ICC-ES Evaluation Report

ESR-2778

Reissued July 2024

Subject to renewal July 2026

This report also contains:

- CBC Supplement

- FBC Supplement

ICC-ES Evaluation Reports are not to be construed as representing aesthetics or any other attributes not specifically addressed, nor are they to be construed as an endorsement of the subject of the report or a recommendation for its use. There is no warranty by ICC Evaluation Service, LLC, express or implied, as to any finding or other matter in this report, or as to any product covered by the report.

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION Section: 07 32 16—Concrete Roof Tiles	REPORT HOLDER: BARTILE ROOFS, INC.	EVALUATION SUBJECT: BARTILE EXTRUDED CONCRETE ROOF TILES	

1.0 EVALUATION SCOPE

1.1 Compliance with the following codes:

- 2021, 2018, 2015, 2012, 2009 and 2006 *International Building Code*® (IBC)
- 2021, 2018, 2015, 2012, 2009 and 2006 *International Residential Code*® (IRC)
- 2013 *Abu Dhabi International Building Code* (ADIBC)†

†The ADIBC is based on the 2009 IBC. 2009 IBC code sections referenced in this report are the same sections in the ADIBC.

Properties evaluated:

- Roof covering
- Fire classification
- Wind resistance

1.2 Evaluation to the following green code:

- 2022 *California Green Building Standards Code (CALGreen)*, Title 24, Part 11

Attributes verified:

- See Section 3.0

2.0 USES

The Bartile extruded concrete roof tiles comply with ASTM C1492, and when installed in accordance with this report, may be used as a Class A roof covering.

3.0 DESCRIPTION

Bartile extruded concrete roof tiles are available in European, Mission “S”, Flat and Legendary styles. Flat tiles are available in shake and slate designs. The European, Mission “S” and Flat tiles are $15^1/_4$ inches long by $10^1/_2$ inches wide (387 mm by 267 mm) and have $1^1/_8$-inch to $1^1/_4$-inch (28 mm to 32 mm) interlocking double tongue-and-groove side laps. The tiles also have anchor lugs at the bottom intended for installation over wood furring strips. The lugs are typically $^1/_2$ inch (13 mm) deep, $1^1/_2$ inches (38 mm) wide and $^5/_8$ inch (16 mm) thick. The tile thickness varies from $^1/_2$ inch (13 mm) to 1 inch (25.4 mm) at the ribs.

The Legendary tiles are 16 inches long by 16 inches wide (406 mm by 406 mm) and have a 1-inch (25.4 mm) interlocking side lap. The tiles have an overall height of $1^3/_8$ inches (44.4 mm). The tiles have anchor lugs and midpoint knubs to provide additional support for installation directly to deck.

Accessory tiles in each style are available for rakes, ridges, and hips.

The tiles are available in both standard-weight and lightweight varieties for each style. They vary only in weight due to the lightweight tiles being produced using crushed lightweight shale in place of sand.

When installed with a standard 3-inch (76 mm) head lap, the following are the approximate installed weights:

DESCRIPTION	INSTALLED WEIGHT (pounds per square foot)	
	Standard-weight Tiles	Lightweight Tiles
European	9.5	7.5
Mission "S"	9.5	7.5
Flat (Shake and Slate)	10.25	8.0
Legendary	10.4	8.9

See Figure 1 for details.

The attributes of the roof tiles have been verified as conforming to the provisions of CALGreen Section A5.406.1.2 for reduced maintenance. Note that decisions on compliance for those areas rest with the user of this report. The user is advised of the project-specific provisions that may be contingent upon meeting specific conditions, and the verification of those conditions is outside the scope of this report. These codes or standards often provide supplemental information as guidance.

4.0 INSTALLATION

4.1 General:

Except as otherwise noted in this report, installation of the Bartile roof tiles must be in accordance with the Concrete and Clay Roof Tile Installation Manual for Moderate Climate Regions, dated March 2010, published by the Tile Roofing Institute and Western States Roofing Contractors Association. In the case of a conflict between the installation manual and this report, this report governs. This report and the TRI/WSRCA installation manual must be available at the jobsite at all times during installation. The roof tiles must be installed on a minimum roof slope of $2^1/_2$:12 (20.8% slope). Care must be taken during field installation to ensure that horizontal joints are kept parallel to the eave, and vertical joints are at right angles to the eave, in order to ensure uniform contact between the tiles and proper fit and appearance. All cracked and broken tiles must be replaced. Plastic battens described in a current ICC-ES evaluation report may be used in lieu of wood battens, provided the battens are installed in accordance with their evaluation report, the tile installation is subject to the limitations in the evaluation report on the battens, and nails attaching the roof tiles are of sufficient length to penetrate through the sheathing.

4.2 Lightweight Tiles:

Lightweight tiles are installed in the same manner as standard-weight tiles, except that each tile is attached with No. 11 gage, corrosion-resistant roofing nails.

4.3 Wind Resistance:

4.3.1 2021 IBC and 2018 IBC: For maximum basic design wind speeds of 130 mph (209 km/h) or less and mean roof heights of 60 feet, tiles must be installed in accordance with the prescriptive parameters of IBC Table 1507.3.7.

4.3.2 2021 IRC, 2018 IRC, 2015 IBC, 2015 IRC and 2012 IBC: For ultimate design wind speeds of 130 mph (209 km/h) or less and mean roof heights of 60 feet (18.3 m) for the IBC) and mean roof heights of 40 feet (12.2 m) for the IRC, tiles must be installed in accordance with the prescriptive parameters of IBC Table 1507.3.7 or IRC Section R905.3.7.

4.3.3 2012 IRC: For basic wind speeds of 100 mph (161 km/h)] or less and mean roof heights of 40 feet (12.2 m) or less, tiles must be installed in accordance with the prescriptive parameters of Section R905.3.7 of the IRC, as applicable.

4.3.4 2009 IBC, 2009 IRC, 2006 IBC and 2006 IRC: For basic wind speeds [3-second gust of 100 mph (161 km/h)] or less and mean roof heights of 60 feet (18288 mm) or less for the IBC and 40 feet (12192 mm) or less for the IRC, tiles must be installed in accordance with the prescriptive parameters of Table 1507.3.7 of the IBC or Section R905.3.7 of the IRC, as applicable. For application beyond these prescriptive parameters, the tiles and the fastening systems must be designed to withstand the aerodynamic wind uplift moment in accordance with the section on Design Considerations for High Wind Applications in Appendix B of the TRI/WRSCA installation manual. The generic required aerodynamic uplift moment, determined in accordance with Tables 5A through 6D of the TRI/WRSCA installation manual, must be multiplied by the tile factor ratio in

Table 2 to obtain the required aerodynamic uplift moment for the specific Bartile roof tile being installed. The allowable aerodynamic uplift moment for the roof tile fastening system selected from Table 7 of the TRI/WRSCA installation manual, must be equal to or greater than the required aerodynamic uplift moment for the specific Bartile roof tile being installed.

4.4 Fire Classification:

4.4.1 New Construction: When installed in accordance with this report, the tiles are Class A roof coverings in accordance with the exception to Section 1505.2 of the IBC and Section R902.1 of the IRC.

4.4.2 Reroofing Applications: The existing roof coverings must be removed and the new roof installed in accordance with the requirements of 2021 IBC Section 1512 [2018 and 2015 IBC Section 1511 (2012, 2009 and 2006 IBC Section 1510)] or 2021, 2018 and 2015 IRC Section R908 (2012, 2009 and 2006 IRC Section R907), as applicable. The roof classification is as noted in Section 4.4.1.

4.5 Roof Slope Limitation:

Tile must be installed on roof slopes of between $2^1/_2$:12 (21% slope) and 24:12 (200% slope). Tile may be installed at a roof slope greater than 21:12 when the bottom edge of each tile is secured with a roof tile clip or nail in accordance with the TRI/WRSCA installation manual. On roof slopes of less than 3:12 (25% slope), the tiles are only considered as decorative and must be applied over a roof covering approved by the building official.

4.6 Tile Replacement:

Damaged tile must be completely removed. Existing fasteners must be removed and the resulting hole must be cleaned and patched with a sealant specified by the manufacturer. The replacement tile must be set into place while maintaining the required head and side lap. The new tile must be secured using a roof tile adhesive described in a current ICC-ES evaluation report, applied to the bottom half of the replacement tile.

5.0 CONDITIONS OF USE:

The Bartile extruded concrete roof tiles described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 The tiles are manufactured, identified, and installed in accordance with this report, the manufacturer's instructions, and the applicable code. In the event of a conflict between the manufacturer's instructions and this report, this report governs.

5.2 The roof sheathing and roof framing system must be designed for the appropriate loads determined in accordance with the applicable code, subject to the approval of the code official.

5.3 The tiles are manufactured in Centerville, Utah, under a quality-control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Clay and Concrete Roof Tiles (AC180), dated February 2012 (editorially revised July 2022).

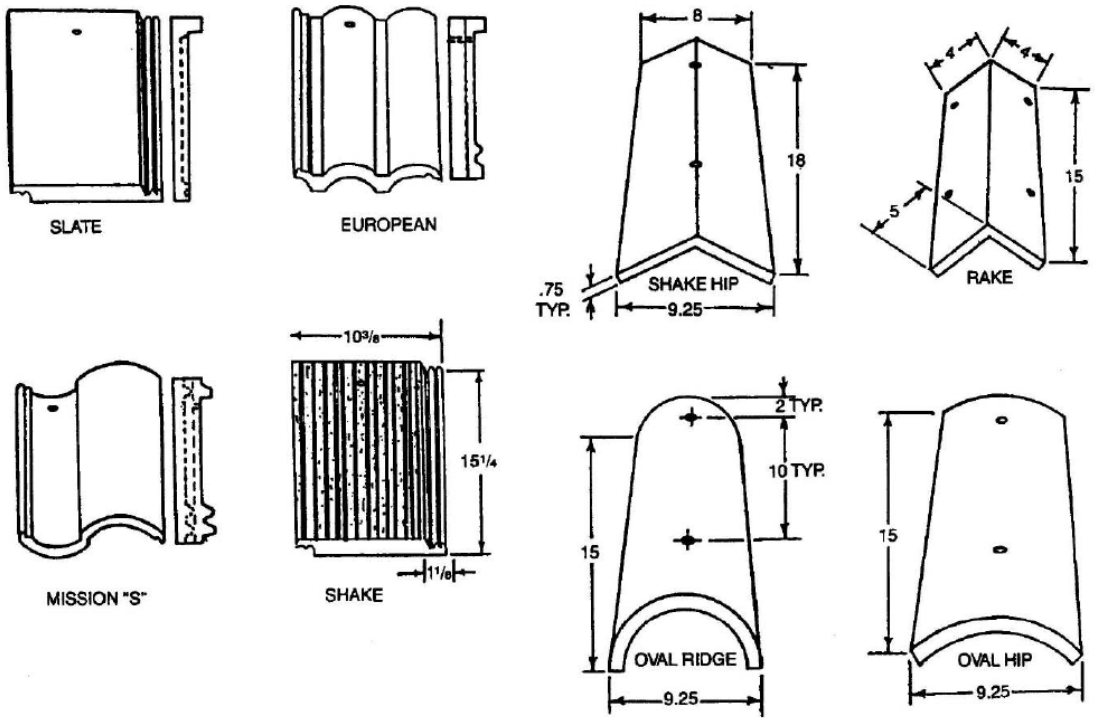
7.0 IDENTIFICATION

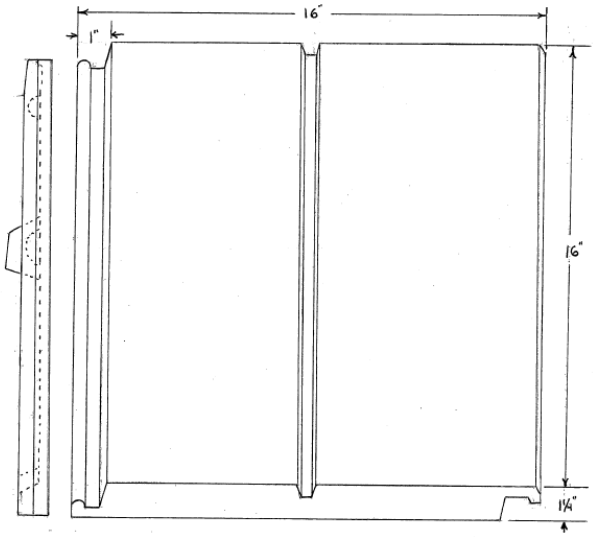
7.1 The ICC-ES mark of conformity, electronic labeling, or the evaluation report number (ICC-ES-2778) along with name, registered trademark, or registered logo of the report holder [and/or listee] must be included in the product label.

7.2 In addition, the shipping pallets have labels bearing the name "Bartile," the style and color of the tile, the production date , the installed weight, and the evaluation report number (ESR-2778). The lightweight tile labels also bear the words "LT. WT. Bartile."

7.3 The report holder's contact information is the following:

BARTILE ROOFS, INC.
725 NORTH 1000 WEST
CENTERVILLE, UTAH 84014
(801) 295-3443
www.bartile.com
lew@bartile.com





LEGENDARY

FIGURE 1—LEGENDARY PROFILE

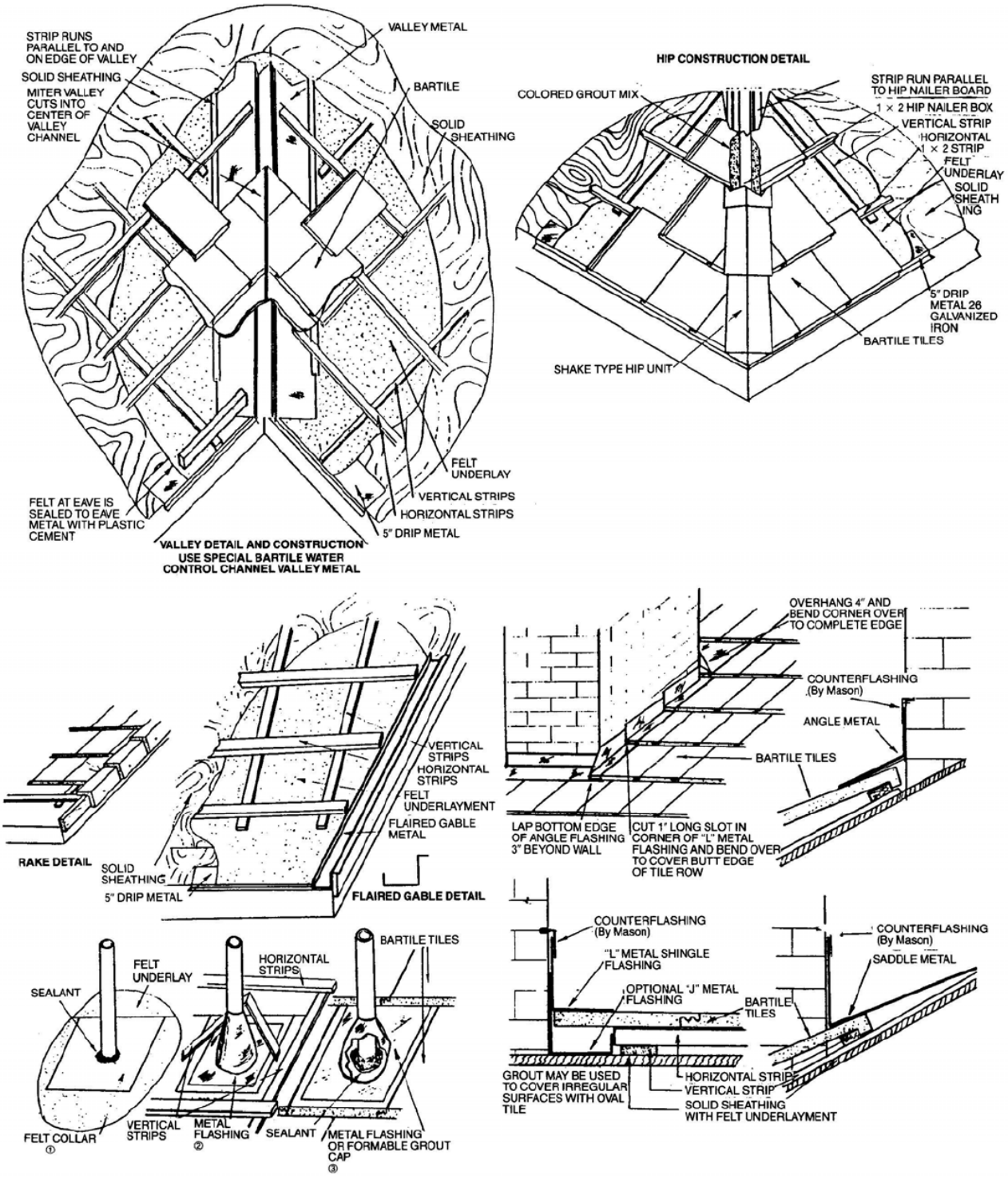

STRIP RUNS PARALLEL TO AND ON EDGE OF VALLEY
SOLID SHEATHING
MITER VALLEY CUTS INTO CENTER OF VALLEY CHANNEL
VALLEY METAL
BARTILE
SOLID SHEATHING
FELT UNDERLAY
VERTICAL STRIPS
HORIZONTAL STRIPS
5" DRIP METAL
FELT AT EAVE IS SEALED TO EAVE METAL WITH PLASTIC CEMENT
VALLEY DETAIL AND CONSTRUCTION
USE SPECIAL BARTILE WATER CONTROL CHANNEL VALLEY METAL
HIP CONSTRUCTION DETAIL
COLORED GROUT MIX
STRIP RUN PARALLEL TO HIP NAILER BOARD
1 × 2 HIP NAILER BOX
VERTICAL STRIP
HORIZONTAL 1 × 2 STRIP
FELT UNDERLAY
SOLID SHEATHING
5" DRIP METAL 26 GALVANIZED IRON
BARTILE TILES
SHAKE TYPE HIP UNIT
RAKE DETAIL
SOLID SHEATHING
5" DRIP METAL
VERTICAL STRIPS
HORIZONTAL STRIPS
FELT UNDERLAYMENT
FLAIRED GABLE METAL
FLAIRED GABLE DETAIL
OVERHANG 4" AND BEND CORNER OVER TO COMPLETE EDGE
COUNTERFLASHING (By Mason)
ANGLE METAL
BARTILE TILES
LAP BOTTOM EDGE OF ANGLE FLASHING 3" BEYOND WALL
CUT 1" LONG SLOT IN CORNER OF "L" METAL FLASHING AND BEND OVER TO COVER BUTT EDGE OF TILE ROW
BARTILE TILES
HORIZONTAL STRIPS
FELT UNDERLAY
SEALANT
FELT COLLAR ①
VERTICAL STRIPS
METAL FLASHING ②
SEALANT
METAL FLASHING OR FORMABLE GROUT CAP ③
COUNTERFLASHING (By Mason)
"L" METAL SHINGLE FLASHING
OPTIONAL "J" METAL FLASHING
BARTILE TILES
COUNTERFLASHING (By Mason)
SADDLE METAL
GROUT MAY BE USED TO COVER IRREGULAR SURFACES WITH OVAL TILE
HORIZONTAL STRIPS
VERTICAL STRIPS
SOLID SHEATHING WITH FELT UNDERLAYMENT

FIGURE 2

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
Section: 07 32 16—Concrete Roof Tiles

REPORT HOLDER:

BARTILE ROOFS, INC.

EVALUATION SUBJECT:

BARTILE EXTRUDED CONCRETE ROOF TILES

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2010 *California Building Code* (CBC)
- 2010 *California Residential Code* (CRC)

Properties evaluated:

- Fire classification
- Weather resistance
- Wind-uplift resistance

2.0 *California Building Code*

The Bartile concrete roof tiles described in the evaluation report ESR-2778 may be used where a Class A roof covering complying with CBC Section 1505.1.1, a Class B roof covering complying with CBC Section 1505.1.2, or a Class C roof covering complying with CBC Section 1505.1.3 is required, provided installation is in accordance with the evaluation report and the additional requirements of Sections 1507.3.10 and 1511 of the CBC.

The roof tiles may be used in the construction of new buildings located in a Fire Hazard Severity Zone within State Responsibility Areas or any Wildland–Urban Interface Fire Area, provided installation is also in accordance with the evaluation report and the additional requirements of Sections 701A.3 and 705A of the CBC.

3.0 *California Residential Code*

The Bartile concrete roof tiles described in the evaluation report ESR-2778 may be used where a Class A roof covering complying with CRC Section R902.1.1, a Class B roof covering complying with CRC Section R902.1.2, or a Class C roof covering complying with CRC Section R902.1.3 is required, provided installation is in accordance with the evaluation report and the additional requirements of Section R905.3 of the CRC.

The roof tiles may be used in the construction of new buildings located in any Wildland–Urban Interface Fire Area, provided installation is also in accordance with the evaluation report and the additional requirements of Sections R327.1.3.1 and R327.5 of the CRC.

The products described in this supplement have not been evaluated for compliance with the International Wildland–Urban Interface Code®.

This supplement expires concurrently with the evaluation report, reissued July 2024.

ICC-ES Evaluation Report

ESR-2778 FBC Supplement

Reissued July 2024

This report is subject to renewal July 2026.

www.icc-es.org | (800) 423-6587 | (562) 699-0543 *A Subsidiary of the International Code Council®*

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
Section: 07 32 16—Concrete Roof Tiles

REPORT HOLDER:

BARTILE ROOFS, INC.

EVALUATION SUBJECT:

BARTILE EXTRUDED CONCRETE ROOF TILES

1.0 REPORT PURPOSE AND SCOPE

The purpose of this evaluation report supplement is to indicate that the Bartile concrete roof tiles, described in ICC-ES evaluation report ESR-2778, have also been evaluated for compliance with the codes noted below:

Applicable code editions:

- 2020 *Florida Building Code—Building*
- 2020 *Florida Building Code—Residential*

2.0 CONCLUSIONS

The concrete roof tiles described in Sections 2.0 through 7.0 of the evaluation report, ESR-2778, comply with the *Florida Building Code—Building* and the *Florida Building Code–Residential.* The design requirements shall be determined in accordance with the *Florida Building Code-Building* or the *Florida Building Code-Residential,* as applicable. The installation requirements noted in the ICC-ES evaluation report ESR-2778 for the 2018 *International Building Code* and *2018 International Residential Code®* meet the requirements of the *Florida Building Code-Building* or the *Florida Building Code-Residential,* as applicable, with the following conditions:

The roof tiles must be installed in accordance with Section 1609 of the Florida Building Code—Building or with FRSA/TRI Florida High Wind Concrete and Clay Roof Tile Installation Manual, Sixth Edition, where the nominal design wind speed, V_{asd}, is determined in accordance with Section 1609.3.1 of the *Florida Building Code—Building*.

Use of the concrete roof tiles described in the evaluation report for compliance with the High-Velocity Hurricane Zone provisions of the Florida Building Code—Building, and the Florida Building Code—Residential has not been evaluated, and is outside the scope of this supplement.

For products falling under Florida Rule 61G20-3, verification that the report holder's quality assurance program is audited by a quality assurance entity approved by the Florida Building Commission for the type of inspections being conducted is the responsibility of an approved validation entity (or the code official when the report holder does not possess an approval by the Commission).

This supplement expires concurrently with the evaluation report, reissued July 2024.