

ICC-ES Evaluation Report

ESR-2778*

Reissued June 1, 2012

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**DIVISION: 07 00 00—THERMAL AND MOISTURE
PROTECTION**
Section: 07 32 16—Concrete Roof Tiles
REPORT HOLDER:
**BARTILE ROOFS, INC.
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EVALUATION SUBJECT:
BARTILE EXTRUDED CONCRETE ROOF TILES
1.0 EVALUATION SCOPE
Compliance with the following codes:

- 2009 and 2006 *International Building Code*® (IBC)
- 2009 and 2006 *International Residential Code*® (IRC)

Properties evaluated:

- Roof covering
- Fire classification
- Wind resistance

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 15¹/₄ inches long by 10¹/₂ inches wide (387 mm by 267 mm) and have 1¹/₈-inch to 1¹/₄-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, 1¹/₂ 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 1³/₈ inches (44.4 mm). The tiles have anchor lugs and midpoint knobs 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.

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, and recognized in ESR-2015P. 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 2¹/₂:12 (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 recognized 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.

*Revised November 2012

4.3 Wind Resistance:

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 with 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 Section 1510 of the IBC or Section R907 of the IRC, 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 2¹/₂:12 (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 recognized 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 RI Ogawa & Associates, Inc. (AA-705).

6.0 EVIDENCE SUBMITTED

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

7.0 IDENTIFICATION

The shipping pallets have labels bearing the name "Bartile," the style and color of the tile, the production date, the installed weight, the name of the inspection agency (RI Ogawa & Associates, Inc.) and the evaluation report number (ESR-2778). The lightweight tile labels also bear the words "LT. WT. Bartile."

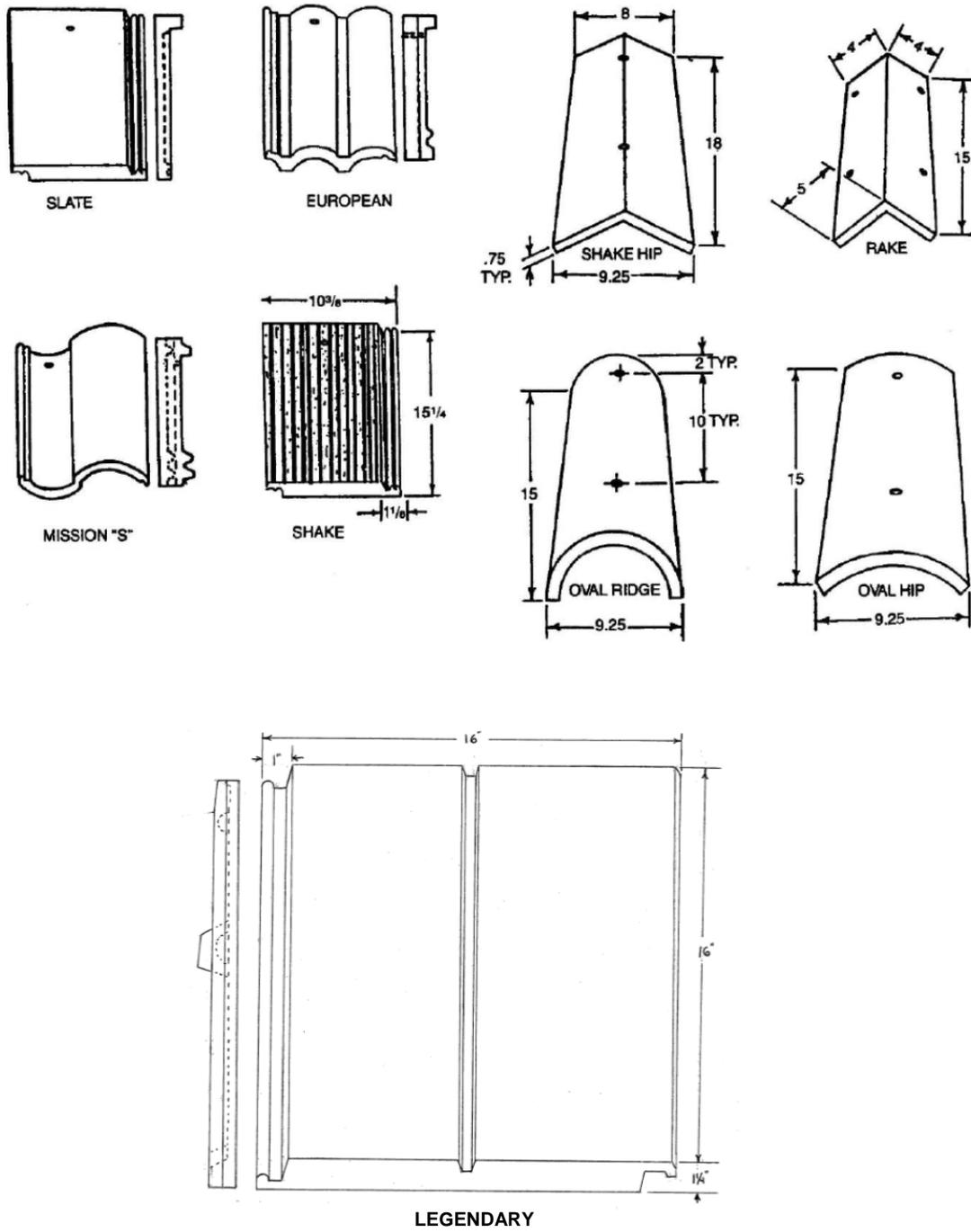


FIGURE 1—LEGENDARY PROFILE

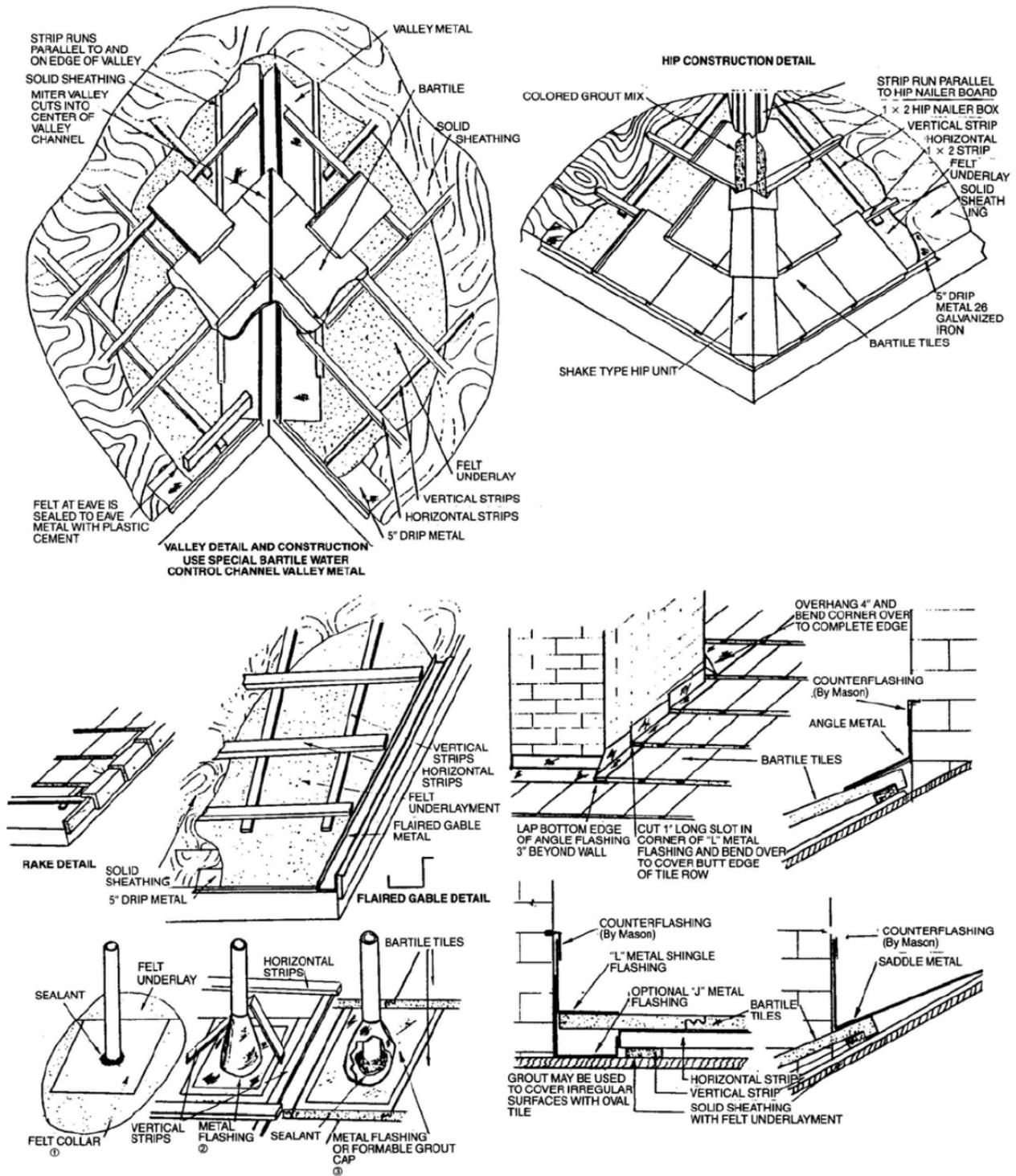


FIGURE 2