ICC-ES Evaluation Report

ESR-1248

Reissued September 1, 2009
This report is subject to re-examination in two years.

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DIVISION: 07—THERMAL AND MOISTURE PROTECTION
Section: 07450—Fiber-reinforced Cementitious Panels

REPORT HOLDER:

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EVALUATION SUBJECT:

SWISSPEARL® FIBER-CEMENT PANELS

1.0 EVALUATION SCOPE

Compliance with the following codes:

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

Properties evaluated:

- Wind resistance
- Weather resistance
- Durability

2.0 USES

SWISSPEARL® panels are used as exterior wall cladding over wood- or steel-framed walls in any type of construction in structures constructed in accordance with the IRC. The panels may also be used for interior applications as a Class A interior wall finish.

3.0 DESCRIPTION

3.1 General:

The SWISSPEARL® panel system consists of acrylic-coated, fiber-reinforced cement panels; EPDM backing strips installed over steel or wood subframing; fasteners; and a water-resistive barrier.

The SWISSPEARL® panels have a flame-spread index of 25 or less and smoke developed index of 450 or less when tested in accordance with ASTM E 84.

3.2 Materials:

3.2.1 SWISSPEARL® Panels: The SWISSPEARL® panels are manufactured from portland cement, additives and reinforcing fibers, and comply with ASTM C 1186 as Type A. The panels are available in lengths of 59.0, 78.7, 98.4 and 119.7 inches (1500, 2000, 2500 and 3040 mm), a 48-inch (1220 mm) width and thicknesses of 0.31 inch (8 mm), 0.39 inch (10 mm) and 0.47 inch (12 mm). Both faces of the panels are coated with either an opaque or a translucent material having an acrylic base. The panels are available under the trade names of SWISSPEARL® CARAT, SWISSPEARL® REFLEX, SWISSPEARL® XPRESSIV, SWISSPEARL® NOBILIS and SWISSPEARL® PLANEA.

3.2.2 EPDM Backing Strips: The EPDM backing strips are supplied by Eternit (Schweiz) AG and are available in 2.36-, 4.72- and 5.91-inch (60, 120 and 150 mm) widths with a nominal thickness of 0.12 inch (3 mm). The backing strips have ridges and are used behind all vertical joints when installed over wood framing.

3.2.3 Fasteners:

3.2.3.1 Wood Framing: Fasteners used to attach the panels to wood framing have a 0.19-inch (4.8 mm) diameter and are minimum $1^1/_2$-inch-long (38.1 mm), stainless steel, saucer-head Torx screws. The fasteners are provided by Eternit (Schweiz) AG. Fasteners must be of sufficient length to penetrate the wood framing a minimum of 1 inch (25.4 mm).

3.2.3.2 Steel Framing: Fasteners used to attach the panels to galvanized steel framing are $^5/_{32}$-inch-diameter (4 mm) by $^3/_4$- to $1^3/_{16}$-inch-long (18 to 30 mm) "pop" rivets manufactured from A3 steel. The rivets are provided by Eternit (Schweiz AG).

3.2.4 Water-resistive Barrier: Water-resistive barriers used with the Eternit (Schweiz) AG system must comply with IBC Section 1403.2 or IRC Section R703.2, as applicable.

4.0 DESIGN AND INSTALLATION

4.1 Design:

The framing must be designed to resist loads in accordance with the applicable code. When the SWISSPEARL® panel system is installed in accordance with this report, allowable positive and negative transverse loads are a maximum of 21 psf (1.0 kN/m^2) for both wood framing and light-gage steel framing.

4.2 Installation:

The SWISSPEARL® panel system must be installed in accordance with IBC Section 1405.17.1 or IRC Section R703.10.1, as applicable, this evaluation report and the manufacturer's published installation instructions. The

installation must be over code-complying wood or steel framing. A water-resistive barrier, flashing and means of drainage must be installed in accordance with the applicable code.

The panels may be installed parallel or perpendicular to framing. The framing members must have adequate width to accommodate fasteners being located a minimum of $1^{9}/_{16}$ inches (40 mm) from vertical panel edges. Wood framing members must be spaced a maximum of 24 inches (610 mm) on center and must have a minimum specific gravity of 0.42. Steel framing members must be spaced a maximum of 16 inches (406 mm) on center and be minimum 0.050-inch-thick (galvanized steel metal thickness) (1.27 mm) steel. An EPDM backing strip is applied at vertical panel joints between the panels and wood framing. The panels are installed with gaps measuring between 0.20 inch (5 mm) and 0.31 inch (8 mm) on horizontal and vertical joints. Fasteners described in Sections 3.2.3.1 or 3.2.3.2 must be used for wood or steel framing, respectively. Fasteners are installed on vertical framing members only with a maximum fastener spacing of $14^{1}/_{2}$ inches (368 mm) on center vertically and $34^{3}/_{4}$ inches (883 mm) horizontally. Fasteners must be located a minimum of $1^{9}/_{16}$ inches (40 mm) from the vertical panel edges and a minimum of $3^{1}/_{8}$ inches (80 mm) vertically from the panel corners.

As required by Section 1405.17.1 of the IBC and Section R703.10.1 of the IRC, vertical joints must occur over framing members. Horizontal joints must be flashed with Z-flashing and blocked with solid framing. Where panels butt against door and window trim, and at corners, a $^{3}/_{16}$-inch (4.8 mm) gap must be left and flashed in accordance with the applicable code. Trim and corners must be installed and the panels must be finished in accordance with the manufacturer's published application instructions. A clear distance of 6 inches (152 mm) must be maintained between the panels and the exposed earth.

5.0 CONDITIONS OF USE

The SWISSPEARL® fiber-cement wall cladding 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 The SWISSPEARL® fiber-cement wall cladding described in this report must be installed in accordance with this report, the manufacturer's published installation instructions and the applicable code. In the event of a conflict between the manufacturer's instructions and this report, this report governs.

5.2 Allowable wind loads are as noted in Section 4.1.

5.3 Use of the fiber-cement panels as bracing is outside the scope of this report. Walls must be braced in accordance with the applicable code.

5.4 When required by the code official, calculations demonstrating that the applied loads are less than the design values in this report must be submitted for approval. Calculations must be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.

5.5 The panels are manufactured in Niederurnen, Switzerland, under a quality control program with inspections by PRI Construction Materials Technologies, LLC (AA-709).

6.0 EVIDENCE SUBMITTED

Reports of tests in accordance with the ICC-ES Acceptance Criteria for Fiber Cement Siding Used as Exterior Wall Siding (AC90), dated October 2005 (editorially revised January 2008).

Report of test in accordance with NFPA-285 Evaluation of Flammability Characteristics of Exterior Nonload-bearing Wall Assemblies Containing Combustible Components.

7.0 IDENTIFICATION

The SWISSPEARL® panels are labeled with the name of the manufacturer (Eternit AG), the product name (SWISSPEARL® CARAT, REFLEX, XPRESSIV, NOBILIS or PLANEA), the evaluation report number (ESR-1248), the statement "conforms to ASTM C1186," and the name of the inspection agency (PRI Construction Materials Technologies, LLC).