

ICC-ES Evaluation Report

ESR-3698

Reissued July 2024

This report also contains:


- CBC Supplement

Subject to renewal July 2025

- LABC Supplement

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<p>DIVISION: 07 00 00— THERMAL AND MOISTURE PROTECTION</p> <p>Section: 07 42 43— Composite Wall Panels</p>	<p>REPORT HOLDER: KOVACH ENCLOSURE SYSTEMS, LLC.</p>	<p>EVALUATION SUBJECT: KOVABOND® FR ALUMINUM COMPOSITE MATERIAL (ACM) PANELS</p>	
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1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2018, 2015 and 2012 [International Building Code® \(IBC\)](#)

Properties evaluated:

- Fire performance (Types I-IV construction)
- Interior finish
- Structural

For evaluation for compliance with codes adopted by the [Los Angeles Department of Building and Safety \(LADBS\)](#), see [ESR-3698 LABC and LARC Supplement](#).

2.0 USES

Kovabond® FR Aluminum Composite Material (ACM) Panels are used in Metal Composite Material (MCM) systems (the assembled panels) as exterior wall panels in accordance with Chapter 14, or as interior wall finish in accordance with Chapter 8 of the IBC. The panels may be used in all construction types under the IBC.

When Kovabond® FR ACM panels are used on exterior walls of Types I–IV Construction in accordance with 2018 and 2015 IBC Section 1406.10 (2012 IBC Section 1407.10), they must be installed in accordance with Section 4.3 of this report.

When Kovabond® FR ACM panels are used on exterior walls up to 40 feet (12.2 m) above grade of Types I–IV Construction in accordance with 2018 and 2015 IBC Section 1406.11 (2012 IBC Section 1407.11), they must be installed in accordance with Section 4.4 of this report.

3.0 DESCRIPTION

3.1 General:

Kovabond® FR ACM panels are panels complying with 2018 and 2015 IBC Section 1406 (2012 IBC Section 1407). The ACM panels are bonded to extruded aluminum profiles used to stiffen the field of the panels and to provide perimeter fastening to attach the panels to walls. The fabricated panels are available in widths from 16 to 60 inches (0.41 m to 1.57 m), and in lengths up to 20 feet-3 inches (6.17 m).

3.2 Panels:

Kovabond® FR ACM panels come in a polyethylene core with a fire-resistive additive (FR). These cores are injection molded to a 0.020-inch (0.51 mm) thick aluminum skin to both surfaces of the core. The panels come in two thickness, 4 mm, and 6 mm (0.157 and 0.236 inch), with the only difference being the thickness of the core. The 4-millimeter- and 6-millimeter-thick FR ACM panels weigh 1.53 lbf/ft² (73.3 N/m²) and 1.96 lbf/ft² (93.8 N/m²), respectively. The core material has a nominal density of 90.5 lb/ft³ (1.45 g/cm³). The aluminum skins are available in anodized, brushed, copper and coil applied finishes.

The panels have a flame spread index of 25 or less and a smoke developed index of 450 or less when tested in accordance with ASTM E84, and have a Class A interior finish classification.

3.3 Aluminum Extrusions:

The aluminum extrusions used in the field and perimeter of the ACM system assembly and ACM panel stiffeners are extruded from 6063-T5 alloy aluminum. ACM panels are supported by hat-shaped aluminum extrusions in the field and Z-shaped extrusions in the perimeter (see [Figure 1](#) of this report.) The ACM panel stiffeners are 1-inch-square-tube (25.4 mm) having a 0.125-inch-thickness (3 mm). The Kovabond® FR ACM panels are cut, shaped, and assembled by the MCM system fabricators. Two fastening systems are available: Exposed Fastened and Dry Joint Rainscreen. See [Figures 2](#) and [3](#), respectively, for images of the installations and the profiles of the extrusions used in each system.

4.0 DESIGN AND INSTALLATION

4.1 Design:

The maximum allowable design wind load pressure for the Kovabond® FR ACM panels and systems installed in accordance with this report is 20 psf (958 N/m²) for the Exposed Fastened installed system and 29 psf (1,389 N/m²) for the Dry Joint Rainscreen installed system, positive or negative. The framing supporting ACM panels, such as wall studs and extrusions, must be designed in accordance with the applicable code to support applicable load combinations and load directions.

4.2 Installation:

4.2.1 General: The MCM systems are assembled in fabrication facilities; field fabrication is limited to minor adjustments and cutting of the assembled panels to fit as necessary. The appropriate installation procedures must be followed for each system. The manufacturer's published installation instructions and this report must be strictly adhered to, and a copy of the manufacturer's instructions must be available on the jobsite during installation.

4.2.2 Exposed Fastened Installed System: The exposed fastened installed system uses hat-shaped extrusions where two ACM panels meet and Z-shaped extrusions in the perimeter of the MCM wall system. The ACM panels are faced-screwed to the extrusions using No. 12 stainless steel Torx® screws having a head diameter of 0.566-inch (14.4 mm) spaced a maximum of 21.25 inches (540 mm) along the extrusions. The maximum on center spacing of the extrusions must not exceed 60 inches (1524 mm). Extrusions used to stiffen the field of the panels are installed by the fabricators at a maximum spacing of 30 inches (762 mm) on center. The aluminum stiffeners as described in Section 3.3 are bonded to the ACM panels using approved structural silicone sealant/adhesive complying with ASTM C1184.

4.2.3 Dry Joint Rainscreen Installed System: The dry joint rainscreen installed system uses aluminum extrusions to support ACM panels that have a rout-return edge design. The system is designed to prevent water intrusion by incorporating gaskets and extrusions that are shaped to secure the ACM panels to the supporting extrusions (see [Figure 3](#).) The maximum on center spacing of the extrusions supporting the ACM panels must not exceed 60 inches (1524 mm). Extrusions used to stiffen the field of the panels are installed by the fabricators at a maximum spacing of 24 inches (610 mm) on center. The aluminum stiffeners as described in Section 3.3 are bonded to the ACM panels using approved structural silicone sealant/adhesive complying with ASTM C1184.

4.3 Exterior Walls of Buildings of Type I, II, III or IV (Noncombustible) Construction— Kovabond® FR ACM panels 2018 and 2015 IBC Section 1406.10 (2012 IBC Section 1407.10) Exposed Fastened:

Where installed on exterior walls of buildings of Types I, II, III or IV construction, the walls must be built in accordance with the following:

The walls must be framed with minimum 18 gage C-channel steel studs at 16 inches (406 mm) on-center. The interior of the wall must be faced with one layer of $\frac{5}{8}$ -inch-thick (15.9 mm), Type X gypsum wallboard, finished and taped in accordance with ASTM C840 or GA216. The stud cavities must be filled with 3½-inch-thick, R-11, Class A fiberglass insulation. The stud cavity at the intersection of the floor and exterior walls must be filled with 4-inch thick, 4 pcf (64 kg/m³) mineral wool insulation in accordance with IBC Section 715.4. The exterior face of the wall must be sheathed with ½-inch-thick (15.9 mm) Georgia Pacific Dens-Glass® Gold gypsum sheathing. The gypsum sheathing must be coated with BASF Corporation Enershield-HP liquid-applied water resistive barrier. Prior to application of Enershield-HP, the gypsum sheathing joints must be treated with polyester sheathing fabric. The sheathing fabric must be fully embedded in the Enershield-HP liquid-applied membrane. After allowing the joints to dry, the remainder of the gypsum sheathing surface must be coated with Enershield-HP with an average wet thickness of 10 mils (0.010 inch). Opening headers must be installed with minimum 18 gage galvanized steel window header. The opening jambs and sills must be flashed with minimum 18-gage galvanized steel flashing. The Kovabond® FR ACM panels must be attached to aluminum extrusions along the panel perimeter with fasteners in accordance with Section 4.2.2 of this report. The joint spacing between ACM panels must not exceed $\frac{3}{8}$ inch (9.5 mm). Hat shaped aluminum extrusions must be installed at ACM panel joints. Z-shaped aluminum extrusions must be installed along the MCM wall system perimeter.

4.4 Exterior Walls of Buildings of Type I, II, III or IV (Noncombustible) Construction—Kovabond® FR ACM panels 2018 and 2015 IBC Section 1406.11 (2012 IBC Section 1407.11):

Where exterior walls are required to be of Types I, II, III or IV construction, installation of Kovabond® FR ACM panels is limited to the following heights;

- A maximum of 40 feet in height above the grade plane, under the limitations specified in Section 1407.11.1 of the IBC.
- MCM panel installation must comply with Sections 4.2.1, 4.2.2 and 4.2.3 of this report.

Where interior walls are required to be noncombustible construction, Kovabond® FR ACM panels which have a Class A interior finish classification must be installed in accordance with 2018 and 2015 IBC Section 803.13 or 2012 IBC Section 803.11.

4.5 Interior Wall Covering:

Kovabond® FR ACM panels may be installed as a Class A interior wall finish in compliance with IBC Chapter 8. The panels must be installed on the interior side of the wall in accordance with Section 4.2 of this report.

5.0 CONDITIONS OF USE:

Kovabond® FR ACM panels described in this report comply with, or are suitable alternatives to what is specified in, the codes indicated in Section 1.0 of this report subject to the following conditions:

- 5.1** Installation must comply with this report, the manufacturer's published instructions, the applicable code, and the approved plans. If there are any conflicts between this report and the manufacturer's installation instructions, this report governs. A copy of the manufacturer's instructions must be available on the jobsite during installation.
- 5.2** The design of the structural support system (building framing, attachment accessories, and silicone adhesive) and panel connections provided by the MCM systems fabricator must be submitted to and approved by the code official for each project. The allowable transverse load capacity for the MCM panels and their interlock with their attachment accessories must be submitted to and approved by the code official for each project. The allowable transverse load capacity must not equal or exceed the design loads determined in accordance with Chapter 16 of the IBC. Allowable transverse loads for the MCM materials are set forth in Section 4.1 of this report.
- 5.3** The MCM systems fabricator must provide a certificate of compliance to the code official attesting that the MCM system fabrication includes the use of adhesives approved for intended use, that the adhesive application complies with the adhesive manufacturer's installation guidelines, and that the MCM system fabrication complies with approved construction documents. Additionally, when the attachment methods employ adhesives other than to adhere stiffeners to the backs of the panels, special inspections are required in accordance with IBC Section 1704.2, or the fabricator must be approved by the code official in accordance with 2018 IBC Section 1704.2.5 or 2015 or IBC Section 1704.2.2, as such operations are outside the scope of this report.

- 5.4 Where exterior walls are for use on buildings of Types I, II, III or IV construction, MCM systems must be installed as specified in Section 4.3 or 4.4 of this report, as applicable.
- 5.5 Evidence of weather resistance of the wall cladding system must be submitted to the code official in accordance with 2018 and 2015 IBC Section 1406.6 (2012 IBC Section 1407.6).
- 5.6 The Kovabond® FR ACM panels are manufactured in China, under a quality control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

- 6.1 Data in accordance with the [ICC-ES Acceptance Criteria for Metal Composite Material \(MCM\) \(AC25\)](#), dated October 2010 (editorially revised May 2018).
- 6.2 Reports of surface burning testing in accordance with ASTM E84.
- 6.3 Reports of flammability testing in accordance with NFPA 285 for an assembly with Kovabond® FR ACM panels.

7.0 IDENTIFICATION

- 7.1 The panels are identified by a label noting the name and address of Kovach Enclosure Systems LLC. in Chandler, Arizona, the product name, the thickness, the flame-spread, and smoke developed indices, and the evaluation report number (ESR-3698).
- 7.2 The report holder's contact information is the following:

KOVACH ENCLOSURE SYSTEMS, LLC.
3195 WEST ARMSTRONG PLACE
CHANDLER, ARIZONA 85286
(480) 926-9292
www.kovach.net

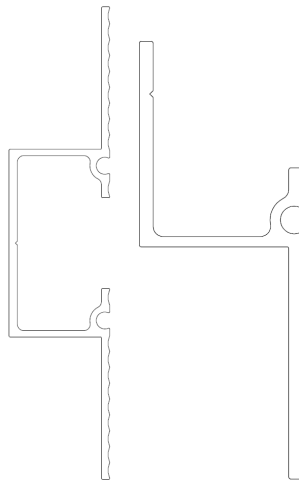


FIGURE 1—ALUMINUM HAT EXTRUSION AND ZEE EXTRUSION

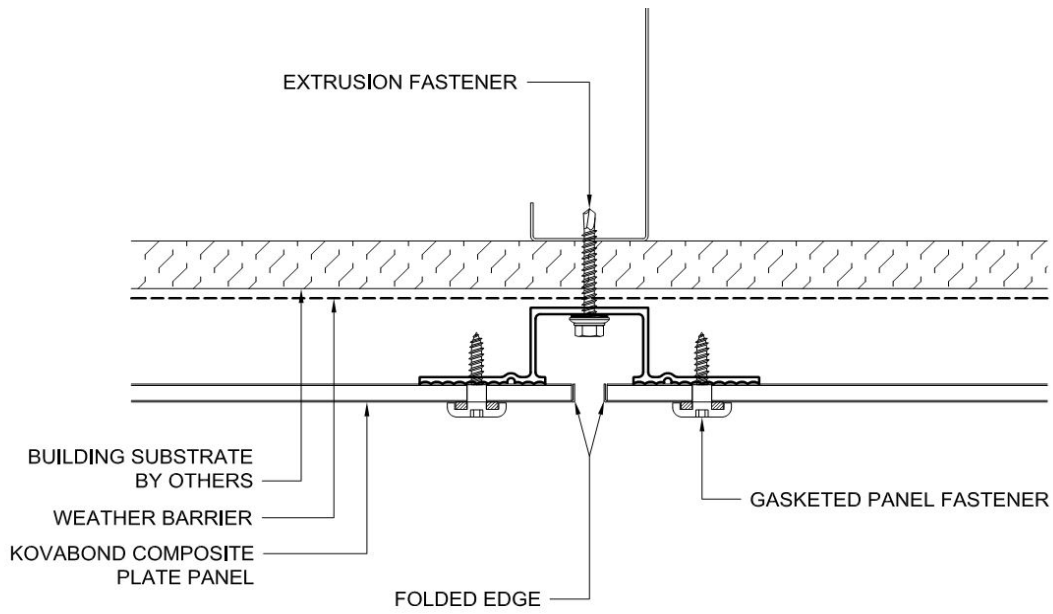


FIGURE 2—EXPOSED FASTENED INSTALLED SYSTEM

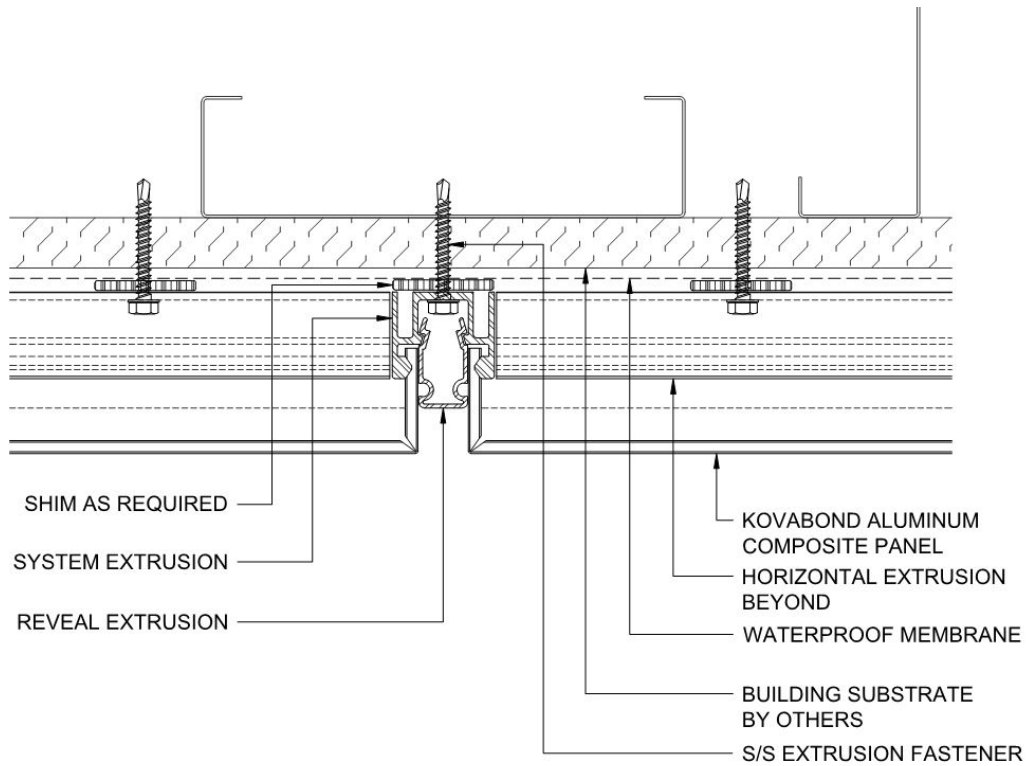


FIGURE 3—DRYJOINT RAINSCREEN INSTALLED SYSTEM

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
Section: 07 42 43—Composite Wall Panels

REPORT HOLDER:

KOVACH ENCLOSURE SYSTEMS, LLC.

EVALUATION SUBJECT:

KOVABOND® FR ALUMINUM COMPOSITE MATERIAL (ACM) PANELS

1.0 REPORT PURPOSE AND SCOPE**Purpose:**

The purpose of this evaluation report supplement is to indicate that Kovabond® FR Aluminum Composite Material (ACM) Panels, described in ICC-ES evaluation report [ESR-3698](#), have also been evaluated for compliance with the codes noted below as adopted by the Los Angeles Department of Building and Safety (LADBS).

Applicable code edition:

2017 *City of Los Angeles Building Code* (LABC)

2.0 CONCLUSIONS

The Kovabond® FR Aluminum Composite Material (ACM) Panels, described in Sections 2.0 through 7.0 of the evaluation report [ESR-3698](#), comply with the LABC Chapters 7, 8 and 14, and are subject to the conditions of use described in this supplement.

3.0 CONDITIONS OF USE

The Kovabond® FR Aluminum Composite Material (ACM) Panels described in this evaluation report must comply with all of the following conditions:

- All applicable sections in the evaluation report [ESR-3698](#).
- The design, installation, conditions of use and identification of the Kovabond® FR Aluminum Composite Material (ACM) Panels are in accordance with the 2015 International Building Code® (IBC) provisions noted in the evaluation report [ESR-3698](#).
- The design, installation and inspection are in accordance with additional requirements of the LABC Chapters 16 and 17, as applicable.

This supplement expires concurrently with the evaluation report, reissued July 2024.

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION

Section: 07 42 43—Composite Wall Panels

REPORT HOLDER:

KOVACH ENCLOSURE SYSTEMS, LLC.

EVALUATION SUBJECT:

KOVABOND® FR ALUMINUM COMPOSITE MATERIAL (ACM) PANELS

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that Kovabond® FR Aluminum Composite Material (ACM) Panels, described in ICC-ES evaluation report ESR-3698, have also been evaluated for compliance with the code noted below.

Applicable code edition:

2019 *California Building Code*® (CBC)

For evaluation of applicable chapters adopted by the California Office of Statewide Health Planning and Development (OSHPD) AKA: California Department of Health Care Access and Information (HCAI) and the Division of State Architect (DSA), see Sections 2.1. and 2.2 below.

2.0 CONCLUSIONS

The Kovabond® FR Aluminum Composite Material (ACM) Panels, described in Sections 2.0 through 7.0 of the evaluation report ESR-3698, comply with CBC Chapters 7, 8 and 14, provided the design and installation are in accordance with the 2018 *International Building Code*® (IBC) provisions noted in the evaluation report and the additional requirements of CBC Chapters 16 and 17, as applicable.

2.1 OSHPD:

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

2.2 DSA:

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

This supplement expires concurrently with the evaluation report, reissued July 2024.