



**BUILDING CODE COMPLIANCE OFFICE (BCCO)
PRODUCT CONTROL DIVISION**

**MIAMI-DADE COUNTY, FLORIDA
METRO-DADE FLAGLER BUILDING
140 WEST FLAGLER STREET, SUITE 1603
MIAMI, FLORIDA 33130-1563
(305) 375-2901 FAX (305) 375-2908**

NOTICE OF ACCEPTANCE (NOA)

**Tamko Roofing Products, Inc.
220 W 4th St.
Joplin, MO 64801**

SCOPE:

This NOA is being issued under the applicable rules and regulations governing the use of construction materials. The documentation submitted has been reviewed by the BCCO and accepted by the Building Code and Product Review Committee to be used in Miami Dade County and other areas where allowed by the Authority Having Jurisdiction (AHJ).

This NOA shall not be valid after the expiration date stated below. The BCCO (In Miami Dade County) and/or the AHJ (in areas other than Miami Dade County) reserve the right to have this product or material tested for quality assurance purposes. If this product or material fails to perform in the accepted manner, the manufacturer will incur the expense of such testing and the AHJ may immediately revoke, modify, or suspend the use of such product or material within their jurisdiction. BCCO reserves the right to revoke this acceptance, if it is determined by BCCO that this product or material fails to meet the requirements of the applicable building code.

This product is approved as described herein, and has been designed to comply with the South Florida Building Code, 1994 Edition for Miami-Dade County or Florida Building Code.

DESCRIPTION: Conventional Built-Up Roof System- Concrete Deck

RENEWAL of this NOA shall be considered after a renewal application has been filed and there has been no change in the applicable building code negatively affecting the performance of this product.

TERMINATION of this NOA will occur after the expiration date or if there has been a revision or change in the materials, use, and/or manufacture of the product or process. Misuse of this NOA as an endorsement of any product, for sales, advertising or any other purposes shall automatically terminate this NOA. Failure to comply with any section of this NOA shall be cause for termination and removal of NOA.

ADVERTISEMENT: The NOA number preceded by the words Miami-Dade County, Florida, and followed by the expiration date may be displayed in advertising literature. If any portion of the NOA is displayed, then it shall be done in its entirety.

INSPECTION: A copy of this entire NOA 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 NOA consists of pages 1 through 19.
The submitted documentation was reviewed by Frank Zuloaga, RRC



**NOA No.: 01-0904.07
Expiration Date: 08/23/06
Approval Date: 12/20/01
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ROOFING SYSTEM APPROVAL

<u>Category:</u>	Roofing System
<u>Sub-Category:</u>	Built-up Roofing
<u>Deck Type:</u>	Concrete
<u>Material:</u>	Fiberglass
<u>Maximum Design Pressure:</u>	-232 psf
<u>Fire Classification</u>	See General Limitation #1

TABLE 1

TRADE NAMES OF PRODUCTS MANUFACTURED OR LABELED BY APPLICANT

<u>Product</u>	<u>Dimensions</u>	<u>Test Specification</u>	<u>Product Description</u>
Awaplan 170 FR	Roll weight: 98 lbs.; 33' 11" x 39 ³ / ₈ "	ASTM D 6164 Type I	A 180 g/m ² polyester reinforced SBS modified bitumen membrane surfaced with granules and treated for additional fire resistance. Applied in hot asphalt or cold adhesive.
Awaplan 170™	Roll weight: 98 lbs.; 33' 11" x 39 ³ / ₈ "	ASTM D 6164 Type I	A 180 g/m ² polyester reinforced SBS modified bitumen membrane surfaced with granules. Applied in hot asphalt or cold adhesive.
Awaplan Heat Welding™	Roll weight: 96 lbs.; 25' 5" x 39 ³ / ₈ "	ASTM D 6164 Type II	A 250 g/m ² polyester reinforced SBS modified bitumen membrane surfaced with granules. Applied by torch and also used as a walkway material.
Awaplan Premium FR™	Roll weight: 101 lbs.; 33' 11" x 39 ³ / ₈ "	ASTM D 6164 Type II	A 250 g/m ² polyester reinforced modified bitumen membrane surfaced with granules. Applied by hot asphalt and also used as a walkway material.
Awaplan Premium™	Roll weight: 101 lbs.; 33' 11" x 39 ³ / ₈ "	ASTM D 6164 Type II	A 250 g/m ² polyester reinforced SBS modified bitumen membrane surfaced with granules. Applied in hot asphalt or cold adhesive, and also used as a walkway material.
Awaflex	Roll weight: 76 lbs.; 35.9' x 36"	ASTM D 5147	SBS modified cap sheet constructed with a 155gm/m ² non- woven polyester mat saturated with asphalt, coated on both sides with SBS rubber modified asphalt and surfaced with ceramic granules for UV protection.
Awaflex FR	Roll weight: 76 lbs.; 35.9' x 36"	ASTM D 5147	SBS FR modified cap sheet constructed with a 155gm/m ² non- woven polyester mat saturated with asphalt, coated on both sides with SBS rubber modified asphalt, FR treated, and surfaced with ceramic granules for UV protection.
Awaplan Versa-Smooth	Roll weight: 100 lbs. 33' 11" x 39 ³ / ₈ "	ASTM D 6164 Type I	A 180 g/m ² polyester reinforced SBS modified bitumen membrane. Applied in hot asphalt, by torch, or mechanically fastened, as a base ply in 2 ply modified systems.



Awaplan Versa-Flex	Roll weight: 76 lbs.; 33' 11" x 39- 3/8"	ASTM D 6164 Type II	A 190 g/m ² nonwoven polyester reinforced SBS modified bitumen membrane. Applied in hot asphalt, as a base ply in 2 ply-modified systems.
Base-N-Ply®	Roll weight: 72 lbs.; 108' x 36"	ASTM D 4601 Type II	Type II asphalt impregnated and coated glass fiber base sheet for use in conventional and modified bitumen built-up roofing.
Glass-Base™	Roll weight: 72 lbs.; 108' x 36";	ASTM D 4601 Type II	Type II asphalt impregnated and coated glass fiber base sheet for use in conventional and modified bitumen built-up roofing.
Tam-Cap™	Roll weight: 83 lbs.; 36' x 36"	ASTM D 3909	Asphalt impregnated and coated felt surfaced with mineral granules used as the top ply in conventional built-up roof membranes.
Tam-Glass Premium™	Roll weight: 53 lbs.; 180' x 36"	ASTM D 2178 Type VI	Type VI asphalt impregnated glass felt for use in conventional and modified bitumen built-up roofing.
Tam-Ply IV™	Roll weight: 44 lbs.; 180' x 36"	ASTM D 2178 Type IV	Type IV asphalt impregnated glass felt for use in conventional and modified bitumen built-up roofing.
Type 43 Base Sheet	Roll weight: 85 lbs.; 72' x 36"	ASTM D 2626	An organic felt reinforced asphalt base sheet. Applied in hot asphalt or mechanically fastened.
Vapor-Chan™	Roll weight: 86 lbs.; 36' x 36"	ASTM D 4897 Type II	Heavy-duty fiberglass base sheet impregnated and coated on both sides with asphalt with or without a fine mineral stabilizer. Surfaced on the bottom side with coarse mineral granules embedded in hot asphaltic coating.
Versa-Base FR™	Roll weight: 60 lbs.; 54' x 36"	ASTM D 5147	Asphalt impregnated and coated glass fiber base sheet for use in conventional and modified bitumen built-up roofing.
Versa-Base™	Roll weight: 94 lbs.; 54' x 36"	ASTM D 6163 Type I	Asphalt impregnated and coated glass fiber base sheet for use in conventional and modified bitumen built-up roofing.
Versa-Cap FR™	Roll weight: 87 lbs.; 36' 4" x 36"	ASTM D 5147	A fiberglass reinforced, mineral surfaced, SBS modified bitumen top membrane.
Tam-Pro Fibered Emulsion	5 gallon	ASTM D 1227, type II	Protective coating.
Tam-Pro Primer	5 gallon	ASTM D 41	Asphalt based primer
Tam-Pro FR Aluminum Coating	5 gallons	ASTM D2824, type III	Flame retardant protective coating



TABLE 2
TRADE NAMES OF PRODUCTS MANUFACTURED BY OTHERS:

<u>Product</u>	<u>Dimensions</u>	<u>Description</u>	<u>Manufacturer</u>
AC Foam II	Various	Isocyanurate foam	Atlas Roofing Corp. (with current NOA)
AC Foam Composite	Various	Isocyanurate foam	Atlas Roofing Corp. (with current NOA)
Apache Pyrox	Various	Isocyanurate foam	Apache Products Co. (with current NOA)
Apache Nail-Line	Various	Isocyanurate foam	Apache Products Co. (with current NOA)
Armor Board Regular Fiberboard	Various	Wood Fiber Insulation	Honeywell International, Inc. (with current NOA)
ConPerl	Various	Expanded perlite mineral fiber	Conglas (with current NOA)
E'NRG'Y 2	Various	Isocyanurate foam	Johns Manville Corp. (with current NOA)
E'NRG'Y 2 Plus	Various	Isocyanurate foam	Johns Manville Corp. (with current NOA)
E'NRG'Y 2 Composite	Various	Isocyanurate foam	Johns Manville Corp. (with current NOA)
Esgard	Various	Regular or asphalt-coated wood fiber insulation	EMCO Ltd. (with current NOA)
Fesco Board	Various	Expanded mineral fiber	Johns Manville Corp. (with current NOA)
Fesco Foam	Various	Isocyanurate foam	Johns Manville Corp. (with current NOA)
Fiberglas	Various	Glass fiber insulation	Johns Manville Corp. (with current NOA)
Foamglas	Various	Expanded glass	Pittsburgh Corning Corp. (with current NOA)
GAFTEMP Fiberboard	Various	Regular wood fiber insulation	GAF Materials Corp. (with current NOA)
GAFTEMP Permalite	Various	Expanded mineral fiber	GAF Materials Corp. (with current NOA)
Huebert Fiberboard	Various	Regular wood fiber insulation	Huebert Fiberboard, Inc. (with current NOA)
ISO 95 +	Various	Isocyanurate foam	Firestone Building Products, Inc. (with current NOA)
ISO 95 + Composite	Various	Isocyanurate foam	Firestone Building Products, Inc. (with current NOA)
KOP-R Wood Fiber	Various	Isocyanurate foam	Koppers Industries, Inc. (with current NOA)
Multi-Max	Various	Isocyanurate foam	Rmax, Inc. (with current NOA)
Multi-Max FA	Various	Isocyanurate foam	Rmax, Inc. (with current NOA)



<u>Product</u>	<u>Dimensions</u>	<u>Description</u>	<u>Manufacturer</u>
PSI-25	Various	Isocyanurate foam	Johns Manville Corp. (with current NOA)
Structodeck	Various	Regular wood fiber insulation	Mansonite (with current NOA)
Structodeck FS	Various	Regular wood fiber recovery board	Mansonite (with current NOA)

TABLE 3

APPROVED FASTENERS

<u>Product</u>	<u>Description</u>	<u>Dimensions</u>	<u>Manufacturer</u>
Anchorbond	Carbon Steel, Senti (black)	Various	The Celotex Corp. (with current NOA)
King-Con	Carbon Steel, SPEX (blue, gray) or Climaseal (blue)	0.222 in. (5.6mm) dia. shank with a fluted drive tip 12 in. (305mm) max. length	ITW Buildex Corp. (with current NOA)
GAFTITE S/P	Carbon Steel, anticorrosion coating (black)	# 14 dia. by 12 in. (305mm) max. length	GAF Materials Corp. (with current NOA)
Olympic S/P	Stainless Steel, CR-10 Coating (black)	#12 Standard or # 14 Heavy Duty: #12 Standard - 1 ⁵ / ₈ to 8in. (4.1 to 20.3 cm); #14 Heavy Duty – 1 ¹ / ₄ to 14 in. (3.2 to 35.6cm)	Olympic Fasteners (with current NOA)
Olympic/G2 Plate	Carbon Steel, CR-10 or Answer Coating (black)	#12 Standard or #14 Heavy Duty : #12 Standard – 1 ⁵ / ₈ to 8 in (4.1 to 20.3 cm)	Olympic Fasteners (with current NOA)

EVIDENCE SUBMITTED

<u>Test Agency/Identifier</u>	<u>Name</u>	<u>Report</u>	<u>Date</u>
Factory Mutual Research Corporation	Class 1 Fire; 1-90 Windstorm Classification	J.I. 0Q8A7.AM	10.04.90
	Class 1 Fire; 1-90 Windstorm Classification	J.I. 1X1A5.AM	07.19.93
	Class 1 Fire; 1-90 Windstorm Classification	J.I. 2TOA2.AM	01.21.91
	Class 1 Fire; 1-90 Windstorm Classification	J.I. 0R9A6.AM	01.02.90
	Comparative Rupture Testing Class 1 Fire	J.I. 4D0A7.AM J.I. 0Z4A3.AM	10.21.98 08.27.97
	Class 1 Fire; 1-90 Windstorm Classification	J.I. 1D4A7.AM	10.20.97



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EVIDENCE SUBMITTED

<u>Test Agency/Identifier</u>	<u>Name</u>	<u>Report</u>	<u>Date</u>
Factory Mutual Research Corporation	Class 1 Fire; 1-90 Windstorm Classification	J.I. 3B5A9.AM	08.27.97
Underwriters Laboratories, Inc.	Fire Classification -- see current directory	R3225	Published Annually
Dynatech Engineering Corporation	Wind Uplift Resistance	R3225-1 through 13	02.17.94
Exterior Research & Design, LLC.	Wind Uplift Testing	4440.05.95-2	05.01.95
	Wind Uplift Testing	4440.05.95-1	05.01.95
	Wind Uplift Testing	4444.06.98-1	06.15.98



SYSTEMS

Deck Type 3I: Concrete Decks, Insulated, New Construction

Deck Description: 2500 psi structural concrete or concrete plank

System Type A: One or more layers of insulation adhered with approved asphalt.

All General and System Limitations apply.

<u>Insulation Layer</u>	<u>Fastener Density ft²</u>	<u>Fastener Type</u>
One or more layers of any of the following insulations:		
AC-Foam II, E'NRG'Y 2, E'NRG'Y 2 Plus, E'NRG'Y 2 Composite, ISO 95+, ISO 95+ Composite, AC-Foam Composite, Pyrox, Multi-Max FA, Foamglas Minimum: 1" thick	N/A	N/A
ConPerl, GAFTEMP Permalite, Fesco Board, Structodek FS Minimum: ½"thick	N/A	N/A
Fiberglas Minimum: 15/16" thick	N/A	N/A

Note: Concrete deck shall be primed with ASTM D 41 asphalt primer and allowed to dry prior to application of base sheet. All insulation shall be adhered to the deck in full mopping of approved asphalt within the EVT range and at a rate of 20-40 lbs./100 ft². Please refer to Roofing Application Standard RAS 117 for insulation attachment. Insulation listed as base layer only shall be used only as base layers with a second layer of approved top layer insulation installed as the final membrane substrate. Composite insulation panels used as a top layer shall be placed with the polyisocyanurate side facing down

Base Sheet: (Optional) Install one ply of Type 43 coated base sheet, Glass-Base, Tam-Ply IV, Tam-Glass Premium® or Base-N-Ply® base sheet directly to the insulated substrate. Adhere in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq., or spot mopped as detailed in this approval; see General Limitation #4. If base sheet is adhered directly to Polyisocyanurte insulation only a spot or strip mopped application as detailed in this approval is approved; see General Limitation #4.

Note: Type 43-coated base sheet cannot be spot mopped.

Ply Sheet: Two, three or four plies of Tam-Glass Premium®, or Tam-Ply IV ply sheet adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.

Cap Sheet: (Optional) One ply of Tam-Cap® adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.



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Surfacing:

(Required if no cap sheet is used) Install one of the following:

1. 1-1½ gallons fibered aluminum coating per square (Tam-Pro FR Aluminum Roof Coating), 3 gallons emulsion roof coating per square, or asphalt surface at an application rate of 20-25 lbs./sq.. Coatings shall be applied according to the manufacturers' recommendations regarding specific application rates and weathering.
2. Flood coat with an application rate of 60 lbs./sq.; plus gravel or slag with an application rate of 400 or 300 lbs./sq. respectively.

Maximum Design Pressure:

-165 psf (for minimum 1.5” thick Approved polyisocyanurate followed by minimum ¾” thick approved Perlite applied in hot asphalt.)
(See General Limitation #9)

-230 psf (for minimum 1.5” thick Approved polyisocyanurate followed by minimum ¼” thick Dens Deck or minimum ½” Approved High Density Wood Fiberboard applied in hot asphalt.) (See General Limitation #9)

-147 psf (for minimum 1.5” thick Approved polyisocyanurate followed by minimum ½” thick Approved Regular Density Wood Fiberboard applied in hot asphalt.) (See General Limitation #9)

-200 psf (for minimum 1.5” thick ACFoam II Composite or E’NRG’Y-2 Composite applied in hot asphalt.) (See General Limitation #9)

-230 psf (for minimum ¼” thick Dens Deck applied in hot asphalt with no underlying insulation.) (See General Limitation #9)

-45 psf (for all other applications) (See General Limitation #9)



Deck Type 3I: Concrete Decks, Insulated, New Construction

Deck Description: 2500 psi structural concrete or concrete plank

System Type B(1): Optional base sheet adhered with approved asphalt; base insulation layer mechanically fastened, optional top layer adhered with approved asphalt.

All General and System Limitations apply.

<u>Insulation Base Layer</u>	<u>Fastener Density ft²</u>	<u>Fastener Type</u>
Apache Pyrox, White Line, UltraGard Gold Minimum: 1.3" thick	1:2.67	See Any Approved Fasteners in Table 3
Apache Nail-Line, ISORoc Minimum: 1.5" thick	1:2.67	See Any Approved Fasteners in Table 3
E'NRG'Y 2, Iso 95 + Minimum: 1.4" thick	1:3	See Any Approved Fasteners in Table 3
E'NRG'Y 2 Plus Minimum: 1.5" thick	1:4	See Any Approved Fasteners in Table 3
Multi-Max Minimum: 1.5" thick	1:2.9	See Any Approved Fasteners in Table 3
Isotherm 'R' Minimum: 1.3" thick	1:3	See Any Approved Fasteners in Table 3
High Density Wood Fiber Minimum: ½" thick	1:4	See Any Approved Fasteners in Table 3
Fiberglas Minimum: ¾" thick	1:2.67	See Any Approved Fasteners in Table 3
Celotherm, ConPerl, GAFTEMP Permalite, Fesco Board Minimum: ½" thick	1:2	See Any Approved Fasteners in Table 3
Foamglas Minimum: 1 ½" thick	1:4	See Any Approved Fasteners in Table 3

Note: Base layer shall be mechanically attached with fasteners and density described above. Insulation panels listed are minimum sizes and dimensions; if larger panels are used the number of fasteners per board shall be increased maintaining the same fastener density. See Roofing Application Standard RAS 117 for fastening details.

<u>Insulation Top Layer</u>	<u>Fastener Density ft²</u>	<u>Fastener Type</u>
Any of the approved insulations listed for Base Layer, above.		



Note: Apply top layer of insulation in a full mopping of any approved mopping hot asphalt within the EVT range and at a rate of 20-40 lbs./100 ft². Please refer to Roofing Application Standard RAS 117 for insulation attachment. Insulations listed as Base Layer only shall be used only as base layers with a second layer of approved top layer insulation installed as the final membrane substrate. Composite insulation panels may be used as a top layer placed with the polyisocyanurate side facing down.

Base Sheet: (Optional) Install one ply of Type 43 coated base sheet, Glass-Base, Tam-Ply IV, Tam-Glass Premium® or Base-N-Ply® base sheet directly to the insulated substrate. Adhere in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq. If base sheet is applied directly to polyisocyanurate insulation only a spot or strip mopped application as detailed in this approval is approved; see General Limitation #4.

Note: Type 43-coated base sheet cannot be spot mopped.

Ply Sheet: Two, three or four plies of Tam-Glass Premium ® or Tam-Ply IV ply sheet adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.

Cap Sheet: (Optional) One ply of Tam-Cap® adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq. (See Tamko application instructions for method of installation).

Surfacing: (Required if no cap sheet is used) Install one of the following:

1. 1-1½ gallons fibered aluminum coating per square (Tam-Pro FR Aluminum Roof Coating), 3 gallons emulsion roof coating per square, or asphalt surface at an application rate of 20-25 lbs./sq.. Coatings shall be applied according to the manufacturers' recommendations regarding specific application rates and weathering.
2. Flood coat with an application rate of 60 lbs./sq.; plus gravel or slag with an application rate of 400 or 300 lbs./sq. respectively.

Maximum Design Pressure: -45 psf (See General Limitation #9.)



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Deck Description: 2500 psi structural concrete or concrete plank

System Type B(2): Base layer of insulation mechanically fastened; top layer adhered with approved asphalt.

All General and System Limitations apply.

<u>Insulation Base Layer</u>	<u>Fastener Density ft²</u>	<u>Fastener Type</u>
ACFoam II, E'NRG'Y-2, PSI-25 Minimum: 1.5" thick	1:1.33	See Any Approved Fasteners in Table 3

Note: Base layer shall be mechanically attached with fasteners and density described above. Insulation panels listed are minimum sizes and dimensions; if larger panels are used the number of fasteners per board shall be increased maintaining the same fastener density (See Roofing Application Standard RAS 117 for fastening details).

<u>Insulation Top Layer</u>	<u>Fastener Density ft²</u>	<u>Fastener Type</u>
High Density Wood Fiberboard Minimum: ½" thick	N/A	N/A

Note: Apply top layer of insulation in a full mopping of any approved mopping asphalt within the EVT range and at a rate of 20-40 lbs./ 100 ft². Please refer to Roofing Application Standard RAS 117 for insulation attachment. Insulations listed as Base Layer only shall be used only as base layers with a second layer of approved top layer insulation installed as the final membrane substrate. Composite insulation panels may be used as a top layer placed with the polyisocyanurate side facing down.

Base Sheet: (Optional) Install one ply of Type 43 coated base sheet, Glass-Base, Tam-Ply IV, Tam-Glass Premium® or Base-N-Ply® base sheet directly to the insulated substrate. Adhere in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq. If base sheet is applied directly to polyisocyanurate insulation only a spot or strip mopped application as detailed in this approval is approved; see General Limitation #4.

Note: Type 43 coated base sheet cannot be spot mopped.

Ply Sheet: Two, three or four plies of Tam-Glass Premium® or Tam-Ply IV ply sheet adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.

Cap Sheet: (Optional) One ply of Tam-Cap® adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq. (See Tamko application instructions for method of installation).

Surfacing: (Required if no cap sheet is used) Install one of the following:



1. 1-1½ gallons fibered aluminum coating per square (Tam-Pro FR Aluminum Roof Coating), 3 gallons emulsion roof coating per square, or asphalt surface at an application rate of 20-25 lbs./sq.. Coatings shall be applied according to the manufacturers' recommendations regarding specific application rates and weathering.
2. Flood coat with an application rate of 60 lbs./sq.; plus gravel or slag with an application rate of 400 or 300 lbs./sq. respectively.

Maximum Design Pressure: **-75 psf** (See General Limitation #7.)



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Deck Type 3I: Concrete Decks, Insulated, New Construction

Deck Description: 2500 psi structural concrete or concrete plank

System Type C: Optional base sheet adhered with approved asphalt; one or more layers of insulation simultaneously fastened.

All General and System Limitations apply.

<u>Insulation Base Layer</u>	<u>Fastener Density ft²</u>	<u>Fastener Type</u>
AC-Foam II, Isotherm R, Hy-Therm Minimum: 1.3" thick	N/A	N/A
E'NRG'Y 2, Iso 95+, Iso 95+ Composite Minimum: 1.4" thick	N/A	N/A
ISO Roc, Fesco Foam, AC Foam Composite, E'NRG'Y 2 Plus, Multi-Max FA, Foamglas Minimum: 1.5" thick	N/A	N/A
E'NRG'Y 2 Composite Minimum: 1.25" thick	N/A	N/A
Celotherm, ConPerl, GAFTEMP Permalite, Fesco Board, High Density Wood Fiber Minimum: ½" thick	N/A	N/A

Note: Both layers shall be simultaneously attached; see top layer below for fasteners and density.

<u>Insulation Top Layer</u>	<u>Fastener Density ft²</u>	<u>Fastener Type</u>
Apache/Hy-Therm Pyrox, AP, White Line, ISORoc, UltraGard Gold, Isotherm 'R' Minimum: 1.3" thick	1:2.67	See Any Approved Fasteners in Table 3
Apache/Hy-Therm Nail-Line Minimum: 1.5" thick	1:2.67	See Any Approved Fasteners in Table 3
E'NRG'Y 2, Iso 95 + Minimum: 1.4" thick	1:3	See Any Approved Fasteners in Table 3
E'NRG'Y 2 Plus Minimum: 1.5" thick	1:4	See Any Approved Fasteners in Table 3
Multi-Max Minimum: 1.5" thick	1:2.9	See Any Approved Fasteners in Table 3
High Density Wood Fiber Minimum: ½" thick	1:4	See Any Approved Fasteners in Table 3



Fiberglas

Minimum: ¾" thick

1:2.67

See Any Approved Fasteners in Table 3

Celotherm, ConPerl, GAFTEMP Permalite, Fesco Board

Minimum: ½" thick

1:2

See Any Approved Fasteners in Table 3

Foamglas

Minimum: 1 ½" thick

1:4

See Any Approved Fasteners in Table 3

Note: All layers of insulation shall be mechanically attached using the fastener density listed above. The insulation panels listed are minimum sizes and dimensions; if larger panels are used, the number of fasteners shall be increased maintaining the same fastener density. Insulation fasteners shall be tested for withdrawal resistance in compliance with TAS 105 to confirm compliance with the wind load requirements. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Base Sheet:

(Optional) Install one ply of Type 43 coated base sheet, Glass-Base™, Tam-Ply IV, Tam-Glass Premium® or Base-N-Ply® base sheet directly to the insulated substrate. Adhere in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq. If base sheet is applied directly to Polyisocyanurte insulation only a spot or strip mopped application as detailed in this approval is approved; see General Limitation #4.

Note:

Type 43 coated base sheet cannot be spot mopped.

Ply Sheet:

Two, three or four plies of Tam-Glass Premium® or Tam-Ply IV ply sheet adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.

Cap Sheet:

(Optional) One ply of Tam-Cap® adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq. (See Tamko application instructions for method of installation).

Surfacing:

(Required if no cap sheet is used) Install one of the following:

1. 1-1½ gallons fibered aluminum coating per square (Tam-Pro FR Aluminum Roof Coating), 3 gallons emulsion roof coating per square, or asphalt surface at an application rate of 20-25 lbs./sq.. Coatings shall be applied according to the manufacturers' recommendations regarding specific application rates and weathering
2. Flood coat with an application rate of 60 lbs./sq.; plus gravel or slag with an application rate of 400 or 300 lbs./sq. respectively.

Maximum Design Pressure:

-45 psf (See General Limitation #9.)



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Deck Type 3I: Concrete Decks, Insulated, New Construction

Deck Description: 2500 psi structural concrete or concrete plank

System Type D: Base sheet attached over insulation.

All General and System Limitations apply.

<u>Insulation Layer</u>	<u>Fastener Density ft²</u>	<u>Fastener Type</u>
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One or more layers of any of the following insulations adhered to deck:

ACFoam II, Hy-Therm White Line

Minimum: 1.2" thick	N/A	N/A
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E"NRG"Y-2, PSI-25

Minimum: 1.4" thick	N/A	N/A
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UltraGard Gold

Minimum: 1.3" thick	N/A	N/A
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Celotherm, ConPerl, GAFTEMP Permalite, Fesco Board

Minimum: ¾" thick	N/A	N/A
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Armor Board Regular, Esgard, Fiberboard, GAFTEMP Fiberboard, Huebert Fiberboard, Kop-R Wood Fiber, Structodek

Minimum: ½ thick	N/A	N/A
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Note: Top layer shall have preliminary attachment, prior to the installation of the base/anchor sheet, at an application rate of two fasteners per board for insulation boards having no dimension greater than 4 ft., and four fasteners for any insulation board having no dimension greater than 8 ft. All layers of insulation and base sheet shall be simultaneously fastened. See base/anchor sheet below for fasteners and density.

Base Sheet: One ply of Tamko Glass-Base, Vapor-Chan or Base-N-Ply fastened to the deck as described in Option #1 or #2, below, or One ply of Tamko Awaplan Versa-Smooth fastened to the deck as described in Option #3, below.

Fastening: (Option #1) Attach anchor sheet using CF #14 OR #15 Dekfast Fasteners with CF Hex Plates spaced 12" o.c. in a 4" lap and 12" o.c. in two staggered rows in the center of the sheet.
(Option #2) Attach anchor sheet using, or Buildex #14 OR #15 Roofgrip Fasteners and 3" Square Plates spaced 12" o.c. in a 4" lap and 12" o.c. in two staggered rows in the center of the sheet.
(Option #3 – Awaplan Versa-Smooth only) Attach anchor sheet using Buildex #14 or #15 Roofgrip Fasteners and 3" Square Plates spaced 12" o.c. in a 4" lap and 12" o.c. in two staggered rows in the center of the sheet.



Ply Sheet: Two, three or four plies of Tam-Glass Premium® or Tam-Ply IV ply sheet adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.

Cap Sheet: (Optional) One ply of Tam-Cap® adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq. (See Tamko application instructions for method of installation).

Surfacing: (Required if no cap sheet is used) Install one of the following:

1. 1-1½ gallons fibered aluminum coating per square (Tam-Pro FR Aluminum Roof Coating), 3 gallons emulsion roof coating per square, or asphalt surface at an application rate of 20-25 lbs./sq.. Coatings shall be applied according to the manufacturers' recommendations regarding specific application rates and weathering.
2. Flood coat with an application rate of 60 lbs./sq.; plus gravel or slag with an application rate of 400 or 300 lbs./sq. respectively.

Maximum Design Pressure: -120.0 psf (See General Limitation #7.)



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Deck Type 3: Concrete Decks, Non-insulated, New Construction

Deck Description: 2500 psi structural concrete or concrete plank

System Type F(1): Base sheet adhered with approved asphalt.

All General and System Limitations apply.

Note: Concrete deck shall be primed with ASTM D 41 asphalt primer and allowed to dry prior to application of base sheet. All insulation shall be adhered to the deck in full mopping of approved asphalt within the EVT range and at a rate of 20-40 lbs./100 ft². Please refer to Roofing Application Standard RAS 117 for insulation attachment. Insulation listed as base layer only shall be used only as base layers with a second layer of approved top layer insulation installed as the final membrane substrate. Composite insulation panels used as a top layer shall be placed with the polyisocyanurate side facing down

Base Sheet: Install one ply of Vapor-Chan® venting base sheet directly to the concrete substrate. Adhere in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.

Ply Sheet: Two or more plies of Tam-Glass Premium® or Tam-Ply IV ply sheet adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.

Cap Sheet: (Optional) One ply of Tam-Cap® adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.. (See Tamko application instructions for method of installation).

Surfacing: (Required if no cap sheet is used) Install one of the following:

1. 1-1½ gallons fibered aluminum coating per square (Tam-Pro FR Aluminum Roof Coating), 3 gallons emulsion roof coating per square, or asphalt surface at an application rate of 20-25 lbs./sq.. Coatings shall be applied according to the manufacturers' recommendations regarding specific application rates and weathering.
2. Flood coat with an application rate of 60 lbs./sq.; plus gravel or slag with an application rate of 400 or 300 lbs./sq. respectively.

Maximum Design Pressure: -232 psf (See General Limitation #9)



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Deck Type 3: Concrete Decks, Non-insulated, New Construction

Deck Description: 2500 psi structural concrete or concrete plank

System Type F(2): Base sheet spot adhered with approved asphalt.

All General and System Limitations apply.

Note: Concrete deck shall be primed with ASTM D 41 asphalt primer and allowed to dry prior to application of base sheet. All insulation shall be adhered to the deck in full mopping of approved asphalt within the EVT range and at a rate of 20-40 lbs./100 ft². Please refer to Roofing Application Standard RAS 117 for insulation attachment. Insulation listed as base layer only shall be used only as base layers with a second layer of approved top layer insulation installed as the final membrane substrate. Composite insulation panels used as a top layer shall be placed with the polyisocyanurate side facing down

Base Sheet: One ply of one of Vapor-Chan® venting base sheet adhered directly to the deck in a spot mopping of ASTM D 312, type III or type IV asphalt, 12" diameter circles, 24" o.c. at a rate of 12 lbs./sq.

Ply Sheet: Two or more plies of Tam-Glass Premium® or Tam-Ply IV adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq.

Cap Sheet: (Optional) One ply of Tam-Cap® adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq. (See Tamko application instructions for method of installation).

Surfacing: (Required if no cap sheet is used) Install one of the following:

1. 1-1½ gallons fibered aluminum coating per square (Tam-Pro FR Aluminum Roof Coating), 3 gallons emulsion roof coating per square, or asphalt surface at an application rate of 20-25 lbs./sq. Coatings shall be applied according to the manufacturers' recommendations regarding specific application rates and weathering.
2. Flood coat with an application rate of 60 lbs./sq.; plus gravel or slag with an application rate of 400 or 300 lbs./sq. respectively.

Maximum Design Pressure: -45 psf (See General Limitation #9)



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CONCRETE DECK SYSTEM LIMITATIONS:

1. If mechanical attachment to the structural deck through the lightweight insulating concrete is proposed, a field withdrawal resistance testing shall be performed to determine fastener patterns and density. All testing and fastening design shall be in compliance with Testing Application Standard TAS 105 and Roofing Application Standard RAS 117, calculations shall be signed and sealed by a Florida registered Professional Engineer, Registered Architect, or Registered Roof Consultant.

GENERAL LIMITATIONS:

1. Fire classification is not part of this acceptance, refer to a current Approved Roofing Materials Directory for fire ratings of this product.
2. Insulation may be installed in multiple layers. The first layer shall be attached in compliance with Product Control Approval guidelines. All other layers shall be adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq., or mechanically attached using the fastening pattern of the top layer
3. All standard panel sizes are acceptable for mechanical attachment. When applied in approved asphalt, panel size shall be 4' x 4' maximum.
4. An overlay and/or recovery board insulation panel is required on all applications over closed cell foam insulations when the base sheet is fully mopped. If no recovery board is used the base sheet shall be applied using spot mopping with approved asphalt, 12" diameter circles, 24" o.c.; or strip mopped 8" ribbons in three rows, one at each sidelap and one down the center of the sheet allowing a continuous area of ventilation. Encircling of the strips is not acceptable. A 6" break shall be placed every 12' in each ribbon to allow cross ventilation. Asphalt application of either system shall be at a minimum rate of 12 lbs./sq. **Note: Spot attached systems shall be limited to a maximum design pressure of -45 psf.**
5. Fastener spacing for insulation attachment is based on a Minimum Characteristic Force (F') value of 275 lbf., as tested in compliance with Testing Application Standard TAS 105. If the fastener value, as field-tested, are below 275 lbf. insulation attachment shall not be acceptable.
6. Fastener spacing for mechanical attachment of anchor/base sheet or membrane attachment is based on a minimum fastener resistance value in conjunction with the maximum design value listed within a specific system. Should the fastener resistance be less than that required, as determined by the Building Official, a revised fastener spacing, prepared, signed and sealed by a Florida registered Professional Engineer, Registered Architect, or Registered Roof Consultant may be submitted. Said revised fastener spacing shall utilize the withdrawal resistance value taken from Testing Application Standards TAS 105 and calculations in compliance with Roofing Application Standard RAS 117.
7. Perimeter and corner areas shall comply with the enhanced uplift pressure requirements of these areas. Fastener densities shall be increased for both insulation and base sheet as calculated in compliance with Roofing Application Standard RAS 117. Calculations prepared, signed and sealed by a Florida registered Professional Engineer, Registered Architect, or Registered Roof Consultant **(When this limitation is specifically referred within this NOA, General Limitation #9 will not be applicable.)**
8. All attachment and sizing of perimeter nailers, metal profile, and/or flashing termination designs shall conform with Roofing Application Standard RAS 111 and applicable wind load requirements.
9. The maximum designed pressure limitation listed shall be applicable to all roof pressure zones (i.e. field, perimeters, and corners). Neither rational analysis, nor extrapolation shall be permitted for enhanced fastening at enhanced pressure zones (i.e. perimeters, extended corners and corners). **(When this limitation is specifically referred within this NOA, General Limitation #7 will not be applicable.)**

END OF THIS ACCEPTANCE



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