

TEXAS DEPARTMENT OF INSURANCE

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PRODUCT EVALUATION RC-21

Effective November 1, 2002
Revised November 1, 2004

*The following product has been evaluated for compliance with the wind loads specified in the **International Residential Code (IRC)** and the **International Building Code (IBC)**. This product shall be subject to reevaluation 3 years after the effective date.*

This product evaluation is not an endorsement of this product or a recommendation that this product be used. The Texas Department of Insurance has not authorized the use of any information contained in the product evaluation for advertising, or other commercial or promotional purpose.

This product evaluation is intended for use by those individuals who are following the design wind load criteria in Chapter 3 of the IRC and Section 1609 of the IBC. The design loads determined for the building or structure shall not exceed the design load rating specified for the products shown in the limitations section of this product evaluation. This product evaluation does not relieve a Texas licensed engineer of his responsibilities as outlined in the Texas Insurance Code, the Texas Administrative Code, and the Texas Engineering Practice Act.

One Piece "S" Mission roofing tiles manufactured by

Maruhachi Ceramics of America, Inc. (MCA)
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Corona, California 92879
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will be accepted for use in designated catastrophe areas along the Texas Gulf Coast when installed in accordance with the manufacturer's installation instructions and this product evaluation.

PRODUCT DESCRIPTION

The one piece "S" mission roofing tiles are machine-formed from natural clay. The tiles have a natural, glazed, or spray-flash finish. The roofing tiles are available in a variety of colors.

The roofing tiles are S-shaped. The roofing tiles are nominal 19" long, 14 1/2" wide and 1/2" thick. The nominal height of each roofing tile is 2 9/16". The roofing tiles have two nail holes in the pan side and one nail hole in the barrel side.

Note: This product evaluation report is for a direct deck roofing tile installation with the roofing tiles fastened to the deck mechanically.

INSTALLATION INSTRUCTIONS

Roof Framing and Roof Deck: Roof framing members shall be in accordance with either the International Residential Code or the International Building Code. The roof framing members shall not be spaced greater than 24 inches on center. The roof deck shall be solidly sheathed with minimum 15/32" wood structural panels (plywood or OSB). The roof deck shall be fastened to the roof framing members in accordance with either the International Residential Code or the International Building Code.

Roof Underlayment: The following minimum underlayment requirement shall be used:

2 1/2 :12 roof slope up to 4:12 roof slope: A minimum of two layers of No. 30 (Type II) asphalt felt shall be used. The underlayment used shall comply with one or more of the following: ASTM D 226, ASTM D 4869, or ASTM D 1970. The underlayment shall be installed in accordance with the

INSTALLATION INSTRUCTIONS (CONT.)

manufacturer's installation instructions using corrosion resistant fasteners. Fasteners shall be applied along the overlaps not farther apart than 36 inches on center.

Above 4:12 roof slope: A minimum of one layer of No. 30 (Type II) asphalt felt shall be used. The underlayment used shall comply with one or more of the following: ASTM D 226, ASTM D 4869, or ASTM D 1970. The underlayment shall be installed in accordance with the manufacturer's installation instructions using corrosion resistant fasteners. Fasteners shall be applied along the overlaps not farther apart than 36 inches on center.

Roofing Tile Installation: The limitations on roof slope and mean roof height for installing the roofing tiles shall be in accordance with the following guidelines:

Roof Slope Limitations: The roofing tiles shall not be installed on buildings with a roof slope of less than $2\frac{1}{2}$:12 and a roof slope greater than 12:12.

Mean Roof Height Limitations: The mean roof height limitations shall be as specified in Table 1. The roofing tiles shall not be installed on structures with a mean roof height greater than 60 feet.

The roofing tiles and the underlayment system shall be clean and dry at the time of application.

The roofing tiles shall be installed in accordance with the manufacturer's installation instructions and this product evaluation report.

The roofing tiles shall be laid out from the right to the left, starting at the right rake. The roofing tiles shall be installed with a 3" headlap.

The roofing tiles shall be mechanically fastened to the roof deck using one of the following two methods:

Method one: Each roofing tile shall be fastened to the roof deck with one No. 8 x $1\frac{1}{2}$ " long galvanized screw through the hole in the pan side of the tile farthest from the head. In addition, each roofing tile shall have a zinc coated wire tile nail (0.123" diameter wire that is bent) inserted through the hole in the barrel side of the roofing tile and hammered into the deck. These fastening requirements shall be used over the entire roof, including areas such as edges, corners, and ridges.

Method two: Each roofing tile shall be fastened to the roof deck with one $1\frac{5}{8}$ " x 0.138" diameter galvanized ring shank nail through the hole in the pan side of the roofing tile farthest from the head. In addition, each roofing tile shall have a 5" x 0.148" diameter galvanized ring shank nail (0.359" diameter head) inserted through an 11 gauge wire bent to form a wind clip and through the hole in the barrel side of the tile. The wire bent to form a wind clip shall be used to hold the overlapping roofing tile. These fastening requirements shall be used over the entire roof, including areas such as edges, corners, and ridges.

Table 1
Mean Roof Height Limitations

Roof Slope: \geq 2:12 and \leq 12:12

Attachment Method	Mean Roof Height Limitation ¹ (ft)		
	Inland II	Inland I	Seaward
Method One	60	60	60
Method Two	60	60	60

Note: ¹ Mean roof height limitations based on Exposure C.

Note: The manufacturer's installation instructions shall be on the job site during the installation. All fasteners shall be corrosion resistant as specified in the International Residential Code (IRC) and the International Building Code (IBC).