



EXTERIOR RESEARCH & DESIGN, LLC.

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EVALUATION REPORT

DAP Foam, Inc.
1645 Manufactures Drive
Fenton, MO 63026
(636) 717-2888

Evaluation Report 11665.10.16-R1
FL21374-R1
Date of Issuance: 10/20/2016
Revision 1: 10/18/2017

SCOPE:

This Evaluation Report is issued under **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 use of the product under the Florida Building Code. The product described herein has been evaluated for compliance with the **6th Edition (2017) Florida Building Code** sections noted herein.

DESCRIPTION: Touch N’ Seal Storm Bond 2 Two-Component Polyurethane Roof Tile Adhesive

LABELING: Labeling shall be in accordance with the requirements the Accredited Quality Assurance Agency noted herein.

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

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

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

This Evaluation Report consists of pages 1 through 9.

Prepared by:

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



The facsimile seal appearing was authorized by Robert Nieminen, P.E. on 10/18/2017. This does not serve as an electronically signed document.

CERTIFICATION OF INDEPENDENCE:

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

ROOFING COMPONENT EVALUATION:

1. SCOPE:

Product Category: Roofing

Sub-Category: Roof Tile Adhesives

Compliance Statement: Touch N’ Seal Storm Bond 2 Two-Component Polyurethane Roof Tile Adhesive, as produced by DAP Foam, Inc., has demonstrated compliance with the 6th Edition (2017) Florida Building Code through testing in accordance with the Standards set forth herein. Compliance is subject to the Installation Requirements and Limitations / Conditions of Use set forth herein.

2. STANDARDS:

<u>Sections</u>	<u>Property</u>	<u>Standard</u>	<u>Year</u>
1504.2.1.1	Wind	SSTD 11	1997

3. REFERENCES:

<u>Entity</u>	<u>Examination</u>	<u>Reference</u>	<u>Date</u>
PRI (TST 5878)	Static Uplift – SSTD 11	COPO-002-02-01	09/02/2016
PRI (TST 5878)	Static Uplift – SSTD 11	COPO-002-02-02	09/02/2016
PRI (TST 5878)	Static Uplift – SSTD 11	COPO-002-02-03	09/02/2016
PRI (TST 5878)	Static Uplift – SSTD 11	COPO-002-02-04	09/02/2016
PRI (TST 5878)	Static Uplift – SSTD 11	COPO-002-02-05	09/02/2016
PRI (TST 5878)	Static Uplift – SSTD 11	COPO-002-02-06	09/02/2016
PRI (TST 5878)	Static Uplift – SSTD 11	COPO-002-02-07	09/02/2016
PRI (TST 5878)	Static Uplift – SSTD 11	COPO-002-02-08	09/02/2016
PRI (TST 5878)	Static Uplift – SSTD 11	COPO-002-02-09	09/02/2016
PRI (TST 5878)	Static Uplift – SSTD 11	COPO-002-02-10	09/02/2016
PRI (TST 5878)	Static Uplift – SSTD 11	COPO-002-02-11	09/02/2016
PRI (TST 5878)	Static Uplift – SSTD 11	COPO-002-02-12	09/02/2016
PRI (TST 5878)	Static Uplift – SSTD 11	COPO-003-02-1	10/17/2016
PRI (TST 5878)	Static Uplift – SSTD 11	COPO-003-02-2	10/17/2016
PRI (TST 5878)	Static Uplift – SSTD 11	COPO-003-02-3	10/17/2016
PRI (TST 5878)	Static Uplift – SSTD 11	COPO-003-02-4	10/17/2016
PRI (TST 5878)	Static Uplift – SSTD 11	COPO-003-02-5	10/17/2016
PRI (TST 5878)	Static Uplift – SSTD 11	COPO-003-02-6	10/17/2016
PRI (TST 5878)	Static Uplift – SSTD 11	COPO-003-02-7	10/17/2016
PRI (TST 5878)	Target area clarification	COPO-002-02-01 Letter	08/11/2017
PRI (TST 5878)	Target area clarification	COPO-003-02-01 Letter	08/22/2017
Miami-Dade (CER1592)	HVHZ compliance	17-0829.12	10/12/2017
MTI (TST2508)	Comparative Adhesion	CX07K6A	10/07/2016
ITS (QUA 1673)	Quality Assurance	Inspections Listing	10/16/2017

4. PRODUCT DESCRIPTION:

4.1 **Touch N’ Seal Storm Bond 2 Two-Component Polyurethane Roof Tile Adhesive** is a two-component expanding polyurethane roof tile adhesive that is mixed and dispensed from a dispensing system provided by **DAP Foam, Inc.**

5. LIMITATIONS:

5.1 This is a building code evaluation. Neither Trinity|ERD nor Robert Nieminen, P.E. are, in any way, the Designer of Record for any project on which this Evaluation Report, or previous versions thereof, is/was used for permitting or design guidance unless retained specifically for that purpose.

5.2 This Evaluation Report is not for use in FBC HVHZ jurisdictions.

- 5.3 Fire classification is not part of this evaluation. Refer to a current Roofing Materials Directory for fire ratings of this product and **FBC 1505.2**.
- 5.4 **Touch N’ Seal Storm Bond 2 Two-Component Polyurethane Roof Tile Adhesive** can be used with flat, low/medium and high profile tiles or any rigid, discontinuous roof assembly having a current Florida Statewide Product Approval or approved on a local-level by the Authority Having Jurisdiction, subject to the Limitations herein.
- 5.5 Minimum underlayment shall be per **FRSA/TRI April 2012 (04-12)** or having a current Florida Statewide Product Approval or approved on a local-level by the Authority Having Jurisdiction for use with **Touch N’ Seal Storm Bond 2 Two-Component Polyurethane Roof Tile Adhesive**.
- 5.6 Field tiles, meeting the limitations of **FBC 1609.5.3**, using **Touch N’ Seal Storm Bond 2 Two-Component Polyurethane Roof Tile Adhesive** are limited to projects having an Aerodynamic Uplift Moment (M_a), determined in accordance with **FBC 1609.5.3** or **Tables 2A and 2B of FRSA/TRI April 2012 (04-12)**, not greater than the Allowable Overturning Moment values set forth in Table 1 below. Refer to Section 10 and **DAP Foam, Inc.** published installation instructions for Adhesive Paddy Placement details.

TABLE 1: FIELD TILES APPLIED WITH TOUCH N’ SEAL STORM BOND 2 TWO-COMPONENT POLYURETHANE ROOF TILE ADHESIVE					
ALLOWABLE OVERTURNING MOMENT PERFORMANCE DATA					
2 TO 1 MARGIN OF SAFETY ALREADY APPLIED FOR INDEPENDENT (SINGLE OR CONTINUOUS PADDY) PLACEMENT					
4 TO 1 MARGIN OF SAFETY ALREADY APPLIED FOR INTERDEPENDENT (TWO PADDY) PLACEMENT					
Tile (FBC 1609.5.3)		Adhesive Paddy Placement (Section 10)			Allowable Overturning Moment (ft-lbf)
Type	Profile	Type	Placement	Detail	
Clay or Concrete	Flat	Interdependent	Small, Two Paddy: 3 x 3-inch, ~8 gram on underlayment; 2 x 4-inch, ~8 gram at tile overlap	1A	73
		Independent	Medium Paddy: 2 x 7-inch target (3.5 x 7-inch free-rise), ~24 gram	1B	86
		Independent	Large Paddy: 2 x 10-inch target (3.5 x 13-inch free-rise), ~45 gram	1C	132
Clay or Concrete	Low/ Medium	Interdependent	Small, Two Paddy: 3 x 3-inch, ~8 gram on underlayment; 2 x 4-inch, ~8 gram at tile overlap	2A	69
		Independent	Medium Paddy: 2 x 7-inch target (4 x 8-inch free-rise), ~30 gram	2B	46
		Independent	Large Paddy: 2 x 10-inch target (4.75 x 13-inch free-rise), ~60 gram	2C	88
Clay or Concrete	High	Interdependent	Small, Two Paddy: 3 x 3-inch, ~8 gram on underlayment; 2 x 4-inch, ~8 gram at tile overlap	3A	67
		Independent	Medium Paddy: 2 x 7-inch target (4 x 8-inch free-rise), ~30 gram	3B	70
Clay	High	Independent	Large Paddy: 2 x 10-inch target (3.5 x 13-inch free-rise), ~45 gram	3C	103
Concrete	High	Independent	Large Paddy: 2 x 10-inch target (4.75 x 13-inch free-rise), ~60 gram	3D	106
Clay	Barrel	2 x 10-inch target (3.75 x 13-inch free-rise), ~34 gram for pans; two @ 1 x 9-inch target (2 x 9-inch free-rise), ~17 gram for cap		4	214

- 5.6.1 Data in Table 1 relates to installation over a **'30/90' underlayment system**, as detailed in the **FRSA/TRI April 2012 (04-12)**. Alternate underlayment systems include those having a current Florida Statewide Product Approval and/or approved on a local-level by the Authority Having Jurisdiction specifically for use with **Touch N' Seal Storm Bond 2 Two-Component Polyurethane Roof Tile Adhesive**.
- 5.6.2 Tile roof systems using tile types or profiles other than those listed above acquiring acceptance for use with **Touch N' Seal Storm Bond 2 Two-Component Polyurethane Roof Tile Adhesive** shall be tested in accordance with **SSTD 11** or **Testing Application Standard TAS 101**. For the interdependent multi-paddy method, an additional 2-to-1 margin of safety above that specified in **SSTD 11** or **Testing Application Standard TAS 101** shall be applied in determining the 'allowable overturning moment'.
- 5.7 Hip and ridge tiles using **Touch N' Seal Storm Bond 2 Two-Component Polyurethane Roof Tile Adhesive** are limited to projects having hip/ridge design pressure requirements, determined in accordance with **Table 1A of FRSA/TRI April 2012 (04-12)**, not greater than the Allowable Design Pressures set forth in Table 2 below. Refer to Section 10 and **DAP Foam, Inc.** published installation instructions for Adhesive Paddy Placement details.

TABLE 2: HIP & RIDGE TILES APPLIED WITH TOUCH N' SEAL STORM BOND 2 TWO-COMPONENT POLYURETHANE ROOF TILE ADHESIVE				
ALLOWABLE UPLIFT RESISTANCE PERFORMANCE DATA				
2 TO 1 MARGIN OF SAFETY ALREADY APPLIED FOR INDEPENDENT (CONTINUOUS PADDY) PLACEMENT				
4 TO 1 MARGIN OF SAFETY ALREADY APPLIED FOR INTERDEPENDENT PLACEMENT				
Substrate	Tile	Attachment Method (Section 10)		Allowable Design Pressure (psf)
		Type	Placement	
2x PT ridge board strapped per FRSA/TRI April 2012 (04-12)	Clay	Interdependent Detail 5A:	Head: One (1) #10 x 2½" screw; Overlap: 1 x 6-inch target (1.5 x 7 inch free-rise) (~10.5 gram)	137
	Concrete	Interdependent Detail 5A:	Head: One (1) #10 x 2½" screw; Overlap: 1 x 6-inch target (1.5 x 7 inch free-rise) (~10.5 gram)	126
2x PT ridge board bonded to cap sheet of '30/90' underlayment system, as detailed in the FRSA/TRI April 2012 (04-12) , using Touch N' Seal Storm Bond 2 Two-Component Polyurethane Roof Tile Adhesive , continuous paddy, ~34 gram/ft.	Clay	Interdependent Detail 5A:	Head: One (1) #10 x 2½" screw; Overlap: 1 x 6-inch target (1.5 x 7 inch free-rise) (~10.5 gram)	120
	Concrete	Interdependent Detail 5A:	Head: One (1) #10 x 2½" screw; Overlap: 1 x 6-inch target (1.5 x 7 inch free-rise) (~10.5 gram)	120
2x PT ridge board strapped per FRSA/TRI April 2012 (04-12)	Clay	Independent Detail 5B:	2 x 10-inch target (3 x 12-inch free-rise), ~34 gram or continuous paddy (~ 34 gram/ft)	314
	Concrete	Independent Detail 5B:	2 x 10-inch target (3 x 12-inch free-rise), ~34 gram or continuous paddy (~ 41 gram/ft)	153
2x PT ridge board bonded to cap sheet of '30/90' underlayment system, as detailed in the FRSA/TRI April 2012 (04-12) , using Touch N' Seal Storm Bond 2 Two-Component Polyurethane Roof Tile Adhesive , continuous paddy, ~34 gram/ft.	Clay	Independent Detail 5B:	2 x 10-inch target (3 x 12-inch free-rise), ~34 gram or continuous paddy (~ 34 gram/ft)	120
	Concrete	Independent Detail 5B:	2 x 10-inch target (3 x 12-inch free-rise), ~34 gram or continuous paddy (~ 41 gram/ft)	120

TABLE 2: HIP & RIDGE TILES APPLIED WITH TOUCH N' SEAL STORM BOND 2 TWO-COMPONENT POLYURETHANE ROOF TILE ADHESIVE				
ALLOWABLE UPLIFT RESISTANCE PERFORMANCE DATA				
2 TO 1 MARGIN OF SAFETY ALREADY APPLIED FOR INDEPENDENT (CONTINUOUS PADDY) PLACEMENT				
4 TO 1 MARGIN OF SAFETY ALREADY APPLIED FOR INTERDEPENDENT PLACEMENT				
Substrate	Tile	Attachment Method (Section 10)		Allowable Design Pressure (psf)
		Type	Placement	
Top Notch (FL8095): Bonded to cap sheet of '30/90' underlayment system, as detailed in the FRSA/TRI April 2012 (04-12) , using Touch N' Seal Storm Bond 2 Two-Component Polyurethane Roof Tile Adhesive , continuous paddy, ~34 gram/ft.	Clay	Independent Detail 5B:	2 x 10-inch target (3 x 12-inch free-rise), ~34 gram or continuous paddy (~ 34 gram/ft)	160
	Concrete	Independent Detail 5B:	2 x 10-inch target (3 x 12-inch free-rise), ~34 gram or continuous paddy (~ 41 gram/ft)	160
TAMCO Hip/Ridge Channel (FL15237): 26 ga. galvanized	Clay	Independent Detail 5B:	2 x 10-inch target (3 x 12-inch free-rise), ~34 gram or continuous paddy (~ 34 gram/ft)	268
	Concrete	Independent Detail 5B:	2 x 10-inch target (3 x 12-inch free-rise), ~34 gram or continuous paddy (~ 41 gram/ft)	268

6. INSTALLATION:

- 6.1 **Touch N' Seal Storm Bond 2 Two-Component Polyurethane Roof Tile Adhesive** and the tile roof assembly shall be installed in accordance with **FRSA/TRI April 2012 (04-12)** and **DAP Foam, Inc.** published installation instructions, subject to the limitations outlined in Section 5.
- 6.2 Hip and ridge boards or hip/ridge metal shall be installed in accordance with the **FRSA/TRI April 2012 (04-12)**. Proprietary hip and ridge components shall be installed in accordance with the manufacturer's Florida Product Approval.
- 6.3 Installation shall be by a Factory Trained 'Qualified Applicator' or 'Qualified Trainer' approved by **DAP Foam, Inc.**

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:

Pacific, MO

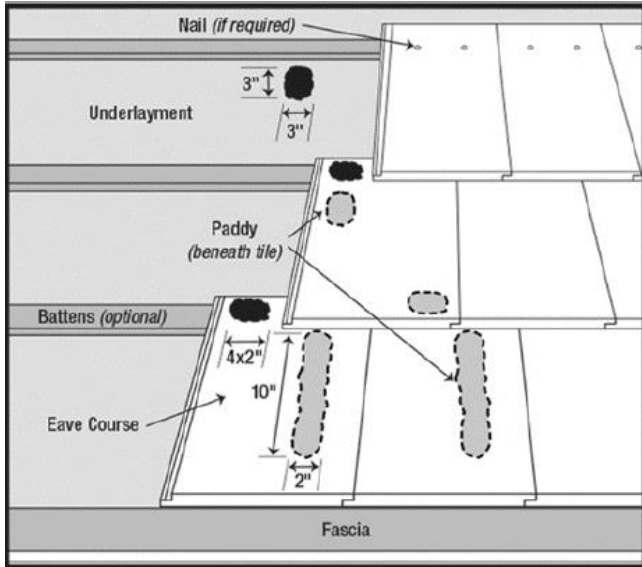
9. QUALITY ASSURANCE ENTITY:

Intertek Testing Services NA Inc. – QUA1673; (608) 836-4400; danica.goss@intertek.com

10. PADDY PLACEMENT DETAILS (FROM DAP FOAM, INC. PUBLISHED LITERATURE):

NOTE: DRAWINGS DEPICT TARGET PADDY DIMENSIONS.

10.1 Flat Tiles:

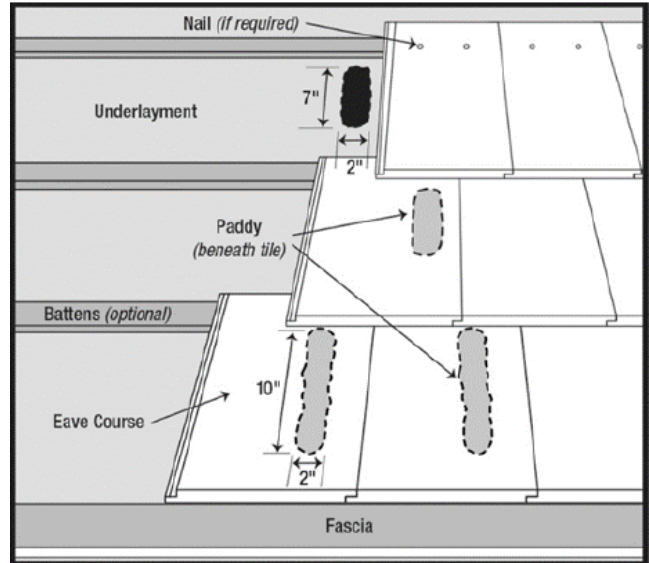


Flat Profile Tile – Small Paddy

#1A: Interdependent (Two Paddy) Placement

~45 grams/paddy at eave course

~8 grams/paddy in field

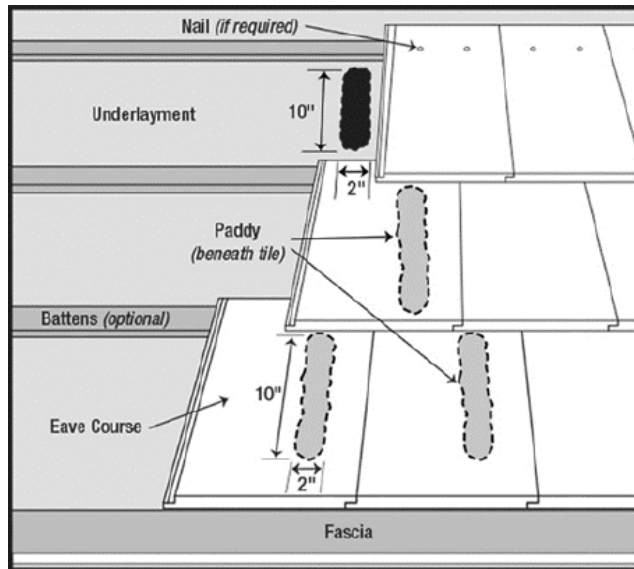


Flat Profile Tile – Medium Paddy

#1B: Independent Placement

~60 grams/paddy at eave course

~30 grams/paddy in field

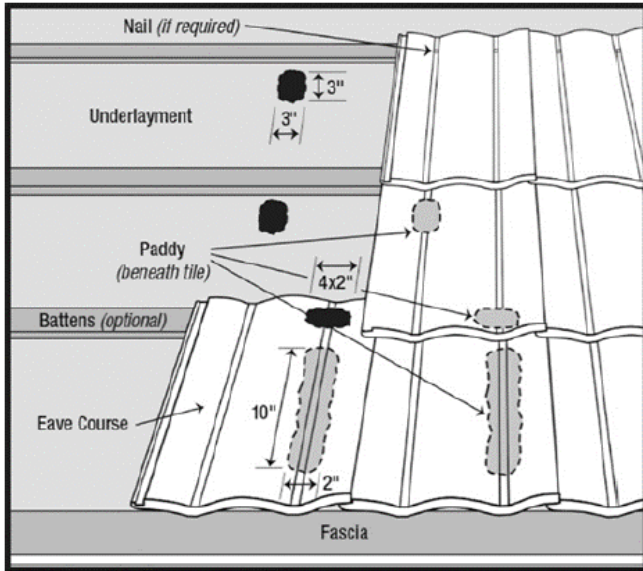


Flat Profile Tile – Large Paddy

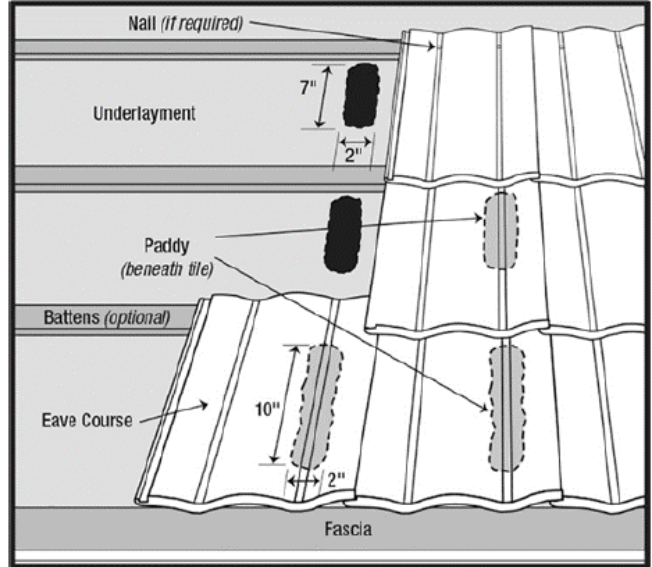
#1C: Independent Placement

~60 gram/paddy

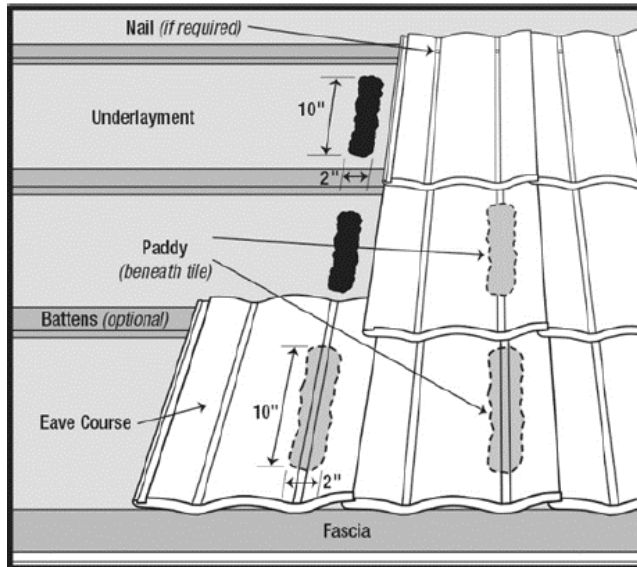
10.2 **Low/Medium Profile Tiles:**



Medium Profile Tile – Small Paddy
#2A: Interdependent (Two Paddy) Placement
 ~60 grams/paddy at eave course
 ~8 grams/paddy in field

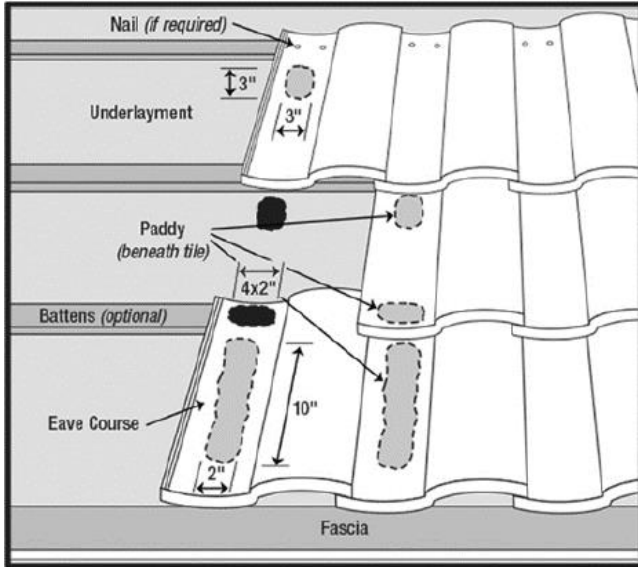


Medium Profile Tile – Medium Paddy
#2B: Independent Placement
 ~60 grams/paddy at eave course
 ~30 grams/paddy in field

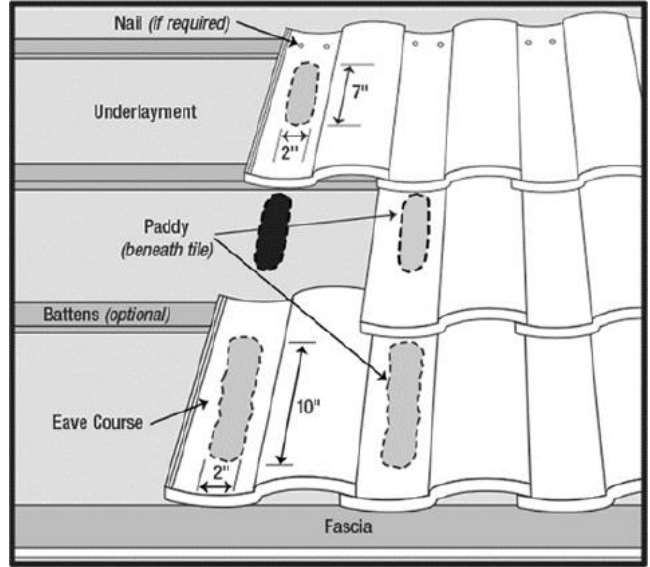


Medium Profile Tile – Large Paddy
#2C: Independent Placement
 ~60 grams/paddy

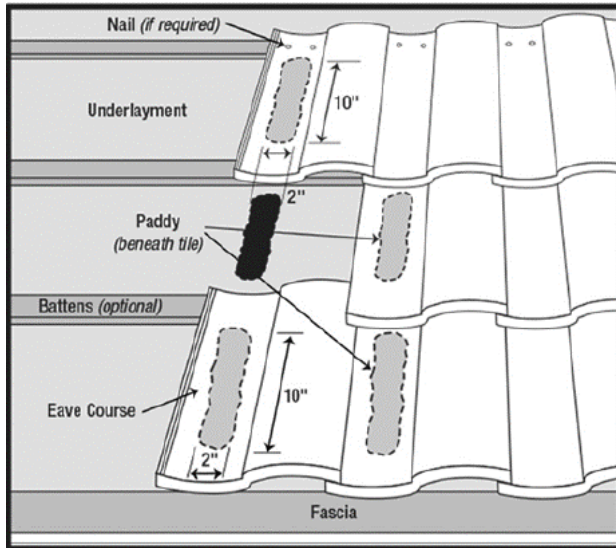
10.3 **High Profile Tiles:**



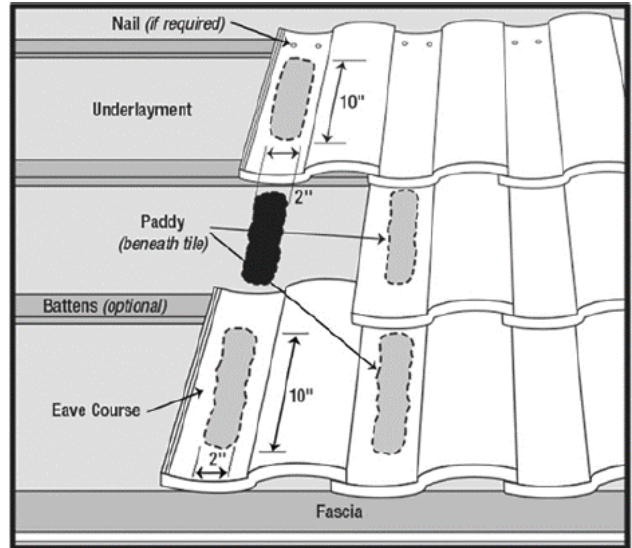
High Profile Tile – Small Paddy
#3A: Interdependent (Two Paddy) Placement
 ~60 grams/paddy at eave course
 ~8 grams/paddy in field



High Profile Tile – Medium Paddy
#3B: Independent Placement
 ~60 grams/paddy at eave course
 ~30 grams/paddy in field

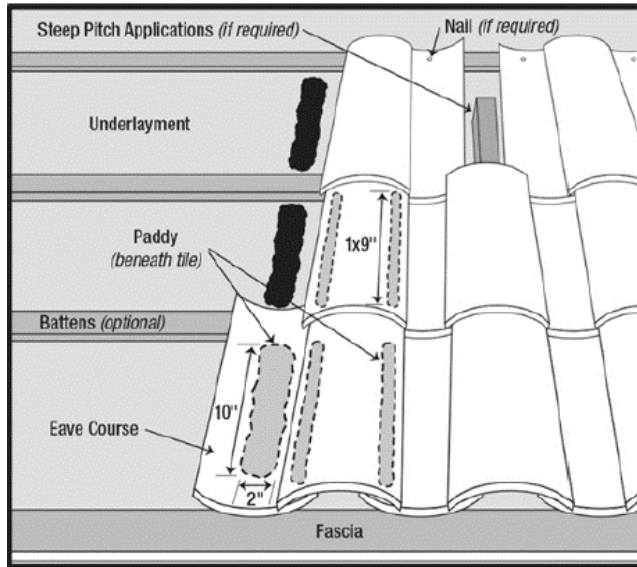


High Profile Tile – Large Paddy
 Clay Tile
#3C: Independent Placement
 ~45 grams/paddy



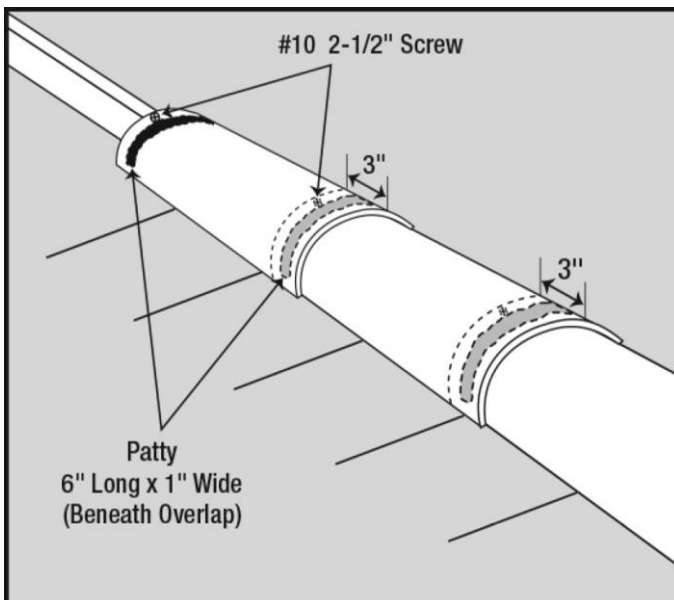
High Profile Tile – Large Paddy
 Concrete Tile
#3D: Independent Placement
 ~60 grams/paddy

10.4 **Two Piece Barrel (Cap & Pan) Tile:**

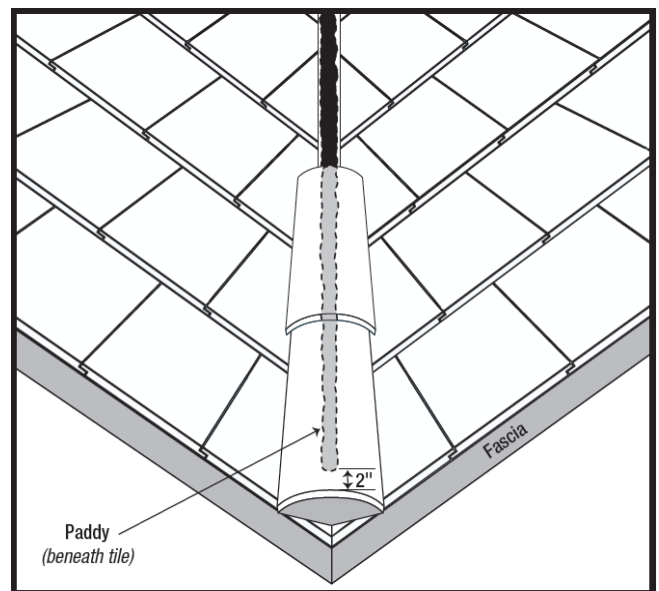


High Profile Tile – Two-Piece Barrel
#4: Clay Barrel
 ~34 grams/paddy at pans
 ~17 grams/paddy at caps

10.5 **Hip and Ridge:**



#5A: Interdependent (Screw with Overlap Adhesive) Placement



Hip and Ridge (Individual Placement)
 #5B: Independent Placement

- END OF EVALUATION REPORT -