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ICC-ES Report

ESR-1942

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Reissued 03/2016
This report is subject to renewal 03/2018.

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

REPORT HOLDER:

DUTCH QUALITY STONE, INC.

POST OFFICE BOX 308
MOUNT EATON, OHIO 44659

EVALUATION SUBJECT:

DUTCH QUALITY STONE ADHERED VENEER

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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:

DUTCH QUALITY STONE, INC.
POST OFFICE BOX 308
MOUNT EATON, OHIO 44659
(877) 359-7866
www.dutchqualitystone.com

EVALUATION SUBJECT:

DUTCH QUALITY STONE ADHERED VENEER

1.0 EVALUATION SCOPE

1.1 Compliance with the following codes:

- 2012 *International Building Code*® (IBC)
- 2012 *International Residential Code*® (IRC)
- 2013 *Abu Dhabi International Building Code* (ADIBC)†

†The ADIBC is based on the 2009 IBC. 2009 IBC code sections referenced in this report are the same sections in the ADIBC.

- Other codes (see Section 8.0)

Properties evaluated:

- Veneer strength and durability
- Thermal resistance

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

Dutch Quality Stone Adhered Veneer is used as an adhered, nonload-bearing, exterior veneer on nonfire-resistance-rated wood-framed or light gage steel stud walls, concrete walls or masonry walls.

3.0 DESCRIPTION

The veneer is a precast concrete product made to resemble natural stone in color and in texture. The veneer is composed of portland cement, aggregate, sand, water, admixtures and mineral oxide coloring. The veneer units are molded and cured at the plant. Recognized patterns are:

Patterns	Brick-Stone, Cobbled Limestone, Castle Stone, Drystack, Fieldstone, Ledgestone, Limestone, Split Granite, River Rock, Stackstone, Weather Ledge, Stack Ledge, Tuscan Ridge, Tuscany Veneer
Accessories	Row Locks 4x5, Row Locks 5.7, Half Brick, Full Brick, Flat Window Trim, Jack Arch Wings, Receptacle Block, Light Block, Water Hydrant, Circle Vent, Arch Top Vent, Address Block

The veneer units are of various thicknesses, with an average thickness for each pattern from $1^1/_8$ to $1^5/_8$ inches (16 to 45 mm). The average saturated weight of the veneer units does not exceed 15 pounds per square foot (73.2 kg/m^2).

The veneer units have a thermal resistance (*R*-value) of 0.71°F ft^2 h/Btu when tested in accordance with ASTM C518 at a thickness of 1.08 inches (27 mm).

The attributes of the stone veneer have been verified as conforming to the provisions of (i) CALGreen Section A4.405.1.3 for prefinished building materials and Section A5.406.1.2 for reduced maintenance; (ii) ICC 700-2012 Sections 602.1.6 and 11.602.1.6 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 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 may be applied over backings of cement plaster, concrete, brick or concrete masonry units (CMUs).

4.2 Preparation of Backings:

4.2.1 Cement Plaster Backings: Cement plaster backings may be applied over plywood, OSB or gypsum

sheathing supported by wood or steel studs; and over concrete walls when installed as described in Sections 4.2.1.1 and 4.2.1.2.

4.2.1.1 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. 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 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 no more than 16 inches (406 mm) on center. Lath must be corrosion-resistant, 2.5 lb/yd^2 (1.4 kg/m^2), diamond-pattern metal lath complying with ASTM C847. The lath must be lapped in accordance with Section 7.8 of ASTM C1063. The lath must be fastened to each of the wall studs at 6 inches (152 mm) on center, vertically. For wood studs, fasteners must be galvanized nails or staples complying with Section 7.10 of ASTM C1063 (IBC) or IRC Section R703.6.1, as applicable, and of sufficient length to penetrate the studs a minimum of 1 inch (25.4 mm). For steel studs, fasteners must be corrosion-resistant, self-tapping screws with a head diameter of $^7/_{16}$ inch (11.1 mm) and sufficient length to penetrate the studs a minimum of $^3/_8$ inch (9.5 mm).

A scratch coat of Type N or S mortar (cement plaster) complying with ASTM C926, $^3/_8$ to $^5/_8$ inch thick (9.5 to 15.9 mm), must be applied over the lath and allowed to cure in accordance with IBC Section 2512.6, before the veneer units are applied.

4.2.1.2 Installation over Concrete: For concrete walls, corrosion-resistant metal lath complying with ASTM C847 must be installed in accordance with Section 7.10 of ASTM C1063, and IRC Section R703.6.1, as applicable, with fasteners having a 1-inch (25.4 mm) minimum embedment, at 6 inches (152 mm) on center, horizontally and vertically. The gravity load (shear) capacity and negative wind load (pull out) capacity of these 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 Masonry Backings: Brick and concrete masonry walls must be prepared in accordance with Section 5.2 of ASTM C926 and IBC Section 2510.7, as applicable.

4.3 Application of Veneer Units:

A $^1/_2$-inch-thick (12.7 mm) coat of Type N or S mortar is applied to the entire back of each piece of veneer and the veneer is pressed in place over the scratch coat. To ensure bond strength, the thickness, workability and application force must result in squeeze out of the mortar beyond the perimeter of the stone base. Joints between veneer units are to be grouted and tooled in accordance with the manufacturer's published installation instructions.

5.0 CONDITIONS OF USE

The Dutch Quality Stone adhered 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, light-gage-steel-framed, concrete or masonry walls.

5.3 Expansion or control joints used to limit the effect of differential movement of supports 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 framing must be designed to support the additional weight of the cement plaster backing, stone veneer and mortar setting bed. Additionally, 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 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

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 Report of testing in accordance with ASTM C518.

7.0 IDENTIFICATION

Each package of veneer is labeled or stamped with the manufacturer's name (Dutch Quality Stone), the product name, pattern name and the evaluation report number (ESR-1942).

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 Dutch Quality 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 Section 3.0.

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 Sheathing: 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 Section 4.2.1.1.

8.4.2.1.2 Installation over Concrete and Masonry: See Section 4.2.1.2.

8.4.2.2 Masonry Backings: See Section 4.2.2.

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.