EVALUATION REPORT Number: 553

Originally Issued: 01/31/2018 Revised: 01/28/2021 Valid Through: 01/31/2022

CEMBRIT HOLDINGS A/S
POSTFACH 750, SOHNGAARDSHOLMSVEJ 2
AALBORG, DENMARK DK-9100
+ (45) 9937-2217
www.cembrit.com

CEMBRIT FIBER-CEMENT FAÇADE PANEL SYSTEM

CSI Section:
07 46 46 Fiber-Cement Siding

1.0 RECOGNITION

Cembrit Fiber-Cement Façade Panel System described in this report has been evaluated for use as an exterior and interior wall covering. The physical, mechanical, durability, weather resistance, wind-load resistance, non-combustibility and surface burning characteristics of the panel system were evaluated for compliance with the following codes and regulations:

- 2018, 2015 and 2012 International Building Code® (IBC)
- 2018, 2015 and 2012 International Residential Code® (IRC)
- 2017 Florida Building Code, Building and 2017 Florida Building Code, Residential (FBC) – Supplement attached

2.0 LIMITATIONS

Use of the Cembrit Fiber-Cement Façade Panel System described in this report is subject to the following limitations:

2.1 Installation of the Cembrit Fiber-Cement Façade Panel System shall be in accordance with this report, the project details, installation instructions and the applicable code. If there are any conflicts between the manufacturer's published installation instructions and this report, the more restrictive shall govern.

2.2 The maximum allowable wind pressure for the Cembrit Fiber-Cement Façade Panel System is provided in Table 1 of this report. The capacities of the supporting wall, framing members and connections shall be equal to or greater than the allowable wind pressure.

2.3 Where installed as exterior cladding only on buildings of Type I, II, III or IV Construction the Cembrit Fiber-Cement Façade Panel System shall be constructed in accordance with Section 3.4 of this report.

2.4 When use is as an interior wall covering, with spaces between adjacent panels, the Cembrit Fiber-Cement Façade Panel System shall be installed over a substrate having a Class A finish, complying with 2018 IBC Section 803.1.2 or 2015 and 2012 IBC Section 803.1.1.

2.5 Maximum panel fastener spacings and fastener contributory area shall be accordance with Section 3.2 of this report

3.0 PRODUCT USE

3.1 General: Cembrit Fiber-Cement Façade Panel System is used as exterior or interior wall covering on buildings of all construction types under the IBC and on buildings constructed under the IRC. The panel system shall be installed in accordance with the applicable code, the manufacturer's installation instructions, and this report. A copy of the installation documents shall be available on the jobsite at all times during construction.

The Cembrit Fiber-Cement Façade Panel System may be used as a nonload-bearing exterior wall covering in accordance with Chapter 14 of the IBC and Chapter 7 of the IRC. The fiber-cement panels may also be used for interior applications as part of a Class A interior wall finish. The panels may be installed on buildings of Types I, II, III or IV construction when installed in accordance with Section 3.4 of this report.

3.2 Design: Table 1 of this report provides the allowable wind load for the Cembrit Fiber-Cement Façade Panel System when used as an exterior wall covering.

TABLE 1 – ALLOWABLE TRANSVERSE (WIND) LOAD

Panel Thickness Installation Method	POSITIVE (psf)	NEGATIVE (psf)
8-mm Visible Attachment System	49	48
12-mm Concealed Attachment System	42	40

SI: 1-inch = 25.4 mm; 1 psf = 0.0479 kPa

The supporting walls, framing members and connections shall be designed to meet the loads prescribed by IBC Chapter 16 or IRC Section R301.2, as applicable. The allowable transverse loads for the Cembrit Fiber-Cement Façade Panel System shall equal or exceed the design loads. The attachment of the façade panel system to walls or substrates shall be designed by a registered design professional in accordance with the limitations described in Sections 3.2.1 and 3.2.2 of this report, and submitted to the building official for approval.

3.2.1 8-mm Visible Attachment System: The 8-mm Visible Attachment System shall have brackets spaced a maximum of 24 inches (610 mm) on-center horizontally or vertically. Each bracket shall be connected to supporting framing, spaced a maximum of 16 inches (406 mm) on-center, with two self-tapping screws, complying with Section 4.1.2 of this report. Horizontal L-Profiles, as described in Section 4.1.3 of this report, shall be secured to each bracket with two self-tapping screws, complying with Section 4.1.2 of this report. Vertical Z-Profiles or Hat-Channels, used behind intersecting panel joints shall be secured to intersecting L-Profiles with one self-drilling screw, complying with Section 4.1.2 of this report. The 8-mm Cembrit Fiber-Cement Panels are fastened to the Z- or Hat-Channel profiles with rivets, complying with Section 4.1.2 of this report, supporting a maximum of 2.5 square feet (0.23 m^2) of contributory panel area per rivet. Panel rivets shall be spaced a maximum of 24 inches (610 mm) on-center horizontally or vertically. Rivets shall be a maximum of 4 inches (102 mm) from panel edges.

3.2.2 12-mm Concealed Attachment System: The 12-mm Concealed Attachment System shall have brackets spaced a maximum of 16 inches (406 mm) on-center horizontally and 30 inches (762 mm) on-center vertically. Each bracket shall be connected to supporting framing, with self-tapping screws, complying with Section 4.1.2 of this report. Vertical L-Profiles, as described in Section 4.1.3 of this report, shall be secured to each bracket with two self-tapping screws, complying with Section 4.1.2 of this report. Horizontal C-Profiles spaced a maximum of $17^1/_{16}$ inches (433 mm) on-center, shall be secured to intersecting L-Profiles with one self-drilling screw, complying with Section 4.1.2 of this report. The 12-mm Cembrit Fiber-Cement Panels are fastened to C-Hangers, complying with Section 4.1.3 of this report, with undercut anchors, complying with Section 4.1.2 of this report. The 12-mm Panels are connected to C-Hangers with undercut anchors supporting a maximum of 2.1 square feet (0.195 m^2) of contributory panel area per anchor. Undercut anchors shall be spaced a maximum of 18.1 inches (460 mm) on-center horizontally or vertically. Anchors shall be a maximum of $5^7/_8$-inches (149 mm) from panel edges.

3.3 Installation General: The Cembrit Fiber-Cement Façade Panel System shall be installed in accordance with the design documents, the manufacturer's published installation instructions and this evaluation report.

Exterior wall assemblies shall include a water-resistive barrier, flashing, a means for draining water that enters the assembly to the exterior and protection against condensation in accordance with IBC Section 1403.2 or IRC Section R703.2, as applicable. The Cembrit Fiber-Cement Panels may be cut and trimmed in accordance with the design documents and this report. A nominal gap of $^3/_8$ inch (9.5 mm) shall be maintained at panel-to-panel and panel-to-penetration joints, except that horizontal joints and corners may be closed with joint closures and corner closures as decorative elements when specified by the building designer. The panels may be used for interior applications as part of a Class A interior wall finish.

3.4 Types I, II, III and IV Construction:

3.4.1 8-mm thick panels: The Cembrit 8-mm thick panels using the Visible Attachment System as described in this report may be installed on buildings of Types I, II, III or IV construction under the IBC. The base wall framing shall be

minimum 18 gage by $3^5/_8$-inch (92.1 mm) cold-formed C-channel steel studs spaced 16 inches (406 mm) on-center. The interior side of the studs shall be covered with a minimum of one layer of $^5/_8$-inch-thick (15.9 mm) Type X gypsum wallboard, complying with ASTM C1396. The exterior side of the studs shall be covered with a minimum of one layer of ½-inch-thick (12.7 mm) glass mat gypsum substrate, Type X, complying with ASTM C1177. The gypsum boards shall be fastened to the studs with 1¼-inch-long (31.7 mm) corrosion-resistant self-tapping screws spaced 12 inches (305 mm) on-center in the field and 8 inches (203 mm) on-center at the perimeters. Stud cavities shall be filled with minimum 4-inch-thick (102 mm) minimum 4 pcf density (64 kg/m^3) mineral wool secured with Z-clips at floor lines. Vertical Z-Profiles shall be installed at 16 inches (406 mm) on-center. Hat-Channels shall be installed at panel joints and fastened to the steel studs with 1¼-inch-long (31.7 mm) corrosion-resistant self-tapping screws. Window and door openings shall be flashed with minimum 18 gage steel flashing.

3.4.2 12-mm thick panels: The Cembrit 12-mm thick panels using the Concealed Attachment System as described in this report may be installed on buildings of Types I, II, III or IV construction under the IBC. Installation on exterior walls is limited to heights not greater than 40 feet (12.2 m) above grade plane when the wall assembly includes a combustible water-resistive barrier. For use with combustible water-resistive barriers at heights greater than 40 feet (12.2 m) above grade plane, the wall constructions shall be tested in accordance with and comply with the acceptance criteria of NFPA 285, in accordance with Section 1403.5 of the IBC.

4.0 PRODUCT DESCRIPTION

4.1 General: The Cembrit Fiber-Cement Façade Panel System consists of Cembrit Fiber-Cement Panels attached with concealed or visible fasteners to metal brackets which are attached to aluminum or steel track.

4.1.1 Cembrit Fiber-Cement Panels: Cembrit Fiber-Cement Panels comply with ASTM C1186 as Type A Grade IV fiber-cement boards, in accordance with Sections 1404.10 and 1405.16 of the IBC. The Cembrit Fiber-Cement Panels are nominally 8 mm or 12 mm (0.31 or 0.47 inch) thick, available in widths up to 1250 mm (49.2 inches) and lengths up to 3070 mm (121 inches). Cembrit Fiber-Cement Panels have a flame spread index of 0 and a smoke-developed index of not more than 5 when tested in accordance with ASTM E84 and comply as Class A interior finish in accordance with

IBC Section 803.1.1. The boards are classified as noncombustible when tested in accordance with ASTM E136.

4.1.2 Fasteners: Fasteners used with the Cembrit Fiber-Cement Façade Panel Systems are shown in Table 2 of this report. Where installed as exterior cladding, fasteners shall be corrosion-resistant.

TABLE 2 - FASTENERS

Attachment	8-mm Panel Visible Attachment System	12-mm Panel Concealed Attachment System
Bracket to Framing	¼-20 by 2-inch long self-tapping hex head screws	¼-20 by 2-inch long self-tapping hex head screws
L-Profile to Bracket (8-mm Visible System); or L-Profile to C-Profile (12-mm Concealed System)	No. 10 by 1-inch-long self-tapping hex head screws	No.10 by 1-inch-long self-tapping hex head screws
Z- or Hat-Channel to horizontal L-Profile; or Horizontal C-Profile to Vertical L-Profile	M5.5 by 25 mm self-drilling galvanized screw with sealing washer [1]	M5.5 by 25 mm self-drilling galvanized screw with sealing washer [1]
Panel to C-Hanger	NA	Stainless Steel, threaded, undercut anchors [1]
Panel to vertical Z- or Hat-Profile	Rivets - Stainless steel $^{3}/_{16}$-inch-diameter 4-by-19/K15 [1]	NA

SI: 1-inch = 25.4 mm

[1] provided with the Cembrit Fiber-Cement Façade Panel System.

4.1.3 Brackets and Profile Descriptions: Descriptions of the attachment systems elements are shown in Table 3 of this report. The 8-mm thick Cembrit panels use the Visible Attachment System. The 12-mm thick Cembrit panels use the Concealed Attachment System. See Figure 1 of this report for typical bracket profiles and installation illustrations.

TABLE 3 – ATTACHMENT SYSTEM ELEMENTS

Element	8-mm Panel Visible Attachment System (inch)	12-mm Panel Concealed Attachment System (inch)
Brackets [1]	5¼ x 3½ x 1¾	3½ x 2½ x 2 [2] or $6^{7}/_{8}$ x 2½ x 2 [3]
C-Hangers [1]	NA	Proprietary [1]
L-Profiles	1½ x $2^{3}/_{8}$ x $^{5}/_{64}$	1½ x $2^{3}/_{8}$ x $^{5}/_{64}$
Z-Profiles	16 Ga. $1^{9}/_{16}$ x 1½ x $1^{9}/_{16}$	NA
Hat-Channels	16 Ga. 2 x 1½ x 2	NA
C-Profiles [1]	NA	Proprietary [1]

SI: 1 inch = 25.4 mm

[1] provided with Cembrit Fiber-Cement Façade Panel System.

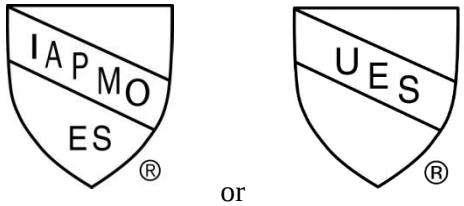
[2] Attached with one fastener per bracket.

[3] Attached with two fasteners per bracket.

4.1.4 Metal Tracks and Profiles: Metal framing shall be made of 6063-T6 alloy extruded aluminum complying with ASTM B317, or better.

5.0 IDENTIFICATION

The Cembrit Fiber-Cement Panels shall be labeled with the manufacturer's name and address, product name, thickness, color, finish, and batch number. The label shall identify the fiber-cement panels as conforming to the requirements of ASTM C1186, Type A, and the name of the approved inspection agency, Quality Control Consultants (QCC). The label shall include the IAPMO Uniform ES Mark of Conformity and the Evaluation Report Number (ER-553). Either Mark of Conformity may be used as shown below:



IAPMO UES ER-553

6.0 SUBSTANTIATING DATA

6.1 Data in accordance with the ICC-ES Acceptance Criteria for Fiber-cement Siding (AC90), dated June 2012 (editorially revised September 2015).

6.2 Reports of non-combustibility testing in accordance with ASTM E136.

6.3 Reports of Surface Burning Characteristics testing in accordance with ASTM E84.

6.4 Reports of Fire Propagation Characteristics testing in accordance with NFPA 285.

7.0 STATEMENT OF RECOGNITION

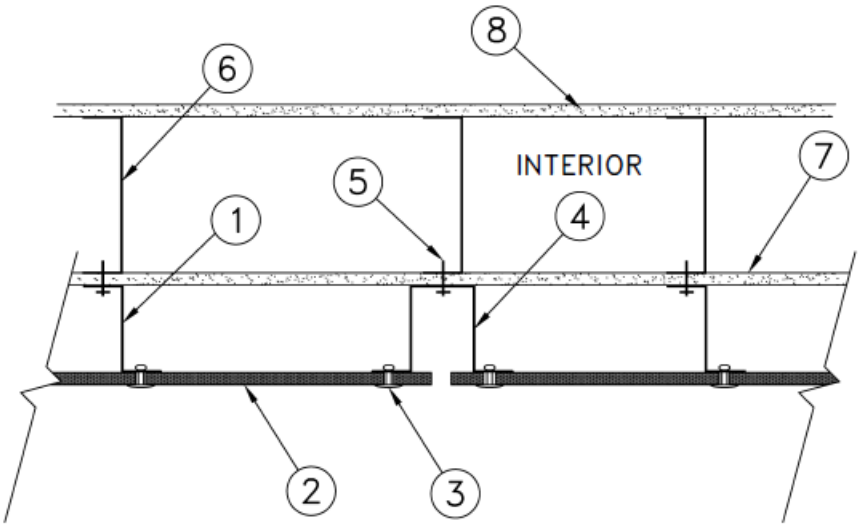
This evaluation report describes the results of research carried out by IAPMO Uniform Evaluation Service on the Cembrit Fiber-Cement Façade Panel System manufactured in Vocklabruck, Austria under a quality control program with inspections by Quality Control Consultants (QCC) to assess its conformance to the codes and standards shown in Section 1.0 of this report and documents the product's certification.

Brian Gerber, P.E., S.E.
Vice President, Technical Operations
Uniform Evaluation Service

Richard Beck, PE, CBO, MCP
Vice President, Uniform Evaluation Service

GP Russ Chaney
CEO, The IAPMO Group

For additional information about this evaluation report please visit www.uniform-es.org or email us at info@uniform-es.org



① – 1⅝" X 1½" X 1⅝" 16 GA. 'Z' CHANNEL
② – CEMBRIT PANEL
③ – POP RIVETS
④ – 2" X 1½" X 2" X 1½" DEEP 16 GA. HAT CHANNEL
⑤ – 1–¼" FASTENER (APPROPRIATE FOR STRUCTURAL MEMBER)
⑥ – 3–⅝" 18ga. STEEL STUD FRAMING
⑦ – ½" TYPE "X" SHEATHING
⑧ – ⅝" TYPE "X" SHEATHING

FIGURE 1
CEMBRIT FIBER-CEMENT FAÇADE PANEL SYSTEM

FLORIDA SUPPLEMENT

CEMBRIT HOLDINGS A/S
Postfach 750, Sohngaardsholmsvej 2
Aalborg, Denmark DK-9100
+ (45) 9937-2217
www.cembrit.com

CEMBRIT FIBER-CEMENT FAÇADE PANEL SYSTEM

CSI Section:
07 46 46 Fiber-Cement Siding

1.0 RECOGNITION

The Cembrit Fiber-Cement Façade Panel System evaluated in IAPMO UES Evaluation Report ER-553 is a satisfactory alternative to the following codes and regulations:

- 2017 Florida Building Code, Building (FBC, Building)
- 2017 Florida Building Code, Residential (FBC, Residential)

2.0 LIMITATIONS

Use of the Cembrit Fiber-Cement Façade Panel System described in this report supplement is subject to the following limitations:

2.1 Load combinations shall be in accordance with Sections 1605.2 or 1605.3 of the FBC-Building, as applicable.

2.2 For installations in accordance with FBC-Building Section 1403.8 the Cembrit Fiber-Cement Façade Panel System shall provide clearance between the façade panel and final earth grade on the exterior of a building of not less than 6 inches (152 mm) in order to provide for inspection for termite infestation, or in accordance with the Exceptions to Section 1403.8 of the FBC, Building, as applicable.

2.3 Use of the Cembrit Fiber-Cement Façade Panel System for compliance with the high-velocity hurricane zone provisions of the FBC-Building and FBC, Residential has not been evaluated and is outside the scope of this evaluation report.

2.4 The design and installation of the Cembrit Fiber-Cement Façade Panel System shall be in accordance with the 2015 International Building Code for the 2017 FBC-Building; or the 2015 International Residential Code for the 2017 FBC-Residential, as noted in ER-553.

2.5 For products falling under Florida Rule 9N-3.008, verification that the report holder's quality assurance program is audited by a quality assurance entity, approved by the Florida Building Commission (or the building official when the report holder does not possess an approval by the Commission), to provide oversight and determine that the products are being manufactured as described in this evaluation report to establish continual product performance.