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ESR-1364

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DIVISION: 04 00 00—MASONRY
SECTION: 04 71 00—MANUFACTURED BRICK MASONRY
SECTION: 04 73 00—MANUFACTURED STONE MASONRY

REPORT HOLDER:

BORAL STONE PRODUCTS, LLC

2256 CENTENNIAL ROAD
TOLEDO, OHIO 43617

EVALUATION SUBJECT:

CULTURED STONE®, CULTURED BRICK®, PROSTONE® AND MODULO® STONE

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ICC-ES Evaluation Report

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DIVISION: 04 00 00—MASONRY
Section: 04 71 00—Manufactured Brick Masonry
Section: 04 73 00—Manufactured Stone Masonry

REPORT HOLDER:

BORAL STONE PRODUCTS, LLC
2256 CENTENNIAL ROAD
TOLEDO, OHIO 43617
(419) 318-5345
www.culturedstone.com

EVALUATION SUBJECT:

CULTURED STONE®, CULTURED BRICK®, PROSTONE® AND MODULO® STONE

1.0 EVALUATION SCOPE

1.1 Compliance with the following codes:

- 2012 *International Building Code®* (IBC)
- 2012 *International Residential Code®* (IRC)
- Other Codes (see Section 8.0)

Properties evaluated:

- Interior finish and trim classification
- Thermal resistance
- Exterior veneer characteristics

1.2 Evaluation to the following green code(s) and/or standards:

- 2013 California Green Building Standards Code (CALGreen), Title 24, Part 11
- 2012 and 2008 ICC 700 *National Green Building Standard*™ (ICC 700-2012 and ICC 700-2008)

Attributes verified:

- See Section 3.0

2.0 USES

Cultured Stone®, Cultured Brick®, ProStone® and Modulo® Stone are used as adhered, non-load-bearing exterior veneer or as an interior finish and trim on wood or light gage steel stud framing, concrete or masonry walls.

3.0 DESCRIPTION

Cultured Stone®, Cultured Brick®, ProStone® and Modulo® Stone are precast concrete products made to resemble natural stone or brick. The stone veneer is made from cement, aggregate, water, admixtures and mineral oxide colors. The average saturated veneer weight does not exceed 15 pounds per square foot (73.2 kg/m^2). See Table 1 for recognized patterns.

The stone veneer has a Class A (Class I) finish rating in accordance with IBC Section 803.1.1, and complies with the flame-spread and smoke-development requirements of IRC Section R302.9. Additionally, the stone veneer has an *R*-value of 0.355 when tested at a thickness of 1.0 inch (25.4 mm) in accordance with ASTM C177.

The attributes of the stone veneer have been verified as conforming to the requirements of (i) 2013 CALGreen Section A4.405.1.3 for prefinished building materials and Section A5.406.1.2 for reduced maintenance; (ii) ICC 700-2012 Section 602.1.6 for termite-resistant materials and Sections 601.7, 11.601.7, and 12.1(A).601.7 for site-applied finishing materials; and (iii) ICC 700-2008 Section 602.8 for termite-resistant materials and Section 601.7 for site-applied finishing materials. 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:

Installation of the stone veneer must comply with this report, the manufacturer's published installation instructions, and the applicable code. The manufacturer's published installation instructions must be available at the jobsite at all times during installation. The veneer has been evaluated for application over backings of cement plaster, concrete and masonry.

4.2 Preparation of Backing:

4.2.1 Cement Plaster Backings: Cement plaster backings may be applied over plywood, OSB or gypsum sheathing, supported by wood or steel studs; over open wood or steel studs; over concrete walls; and over masonry walls, when installed as described in Sections 4.2.1.1 and 4.2.1.2.

4.2.1.1 Installation over Studs: For exterior installations, the cement plaster backing must be installed over a water-resistive barrier complying with IBC Sections 1404.2 and 2510.6 or IRC Sections R703.2 and R703.6.3, as applicable. Also, flashing must be installed as required by IBC Sections 1405.4 and 1405.10.1.2 or IRC Sections R703.8 and R703.12.2, as applicable, and weep screeds

must be installed at the bottom of the stone veneer. The weep screeds must comply with, and be installed in accordance with, IBC Section 1405.10.1.2 or IRC Section R703.12.2, as applicable. In addition, the weep screeds must have holes with a minimum diameter of $^3/_{16}$ inch (4.8 mm) spaced at a maximum of 33 inches (838 mm) on center, as required by Section 6.1.6.2 of TMS 402/ACI 530/ASCE 5, which is referenced in IBC Section 1405.10. The veneer must be installed with the clearances required by IBC Section 1405.10.1.3 or IRC Section R703.12.1, as applicable.

Studs must be spaced a maximum of 16 inches (406 mm) on center. Lath must be a 2.5 lb/yd^2 (1.4 kg/m^2), galvanized, self-furring diamond mesh metal lath, conforming to ASTM C847, or a 1.4 lb/yd^2 (0.760 kg/m^2) galvanized woven wire mesh conforming to ASTM C1032. When the cement plaster backing is installed over open studs, a 3.4 lb/yd^2 (1.8 kg/m^2), $^3/_8$-inch-thick-rib (9.5 mm), paper-backed, galvanized expanded metal lath conforming to ASTM C847 must be used. All lath must be installed over the water-resistive barriers, following the lath manufacturer's installation instructions. The lath or mesh must be fastened to each of the wall studs at 6 inches (152 mm) on center vertically, and in accordance with the minimum requirements of Section 7.10 of ASTM C1063, or IRC Section R703.6.1, as applicable. For wood studs, fasteners must be minimum 0.120-inch-shank-diameter galvanized nails, with a $^7/_{16}$-inch-diameter (11.1 mm) heads and sufficient length to penetrate the studs a minimum of 1 inch (25.4 mm); or 16 gage galvanized staples with minimum $^3/_4$-inch (19.1 mm) crowns and sufficient length to penetrate the studs a minimum of $^3/_4$ inch (19.1 mm). For steel studs, fasteners must be minimum $^7/_{16}$-inch-head-diameter (11.1 mm), corrosion-resistant, self-drilling, self-tapping, pancake head screws of sufficient length to penetrate the studs a minimum of $^3/_8$ inch (9.5 mm). Wood studs must have a minimum specific gravity of 0.42. Steel studs must be 20 gage [0.033-inch-thick (0.84 mm)], minimum.

A scratch coat of Type N or S mortar (cement plaster) complying with ASTM C926 must be applied over the lath or mesh to a thickness of $^1/_2$ to $^3/_4$ inch (12.7 to 19.1 mm). The mortar must be allowed to cure in accordance with IBC Section 2512.6, prior to the application of the veneer units.

4.2.1.2 Installation over Concrete and Masonry: The veneer units may be applied directly to concrete or masonry backing without lath, provided the masonry surface is clean (see Section 4.2.3). The veneer units may also be applied over concrete or masonry using lath and a cement plaster backing. The lath must be a 2.5 lb/yd^2 (1.4 kg/m^2) diamond mesh, corrosion-resistant metal lath complying with ASTM C847. The lath must be fastened to the wall in accordance with Section 7.10 of ASTM C1063, and IRC Section R703.6.1, as applicable. The fasteners must be spaced a maximum of 6 inches (152 mm) on center vertically and 16 inches (406 mm) on center horizontally. The gravity load (shear) capacity and negative wind load (pull-out) capacity of the proprietary fasteners must be justified to the satisfaction of the code official. The scratch coat must be applied as described in Section 4.2.1.1.

4.2.2 Concrete and Masonry Backing: Concrete and masonry wall surfaces must be prepared in accordance with Section 5.2 of ASTM C926, and IBC Section 2510.7, as applicable. Alternatively, a cement plaster backing may be installed as described in Section 4.2.1.2.

4.3 Application of Veneer Units:

A $^1/_2$-inch-thick to $^3/_4$-inch-thick (12.7 to 19.1 mm), Type N or S mortar setting bed must be applied to the masonry backing in areas of approximately 5 to 10 square feet (0.5 to 0.9 m^2). The stone veneer must be lightly but firmly tapped into the mortar setting bed to ensure bond while the mortar is soft and pliable. Alternatively, the setting bed must be applied to the back of each stone veneer unit and the unit pressed into place. A combination of these methods may be used. In either case the mortar setting bed thickness and consistency must allow mortar to be squeezed out around all edges of the veneer unit to assure full bond. Joints must be tooled and grouted in accordance with the manufacturer's published installation instructions.

5.0 CONDITIONS OF USE

The Cultured Stone®, Cultured Brick®, ProStone® and Modulo® Stone 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 Installation must comply with this report, the manufacturer's published installation instructions and the applicable code. In the event of a conflict between the manufacturer's published installation instructions and this report, this report governs.

5.2 The precast stone veneer has been evaluated for installation on walls with cement plaster, concrete and masonry backings.

5.3 Expansion or control joints used to limit the effect of differential movement of supports must be specified by the architect, designer or stone veneer manufacturer, in that order. Consideration must also be given to movement caused by temperature change, shrinkage, creep and deflection.

5.4 In jurisdictions adopting the IBC, the supporting wall framing must be designed to support the installed weight of the veneer system, including stone veneer, mortar setting bed and cement plaster backing, as applicable. At wall openings, the supporting members must be designed to limit deflection to $^1/_{600}$ of the span of the supporting members.

5.5 In jurisdictions adopting the IRC, where the seismic provisions of Section R301.2.2 apply, the average weight of the wall supporting the precast stone veneer, including the veneer system must be determined. When this weight exceeds the applicable limits of IRC Section R301.2.2.2.1, an engineered design of the wall construction must be performed in accordance with IRC Section R301.1.3.

6.0 EVIDENCE SUBMITTED

6.1 Data in accordance with the ICC-ES Acceptance Criteria for Precast Stone Veneer (AC51), dated February 2008 (editorially revised April 2012).

6.2 Reports of testing in accordance with ASTM C177.

6.3 Reports of testing in accordance with ASTM E84.

7.0 IDENTIFICATION

The Cultured Stone® described in this report is identified by the initials "C.S.V." cast into the side of each piece of stone.

The packaging of the Cultured Stone®, Cultured Brick®, ProStone® and Modulo® Stone products includes a stamp bearing the manufacturer's name, the product name, the manufacturing plant location, the product code and the evaluation report number (ESR-1364).

8.0 OTHER CODES

8.1 Evaluation Scope:

In addition to the codes referenced in Section 1.0, the products described in this report were evaluated for compliance with the following codes:

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

The Cultured Stone®, Cultured Brick®, ProStone® and Modulo® Stone products described in this report comply with, or are suitable alternatives to what is specified in, the codes listed above, subject to the provisions of Sections 8.2 through 8.7.

8.2 Uses:

See Section 2.0.

8.3 Description:

See the first paragraph of Section 3.0 and the following: The precast veneer has a Class A finish rating in accordance with 2009 IBC Section 8.3.1.1 (2006 IBC Section 803.1) and complies with the flame-spread and smoke-development requirements of 2009 IRC Section R302.9 (2006 IRC Section R315). The stone veneer has an *R*-value of 0.355 when tested in accordance with ASTM C177 at an average thickness of 1.0 inches (25.4 mm).

8.4 Installation:

8.4.1 General: See Section 4.1.

8.4.2 Preparation of Backing:

8.4.2.1 Cement Plaster Backings: See Section 4.2.1.

8.4.2.1.1 Installation over Studs: For exterior installations, the cement plaster backing must be installed over a water-resistive barrier complying with 2009 and 2006 IBC Sections 1404.2 and 2510.6 or 2009 and 2006 IRC Sections R703.2 and R703.6.3, as applicable. Also, flashing must be installed as required by 2009 IBC Section 1405.4 (2006 IBC Section 1405.3) or 2009 and 2006 IRC Section R703.8, as applicable, and weep screeds must be installed at the bottom of the stone veneer. The weep screeds must comply with, and be installed in accordance with, 2009 and 2006 IBC Section 2512.1.2 or 2009 and 2006 IRC Section R703.6.2.1, as applicable. In addition, the weep screeds must have holes with a minimum diameter of $^{3}/_{16}$ inch (4.8 mm) spaced at a maximum of 33 inches (838 mm) on center, as required by Section 6.1.5.2 of TMS 402/ACI 530/ASCE 5 (Section 6.1.5.2 of ACI 530/ASCE 5/TMS 402), which is referenced in 2009 IBC Section 1405.10 (2006 IBC Section 1405.9).

For additional requirements, see the second paragraph of Section 4.2.1.1.

8.4.2.1.2 Installation over Concrete or Masonry: See Section 4.2.1.2.

8.4.3 Application of Veneer Units: See Section 4.3.

8.5 Conditions of Use:

See Section 5.0.

8.6 Evidence Submitted:

See Section 6.0.

8.7 Identification:

See Section 7.0.

TABLE 1—RECOGNIZED PATTERNS

PRODUCT NAME	PATTERNS
Cultured Stone®	Aged Tumbled, Alpine Pro-Fit Ledgestone, Ancient Villa, Del Mare, Carolina Ledgestone, Cast-Fit, Cobblefield, Coral Stone, Country Ledgestone, Dressed Fieldstone, Driftstone, Drystack, European Castle Stone, Fieldstone, Large Coral, Limestone, Old Country Fieldstone, Pro-Fit Ledgestone, River Rock, Rockface, Southern Ledgestone, Split Face, Stream Stone, Stream Stone Skimmer, Water Wash Wall Stone, Weather Edge Ledgestone
Cultured Brick®	Handmade Brick
ProStone®	Aged Ledgestone, Easy Fit Savannah Ledgestone, Fieldstone, Ledgestone, River Rock, Tuscan Cobble
Modulo Stone®	Fieldstone, French Cobble, Quarry Ledgestone, River Rock, Weathered Ledgestone

ICC-ES Evaluation Report

ESR-1364 CBC and CRC Supplement

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EVALUATION SUBJECT:

CULTURED STONE®, CULTURED BRICK®, PROSTONE® AND MODULO® STONE

1.0 EVALUATION SCOPE

Compliance with the following codes:

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

Properties evaluated:

- Exterior veneer
- Interior finish and trim classification
- Thermal resistance

2.0 PURPOSE OF THIS SUPPLEMENT

This supplement is issued to indicate that the manufactured, precast stone veneer described in master report ESR-1364 complies with CBC Sections 803.1.1, 1404.4, and 2101.2.6, provided the design and installation are in accordance with the *International Building Code*® (IBC) provisions noted in the master report and the additional requirements of CBC Sections 1405.1.1, 1405.3, 1409 and 2510.7, as applicable.

The manufactured, precast stone veneer described in master report ESR-1364 complies with the flame spread and smoke developed requirements of CRC Section R302.9 and with CRC Section R703, provided the design and installation are in accordance with the *International Residential Code*® (IRC) provisions noted in the master report and the additional requirements of CRC Sections R301.1.3.

The manufactured, precast stone veneer has not been evaluated under CBC Chapter 7A or CRC Section R327, for use in the exterior design and construction of new buildings located in a Fire Hazard Zone within a State Responsibility Area or any Wildland–Urban Interface Fire Area.

The product recognized in this supplement has not been evaluated for compliance with the *International Wildland–Urban Interface Code*®.

This supplement expires concurrently with the master report, reissued October 2016.