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INSPECT CERTIFY EVALUATE VALIDATE QUALIFY

NEMO EVALUATION REPORT (NER)

ICP Construction, Inc.
150 Dascomb Road
Andover, MA 01810
(330) 753-4585

SUBJECT:	**APOC® Polyset® AH-160 (HFO) Adhesives**
SCOPE:	This NEMO Evaluation Report (henceforth 'NER') is issued under F.A.C. Rule 61G20-3 and the applicable rules and regulations governing Product Approval of construction materials in the State of Florida and ISO/IEC 17065 via NEMO|cert. NEMO Evaluations has evaluated the product described herein for compliance with the Code sections noted herein.
CODE:	2024, 2018 International Building Code — TDI Third Party Evaluation Report acceptance 2024 International Residential Code 2023 Florida Building Code, 8th Edition 2022 California Building Code 2023 City of Los Angeles Building Code — Section 98.0501, Product Approval, Alternate Materials, Systems, Devices and Methods of Construction
JURISDICTION:	Non-HVHZ and HVHZ
NEMO CATEGORY:	Adhesives-Cements
FBC CATEGORY:	Roofing
FBC SUB-CATEGORY:	Cements-Adhesives-Coatings
CSI DIVISION:	07 00 00 Thermal and Moisture Protection 07 32 03 Roof Tile Adhesive
METHOD:	Method 1, Option C – Codified Material, Evaluation by Evaluation Entity
COMPLIANCE STATEMENT:	**APOC® Polyset® AH-160 (HFO) Adhesives**, as produced by **ICP Construction, Inc.**, has demonstrated compliance with the Code sections noted herein through testing in accordance with the referenced Standards, rational analysis and an ongoing quality assurance program. Compliance is subject to the Installation Requirements and Limitations of Use set forth herein.
QUALITY ASSURANCE:	Evidence of current quality assurance shall be listing and labeling in accordance with the requirements of NEMO|cert.
CONTINUED COMPLIANCE:	This NER is valid until such time the named product(s) change, the referenced Quality Assurance changes, or the evaluated Code provisions change. NEMO Evaluations requires, at minimum, a complete review of this NER with each 3-year Code Cycle.
BUILDING PERMIT REQUIREMENTS:	As required by the Building Official or Authority Having Jurisdiction to evaluate the installation of this product.
ADVERTISEMENT:	"NEMO Evaluated" may be displayed in advertising literature. If any portion of the NER is displayed, it shall be displayed in its entirety.
CERTIFICATION OF INDEPENDENCE:	✓ NEMO CERT, LLC has not, nor does it intend to acquire or will they acquire, a financial interest in any company manufacturing or distributing products it evaluates. ✓ NEMO CERT, LLC is not owned, operated or controlled by any company manufacturing or distributing products it evaluates. ✓ This is a building code evaluation. NEMO CERT, LLC is not, in any way, the Designer of Record for any project on which this NER, or previous versions thereof, is/was used for permitting or design guidance.

ISO/IEC 17065 PCA-145

ISO/IEC 17020 AA-779

1. CODES, PROPERTIES AND STANDARDS:

Code	Section	Property	Standard
2018 International Building Code	104.11	Alternate materials	AC152
2024 International Building Code	104.2.1	Listed compliance	AC152
	104.2.3.6.1	Evaluation Reports	ISO/IEC 17065
	1504.3.1.1	Overturning resistance	SSTD 11
2024 International Residential Code	R104.2.1	Listed compliance	AC152
	R104.2.2.6.1	Evaluation Reports	ISO/IEC 17065
2023 Florida Building Code, 8th Edition	1504.2.1.1	Overturning resistance	SSTD 11
	1523.6.5.2.2	Static uplift resistance	TAS 101
	1523.6.5.2.17.1	Compressive strength	ASTM D1621
	1523.6.5.2.17.2	Density	ASTM D1622
	1523.6.5.2.17.3	Tensile strength	ASTM D1623
	1523.6.5.2.17.4	Dimensional stability	ASTM D2126
	1523.6.5.2.17.5	Open cell content	ASTM D2856
	1523.6.5.2.17.6	Water absorption	ASTM D2842
	1523.6.5.2.17.7	Moisture vapor permeance	ASTM E96
2022 California Building Code	Div. 5, Section 98.0501	Evaluation Reports	
2023 City of Los Angeles Building Code	104.11	Alternate materials	AC152

2. PRODUCTS:

TABLE 1: EVALUATED ADHESIVES
(NEMO Certified. Consult Directory of Certified Products for production location(s))

TRADE NAME	STANDARD	DESCRIPTION
APOC® Polyset® AH-160 Roof Tile Adhesive (HFO)	ICC-ES-AC152	Two component, expanding polyurethane adhesive for use in adhesive set tile roof system assemblies

3. INSTALLATION:

3.1 **APOC® Polyset® AH-160 (HFO) Roofing Adhesives** shall be installed in accordance with **ICP Construction, Inc.** published installation instructions, but not less than the requirements of **IBC, CBC 1507.3, IRC R905.3, FBC 1507.3** and the **FRSA/TRI Manual 7th Edition,** or **FBC HVHZ 1518.8** and **RAS 120,** subject to the Limitations of Use noted herein. In case of conflict between published installation instructions and this NER, this report governs.

3.1.1 The report holder's installation instructions shall be made available at the jobsite at all times during installation.

3.1.2 Installation of **APOC® Polyset® AH-160 (HFO) Roofing Adhesives** shall be performed by applicators that hold a valid **Qualified Applicator Card** presented by **ICP Construction, Inc.**, using ICP Adhesives Foam Dispenser RTF1000 or ICP Adhesives ProPack® 30 & 100 dispensing equipment only.

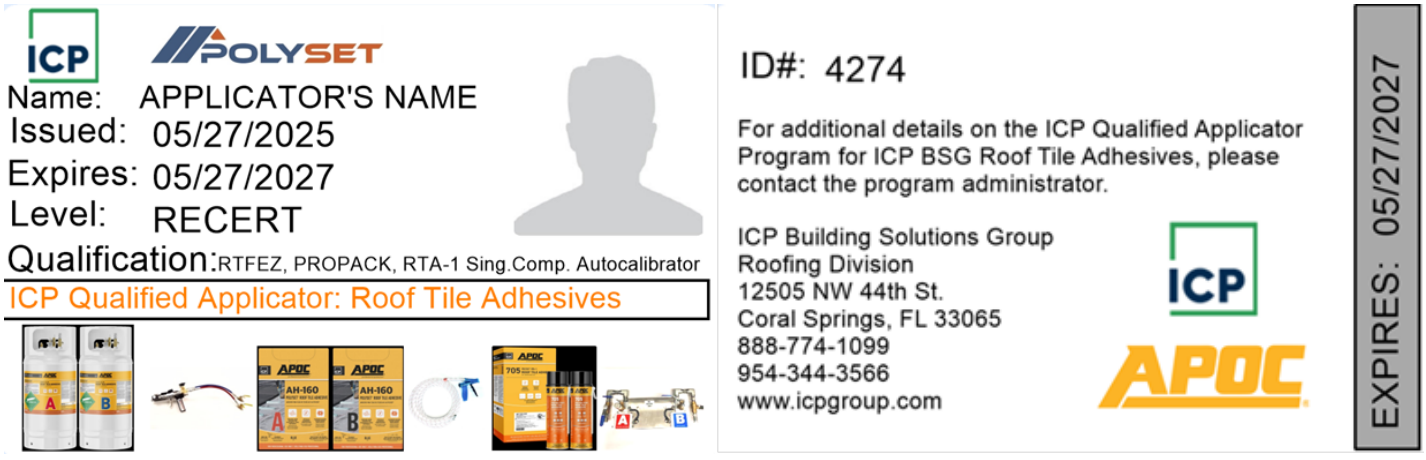

Figure 1: Qualified Applicator Card

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3.2 Underlayment shall hold Florida Product Approval, Miami-Dade NOA, or approved on a local level by the Authority Having Jurisdiction for use with tile roofing systems. The underlayment product approval shall specify allowable use with **APOC® Polyset® AH-160 (HFO) Roofing Adhesives**. The underlayment product approval shall specify attachment methods for the underlayment system to resist wind uplift design loads in accordance with:

- IBC/IRC/CBC: the critical (highest) design pressure determined in accordance with **IBC, CBC 1609 or R301.**
- FBC non-HVHZ and HVHZ: Table 1H or 1G of the **FRSA/TRI Manual 7th Edition, RAS 127,** or the critical (highest) design pressure determined in accordance with **FBC 1609**.

3.3 Florida Specific: Hip and ridge boards or hip/ridge metal shall be installed in accordance with the **FRSA/TRI Manual 7th Edition,** or **RAS 120**. Proprietary hip and ridge metal shall be installed in accordance with the manufacturer's Florida Product Approval or Miami-Dade NOA.

4. LIMITATIONS OF USE:

4.1 This is a building code evaluation. NEMO CERT, LLC is not, in any way, the Designer of Record for any project on which this NER, or previous versions thereof, is/was used for permitting or design guidance. NERs are not to be construed as representing any attributes not specifically listed, nor are NERs to be construed as an endorsement of the subject of the report or a recommendation for its use. There is no warranty by NEMO CERT, LLC, express or implied, as to any finding or other matter in this report, or as to any product covered by the report.

4.2 This NER pertains to above-deck roof components. Roof decks and structural members shall be in accordance with applicable Code requirements to the satisfaction of the Authority Having Jurisdiction.

4.3 Installation of **APOC® Polyset® AH-160 (HFO) Roofing Adhesives** is limited to when the ambient air and substrate temperatures are at or above 40°F.

4.4 IRC Specific: Use of **APOC® Polyset® AH-160 (HFO) Roofing Adhesives** is applicable where an engineered design is submitted to the code official in accordance with R301.1.3.

4.5 **Fire Classification:**

This NER does not include evaluation of fire classification. Refer to **IBC, CBC, FBC 1505, R902 or FBC HVHZ 1516,** and the fire classification certificate for the roof cover manufacturer for requirements and limitations regarding roof assembly fire classification. Refer to **IBC, CBC, FBC 2603, or IRC R303** for requirements and limitations concerning the use of foam plastic insulation.

4.6 This NER does not include evaluation of roof edge termination. Refer to **IBC, CBC 1504.6, FBC 1504.5,** or **RAS 111** for requirements and limitations regarding edge securement for low-slope roofs.

4.7 **APOC® Polyset® AH-160 (HFO) Roofing Adhesives** may be used with flat, medium and high profile tiles having a current Florida Product Approval, Miami-Dade NOA or approved on a local-level by the Authority Having Jurisdiction.

4.7.1 Field tiles, meeting the limitations of **IBC, FBC 1609.6.3, CBC 1609.5.3,** or **R301**, using **APOC® Polyset® AH-160 (HFO) Roofing Adhesives** are limited to projects having an Aerodynamic Uplift Moment (M_a), determined in accordance with Table 2HB, 2HC, 2HD, 2GB, 2GC or 2GD of the **FRSA/TRI Manual 7th Edition, RAS 127, IBC, FBC 1609.6.3, CBC 1609.5.3,** or **R301** not greater than the Allowable Overturning Moment values in Table 2. Refer to Section 5 and **ICP Construction, Inc.** published installation instructions for Adhesive Paddy Placement details.

4.7.2 Data in Table 2 relates to installation over a TWO-PLY underlayment system, as detailed in the **FRSA/TRI Manual 7th Edition** or **RAS 120**, 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 Product Approval, Miami-Dade NOA, and/or approved on a local-level by the Authority Having Jurisdiction, listed specifically for use with **APOC® Polyset® AH-160 (HFO) Roofing Adhesives**.

4.7.3 Tile roof systems using tile types or profiles other than those listed above acquiring acceptance for use with **APOC® Polyset® AH-160 (HFO) Roofing Adhesives** 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 shall be applied in determining the 'allowable overturning moment'.

TABLE 2: FIELD TILES IN APOC® Polyset® AH-160 (HFO) ROOFING ADHESIVES
ALLOWABLE OVERTURNING MOMENT PERFORMANCE DATA
(MARGINS OF SAFETY ALREADY APPLIED)

TILE (FBC 1609.6.3)		ADHESIVE PADDY PLACEMENT (SECTION 5)			ALLOWABLE OVERTURNING MOMENT (FT-LBF)
TYPE	PROFILE	DETAIL NO.	PLACEMENT TYPE	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)	55
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 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)	45
Clay	High	#2	Independent	Single Paddy, Large (2x10-inch, ~45 gram)	134
Clay	Barrel	#4	Independent	2x10-inch x ~35 gram for pans; 2 @ 1x10-inch x ~17 gram for cap	147
Concrete	Barrel	#4	Independent	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

4.8 **APOC® Polyset® AH-160 (HFO) Roofing Adhesives** may be used with hip and ridge tiles having a current Florida Product Approval, Miami-Dade NOA or approved on a local-level by the Authority Having Jurisdiction.

4.8.1 Hip and ridge tiles using **APOC® Polyset® AH-160 (HFO) Roofing Adhesives** are limited to projects having hip/ridge design pressure requirements, determined in accordance with Table 1H or 1G of the **FRSA/TRI Manual 7th Edition, RAS 127, IBC, CBC, FBC 1609** or **R301**, not greater than the Allowable Uplift values in Table 3. Refer to **ICP Construction, Inc.** published installation instructions for Adhesive Paddy Placement details.

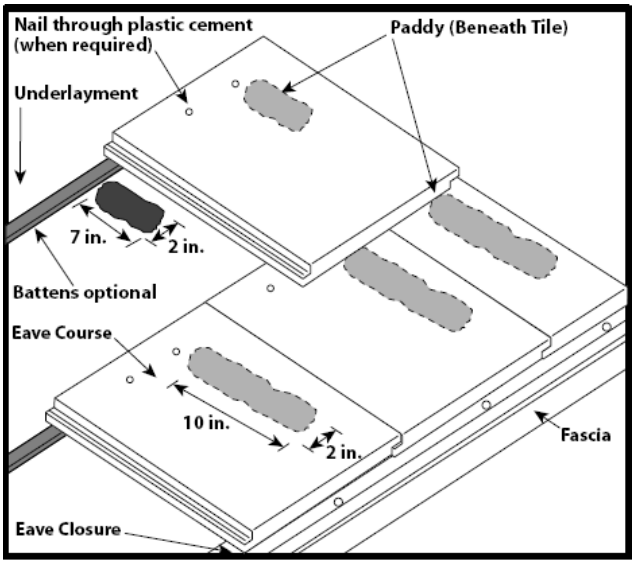
TABLE 3: HIP & RIDGE TILES IN APOC® Polyset® AH-160 (HFO) Roofing Adhesives
ALLOWABLE UPLIFT RESISTANCE PERFORMANCE DATA
(MARGINS OF SAFETY ALREADY APPLIED)

TILE	SUBSTRATE	ADHESIVE PADDY PLACEMENT (SECTION 5)			ALLOWABLE DESIGN PRESSURE (PSF)
		DETAIL NO.	PLACEMENT TYPE	DETAILS	
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): *aluminum, Galvalume® or stainless steel*	#5	Independent	Continuous Paddy (~34 gram/ft)	173
Clay or Concrete	East Coast Metals "Trim Lock™ Plus" (FL5374): *aluminum, Galvalume® or stainless steel*	#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

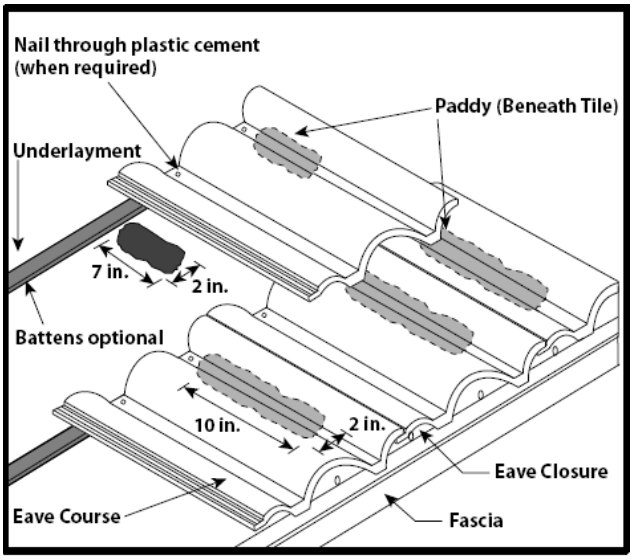
4.9 All components in the roof assembly shall have quality assurance surveillance in accordance with **F.A.C.** **Rule 61G20-3** or **AC10**. For components listed herein that are produced by a manufacturer other than the report holder on Page 1 of this NER, refer to the Florida Product Approval or NOA of the component manufacturer.

5. PADDY PLACEMENT DETAILS (FROM ICP CONSTRUCTION, INC. PUBLISHED LITERATURE):

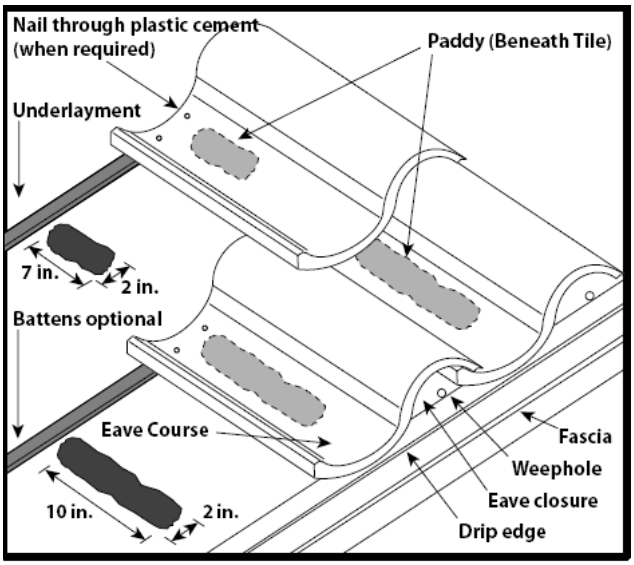
5.1 DETAIL #1: Independent, Medium Paddy:



Flat/Low Profile Tile

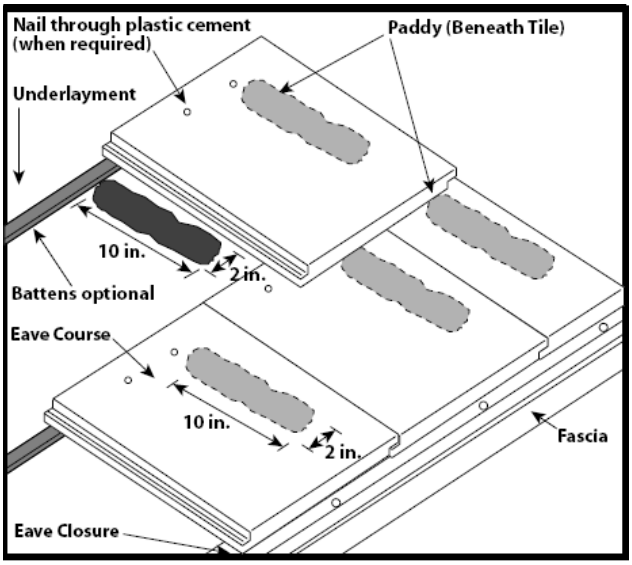


Medium Profile Tile

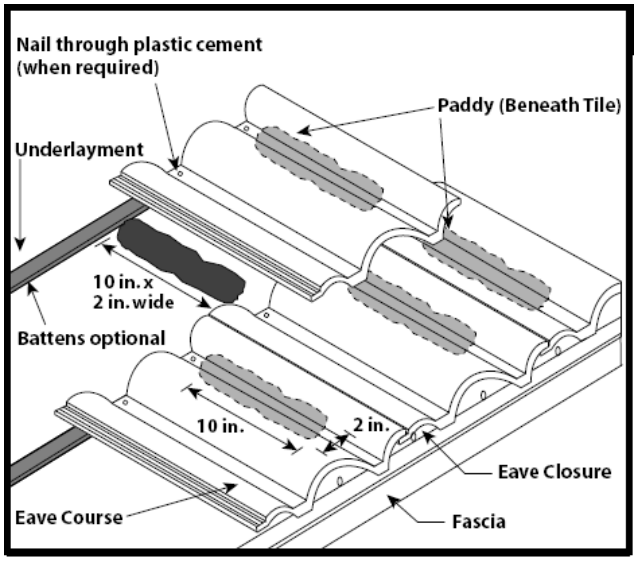


High Profile Tile

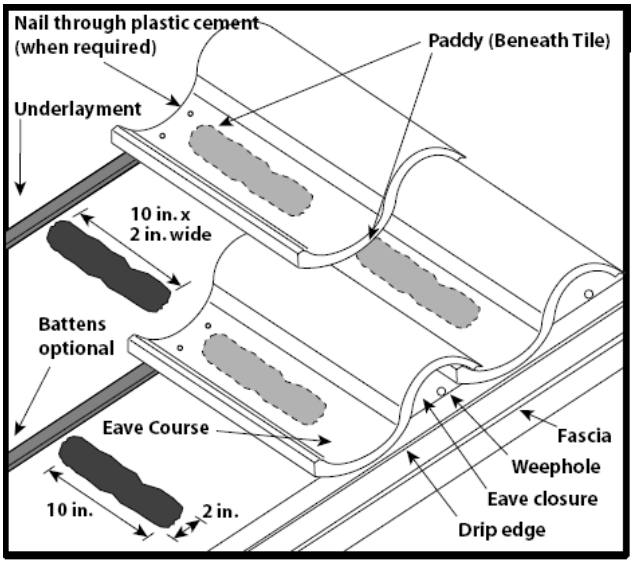
5.2 **DETAIL #2: Independent, Large Paddy:**



Flat/Low Profile Tile

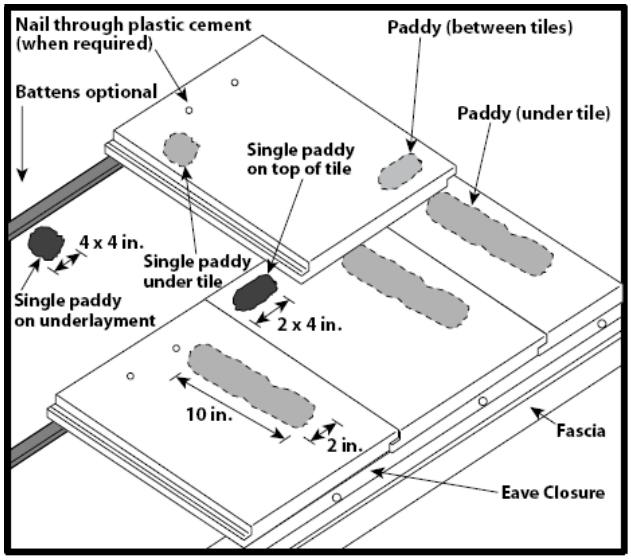


Medium Profile Tile

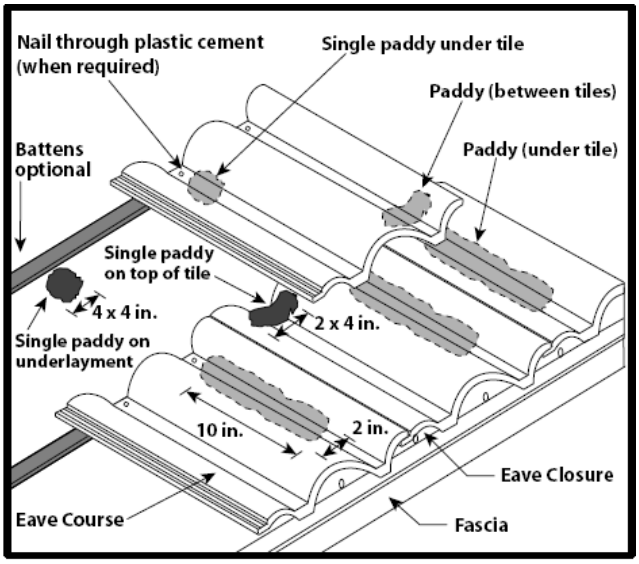


High Profile Tile

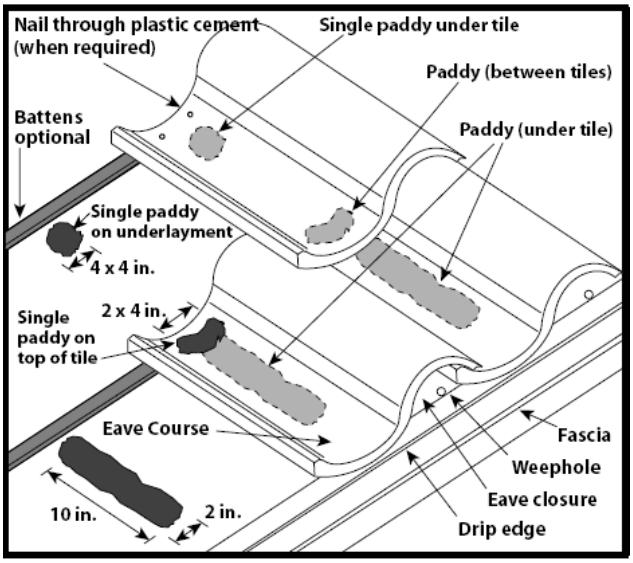
5.3 **DETAIL #3: Interdependent, Two Paddy:**



Flat/Low Profile Tile

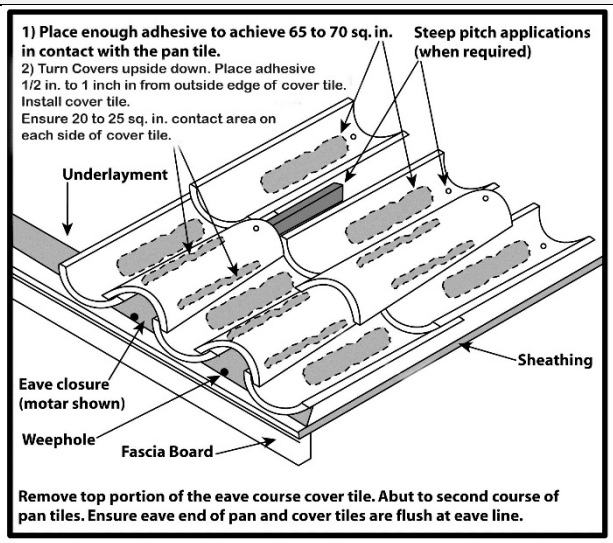


Medium Profile Tile



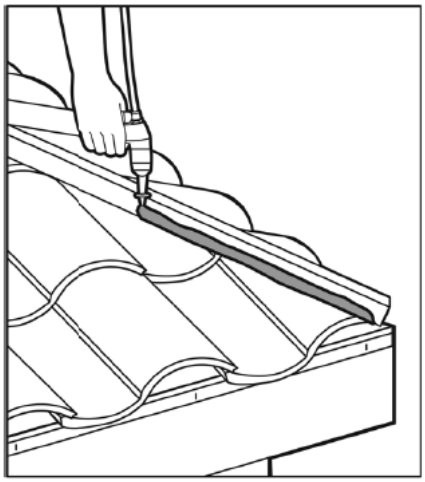
High Profile Tile

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

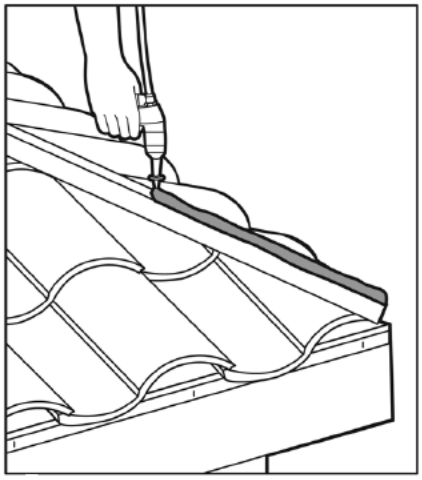


Two Piece Barrel - High Profile Tile

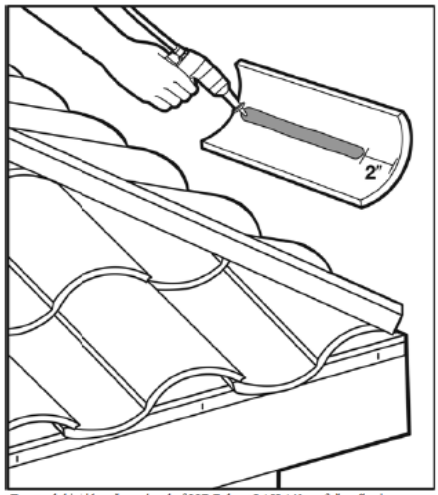
5.5 **DETAIL #5: Hip and Ridge (independent placement):**



A bead of ICP Polyset®AH-160 may be applied above the field tile surface on both sides of the hip/ridge board or galvinized 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 galvinized 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 excluding 2 inches on the eave end of tile.

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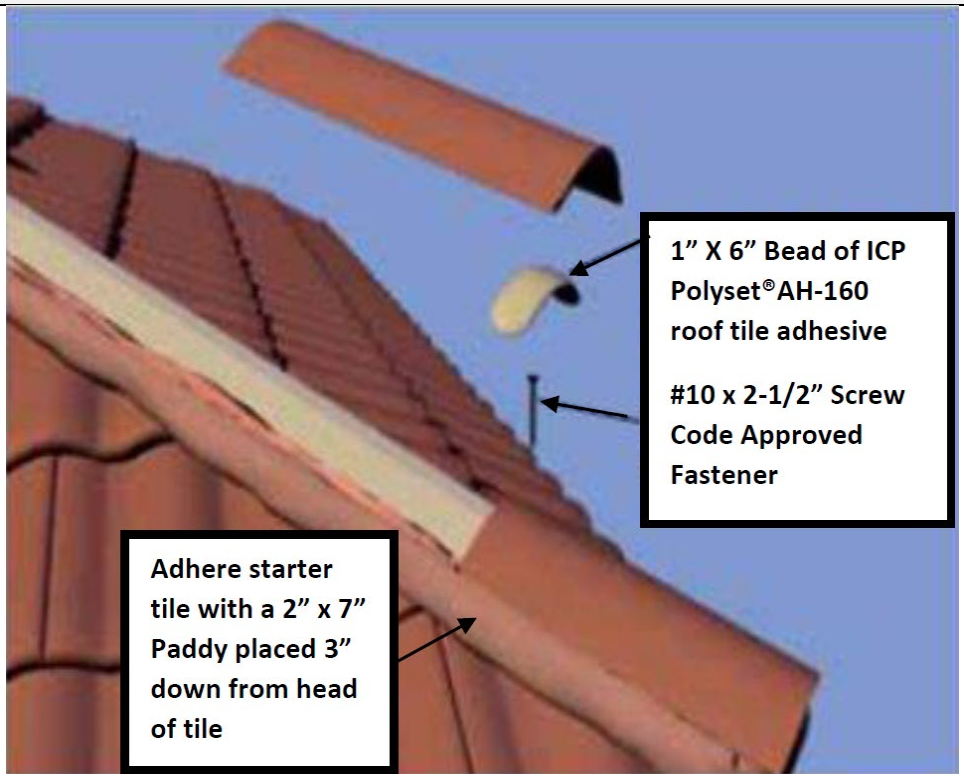
5.6 **DETAIL #6: Hip and Ridge (interdependent placement):**



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6. INSTALLATION VERIFICATION CARD:

Date:		**Permit Number:**	
Project Name or Owner:		**Phone Number:**	
Project Address:			
Tile Manufacturer and		**Tile Profile:**	

NER Section:	Section 4.7.1	Section 5	Tables 2 and 3
Parameters:	Required Aerodynamic Uplift Moment	Paddy Placement Used, gram wt.	Allowable Uplift Moment
Value:			

TABLE 4: ADHESIVE PLACEMENT FOR TILE PROFILE

TILE PROFILE	MINIMUM PADDY CONTACT AREA FOR FIELD TILE	MINIMUM PADDY GRAM WEIGHT
Flat Medium High (large paddy)	17-23 sq. inches	45-65
Flat (medium paddy)	10-12 sq. inches	30
Medium (medium paddy)	12-14 sq. inches	30
High (medium paddy)	17-19 sq. inches	30
Flat Medium High	Two Paddies: 8-9 sq. inches at head of tile; 9-11 sq. inches at overlap	12 grams per paddy
Two-Piece Barrel (Cap Tile)	Two beads (1 inch x 10 inches); 20-25 sq. inches each bead	17 grams per paddy
Two-Piece Barrel (Pan Tile)	65-70 sq. inches	34 grams under pan

See NER Table 2 and 3 and Section 5 for additional details.

By signing below, I have verified that the roof tiles have been installed per NEMO Evaluation Report and ICP instructions:

Qualified Applicator Name:	
Qualified Applicator ID #:	
Signature:	
Date:	

Submit with manufacturer certification document for installer training

Figure 1: Installation Card

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7. ROOF SOLAR MOUNT ADDENDUM:

7.1 **APOC® Polyset® AH-160 (HFO) Roofing Adhesives** may be used with solar mounts having a current Florida Product Approval, Miami-Dade NOA or approved on a local-level by the Authority Having Jurisdiction.

7.1.2 Solar mounts using **APOC® Polyset® AH-160 (HFO) Roofing Adhesives** are limited to projects having design pressure requirements not greater than the Allowable Uplift values in Table 5. Refer to **ICP Construction, Inc.** published installation instructions for Adhesive Paddy Placement details.

7.1.2.1 Performance data under Table 5 corresponds to the connection between the tested solar mount base and **APOC® Polyset® AH-160 (HFO) Roofing Adhesive**, and is provided as reference for the Authority Having Jurisdiction. If a roof systems' Product Approval documentation does not specifically list **APOC® Polyset® AH-160 (HFO) Roofing Adhesives**, as the bonding agent with the solar mount(s) outlined in Table 5, a request shall be made to the Authority Having Jurisdiction for the proposed roof system.

TABLE 5: MOUNTS IN APOC® Polyset® AH-160 (HFO) Roofing Adhesives
ALLOWABLE UPLIFT RESISTANCE PERFORMANCE DATA
(MARGINS OF SAFETY ALREADY APPLIED)

MOUNT	ADHESIVE PADDY PLACEMENT	ALLOWABLE DESIGN PRESSURE (PSF)
8" Solar Stack (FL21074)	2 Paddys, 4" diameter, 1" high (~ 51.7 grams)	1,354
12" Solar Stack (FL21074)	3 Paddys, 4" diameter, 1" high (~ 83.6 grams)	1,220

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