



NEMO EVALUATION REPORT (NER)



SAINT-GOBAIN

CertainTeed, LLC

20 Moores Road
Malvern, PA 19355
(610) 893-5400

SUBJECT: CertainTeed Roof Underlayments

SCOPE:	This NEMO Evaluation Report (henceforth 'NER') is issued under F.A.C. Rule 61G20-3 and the applicable rules and regulations governing Product Approval of construction materials in the State of Florida and ISO/IEC 17065 via NEMO cert . NEMO Evaluations has evaluated the product described herein for compliance with the Code sections noted herein .
CODE:	2023 Florida Building Code, 8 th Edition 2023 Florida Building Code, Residential, 8 th Edition
JURISDICTION:	Non-HVHZ and HVHZ
NEMO CATEGORY:	Steep-Slope
FBC CATEGORY:	Roofing
FBC SUB-CATEGORY:	Underlayments
CSI DIVISION:	07 00 00 Thermal and Moisture Protection 07 30 05 Roofing Felt and Underlayment
METHOD:	Method 1, Option C – Codified Material, Evaluation by Evaluation Entity
COMPLIANCE STATEMENT:	CertainTeed Roof Underlayments , as produced by CertainTeed, LLC , have demonstrated compliance with the Code sections noted herein through testing in accordance with the referenced Standards, rational analysis and an ongoing quality assurance program. Compliance is subject to the Installation Requirements and Limitations of Use set forth herein.
QUALITY ASSURANCE:	Evidence of current quality assurance shall be listing and labeling in accordance with the requirements of NEMO cert .
CONTINUED COMPLIANCE:	This NER is valid until such time the named product(s) change, the referenced Quality Assurance changes, or the evaluated Code provisions change. NEMO Evaluations require, at minimum, a complete review of this NER with each 3-year Code Cycle.
BUILDING PERMIT REQUIREMENTS:	As required by the Building Official or Authority Having Jurisdiction to evaluate the installation of this product.
ADVERTISEMENT:	"NEMO Evaluated" may be displayed in advertising literature. If any portion of the NER is displayed, it shall be displayed in its entirety.
CERTIFICATION OF INDEPENDENCE:	✓ Neither NEMO ETC, LLC nor NEMO CERT, LLC have, nor do they intend to acquire or will they acquire, a financial interest in any company manufacturing or distributing products it evaluates. ✓ Neither NEMO ETC, LLC nor NEMO CERT, LLC are owned, operated or controlled by any company manufacturing or distributing products it evaluates. ✓ This is a building code evaluation. Neither NEMO ETC, LLC nor NEMO CERT, LLC are, in any way, the Designer of Record for any project on which this NER, or previous versions thereof, is/was used for permitting or design guidance.



1. CODES, PROPERTIES AND STANDARDS:

CODE	SECTION	PROPERTY	STANDARD
2023 Florida Building Code, 8 th Edition	1504.2.1.4	Wind resistance	UL 1897
	1507.1.1, 1507.2.9.2, 1507.2.9.3, 1518.2, TAS 110	Material standard	ASTM D1970
	1507.3.3	Material standard	FRSA/TRI Manual
	1507.10.2, TAS 110	Material standard	ASTM D4601
	1507.11.2, TAS 110	Material standard	ASTM D6163
	1507.11.2, TAS 110	Material standard	ASTM D6164
	1507.11.2, TAS 110	Material standard	ASTM D6222
	1523.6.5.2.1, TAS 110	Material standard	TAS 103
	TAS 110	Accelerated Weathering	ASTM D4798
2023 Florida Building Code, Residential, 8 th Edition	R905.1.1, R905.2.8.2, R905.2.8.5	Material standard	ASTM D1970
	R905.3.3	Material standard	FRSA/TRI Manual
	R905.11.2	Material standard	ASTM D6163
	R905.11.2	Material standard	ASTM D6164
	R905.11.2	Material standard	ASTM D6222

2. PRODUCTS:

TABLE 1: EVALUATED UNDERLAYMENTS

PRODUCT ¹	MATERIAL STANDARD	MFG. LOCATION(S) ²	DESCRIPTION
MetaLayment®	ASTM D1970	ML1	Self-adhering, glass-mat reinforced, film-surfaced, SBS modified bitumen roof underlayment
WinterGuard® Granular	ASTM D1970	ML2	Self-adhering, glass-mat reinforced, granule-surfaced, SBS modified bitumen roof underlayment
WinterGuard® HT	ASTM D1970	ML1	Self-adhering, glass-scrim reinforced, film-surfaced, SBS modified bitumen roof underlayment
WinterGuard® Sand	ASTM D1970	ML2	Self-adhering, glass-mat reinforced, sand-surfaced, SBS modified bitumen roof underlayment
Black Diamond® Base Sheet*	ASTM D1970	ML2	Heat-activated, self-adhering, glass-mat reinforced, slag-surfaced, SBS modified bitumen roof underlayment or base ply membrane
All Weather/Empire® Base Sheet*	ASTM D4601	ML1	Mechanically attached, glass-mat reinforced, mineral-surfaced, SBS modified bitumen base sheet for use in multi-ply underlayment systems
Glasbase™ Base Sheet*	ASTM D4601	ML3, ML4	Mechanically attached, glass-mat reinforced, mineral-surfaced, asphaltic base sheet for use in multi-ply underlayment systems
Flintlastic® SA NailBase*	ASTM D4601	ML1	Mechanically attached, glass-mat reinforced, film-surfaced, SBS modified bitumen base sheet for use in multi-ply underlayment systems
Flintlastic® SA MidPly*	ASTM D6163	ML1	Self-adhering, glass-mat reinforced, film-surfaced, SBS modified bitumen base ply membrane for use in multi-ply underlayment systems
Flintlastic® SA PlyBase*	ASTM D1970	ML1	Self-adhering, glass-mat reinforced, film-surfaced, SBS modified bitumen base ply membrane for use in multi-ply underlayment systems
Flintlastic® Ultra Glass SA*	ASTM D6163	ML1	Self-adhering, glass-mat reinforced, mineral-surfaced, SBS modified bitumen base ply membrane for use in multi-ply underlayment systems
Flintlastic® SA Cap FR*	ASTM D6163	ML1	Self-adhering, glass-mat reinforced, granule-surfaced, SBS modified bitumen cap ply membrane for use in multi-ply underlayment systems

¹ Products marked with an asterisk* are NEMO Certified. Consult [Directory of Certified Products](#).

² Building officials, Designers of Record and other Authorities Having Jurisdiction may contact contact@nemocert.com to obtain manufacturing location information for products evaluated herein.



TABLE 1: EVALUATED UNDERLAYMENTS

PRODUCT ¹	MATERIAL STANDARD	MFG. LOCATION(S) ²	DESCRIPTION
Flintlastic® SA Cap	ASTM D1970 ASTM D6164 TAS 103	ML1	Self-adhering, polyester reinforced, granule-surfaced, SBS modified bitumen cap ply membrane for use in multi-ply underlayment systems
Flintlastic® GMS	ASTM D6164	ML1	Asphalt-applied, polyester reinforced, granule-surfaced, SBS modified bitumen cap ply membrane for use in multi-ply underlayment systems
Flintlastic® GTA*	ASTM D6222	ML1	Torch-applied, polyester reinforced, granule-surfaced, APP modified bitumen cap ply membrane for use in multi-ply underlayment systems

3. INSTALLATION:

- 3.1 Unless otherwise noted, the term “**CertainTeed Roof Underlayments**” herein includes the following products:
MetaLayment, WinterGuard Granular, WinterGuard HT, WinterGuard Sand, Black Diamond Base Sheet, Flintlastic SA Cap FR or Flintlastic SA Cap
- 3.2 **CertainTeed Roof Underlayments** shall be installed in accordance with **CertainTeed, LLC** published installation instructions, subject to the [Limitations of Use](#) noted herein. In case of conflict between published installation instructions and this NER, this NER governs.
- 3.2.1 The report holder’s installation instructions shall be made available at the jobsite at all times during installation.
- 3.3 Substrates shall be in accordance with codified requirements to the satisfaction of the Authority Having Jurisdiction. Re-fasten any loose decking panels, and check for protruding nail heads. Sweep the substrate thoroughly to remove any dust and debris prior to application, and prime the substrate (if applicable).
- 3.4 **FBC (non-HVHZ) and FBC Residential:**
- 3.4.1 Refer to Section 3.4.2 herein for underlayments having prescriptive codified minimum attachment requirements or [Section 4.7.2](#) herein for underlayment systems having maximum design pressures established in accordance with FBC [1504.2.1.4](#).
- 3.4.2 Prescriptive Underlayment Systems for use in NON-TILE applications:
- 3.4.2.1
- | | |
|--------------------------|---|
| CODE REFERENCE: | 1507.1.1.1 or R905.1.1.1, Option 1: |
| APPLICATION: | Underlayment adhered to deck |
| DECK DESCRIPTION: | Code-minimum wood or structural concrete deck to the satisfaction of the Authority Having Jurisdiction (refer to Table 3 herein for specific underlayment/substrate combinations) |
| UNDERLAYMENT: | CertainTeed Roof Underlayment (See 3.1) self-adhered in accordance with FBC Section 1507.1.1.1(1) or R905.1.1.1(1) and back-nailed in accordance with the manufacturer’s requirements. |
| SURFACING: | FBC Approved asphalt shingles, metal roof panels or metal shingles, slate or slate type shingles, subject to the allowable roof covers in Table 2 herein. |



3.4.2.2

CODE REFERENCE:	1507.1.1.1 or R905.1.1.1, Option 1 combined with Option 2 or 3:								
APPLICATION:	Optional self-adhering strips to deck-joints followed by base sheet mechanically fastened to deck followed by underlayment adhered to base sheet								
DECK DESCRIPTION:	Code-minimum wood deck to the satisfaction of the Authority Having Jurisdiction								
SECONDARY WATER BARRIER:	(Optional) Min. 3 ¼-inch wide strips of MetaLayment, WinterGuard HT or WinterGuard Sand self-adhered over joints of the roof deck prior to installation of subsequent layer(s) in accordance with FBC Section 1507.1.1.1(2) or R905.1.1.1(2). Do not overlap end-joints or T-joints. All end-joints and T-joints shall be butted firmly side by side, flush with each other but not overlapped.								
BASE SHEET:	One (1) layer of All Weather/Empire Base Sheet, Glasbase Base Sheet or FBC Approved, ASTM D226 Type II or ASTM D4869 Type III or IV in accordance with FBC Table 1507.1.1.1 or Table R905.1.1.1, with a minimum 4-inch side lap and 6-inch end lap or two (2) layers of All Weather/Empire Base Sheet, Glasbase Base Sheet or FBC Approved, ASTM D226 Type II or ASTM D4869 Type III or IV in accordance with FBC Section 1507.1.1.1(3) or R905.1.1.1(3), mechanically fastened to deck								
FASTENERS:	Min. 0.083-inch diameter annular ring or deformed shank nails with metal or plastic caps* with a nominal cap diameter of not less than 1-inch and minimum thickness as follows. The nail shall be of sufficient length to penetrate through the roof sheathing, or not less than 0.75-inch into the roof sheathing. *Metal caps are required where the ultimate design wind speed, V_{ult}, equals or exceeds 170 mph. <table><tr><th><u>Cap Type</u></th><th><u>Minimum thickness</u></th></tr><tr><td>Metal cap</td><td>32 ga. sheet metal</td></tr><tr><td>Power-driven metal cap</td><td>0.010-inch</td></tr><tr><td>Plastic cap</td><td>0.035-inch (outside edge thickness)</td></tr></table>	<u>Cap Type</u>	<u>Minimum thickness</u>	Metal cap	32 ga. sheet metal	Power-driven metal cap	0.010-inch	Plastic cap	0.035-inch (outside edge thickness)
<u>Cap Type</u>	<u>Minimum thickness</u>								
Metal cap	32 ga. sheet metal								
Power-driven metal cap	0.010-inch								
Plastic cap	0.035-inch (outside edge thickness)								
FASTENING:	Grid pattern of 12-inches between the overlaps and 6-inch spacing at the overlaps, in accordance with FBC Table 1507.1.1.1 or Table R905.1.1.1.								
UNDERLAYMENT:	CertainTeed Roof Underlayment (See 3.1) self-adhered in accordance with FBC Section 1507.1.1.1(1) or R905.1.1.1(1) and back-nailed in accordance with the manufacturer's requirements.								
SURFACING:	FBC Approved asphalt shingles, metal roof panels or metal shingles, slate or slate type shingles or photovoltaic shingles subject to the allowable roof covers in Table 2 herein.								

3.4.2.3

CODE REFERENCE:	1507.1.1.1 or R905.1.1.1, Option 1 combined with Option 2:								
APPLICATION:	Optional self-adhering strips to deck-joints followed by base sheet mechanically fastened to deck followed by underlayment adhered to base sheet								
DECK DESCRIPTION:	Code-minimum wood deck to the satisfaction of the Authority Having Jurisdiction								
SECONDARY WATER BARRIER:	(Optional) Min. 3 ¼-inch wide strips of MetaLayment, WinterGuard HT or WinterGuard Sand self-adhered over joints of the roof deck prior to installation of subsequent layer(s) in accordance with FBC Section 1507.1.1.1(2) or R905.1.1.1(2). Do not overlap end-joints or T-joints. All end-joints and T-joints shall be butted firmly side by side, flush with each other but not overlapped.								
THERMAL BARRIER:	(Optional) One (1) or two (2) layers All Weather/Empire Base Sheet, Glasbase Base Sheet or FBC Approved, ASTM D4601 Type II with a minimum 4-inch side lap and 6-inch end lap, preliminarily attached to hold in place.								
BASE SHEET:	One (1) layer of Flintlastic SA NailBase in accordance with FBC Table 1507.1.1.1 or Table R905.1.1.1, with a minimum 4-inch side lap and 6-inch end lap, mechanically fastened to deck								
FASTENERS:	Min. 0.083-inch diameter annular ring or deformed shank nails with metal or plastic caps* with a nominal cap diameter of not less than 1-inch and minimum thickness as follows. The nail shall be of sufficient length to penetrate through the roof sheathing, or not less than 0.75-inch into the roof sheathing. *Metal caps are required where the ultimate design wind speed, V_{ult}, equals or exceeds 170 mph. <table><tr><th><u>Cap Type</u></th><th><u>Minimum thickness</u></th></tr><tr><td>Metal cap</td><td>32 ga. sheet metal</td></tr><tr><td>Power-driven metal cap</td><td>0.010-inch</td></tr><tr><td>Plastic cap</td><td>0.035-inch (outside edge thickness)</td></tr></table>	<u>Cap Type</u>	<u>Minimum thickness</u>	Metal cap	32 ga. sheet metal	Power-driven metal cap	0.010-inch	Plastic cap	0.035-inch (outside edge thickness)
<u>Cap Type</u>	<u>Minimum thickness</u>								
Metal cap	32 ga. sheet metal								
Power-driven metal cap	0.010-inch								
Plastic cap	0.035-inch (outside edge thickness)								



FASTENING:	Grid pattern of 12-inches between the overlaps and 6-inch spacing at the overlaps, in accordance with FBC Table 1507.1.1.1 or Table R905.1.1.1.
UNDERLAYMENT:	Base Ply: (Optional) Flintlastic SA MidPly or Flintlastic SA PlyBase , self-adhered in accordance with FBC Section 1507.1.1.1(1) or R905.1.1.1(1) and back-nailed in accordance with the manufacturer's requirements. Cap Ply: Flintlastic SA Cap FR or Flintlastic SA Cap self-adhered in accordance with FBC Section 1507.1.1.1(1) or R905.1.1.1(1) and back-nailed in accordance with the manufacturer's requirements.
SURFACING:	FBC Approved asphalt shingles, slate or slate type shingles, subject to the allowable roof covers in Table 2 herein.

3.5 FBC HVHZ (Broward and Miami-Dade Counties):

3.5.1 Refer to Section 3.5.2 herein for underlayments having prescriptive codified minimum attachment requirements or [Section 4.7.2](#) herein for underlayment systems having maximum design pressures established in accordance with [TAS 103](#).

3.5.2 Prescriptive Underlayment Systems for use in NON-TILE applications:

3.5.2.1	<table><tr><td>CODE REFERENCE:</td><td>1518.2.1, Option 1:</td></tr><tr><td>APPLICATION:</td><td>Underlayment adhered to deck</td></tr><tr><td>DECK DESCRIPTION:</td><td>Code-minimum wood or structural concrete deck to the satisfaction of the Authority Having Jurisdiction (refer to Table 3 herein for specific underlayment/substrate combinations)</td></tr><tr><td>UNDERLAYMENT:</td><td>CertainTeed Roof Underlayment (See 3.1) self-adhered in accordance with FBC Section 1518.2.1(1) and back-nailed max. 12-inch o.c. using FBC HVHZ Approved nails and tin caps (FBC HVHZ 1517.5) or FBC HVHZ Approved concrete fasteners and plates.</td></tr><tr><td>SURFACING:</td><td>FBC HVHZ Approved asphalt shingles, metal roof panels or metal shingles, slate or slate type shingles, subject to the allowable roof covers in Table 2 herein.</td></tr></table>	CODE REFERENCE:	1518.2.1, Option 1:	APPLICATION:	Underlayment adhered to deck	DECK DESCRIPTION:	Code-minimum wood or structural concrete deck to the satisfaction of the Authority Having Jurisdiction (refer to Table 3 herein for specific underlayment/substrate combinations)	UNDERLAYMENT:	CertainTeed Roof Underlayment (See 3.1) self-adhered in accordance with FBC Section 1518.2.1(1) and back-nailed max. 12-inch o.c. using FBC HVHZ Approved nails and tin caps (FBC HVHZ 1517.5) or FBC HVHZ Approved concrete fasteners and plates.	SURFACING:	FBC HVHZ Approved asphalt shingles, metal roof panels or metal shingles, slate or slate type shingles, subject to the allowable roof covers in Table 2 herein.						
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APPLICATION:	Underlayment adhered to deck																
DECK DESCRIPTION:	Code-minimum wood or structural concrete deck to the satisfaction of the Authority Having Jurisdiction (refer to Table 3 herein for specific underlayment/substrate combinations)																
UNDERLAYMENT:	CertainTeed Roof Underlayment (See 3.1) self-adhered in accordance with FBC Section 1518.2.1(1) and back-nailed max. 12-inch o.c. using FBC HVHZ Approved nails and tin caps (FBC HVHZ 1517.5) or FBC HVHZ Approved concrete fasteners and plates.																
SURFACING:	FBC HVHZ Approved asphalt shingles, metal roof panels or metal shingles, slate or slate type shingles, subject to the allowable roof covers in Table 2 herein.																
3.5.2.2	<table><tr><td>CODE REFERENCE:</td><td>1518.2.1, Option 1 combined with Option 2 or 3:</td></tr><tr><td>APPLICATION:</td><td>Optional self-adhering strips to deck-joints followed by base sheet mechanically fastened to deck followed by underlayment adhered to base sheet</td></tr><tr><td>DECK DESCRIPTION:</td><td>Code-minimum wood deck to the satisfaction of the Authority Having Jurisdiction</td></tr><tr><td>SECONDARY WATER BARRIER:</td><td>(Optional) Min. 3 ¾-inch wide strips of MetaLayment, WinterGuard HT or WinterGuard Sand self-adhered over joints of the roof deck prior to installation of subsequent layer(s) in accordance with FBC Section 1518.2.1(2). Do not overlap end-joints or T-joints. All end-joints and T-joints shall be butted firmly side by side, flush with each other but not overlapped.</td></tr><tr><td>BASE SHEET:</td><td>One (1) layer of All Weather/Empire Base Sheet, Glasbase Base Sheet or FBC Approved, ASTM D226 Type II or ASTM D4869 Type III or IV in accordance with FBC Table 1518.2.1, with a minimum 4-inch side lap and 6-inch end lap or two (2) layers of All Weather/Empire Base Sheet, Glasbase Base Sheet or FBC Approved, ASTM D226 Type II or ASTM D4869 Type III or IV in accordance with FBC Section 1518.2.1(3), mechanically fastened to deck</td></tr><tr><td>FASTENING:</td><td>FBC HVHZ Approved nails and tin caps (FBC HVHZ 1517.5), grid pattern of 12-inches between the overlaps and 6-inch spacing at the overlaps, in accordance with FBC Table 1518.2.1 or FBC Section 1518.2.1(3).</td></tr><tr><td>UNDERLAYMENT:</td><td>CertainTeed Roof Underlayment (See 3.1) self-adhered in accordance with FBC Section 1518.2.1(1) and back-nailed max. 12-inch o.c. using FBC HVHZ Approved nails and tin caps (FBC HVHZ 1517.5).</td></tr><tr><td>SURFACING:</td><td>FBC HVHZ Approved asphalt shingles, metal roof panels or metal shingles, slate or slate type shingles or photovoltaic shingles, subject to the allowable roof covers in Table 2 herein.</td></tr></table>	CODE REFERENCE:	1518.2.1, Option 1 combined with Option 2 or 3:	APPLICATION:	Optional self-adhering strips to deck-joints followed by base sheet mechanically fastened to deck followed by underlayment adhered to base sheet	DECK DESCRIPTION:	Code-minimum wood deck to the satisfaction of the Authority Having Jurisdiction	SECONDARY WATER BARRIER:	(Optional) Min. 3 ¾-inch wide strips of MetaLayment, WinterGuard HT or WinterGuard Sand self-adhered over joints of the roof deck prior to installation of subsequent layer(s) in accordance with FBC Section 1518.2.1(2). Do not overlap end-joints or T-joints. All end-joints and T-joints shall be butted firmly side by side, flush with each other but not overlapped.	BASE SHEET:	One (1) layer of All Weather/Empire Base Sheet, Glasbase Base Sheet or FBC Approved, ASTM D226 Type II or ASTM D4869 Type III or IV in accordance with FBC Table 1518.2.1, with a minimum 4-inch side lap and 6-inch end lap or two (2) layers of All Weather/Empire Base Sheet, Glasbase Base Sheet or FBC Approved, ASTM D226 Type II or ASTM D4869 Type III or IV in accordance with FBC Section 1518.2.1(3), mechanically fastened to deck	FASTENING:	FBC HVHZ Approved nails and tin caps (FBC HVHZ 1517.5), grid pattern of 12-inches between the overlaps and 6-inch spacing at the overlaps, in accordance with FBC Table 1518.2.1 or FBC Section 1518.2.1(3).	UNDERLAYMENT:	CertainTeed Roof Underlayment (See 3.1) self-adhered in accordance with FBC Section 1518.2.1(1) and back-nailed max. 12-inch o.c. using FBC HVHZ Approved nails and tin caps (FBC HVHZ 1517.5).	SURFACING:	FBC HVHZ Approved asphalt shingles, metal roof panels or metal shingles, slate or slate type shingles or photovoltaic shingles, subject to the allowable roof covers in Table 2 herein.
CODE REFERENCE:	1518.2.1, Option 1 combined with Option 2 or 3:																
APPLICATION:	Optional self-adhering strips to deck-joints followed by base sheet mechanically fastened to deck followed by underlayment adhered to base sheet																
DECK DESCRIPTION:	Code-minimum wood deck to the satisfaction of the Authority Having Jurisdiction																
SECONDARY WATER BARRIER:	(Optional) Min. 3 ¾-inch wide strips of MetaLayment, WinterGuard HT or WinterGuard Sand self-adhered over joints of the roof deck prior to installation of subsequent layer(s) in accordance with FBC Section 1518.2.1(2). Do not overlap end-joints or T-joints. All end-joints and T-joints shall be butted firmly side by side, flush with each other but not overlapped.																
BASE SHEET:	One (1) layer of All Weather/Empire Base Sheet, Glasbase Base Sheet or FBC Approved, ASTM D226 Type II or ASTM D4869 Type III or IV in accordance with FBC Table 1518.2.1, with a minimum 4-inch side lap and 6-inch end lap or two (2) layers of All Weather/Empire Base Sheet, Glasbase Base Sheet or FBC Approved, ASTM D226 Type II or ASTM D4869 Type III or IV in accordance with FBC Section 1518.2.1(3), mechanically fastened to deck																
FASTENING:	FBC HVHZ Approved nails and tin caps (FBC HVHZ 1517.5), grid pattern of 12-inches between the overlaps and 6-inch spacing at the overlaps, in accordance with FBC Table 1518.2.1 or FBC Section 1518.2.1(3).																
UNDERLAYMENT:	CertainTeed Roof Underlayment (See 3.1) self-adhered in accordance with FBC Section 1518.2.1(1) and back-nailed max. 12-inch o.c. using FBC HVHZ Approved nails and tin caps (FBC HVHZ 1517.5).																
SURFACING:	FBC HVHZ Approved asphalt shingles, metal roof panels or metal shingles, slate or slate type shingles or photovoltaic shingles, subject to the allowable roof covers in Table 2 herein.																



3.5.2.3

CODE REFERENCE:	1518.2.1, Option 1 combined with Option 2:
APPLICATION:	Optional self-adhering strips to deck-joints followed by base sheet mechanically fastened to deck followed by underlayment adhered to base sheet
DECK DESCRIPTION:	Code-minimum wood deck to the satisfaction of the Authority Having Jurisdiction
SECONDARY WATER BARRIER:	(Optional) Min. 3 ¼-inch wide strips of MetaLayment , WinterGuard HT or WinterGuard Sand self-adhered over joints of the roof deck prior to installation of subsequent layer(s) in accordance with FBC Section 1518.2.1(2). Do not overlap end-joints or T-joints. All end-joints and T-joints shall be butted firmly side by side, flush with each other but not overlapped.
THERMAL BARRIER:	(Optional) One (1) or two (2) layers All Weather/Empire Base Sheet , Glasbase Base Sheet or FBC Approved, ASTM D4601 Type II with a minimum 4-inch side lap and 6-inch end lap, preliminarily attached to hold in place.
BASE SHEET:	One (1) layer of Flintlastic SA NailBase in accordance with FBC Table 1518.2.1, with a minimum 4-inch side lap and 6-inch end lap, mechanically fastened to deck
FASTENING:	FBC HVHZ Approved nails and tin caps (FBC HVHZ 1517.5), grid pattern of 12-inches between the overlaps and 6-inch spacing at the overlaps, in accordance with FBC Table 1518.2.1 or FBC Section 1518.2.1(3).
UNDERLAYMENT:	Base Ply: (Optional) Flintlastic SA MidPly or Flintlastic SA PlyBase , self-adhered in accordance with FBC Section 1518.2.1(1) and back-nailed max. 12-inch o.c. using FBC HVHZ Approved nails and tin caps (FBC HVHZ 1517.5). Cap Ply: Flintlastic SA Cap FR or Flintlastic SA Cap self-adhered in accordance with FBC Section 1518.2.1(1) and back-nailed max. 12-inch o.c. using FBC HVHZ Approved nails and tin caps (FBC HVHZ 1517.5).
SURFACING:	FBC HVHZ Approved asphalt shingles, slate or slate type shingles, subject to the allowable roof covers in Table 2 herein.

4. LIMITATIONS OF USE:

- 4.1 This is a building code evaluation. NEMO ETC, LLC and NEMO CERT, LLC are not, in any way, the Designer of Record for any project on which this NER, or previous versions thereof, is/was used for permitting or design guidance. NERs are not to be construed as representing any attributes not specifically listed, nor are NERs to be construed as an endorsement of the subject of the report or a recommendation for its use. There is no warranty, express or implied, as to any finding or other matter in this report, or as to any product covered by the report.
- 4.2 This NER pertains to above-deck roof components. Roof decks and structural members shall be in accordance with the applicable Code requirements to the satisfaction of the Authority Having Jurisdiction.
- 4.3 **CertainTeed Roof Underlayments** may be used with any prepared roof cover where the product is specifically referenced within applicable approval documents. If not listed, a request may be made to the Authority Having Jurisdiction for approval based on this evaluation combined with supporting data for the prepared roof covering.
- 4.4 **Fire Classification:**
CertainTeed Roof Underlayments may be used in non-classified roof coverings or as a component of a classified roofing assembly when specifically recognized as such in a listing approved by the Authority Having Jurisdiction. Refer to UL File [TG DY.R10269](#) or [TG FU.R11656](#) for the applicant's baseline fire classification listings.



4.5 Allowable Roof Covers:

Table 2 lists allowable roof cover types, subject to fire classification documentation set forth in [Section 4.4](#) herein (if applicable).

TABLE 2: ROOF COVER OPTIONS					
UNDERLAYMENT	ROOF COVER	FBC AND FBC-R SECTION(S)		FBC HVHZ SECTIONS	
		SECTION	USE	SECTION	USE
Metalayment or WinterGuard HT	Asphalt Shingles	1507.2, R905.2	Yes	RAS 115, 1518.2.1	Yes
	Roof Tile	1507.3, R905.3	No	RAS 118, 119 or 120	No
	Metal Shingles or Panels	1507.4, 1507.5, R905.4, R905.10	Yes	RAS 133, 1518.2.1	Yes
	Slate or Slate-Type Shingles	1507.7, R905.6	Yes	1518.2.1	Yes
	Wood Shingles or Shakes	1507.8, 1507.9, R905.7, R905.8	Yes ³	RAS 130, 1518.10	Yes ³
	Photovoltaic Shingles	1507.17, R905.16	Yes ³	1518.2.1	Yes ³
Black Diamond Base Sheet or WinterGuard Sand	Asphalt Shingles	1507.2, R905.2	Yes	RAS 115, 1518.2.1	Yes
	Roof Tile	1507.3, R905.3	No	RAS 118, 119 or 120	No
	Metal Shingles or Panels	1507.4, 1507.5, R905.4, R905.10	No	RAS 133, 1518.2.1	No
	Slate or Slate-Type Shingles	1507.7, R905.6	Yes	1518.2.1	Yes
	Wood Shingles or Shakes	1507.8, 1507.9, R905.7, R905.8	Yes ³	RAS 130, 1518.10	Yes ³
	Photovoltaic Shingles	1507.17, R905.16	No	1518.2.1	No
WinterGuard Granular or Flintlastic SA Cap FR	Asphalt Shingles	1507.2, R905.2	Yes	RAS 115, 1518.2.1	Yes
	Roof Tile	1507.3, R905.3	No	RAS 118, 119 or 120	No
	Metal Shingles or Panels	1507.4, 1507.5, R905.4, R905.10	No	RAS 133, 1518.2.1	No
	Slate or Slate-Type Shingles	1507.7, R905.6	Yes	1518.2.1	Yes
	Wood Shingles or Shakes	1507.8, 1507.9, R905.7, R905.8	No	RAS 130, 1518.10	No
	Photovoltaic Shingles	1507.17, R905.16	No	1518.2.1	No
Flintlastic SA Cap	Asphalt Shingles	1507.2, R905.2	Yes	RAS 115, 1518.2.1	Yes
	Roof Tile	1507.3, R905.3	Yes ⁴	RAS 118, 119 or 120	Yes ⁴
	Metal Shingles or Panels	1507.4, 1507.5, R905.4, R905.10	No	RAS 133, 1518.2.1	No
	Slate or Slate-Type Shingles	1507.7, R905.6	Yes	1518.2.1	Yes
	Wood Shingles or Shakes	1507.8, 1507.9, R905.7, R905.8	No	RAS 130, 1518.10	No
	Photovoltaic Shingles	1507.17, R905.16	No	1518.2.1	No
Flintlastic GMS or Flintlastic GTA	Asphalt Shingles	1507.2, R905.2	No	RAS 115, 1518.2.1	No
	Roof Tile	1507.3, R905.3	Yes ⁴	RAS 118, 119 or 120	Yes ⁴
	Metal Shingles or Panels	1507.4, 1507.5, R905.4, R905.10	No	RAS 133, 1518.2.1	No
	Slate or Slate-Type Shingles	1507.7, R905.6	No	1518.2.1	No
	Wood Shingles or Shakes	1507.8, 1507.9, R905.7, R905.8	No	RAS 130, 1518.10	No
	Photovoltaic Shingles	1507.17, R905.16	No	1518.2.1	No

4.5.1 Adhesive-set tile is limited to use of the following Approved underlayment / tile-adhesive combinations.

TABLE 2C: ALLOWABLE UNDERLAYMENT / TILE-ADHESIVE COMBINATIONS ⁵			
UNDERLAYMENT	ADHESIVE	CODE COMPLIANCE REPORT	
		FBC FPA	FBC HVHZ
Flintlastic SA Cap or Flintlastic GMS	Dupont "TILE BOND Roof Tile Adhesive"	FL22525	NOA 22-0614.05
Flintlastic SA Cap, Flintlastic GMS or Flintlastic GTA	ICP "APOC POLYSET AH-160"	FL6332	NOA 22-0614.10
Flintlastic SA Cap, Flintlastic GMS or Flintlastic GTA	Mortar meeting FRSA/TRI Florida High Wind Concrete and Clay Roof Tile Installation Manual , Seventh Edition requirements and holding current Florida Local or Statewide Product Approval.		

³ For wood shakes, wood shingles and photovoltaic shingles, limited to use as joint-strips per FBC 1507.1.1.1(2), 1518.2.1(2) or R905.1.1.1(2) or as cap sheet atop mechanically attached, FBC Approved ASTM D226 Type II or ASTM D4869 Type III or IV base sheet.

⁴ For roof tile, used with mechanically fastened tile or adhesive-set tile using adhesive options set forth in [Table 2c](#).

⁵ Refer to Tile Manufacturer's or Adhesive Manufacturer's compliance documentation for Overturning Moment Resistance Performance.



4.6 Allowable Substrates:

TABLE 3: SUBSTRATE OPTIONS FOR ADHERED UNDERLAYMENTS				
UNDERLAYMENT	APPLICATION	SUBSTRATES (DESIGNED TO MEET WIND LOADS FOR PROJECT)		
		TYPE	PRIMER	MATERIAL(S)
MetaLayment, WinterGuard Granular, WinterGuard HT or WinterGuard Sand	Self-adhering	Deck / sheathing	(Optional) ASTM D41 or FlintPrime QD	plywood
		Base Sheet	None	All Weather/Empire Base Sheet, Glasbase Base Sheet or Approved, ASTM D226 Type II or ASTM D4869 Type III or IV
Black Diamond Base Sheet	Self-adhering	Deck / sheathing	(Optional) ASTM D41 or FlintPrime QD	plywood
			ASTM D41 or FlintPrime QD	structural concrete
		Base Sheet	None	All Weather/Empire Base Sheet, Glasbase Base Sheet or Approved, ASTM D226 Type II or ASTM D4869 Type III or IV
Flintlastic SA MidPly, Flintlastic SA PlyBase, Flintlastic Ultra Glass SA, Flintlastic SA Cap or Flintlastic SA Cap FR	Self-adhering	Deck / sheathing	(Optional) ASTM D41 or FlintPrime QD	plywood
			ASTM D41 or FlintPrime QD	structural concrete
		Base Sheet	None	All Weather/Empire Base Sheet, Glasbase Base Sheet, Flintlastic SA NailBase or Approved, ASTM D226 Type II or ASTM D4869 Type III or IV
		Base Ply	None	Flintlastic SA MidPly, Flintlastic SA PlyBase
Flintlastic GMS	Hot asphalt	Deck	ASTM D41 or FlintPrime QD	structural concrete
		Base Sheet	None	All Weather/Empire Base Sheet, Glasbase Base Sheet or Approved, ASTM D226 Type II
		Base Ply	None	Black Diamond Base Sheet or Flintlastic Ultra Glass SA
Flintlastic GTA	Torch-applied	Deck	ASTM D41 or FlintPrime QD	structural concrete
		Base Ply	None	Black Diamond Base Sheet or Flintlastic Ultra Glass SA



4.7 Attachment Limitations:

4.7.1 For use in NON-TILE applications under the FBC and FBC Residential, refer to [Section 3](#) herein and the applicable Code requirements.

4.7.2 Wind Resistance for Underlayment Systems in Tile Roof Applications under the FBC and FBC Residential:

The following wind uplift limitations apply to tile underlayment systems per FBC 1504.2.1.4 and Section 7 of TAS 103. The Maximum Design Pressure ('MDP') is the result of testing for wind load resistance based on allowable wind loads, and reflects the ultimate passing pressure divided by 2 (the 2 to 1 margin of safety has already been applied).

TABLE 4A: ALLOWABLE DESIGN PRESSURES, ADHERED, DIRECT-TO-DECK UNDERLAYMENT SYSTEMS IN TILE ROOF APPLICATIONS						
SYSTEM No.	DECK	PRIMER	JOINT TREATMENT	UNDERLAYMENT		MDP (psf)
				BASE PLY	CAP PLY	
UDL-1.	OSB, APA rated sheathing, 24/16, Exposure 1, PS2, 7/16 category	ASTM D41 or FlintPrime QD	None	Flintlastic SA MidPly, self-adhered and back-nailed max. 12-inch o.c.	Flintlastic SA Cap, self-adhered and back-nailed max. 12-inch o.c.	-90.0 (NO HVHZ)
UDL-2.	Plywood, APA rated sheathing, 32/16, Exposure 1, PS1, 15/32 category	(Optional) ASTM D41 or FlintPrime QD	None	(Optional) Flintlastic SA MidPly or Flintlastic SA PlyBase, self-adhered and back-nailed max. 12-inch o.c.	Flintlastic SA Cap, self-adhered and back-nailed max. 12-inch o.c.	-105.0
UDL-3.	Plywood, APA rated sheathing, 40/20, Exposure 1, PS1, 19/32 category	ASTM D41 or FlintPrime QD	Flintlastic SA PlyBase	(Optional) Flintlastic SA MidPly or Flintlastic SA PlyBase, self-adhered and back-nailed max. 12-inch o.c.	Flintlastic SA Cap, self-adhered and back-nailed max. 12-inch o.c.	-127.5
UDL-4.	Plywood, APA rated sheathing, 32/16, Exposure 1, PS1, 15/32 category	(Optional) FlintPrime QD	None	Flintlastic SA MidPly or Flintlastic SA PlyBase, self-adhered and back-nailed max. 12-inch o.c.	Flintlastic SA Cap, self-adhered and back-nailed max. 12-inch o.c.	-127.5
UDL-5.	Structural concrete	ASTM D41 or FlintPrime QD	N/A	Black Diamond Base Sheet or Flintlastic Ultra Glass SA, self-adhered and back-nailed using Approved fasteners and plates, max. 12-inch o.c.	Flintlastic GMS, applied in hot asphalt and back-nailed using Approved fasteners and plates, max. 12-inch o.c.	-240.0
UDL-6.	Structural concrete	ASTM D41 or FlintPrime QD	N/A	Black Diamond Base Sheet or Flintlastic Ultra Glass SA, self-adhered and back-nailed using Approved fasteners and plates, max. 12-inch o.c.	Flintlastic GTA, torch-applied and back-nailed using Approved fasteners and plates, max. 12-inch o.c.	-240.0
UDL-7.	Structural concrete	ASTM D41 or FlintPrime QD	N/A	(Optional) Flintlastic SA MidPly or Flintlastic SA PlyBase, self-adhered and back-nailed using Approved fasteners and plates, max. 12-inch o.c.	Flintlastic SA Cap, self-adhered and back-nailed using Approved fasteners and plates, max. 12-inch o.c.	-240.0

TABLE 4B: ALLOWABLE DESIGN PRESSURES, MECHANICALLY ATTACHED, MULTI-PLY UNDERLAYMENT SYSTEMS IN TILE ROOF APPLICATIONS							
*Nails shall be corrosion resistance and be of sufficient length to penetrate through the sheathing by min. 3/16-inch							
SYSTEM No.	DECK	BASE SHEET			UNDERLAYMENT		MDP (psf)
		TYPE	FASTEN	ATTACH	BASE PLY	TOP PLY	
UDL-8.	Plywood, APA rated sheathing, 32/16, Exposure 1, PS1, 15/32 category	Flintlastic SA NailBase	12 ga. annular ring shank nails* through 32 ga., 1 5/8-inch diameter tin caps	6-inch o.c. at the 4-inch laps and 12-inch o.c. at two (2) equally spaced, staggered center rows	(Optional) Flintlastic SA MidPly or Flintlastic SA PlyBase, self-adhered and back-nailed* max. 12-inch o.c.	Flintlastic SA Cap, self-adhered and back-nailed* max. 12-inch o.c.	-37.5 (NO HVHZ)
UDL-9.	Plywood, APA rated sheathing, 40/20, Exposure 1, PS1, 19/32 category	All Weather/ Empire Base Sheet or Glasbase Base Sheet	12 ga. annular ring shank nails* through 32 ga., 1 5/8-inch diameter tin caps	6-inch o.c. at the min. 4-inch laps and 9-inch o.c. at three (3) equally spaced center rows	None	Flintlastic GMS, applied in hot asphalt and back-nailed using 12 ga. annular ring shank nails* through 32 ga., 1-5/8-inch diameter tin caps, max. 12-inch o.c.	-45.0



TABLE 4B: ALLOWABLE DESIGN PRESSURES, MECHANICALLY ATTACHED, MULTI-PLY UNDERLAYMENT SYSTEMS IN TILE ROOF APPLICATIONS *Nails shall be corrosion resistance and be of sufficient length to penetrate through the sheathing by min. 3/16-inch							
SYSTEM No.	DECK	BASE SHEET			UNDERLAYMENT		MDP (PSF)
		TYPE	FASTEN	ATTACH	BASE PLY	TOP PLY	
UDL-10.	Plywood , APA rated sheathing, 32/16, Exposure 1, PS1, 15/32 category	Flintlastic SA NailBase	12 ga. Simplex Metal Cap Nails*	6-inch o.c. at the min. 2-inch laps and 6-inch o.c. at four (4) equally spaced, staggered center rows	(Optional) Flintlastic SA MidPly or Flintlastic SA PlyBase, self-adhered and back-nailed* max. 12-inch o.c.	Flintlastic SA Cap, self-adhered and back-nailed* max. 12-inch o.c.	-52.5 (NO HVHZ)
UDL-11.	Plywood , APA rated sheathing, 40/20, Exposure 1, PS1, 19/32 category	One (1) layer, FBC Approved ASTM D226 Type II	12 ga. annular ring shank nails* through 32 ga., 1 5/8-inch diameter tin caps	6-inch o.c. at the min. 4-inch laps and 9-inch o.c. at three (3) equally spaced, staggered center rows	None	Flintlastic GMS, applied in hot asphalt and back-nailed using 12 ga. annular ring shank nails* through 32 ga., 1- 5/8-inch diameter tin caps, max. 12-inch o.c.	-52.5
UDL-12.	OSB , APA rated sheathing, 24/16, Exposure 1, PS2, 7/16 category	Flintlastic SA NailBase	TRUFast Versa-Fast Fasteners & Plates; min. two (2) screws per plate at 180° from each other; FlintPrime QD at stress plates	9-inch o.c. at the 3-inch wide side laps and 12-inch o.c. at two (2) equally spaced, staggered center rows	(Optional) Flintlastic SA MidPly, self-adhered and back-nailed* max. 12-inch o.c.	Flintlastic SA Cap, self-adhered and back-nailed* max. 12-inch o.c.	-60.0 (NO HVHZ)
UDL-13.	Plywood , APA rated sheathing, 32/16, Exposure 1, PS1, 15/32 category	Flintlastic SA NailBase	TRUFast Versa-Fast Fasteners & Plates; min. two (2) screws per plate at 180° from each other; FlintPrime QD at stress plates	9-inch o.c. at the 3-inch wide side laps and 12-inch o.c. at two (2) equally spaced, staggered center rows	(Optional) Flintlastic SA MidPly, self-adhered and back-nailed* max. 12-inch o.c.	Flintlastic SA Cap, self-adhered and back-nailed* max. 12-inch o.c.	-60.0
UDL-14.	Plywood , APA rated sheathing, 40/20, Exposure 1, PS1, 19/32 category	Flintlastic SA NailBase	12 ga. annular ring shank nails* through 32 ga., 1 5/8-inch diameter tin caps	8-inch o.c. at the min. 2-inch laps and 8-inch o.c. at three (3) equally spaced, staggered center rows	(Optional) Flintlastic SA MidPly or Flintlastic SA PlyBase, self-adhered and back-nailed* max. 12-inch o.c.	Flintlastic SA Cap, self-adhered and back-nailed* max. 12-inch o.c.	-60.0
UDL-15.	Plywood , APA rated sheathing, 32/16, Exposure 1, PS1, 15/32 category	All Weather/ Empire Base Sheet or Glasbase Base Sheet	Cap nails: 1-inch diameter, 0.032-inch thick metal cap with 0.120-inch shank diameter, annular ring shank nails*	6-inch o.c. at 4-inch lap and 6-inch o.c. at five (5) equally spaced, staggered center rows in the field of the sheet	None	Flintlastic GMS, applied in hot asphalt and back-nailed* max. 12-inch o.c.	-67.5 (NO HVHZ)
UDL-16.	Plywood , APA rated sheathing, 40/20, Exposure 1, PS1, 19/32 category	Flintlastic SA NailBase	12 ga. annular ring shank nails* through 32 ga., 1 5/8-inch diameter tin caps	6-inch o.c. at the min. 2-inch laps and 6-inch o.c. at four (4) equally spaced, staggered center rows	(Optional) Flintlastic SA MidPly or Flintlastic SA PlyBase, self-adhered and back-nailed* max. 12-inch o.c.	Flintlastic SA Cap, self-adhered and back-nailed* max. 12-inch o.c.	-75.0



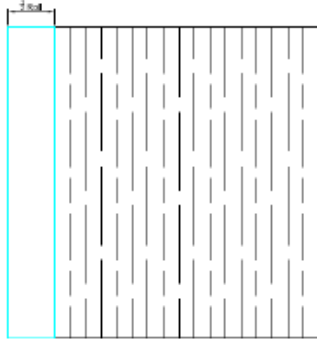
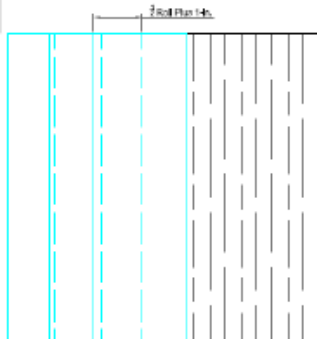
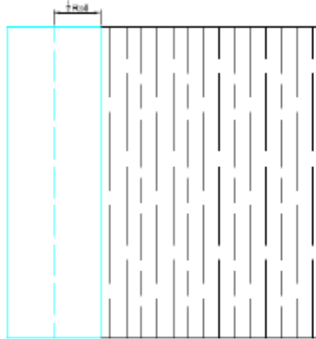
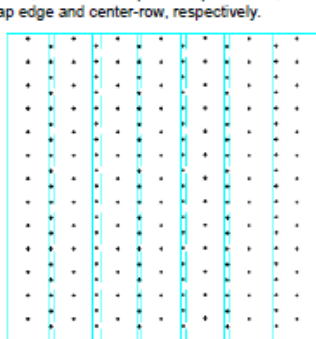
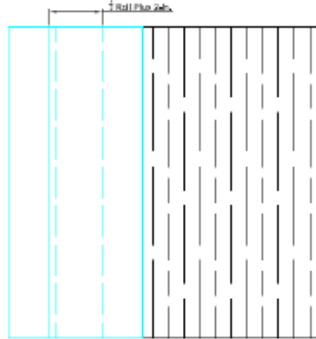
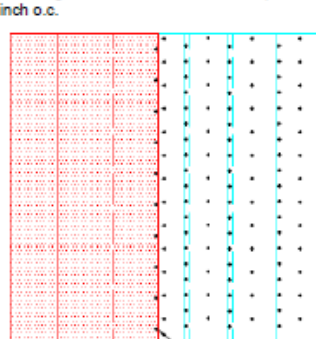
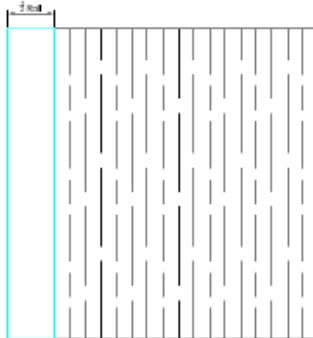
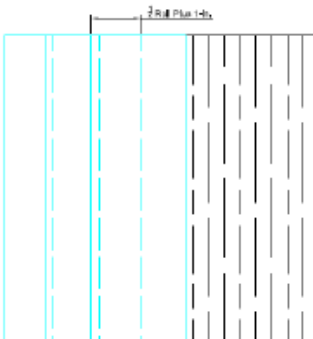
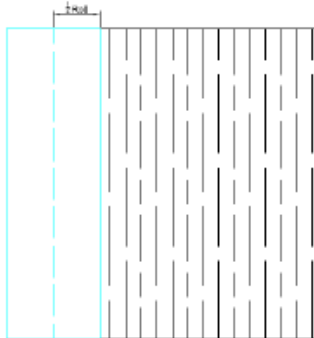
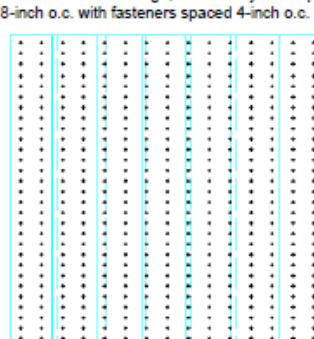
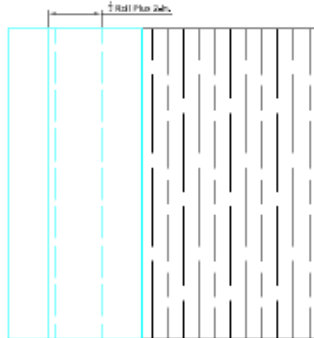
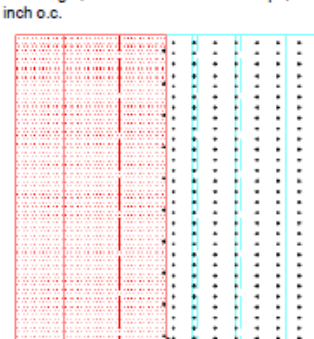
TABLE 4B: ALLOWABLE DESIGN PRESSURES, MECHANICALLY ATTACHED, MULTI-PLY UNDERLAYMENT SYSTEMS IN TILE ROOF APPLICATIONS							
*Nails shall be corrosion resistance and be of sufficient length to penetrate through the sheathing by min. 3/16-inch							
SYSTEM No.	DECK	BASE SHEET			UNDERLAYMENT		MDP (PSF)
		TYPE	FASTEN	ATTACH	BASE PLY	TOP PLY	
UDL-17.	Plywood, APA rated sheathing, 40/20, Exposure 1, PS1, 19/32 category	Double-layer application, Approved ASTM D226 Type II**	12 ga. annular ring shank nails* through 32 ga., 1 5/8-inch diameter tin caps	Start 6-inch o.c. with centerline 1-inch from the start-edge, followed by one (1) row in the centerline of the half-width, 9-inch o.c. Repeat this pattern of 6, 9, at the lap-edge and center-row, respectively.	None	Flintlastic GMS, applied in hot asphalt and back-nailed using 12 ga. annular ring shank nails* through 32 ga., 1-5/8-inch diameter tin caps, max. 12-inch o.c.	-82.5
** Base sheet applied in double-layer application:							
Apply a strip of base sheet for the first course that is half the width of a full sheet, fastened sufficiently to hold in place.  Overlap all successive courses half the width of a full sheet plus 1 inch.  Apply a full sheet of base sheet for the second course, fully overlapping the first half-width course.  Fastening 1: 12 ga. 1.5-inch annular ring shank nails with 32 ga., 1-5/8-inch diameter tin caps; start 6-inch o.c. with the centerline of the half-width, 9-inch o.c. Repeat this pattern of 6, 9 at the lap edge and center-row, respectively.  1 Row @ 6-In. O.C. for Lap-Edges 1 Row @ 9-In. O.C. for Center-Rows Apply the third course of base sheet overlapping the second course half the width of a full sheet plus 2 inches.  Flintlastic GMS Cap Ply Applied in ASTM D312, Type IV hot asphalt and back-nailed using 12 ga. x 1.5-inch annular ring shank nails with 32 ga., 1-5/8-inch diameter tin caps, 12-inch o.c.  Back-Nailed @ 12-In. O.C.							
UDL-18.	Plywood, APA rated sheathing, 40/20, Exposure 1, PS1, 19/32 category	Flintlastic SA NailBase	12 ga. annular ring shank nails* through 32 ga., 1 5/8-inch diameter tin caps	4-inch o.c. at the min. 2-inch laps and 4-inch o.c. at four (4) equally spaced, staggered center rows	(Optional) Flintlastic SA MidPly or Flintlastic SA PlyBase, self-adhered and back-nailed* max. 12-inch o.c.	Flintlastic SA Cap, self-adhered and back-nailed* max. 12-inch o.c.	-105.0



TABLE 4B: ALLOWABLE DESIGN PRESSURES, MECHANICALLY ATTACHED, MULTI-PLY UNDERLAYMENT SYSTEMS IN TILE ROOF APPLICATIONS							
*Nails shall be corrosion resistance and be of sufficient length to penetrate through the sheathing by min. 3/16-inch							
SYSTEM No.	DECK	BASE SHEET			UNDERLAYMENT		MDP (PSF)
		TYPE	FASTEN	ATTACH	BASE PLY	TOP PLY	
UDL-19.	Plywood, APA rated sheathing, 40/20, Exposure 1, PS1, 19/32 category	Double-layer application, Approved ASTM D226 Type II**	12 ga. annular ring shank nails* through 32 ga., 1 5/8-inch diameter tin caps	Start 4-inch o.c. with centerline 1-inch from the start-edge, followed by rows spaced 8-inch o.c. with fasteners spaced 4-inch o.c.	None	Flintlastic GMS, applied in hot asphalt and back-nailed using 12 ga. annular ring shank nails* through 32 ga., 1- 5/8-inch diameter tin caps, max. 12-inch o.c.	-195.0
** Base sheet applied in double-layer application:							
Apply a strip of base sheet for the first course that is half the width of a full sheet, fastened sufficiently to hold in place.  Overlap all successive courses half the width of a full sheet plus 1 inch.  Apply a full sheet of base sheet for the second course, fully overlapping the first half-width course.  Fastening 2: 12 ga. 1.5-inch annular ring shank nails with 32 ga., 1-5/8-inch diameter tin caps in a 4x8-inch grid; start 4-inch o.c. with centerline 1-inch from the start-edge, followed by rows spaced 8-inch o.c. with fasteners spaced 4-inch o.c.  Fasteners Spaced @ 4-in. O.C. in rows Spaced @ 8-in. O.C. Apply the third course of base sheet overlapping the second course half the width of a full sheet plus 2 inches.  Flintlastic GMS Cap Ply Applied in ASTM D312. Type IV hot asphalt and back-nailed using 12 ga. x 1.5-inch annular ring shank nails with 32 ga., 1-5/8-inch diameter tin caps, 12-inch o.c.  Back-Nailed @ 12-in. O.C.							
UDL-20.	Plywood, APA rated sheathing, 40/20, Exposure 1, PS1, 19/32 category	One (1) layer, FBC Approved ASTM D226 Type II	12 ga. annular ring shank nails* through 32 ga., 1 5/8-inch diameter tin caps	4-inch o.c. at the min. 4-inch laps and 4-inch o.c. at four (4) equally spaced, staggered center rows	None	Flintlastic GMS, applied in hot asphalt and back-nailed using 12 ga. annular ring shank nails* through 32 ga., 1- 5/8-inch diameter tin caps, max. 12-inch o.c.	-157.5

**4.8 Exposure Limitations:**

TABLE 5: EXPOSURE LIMITATIONS		
UNDERLAYMENT	PREPARED ROOF COVER TYPE (OVERTOP OF UNDERLAYMENT)	MAXIMUM EXPOSURE (DAYS)
Black Diamond Base Sheet	Mechanically attached	30
MetaLayment, WinterGuard Granular, WinterGuard HT or WinterGuard Sand	Mechanically attached	180
Flintlastic SA Cap, Flintlastic GTA or Flintlastic GMS	Adhesive- or mortar-set tile	180
Flintlastic SA Cap, Flintlastic SA Cap FR, Flintlastic GTA or Flintlastic GMS	Mechanically attached	UNLIMITED

4.9 Tile Slippage Limitations:

When loading roof tiles on the underlayment, the maximum roof slope shall be as follows. Slopes in excess of these limitations require the use of battens or loading boards during loading of the roof tiles, in which case the maximum staging method is a 10-tile stack.

TABLE 6: TILE SLIPPAGE LIMITATIONS			
UNDERLAYMENT	TILE PROFILE	STAGING METHOD	MAXIMUM SLOPE
Flintlastic GMS or Flintlastic SA Cap	All	Max. 6-tile stack (4 over 2)	4:12
	Flat	Max. 10-tile stack	4:12
Flintlastic GTA	Lugged	Prohibited without battens or loading boards	N/A

- 4.10** For use under the FBC, all components in the roof assembly shall have quality assurance audit in accordance with **F.A.C. Rule 61G20-3**. Refer to the Product Approval of the component manufacturer for components mentioned herein that are produced by a Product Manufacturer other than this report holder.

- END OF NER -