



NEMO|etc.

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ENGINEER

EVALUATE

TEST

CONSULT

EVALUATION REPORT

ICP Adhesives and Sealants, Inc.
12505 NW 44th Street
Coral Springs, FL 33065
(888) 774-1419

Evaluation Report 02768.03.06-R9
FL6332-R9
Date of Issuance: 08/08/2008
Revision 9: 09/29/2020

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 products described herein have been evaluated for compliance with the **7th Edition (2020) Florida Building Code** sections noted herein.

DESCRIPTION: POLYSET® AH-160

LABELING: Labeling shall be in accordance with the requirements of 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 or production facility location(s) changes, or Code provisions that relate to the product(s) change. Acceptance of our Evaluation Reports 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 Evaluation Report relative to updated Code requirements with each Code Cycle.

ADVERTISEMENT: The Florida Product Approval Number (FL#) preceded by the words "NEMO|etc. 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 10.

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 09/29/2020. This does not serve as an electronically signed document.

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 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 NEMO ETC, LLC 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: POLYSET® AH-160, as produced by ICP Adhesives and Sealants, Inc., has demonstrated compliance with the following sections of the **7th Edition (2020) 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:

Sections	Property	Standard	Year
1504.2.1.1	Overturning resistance	SSTD 11	1997

3. REFERENCES:

Entity	Examination	Reference	Date
ERD (TST 6049)	Static Uplift – SSTD 11	P39740.02.12	02/20/2012
ERD (TST 6049)	Static Uplift – SSTD 11	P39740.11.13-R1	01/02/2015
ICC-ES (EVL2396)	2012 IBC Compliance	ESR-1709	12/01/2018
Miami-Dade (CER 1592)	HVHZ compliance	17-0322.03	04/27/2017
NEMO (TST6049)	Tensile Adhesion (ridge metal)	4i-ECM-20-SSCRT-01	09/29/2020
NEMO (TST6049)	Tensile Adhesion	4p-ICP-20-SSLAP-01	09/29/2020
PRI (TST 5878)	Static Uplift – SSTD 11	ECM-001-02-01	09/21/2001
PRI (TST 5878)	Static Uplift – SSTD 11	PFI-006-02-01	05/09/2005
PRI (TST 5878)	Static Uplift – SSTD 11	PFI-006-02-02	05/09/2005
PRI (TST 5878)	Static Uplift – SSTD 11	PFI-007-02-01	10/11/2005
PRI (TST 5878)	Static Uplift – SSTD 11	PFI-008-02-04	02/21/2006
PRI (TST 5878)	Static Uplift – SSTD 11	PFI-009-02-03	02/21/2006
PRI (TST 5878)	Static Uplift – SSTD 11	TGRI-001-02-03	10/30/2006
PRI (TST 5878)	Static Uplift – SSTD 11	TGRI-001-02-03	10/30/2006
PRI (TST 5878)	Static Uplift – SSTD 11	PFPI-010-02-01	12/07/2006
PRI (TST 5878)	Static Uplift – SSTD 11	PFPI-011-02-01	12/07/2006
PRI (TST 5878)	Static Uplift – SSTD 11	PFPI-012-02-01	12/07/2006
PRI (TST 5878)	Static Uplift – SSTD 11	PFPI-013-02-01	12/07/2006
PRI (TST 5878)	Static Uplift – SSTD 11	PFPI-014-02-01	12/07/2006
PRI (TST 5878)	Static Uplift – SSTD 11	ECM-003-02-01	06/13/2008
PRI (TST 5878)	Static Uplift – SSTD 11	ECM-004-02-01	06/13/2008
PRI (TST 5878)	Static Uplift – SSTD 11	ECM-005-02-01	06/13/2008
PRI (TST 5878)	Static Uplift – SSTD 11	ECM-006-02-01	06/13/2008
PRI (TST 5878)	Static Uplift – SSTD 11	ECM-007-02-01	06/13/2008
PRI (TST 5878)	Static Uplift – SSTD 11	ECM-008-02-01	06/13/2008
UL LLC (QUA 9625)	Quality Assurance	Service Confirmation	02/07/2018
UL, LLC. (QUA 9625)	Quality Assurance	Florida BCIS	Current

4. PRODUCT DESCRIPTION:

POLYSET® AH-160 is a two-component expanding polyurethane roof tile adhesive that is mixed and dispensed from a dispensing system provided by **ICP Adhesives and Sealants, Inc.** The components are available in refillable tanks or disposable cylinders.

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 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 High Velocity Hurricane Zone jurisdictions (i.e., Broward and Miami-Dade Counties).
- 5.3 This Evaluation Report 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 Evaluation Report does not include evaluation of fire classification. Refer to **FBC 1505** or **R902** 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 This Evaluation Report does not include evaluation of roof edge termination.
- 5.6 **POLYSET® AH-160** may be used with flat, low and high profile tiles having a current Florida Statewide Product Approval or approved on a local-level by the Authority Having Jurisdiction.
- 5.7 Field tiles, meeting the limitations of **FBC 1609.5.3**, using **POLYSET® AH-160** are limited to projects having an Aerodynamic Uplift Moment (M_a), determined in accordance with Table 2HB, 2HC, 2HD, 2GB, 2GC or 2GD of **FRSA/TRI Florida High Wind Concrete and Clay Roof Tile Installation Manual**, Sixth Edition or **FBC 1609.5.3**, not greater than the following Allowable Overturning Moment values. Refer to Section 10 and **ICP Adhesives and Sealants, Inc.** published installation instructions for Adhesive Paddy Placement details.

TABLE 1: FIELD TILES IN POLYSET® AH-160
ALLOWABLE OVERTURNING MOMENT PERFORMANCE DATA
(MARGINS OF SAFETY ALREADY APPLIED)

Tile (FBC 1609.5.3)		Adhesive Paddy Placement (Section 10)		Allowable Overturning Moment (ft-lbf)
Type	Profile	Placement Detail	Paddy Details	
Clay or Concrete	Flat / Low	#1	Independent; Single Paddy, Medium (2x7-inch, ~30 gram)	60
		#2	Independent; Single Paddy, Large (2x10-inch, ~45 gram)	112
		#3	Interdependent; Two Paddy (4x4-inch on underlayment, 2x4-inch at tile overlap)	54
Clay or Concrete	Medium	#1	Independent; Single Paddy, Medium (2x7-inch, ~30 gram)	39
		#2	Independent; Single Paddy, Large (2x10-inch, ~54 gram)	67
		#3	Interdependent; Two Paddy (4x4-inch on underlayment, 2x4-inch at tile overlap)	58
Clay	High	#3	Independent; Single Paddy, Large (2x10-inch, ~45 gram)	134
Clay or Concrete	High	#1	Independent; Single Paddy, Medium (2x7-inch, ~30 gram)	65
		#2	Independent; Single Paddy, Large (2x10-inch, ~63 gram)	109
		#3	Interdependent; Two Paddy (4x4-inch on underlayment, 2x4-inch at tile overlap)	40
Clay	Barrel	#4	2x10-inch x ~35 gram for pans; 2 @ 1x10-inch x ~17 gram for cap	147
Concrete	Barrel	#4	2x10-inch x ~35 gram for pans; 2 @ 1x10-inch x ~17 gram for cap	107
Clay	Cap atop 2x stringer	#5	Independent: Continuous Paddy (~34 gram/ft)	135
Concrete	Cap atop 2x stringer	#5	Independent: Continuous Paddy (~ 34 gram/ft)	116
Clay	Cap atop 2x stringer	#6	Interdependent: Head: One (1) #10 x 2½" screw; Overlap: 1 x 6 inch (~10.5 gram)	105
Concrete	Cap atop 2x stringer	#6	Interdependent: Head: One (1) #10 x 2½" screw; Overlap: 1 x 6 inch (~10.5 gram)	76

5.7.1 Data in Table 1 relates to installation over a TWO-PLY underlayment system, as detailed in the **FRSA/TRI Florida High Wind Concrete and Clay Roof Tile Installation Manual**, Sixth Edition, using a hot-asphalt-applied, ASTM D6380, Class M cap sheet (commonly called a ‘30/90 system’).

Alternate underlayment systems are those having a current Florida Statewide Product Approval and/or approved on a local-level by the Authority Having Jurisdiction, listed specifically for use with **POLYSET® AH-160**.

5.7.2 Tile roof systems using tile types or profiles other than those listed above acquiring acceptance for use with **POLYSET® AH-160** 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 above that specified in **SSTD 11** or **Testing Application Standard TAS 101** shall be applied in determining the ‘allowable overturning moment’.

5.8 Hip and ridge tiles using **POLYSET® AH-160** are limited to projects having hip/ridge design pressure requirements, Table 1A of **FRSA/TRI Florida High Wind Concrete and Clay Roof Tile Installation Manual**, Sixth Edition or the applicable design pressure determined in accordance with **FBC 1609** or **FBC Residential Chapter 3**, not greater than the following values. Refer to **ICP Adhesives and Sealants, Inc.** published installation instructions for Adhesive Paddy Placement details.

TABLE 2: HIP & RIDGE TILES IN POLYSET® AH-160 ALLOWABLE UPLIFT RESISTANCE PERFORMANCE DATA <i>(MARGINS OF SAFETY ALREADY APPLIED)</i>				
Tile	Substrate	Placement Detail (Section 10)	Attachment Details	Allowable Design Pressure (psf)
Clay	2x PT ridge board	#5	Independent: Continuous Paddy (~34 gram/ft)	116
Concrete	2x PT ridge board	#5	Independent: Continuous Paddy (~ 34 gram/ft)	107
Clay	2x PT ridge board	#6	Interdependent: Head: One (1) #10 x 2½” screw; Overlap: 1 x 6 inch (~10.5 gram)	90
Concrete	2x PT ridge board	#6	Interdependent: Head: One (1) #10 x 2½” screw; Overlap: 1 x 6 inch (~10.5 gram)	56
Clay or Concrete	East Coast Metals “Trim Lock™” (FL5374): <i>aluminum, Galvalume® or stainless steel</i>	#5	Independent: Continuous Paddy (~34 gram/ft)	173
Clay or Concrete	East Coast Metals “Trim Lock™ Plus” (FL5374): <i>aluminum, Galvalume® or stainless steel</i>	#5	Independent: Continuous Paddy (~ 34 gram/ft)	178
Clay	Ridged Systems “Top Notch” (FL8095)	#5	Independent: Continuous Paddy (~ 32 gram/ft)	125
Concrete	Ridged Systems “Top Notch” (FL8095)	#5	Independent: Continuous Paddy (~ 32 gram/ft)	146

6. INSTALLATION:

- 6.1 **POLYSET® AH-160** and the tile roof assembly shall be installed in accordance with the manufacturers' current published instructions, but not less than the requirements of **FBC 1507.3** and the **FRSA/TRI Florida High Wind Concrete and Clay Roof Tile Installation Manual**, Sixth Edition, subject to the limitations in Section 5.
- 6.1.1 Installation of **POLYSET® AH-160** shall be performed by applicators that hold a valid **Qualified Applicator Card** presented by **ICP Adhesives and Sealants, Inc.**
- 6.2 Underlayment shall hold current Florida Product Approval for use with tile roofing systems. The underlayment Product Approval shall specify allowable use with **POLYSET® AH-160**. The underlayment Product Approval shall specify attachment methods for the underlayment system to resist wind uplift design loads in accordance with Table 1A of **FRSA/TRI Florida High Wind Concrete and Clay Roof Tile Installation Manual**, Sixth Edition or the critical (highest) design pressure determined in accordance with **FBC 1609** or **FBC Residential Chapter 3**.
- 6.3 Hip and ridge boards or hip/ridge metal shall be installed in accordance with the **FRSA/TRI Florida High Wind Concrete and Clay Roof Tile Installation Manual**, Sixth Edition. Proprietary hip and ridge metal shall be installed in accordance with the manufacturer's Florida Product Approval.

7. BUILDING PERMIT REQUIREMENTS:

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

8. MANUFACTURING PLANTS:

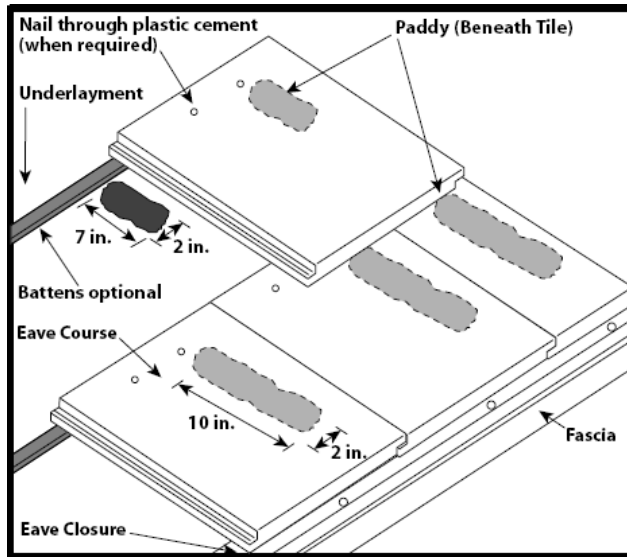
Tomball, TX

9. QUALITY ASSURANCE ENTITY:

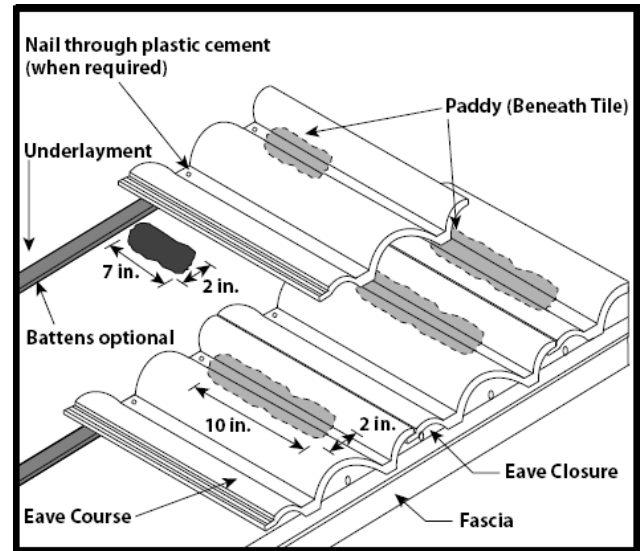
UL, LLC. – QUA9625; (414) 248-6409; karen.buchmann@ul.com

10. PADDY PLACEMENT DETAILS (FROM ICP ADHESIVES AND SEALANTS, INC. PUBLISHED LITERATURE):

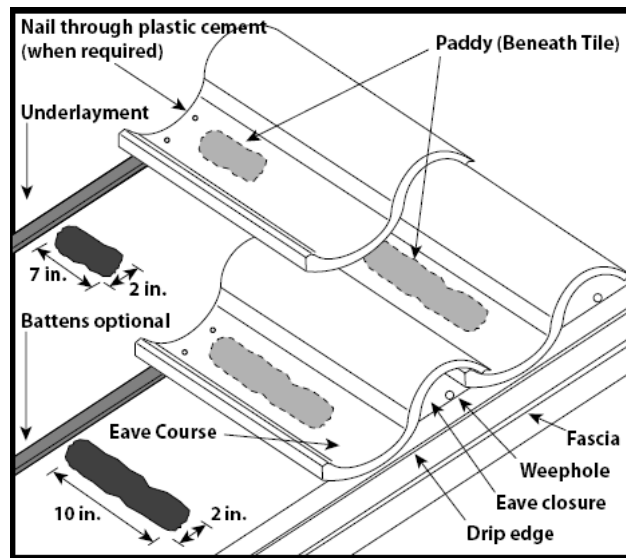
10.1 DETAIL #1: Independent, Medium Paddy:



Flat/Low Profile Tile

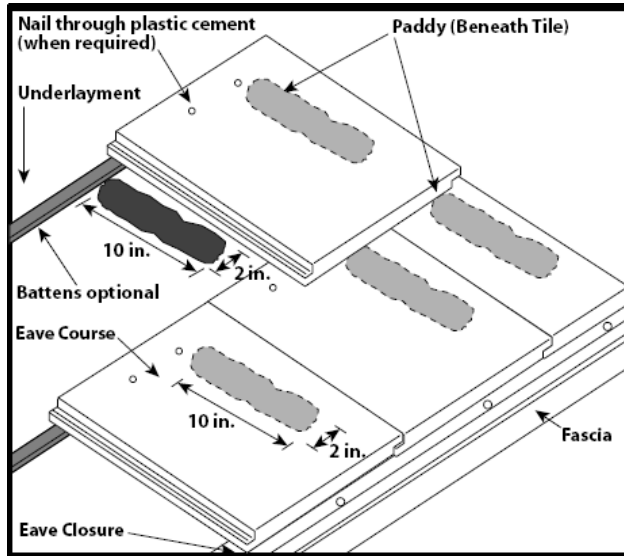


Medium Profile Tile

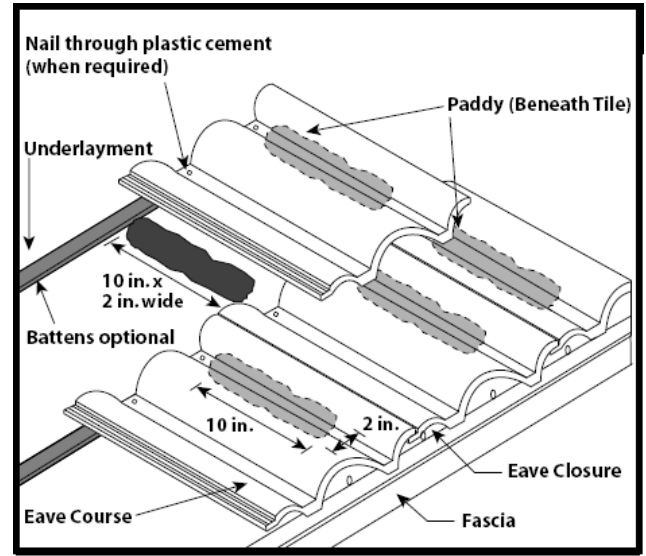


High Profile Tile

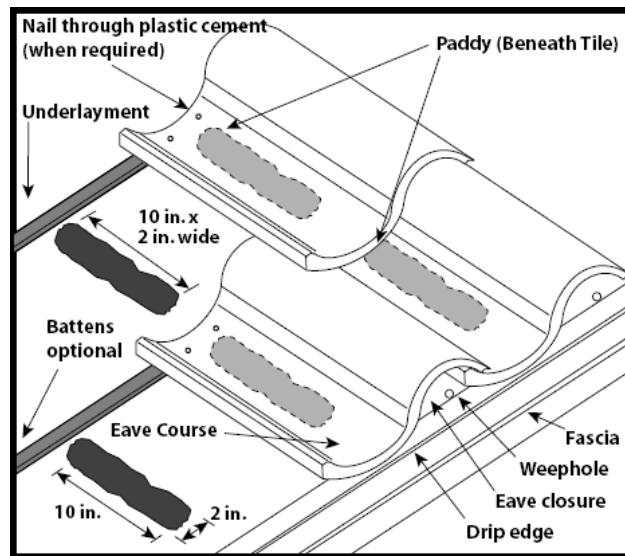
10.2 **DETAIL #2: Independent, Large Paddy:**



Flat/Low Profile Tile

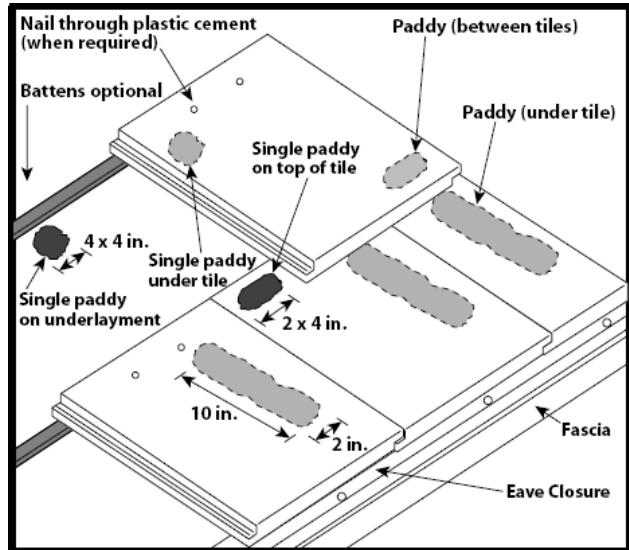


Medium Profile Tile

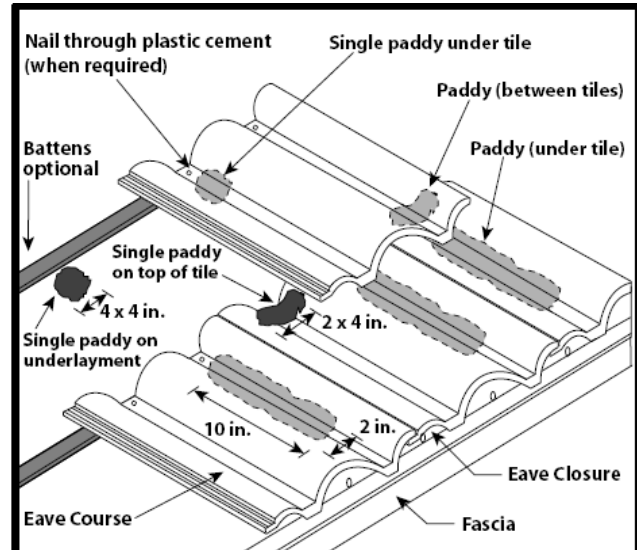


High Profile Tile

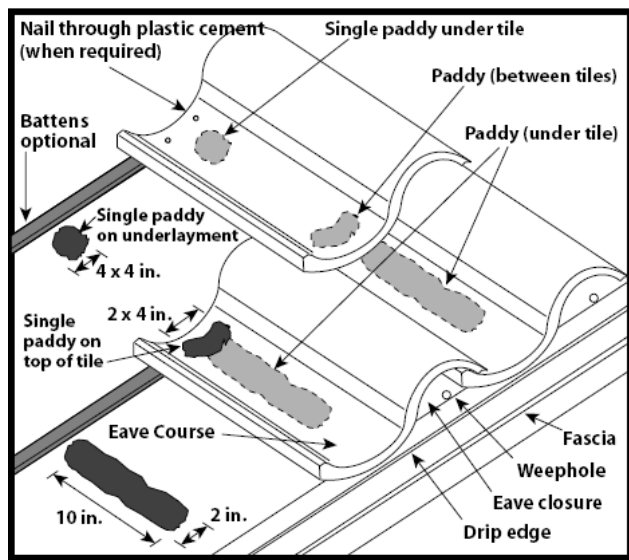
10.3 **DETAIL #3: Interdependent, Two Paddy:**



Flat/Low Profile Tile

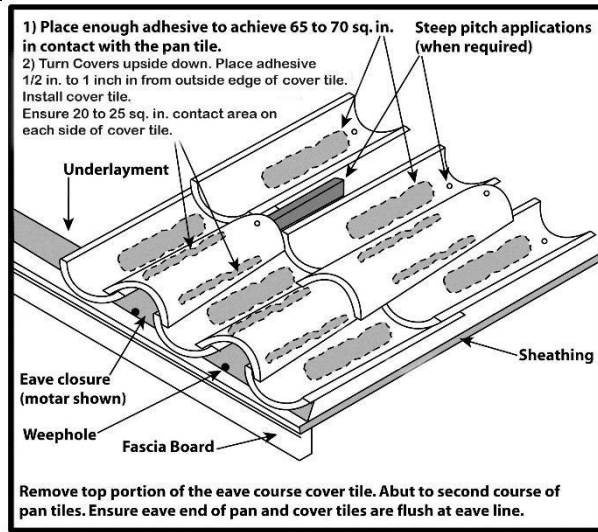


Medium Profile Tile



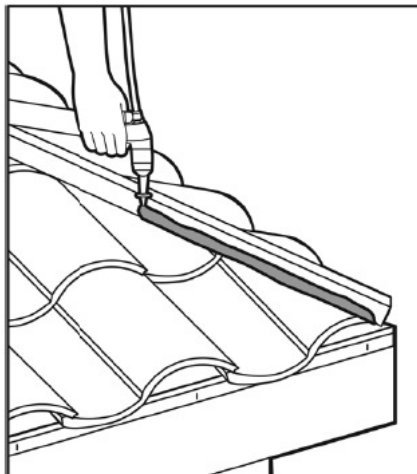
High Profile Tile

10.4 **DETAIL #4: Two Piece Barrel (Cap & Pan) Tile:**

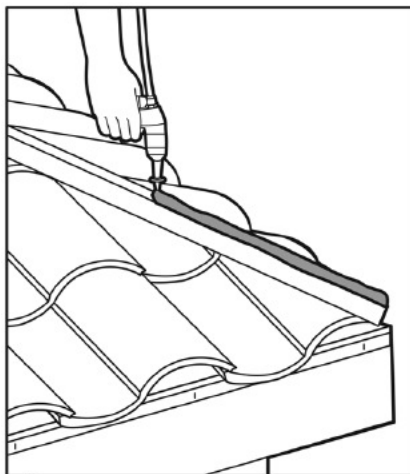


Two Piece Barrel - High Profile Tile

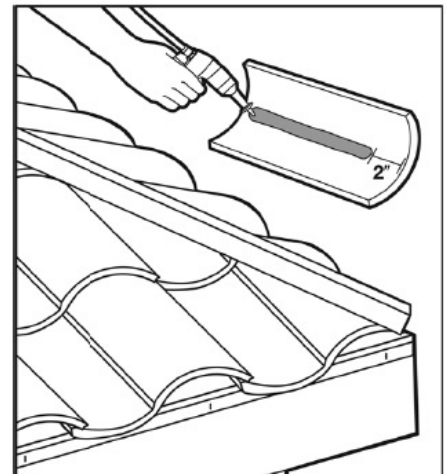
10.5 **DETAIL #5: Hip and Ridge (independent placement):**



A bead of ICP Polyset®AH-160 may be applied above the field tile surface on both sides of the hip/ridge board or galvanized metal frame to provide weatherblocking.

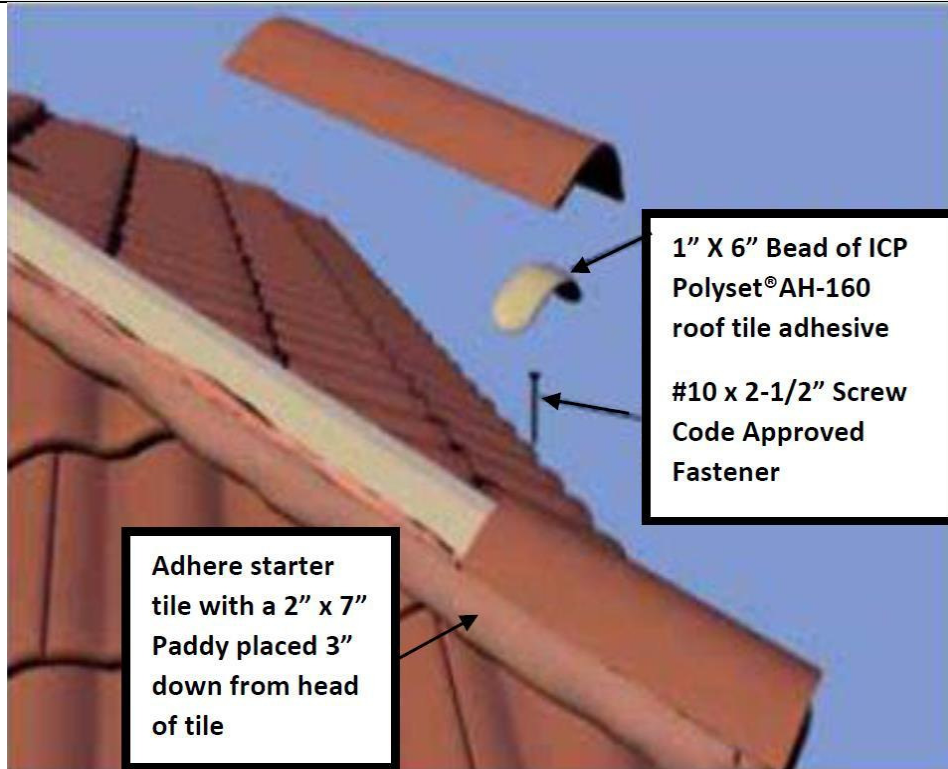


To attach hip/ridge tiles, a bead of ICP Polyset®AH-160 may be applied down the center of the hip/ridge board or galvanized frame.



To attach hip/ridge tiles, a bead of ICP Polyset®AH-160 roof tile adhesive may be applied along the full length of the tile excluding 2 inches on the eave end of tile.

10.6 **DETAIL #6: Hip and Ridge (interdependent placement):**



- END OF EVALUATION REPORT -