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Code Compliance Research Report CCRR-1061

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DIVISION: 07 00 00 – THERMAL AND MOISTURE PROTECTION

Section: 07 42 13 – Metal Wall Panels

REPORT HOLDER:

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ADDITIONAL LISTEE:

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REPORT SUBJECT:

Aluma-Kor® PE Core and FR Core Metal Composite Material (MCM) Panels

ADDITIONAL LISTEE SUBJECT:

BOLLIYA® Architectural Aluminum Composite Panels

1.0 SCOPE OF EVALUATION

This Research Report addresses compliance with the following Codes:

- 2015, 2012, and 2009 *International Building Code*® (IBC)

Aluma-Kor® PE and FR MCM panels have been evaluated for the following properties:

- Structural
- Interior Finish Classification
- Durability

See Table in Section 2.0 for applicable Code sections related to these properties.

NOTE: This report reference 2015 Code sections with [2012 and 2009] Code sections shown in brackets where they differ.

2.0 USES

Aluma-Kor® PE and FR MCM panels are aluminum composite panels complying with IBC Section 1407 for metal composite materials (MCM) and are used as non-load-bearing exterior wall panels in accordance with Section 1407 of IBC. Additionally the panels are used as an interior wall finish in accordance with Section 803 of the IBC. For installation on exterior walls of Type I, II, III, or IV construction, the panels must be installed as a component of exterior wall assemblies constructed in accordance with Section 4.4 of this report.

The MCM panels have been evaluated for the following properties:

PROPERTY	IBC SECTION ¹
Physical Properties	803 and 1407
Wind Loads	1609

¹ Referenced sections apply to 2015, 2012, and 2009 IBC

3.0 DESCRIPTION

3.1 Panels:

Aluma-Kor® PE MCM panels consist of two nominal 0.020 inch thick aluminum skins, bonded to both surfaces of an LDPE core. The panels are available in two overall panel thicknesses, 0.157 inch (4 mm) and 0.236 inch (6 mm). The core material has a nominal density of 75 lb/ft³ (1200 kg/m³). The aluminum skins are available in fluorocarbon paint and polyester paint finish.

Aluma-Kor® FR MCM panels consist of two nominal 0.020 inch thick aluminum skins, bonded to both surfaces of an LDPE and Mg (OH)₂ mixed core. The panels are available in two overall panel thicknesses, 0.157 inch (4 mm) and 0.236 inch (6 mm). The core material has a nominal density of 100 lb/ft³ (1600 kg/m³). The aluminum skins are available in fluorocarbon paint and polyester paint finish.



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The Aluma-Kor® panels are available in widths from 36 inches to 62 inches (914 mm to 1575 mm) and in lengths from 2 feet to 42 feet, 8 inches (2.44 m to 13.0 m).

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

Aluma-Kor® PE Core and FR Core Metal Composite Material (MCM) Panels are also labeled for Guangdong Bolliya Metal Building Material Co., Ltd. as BOLLIYA® Architectural Aluminum Composite Panels.

3.2 Panel Stiffeners and Attachment Accessories:

Installation of the panels requires the following materials that are supplied by the MCM systems fabricator in a dry-seal system:

- Continuous I-shaped extruded aluminum stiffeners #12324PS (see Figure 2)
- Extruded aluminum clips #12322RS (see Figure 2)
- Extruded aluminum frame #12323RS (see Figure 2)
- #10 x 1-1/2 inch self-drilling screws with hex washer head (see Figure 3)
- #8 self-drilling screws, hex washer head, 300 series stainless steel, inorganic coating (see Figure 1)
- 3/16 inch x 3/8 inch CSK aluminum rivet (see Figure 1)

4.0 DESIGN AND INSTALLATION

4.1 General:

If there are any conflicts between this report and the manufacturer's installation instructions, this report governs. 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 at all times during installation.

4.2 Design:

The maximum allowable transverse loads for the panels installed in accordance with this report are as follows:

- 4 mm Aluma-Kor® and BOLLIYA® PE core panel: 30 psf positive and 17.5 psf negative
- 6 mm Aluma-Kor® and BOLLIYA® PE core panel: 33 psf positive and 17.5 psf negative
- 4 mm Aluma-Kor® and BOLLIYA® FR core panel: 32 psf positive and 17.5 psf negative
- 6 mm Aluma-Kor® and BOLLIYA® FR core panel: 35 psf positive and 17.5 psf negative

4.3 Installation (Rout-and-return, Dry-set Method):

The rout-and-return assembly consists of flat panels formed into shallow "pans" by means of routing a groove in the back face of the panel, along each panel edge, and mechanically folding all four edges. Additionally, the system's fabricator must install I-shaped extruded aluminum stiffeners (#12324PS) on the back of the panels, running the full panel width, parallel to the panel span at a maximum spacing of 23 inches (590 mm) on center. The stiffeners are also attached at each end to the frame extrusion. The stiffeners must be adhered to the panels using an approved structural silicone sealant/adhesive complying with ASTM C1184. The panel length measured in the direction parallel to the stiffeners shall not exceed 5 feet (1.52 m). See Figure 1.

The assembly system A1000 Dry-Seal Series is the method of attachment. See Figures 1 and 3.

4.4 Exterior Walls of Buildings of Type I, II, III, or IV Construction:

Where exterior walls are required to be non-combustible construction, installation is limited to a maximum height of 40 feet above the grade plane, under the limitations specified in IBC Section 1407.11.1.

4.5 Interior Wall Covering:

The 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 4.3 above. The panels have a Class A interior finish classification.

5.0 CONDITIONS OF USE

The panels described in this Research Report comply with, or are suitable alternatives to, what is specified in those Codes listed in Sections 1.0 and 2.0 of this report, subject to the following conditions:

5.1 Installation must comply with this Research 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 The design of the structural support system (building framing, panel mounting hardware, attachment accessories, and silicone adhesive) and panels' connections to their supporting mounting bars, provided by the MCM system's fabricator, must be submitted to and approved by the Code official for each project.

5.3 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 Chapter 16 of the IBC. Allowable transverse loads for the MCM materials are set forth in Section 4.2 of this report.

5.4 The MCM system's fabricator must provide a certificate of compliance to the Code official attesting that the MCM system fabrication includes the use of adhesive 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, should the use of adhesives extend beyond the installation of stiffeners to the back of the panels for the purpose of increasing panel stiffness only, special inspections are required in accordance with IBC Section 1704.2, or the fabricator must be approved by the Code official in accordance with IBC Section 1704.2.5.

5.5 Where the panels are installed on exterior walls on buildings of Type I, II, III, and IV construction, the walls must be constructed in accordance with Section 4.4 of this report.

5.6 Evidence of weather tightness of the wall cladding system in accordance with IBC Section 1407.6 must be submitted to the Code official.

5.7 The panels are manufactured in Guangdong, China, under a quality control program with inspections by Intertek Testing Services NA Inc. (AA-647).

6.0 SUPPORTING EVIDENCE

6.1 Data in accordance with ICC-ES Acceptance Criteria for Metal Composite Material (AC 25), dated October 2010 (editorially revised November 2015).

6.2 Intertek Listing Report titled "[Rollfab Metal Products LLC-Aluma-Kor® MCM Panels](#)".

7.0 IDENTIFICATION

The panels are imprinted with the company name (Rollfab Metal Products), the product name, the thickness, the flame-spread and smoke developed indices, the Intertek Mark, and the Code Compliance Research Report number (CCRR-1061).

8.0 OTHER CODES

This section is not applicable.

9.0 CODE COMPLIANCE RESEARCH REPORT USE

9.1 Approval of building products and/or materials can only be granted by a building official having legal authority in the specific jurisdiction where approval is sought.

9.2 Code Compliance Research Reports shall not be used in any manner that implies an endorsement of the product by Intertek.

9.3 Reference to the <https://bpdirectory.intertek.com> is recommended to ascertain the current version and status of this report.

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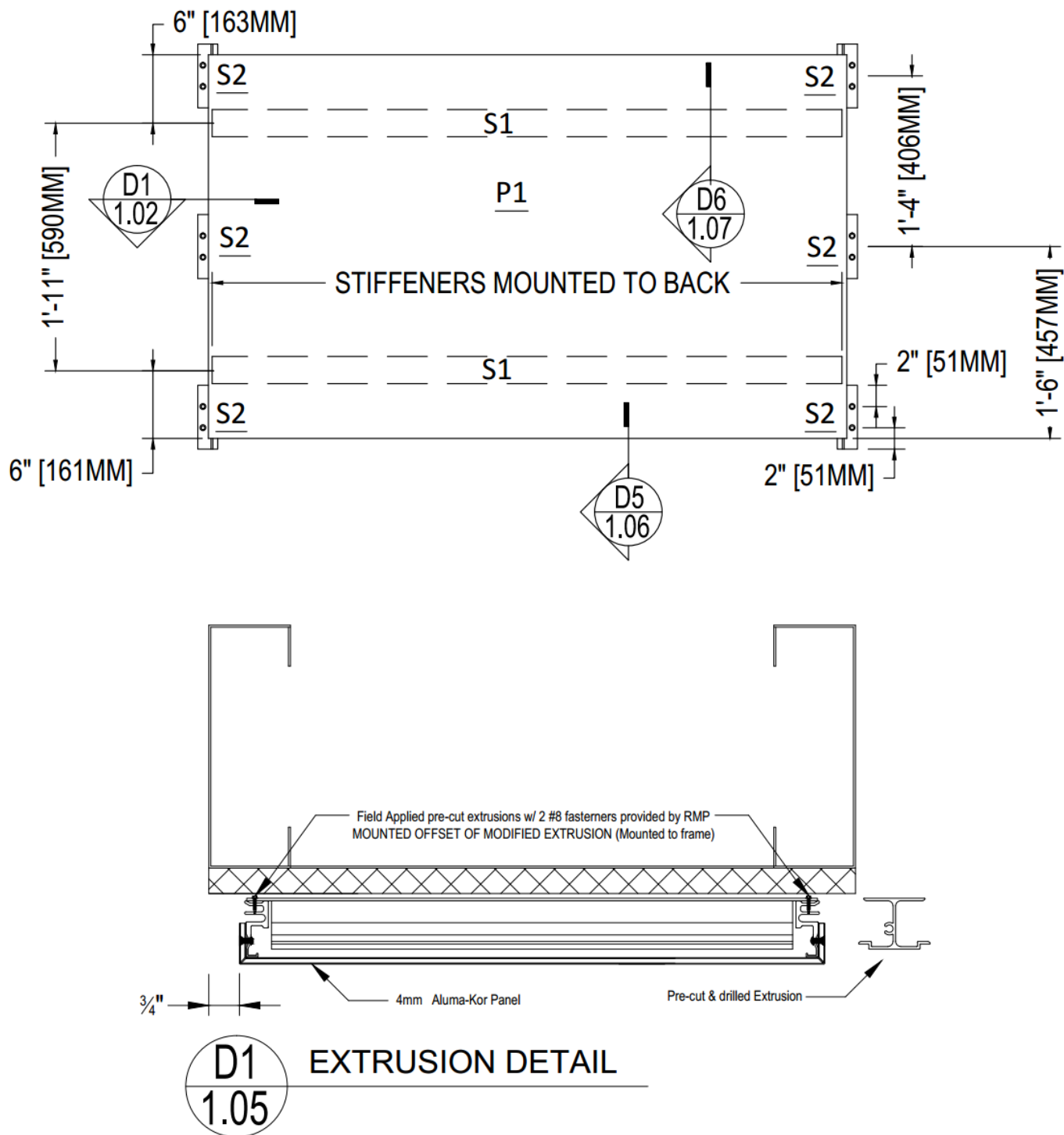


Figure 1 – Assembly

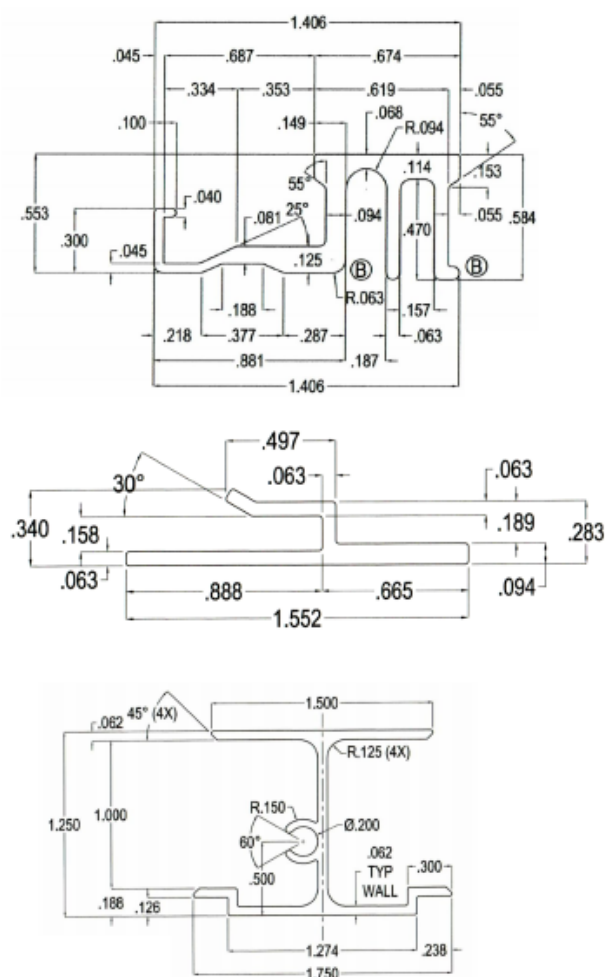
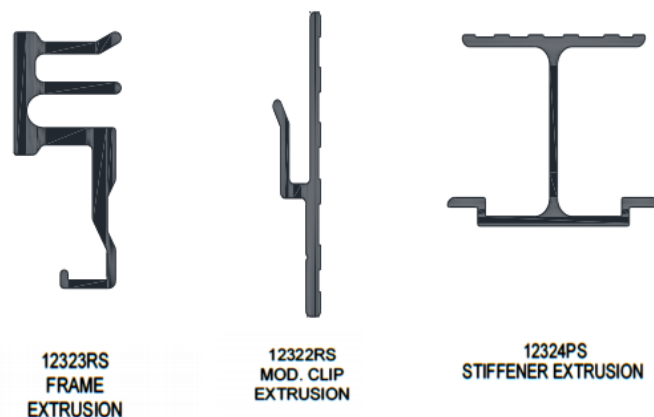


Figure 2 – Stiffeners and Attachment Accessories

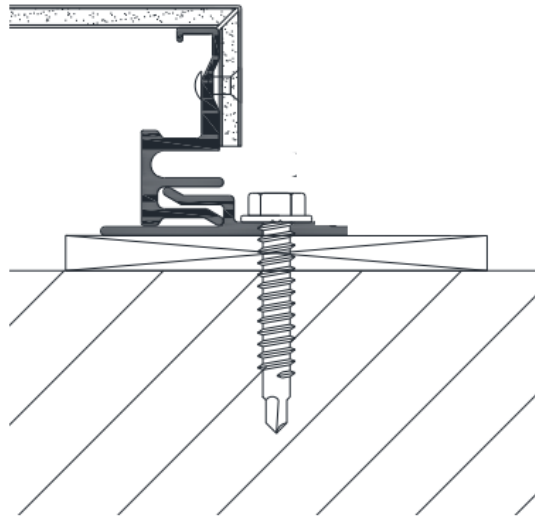


Figure 3 – Attachment Method