rate of 1 fastener per 1.6 ft ²	SA Base	Self-adhered	Minimum 2 inches	N/A	N/A	Optional, one or more plies of Awabase SA or SA Base	SA Cap or Awastar SA	C C	½ 3

TABLE 1: NEW CONSTRUCTION or REROOF (Tear-Off) (continued)

SYSTEM NO.	ALLOWABLE UPLIFT CAPACITY ¹ (lbs/ft ²)	DECK	INSULATION/BARRIER	BASE SHEET/PLY SHEET	ATTACHMENT	Lap Width	Fastener Spacing	INSULATION	PLY SHEETS	ROOF COVER	FIRE RATING UL790/ASTM E108	
											Class	Maximum Incline
47 ¹⁷	-60	2	Minimum ¼" Georgia-Pacific DensDeck Prime mechanically fastened at a rate of 1 fastener per 1.6 ft ²	SA Base	Self-adhered	Minimum 2 inches	N/A	N/A	Optional, one or more plies of Awabase SA or SA Base	SA Cap or Awastar SA	C C	½ 3
48 ¹⁷	-37.5	2	Structodeck HD Fiberboard Roof Insulation	Versa-Base or Awa Nailbase	Mechanically fastened at 6" oc at the lap and 6" oc in three equally spaced staggered rows in the field	Minimum 2 inches	N/A	Minimum ½" HD Fiberboard or Optional, one layer of isocyanurate insulation installed in hot asphalt	Versa-Base installed in hot asphalt	One layer of Awaplan fully adhered in hot asphalt	C	½
49 ¹⁷	-52.5	2	N/A	Versa-Base or Awa Nailbase	Mechanically fastened at 6" oc at the lap and 6" oc in three equally spaced staggered rows in the field	Minimum 2 inches	N/A	N/A	Optional, one or more plies of Versa-Base fully adhered in hot asphalt	One layer of Awaplan fully adhered in hot asphalt	C	½
50 ¹⁷	-75	2	Minimum 1" isocyanurate insulation loose laid	Versa-Base or Awa Nailbase	Mechanically fastened at 8" oc in the lap and 8" oc in two equally spaced rows in the field of the roof	Minimum 2 inches	N/A	N/A	Optional, one or more plies of Versa-Base fully adhered in hot asphalt	One layer of Awaplan fully adhered in hot asphalt	C	½

¹ Safety factor of 2 has been applied.

² Insulation optional for wood sheathing

³ Fully adhered in Tam-Pro CPA SBS at 1.5 gallons per 100 square feet or hot roofing asphalt at 23 pounds per 100 square feet

⁴ Fully adhered in hot roofing asphalt at 23 pounds per 100 square feet

⁵ Minimum Number 12-11 coated screws with minimum 3 inch plastic or minimum 2-7/8 inch diameter galvanized steel, or 3 inch square galvanized steel plates

⁶ May be substituted with minimum 1.8 inch composite polyisocyanurate-perlite

⁷ Requires surfacing to achieve rating

⁸ Combustible deck rating, ply sheet layer requires two plies. Combustible deck ratings may be applied to Non-combustible deck ratings.

⁹ Non-Combustible deck fire ratings -may not be applied to combustible deck fire ratings

¹⁰ Minimum 3 layers G1

¹¹ Minimum 1 layer G2

¹² Minimum 2 layers G2

¹³ Minimum 1 layer Type 15 or G2

¹⁴ Minimum 1 layer Type 15

¹⁵ Minimum 2 layer ply sheet

¹⁶ Requires gypsum board when Non-combustible rating is used.

¹⁷ Denotes 12x24 tested assembly

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