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**STORM-LOCK TYLE-TYE® and
 RINESS® TILE-TIE ROOF TILE
 FASTENERS and
 FASTENING SYSTEMS FOR CLAY AND
 CONCRETE ROOFING TILES**

CSI Section:
07 32 01 Roof Tile Accessories

1.0 RECOGNITION

The Storm-Lock roof tile fasteners and roof tile fastening systems recognized in this report have been evaluated for physical components and structural capacity and found to comply with IBC Chapter 15 and IRC Chapter 9 for use as fasteners for attachment of clay and concrete roof tiles. The following code editions and standards are recognized:

- 2021 International Building Code (IBC)
- 2021 International Residential Code (IRC)
- 2022 California Building Code (CBC) – Supplement attached
- 2022 California Residential Code (CRC) – Supplement attached

2.0 LIMITATIONS

2.1 The Storm-Lock roof tile fasteners shall be manufactured, identified, and installed in accordance with this report, the applicable code, and the manufacturer’s installation instructions. In the event of a conflict, the more restrictive governs.

2.2 Use of the Storm-Lock roof tile fasteners and roof tile fastening systems is limited to roof slopes of not less than 2½ units vertical in 12 units horizontal (21-percent slope) and not more than 24 units vertical in 12 units horizontal (200-percent slope).

2.3 Calculations verifying allowable capacities for the Storm-Lock roof tile fasteners and roof tile fastening systems, as applicable, shall be submitted to the building official. The calculations shall be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.

3.0 PRODUCT USE

3.1 General: Storm-Lock roof tile fasteners and roof tile fastening systems recognized in this report are identified in [Tables 1](#) and [2](#) of this report. The fasteners are satisfactory alternatives to the clay and concrete tile attachments shown in Table 1507.3.7 of the IBC.

Storm-Lock roof tile fasteners and roof tile fastening systems shall be installed over solid sheathing or spaced structural sheathing boards only as permitted in seismic design categories A, B, and C, in accordance with Section 1507.3.1 of the IBC. Plywood or OSB sheathing shall be a minimum ½ inch (12.7 mm) thick exterior-grade or Exposure 1 complying with DOC PS-1 or DOC PS-2, as applicable. Concrete decks shall have a minimum 28-day compressive strength of 2,500 psi (17.2 MPa). Steel decks shall be minimum No. 24 gage [0.0239 inch (0.61 mm)] thick steel complying with ASTM A653 SS, Grade 33. Foam plastic used as above-deck thermal insulation shall comply with Section 1508 of the IBC or Section R906 of the IRC, as applicable.

Clay and concrete roof tiles shall comply with Section 1507.3 of the IBC or Section R905.3 of the IRC, as applicable, and be recognized in a current and valid code evaluation report.

3.2 Design: Design and installation of the fastening system shall be based on the roof tile, slope, decking, and roof design. Design loads shall be determined for each project and shall not exceed the allowable loads shown in [Table 2](#) in this report. The Storm-Lock roof tile fasteners and roof tile fastening systems are corrosion-resistant, in accordance with Section 1507.3.6 of the IBC and Section R905.3.7 of the IRC, and shall be used with similar materials to prevent a galvanic reaction.

3.3 Installation: Installation of the Storm-Lock Tyle-Tye® and Riness® Tile-Tie fastening systems shall be in accordance with this report, the applicable code, and the manufacturer’s installation instructions. In the event of a conflict, the more restrictive governs.

4.0 PRODUCT DESCRIPTION

4.1 General: The Storm-Lock roof tile fasteners and roof tile fastening systems consist of wire ties and metal straps of materials, thicknesses, and physical characteristics as shown in [Table 1](#) of this report. [Figure 1](#) of this report illustrates typical fastener and system configurations.

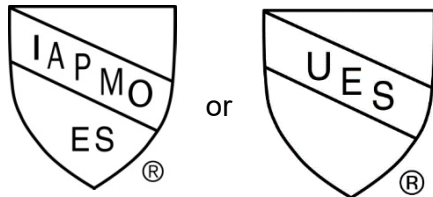
The product described in this Uniform Evaluation Service (UES) Report has been evaluated as an alternative material, design or method of construction in order to satisfy and comply with the intent of the provision of the code, as noted in this report, and for at least equivalence to that prescribed in the code in quality, strength, effectiveness, fire resistance, durability and safety, as applicable, in accordance with Section 104.2.3 of the 2024 IBC and Section 104.11 of previous editions. This document shall only be reproduced in its entirety.





5.0 IDENTIFICATION

Packages of the Storm-Lock roof tile fasteners are labeled with the name: Frances Fasteners dba Storm-Lock Fasteners; address; fastener type; material designation; and evaluation report number (ER-444). Either IAPMO UES Mark of Conformity below may also be used:



IAPMO UES ER-444

6.0 SUBSTANTIATING DATA

6.1 Data in accordance with applicable portions of the Acceptance Criteria for Concrete and Clay Roof Tile Fasteners, AC65, dated June 1991 (editorially revised July 2015), manufacturer’s descriptive literature, and installation instructions.

6.2 Test reports are from laboratories in compliance with ISO/IEC 17025.

7.0 STATEMENT OF RECOGNITION

This evaluation report describes the results of research completed by IAPMO Uniform Evaluation Service on Storm-Lock Tile Fasteners’ Storm-Lock Tyle-Tye® and Riness® Tile-Tie roof tile fasteners and fastening systems for clay and concrete roofing tiles to assess conformance to the codes and standards shown in Section 1.0 of this report and documents the product’s certification.

For additional information about this evaluation report please visit www.uniform-es.org or email us at info@uniform-es.org



TABLE 1
TYLE-TYE® AND RINESS® PRODUCTS, MATERIALS AND CHARACTERISTICS

Product / Use	Material	Diameter or Thickness (inch)	Allowable Tensile Load (lbf)	
Wire Tie Products				
(SL-UNS) Tyle-Tye® “U” Nail	Stainless Steel (ASTM A580, Type 302 or 304)	0.135	-	
(SL-TNS) Tyle-Tye® TileNail		0.105	170	
(SL-TWTS) Tyle-Tye® Twisted Wire		0.090	303	
(SL-NHS) Tyle-Tye® Wind Lock Nose Hook			180	
(SL-TRS) Tyle-Tye® Tie Rod			170	
(SL-RS) Riness® Tile Tie			195	
(SL-TWS) Tyle-Tye® Tie Wire		0.062	74	
(SL-UNG) Tyle-Tye® “U” Nail		Galvanized Steel (ASTM A641)	0.135	-
(SL-TNG) Tyle-Tye® TileNail			0.120	166
(SL-NHG) Tyle-Tye® Wind Lock Nose Hook				166
(SL-TWTG) Tyle-Tye® Twisted Wire	0.105		354	
(SL-RG) Riness® Tile Tie			175	
(SL-TRG) Tyle-Tye® Tie Rod			303	
(SL-TWG) Tyle-Tye® Tie Wire	0.062		52	
(SL-TNB) Tyle-Tye® TileNail	Brass (ASTM B134)		0.135	156
(SL-UNB) Tyle-Tye® “U” Nail				-
(SL-TWTB) Tyle-Tye® Twisted Wire			0.101	133
(SL-RB) Riness® Tile Tie		177		
(SL-NHB) Tyle-Tye® Wind Lock Nose Hook		157		
(SL-TWB) Tyle-Tye® Tie Wire		0.064	42	
(SL-TWTC) Tyle-Tye® Twisted Wire		Copper (ASTM B3)	0.101	145
(SL-TWC) Tyle-Tye® Tie Wire			0.064	29
Sheet Tie Products				
(SL-DAS) Tyle-Tye® Deck Anchor	Stainless Steel (ASTM A240, Type 302 or 304)	0.62 x 0.050	-	
(SL-HCS) Tyle-Tye® Hurricane Clip		0.50 x 0.050	-	
(RP-3S) Tyle-Tye® DPA Anchor Plate		3.00 x 0.024	-	
(SL-STG) Tyle-Tye® Strap		1.00 x 0.024	210	
(SL-DAG) Tyle-Tye® Deck Anchor	Galvanized Steel (ASTM A653)	0.62 x 0.050	-	
(SL-HCG) Tyle-Tye® Hurricane Clip		0.50 x 0.050	-	
(SL-STG) Tyle-Tye® Strap		1.00 x 0.024	244	
(SL-DAB) Tyle-Tye® Deck Anchor	Brass (ASTM B36)	0.62 x 0.050	-	
(SL-HCB) Tyle-Tye® Hurricane Clip		0.50 x 0.050	-	

For SI: 1 inch = 25.4 mm; 1 lbf = 4.448 N



**TABLE 2
ALLOWABLE LOAD CAPACITY**

System / Component	Deck Fasteners ^{1,7}	Connection	Uplift (Vertical) Load (lb ^f)			Horizontal Load ² (lb ^f)		
			Sheathing		Steel or Concrete Deck ⁵	Sheathing		Steel or Concrete Deck ^{5,7}
			Plywood or Spaced Lumber Structural Sheathing ⁶	OSB		Plywood or Spaced Lumber Structural Sheathing ⁶	OSB	
Tyle-Tye[®] Hurricane Strap System								
SL-STG; or SL-TRS	Nails: No. 10 gage stainless steel or 11 gage galvanized	180° bend at strap loop	19	15	-	22	18	-
	Screws: No. 14 gage stainless steel or No. 12 galvanized	180° bend at strap loop	20	-	15	28	-	21
		360° bend at strap loop	117	-	88	-	-	108
SL-STG; or SL-TRG	Nails: No. 10 gage stainless steel or No. 11 gage galvanized	180° bend at strap loop	24	17	-	38	31	-
	Screws: No. 14 gage stainless steel or No. 12 galvanized	180° bend at strap loop	36	-	27	50	-	37
		360° bend at strap loop	130	-	98	173	-	130
SL-STG and SL-TWS	Nails: 10 gage stainless steel or 11 gage galvanized		30	19	-	70	69	-
	Screws: No. 14 gage stainless steel or No. 12 galvanized		95	-	71	113	-	84
SL-STG; and SL-TWG	Nails: No. 10 gage stainless steel or No. 11 gage galvanized		23	15	-	40	41	-
	Screws: No. 14 gage stainless steel or No. 12 galvanized		46	-	35	55	-	41
Tyle-Tye[®] Twisted Wire System								
SL-TWTS; SL-TWS; and SL-DAS	Nails: 2 x No. 10 gage stainless steel or 2 x No. 11 gage galvanized		39	42	-	94	96	-
SL-TWTS; SL-TWS; and DPA	Screws: double plate with No. 14 gage stainless or No. 12 gage galvanized		37	-	36	96	-	87
<i>Table continued on next two pages</i>								



EVALUATION REPORT

Number: **444**

Originally Issued: 04/18/2016

Revised: 03/19/2026

Valid Through: 04/30/2027

SL-TWTS; SL-TWS; and SL-DAG	Nails: 2 x No. 10 gage stainless steel or 2 x No. 11 gage galvanized		30	31	-	43	39	-
SL-TWTS; SL-TWS; and SL-DAB	Nails: 2 x No. 10 gage copper or 2 x No. 10 gage stainless steel		40	34	-	92	87	-
SL-TWTG; SL-TWG; and SL-DAG	Nails: 2 x No. 10 gage stainless steel or 2 x No. 11 gage galvanized		49	49	-	63	53	-
SL-TWTG; SL-TWG; and DPA	Screws: double plate with No. 14 gage stainless or 2 x No. 12 gage galvanized		46	-	46	64	-	64
SL-TWTC; SL-TWC; and SL-DAB	Nails: 2 x No. 10 gage copper		32	28	-	33	34	-
SL-TWTB; SL-TWB; and SL-DAB	Nails: 2 x No. 10 gage copper		18	21	-	49	50	-
Riness® Tile Tie System								
SL-RS; and SL-NHS	Screws: double plate (RP-3S) with No. 14 gage stainless steel or No. 12 galvanized	360° wire bend at double plate	45	41	48	40	45	31
SL-RG; and SL-NHG	Screws: double plate (RP-3S) with No. 14 gage stainless steel or No. 12 galvanized		73	48	67	56	58	47
SL-RS; and SL-NHS	Nails: SL-UNS "U" Nail	180° wire bend at nail	51	26	-	22	28	-
SL-RG; and SL-NHG	Nails: SL-UNG "U" Nail		43	39	-	16	25	-
SL-RG; and SL-NHB	Nails: SL-UNB "U" Nail		23	20	-	42	35	-
Tyle-Tye® Tile Nail								
SL-TNS Tile Nail			26	10	-	19	16	-
SL-TNG Tile Nail			18	16	-	21	20	-
SL-TNB Tile Nail			34	19	-	10	9	-



Tyle-Tye® Supplemental Connectors							
SL-NHS Wind Lock Nose Hook	Nails: No. 10 gage stainless steel	180° wire bend at connection	12	11	-	-	-
	Screws: No. 12 gage galvanized						
SL-NHG Wind Lock Nose Hook	Nails: No. 11 gage galvanized		22	22	-	-	-
	Screws: No. 12 gage galvanized						
SL-NHB Wind Lock Nose Hook	Nails: No. 10 gage copper		12	13	-	-	-
SL-HCS Hurricane Clip	Nails: 2 x No. 10 gage Stainless steel		15	15	-	-	-
	Screws: 2 x No. 12 gage galvanized						
SL-HCG Hurricane Clip	Nails: 2 x No. 11 gage galvanized		15	15	-	-	-
	Screws: 2 x No. 12 gage galvanized						
SL-HCB Hurricane Clip	Nails: 2 x No. 10 gage copper	6	7	-	-	-	

For SI: 1 inch =25.4 mm; 1 lbf = 4.448 N

¹ Nails shall be ring shank nails that comply with ASTM F1667. Screws shall comply with ANSI/ASME B18.64. No. 12 galvanized screws shall have #3 Phillips drive or ¼ Hex drive heads, with 13-threads per inch, 0.448 inch head diameter, 0.167 inch shank diameter, and 0.222 inch thread diameter. No. 14 stainless steel screws shall have #3 Phillips truss head, be 400 series magnetic heat-treatable stainless steel with 0.440 inch head diameter, 0.180 inch shank diameter, and 0.235 inch thread diameter. Screws shall be subject to approval by the building official. The evidence may be in the form of evaluation reports issued by approved sources. Fasteners shall be long enough to penetrate a minimum of ½-inch through the substrate.

² Direction of the horizontal load is parallel to the roof slope.

³ With clay or concrete tile.

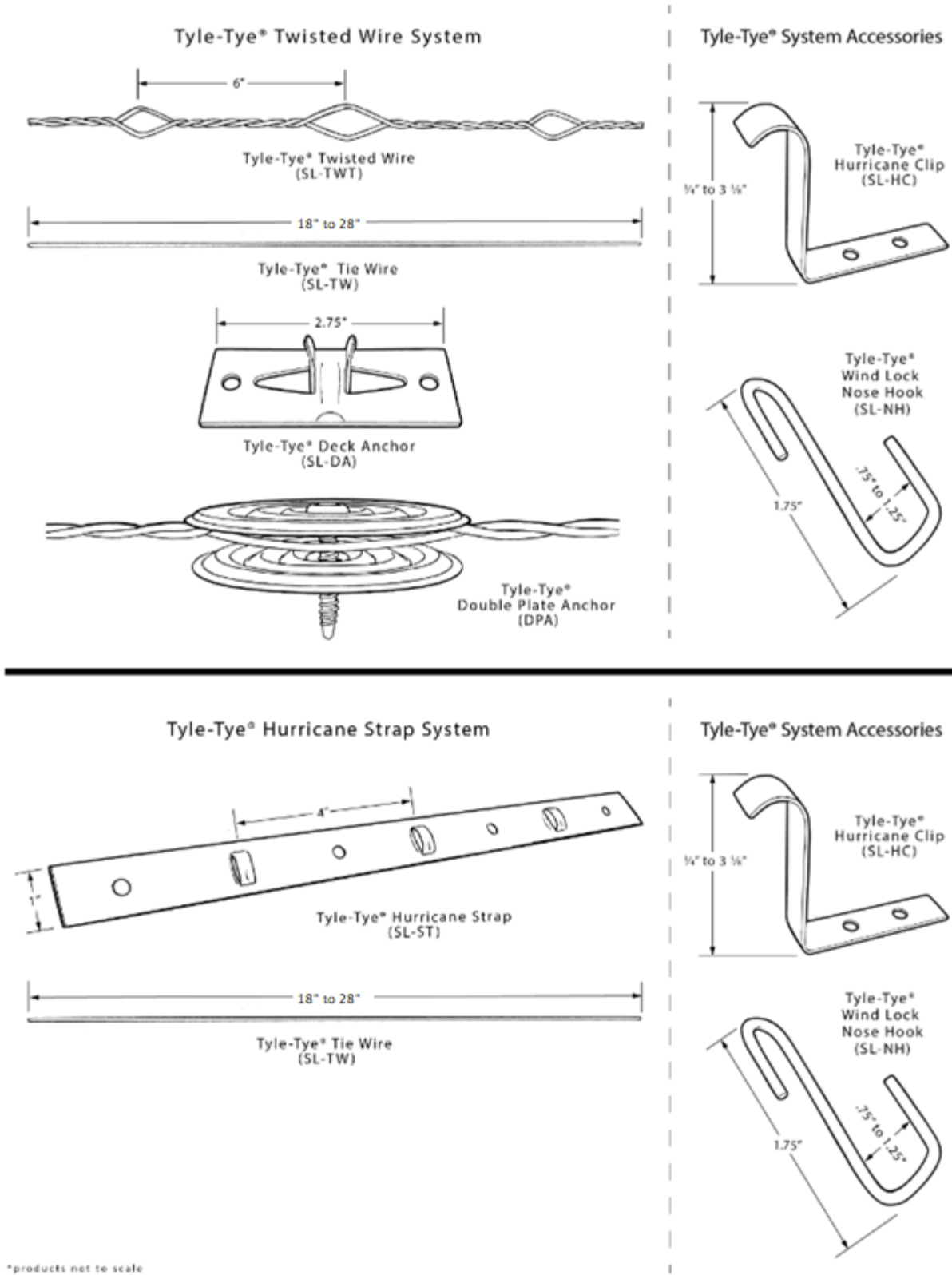
⁴ Nominal 1 inch x 3 inch Douglas-fir battens.

⁵ Insulated steel decks shall be a minimum No. 24 gage (0.0239 inch base steel thickness) Grade 33 galvanized steel complying with IBC Section 2210.1.1, with polyisocyanurate foam plastic insulation complying with IBC Section 2603 and ASTM C1289 or better.

⁶ Spaced Lumber Structural Sheathing only as permitted in Seismic Design Categories A, B, and C.

⁷ Tyle-Tye® systems may be anchored to concrete decks with one of these commonly used or equal Post-Installed Concrete Anchors; Pre-expanded Pin Spike Anchors, Wedge-type Expansion Anchor (Screw-type Anchor). Evidence of compliance with IBC Sections 1901.3 and 1905 shall be submitted to the building official for approval. The evidence may be in the form of evaluation reports issued by approved sources. The diameter shall be from 3/16 inch to ¼". The concrete anchor manufacturer's approved specifications and installation recommendations shall be observed.

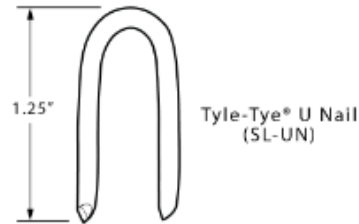
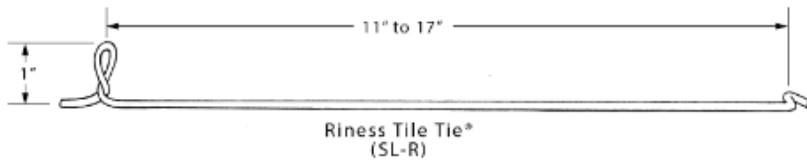
FIGURE 1 (continued on next page)



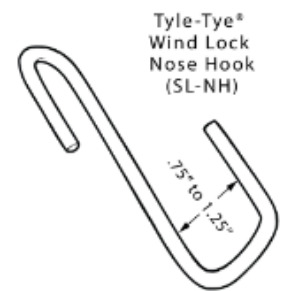
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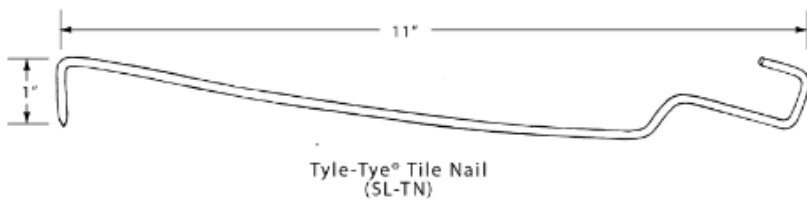
Riness Tile Tie® System



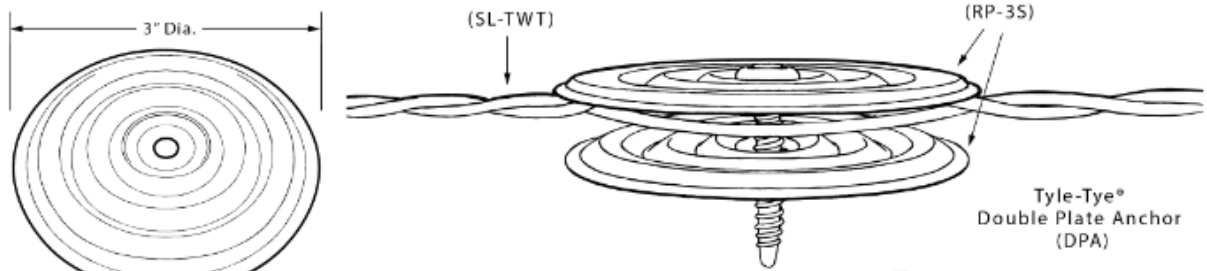
Riness Tile Tie® Accessories



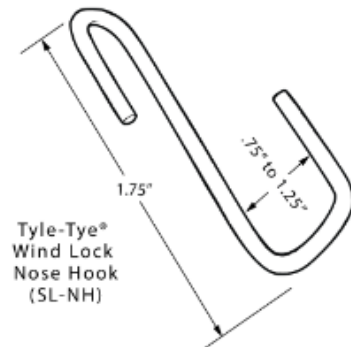
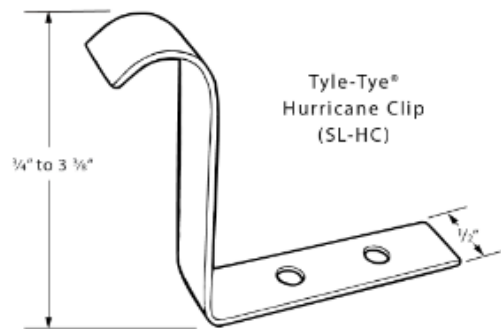
Tyle-Tye® Tile Nail



Tyle-Tye® and Riness Tile Tie® Alternate Anchor + Accessories



Tyle-Tye® Anchor Plate (RP-3S)



*products not to scale



CALIFORNIA SUPPLEMENT

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STORM-LOCK TYLE-TYE® and RINESS® TILE-TIE ROOF TILE FASTENERS and FASTENING SYSTEMS FOR CLAY AND CONCRETE ROOFING TILES

CSI Section:
07 32 01 Roof Tile Accessories

1.0 RECOGNITION

The Storm-Lock Tyle-Tye® and Riness® Tile-Tie Roof Tile Fasteners and Fastening Systems for Clay and Concrete Roofing Tiles, as evaluated and represented in IAPMO UES ER-444, and with changes as noted in this supplement, are a satisfactory alternative for use in buildings built under the following codes (and regulations):

- 2022 California Building Code (CBC)
- 2022 California Residential Code (CRC)

2.0 LIMITATIONS

Use of the Frances Fasteners Inc’s Storm-Lock Tyle-Tye® and Riness® Tile-Tie Roof Tile Fasteners and Fastening Systems for Clay and Concrete Roofing Tile recognized in ER-444 complies with the codes noted in Section 1.0 subject to the following limitations:

2.1 Construction documents, including calculations showing compliance with CBC Sections 107 and 1603 (Section 1603A for DSA and OSHPD/HCAi), and this report shall be submitted to the building official. The construction documents shall be prepared by a California-registered design professional where required by the statutes of the

jurisdiction in which the project is to be constructed. The design and installation shall be in accordance with Sections 1507.3 and 1513 of the CBC or Section R905.3 of the CRC, as applicable, and ER-356

2.2 When used on buildings located in a Fire Hazard Severity Zone or Wildland Interface Fire Area, as described in CBC Chapter 7A, the Frances Fasteners Inc.’s Storm-Lock Tyle-Tye® and Riness® Tile-Tie Roof Tile Fasteners are both noncombustible materials.

2.3 For work under the jurisdiction of DSA or OSHPD/HCAi, in addition to the requirements of Sections 507.3.6 and 1507.3.7, the installation of clay and concrete tile roof covering shall comply with the provisions of Section 1513.

3.0 PRODUCT USE

3.1 For work under the jurisdiction of DSA or OSHPD/HCAi, fasteners shall be copper, brass, or stainless steel per CBC Section 1513.1. As set forth in CBC Section 1513.2, wire for attaching slate shingles and clay or concrete tile shall be copper, brass, or stainless steel of strength equivalent to four times the weight of supported tile. Wire supporting a single tile shall not be smaller than 1/16 inch (1.6 mm) in diameter. Continuous wire ties supporting more than one tile shall not be smaller than 0.084 inch (2 mm) in diameter. For work under the jurisdiction of DSA only, DSA IR 15-1 and IR 15-2 shall be observed.

3.2 Wildland-Urban Interface Fire Area: Roof materials installed in wildland-urban interface fire areas (WUI) or locally designated fire hazard severity zones shall comply with CBC Chapter 7A. Roof coverings shall be constructed of ignition-resistant materials in accordance with CBC Section 704A that prevent the intrusion of flames and embers, and be installed per their listing and manufacturer’s installation instructions.

3.3 This supplement expires concurrently with IAPMO UES ER-444

For additional information about this evaluation report please visit www.uniform-es.org or email us at info@uniform-es.org