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# **ICC-ES Evaluation Report**

### ESR-2323

DIVISION: 09 00 00—FINISHES Section: 09 24 00—Portland Cement Plastering

#### **REPORT HOLDER:**

#### STO CORP.

#### **EVALUATION SUBJECT:**

StoPowerwalI<sup>™</sup> STUCCO SYSTEMS

#### 1.0 EVALUATION SCOPE

#### Compliance with the following codes:

- 2018, 2015 and 2012 International Building Code<sup>®</sup> (IBC)
- 2018, 2015 and 2012 International Residential Code<sup>®</sup> (IRC)

#### Properties evaluated:

- Structural
- Durability
- Fire-resistance-rated construction
- Noncombustible construction

#### 2.0 USES

The StoPowerwall<sup>™</sup> Stucco System is a cementitious exterior wall covering system installed on wood or steel framed exterior walls. The system may be used to construct one-hour fire-resistance-rated wall assemblies when installed in accordance with Section 4.4 of this report. The system may be used on walls required to be of noncombustible construction when installed in accordance with Section 4.5.

#### 3.0 DESCRIPTION

#### 3.1 General:

The StoPowerwall<sup>™</sup> Stucco System is an exterior cementitious coating consisting of proprietary mixtures of portland cement, sand, fibers and proprietary ingredients that are reinforced with wire fabric or metal lath and applied over substrates of expanded polystyrene (EPS) insulation board, plywood, oriented strand board (OSB) or gypsum sheathing.

#### 3.2 Materials:

**3.2.1 StoPowerwall<sup>™</sup> Stucco**: StoPowerwall<sup>™</sup> Stucco is a preblended mixture of portland cement, synthetic fibers and chemical additives. StoPowerwall<sup>™</sup> Stucco is

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packaged in 80-pound (36.3 kg) bags. Four gallons (15.1 L) of water and 200 pounds (92 kg) of sand are added to each bag in the field and mixed according to Sto Corp. instructions. The product is also packaged in presanded 80-pound (36.3 kg) bags. The presanded stucco product is field-mixed with approximately 3 gallons (11.5 L) of water per bag.

**3.2.2 Sand:** Sand must be clean and free from deleterious amounts of loam, clay, silt, soluble salts and organic matter. Sampling and testing must comply with ASTM C144 or ASTM C897. Sand complying with ASTM C144 must be graded within the limits shown in the following table:

| RETAINED ON U.S.<br>STANDARD SIEVE | PERCENT RETAINED BY WEIGHT ± 2<br>PERCENT |         |  |  |
|------------------------------------|---|---------|--|--|
|                                    | Minimum                                   | Maximum |  |  |
| No. 4                              | _   | 0       |  |  |
| No. 8                              | 0   | 10      |  |  |
| No. 16                             | 10  | 40      |  |  |
| No. 30                             | 30  | 65      |  |  |
| No. 50                             | 70  | 90      |  |  |
| No. 100                            | 95  | 100     |  |  |

**3.2.3 Insulation Board:** EPS insulation board must have a density of 1.5 pcf (24 kg/m<sup>3</sup>), a flame-spread index of 25 or less and a smoke-developed index of not more than 450 when tested in accordance with ASTM E84 (UL 723), and must comply with ASTM C578 as Type II. All boards must be recognized in a current ICC-ES evaluation report and must have vertical grooves as shown in Figure 2. See Section 7.2 for board identification.

Insulation boards installed without sheathing, over open framing, must have a thickness ranging from 1 to  $1^{1}/_{2}$  inches (25 to 38 mm) and have  $3^{1}/_{8}$ -inch-high (9.5 mm) tongues with compatible grooves for horizontal joints. See Figure 1 of this report for joint detail.

When installed over wood-based sheathing as part of a water-resistive barrier, as described in Section 3.2.8.1 of this report, the boards must have tongue-and-groove edges on the horizontal edges as detailed in Figure 1 of this report.

ICC-ES Evaluation Reports are not to be construed as representing aesthetics or any other attributes not specifically addressed, nor are they to be construed as an endorsement of the subject of the report or a recommendation for its use. There is no warranty by ICC Evaluation Service, LLC, express or implied, as to any finding or other matter in this report, or as to any product covered by the report. When installed over gypsum sheathing, as described in Section 4.3.2 of this report, the boards must have a minimum thickness of 1/2 inch (12.7 mm).

#### 3.2.4 Lath:

**3.2.4.1 Wire Fabric Lath:** Wire fabric lath must comply with the ICC-ES Acceptance Criteria for Metal Plaster Bases (Lath) (AC191). Minimum No. 20 gage [0.035 inch (0.89 mm)], 1-inch (25.4 mm) galvanized steel, woven-wire fabric must be used. Lath must be furred when applied over all substrates except unbacked polystyrene board. Furring must comply with the following requirements:

- 1. When maximum total coating thickness is  $1/_2$  inch (12.7 mm), the body of the lath must be furred a minimum of  $1/_8$  inch (3.2 mm) from the substrate after installation.
- 2. When total coating thickness is greater than 1/2 inch (12.7 mm), No. 17 gage [0.058 inch (1.47 mm)] by  $1^{1}/_{2}$ -inch (38 mm) woven-wire fabric lath must be used. The body of the lath must be furred a minimum of  $1/_{4}$  inch (6.4 mm) from the substrate after installation.

**3.2.4.2 Metal Lath:** Expanded metal lath must comply with AC191. Furring requirements are as set forth in Section 3.2.4.1.

**3.2.5 Wood Structural Panel Sheathing:** Wood structural panel sheathing must have a minimum thickness as noted in Table 1 of this report and must be exterior-grade or Exposure 1 plywood complying with U.S. Department of Commerce Product Standard PS-1 or Exposure 1 OSB complying with U.S. Department of Commerce Product Standard PS-2.

**3.2.6 Gypsum Board:** Water-resistant core-treated gypsum sheathing must comply with ASTM C79, ASTM C1177 or ASTM C1396. Gypsum wallboard must comply with ASTM C36 or ASTM C1396.

**3.2.7 Caulking:** Acrylic latex caulking material must comply with ASTM C834.

#### 3.2.8 Weather Protection:

**3.2.8.1 Water-resistive Barrier:** Application of the barrier must comply with 2018 or 2015 IBC Section 1403.2 (2012 IBC Section 1404.2) or IRC Section 703.2, as applicable.

Except when installation is over wood-based sheathing, the water-resistive barrier must be on one of the following:

- A minimum of one layer of No. 15 asphalt felt, complying with ASTM D 226, Type I.
- One layer of StoGuard with EmeraldCoat recognized in ESR-1233.
- A water-resistive barrier recognized as equivalent to ASTM D226, Type I or better, in a current ICC-ES evaluation report.

When applied over wood-based sheathing, the waterresistive barrier must be one of the following:

- A minimum of two layers of a water-resistive barrier complying with ASTM E2556, Type I as set forth in 2018 or 2015 IBC Section 2510.6 (minimum of two layers of Grade D kraft building paper complying with UBC Standard 14-1 as set forth in 2012 IBC Section 2510.6) or 2018 IRC Section R703.7.3 (2012 IRC Section R703.6.3); or an equivalent recognized in a current ICC-ES evaluation report.
- One layer of a water-resistive barrier complying with ASTM E2556, Type I as set forth in 2018 or 2015 IBC Section 2510.6 (a water-resistive barrier complying with No. 15 asphalt felt, complying with ASTM D 226, Type I, or one layer of Grade D kraft building paper complying with UBC Standard 14-1 as set forth in 2012 IBC Section

2510.6) or 2018 IRC Section R703.7.3 (2012 IRC Section R703.6.3), over StoGuard with Gold Coat or StoGuard with EmeraldCoat recognized in <u>ESR-1233</u>.

- One layer of insulation board, having horizontal tongueand-groove edges and vertical grooves as shown in Figure 2 of this report, over one layer of Grade D kraft paper having a minimum water-resistance rating of 60 minutes; or an equivalent recognized in a current ICC-ES evaluation report.
- One layer of insulation board, having horizontal tongueand-groove edges and vertical grooves as shown in Figure 2 of this report, over StoGuard with Gold Coat or StoGuard with EmeraldCoat recognized in <u>ESR-1233</u>.

**3.2.8.2 Vapor Retarder:** Under the IBC, protection against condensation must be provided in accordance with 2018 IBC Section 1404.3.3 (2015 or 2012 IBC Section 1405.3). Under the IRC, a vapor retarder complying with IRC Section R702.7 must be provided, unless its omission is permitted under the exceptions.

**3.2.9 Flashing:** Flashing complying with 2018 IBC Section 1404.4 (2015 or 2012 IBC Section 1405.4 or 2018 or 2015 IRC Section R703.4 (2012 IRC Section R703.8, as applicable, must be provided. Where membrane flashing is used, it must be a self-adhering, flexible rubberized asphalt and polyethylene material complying with the ICC-ES Acceptance Criteria for Flexible Flashing Materials (AC148), 0.030 inch thick (0.8 mm) and shingle-lapped with the waterresistive barrier. Rigid flashings must be sloped towards the exterior, with an upturned leg on the interior side and at the ends. Flashing must extend beyond the surface of the exterior wall.

3.2.10 Trim and Accessories: All trim, screeds and corner reinforcement must be galvanized steel or approved plastic.

#### 4.0 INSTALLATION

#### 4.1 General:

The coating is applied by troweling or machine-spraying in one coat to a minimum  $^{1/2}$ -inch (12.7 mm) thickness except around openings and penetrations, which must be backed by solid framing. The lath must be embedded in the minimum coating thickness and must not be exposed. The finish coat, if required, must be applied according to Sto Corp. recommendations. The coating system must be applied at ambient temperatures ranging from 40°F to 110°F (4.4°C to 43.3°C) by applicators approved by Sto Corp. An installation card as illustrated in Figure 3 of this report must be on the jobsite with the name of the applicator and the product to be used, before any water-resistive barrier or exterior sheathing is installed. Also, see Section 5.5 of this report.

StoPowerwall stucco must be installed in accordance with the manufacturer's installation instructions, specifications and details, which are available at <u>www.stocorp.com</u>:

StoPowerwall Installation Instructions (click here)

StoPowerwall Specifications (click here)

StoPowerwall Details (commercial) (click here)

StoPowerwall Details (residential) (click here)

#### 4.2 Application Over Open Framing:

The water-resistive barrier must be applied, as set forth in Section 3.2.8.1 of this report, over open wood framing spaced a maximum of 24 inches (610 mm) on center. The insulation board described in Section 3.2.3 of this report must be placed horizontally with the grooves aligned vertically and facing the water-resistive barrier, and with tongues faced upward, and must be temporarily held in place with galvanized staples or roofing nails. Vertical butt joints must be staggered a minimum of one stud space from adjacent courses and be located directly over studs. The lath is applied tightly, with 2-inch (51 mm) end and side laps, over the insulation board and fastened through the insulation board and water-resistive barrier, to wood studs, sills and plates, having a minimum specific gravity of 0.55, using fasteners and spacing shown in Table 1, Assembly 3. Care must be taken to avoid overdriving fasteners.

Wall bracing in accordance with IBC Section 2308.9.3 or IRC Section R602.10, as applicable, or an acceptable alternate, is required. Outside wall corners and parapet corners must be covered with extra metal corner reinforcements attached to the framing members with approved fasteners spaced 18 inches (457 mm) on center, or as necessary to hold plumb. Weep screeds must comply with, and be installed at the bottom of the wall in accordance with, IBC Section 2512.1.2 or IRC Section R703.6.2.1, as applicable. Galvanized steel, 13/8-inch-thick (35 mm), No. 22 [0.025-inch-thick (0.635 gage mm)]. J-shaped trim pieces must be installed at other areas where insulation board is exposed. At windows and doors, butting J-trim metal edges, when installed, must be caulked. Holes for hose bibbs, electrical panels and other penetrations of substrate surfaces, except those caused by fasteners, must also be caulked. The coating is then applied as described in Section 4.1 of this report.

#### 4.3 Application Over Solid Substrates:

**4.3.1 Wood Structural Panel Sheathing:** Wood structural panel sheathing is applied directly to wood studs under conditions as set forth in Section 3.2.5 of this report and IBC Table 2308.9.3(3) or IRC Table R602.3(3), whichever code is applicable. The sheathing is attached in accordance with Table 1 of this report. A water-resistive barrier, as set forth in Section 3.2.8.1, is applied over the sheathing prior to application of the lath or optional insulation board. For installation over solid sheathing, grooved insulation board as described in Sections 3.2.3 and 3.8.1 must be used. The lath is attached to studs through the sheathing with fasteners and spacing described in Table 1, Assembly 5.

Wall bracing in accordance with IBC Section 2308.9.3 or IRC Section R602.10, whichever code is applicable, or an acceptable alternate, is required. Outside wall corners and parapet corners shall be covered with extra metal corner reinforcements attached to the framing members with approved fasteners spaced 18 inches (457 mm) on center, or as necessary to hold plumb. Weep screeds shall comply with, and be installed at the bottom of the wall in accordance with, IBC Section 2512.1.2 or IRC Section R703.6.2.1, whichever code is applicable. Galvanized steel, 1<sup>3</sup>/<sub>8</sub>-inch (35 mm), No. 22 gage [0.025-inch (0.635 mm)], J-shaped trim pieces shall be installed at other areas where insulation board is exposed. When butting Jtrim metal edges are used at windows and doors, those edges shall be caulked. Holes for hose bibbs, electrical panels and other penetrations of substrate surfaces, except those caused by fasteners, shall also be caulked. The coating is then applied as described in Section 4.1.

The sheathing may also be applied to minimum No. 18 gage [0.0428-inch-thick (1.087 mm) base metal] steel studs in the same manner, as described in Table 1, Assembly 1. Screws fastening sheathing, and screws fastening lath, must be staggered from each other. The screws must penetrate the framing and tracks a minimum of  $1/_4$  inch (6.4 mm).

**4.3.2 Gypsum Sheathing:** Minimum <sup>1</sup>/<sub>2</sub>-inch-thick (12.7 mm), water-resistant core-treated gypsum sheathing must be installed directly on wood studs spaced a maximum of 24 inches (610 mm) on center, in a manner similar to

wood structural panel sheathing, as described in Section 4.3.1 of this report. Gypsum sheathing must be fastened in accordance with Table 1, Assembly 4.

A water-resistive barrier must be applied over the gypsum sheathing, as set forth in Section 3.2.8.1 of this report. Bracing and other installation requirements are as noted in Section 4.3.1 for wood-based panel sheathing.

The sheathing may also be applied to minimum No. 18 gage [0.0428-inch-thick (1.087 mm) base metal] steel studs in the same manner, as described in Table 1, Assemblies 2 or 6. Screws fastening sheathing, and screws fastening lath, must be staggered from each other. The screws must penetrate the steel framing and tracks a minimum of 1/4 inch (6.4 mm).

# 4.4 One-hour Fire-resistance-rated Wall Assembly (Limited Load-bearing):

**4.4.1 Interior Face:** One layer of  $5/_{8}$ -inch-thick (15.9 mm), Type X gypsum wallboard is applied vertically to the interior face of 2-by-4 wood studs spaced a maximum of 16 inches (406 mm) on center. The studs must be braced at midheight. The wallboard is attached with  $15/_{8}$ -inch-long (41.3 mm), No. 13 gage, cupped-head drywall nails, having  $19/_{64}$ -inch-diameter (7.5 mm) heads, spaced at 8 inches (203 mm) on center to studs, plates and blocking. Stud cavities must be insulated with R-11 fiberglass insulation batts. All wallboard joints must be taped and treated with joint compound in accordance with ASTM C840 or GA 216, and backed with minimum 2-by-4 wood framing. Fastener heads must be treated with joint compound.

**4.4.2 Exterior Face:** When used, one layer of minimum  $^{7}/_{16}$ -inch-thick (11.1 mm) OSB sheathing is applied vertically or horizontally to studs with No. 6 by  $1^{5}/_{8}$ -inch-long bugle head screws spaced 6 inches on center on the perimeter framing and 8 inches on center on intermediate studs. A water-resistive barrier is required and is applied over open framing or over the sheathing when it is used. The lath and coating are then applied, with or without insulation board, as described in Section 4.2 of this report. If foam plastic insulation is used, the length of the lath fasteners must be increased by the thickness of the insulation.

**4.4.3** Axial Load Design: Axial loads applied to the wall assembly must be limited by the lesser of the following:

- 1. 1,100 pounds (4,890 N) per stud.
- 2. A maximum of 44.7 percent of the load calculated in accordance with Sections 3.6 and 3.7 of the ANSI/AWC NDS.
- 3. Design stress of 0.78 FcN calculated in accordance with Sections 3.6 and 3.7 of the ANSI/AWC NDS.
- 4. Design stress of 0.78 FcN at a maximum I<sub>e</sub>/d of 33 calculated in accordance with Sections 3.6 and 3.7 of the ANSI/AWC NDS.

# 4.5 Use on Exterior Walls in Types I, II, III and IV Construction:

When installed over steel framing and gypsum sheathing, without EPS insulation, the StoPowerwall<sup>™</sup> Stucco system may be installed on walls required to be of Type I, II, III or IV construction.

#### 4.6 Miscellaneous:

**4.6.1 Inspection Requirements:** Building department inspection is required on wire lath installation prior to application of the coating as noted in IBC Section 110.3.3 for jurisdictions adopting the IBC or IRC.

**4.6.2 Control Joints:** Control joints must be installed as specified by the architect, designer, builder or exterior coating manufacturer, in that order.

**4.6.3 Curing:** Moist curing must be provided for a minimum of 24 hours after coating application, unless temperatures are 60°F (15.6°C) or less during the curing.

**4.6.4 Soffits:** The system may be applied to soffits, provided the coating is applied over metal lath complying with Section 3.2.4.2 of this report in lieu of wire fabric lath. Expanded metal lath fastening must comply with IBC Section 2510.3 or 2018 or 2015 IRC Section R703.7.1 (2012 IRC Section R703.6.1), as applicable, except that the fastener length must be increased by the thickness of any substrate.

**4.6.5 Sills:** The system may be applied to sills at locations such as windows and similar areas. Sills with depths of 6 inches (152 mm) or less may have the coating and lath applied to any substrate permitted in this report, provided the coating, lath, water-resistant barrier and substrate are installed in accordance with the applicable sections of this report. Sills with depths exceeding 6 inches (152 mm) must have substrates of solid wood or plywood. The substrate must be fastened in accordance with 2018 or 2015 IBC Section 2304.10 (2012 IBC Table 2304.9.1) or IRC Section R602.3, as applicable, and a double layer of Grade D water-resistive barrier is applied over the substrate. The lath, optional EPS insulation board and coating must be applied in accordance with Section 4.2 of this report.

#### 5.0 CONDITIONS OF USE

The StoPowerwall<sup>™</sup> Stucco System 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** Materials and methods of installation must comply with this report and the manufacturer's published installation instructions. If conflicts exist between this report and the manufacturer's published installation instructions, this report must govern.
- **5.2** Installation must be by contractors recognized by Sto Corp.
- **5.3** The system is recognized as a one-hour fireresistance-rated assembly when installed in accordance with Section 4.4 of this report.
- **5.4** When the system is installed with foam plastic insulation, the interior of the building must be separated from the foam plastic with a thermal barrier complying with the applicable code, such as <sup>1</sup>/<sub>2</sub>-inch-thick (12.7 mm) regular gypsum wallboard mechanically attached in accordance with the applicable code.
- **5.5** A completed installation card, as shown in Figure 3 of this report, must be left at the jobsite for the owner, and a copy filed with the building department.

- 5.6 Foam plastic insulation board must not be placed on exterior walls of wood construction located within 6 inches (152 mm) of the ground where hazard of termite damage is very heavy, in accordance with IBC Section 2603.8 or IRC Section 318.4 (2006 IRC Section R320.4).
- **5.7** The allowable wind load on the systems is as noted in Table 1 of this report.
- **5.8** Support framing must be adequate to resist the required wind load, and must be designed for a maximum deflection of  $1/_{360}$  of span.

#### 6.0 EVIDENCE SUBMITTED

- **6.1** Data in accordance with the ICC-ES Acceptance Criteria for Cementitious Exterior Wall Coatings (AC11), dated January 2013 (editorially revised October 2020).
- **6.2** Reports of tests of fire-resistance-rated assemblies in accordance with ASTM E119.
- 6.3 Report of tests in accordance with ASTM E136.

#### 7.0 IDENTIFICATION

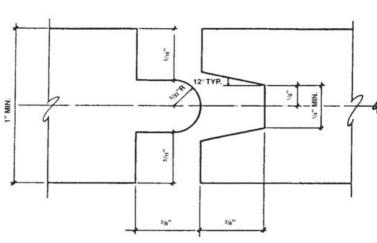
- **7.1** The factory-prepared mixes must be delivered to the jobsite in water-resistant bags with labels bearing the following information:
  - a. Name and address of manufacturer (Sto Corp.) and the evaluation report number (ESR-2323).
  - b. Identification of components.
  - c. Weight of packaged mix.
  - d. Storage instructions.
  - e. Maximum amount of water and other components that may be added and conditions that must be considered in determining actual amount.
  - f. Curing instructions.
- **7.2** Insulation boards must be identified in accordance with their respective ICC-ES evaluation reports. Additionally, the board density of insulation boards must be noted.
- 7.3 The report holder's contact information is the following:

STO CORP. 3800 CAMP CREEK PARKWAY SUITE 1400 ATLANTA, GEORGIA 30331 www.stocorp.com

| PARAMETER   | ASSEMBLY NO.   |  |  |   |  |  |  |  |
|---|--|--|--|---|--|--|--|--|
|   | 1  | 2  | 3  | 4   | 5  | 6  |  |  |
| Interior wallboard  | None   | <sup>1</sup> / <sub>2</sub> -inch gypsum   | None   | None  | None   | <sup>1</sup> / <sub>2</sub> -inch gypsum   |  |  |
| Framing type  | 18 ga. steel<br>1.25" × 3.5"   | 18 ga. steel<br>1.25" × 3.5"   | 2 × 4 SYP<br>wood studs <sup>1,3</sup>                           | 2 × 4 SYP<br>wood studs <sup>1,3</sup>  | 2 × 4 SYP<br>wood studs <sup>1,3</sup>   | 18 ga. steel<br>1.625" × 3.625"  |  |  |
| Stud spacing<br>(inches on center)                                  | 16 in. o.c.  | 16 in. o.c.  | 24 in. o.c.  | 24 in. o.c.   | 24 in. o.c.  | 16 in. o.c.  |  |  |
| Sheathing   | <sup>7</sup> / <sub>16</sub> " OSB <sup>2</sup>  | <sup>1</sup> / <sub>2</sub> " ASTM C 79<br>exterior gypsum <sup>2</sup>                          | 1 inch, 1.5 pcf<br>expanded<br>polystyrene (EPS)                 | <sup>1</sup> / <sub>2</sub> " ASTM C 79<br>exterior gypsum <sup>2</sup>                                 | <sup>7</sup> / <sub>16</sub> " OSB <sup>2</sup>  | <sup>5</sup> / <sub>8</sub> -in G-P Gypsum<br>Dens-Glass <sup>®</sup> Gold <sup>2</sup>          |  |  |
| Sheathing<br>fasteners and<br>fastener spacing                      | No. 6 x 1 <sup>5</sup> / <sub>8</sub> " bugle<br>head 6-in. o.c<br>perimeter,<br>12-in. o.c. along studs | No. $6 \times 1^{5}/_{8}$ " bugle<br>head 8-in. o.c<br>perimeter and<br>intermediate studs       | Tacked at corners,<br>held in place by lath<br>fasteners         | No. 6 × 1 <sup>5</sup> / <sub>8</sub> " bugle<br>head 4-in. o.c<br>perimeter,<br>8-in. o.c. along studs | No. 6 × 1 <sup>5</sup> / <sub>8</sub> "bugle<br>head 6-in. o.c<br>perimeter,<br>12-in. o.c. along<br>studs | No. 8 × 1 <sup>5</sup> / <sub>8</sub> " bugle<br>head 8-in. o.c.<br>perimeter and along<br>studs |  |  |
| Lath  | Min. No. 20-ga woven<br>wire fabric lath   | Min. No. 20-ga<br>woven wire fabric<br>lath  | Min. No. 20-ga<br>woven wire fabric<br>lath                      | Min. No. 20-ga<br>woven wire fabric<br>lath   | Min. No. 20-ga<br>woven wire fabric<br>lath  | 2.5-lb/yd <sup>2</sup> galv.<br>expanded metal lath  |  |  |
| Lath fasteners and fastener spacing                                 | No. 8 × 1 <sup>5</sup> / <sub>8</sub> " wafer<br>head 6-in. o.c.<br>perimeter and along<br>studs         | No. 8 × 1 <sup>5</sup> / <sub>8</sub> " wafer<br>head 6-in. o.c.<br>perimeter and along<br>studs | 2-inch roofing nails,<br>6-in. o.c. perimeter<br>and along studs | 2-inch roofing nails,<br>6-in. o.c. perimeter<br>and along studs  | <ul><li>2-inch roofing nails,</li><li>6-in. o.c. perimeter<br/>and along studs</li></ul>                   | No. $6 \times 1^{5}/_{8}$ " wafer<br>head 7-in. o.c.<br>perimeter and along<br>studs             |  |  |
| Minimum<br>StoPowerwall™<br>Stucco thickness <sup>4</sup><br>(inch) | 1/2  | 1/ <sub>2</sub>  | 1/ <sub>2</sub>  | 1/2   | 1/ <u>2</u>  | <sup>5</sup> /8  |  |  |
| Allowable positive<br>wind load (psf)                               | 59   | 59   | 48   | 48  | 86   | 65   |  |  |
| Allowable negative<br>wind load (psf)                               | 20   | 24   | 17   | 31  | 17   | 48   |  |  |

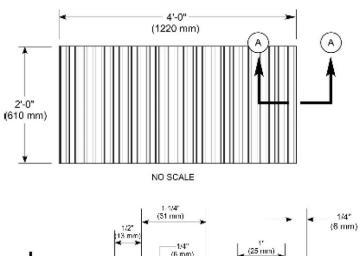
For **SI:** 1 inch = 25.4 mm, 1 psf = 47.9 Pa, 1 lb/yd<sup>2</sup> = 0.5425 kg/m<sup>2</sup>.

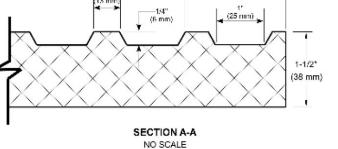
<sup>1</sup>Wood frame assemblies include 2 x 4 cross bracing at mid-height.
<sup>2</sup>Maximum 1<sup>1</sup>/<sub>2</sub>-inch-thick EPS insulation may be applied over the sheathing. Length of lath fasteners must be increased by the thickness of the insulation or sheathing.
<sup>3</sup>Minimum specific gravity of wood studs is 0.55.
<sup>4</sup>When stucco thickness exceeds <sup>1</sup>/<sub>2</sub> inch in Assemblies 1 through 5, lath must be No. 17 gage by 1<sup>1</sup>/<sub>2</sub>-inch woven-wire fabric lath.



For **SI:** 1 inch = 25.4 mm.

FIGURE 1—TONGUE AND GROOVE





**FIGURE 2—INSULATION BOARD** 

# POWERWALL STUCCO SYSTEM

INSTALLATION CARD

This is to certify that the stucco system on the building exterior at the above address has been installed in accordance with the evaluation report specified above and the Sto Corp., instructions.

Signature of authorized representative of stucco contractor

Date

**FIGURE 3** 



# **ICC-ES Evaluation Report**

# ESR-2323 CBC and CRC Supplement

Reissued February 2022 This report is subject to renewal February 2023.

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DIVISION: 09 00 00—FINISHES Section: 09 24 00—Portland Cement Plastering

**REPORT HOLDER:** 

STO CORP.

**EVALUATION SUBJECT:** 

StoPowerwalI<sup>™</sup> STUCCO SYSTEMS

#### 1.0 REPORT PURPOSE AND SCOPE

#### Purpose:

The purpose of this evaluation report supplement is to indicate that StoPowerwall<sup>™</sup> Stucco Systems, described in ICC-ES evaluation report ESR-2323, have also been evaluated for compliance with the codes noted below.

#### Applicable code editions:

■ 2019 California Building Code® (CBC)

For evaluation of applicable chapters adopted by the California Office of Statewide Health Planning and Development (OSHPD) and Division of State Architect (DSA), see Sections 2.1.1 and 2.1.2 below.

■ 2019 California Residential Code<sup>®</sup> (CRC)

#### 2.0 CONCLUSIONS

#### 2.1 CBC:

The StoPowerwall<sup>™</sup> Stucco Systems, described in Sections 2.0 through 7.0 of the evaluation report ESR-2323, comply with CBC Chapter 25, provided the design and installation are in accordance with the 2018 *International Building Code*<sup>®</sup> (IBC) provisions noted in the evaluation report and the additional requirements of CBC Chapters 23, 25 and 26, as applicable.

#### 2.1.1 OSHPD:

The applicable OSHPD Sections of the CBC are beyond the scope of this supplement.

#### 2.1.2 DSA:

The applicable DSA Sections of the CBC are beyond the scope of this supplement.

#### 2.2 CRC:

The StoPowerwall<sup>™</sup> Stucco Systems, described in Sections 2.0 through 7.0 of the evaluation report ESR-2323, comply with CRC Chapter 7, provided the design and installation are in accordance with the 2018 *International Residential Code*<sup>®</sup> (IRC) provisions noted in the evaluation report.

This supplement expires concurrently with the evaluation report, reissued February 2022.





## **ICC-ES Evaluation Report**

## **ESR-2323 FBC Supplement**

Reissued February 2022 This report is subject to renewal February 2023.

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DIVISION: 09 00 00—FINISHES Section: 09 24 00—Portland Cement Plastering

**REPORT HOLDER:** 

STO CORP.

**EVALUATION SUBJECT:** 

StoPowerwall<sup>™</sup> STUCCO SYSTEMS

#### **1.0 EVALUATION SCOPE**

#### Compliance with the following codes:

- 2020 and 2017 Florida Building Code—Building
- 2020 and 2017 Florida Building Code—Residential

#### **Properties evaluated:**

- Structural
- Durability
- Fire-resistance-rated construction
- Noncombustible construction

#### 2.0 PURPOSE OF THIS SUPPLEMENT

This supplement is issued to indicate that the StoPowerwall<sup>™</sup> Stucco Systems described in Sections 2.0 through 7.0 of the evaluation report comply with the *Florida Building Code—Building* and the *Florida Building Code—Residential*, when designed and installed in accordance with the evaluation report, under the following conditions.

- Installation must meet the requirements of Section 1403.8 and 2603.8 of the Florida Building Code—Building and Sections R318.7 and R318.8 of the Florida Building Code—Residential, as applicable.
- For buildings being designed and constructed to the *Florida Building Code—Residential*, the provisions of Section R301.2.1.1 must be used.

Use of the StoPowerwall<sup>™</sup> Stucco Systems described in the evaluation report for compliance with the High-Velocity Hurricane Zone provisions of the *Florida Building Code—Building* and the *Florida Building Code—Residential* has not been evaluated, and is outside the scope of this supplement.

For products falling under Florida Rule 61G20-3, verification that the report holder's quality assurance program is audited by a quality assurance entity approved by the Florida Building Commission for the type of inspections being conducted is the responsibility of an approved validation entity (or the code official when the report holder does not possess an approval by the Commission).

This supplement expires concurrently with the evaluation report, reissued February 2022.

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