NEMO|etc.
Certificate of Authorization #32455
353 Christian Street, Unit #13
Oxford, CT 06478
(203) 262-9245

ENGINEER **TEST** **CONSULT**

P.E. EVALUATION REPORT (PEER)

Tarco Roofing
One Information Way, Suite 225
Little Rock, AR 72202
(254) 913-7750

PEER-TAR-001.A.R25
FL10450-R24 (NON-HVHZ)
Date of Issuance: 07/11/2008
Revision 25: 06/16/2026

SCOPE:
This P.E. Evaluation Report (henceforth 'PEER') is issued under **F.A.C. Rule 61G20-3** and the applicable rules and regulations governing the use of construction materials in the State of Florida. The documentation submitted has been reviewed by Robert Nieminen, P.E. for compliance with the **8th Edition (2023) Florida Building Code** sections noted herein.

DESCRIPTION: Tarco Roof Underlayments (NON-HVHZ)

LABELING: Labeling shall be in accordance with the requirements of the Accredited Quality Assurance Agency noted herein and **FBC 1507.1.1**.

CONTINUED COMPLIANCE: This PEER is valid until such time as the named product(s) changes, the referenced Quality Assurance or production facility location(s) changes, or Code provisions that relate to the product(s) change. Acceptance of our PEERs by the named client constitutes agreement to notify NEMO ETC, LLC of any changes to the product(s), the Quality Assurance or the production facility location(s). NEMO ETC, LLC requires a complete review of its PEER relative to updated Code requirements with each Code Cycle. Reference is made to the NEMO|etc. Directory of P.E. Evaluations to ascertain the status and/or current version of this PEER. If the PEER is not listed at the Nemo Directory, then it is no longer valid.

ADVERTISEMENT: "NEMO P.E. Evaluated" may be displayed in advertising literature. If any portion of the PEER is displayed, then it shall be in its entirety.

INSPECTION: Upon request, a copy of this entire PEER 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 PEER consists of pages 1 through 19.

Prepared by:

Digitally signed by Robert Nieminen
Date: 2026.06.16 '14:53:11 -04'00

This item has been digitally signed and sealed by Robert Nieminen, P.E.
Printed copies of this document are not considered signed and sealed, and the signature must be verified on any electronic copies.
Robert Nieminen, Florida P.E. 59166, FBC ANE1983
NEMO ETC, LLC, Florida CA #32455

ROBERT NIEMINEN
LICENSE
NO. 59166
STATE OF FLORIDA
PROFESSIONAL ENGINEER

CERTIFICATION OF INDEPENDENCE:

1. NEMO ETC, LLC does not have, nor does it intend to acquire or will it acquire, a financial interest in any company manufacturing or distributing products it evaluates.
2. NEMO ETC, LLC is not owned, operated or controlled by any company manufacturing or distributing products it evaluates.
3. Robert Nieminen, P.E. does not have nor will acquire, a financial interest in any company manufacturing or distributing products for which the PEERs are being issued.
4. Robert Nieminen, P.E. does not have, nor will acquire, a financial interest in any other entity involved in the approval process of the product.
5. This is a building code evaluation. Neither NEMO ETC, LLC nor Robert Nieminen, P.E. are, in any way, the Designer of Record for any project on which this PEER, or previous versions thereof, is/was used for permitting or design guidance unless retained specifically for that purpose.

©2018, NEMO ETC, LLC

2023 FBC NON-HVHZ

ROOFING COMPONENT EVALUATION:

1. SCOPE:

Product Category: Roofing
Sub-Category: Underlayment
Product Approval Method: Method 1, Option D – Codified Material, Evaluation by Engineer
Compliance Statement: Tarco Roof Underlayments, as produced by **Tarco Roofing**, have demonstrated compliance with the following sections of the **8th Edition (2023) Florida Building Code** through testing in accordance with the following Standards. Compliance is subject to the Installation Requirements and Limitations of Use set forth herein.

2. STANDARDS:

SECTION	PROPERTY	STANDARD
1504.2.1.4	Wind resistance	UL 1897
1507.1.1 / R905.1.1	Material standard	ASTM D226, D8257
1507.1.1, 1507.2.9.2, 1507.2.9.3 / R905.1.1, R905.2.8.2, R905.2.8.5	Material standard	ASTM D1970
1507.2.9.2 / R905.2.8.2	Material standard	ASTM D3909, D6380
1507.3.3 / R905.3.3	Material standard	FRSA/TRI Manual
1504.7	Impact Resistance	ASTM D3746
TAS 110	Accelerated Weathering	ASTM D4798
TAS 110	Material standard	TAS 103

3. REFERENCES:

ENTITY	EXAMINATION	REFERENCE	DATE
ERD (TST6049)	FM 4474	T6460.06.07-R2	06/26/07
ERD (TST6049)	FM 4474	T37610.07.11	06/29/11
ERD (TST6049)	FM 4474	TAR-SC5670.03.16	03/21/16
ERD (TST6049)	ASTM D226	TAR-SC13965.02.17-R1	02/27/17
NEMO (TST6049)	FRSA/TRI	TAR-SC8020.06.18	06/05/18
NEMO (TST6049)	ASTM D4798	4j-TAR-19-SSUDL.01.A	08/27/19
NEMO (TST6049)	ASTM D1970	4j-TAR-20-SSUDL-02.A	03/29/21
NEMO (TST6049)	ASTM D1623/D4798	4j-TAR-20-SSUDL-03.A	05/04/21
NEMO (TST6049)	ASTM D3909	4j-TAR-21-SSUDL-01.A	10/01/21
NEMO (TST6049)	TAS 103	4j-TAR-21-SSUDL-01.C	11/05/21
NEMO (TST6049)	ASTM D226, Type II	4j-TAR-21-SSUDL-01.B	12/21/21
NEMO (TST6049)	TA/LTA, TAS 103	4j-TAR-21-SSUDL-03.A	06/02/22
NEMO (TST6049)	ASTM D6380	4j-TAR-22-SSUDL-01.A	07/25/22
NEMO (TST6049)	ASTM D4798/D1623	4j-TAR-22-SSUDL-03.A	11/15/22
NEMO (TST6049)	ASTM D1970	4j-TAR-21-SSUDL-04.A	10/14/22
NEMO (TST6049)	FM 4474	4a-TAR-22-LSWUS-01.A	12/12/22
NEMO (TST6049)	TA/LTA, TAS 103	4j-TAR-23-SSUDL-01	01/25/23
NEMO (TST6049)	TAS 103 (Tile Slip)	4j-TAR-23-SSUDL-03.A	03/13/23
NEMO (TST6049)	UL1897	4a-TAR-23-LSWUS-01.A	05/10/23
NEMO (TST6049)	ASTM D1970	4j-TAR-21-SSUDL-04.B	05/24/23
NEMO (TST6049)	ASTM D8257	4j-TAR-23-SSUDL-02.A	06/07/23

ENTITY	EXAMINATION	REFERENCE	DATE
NEMO (TST6049)	TA/LTA, TAS 103	4j-TAR-23-SSUDL-01.A	06/14/23
NEMO (TST6049)	TA/LTA, TAS 103	4j-TAR-23-SSUDL-04.A	10/06/23
NEMO (TST6049)	Extend Weathering	4j-TAR-23-SSUDL-05.A	11/16/23
NEMO (TST6049)	ASTM D4798	4j-TAR-23-SSUDL-10.A	11/27/23
NEMO (TST6049)	ASTM D1970	4j-TAR-23-SSUDL-07.A	11/28/23
NEMO (TST6049)	UL1897	4a-TAR-23-LSWUS-03.A	12/20/23
NEMO (TST6049)	UL1897	4a-TAR-23-LSWUS-02.A	01/03/24
NEMO (TST6049)	UL1897	4a-TAR-LSWUS-001.A	05/14/24
NEMO (TST6049)	UL1897	4a-TAR-LSWUS-002.A	05/29/24
NEMO (TST6049)	UL1897	4a-TAR-LSWUS-004.A	06/18/24
NEMO (TST6049)	UL1897	4a-TAR-LSWUS-006.A	07/29/24
NEMO (TST6049)	UL1897	4a-TAR-LSWUS-008.A.R1	12/09/24
NEMO (TST6049)	ASTM D226, Type II	4j-TAR-SSUDL-001.A	03/31/25
NEMO (TST6049)	UL1897	4a-TAR-LSWUS-010.A	04/09/25
NEMO (TST6049)	UL1897	4a-TAR-LSWUS-011.A	05/22/25
NEMO (TST6049)	UL1897	4a-TAR-LSWUS-012.A	07/28/25
NEMO (TST6049)	ASTM D1970	4j-TAR-SSUDL-002 (data)	06/11/26
NEMO	Traceability	FBC CLA	01/20/20
NEMO	Traceability	FBC CLA	03/22/21
NEMO	Traceability	FBC CLA	02/14/25
UL (QUA9625)	QA	Service Confirm	04/03/25
UL (QUA9625)	QA	Florida BCIS	Current

2023 FBC NON-HVHZ

4. PRODUCT DESCRIPTION:

TABLE 1: EVALUATED UNDERLAYMENTS			
PRODUCT	**MATERIAL STANDARD**	**PLANT(S)**	**DESCRIPTION**
#30 ASTM Specification Felt	ASTM D226, Type II	Greencastle, PA	asphalt-saturated organic felt
LeakBarrier® EasyLay®	ASTM D226, Type II *(Table 1)*	Belton, TX	asphalt-coated polyester fabric roof underlayment
LeakBarrier® EasyLay® HS Base	ASTM D226, Type II *(Table 1)*	Belton, TX	composite-polymeric scrim reinforced, SBS modified nailable anchor sheet and roof underlayment
LeakBarrier® EasyLay® UDL 15	ASTM D8257[1]	Gujarat, India	woven-polymeric scrim with a textured fabric on the top surface
SRS Distribution TopShield® EL30	ASTM D8257[1]	Gujarat, India	woven-polymeric scrim with a textured fabric on the top surface
LeakBarrier® EasyLay® UDL Basic	ASTM D8257[1]	Gujarat, India	woven-polymeric scrim with a textured fabric on the top surface
LeakBarrier® EasyLay® UDL HT	ASTM D1970[2]	Belton, TX	self-adhering, multi-laminate fabric surfaced, SBS modified roof underlayment
LeakBarrier® FS500^{HT}	ASTM D1970	Belton, TX	self-adhering, film-surfaced, SBS modified roof underlayment
LeakBarrier® MS300 Ice and Water Armor	ASTM D1970	Belton, TX Greencastle, PA	self-adhering, glass mat reinforced, mineral surfaced, SBS modified roof underlayment
SRS Distribution TopShield Ice & Water G300	ASTM D1970	Belton, TX Greencastle, PA	self-adhering, glass mat reinforced, mineral surfaced, SBS modified roof underlayment
LeakBarrier® PS200^{HT} Ice and Water Armor	FRSA/TRI and TAS 103	Greencastle, PA	self-adhering, glass mat reinforced, fabric surfaced, SBS modified roof underlayment
LeakBarrier® PS200^{MU} Ice and Water Armor	ASTM D1970	Greencastle, PA	self-adhering, glass mat reinforced, smooth poly film surfaced, SBS modified roof underlayment
LeakBarrier® NR600 Ultra Ice and Water Armor	FRSA/TRI and TAS 103	Greencastle, PA	self-adhering, polyester-fabric surfaced, SBS modified roof underlayment
SRS Distribution TopShield TS600 Ice & Water	FRSA/TRI and TAS 103	Greencastle, PA	self-adhering, polyester-fabric surfaced, SBS modified roof underlayment
LeakBarrier® Self-Adhering Quick Roll Shingle Starter	ASTM D1970	Belton, TX Greencastle, PA	self-adhering, glass mat reinforced, mineral surfaced, SBS modified shingle starter roll
Fiberglass Mineral Surfaced Roll Roofing	ASTM D3909	Greencastle, PA	glass-fiber-reinforced, asphalt-coated, granule surfaced underlayment used as a valley liner
ASTM Organic Mineral Surface Tile Underlayment	ASTM D6380, Class M	Greencastle, PA	asphalt-saturated organic roll roofing sheet

2023 FBC NON-HVHZ

[1] *Agreement between purchaser and seller, as set forth in Section 4.3, Note 1 of ASTM D8257-20, should be established as to slip resistance.*
[2] *Agreement between purchaser and seller, as set forth in Section 4.3, Note 1 of ASTM D1970-17a, should be established as to slip resistance.*

5. LIMITATIONS:

5.1 This is a building code evaluation. Neither NEMO ETC, LLC nor Robert Nieminen, P.E. are, in any way, the Designer of Record for any project on which this PEER, or previous versions thereof, is/was used for permitting or design guidance. PEERs are not to be construed as representing any attributes not specifically listed, nor are PEERs to be construed as an endorsement of the subject, or a recommendation for its use. There is no warranty by NEMO ETC, LLC or Robert Nieminen, P.E., express or implied, as to any finding or other matter in this PEER, or as to any product covered by the PEER.

5.2 This PEER is not for use in FBC High Velocity Hurricane Zone jurisdictions, as defined in FBC Chapter 2 (Broward and Miami-Dade Counties).

5.3 This PEER pertains to above-deck roof components. Roof decks and structural members shall be in accordance with FBC requirements to the satisfaction of the Authority Having Jurisdiction.

5.4 This PEER does not include evaluation of fire classification. Refer to **FBC 1505** for requirements and limitations regarding roof assembly fire classification. Refer to **FBC 2603** for requirements and limitations concerning the use of foam plastic insulation.

5.5 **Tarco Roof Underlayments** may be used with any prepared roof cover where the product is specifically referenced within FBC approval documents. If not listed, a request may be made to the Authority Having Jurisdiction for approval based on this PEER combined with supporting data for the prepared roof covering.

5.6 **Allowable Roof Covers:**

TABLE 2: ROOF COVER OPTIONS

FBC NON-HVHZ:	*1507.2*	*1507.3*		*1507.4 & 1507.5*	*1507.7*	*1507.8 & 1507.9*
UNDERLAYMENT	ASPHALT SHINGLES	CLAY AND CONCRETE TILE		METAL PANELS OR SHINGLES	SLATE OR SLATE-TYPE SHINGLES	WOOD SHINGLES OR SHAKES
		MECHANICAL ATTACH	ADHESIVE- OR MORTAR-SET			
#30 ASTM Specification Felt	Yes	Yes (Base Sheet per Table 4B)	Yes (Base Sheet per Table 4B)	Yes	Yes	Yes
LeakBarrier EasyLay	Yes (Alternate to D226, Type II)	Yes (Base Sheet per Table 4B)	Yes (Base Sheet per Table 4B)	No	Yes (Alternate to D226, Type II)	No
LeakBarrier EasyLay HS Base	Yes (Alternate to D226, Type II)	Yes (Base Sheet per Table 4B)	Yes (Base Sheet per Table 4B)	Yes (Alternate to D226, Type II)	Yes (Alternate to D226, Type II)	No
LeakBarrier EasyLay UDL 15 or LeakBarrier EasyLay UDL Basic	Yes	Yes (Base Sheet per Table 4B)	Yes (Base Sheet per Table 4B)	Yes	Yes	No
TopShield EL30	Yes	Yes (Base Sheet per Table 4B)	Yes (Base Sheet per Table 4B)	Yes	Yes	No
LeakBarrier EasyLay UDL HT	Yes	No	No	Yes	Yes	Yes[3]
LeakBarrier FS500HT	Yes	No	No	Yes	Yes	Yes[3]
LeakBarrier MS300	Yes	No	No	No	Yes	Yes[3]
TopShield Ice & Water G300	Yes	No	No	No	Yes	Yes[3]
LeakBarrier PS200HT	Yes	Yes	Yes (Table 2A)	Yes *(No copper or zinc)*	Yes	Yes[3]
LeakBarrier PS200MU	Yes	No	No	Yes *(No copper or zinc)*	Yes	Yes[3]
LeakBarrier NR600 Ultra	Yes	Yes	Yes (Table 2A)	Yes	Yes	Yes[3]

[3] *Used as min. 3 ¾-inch wide joint-strips per FBC 1507.1.1.1(2) / FBC R905.1.1.1(2) or installed in full-coverage atop ASTM D226, Type II felt, ASTM D4869 Type III or IV felt, LeakBarrier EasyLay, LeakBarrier EasyLay UDL 15, TopShield EL30 or LeakBarrier EasyLay UDL Basic mechanically attached in accordance with FBC Table 1507.1.1.1 or FBC Residential Table R905.1.1.1.*

2023 FBC N-HVHZ

TABLE 2: ROOF COVER OPTIONS						
FBC NON-HVHZ:	*1507.2*	*1507.3*		*1507.4 & 1507.5*	*1507.7*	*1507.8 & 1507.9*
UNDERLAYMENT	ASPHALT SHINGLES	CLAY AND CONCRETE TILE		METAL PANELS OR SHINGLES	SLATE OR SLATE-TYPE SHINGLES	WOOD SHINGLES OR SHAKES
		MECHANICAL ATTACH	ADHESIVE- OR MORTAR-SET			
TopShield TS600 Ice & Water	Yes	Yes	Yes (Table 2A)	Yes	Yes	Yes[1]
LeakBarrier® Self-Adhering Quick Roll Shingle Starter	Yes (shingle starter only)	No	No	No	No	No
Fiberglass Mineral Surfaced Roll Roofing	Yes (Valley Liner)	No	No	No	No	No
ASTM Organic Mineral Surface Tile Underlayment	Yes (Valley Liner)	Yes	Yes	No	No	No

5.6.1 **Allowable Tile Adhesives:**

TABLE 2A: ALLOWABLE UNDERLAYMENT / TILE-ADHESIVE COMBINATIONS[4]						
	TILE-ADHESIVE OPTIONS AND FLORIDA PRODUCT APPROVAL					
	DAP GLOBAL		DUPONT	ICP CONSTRUCTION		MORTAR (MEETING FRSA/TRI AND HOLDING CURRENT FPA)
	FL14506		FL22525	FL6332	FL6276	
UNDERLAYMENT	STORMBOND	STORMBOND 2	TILE BOND	APOC POLYSET AH-160	APOC POLYSET RTA-1	
LeakBarrier NR600 Ultra	Yes	Yes	Yes	Yes	Yes	No
TopShield TS600 Ice & Water	Yes	Yes	Yes	Yes	Yes	No
LeakBarrier PS200^{HT}	No	No	Yes	Yes	Yes	No
ASTM Organic Mineral Surface Tile Underlayment	Yes	Yes	Yes	Yes	Yes	Yes

5.7 **Allowable Substrates:**

TABLE 3: ALLOWABLE SUBSTRATE OPTIONS FOR ADHERED UNDERLAYMENTS				
UNDERLAYMENT	APPLICATION	SUBSTRATES (DESIGNED TO MEET CODE)		
		TYPE	PRIMER	MATERIAL(S)
LeakBarrier EasyLay UDL HT or LeakBarrier FS500^{HT}	self-adhering	Deck / sheathing	(Optional) ASTM D41	Plywood, OSB
		Base Sheet	None	ASTM D226 Type II felt, ASTM D4869 Type III or IV felt, LeakBarrier EasyLay HS Base, LeakBarrier EasyLay UDL 15, TopShield EL30 or LeakBarrier EasyLay UDL Basic
		Flashing / Valley	ASTM D41	aluminum, galvanized steel
LeakBarrier MS300, TopShield Ice & Water G300, LeakBarrier PS200^{HT}, LeakBarrier PS200^{MU}, LeakBarrier NR600 Ultra or TopShield TS600 Ice & Water	self-adhering	Deck / sheathing	(Optional) ASTM D41	Plywood, OSB
		Deck	ASTM D41	structural concrete
		Base Sheet	None	ASTM D226 Type II felt; ASTM D4869 Type III or IV felt; LeakBarrier EasyLay, LeakBarrier EasyLay HS Base, LeakBarrier EasyLay UDL 15, TopShield EL30 or LeakBarrier EasyLay UDL Basic
		Flashing / Valley	ASTM D41	aluminum, galvanized steel

[4] *Refer to Tile Manufacturer's or Adhesive Manufacturer's Florida Product Approval for Overturning Moment Resistance Performance.*

2023 FBC NON-HVHZ

TABLE 3: ALLOWABLE SUBSTRATE OPTIONS FOR ADHERED UNDERLAYMENTS				
UNDERLAYMENT	APPLICATION	SUBSTRATES (DESIGNED TO MEET CODE)		
		TYPE	PRIMER	MATERIAL(S)
ASTM Organic Mineral Surface Tile Underlayment	hot asphalt	Deck	ASTM D41	structural concrete
		Base Sheet	None	ASTM D226 Type II felt, ASTM D4601 base sheet

5.8 **Attachment Limitations:**

5.8.1 For use in NON-TILE applications, refer to Section 6 herein and the applicable Code requirements.

5.8.2 Wind Resistance for Underlayment Systems in Tile Roof Applications:
The following wind uplift limitations apply to tile underlayment systems per **FBC 1504.2.1.4**. 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 per **FBC 1504.9** has already been applied).

5.8.2.1 Unless otherwise noted, referenced back-nailing shall utilize corrosion resistant metal cap nails meeting specifications set forth in **FBC Table 1507.1.1.1** or "nail and tin caps" meeting the specifications set forth in **FBC HVHZ 1517.5**.

- Note: Back-nailing of self-adhering underlayments is only a codified requirement in tile roof systems.

5.8.2.2 Adhered, Direct-to-Deck Underlayment Systems:
The maximum design pressure for the selected assembly shall meet or exceed that required under **FRSA/TRI Florida Manual, 7th Edition, Appendix A** or the critical (highest) design pressure determined in accordance with **FBC 1609** or **FBC Residential Chapter 3**.

TABLE 4A: ALLOWABLE DESIGN PRESSURES, ADHERED, DIRECT-TO-DECK UNDERLAYMENT SYSTEMS						
SYSTEM NO.	DECK	PRIMER	JOINT TREATMENT	BASE PLY	CAP PLY	MDP (PSF)
UDL-1.	**OSB**, APA rated sheathing, 32/16, Exposure 1, PS2, 15/32 category	ASTM D41	None	(Optional) LeakBarrier PS200^{MU}, self-adhered and back-nailed, max. 12-inch o.c.	LeakBarrier NR600 Ultra or TopShield TS600 Ice & Water, self-adhered and back-nailed using "nails and tin caps" meeting **FBC HVHZ 1517.5**, max. 12-inch o.c.	-60.0
UDL-2.	**Plywood**, APA rated sheathing, 32/16, Exposure 1, PS1, 15/32 category	(Optional) ASTM D41	None	(Optional) LeakBarrier PS200^{MU}, self-adhered and back-nailed, max. 12-inch o.c.	LeakBarrier PS200^{HT}, LeakBarrier NR600 Ultra or TopShield TS600 Ice & Water, self-adhered and back-nailed, max. 12-inch o.c.	-75.0
UDL-3.	**Plywood**, APA rated sheathing, 32/16, Exposure 1, PS1, 15/32 category	(Optional) ASTM D41	None	(Optional) LeakBarrier PS200^{MU}, self-adhered and back-nailed, max. 12-inch o.c.	LeakBarrier PS200^{HT}, self-adhered and back-nailed using "nails and tin caps" meeting **FBC HVHZ 1517.5**, max. 12-inch o.c.	-82.5
UDL-4.	**Plywood**, APA rated sheathing, 32/16, Exposure 1, PS1, 15/32 category	(Optional) ASTM D41	None	None	LeakBarrier NR600 Ultra or TopShield TS600 Ice & Water, self-adhered and back-nailed, max. 12-inch o.c.	-105.0
UDL-5.	**Plywood**, APA rated sheathing, 32/16, Exposure 1, PS1, 15/32 category	(Optional) ASTM D41	Min. 4-inch wide strips of LeakBarrier PS200^{MU}	None	LeakBarrier NR600 Ultra or TopShield TS600 Ice & Water, self-adhered and back-nailed, max. 12-inch o.c.	-120.0

2023 FBC NON-HVHZ

TABLE 4A: ALLOWABLE DESIGN PRESSURES, ADHERED, DIRECT-TO-DECK UNDERLAYMENT SYSTEMS						
SYSTEM NO.	DECK	PRIMER	JOINT TREATMENT	BASE PLY	CAP PLY	MDP (PSF)
UDL-6.	**Plywood**, APA rated sheathing, 32/16, Exposure 1, PS1, 15/32 category	(Optional) ASTM D41	Min. 4-inch wide strips of LeakBarrier PS200^{MU} or LeakBarrier EasyBase	(Optional) LeakBarrier PS200^{MU}, self-adhered and back-nailed, max. 12-inch o.c.	LeakBarrier PS200^{HT}, self-adhered and back-nailed, max. 12-inch o.c.	-120.0
UDL-7.	Nominal 1-inch, SYP, T&G **wood plank**	(Optional) ASTM D41	None	None	LeakBarrier NR600 Ultra or TopShield TS600 Ice & Water, self-adhered and back-nailed using "nails and tin caps" meeting **FBC HVHZ 1517.5**, max. 12-inch o.c.	-135.0
UDL-8.	**Plywood**, APA rated sheathing, 32/16, Exposure 1, PS1, 15/32 category	ASTM D41	None	None	LeakBarrier NR600 Ultra or TopShield TS600 Ice & Water, self-adhered and back-nailed using "nails and tin caps" meeting **FBC HVHZ 1517.5**, max. 12-inch o.c.	-142.5
UDL-9.	**Plywood**, APA rated sheathing, 40/20, Exposure 1, PS2, 19/32 category	None	None	None	LeakBarrier NR600 Ultra or TopShield TS600 Ice & Water, self-adhered and back-nailed using "nails and tin caps" meeting **FBC HVHZ 1517.5**, max. 12-inch o.c.	-142.5
UDL-10.	**Plywood**, APA rated sheathing, 40/20, Exposure 1, PS2, 19/32 category	ASTM D41	None	None	LeakBarrier NR600 Ultra or TopShield TS600 Ice & Water, self-adhered and back-nailed using "nails and tin caps" meeting **FBC HVHZ 1517.5**, max. 12-inch o.c.	-150.0
UDL-11.	Structural concrete	(Optional) ASTM D41	N/A	(Optional) LeakBarrier PS200^{MU}, self-adhered and back-nailed using **FBC Approved fasteners and plates**, max. 12-inch o.c.	LeakBarrier PS200^{HT}, LeakBarrier NR600 Ultra or TopShield TS600 Ice & Water, self-adhered and back-nailed using **FBC Approved fasteners and plates**, max. 12-inch o.c.	-217.5
UDL-12.	Structural concrete	ASTM D41	N/A	None	LeakBarrier NR600 Ultra or TopShield TS600 Ice & Water, self-adhered and back-nailed using meeting **FBC HVHZ 1517.5**, max. 12-inch o.c.	-340.0

5.8.2.3 Mechanically-Attached, Multi-Ply Underlayment Systems:

The maximum design pressure for the selected assembly shall meet or exceed that required under **FRSA/TRI Manual, 7th Edition**, Appendix A or the critical (highest) design pressure determined in accordance with **FBC 1609** or **FBC Residential Chapter 3**. Alternatively, the maximum design pressure for the selected assembly shall meet or exceed at least the Zone 1 design pressure determined in accordance with **FBC 1609** or **FBC Residential Chapter 3**. Elevated pressure zones shall employ an attachment density by a qualified design professional to resist the elevated pressure criteria. Commonly used methods are ANSI/SPRI WD1, FM Loss Prevention Data Sheet 1-29 or Roofing Application Standard RAS 117 or RAS 137. Assemblies marked with an asterisk* carry the limitations set forth in Section 2.2.10.1 of FM Loss Prevention Data Sheet 1-29 for enhancements.

2023 FBC NON-HVHZ

TABLE 4B: ALLOWABLE DESIGN PRESSURES, MECHANICALLY ATTACHED, MULTI-PLY UNDERLAYMENT SYSTEMS							
SYS. NO.	DECK	BASE SHEET			BASE PLY	CAP PLY	MDP (PSF)
		TYPE	FASTENERS	ATTACH			
**Nails shall be corrosion resistant and be of sufficient length to penetrate through the sheathing by min. 3/16-inch.							
UDL-13.	**Plywood**, APA rated sheathing, 32/16, Exposure 1, PS1, 15/32 category	#30 ASTM Specification Felt	12 ga. x 3/8-inch head diameter annular ring shank roofing nails** through 32 ga. x 1-5/8-inch dia. tin caps	6-inch o.c. at the 4-inch wide side laps and 6-inch o.c. at two (2) equally spaced, staggered center rows	None	LeakBarrier NR600 Ultra or TopShield TS600 Ice & Water, self-adhered and back-nailed using "nails and tin caps" meeting **FBC HVHZ 1517.5**, max. 12-inch o.c.	-22.5
UDL-14.	**Plywood**, APA rated sheathing, 32/16, Exposure 1, PS1, 15/32 category	#30 ASTM Specification Felt	12 ga. x 3/8-inch head diameter annular ring shank roofing nails** through 32 ga. x 1-5/8-inch dia. tin caps	6-inch o.c. at the 4-inch wide side laps and 6-inch o.c. at three (3) equally spaced, staggered center rows	None	LeakBarrier NR600 Ultra or TopShield TS600 Ice & Water, self-adhered and back-nailed using "nails and tin caps" meeting **FBC HVHZ 1517.5**, max. 12-inch o.c.	-30.0
UDL-15.	**Plywood**, APA rated sheathing, 32/16, Exposure 1, PS1, 15/32 category	#30 ASTM Specification Felt	12 ga. x 3/8-inch head diameter annular ring shank roofing nails** through 32 ga. x 1-5/8-inch dia. tin caps	6-inch o.c. at the 4-inch wide side laps and 9-inch o.c. at two (2) equally spaced, staggered center rows	None	ASTM Organic Mineral Surface Tile Underlayment, applied in ASTM D312, Type IV hot asphalt and back-nailed using "nails and tin caps" meeting **FBC HVHZ 1517.5**, max. 12-inch o.c.	-37.5
UDL-16.	**Plywood**, APA rated sheathing, 32/16, Exposure 1, PS1, 15/32 category	#30 ASTM Specification Felt	12 ga. x 3/8-inch head diameter annular ring shank roofing nails** through 32 ga. x 1-5/8-inch dia. tin caps	6-inch o.c. at the 4-inch wide side laps and 6-inch o.c. at four (4) equally spaced, staggered center rows	None	LeakBarrier NR600 Ultra or TopShield TS600 Ice & Water, self-adhered and back-nailed using "nails and tin caps" meeting **FBC HVHZ 1517.5**, max. 12-inch o.c.	-45.0
UDL-17.	**Plywood**, APA rated sheathing, 32/16, Exposure 1, PS1, 15/32 category	LeakBarrier EasyLay UDL 15, TopShield EL30 or LeakBarrier EasyLay UDL Basic	12 ga. x 3/8-inch head diameter annular ring shank roofing nails** through 32 ga. x 1-5/8-inch dia. tin caps	6-inch o.c. at the 4-inch wide side laps and 8-inch o.c. at three (3) equally spaced, staggered center rows	(Optional) LeakBarrier PS200^{MU}, self-adhered and back-nailed, max. 12-inch o.c.	LeakBarrier NR600 Ultra, TopShield TS600 Ice & Water or LeakBarrier PS200^{HT}, self-adhered and back-nailed, max. 12-inch o.c.	-45.0
UDL-18.	**Plywood**, APA rated sheathing, 40/20, Exposure 1, PS1, 19/32 category	#30 ASTM Specification Felt	12 ga. x 3/8-inch head diameter annular ring shank roofing nails** through 32 ga. x 1-5/8-inch dia. tin caps	6-inch o.c. at the 4-inch wide side laps and 9-inch o.c. at two (2) equally spaced, staggered center rows	None	ASTM Organic Mineral Surface Tile Underlayment, applied in ASTM D312, Type IV hot asphalt and back-nailed using "nails and tin caps" meeting **FBC HVHZ 1517.5**, max. 12-inch o.c.	-45.0
UDL-19.	**Plywood**, APA rated sheathing, 40/20, Exposure 1, PS1, 19/32 category	LeakBarrier EasyLay HS Base	12 ga. x 3/8-inch head diameter annular ring shank roofing nails** through 32 ga. x 1-5/8-inch dia. tin caps	6-inch o.c. at the 4-inch wide side laps and 12-inch o.c. at two (2) equally spaced, staggered center rows	(Optional) LeakBarrier PS200^{MU}, self-adhered and back-nailed, max. 12-inch o.c.	LeakBarrier NR600 Ultra or TopShield TS600 Ice & Water, self-adhered and back-nailed using nails and tin caps" meeting **FBC HVHZ 1517.5**, max. 12-inch o.c.	-45.0
UDL-20.	**Plywood**, APA rated sheathing, 40/20, Exposure 1, PS1, 19/32 category	#30 ASTM Specification Felt	12 ga. x 3/8-inch head diameter annular ring shank roofing nails** through 32 ga. x 1-5/8-inch dia. tin caps	6-inch o.c. at the 4-inch wide side laps and 6-inch o.c. at three (3) equally spaced, staggered center rows	None	LeakBarrier NR600 Ultra or TopShield TS600 Ice & Water, self-adhered and back-nailed using "nails and tin caps" meeting **FBC HVHZ 1517.5**, max. 12-inch o.c.	-52.5

2023 FBC NON-HVHZ

TABLE 4B: ALLOWABLE DESIGN PRESSURES, MECHANICALLY ATTACHED, MULTI-PLY UNDERLAYMENT SYSTEMS							
SYS. NO.	DECK	BASE SHEET			BASE PLY	CAP PLY	MDP (PSF)
		TYPE	FASTENERS	ATTACH			
**Nails shall be corrosion resistant and be of sufficient length to penetrate through the sheathing by min. 3/16-inch.							
UDL-21.	**Plywood**, APA rated sheathing, 40/20, Exposure 1, PS1, 19/32 category	#30 ASTM Specification Felt	12 ga. x 3/8-inch head diameter annular ring shank roofing nails** through 32 ga. x 1-5/8-inch dia. tin caps	6-inch o.c. at the 4-inch wide side laps and 6-inch o.c. at two (2) equally spaced, staggered center rows	None	ASTM Organic Mineral Surface Tile Underlayment, applied in ASTM D312, Type IV hot asphalt and back-nailed using "nails and tin caps" meeting **FBC HVHZ 1517.5**, max. 12-inch o.c.	-52.5
UDL-22.	**Plywood**, APA rated sheathing, 32/16, Exposure 1, PS1, 15/32 category	LeakBarrier EasyLay HS Base	Min. 1 ¼-inch long Simplex Original Cap Nails (with annular grooved shank)**	6-inch o.c. at the 4-inch wide side laps and 6-inch o.c. at four (4) equally spaced, staggered center rows	(Optional) LeakBarrier PS200^{MU}, self-adhered and back-nailed, max. 12-inch o.c.	LeakBarrier NR600 Ultra or TopShield TS600 Ice & Water, self-adhered and back-nailed using min. 1 ¼-inch long Simplex Original Cap Nails (with annular grooved shank)**, max. 12-inch o.c.	-52.5
UDL-23.	**Plywood**, APA rated sheathing, 32/16, Exposure 1, PS1, 15/32 category	LeakBarrier EasyLay HS Base	12 ga. x 3/8-inch head diameter annular ring shank roofing nails** through 32 ga. x 1-5/8-inch dia. tin caps	8-inch o.c. at the 4-inch wide side laps and 8-inch o.c. at three (3) equally spaced, staggered center rows	(Optional) LeakBarrier PS200^{MU}, self-adhered and back-nailed, max. 12-inch o.c.	LeakBarrier NR600 Ultra or TopShield TS600 Ice & Water, self-adhered and back nailed using nails and tin caps" meeting **FBC HVHZ 1517.5**, max. 12-inch o.c.	-52.5
UDL-24.	**Plywood**, APA rated sheathing, 40/20, Exposure 1, PS1, 19/32 category	LeakBarrier EasyLay	12 ga. x 3/8-inch head diameter annular ring shank roofing nails** through 32 ga. x 1-5/8-inch dia. tin caps	7-inch o.c. at the 4-inch wide side laps and 7-inch o.c. at three (3) equally spaced, staggered center rows	(Optional) LeakBarrier PS200^{MU}, self-adhered and back-nailed, max. 12-inch o.c.	LeakBarrier NR600 Ultra, TopShield TS600 Ice & Water or LeakBarrier PS200^{HT}, self-adhered and back-nailed using "nails and tin caps" meeting **FBC HVHZ 1517.5**, max. 12-inch o.c.	-60.0
UDL-25.	**Plywood**, APA rated sheathing, 32/16, Exposure 1, PS1, 15/32 category	LeakBarrier EasyLay UDL 15, TopShield EL30 or LeakBarrier EasyLay UDL Basic	12 ga. x 3/8-inch head diameter annular ring shank roofing nails** through 32 ga. x 1-5/8-inch dia. tin caps	6-inch o.c. at the 4-inch wide side laps and 6-inch o.c. at four (4) equally spaced, staggered center rows	(Optional) LeakBarrier PS200^{MU}, self-adhered and back-nailed, max. 12-inch o.c.	LeakBarrier NR600 Ultra, TopShield TS600 Ice & Water or LeakBarrier PS200^{HT}, self-adhered and back-nailed using "nails and tin caps" meeting **FBC HVHZ 1517.5**, max. 12-inch o.c.	-60.0
UDL-26.	**Plywood**, APA rated sheathing, 40/20, Exposure 1, PS1, 19/32 category	LeakBarrier EasyLay HS Base	12 ga. x 3/8-inch head diameter annular ring shank roofing nails** through 32 ga. x 1-5/8-inch dia. tin caps	6-inch o.c. at the 4-inch wide side laps and 6-inch o.c. at two (2) equally spaced, staggered center rows	(Optional) LeakBarrier PS200^{MU}, self-adhered and back-nailed, max. 12-inch o.c.	LeakBarrier NR600 Ultra or TopShield TS600 Ice & Water, self-adhered and back-nailed using "nails and tin caps" meeting **FBC HVHZ 1517.5**, max. 12-inch o.c.	-67.5
UDL-27.	**Plywood**, APA rated sheathing, 40/20, Exposure 1, PS1, 19/32 category	LeakBarrier EasyLay HS Base	12 ga. x 3/8-inch head diameter annular ring shank roofing nails** through 32 ga. x 1-5/8-inch dia. tin caps	10-inch o.c. at the 4-inch wide side laps and 10-inch o.c. at three (3) equally spaced, staggered center rows	(Optional) LeakBarrier PS200^{MU}, self-adhered and back-nailed, max. 12-inch o.c.	LeakBarrier NR600 Ultra or TopShield TS600 Ice & Water, self-adhered and back-nailed using "nails and tin caps" meeting **FBC HVHZ 1517.5**, max. 12-inch o.c.	-67.5

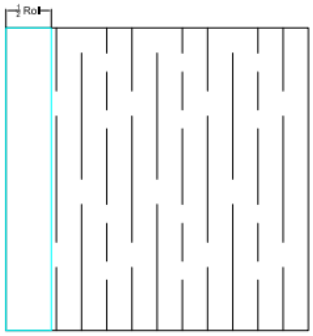
2023 FBC NON-HVHZ

TABLE 4B: ALLOWABLE DESIGN PRESSURES, MECHANICALLY ATTACHED, MULTI-PLY UNDERLAYMENT SYSTEMS

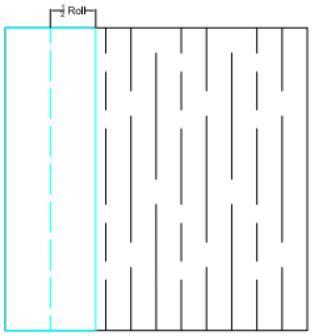
SYS. NO.	DECK	BASE SHEET			BASE PLY	CAP PLY	MDP (PSF)
		TYPE	FASTENERS	ATTACH			
**Nails shall be corrosion resistant and be of sufficient length to penetrate through the sheathing by min. 3/16-inch.							
UDL-28.	**Plywood**, APA rated sheathing, 32/16, Exposure 1, PS1, 15/32 category	Double-layer application, #30 ASTM Specification Felt**	12 ga. x 3/8-inch head diameter annular ring shank roofing nails** through 32 ga. x 1-5/8-inch dia. tin caps	6x8-inch grid; start 6-inch o.c. with centerline 1-inch from starting edge, followed by rows spaced 8-inch o.c. with fasteners spaced 6-inch o.c. within each row.	None	ASTM Organic Mineral Surface Tile Underlayment, applied in ASTM D312, Type IV hot asphalt and back-nailed using "nails and tin caps" meeting **FBC HVHZ 1517.5**, max. 12-inch o.c.	-82.5

** Base sheet applied in double-layer application:

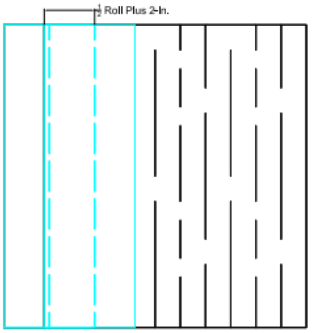
Apply a strip of base sheet for the first course that is half the width of a full sheet, fastened sufficiently to hold in place.



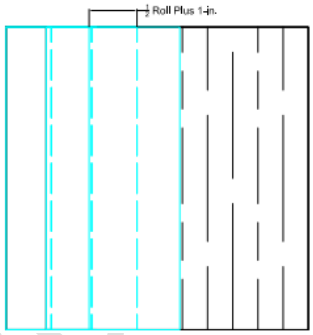
Apply a full sheet of a base sheet for the second course, fully overlapping the first half-width course.



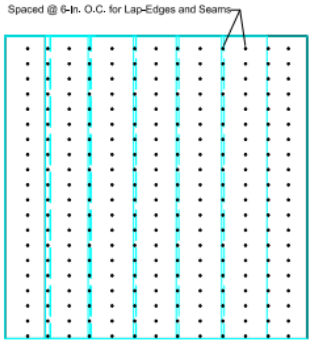
Apply the third course of base sheet overlapping the second course half the width of a full sheet plus 2 inches.



Overlap all successive courses half the width of a full sheet plus 1 inch.



Fastening: 12 ga. x 1.5-inch long x 3/8-inch head diameter annular ring shank roofing nails and 32 ga., 1-5/8-inch diameter tin caps, 6x8-inch grid; start 6-inch o.c. with centerline 1-inch from start-edge, followed by rows spaced at the 8-inch o.c. with fasteners spaced 6-inch o.c. within each row.



ASTM Organic Mineral Surface Tile Underlayment, applied in ASTM D312, Type IV hot asphalt and back-nailed using 12 ga. annular ring shank roofing nails and 32 ga., 1-5/8-inch diameter tin caps, max 12-inch o.c.

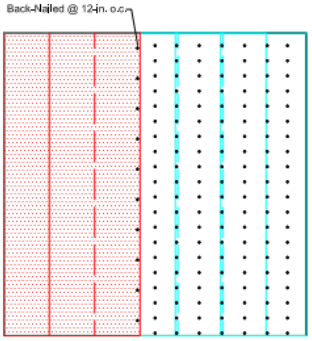
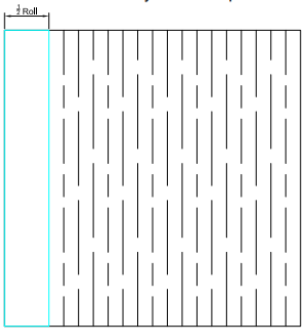


TABLE 4B: ALLOWABLE DESIGN PRESSURES, MECHANICALLY ATTACHED, MULTI-PLY UNDERLAYMENT SYSTEMS

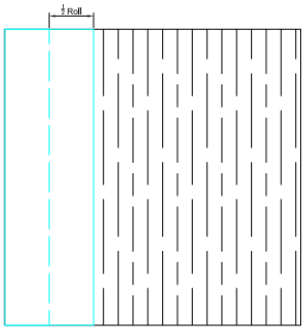
SYS. NO.	DECK	BASE SHEET			BASE PLY	CAP PLY	MDP (PSF)
		TYPE	FASTENERS	ATTACH			
**Nails shall be corrosion resistant and be of sufficient length to penetrate through the sheathing by min. 3/16-inch.							
UDL-29.	**Plywood**, APA rated sheathing, 32/16, Exposure 1, PS1, 15/32 category	Double-layer application, #30 ASTM Specification Felt**	12 ga. x 3/8-inch head diameter annular ring shank roofing nails** through 32 ga. x 1-5/8-inch dia. tin caps	4x8-inch grid; start 4-inch o.c. with centerline 1-inch from starting edge, followed by rows spaced 8-inch o.c. with fasteners spaced 4-inch o.c. within each row.	None	ASTM Organic Mineral Surface Tile Underlayment, applied in ASTM D312, Type IV hot asphalt and back-nailed using "nails and tin caps" meeting **FBC HVHZ 1517.5**, max. 12-inch o.c.	-90.0

** Base sheet applied in double-layer application:

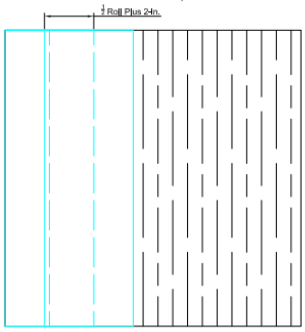
Apply a strip of base sheet for the first course that is half the width of a full sheet, fastened sufficiently to hold in place.



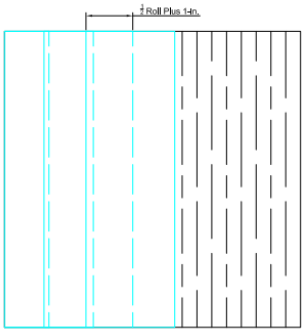
Apply a full sheet of a base sheet for the second course, fully overlapping the first half-width course.



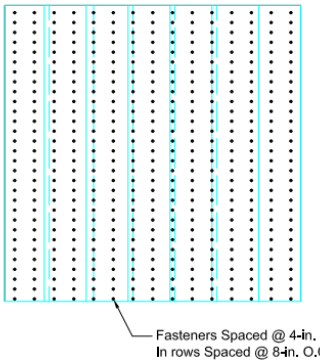
Apply the third course of base sheet overlapping the second course half the width of a full sheet plus 2 inches.



Overlap all successive courses half the width of a full sheet plus 1 inch.



Fastening: 12 ga. x 1.5-inch long x 3/8-inch head diameter annular ring shank roofing nails and 32 ga., 1-5/8-inch diameter tin caps, 4x8-inch grid; start 4-inch o.c. with centerline 1-inch from starting edge, followed by rows spaced 8-inch o.c. with fasteners spaced 4-inch o.c. within each row.



ASTM Organic Mineral Surface Tile Underlayment, applied in ASTM D312, Type IV hot asphalt and back-nailed using 12 ga. annular ring shank roofing nails and 32 ga., 1-5/8-inch diameter tin caps, max. 12-inch o.c.

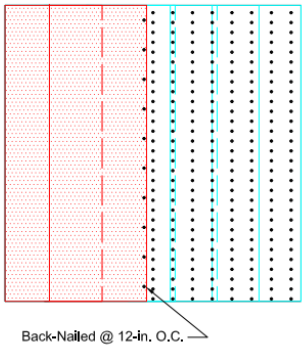
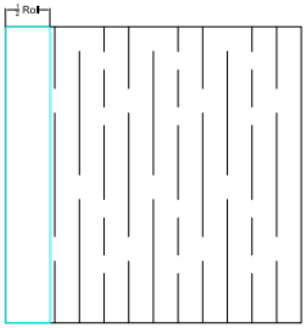


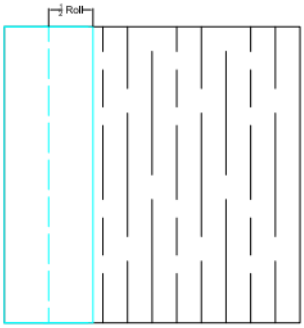
TABLE 4B: ALLOWABLE DESIGN PRESSURES, MECHANICALLY ATTACHED, MULTI-PLY UNDERLAYMENT SYSTEMS							
SYS. NO.	DECK	BASE SHEET			BASE PLY	CAP PLY	MDP (PSF)
		TYPE	FASTENERS	ATTACH			
**Nails shall be corrosion resistant and be of sufficient length to penetrate through the sheathing by min. 3/16-inch.							
UDL-30.	**Plywood**, APA rated sheathing, 40/20, Exposure 1, PS1, 19/32 category	Double-layer application, #30 ASTM Specification Felt**	12 ga. x 3/8-inch head diameter annular ring shank roofing nails** through 32 ga. x 1-5/8-inch dia. tin caps	6x8-inch grid; start 6-inch o.c. with centerline 1-inch from start-edge, followed by rows spaced at the 8-inch o.c. with fasteners spaced 6-inch o.c. within each row.	None	ASTM Organic Mineral Surface Tile Underlayment, applied in ASTM D312, Type IV hot asphalt and back-nailed using "nails and tin caps" meeting **FBC HVHZ 1517.5**, max. 12-inch o.c.	-90.0

** Base sheet applied in double-layer application:

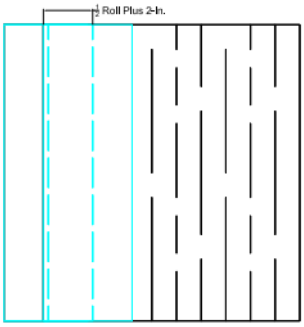
Apply a strip of base sheet for the first course that is half the width of a full sheet, fastened sufficiently to hold in place.



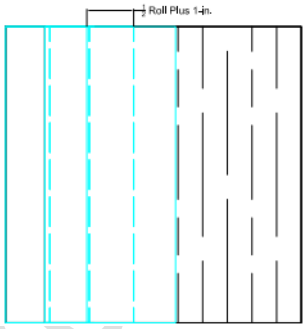
Apply a full sheet of a base sheet for the second course, fully overlapping the first half-width course.



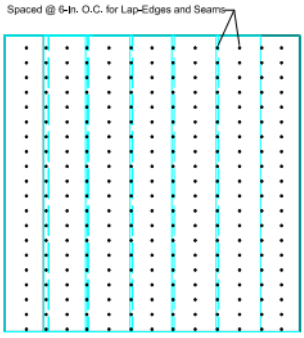
Apply the third course of base sheet overlapping the second course half the width of a full sheet plus 2 inches.



Overlap all successive courses half the width of a full sheet plus 1 inch.



Fastening: 12 ga. x 1.5-inch long x 3/8-inch head diameter annular ring shank roofing nails and 32 ga., 1-5/8-inch diameter tin caps, 6x8-inch grid; start 6-inch o.c. with centerline 1-inch from start-edge, followed by rows spaced at the 8-inch o.c. with fasteners spaced 6-inch o.c. within each row.



ASTM Organic Mineral Surface Tile Underlayment, applied in ASTM D312, Type IV hot asphalt and back-nailed using 12 ga. annular ring shank roofing nails and 32 ga., 1-5/8-inch diameter tin caps, max 12-inch o.c.

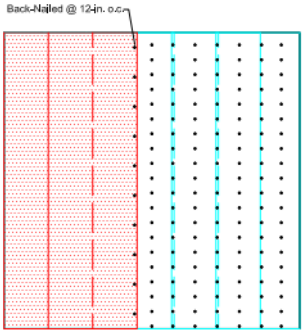


TABLE 4B: ALLOWABLE DESIGN PRESSURES, MECHANICALLY ATTACHED, MULTI-PLY UNDERLAYMENT SYSTEMS							
SYS. NO.	DECK	BASE SHEET			BASE PLY	CAP PLY	MDP (PSF)
		TYPE	FASTENERS	ATTACH			
**Nails shall be corrosion resistant and be of sufficient length to penetrate through the sheathing by min. 3/16-inch.							
UDL-31.	**Plywood**, APA rated sheathing, 32/16, Exposure 1, PS1, 15/32 category	LeakBarrier EasyLay HS Base	12 ga. x 3/8-inch head diameter annular ring shank roofing nails** through 32 ga. x 1-5/8-inch dia. tin caps	5-inch o.c. at the 4-inch wide side laps and 5-inch o.c. at four (4) equally spaced, staggered center rows	(Optional) LeakBarrier PS200^{MU}, self-adhered and back-nailed, max. 12-inch o.c.	LeakBarrier NR600 Ultra or TopShield TS600 Ice & Water, self-adhered and back-nailed using nails and tin caps" meeting **FBC HVHZ 1517.5**, max. 12-inch o.c.	-97.5
UDL-32.	**Plywood**, APA rated sheathing, 40/20, Exposure 1, PS1, 19/32 category	#30 ASTM Specification Felt	12 ga. x 3/8-inch head diameter annular ring shank roofing nails** through 32 ga. x 1-5/8-inch dia. tin caps	4-inch o.c. at the 4-inch wide side laps and 4-inch o.c. at three (3) equally spaced center rows	None	ASTM Organic Mineral Surface Tile Underlayment, applied in ASTM D312, Type IV hot asphalt and back-nailed using "nails and tin caps" meeting **FBC HVHZ 1517.5**, max. 12-inch o.c.	-105.0
UDL-33.	**Plywood**, APA rated sheathing, 32/16, Exposure 1, PS1, 15/32 category	LeakBarrier EasyLay	12 ga. x 3/8-inch head diameter annular ring shank roofing nails** through 32 ga. x 1-5/8-inch dia. tin caps	4-inch o.c. at the 4-inch wide side laps and 4-inch o.c. at four (4) equally spaced, staggered center rows	(Optional) LeakBarrier PS200^{MU}, self-adhered and back-nailed, max. 12-inch o.c.	LeakBarrier PS200^{HT}, self-adhered and back-nailed, max. 12-inch o.c.	-120.0
UDL-34.	**Plywood**, APA rated sheathing, 32/16, Exposure 1, PS1, 15/32 category	LeakBarrier EasyLay	12 ga. x 3/8-inch head diameter annular ring shank roofing nails** through 32 ga. x 1-5/8-inch dia. tin caps	4-inch o.c. at the 4-inch wide side laps and 4-inch o.c. at four (4) equally spaced, staggered center rows	LeakBarrier PS200^{MU}, self-adhered and back-nailed, max. 12-inch o.c.	LeakBarrier NR600 Ultra or TopShield TS600 Ice & Water, self-adhered and back-nailed using "nails and tin caps" meeting **FBC HVHZ 1517.5**, max. 12-inch o.c.	-120.0
UDL-35.	**Plywood**, APA rated sheathing, 40/20, Exposure 1, PS1, 19/32 category	LeakBarrier EasyLay HS Base	12 ga. x 3/8-inch head diameter annular ring shank roofing nails** through 32 ga. x 1-5/8-inch dia. tin caps	6-inch o.c. at the 4-inch wide side laps and 6-inch o.c. at four (4) equally spaced, staggered center rows	(Optional) LeakBarrier PS200^{MU}, self-adhered and back-nailed, max. 12-inch o.c.	LeakBarrier NR600 Ultra or TopShield TS600 Ice & Water, self-adhered and back-nailed using "nails and tin caps" meeting **FBC HVHZ 1517.5**, max. 12-inch o.c.	-120.0

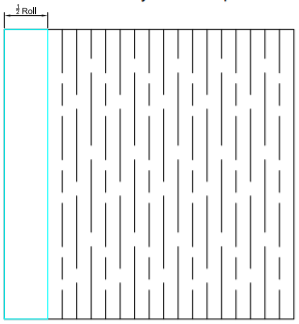
2023 FBC NON-HVHZ

TABLE 4B: ALLOWABLE DESIGN PRESSURES, MECHANICALLY ATTACHED, MULTI-PLY UNDERLAYMENT SYSTEMS

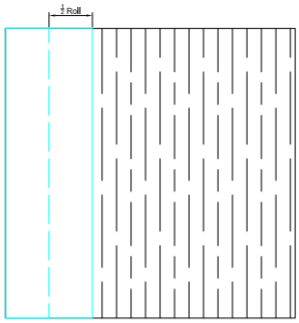
SYS. NO.	DECK	BASE SHEET			BASE PLY	CAP PLY	MDP (PSF)
		TYPE	FASTENERS	ATTACH			
**Nails shall be corrosion resistant and be of sufficient length to penetrate through the sheathing by min. 3/16-inch.							
UDL-36.	**Plywood**, APA rated sheathing, 40/20, Exposure 1, PS1, 19/32 category	Double-layer application, #30 ASTM Specification Felt**	12 ga. x 3/8-inch head diameter annular ring shank roofing nails** through 32 ga. x 1-5/8-inch dia. tin caps	4x8-inch grid; start 4-inch o.c. with centerline 1-inch from start-edge, followed by rows spaced at the 8-inch o.c. with fasteners spaced 4-inch o.c. within each row.	None	ASTM Organic Mineral Surface Tile Underlayment, applied in ASTM D312, Type IV hot asphalt and back-nailed using "nails and tin caps" meeting **FBC HVHZ 1517.5**, max. 12-inch o.c.	-142.5

** Base sheet applied in double-layer application:

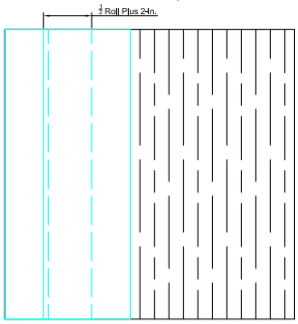
Apply a strip of base sheet for the first course that is half the width of a full sheet, fastened sufficiently to hold in place.



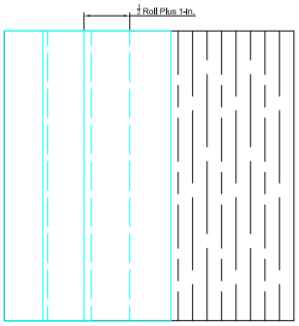
Apply a full sheet of a base sheet for the second course, fully overlapping the first half-width course.



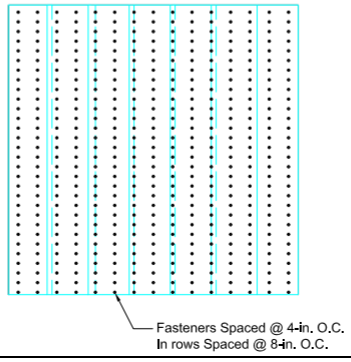
Apply the third course of base sheet overlapping the second course half the width of a full sheet plus 2 inches.



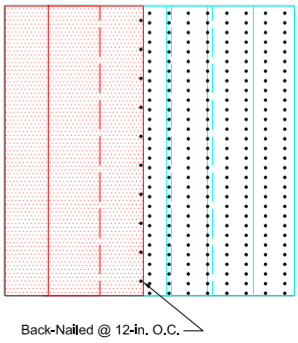
Overlap all successive courses half the width of a full sheet plus 1 inch.



Fastening: 12 ga. x 1.5-inch long x 3/8-inch head diameter annular ring shank roofing nails and 32 ga., 1-5/8-inch diameter tin caps, 4x8-inch grid; start 4-inch o.c. with centerline 1-inch from starting edge, followed by rows spaced 8-inch o.c. with fasteners spaced 4-inch o.c. within each row.



ASTM Organic Mineral Surface Tile Underlayment, applied in ASTM D312, Type IV hot asphalt and back-nailed using 12 ga. annular ring shank roofing nails and 32 ga., 1-5/8-inch diameter tin caps, max. 12-inch o.c.



5.9 **Exposure Limitations:**

TABLE 5: EXPOSURE LIMITATIONS		
UNDERLAYMENT	PREPARED ROOF COVER INSTALLATION TYPE	MAXIMUM EXPOSURE (DAYS)
#30 ASTM Specification Felt	Mechanically attached	1
LeakBarrier EasyLay HS Base, LeakBarrier EasyLay UDL HT, LeakBarrier MS300, LeakBarrier PS200^{MU} or TopShield Ice & Water G300	Mechanically attached	30
LeakBarrier Self-Adhering Quick Roll Shingle Starter	Asphalt shingles	30
LeakBarrier EasyLay UDL 15, TopShield EL30 or LeakBarrier EasyLay UDL Basic	Mechanically attached	90
LeakBarrier EasyLay, LeakBarrier FS500^{HT}	Mechanically attached	180
LeakBarrier PS200^{HT}	Any type (per Table 2)	180
ASTM Organic Mineral Surface Tile Underlayment	Any type (per Table 2)	180
LeakBarrier NR600 Ultra	Any type (per Table 2)	360
TopShield TS600 Ice & Water	Any type (per Table 2)	360

5.10 **Tile Slippage Limitations:** When loading roof tiles on the underlayment, the maximum roof pitch shall be as follows. These pitch limitations can only be exceeded by using battens or loading boards during loading of the roof tiles.

TABLE 6: TILE SLIPPAGE LIMITATIONS FOR DIRECT-DECK TILE INSTALLATIONS			
UNDERLAYMENT*	TILE PROFILE	STAGING METHOD	MAXIMUM STAGING PITCH
LeakBarrier PS200^{HT}	Flat or Lugged	6-tile stack (4 over 2)	6:12
LeakBarrier NR600 Ultra	Flat or Lugged	10-tile stack	6:12
TopShield TS600 Ice & Water	Flat or Lugged	10-tile stack	6:12
2-ply system; LeakBarrier PS200^{MU} followed by LeakBarrier NR600 Ultra or TopShield TS600 Ice & Water	Flat or Lugged	10-tile stack	6:12
ASTM Organic Mineral Surface Tile Underlayment	Flat	6-tile stack (4 over 2)	5:12
	Lugged	6-tile stack (4 over 2)	6:12

*Notes: *Tarco specifies a minimum 48 cure-time after the installation of self-adhering membranes and before loading of roofing tiles.*

2023 FBC NON-HVHZ

6. INSTALLATION:

6.1 **Tarco Roof Underlayments** shall be installed in accordance with **Tarco Roofing** installation instructions subject to the Limitations of Use herein and the specifics noted below.

6.1.1 Consult Tarco requirements for back-nailing at pitch of 2:12 or greater.

6.2 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).

6.3 Refer to Section 6.4 for underlayments having prescriptive codified minimum attachment or Tables 4A and 4B for underlayment systems having maximum design pressures established in accordance with FBC 1504.2.1.4.

6.4 Underlayment Assemblies with Prescriptive Minimum Attachment for use in NON-TILE applications:

6.4.1

CODE REFERENCE:	**1507.1.1.1 or R905.1.1.1, Option 1:** 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 for specific underlayment/substrate combinations)
UNDERLAYMENT:	BASE PLY: (Optional) **LeakBarrier® PS200^{MU}** 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: **LeakBarrier EasyLay UDL HT, LeakBarrier FS500^{HT}, LeakBarrier® MS300, LeakBarrier® PS200^{MU}, TopShield Ice & Water G300, LeakBarrier® PS200^{HT}, LeakBarrier® NR600 Ultra or TopShield TS600 Ice & Water** 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.

6.4.2

CODE REFERENCE:	**1507.1.1.1 or R905.1.1.1, Option 2:** Self-adhering strips to deck-joints followed by underlayment mechanically attached to deck
DECK DESCRIPTION:	Code-minimum wood deck to the satisfaction of the Authority Having Jurisdiction
SECONDARY WATER BARRIER:	Min. 3 ¾-inch wide strips of **LeakBarrier EasyLay UDL HT, LeakBarrier FS500^{HT}, LeakBarrier® MS300, LeakBarrier® PS200^{MU}, TopShield Ice & Water G300, LeakBarrier® PS200^{HT}, LeakBarrier® NR600 Ultra or TopShield TS600 Ice & Water** 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).
UNDERLAYMENT:	**#30 ASTM Specification Felt** 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. Note: Metal caps are required where the ultimate design wind speed, V_{ult}, equals or exceeds 170 mph. **Cap Type** — **Minimum thickness** 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
SURFACING:	FBC Approved asphalt shingles, metal roof panels or metal shingles, slate or slate type shingles, wood shakes or wood shingles, subject to the allowable roof covers in Table 2 herein.

6.4.3	**CODE REFERENCE:**	**1507.1.1.1 or R905.1.1.1, Option 2:** Self-adhering strips to deck-joints followed by underlayment mechanically attached to deck
	DECK DESCRIPTION:	Code-minimum wood deck to the satisfaction of the Authority Having Jurisdiction
	SECONDARY WATER BARRIER:	Min. 3 ¾-inch wide strips of **LeakBarrier EasyLay UDL HT, LeakBarrier FS500^{HT}, LeakBarrier® MS300, LeakBarrier® PS200^{MU}, TopShield Ice & Water G300, LeakBarrier® PS200^{HT}, LeakBarrier® NR600 Ultra or TopShield TS600 Ice & Water** 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).
	UNDERLAYMENT:	**LeakBarrier EasyLay, LeakBarrier EasyLay HS Base, LeakBarrier EasyLay UDL 15, TopShield EL30 or LeakBarrier EasyLay UDL Basic** 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. Note: Metal caps are required where the ultimate design wind speed, V_{ult}, equals or exceeds 170 mph. **Cap Type** — **Minimum thickness** 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
	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.

6.4.4	**CODE REFERENCE:**	**1507.1.1.1 or R905.1.1.1, Option 3:** Two-layer underlayment mechanically fastened to deck
	DECK DESCRIPTION:	Code-minimum wood deck to the satisfaction of the Authority Having Jurisdiction
	UNDERLAYMENT:	Two (2) layers of **#30 ASTM Specification Felt** in accordance with FBC Section 1507.1.1.1(3) or R905.1.1.1(3).
	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. Note: Metal caps are required where the ultimate design wind speed, V_{ult}, equals or exceeds 170 mph. **Cap Type** — **Minimum thickness** Metal cap — 32 ga. sheet metal 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 Section 1507.1.1.1(3) or R905.1.1.1(3).
	SURFACING:	FBC Approved asphalt shingles, metal roof panels or metal shingles, slate or slate type shingles, wood shakes or wood shingles, subject to the allowable roof covers in Table 2 herein.

2023 FBC NON-HVHZ

6.4.5	**CODE REFERENCE:**	**1507.1.1.1 or R905.1.1.1, Option 3:** Two-layer underlayment mechanically fastened to deck
	DECK DESCRIPTION:	Code-minimum wood deck to the satisfaction of the Authority Having Jurisdiction
	UNDERLAYMENT:	Two (2) layers of **LeakBarrier EasyLay, LeakBarrier EasyLay HS Base, LeakBarrier EasyLay UDL 15, TopShield EL30 or LeakBarrier EasyLay UDL Basic** in accordance with FBC Section 1507.1.1.1(3) or R905.1.1.1(3).
	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. Note: Metal caps are required where the ultimate design wind speed, V_{ult}, equals or exceeds 170 mph. **Cap Type** — **Minimum thickness** Metal cap — 32 ga. sheet metal 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 Section 1507.1.1.1(3) or R905.1.1.1(3).
	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.
6.4.6	**CODE REFERENCE:**	**1507.1.1.1 or R905.1.1.1, Option 1 combined with Option 2 or 3:** 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 **LeakBarrier EasyLay UDL HT, LeakBarrier FS500^{HT},LeakBarrier® MS300, LeakBarrier® PS200^{MU}, TopShield Ice & Water G300, LeakBarrier® PS200^{HT}, LeakBarrier® NR600 Ultra or TopShield TS600 Ice & Water** 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).
	BASE SHEET:	One (1) layer of **#30 ASTM Specification Felt, LeakBarrier EasyLay, LeakBarrier EasyLay HS Base, LeakBarrier EasyLay UDL 15, TopShield EL30, LeakBarrier EasyLay UDL Basic** or FBC Approved ASTM D226, Type II felt, 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 **#30 ASTM Specification Felt, LeakBarrier EasyLay, LeakBarrier EasyLay HS Base, LeakBarrier EasyLay UDL 15, TopShield EL30, LeakBarrier EasyLay UDL Basic** or FBC Approved ASTM D226, Type II felt 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. Note: Metal caps are required where the ultimate design wind speed, V_{ult}, equals or exceeds 170 mph. **Cap Type** — **Minimum thickness** 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 or FBC Section 1507.1.1.1(3) or R905.1.1.1(3).
	UNDERLAYMENT:	BASE PLY: (Optional) **LeakBarrier® PS200^{MU}** self-adhering and back-nailed in accordance with the manufacturer's requirements. CAP PLY: **LeakBarrier EasyLay UDL HT, LeakBarrier FS500^{HT}, LeakBarrier® MS300, LeakBarrier® PS200^{MU}, TopShield Ice & Water G300, LeakBarrier® PS200^{HT}, LeakBarrier® NR600 Ultra or TopShield TS600 Ice & Water** self-adhering 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.

2023 FBC NON-HVHZ

6.5 Valley Liners:

ASTM Organic Mineral Surface Tile Underlayment or **Fiberglass Mineral Surface Roll Roofing** may be used as a valley liner in accordance with **FBC 1507.2.9.2** or **FBC Residential R905.2.8.2**. Installation shall be in accordance with the manufacturer's instructions.

6.6 Shingle Starters:

LeakBarrier® Self-Adhering Quick Roll Shingle Starter may be used as a starter-course at eaves and/or rakes for asphalt shingle roof installations. Installation shall be in accordance with the manufacturer's instructions.

7. BUILDING PERMIT REQUIREMENTS:

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

8. MANUFACTURING PLANTS:

Contact the named QA entity for manufacturing facilities covered by **F.A.C. Rule 61G20-3** QA requirements. Refer to Section 4 herein for products and production locations having met codified material standards.

9. QUALITY ASSURANCE ENTITY:

UL LLC – QUA9625; (360) 817-5512; bsai.inspections@ul.com

- END OF PEER -

2023 FBC NON-HVHZ