

Product Evaluation

RC138 | 0221

Engineering Services Program

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 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.

For more information, contact TDI Engineering Services Program at (800) 248-6032.

Evaluation ID: RC-138

Effective Date: February 1, 2021

Re-evaluation Date: February 2025

Product Name: Spanish Clay Roofing Tiles Installed with Fasteners to a Wood Structural Panel Roof Deck

Manufacturer: Laminados de Barro S.A. de C.V.
Av. Rio Escondido #500
Col. El Vergel
Piedras Negras, Coahuila
Mexico 26070
(52) 87 87 83 44 44

General Description:

The Spanish clay roofing tiles are interlocking tiles that are machine formed from natural clay. The clay roofing tiles are available in a wide variety of colors. Each clay roofing tile has an interlocking rib along each longitudinal edge to provide a water stop and which will restrict lateral movement.

Mechanical Attachment Only: The Spanish clay roofing tiles are to be installed mechanically with fasteners and clips. The Spanish clay roofing tiles may be secured to the roof deck using battens. Holes are provided at the top of each clay roofing tile for fastening as specified in this evaluation report.

Roofing Tile Dimensions: The dimensions of the Spanish clay roofing tiles that apply to this product evaluation report are specified in Table 1.

Table 1. Roofing Tile Dimensions

Tile Designation	Width (in.)	Length (in.)	Thickness (in.)
Spanish	9-5/8	16-1/4	1/2

Limitations:

Roof Slope Limitations: The roofing tiles must only be installed on buildings with a roof slope greater than or equal to 3:12, but not exceeding 12:12.

Moment of Resistance: The overturning resistance (moment of resistance) due to wind of the roof tiles based on the installation method for the roof tiles is shown in Table 2.

Table 2: Moment of Resistance Based on Roof Tile Installation Method

Tile Designation	Minimum 7/16" Plywood Roof Deck
Spanish	528.0 ft-lbs.

Aerodynamic Uplift Moment: The aerodynamic uplift moment for the roof tile is calculated using Equation 16-34 from the 2018 IBC. The aerodynamic uplift moment is calculated based on the mean roof height for the installation and the required wind speed and Exposure condition for the installation location using ASCE 7-16.

Permissible Tile Installation: The roof tiles may be installed if the Moment of Resistance for the roof tile specified in this evaluation report is greater than the Aerodynamic Uplift Moment for the roof tile calculated for the structure location.

Installation:

Roof Framing and Roof Deck: Roof framing members must be in accordance with either the IRC or the IBC. The roof framing members must not be spaced greater than 24" on center.

The roof deck must be solidly sheathed with minimum 7/16" plywood. The roof deck must be fastened to the roof framing members in accordance with either the IRC or the IBC.

If the existing roof deck is a spaced board deck, then a solid deck must be created using one of the following two options:

1. The spaced boards must be removed and replaced with a wood structural panel deck (plywood) with a minimum 7/16" thickness, or
2. The spaced boards must be covered with a wood structural panel deck (plywood) with a minimum 7/16" thickness. The wood structural panel deck must be installed over the spaced boards in accordance with either the IRC or the IBC.

Metal Drip Edge: A metal drip edge must be fastened to the roof deck with either 11-gauge or 12-gauge roofing nails spaced a maximum of 10" on center. Note: The underlayment and the drip

edge may be fastened with the same fastener as long as the more stringent fastener pattern is used.

At the eaves, the drip edge must be fastened directly to the deck and the underlayment applied over the drip edge. At the gable ends, the drip edge must be applied over the underlayment.

Roof Underlayment:

3:12 Roof Slope to Under 4:12 Roof Slope: Two layers of underlayment complying with ASTM D 226, Type II (No. 30 asphalt felt) or equivalent. The underlayment must be installed as specified in either the IRC or the IBC and in the manufacturer's installation instructions.

4:12 Roof Slope and Greater: One layer of underlayment complying with ASTM D 226, Type II (No. 30 asphalt felt) or equivalent. The underlayment must be lapped a minimum of 2" at the head laps and a minimum of 6" at the side laps. The underlayment must be installed as specified in either the IRC or the IBC and in the manufacturer's installation instructions.

Battens: The roofing tiles may be installed over battens. As a minimum, the battens must be nominal 1x2 wood members. The battens must be spaced a maximum of 13-3/8" on center (space battens to allow for a 2-1/2" headlap of the roofing tiles). The battens must be fastened to the roof deck with nails (minimum 0.120" smooth shank diameter). The fasteners must be located at each end and spaced a maximum of 24" on center. The fastener must be long enough to penetrate a minimum of 3/4" into or through the roof deck. Batten ends must be separated a minimum of 1-1/2" every 4' to allow for drainage.

General: The roofing tiles and the underlayment system must be clean and dry at the time of their application.

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

The roofing tiles must be laid out from the right to the left, starting at the right rake. The roofing tiles must be installed with a 2" headlap and a 1-5/8" sidelap.

Fasteners: The roofing tiles must be mechanically fastened to the roof deck. If battens are used, then the fasteners must penetrate through the battens and into the roof deck. Fasteners must be long enough to penetrate a minimum of 3/4" into or through the roof deck. Each tile is secured to the roof deck in the following manner:

Screws: Minimum No. 8 x 2-1/2" bugle head screws. The fastener penetrates through a hole at the top of the roofing tile, through the batten (if battens are used), and into the roof deck.

Clips: Minimum 1/2" wide x 2-9/16" long x 0.050" thick steel clips with three holes. The clips are either galvanized steel or stainless steel. The clips are located over the tile underlap (left

side) approximately 5" up from the bottom of the tile. One clip per tile is required. Each clip must be secured to the roof deck with one minimum No. 6 x 1-5/8" screw.

Rake Tiles, Hip Tiles, and Ridge Tiles: Refer to the roofing tile manufacturer's installation instructions for the installation of the rake, hip, and ridge tiles.

Note: Keep the manufacturer's installation instructions available on the job site during the installation. Use corrosion resistant fasteners as specified in the IRC and the IBC.