ICC-ES Evaluation Report

ESR-2239

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This report is subject to re-examination in two years.

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

REPORT HOLDER:

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EVALUATION SUBJECT:

CENTURION STONE VENEER

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

Centurion Stone Veneer is used as an adhered, nonload-bearing exterior veneer on nonfire-resistance-rated exterior walls of wood stud or light-gage steel stud construction, or concrete or masonry 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, admixtures, and water. The veneer units are molded and cured at the manufacturing facility.

The veneer units are of various thicknesses from $1^1/_2$ to 2 inches (38 to 51 mm). The maximum saturated weight of the installed veneer units is less than 15 pounds per square foot (73.2 kg/m^2). Recognized stone patterns are: Ashlar, Bedrock, Biltmore, Canyon Ledge, Castlerock, Cathedral, Cherokee Blend, Cobblestone, Cutface, Driftstone, Fieldstone, Foundation Stone, Hackett, Ledge, Multi-Blend, Multi-Ledge, Ocala, Ohio Limestone, Palos Verdes, River Rock, Rubble, Rustic, Silhouette Ledge, Splitface and Weatheredge.

4.0 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, concrete or masonry.

4.2 Preparation of Backing:

4.2.1 Cement Plaster Backing: The cement plaster backing (scratch coat) may be applied over structurally sound wall surfaces of exterior sheathing on wood framed or light-gage steel framed walls, open wood or steel studs, or masonry walls.

4.2.1.1 Installation over Sheathing: A 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 No. 15 asphalt felt complying with ASTM D 226 for Type 1 felt, or Grade D paper as described in IBC Section 2510.6 and IRC Section R703.6.3, or one layer of house wrap recognized in an ICC-ES evaluation report as complying with ICC-ES AC38 (the Acceptance Criteria for Water-resistive Barriers) and one layer of No. 15 asphalt felt or 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/m^2), galvanized, expanded diamond mesh metal lath, or 3.4 lb/yd^2 (1.8 kg/m^2), $^3/_8$-inch (9.5 mm) rib lath complying with ASTM C 847 or a No. 18 gage [0.051-inch-thick (1.30 mm)] galvanized woven wire mesh conforming to ASTM C 1032, must be installed in accordance with the applicable code over the water-resistive barrier. Lath must be installed with a minimum $^1/_2$-inch (12.7 mm) overlap on vertical seams and a 1-inch (25.4 mm) overlap on horizontal seams. 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 must 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 with minimum $^3/_8$-inch-diameter (9.5 mm) heads, complying with ASTM C 1002 and of sufficient length to penetrate the studs a minimum of $^3/_8$ inch (9.5 mm).

A coat of Type S or N mortar is applied to the metal lath as a scratch coat. The coat of mortar must be a minimum of $^1/_2$ inch (12.7 mm) and a maximum of $^3/_4$ 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.

4.2.1.2 Installation over Open Studs: The cement plaster backing must be installed over a water-resistive barrier, flashing and weep screeds as described in Section 4.2.1.1. 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), $^3/_8$-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 4.2.1.1.

4.2.1.3 Installation over Masonry: The veneer units may be applied to clean, untreated masonry surfaces without the use of metal lath, provided the masonry surface is clean. Where lath is used, it must be corrosion-resistant, 2.5-pound-per-square-yard (1.4 kg/m^2), galvanized, expanded diamond mesh metal lath complying with ASTM C 847. 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 scratch coat must be applied as described in Section 4.2.1.1. 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.

4.2.2 Masonry Backing: Wall surfaces must be prepared in accordance with Section 5.2 of ASTM C 926 and IBC Section 2510.7, as applicable. Alternatively, a cement plaster backing may be installed as described in Section 4.2.1.

4.3 Application of Veneer Units:

A nominally $^1/_2$-inch-thick (12.7 mm) layer of Type S or 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. 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 and concrete or masonry backings.

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 $^1/_{600}$ 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 (Centurion Products, Inc.), product name, pattern name, and the evaluation report number (ESR-2239).