

ICC-ES Evaluation Report

ESR-1063

Issued February 1, 2011

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DIVISION: 04 00 00—MASONRY
Section: 04 73 00—Manufactured Stone Masonry**REPORT HOLDER:****LONE STAR STONE INC.**
POST OFFICE BOX 2125
WHITNEY, TEXAS 76692
(254) 694-6613
www.lonestarstone.com**EVALUATION SUBJECT:****LONE STAR STONE****1.0 EVALUATION SCOPE****Compliance with the following codes:**

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

Property evaluated:

Veneer strength and durability

2.0 USES

Lone Star Stone is used as an adhered, nonload-bearing exterior veneer on nonfire-resistance-rated exterior walls.

3.0 DESCRIPTION

The veneer is a precast concrete product made to resemble natural stone in color and texture. The veneer is composed of portland cement complying with ASTM C 150, aggregates, coloring pigments, admixtures, and water. The veneer units are molded and cured at the manufacturing facility.

The veneer units are of various thicknesses ranging from 1 inch to 1⁵/₈ inches (25.4 to 41.3 mm). The maximum saturated weight of the installed veneer units is less than 15 pounds per square foot (73.2 kg/m²).

Recognized veneer types and patterns are as follows:

- Chalk
- Ledge
- Castlestone
- Stackstone
- Drystack
- Fieldstone
- Chisel
- River Rock

4.0 DESIGN AND INSTALLATION**4.1 General:**

Installation of the veneer units must comply with this report, the manufacturer's published installation instructions, and IBC Section 1404.4 or IRC Section R703.7, as applicable. The manufacturer's published installation instructions must be available at the jobsite at all times during installation. The veneer may be applied over backings of cement plaster.

4.2 Preparation of Backing:

4.2.1 General: The cement plaster backing (scratch coat) may be applied over plywood, OSB or gypsum sheathing, supported by wood or steel studs; over concrete walls; and over concrete masonry walls when installed in accordance with Sections 4.2.1.1 through 4.2.1.3.

4.2.2 Installation over Sheathing: 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. The water-resistive barrier must consist of a minimum of two separate layers of Grade D paper as described in IBC Section 2510.6 and IRC Section R703.6.3; or one layer of a proprietary barrier recognized in an ICC-ES evaluation report as an alternative to Grade D paper complying with ICC-ES AC38, and one layer of Grade D paper.

Also, flashing must be installed as required by IBC Section 1405.3 or IRC Section R703.8, as applicable, and weep screeds must be installed at the bottom of the veneer. The weep screeds must comply with, and be installed in accordance with, IBC Section 2512.1.2 or 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 ACI 530/ASCE 5/TMS 402, which is referenced in IBC Section 1405.9.

Studs must be spaced no more than 16 inches (406 mm) on center. A self-furring, corrosion-resistant, 2.5-pound-per-square-yard (1.4 kg/m²), galvanized, expanded diamond mesh metal lath, or 3.4 lb/yd² (1.8 kg.m²), ³/₈-inch (9.5 mm) rib lath complying with ASTM C 847, must be installed in accordance with the applicable code over the water-resistive barrier. Lath must be installed with a minimum 2-inch (51 mm) overlap on horizontal seams and a 6-inch (152 mm) overlap on vertical joints. The lath must be fastened to each of the wall studs at 6 inches (152 mm) on center vertically, in accordance with the minimum requirements of Section 7.10 of ASTM C 1063, or IRC Section R703.6.1, as applicable. Lath shall be wrapped

around inside and outside corners with attachment every 6 inches (152 mm) at the next stud, allowing up to a 16-inch (406 mm) overlap. For wood studs, fasteners must be minimum 0.120-inch-shank-diameter (3 mm) galvanized nails, complying with ASTM F 1667, of sufficient length to penetrate the studs a minimum of 1 inch (25.4 mm). For steel studs, fasteners must be minimum No. 8 gage, Type S, galvanized self-tapping screws complying with ASTM C 1002, of sufficient length to penetrate the studs a minimum of $\frac{1}{2}$ inch (12.7 mm). Fasteners must not penetrate exterior sheathing between the studs.

A coat of Type N mortar is applied to the metal lath as a scratch coat. The coat of mortar must be a minimum of $\frac{1}{2}$ inch (12.7 mm) and a maximum of $\frac{3}{4}$ inch (19 mm) thick. The mortar must comply with IBC Section 2103.8 or IRC Section R607.1, as applicable, and must be cured in accordance with IBC Section 2512.6 prior to application of the veneer units.

4.2.3 Installation over Open Studs: The cement plaster backing must be installed over a water-resistive barrier, flashing and weep screeds as described in Section 4.2.2. Studs must be spaced no more than 16 inches (406 mm) on center. Lath must be a corrosion-resistant, 3.4-pound-per-square-yard (1.8 kg/m^2), $\frac{3}{8}$ -inch (9.5 mm) rib lath complying with ASTM C 847. The lath must be fastened to wall framing and the scratch coat applied as described in Section 4.2.2.

4.2.4 Installation over Concrete and Masonry: The veneer units may be applied over concrete and masonry backing that is covered with lath and cement plaster. The lath must be corrosion-resistant metal lath complying with ASTM C 847, or 1.4 lb/yd^2 (0.760 kg/m^2), corrosion-resistant, woven wire plaster base complying with ASTM C 1032. The lath must be fastened to the wall in accordance with Section 7.10 of ASTM C 1063, 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 4.2.2.

4.3 Application of Veneer Units:

A nominally $\frac{1}{2}$ -inch-thick (12.7 mm) layer of Type N mortar is applied to the back of each veneer unit, which is then pressed firmly in place to assure full bond. The mortar must comply with IBC Section 2103.8 or IRC Section R607.1, as applicable. Veneer units must be installed at least 4 inches (105 mm) above earth. Joints between veneer units must be grouted and tooled in accordance

with the veneer manufacturer's published installation instructions. The ambient temperature and veneer unit temperature must be 40°F (4°C) or higher at the time of veneer application.

5.0 CONDITIONS OF USE

The precast stone veneer described in this report complies with, or is a suitable alternative 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 use of the precast stone veneer is limited to installation on wood framed or light-gage steel framed walls, concrete or masonry.
- 5.3 Expansion or control joints, used to limit the effect of differential movement of supports on the veneer system, are to be specified by the architect, designer or 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 must be designed to support the installed weight of the veneer system, including veneer, setting bed and cement plaster backing, as applicable. At wall openings, the supporting members must be designed to limit deflection to $\frac{1}{600}$ of the span of the supporting members.
- 5.5 In jurisdictions adopting the IRC, where the seismic provisions of IRC Section R301.2.2 apply, the average weight of the wall supporting the precast stone veneer, including the weight of 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

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

7.0 IDENTIFICATION

Boxes of the precast stone veneer units are identified with the manufacturer's name (Lone Star Stone), product name, pattern name, and the evaluation report number (ESR-1063).