ICC-ES Evaluation Report

ESR-3435

Reissued July 2024

Subject to renewal July 2025

This report also contains:

- CBC Supplement

- LABC Supplement

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DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION Section: 07 42 43—Composite Wall Panels	REPORT HOLDER: ARCONIC ARCHITECTURAL PRODUCTS, LLC	EVALUATION SUBJECT: REYNOBOND® FR METAL COMPOSITE MATERIAL (MCM) PANELS	

1.0 EVALUATION SCOPE

1.1 Compliance with the following codes:

■ 2021, 2018, 2015, 2012, and 2009 *International Building Code®* (IBC)

For evaluation for compliance with codes adopted by *Los Angeles Department of Building and Safety (LADBS)*, see ESR-3435 LABC and LARC Supplement.

Properties evaluated:

■ Fire performance (Fire-resistance-rated and Types I-IV construction)

■ Interior finish

■ Structural

1.2 Evaluation to the following green code(s) and/or standards:

■ 2022 *California Green Building Standards Code (CALGreen)*, Title 24, Part 11

■ 2020, 2015, 2012 and 2008 ICC 700 *National Green Building Standard™* (ICC 700-2020, ICC 700-2015, ICC 700-2012 and ICC 700-2008)

Attributes verified:

■ See Section 2.0

2.0 USES

Reynobond® FR MCM panels are used in 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 Reynobond® FR MCM panels are used on exterior walls of Types I–IV Construction, they must be installed in accordance with Section 4.4 of this report.

The attributes of the Reynobond® FR MCM panels have been verified as conforming to the provisions of (i) CALGreen Sections A4.405.1.3 (prefinished materials) and A5.406.1.2 (reduced maintenance); (ii) ICC 700-2020 Sections 601.7 and 11.601.7 and ICC 700-2015 and ICC 700-2012 Sections 601.7, 11.601.7, and 12.1(A).601.7 (site-applied finishing materials); and (iii) ICC 700-2008 Section 601.7 (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. The code may provide supplemental information as guidance.

3.0 DESCRIPTION

3.1 General:

Reynobond® FR MCM panels are panels complying with 2021 and 2018 Section 1406 [2015, 2012 and 2009 IBC Section 1407]. The MCM 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 34 to 62 inches (0.864 m to 1.57 m), and in lengths up to 20 feet 3 inches (6.17 m).

3.2 Panels:

Reynobond® FR MCM panels consist of two nominally 0.020-inch-thick aluminum skins, bonded to both surfaces of a polyethylene-based core containing inorganic fillers. The panels are available in an overall panel thickness of 0.157 inch (4 mm). The 4-millimeter-thick panels weigh 1.55 lbf/ft^2 (7.56 kg/m^2). The core material has a nominal density of 103.8 lb/ft^3 (1.66 g/cm^3). The aluminum skins are available in anodized, brushed, or coil-applied-painted finishes.

The panels have a flame spread index of no more than 25 and a smoke developed index no more than 450 when tested in accordance with ASTM E84, and have a Class A interior finish classification.

3.3 Aluminum Exteriors:

The perimeter fastening profiles and stiffeners are extruded from 6063-T5 alloy aluminum complying with ASTM B317. The Reynobond® FR MCM panels are cut, shaped, and assembled by the MCM system fabricators. The fabricators assemble the MCM systems using structural silicone sealant/adhesive complying with ASTM C1184 and $^3/_{16}$-inch-diameter (4.76 mm) 3105-H25 alloy aluminum pop rivets at a maximum 8 inches (203 mm) on center to fasten the MCM panels to the perimeter profiles. Three fastening systems are available: Rout and Return Dry (RRDRY), Rout and Return Wet (RRWET), and Rout and Return Rain Screen (RRPER). See Figures 1 through 6 for details of typical installations.

Extrusions used to stiffen the field of the panels are installed by the fabricators at a maximum 24 inches (610 mm) on center. The aluminum stiffeners (see Figure 7) are bonded to the MCM panels using thermal bond tape and approved structural silicone sealant/adhesive complying with ASTM C1184.

4.0 DESIGN AND INSTALLATION

4.1 Design:

The maximum allowable design wind load pressure for the Reynobond® FR MCM panels and systems installed in accordance with this report is 26.67 psf (1.28 kPa) positive or 30 psf (1.44 kPa) negative. The panels supporting framing, such as wall studs, must be designed in accordance with the applicable code to be adequate for these loadings.

4.2 Installation:

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.

The MCM systems must be attached to walls by use of perimeter fastening systems provided with the panels. The panels must be attached using No.12-14 Dril-Flex screws into 16 gage metal studs at 16 inches (406 mm) on center. The screws must be long enough to penetrate through intervening materials, such as gypsum sheathing, and through the flange of the stud to provide a minimum of three fully developed threads beyond the stud.

In the RRWET system, silicone caulking is used around the perimeter of each panel to keep water out. The RRDRY system is designed to prevent water intrusion by incorporating gaskets and extrusions that are shaped to prevent water from entering behind the panels and to divert water to the exterior. With the RRPER system, air and water may enter behind the MCM panels, but the water is diverted back out and air circulation dries out the cavity behind the panel.

When Reynobond® FR MCM panels are used on exterior walls of Types I–IV Construction, they must be installed in accordance with Section 4.4 of this report.

4.3 One- and Two-hour Fire-resistance-rated Nonload-bearing Wall Assembly—Reynobond® FR MCM panels:

When installed in accordance with the following instructions, the Reynobond® FR MCM systems may be exposed to the fire in fire-resistance-rated wall assemblies. The wall must be framed as described in Section 4.2. Each surface of the stud framework must be clad with one (for one-hour fire-resistance) or two (for two-hour fire-resistance) layers of $^{5}/_{8}$-inch-thick (15.9 mm) Type X gypsum wallboard attached with Type S self-tapping screws [1 inch (25.4 mm) for the first layer and $1^{5}/_{8}$ inches (41.3 mm) for the second layer] spaced 12 inches (305 mm) on center. The joints of the adjacent wallboard layers must be staggered a minimum of 12 inches (305 mm). The surface of the outer layer of gypsum must be finished with paper tape and joint compound in accordance with ASTM C840 or GA216 over all joints, and with joint compound over all exposed screw heads. The Reynobond® FR MCM systems must be attached in accordance with Section 4.2 and all joints in the Reynobond® FR MCM panels must be closed with 1-inch diameter Tundra Foam open-cell polyurethane backer rod and caulked. The caulking must be Dow Corning 795 Silicone Building Sealant for the 1-hour fire-resistance-rated walls, and 3M Fire Barrier 2000 Silicone Sealant for two-hour fire-resistance-rated walls.

4.4 Exterior Walls of Buildings of Type I, II, III or IV Construction based on NFPA 285 testing—Reynobond® FR MCM panels:

Where exterior walls are required to be of noncombustible construction, the walls must be built in accordance with the following using either the Rout and Return (RRDRY) fastening system or the Rout and Return Rain Screen (RRPER) fastening system:

The wall must be framed with minimum No. 18 gage C-channel steel studs at 16 inches (406 mm) on center. The gypsum wallboard is attached to the steel studs with No. 6 by 1¼-inch-long (32 mm), bugle-head, self-drilling screws with a nominal spacing of 8 inches (203 mm) around the perimeter and 12 inches (305 mm) on center in the field of the wallboard. The interior of the wall must be faced with one layer of $^{5}/_{8}$-inch-thick (15.9 mm), Type X gypsum wallboard, complying with ASTM C1396, finished and taped in accordance with ASTM C840 or GA216. The wall must be filled with 4 pcf (64 kg/m^3) mineral wool insulation at the intersection of the floors and exterior walls in accordance with IBC Section 715.4. The exterior face of the wall must be sheathed with ½-inch-thick (12.7 mm) Georgia-Pacific Dens-Glass Gold gypsum exterior sheathing (ESR-3087).

Vapro Shield Wrap Shield SA self-adhered water-resistive barrier must be applied directly over the Georgia-Pacific Dens-Glass Gold exterior sheathing.

No. 16 Gage, galvanized steel, Z-girts, measuring 3 x 2 x 3 inches (76 mm x 51 mm x 76 mm), must be installed horizontally and attached to the steel studs using No. 12 by 1¼-inch-long (32 mm) hex-head self-drilling screws, spaced nominally 16 inches (406 mm) on center. In the cavities between the girts, 2-inch-thick (51 mm) Rockwool CAVITYROCK insulation having a density of 4.3 pcf must be applied by friction fit.

The Reynobond® FR MCM panels must be installed to the Z-girts and No. 16 gage by 3-inch-wide (76 mm) steel strapping spaced 16 inches on center, with No. 12 by ¾-inch-long (19 mm) hex head self-drilling screws. The joints must be covered with 0.16 inch (4 mm) thick, pre-painted MCM splines.

Opening headers, sills and jambs must be framed with minimum No. 18 gage C-channel steel framing flashed with minimum 0.040 inch-thick (1 mm) aluminum flashing attached with ¾-inch-long (19 mm) hex-head self-drilling screws. The aluminum flashing must be applied flush with the interior sheathing and extending 2¼-inches (57 mm) beyond the exterior sheathing.

4.5 Interior Wall Covering:

Reynobond® FR MCM panels may be used as an 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. The panels have a Class A interior finish classification.

5.0 CONDITIONS OF USE:

Reynobond® FR MCM 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 equal or exceed the design loads determined in accordance with IBC Chapter 16. 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 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 2021, 2018, 2015 and 2012 IBC Section 1704.2.5 or 2009 IBC Section 1704.2, or the fabricator must be approved by the code official in accordance with 2021, 2018, 2015 IBC Section 1704.2.5.1, 2012 IBC Section 1704.2.5.2 or 2009 IBC Section 1704.2.2, as such operations are outside the scope of this report.

5.4 Where installed on exterior walls on buildings of Types I, II, III or IV construction, MCM systems must be installed as specified in Section 4.4 of this report. Where the MCM panels are elements of a balcony or similar projection, such as architectural trim or embellishments in accordance with 2021 and 2018 IBC Section 1406.3 [2015, 2012 and 2009 IBC Section 1407.3], the panels are not required to be installed as specified in Section 4.4 of this report.

5.5 Evidence of weather protection of the wall cladding system must be submitted to the code official in accordance with 2021 and 2018 IBC Section 1406.6 (2015, 2012 and 2009 IBC Section 1407.6).

5.6 The Reynobond® FR MCM panels are manufactured by Arconic Architectural Products–North America, in Eastman, Georgia, 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 March 2021).

6.2 Reports of strength testing in accordance with ASTM E72.

6.3 Reports of surface burning testing in accordance with ASTM E84.

6.4 Reports of fire-resistance testing in accordance with ASTM E119.

6.5 Reports of flammability testing in accordance with NFPA 285.

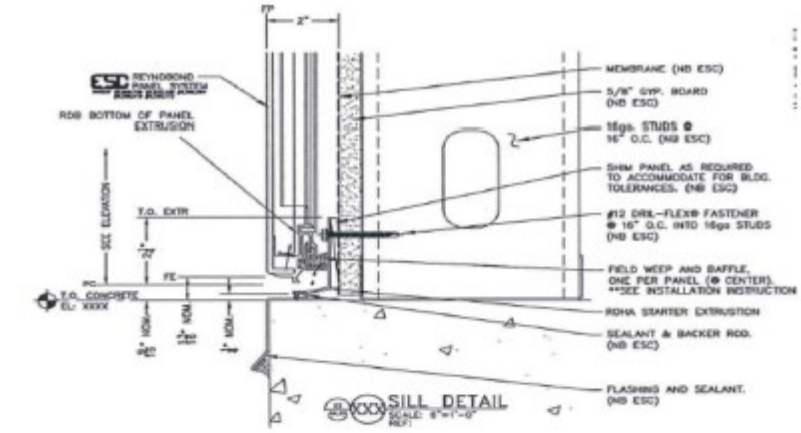
7.0 IDENTIFICATION

7.1 The ICC-ES mark of conformity, electronic labeling, or the evaluation report number (ICC-ES ESR-3435) along with the name, registered trademark, or registered logo of the report holder must be included in the product label

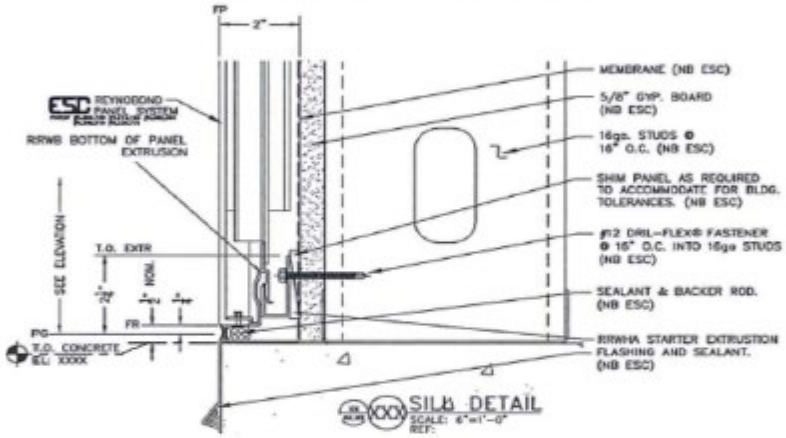
7.2 The panels are identified by a label noting the name and address of Arconic Architectural Products, the product name, the thickness, the flame-spread and smoke developed indices.

7.3 In addition, the report holder's contact information is the following:

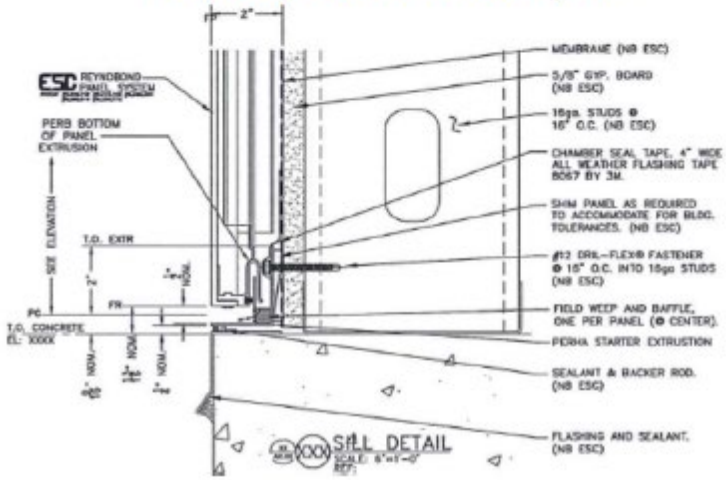
ARCONIC ARCHITECTURAL PRODUCTS, LLC
50 INDUSTRIAL BOULEVARD
EASTMAN, GEORGIA 31023
(478) 374-4746



Sill Plate Detail - Route and Return Dry System



Sill Plate Detail - Route and Return Wet System



Sill Plate Detail - Route and Return Rain Screen System

FIGURE 1—TYPICAL SILL PLATE DETAILS

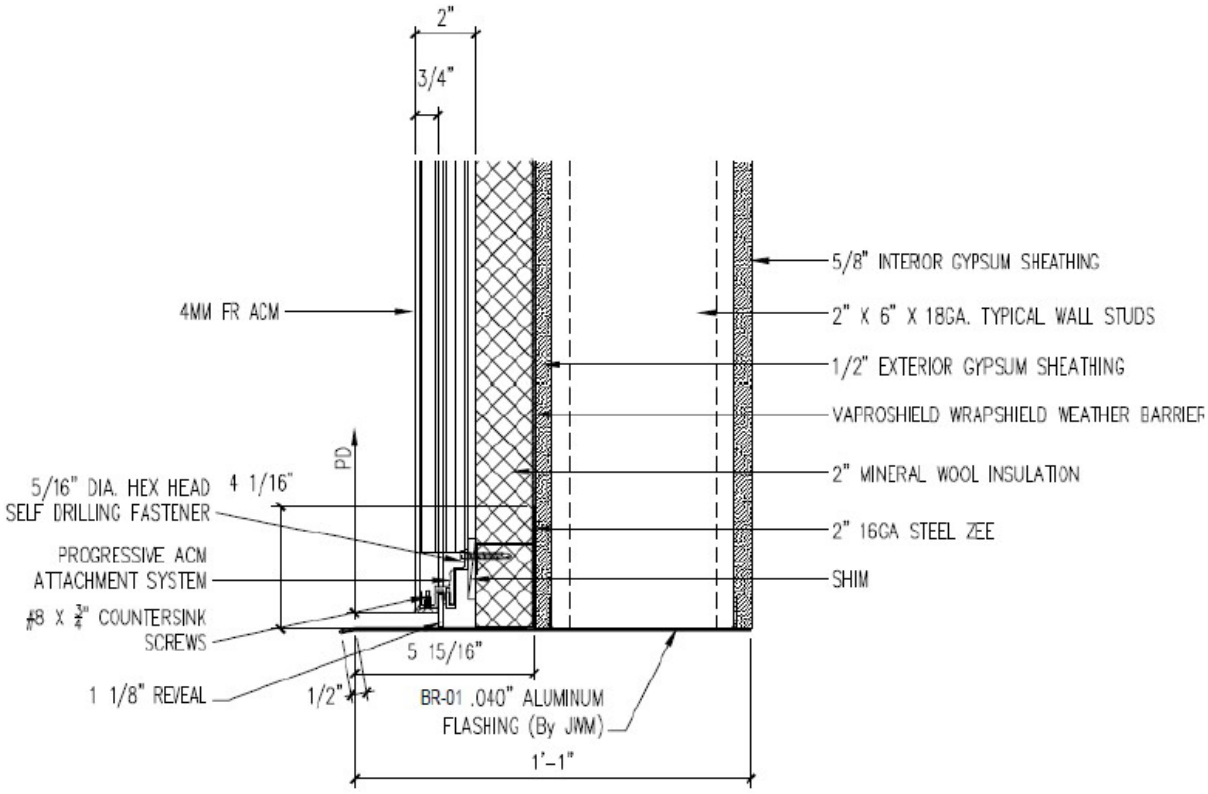


FIGURE 2—WINDOW HEADER DETAIL

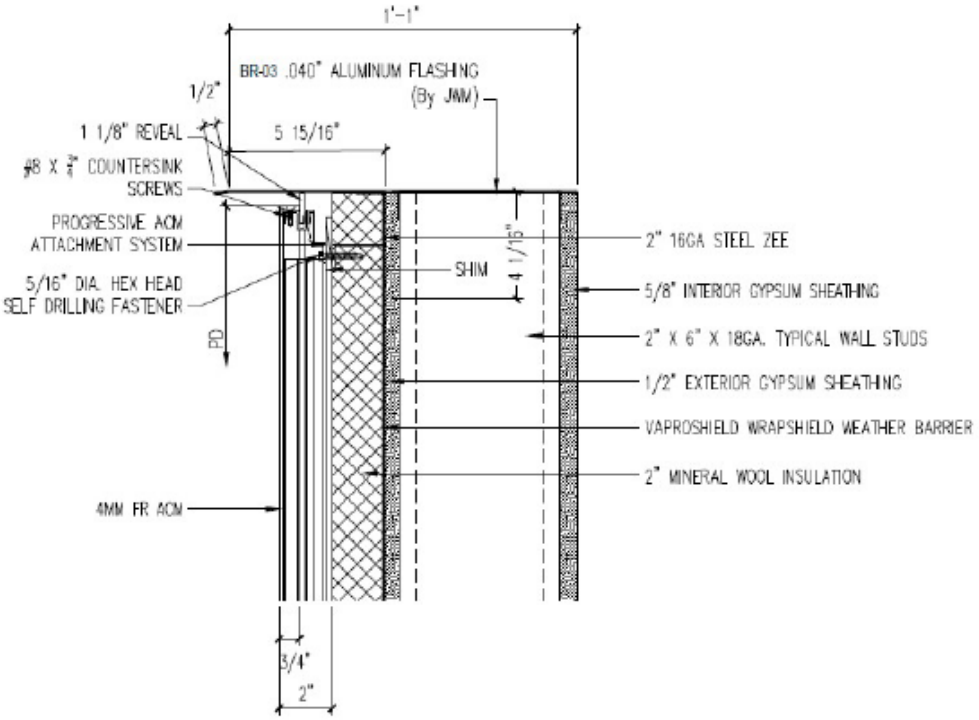


FIGURE 3—WINDOW SILL DETAIL

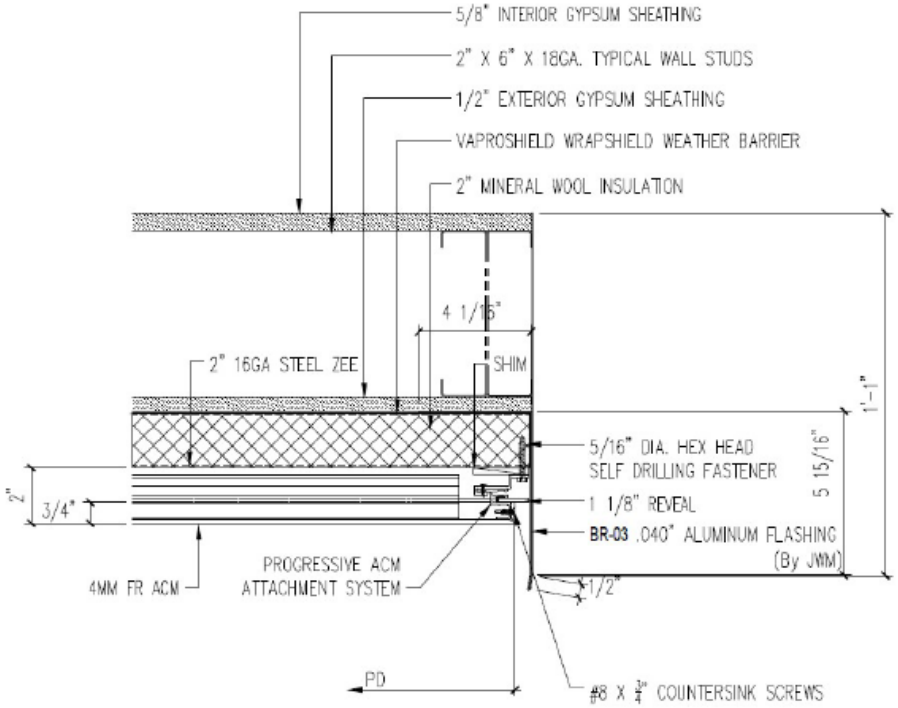


FIGURE 4—WINDOW JAMB DETAIL

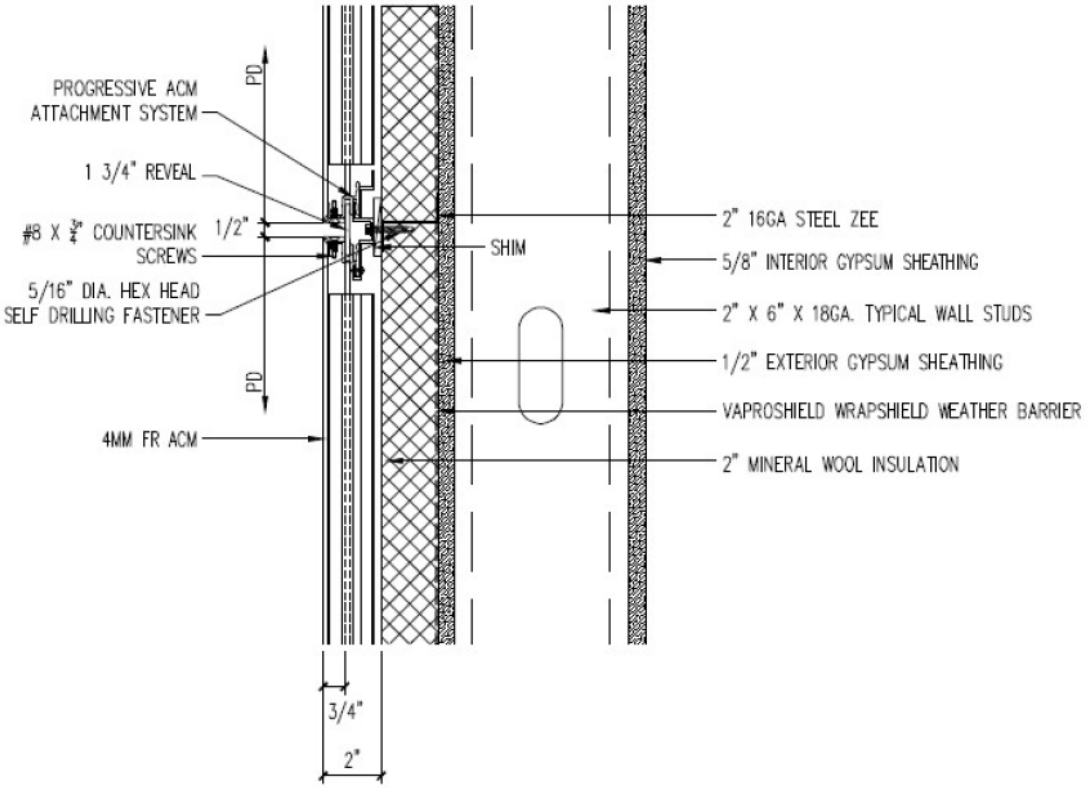


FIGURE 5—HORIZONTAL JOINT DETAIL

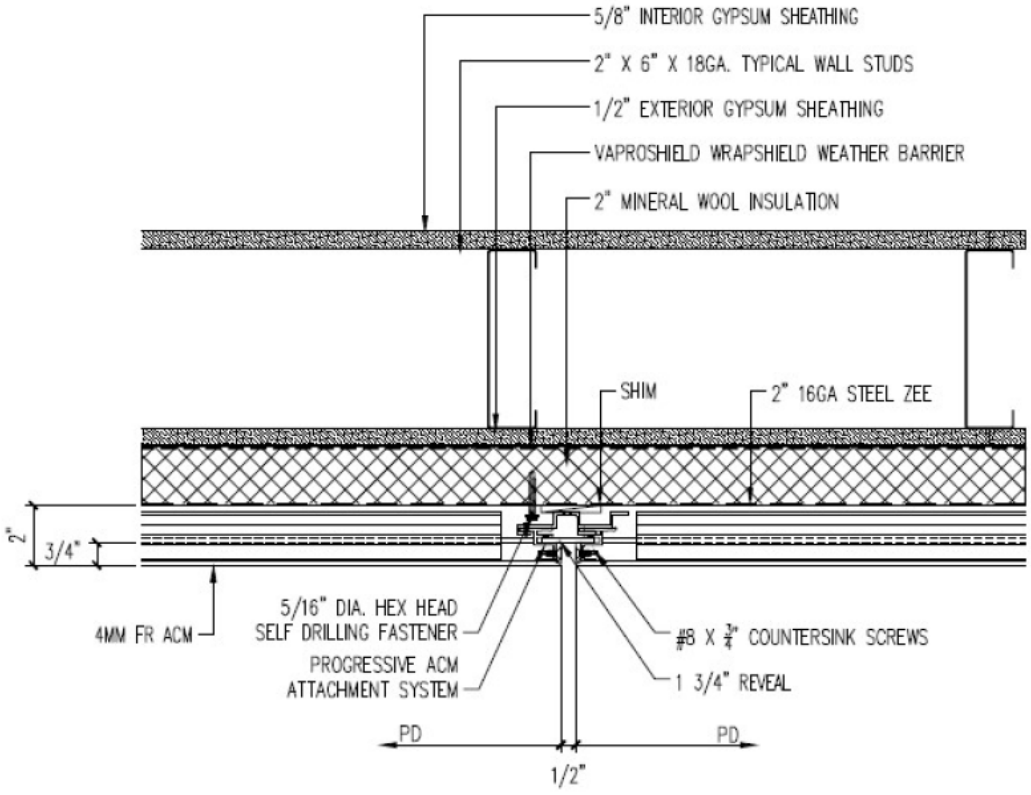
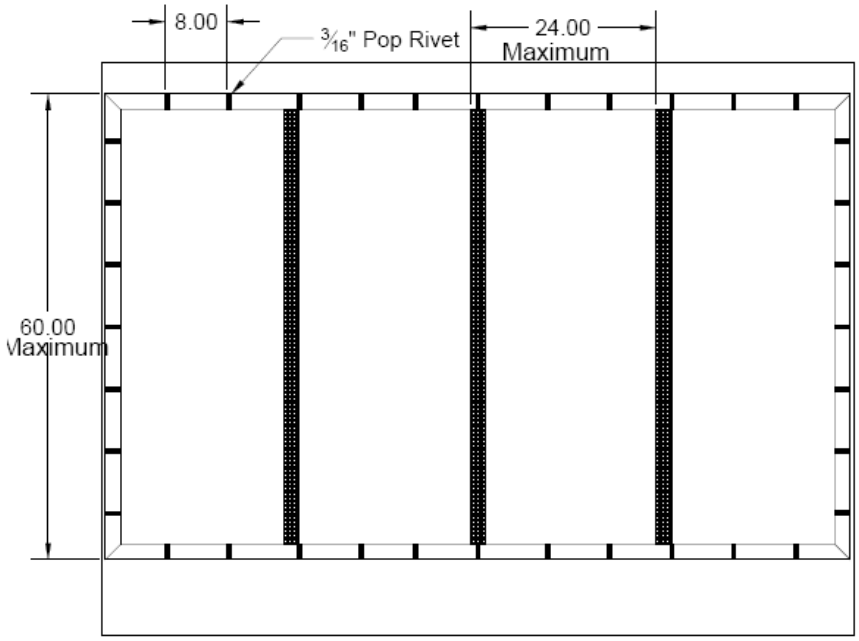
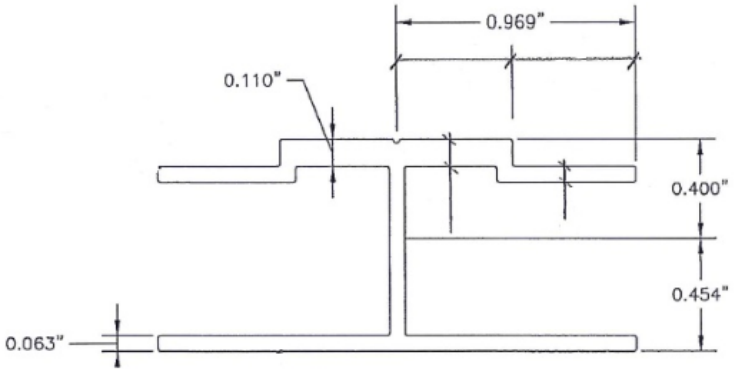


FIGURE 6—VERTICAL JOINT DETAIL



LOCATION OF STIFFENERS ON MCM PANEL



STIFFENER PROFILE

FIGURE 7—LOCATION OF STIFFENERS ON MCM PANEL AND STIFFENER PROFILE

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

REPORT HOLDER:

ARCONIC ARCHITECTURAL PRODUCTS, LLC

EVALUATION SUBJECT:

REYNOBOND® FR METAL COMPOSITE MATERIAL (MCM) PANELS

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that Reynobond® FR MCM panels, described in ICC-ES evaluation report ESR-3435, 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 editions:

2023 *City of Los Angeles Building Code* (LABC)

2.0 CONCLUSIONS

The Reynobond® FR MCM panels, described in Sections 2.0 through 7.0 of the evaluation report ESR-3435, comply with the LABC Chapters 7, 8 and 14, and are subjected to the conditions of use described in this supplement.

3.0 CONDITIONS OF USE

The Reynobond® FR MCM panels described in this evaluation report supplement must comply with all of the following conditions:

- All applicable sections in the evaluation report ESR-3435.
- The design, installation, conditions of use and identification of the Reynobond® FR MCM panels are in accordance with the 2021 *International Building Code®* (IBC) provisions noted in the evaluation report ESR-3435.
- The design, installation and inspection are in accordance with additional requirements of LABC Chapters 14, 16 and 17, as applicable.

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

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

REPORT HOLDER:

ARCONIC ARCHITECTURAL PRODUCTS, LLC

EVALUATION SUBJECT:

REYNOBOND® FR METAL COMPOSITE MATERIAL (MCM) PANELS

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that Reynobond® FR MCM panels, described in ICC-ES evaluation report ESR-3435, have also been evaluated for compliance with the code*(s)* noted below.

Applicable code edition:

2022 *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 2.1.1 and 2.1.2 below.

2.0 CONCLUSIONS

2.1 CBC:

The Reynobond® FR MCM panels, described in Sections 2.0 through 7.0 of the evaluation report ESR-3435, comply with CBC Chapters 7, 8 and 14, provided the design and installation are in accordance with the 2021 *International Building Code®* (IBC) provisions noted in the evaluation report and the additional requirements of CBC Chapters 14, 16 and 17,as applicable.

2.1.1 OSHPD:

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

2.1.2 DSA:

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

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

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