

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION

Section: 07 42 43—Composite Wall Panels

REPORT HOLDER:

3A COMPOSITES USA INC.

EVALUATION SUBJECT:

ALUCOBOND® PLUS WALL AND SOFFIT PANELS

1.0 EVALUATION SCOPE

1.1 Compliance with the following codes:

- 2018, 2015, 2012, 2009 and 2006 *International Building Code*® (IBC)

Properties evaluated:

- Fire performance
- Structural
- Interior Finish Classification

1.2 Evaluation to the following green code:

- 2019 California Green Building Standards Code (CALGreen), Title 24, Part 11
- 2015, 2012 and 2008 ICC 700 *National Green Building Standard*™ (ICC 700-2015, ICC 700-2012 and ICC 700-2008)

Attributes verified:

See Section 2.0

2.0 USES

Alucobond® Plus wall and soffit panels are metal composite panels complying with 2018 IBC Section 1406 [2015, 2012, 2009 and 2006 IBC Section 1407] for metal composite materials (MCMs), and are used as nonload-bearing, exterior wall and soffit panels in accordance with Chapter 14 of the IBC; interior wall finish in accordance with Chapter 8 of the IBC; and in various interior applications in covered mall buildings in accordance with Chapter 4 of the IBC as denoted in Sections 5.8 through 5.10 of this report.

The attributes of the Alucobond® Plus wall and soffit 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 700-2015 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 Panel:

Alucobond® Plus wall and soffit panels are aluminum composite wall panels consisting of two nominally 0.020-inch-thick (0.51 mm) aluminum skins, bonded to both surfaces of a nominally 0.12-inch-thick (3.05 mm), extruded polyethylene copolymer (with inorganic fillers), noninsulating core having a nominal density of 112 pcf (1795 kg/m³). The aluminum finish may be painted or anodized. The polyethylene core is extruded continuously and is bonded to the aluminum faces in a continuous process in which the interlock between the aluminum and the polyethylene is achieved by means of a chemical bond.

Alucobond® Plus wall and soffit panels are manufactured in a nominal thickness of 0.16 inch (4 mm) and are available in widths up to 62 inches (1575 mm). Lengths are available up to 25 feet (7620 mm).

Alucobond® Plus wall and soffit panels have a flame-spread index of less than 25 and a smoke-developed index of less than 450 when tested in accordance with ASTM E84, and have a Class A interior finish classification.

3.2 Framing: Installation of the Alucobond® Plus wall and soffit panels requires the following materials that are supplied by the MCM system fabricator for the Rout and Return with Clips, or Continuous Rout and Return Extrusions installation methods:

3.2.1 Rout and Return with Clips: The following materials are used in a rout and return panel installation method (see Figure 2):

- 1-inch-by-1-inch-by-1/8-inch-thick-by-2-inch-long (25.4 mm by 25.4 mm by 3.2 mm by 50.8 mm) extruded aluminum angles to attach the panel to the building structure or framing (see Figure 5).
- I-shaped extruded aluminum reinforcement stiffener (see Figure 2).

3.2.2 Continuous Rout and Return Extrusions: The following materials are used in a continuous rout and return panel installation method (see Figures 3 and 4):

- Continuous rout and return extrusions (see Figures 3 and 4).
- I-shaped extruded aluminum reinforcement (see Figure 3).

- 1¹/₂-inch-by-1¹/₂-inch-by-1¹/₈-inch thick (38.1 mm by 38.1 mm by 3.2 mm) extruded aluminum clips to attach the “I” shaped extruded aluminum reinforcement to the return edge of the panel (see Figure 3).

4.0 DESIGN AND INSTALLATION

4.1 General:

If there are any conflicts between this report and the manufacturer’s installation instructions, this report shall govern. 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 at all times on the jobsite during installation.

The panels are attached to the exterior building walls and soffits by use of attachment accessories installed on the panels by the MCM systems fabricator at the time of panel fabrication. There is one basic type of attachment accessory used with the Alucobond® Plus panels: it is the “rout-and-return” method of attachment, as described in Sections 4.3.1 and 4.3.2.

4.2 Design:

The maximum allowable component and cladding design wind load pressure for the Alucobond® Plus panels installed in accordance with this report is 33.3 psf (1.6 kPa) positive and 50.0 psf (2.4 kPa) negative. Support framing, such as wall studs, must be designed in accordance with the applicable code to be adequate for these loadings.

4.3 Installation:

The MCM system must be fabricated in a shop by an MCM systems fabricator. Such fabrication involves cutting and forming the panels as well as installing panel stiffeners and other attachment accessories as needed to attach the panels to the exterior of the building in the field. The two basic types of attachment are the rout-and-return and the continuous rout and return extrusion method of support described in Sections 4.3.1 and 4.3.2.

4.3.1 Rout and Return Installation: The rout and return method of attachment is based on routing the panels around their entire perimeter with a V-groove router, leaving only the face sheet uncut at the base of the groove along all edges. The panels are then folded at a right angle to create a return leg at each panel edge, using the facer sheet as a hinge. A 6063-T5 aluminum angle must be attached to the return leg using two No. 12-14 by 3/4-inch-long (19.05 mm), self-drilling, tapping screws. The adjoining angle leg must be attached to the structural wall framing with approved fasteners spaced a maximum of 24 inches (609.6 mm) on center. The Alucobond® Plus panels may be installed in sections not greater than 5 feet (1.5 m) wide when using an I-shaped aluminum stiffener member, as shown in Figure 2, at spacing up to 24 inches (609.6 mm) on center, along the panel length. The stiffeners are attached with two 5000 series aluminum pop rivets, complying with Industrial Fasteners Institute (IFI) Standard 114, at each end of the member to the angle that is attached to the rout and return, and with an approved structural silicone sealant/adhesive (ASTM C1184) between the stiffener and the panel. See Figures 1 through 3 for typical details of the rout and return method of attachment.

4.3.2 Continuous Rout and Return Extrusion Installation: The continuous rout and return method of attachment is based on routing the panels around their entire perimeter with a V-groove router, leaving only the face sheet uncut at the base of the groove along all edges. The panels are then folded at a right angle to create a return leg

at each panel edge, using the facer sheet as a hinge. A continuous rout and return extrusion bar is attached to the return leg. The continuous rout and return extrusion bar must be attached to the structural wall framing on 24-inch (609.6 mm) spacing. The Alucobond® Plus panels may be installed in sections not greater than 5 feet (1.5 m) wide when using an I-shaped aluminum stiffener member, as shown in Figure 3, at spacing up to 24 inches (609.6 mm) on center, along the panel length. The stiffeners are attached with one No. 8 by 1/2-inch, self-tapping hex head screw at each end of the member to the continuous rout and return extrusion bar, and with an approved structural silicone sealant/adhesive (ASTM C1184) between the stiffener and the panel. See Figure 4 for typical details of the continuous rout and return extrusion bar method of attachment.

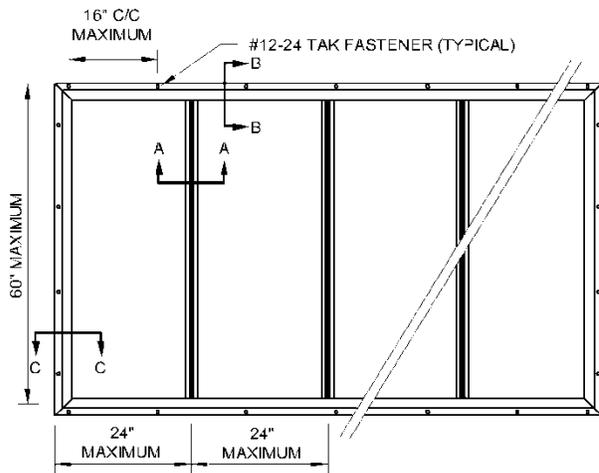
4.3.3 Exterior Walls of Buildings of Type I, II, III or IV Construction: Where exterior walls are required to be Type I, II, III or IV (non-combustible) construction, the interior of the building must be separated from Alucobond® Plus wall panels by one layer of 5/8-inch-thick (15.87 mm), Type X gypsum wallboard and 3 1/2-inch-thick (88.9 mm), R-13, foil-faced fiberglass insulation, as indicated in Figure 4. Also, the floor level cavity at the intersection of the floor slab and the exterior wall framing system must be completely filled with an approved material or system meeting the criteria specified in 2018, 2015 and 2012 IBC Section 715.4, 2009 IBC Section 714.4 or 2006 IBC Section 713.4, as applicable.

5.0 CONDITIONS OF USE

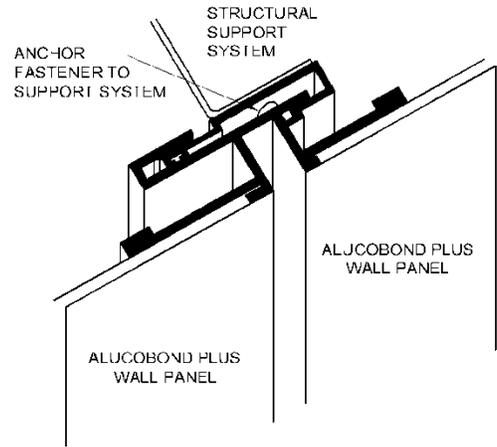
The Alucobond® Plus Wall Panels and Soffit described in this report comply with, or are suitable alternatives to what is specified in, the code indicated in Section 1.0 of this report, subject to the following conditions:

- 5.1** Installation must comply with this report, the manufacturer’s published instructions, the applicable code and the approved plans.
- 5.2** The design of the structural support system (building framing, attachment accessories, silicone sealants/adhesives and panel connections provided by the MCM systems fabricator) and fasteners used to attach the panels to the supports must be submitted to and approved by the code official for each project.
- 5.3** Where exterior walls are required to be noncombustible on buildings of Types I, II, III or IV construction, Alucobond® Plus wall panels may be installed as specified in Section 4.3.3 of this report. Where the panels are elements of a balcony or similar projection, such as architectural trim or embellishments, the panels are not required to be installed as specified in Section 4.3.3 of this report.
- 5.4** The MCM system 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 back of the panel, special inspections are required in accordance with 2018, 2015 and 2012 IBC Section 1704.2.5 [2009 and 2006 IBC Section 1704.2], or the fabricator must be approved by the code official in accordance with 2018 and 2015 IBC Section 1704.2.5.1 [2012 IBC 1704.2.5.2 (2009 and 2006 IBC Section 1704.2.2)], as such operations are outside the scope of this report.

- 5.5** For each project, engineering calculations prepared by a registered design professional confirming the allowable transverse load capacity for the MCM panels and the attachment accessories to the supporting wall or substrate must be submitted to the authority having jurisdiction for review. The allowable transverse load capacity must be equal to or exceed the design loads determined in accordance with Chapter 16 of the IBC. Allowable transverse load capacities are set forth in Section 4.2 of this report.
- 5.6** Where a fire-resistance-rated (one-, two-, three- or four-hour) exterior wall is required by the 2006 IBC, Alucobond® Plus wall panels may be installed as a veneer over the face of the fire-resistance-rated (one-, two-, three- or four-hour) exterior wall construction, but must be more than 5 feet (1524 mm) from an interior lot line or 10 feet (3048 mm) from buildings on the same lot.
- 5.7** Where a fire-resistance-rated (one-, two-, three- or four-hour) exterior wall is required by the 2018, 2015, 2012 and 2009 IBC, Alucobond® Plus wall panels may be installed as a veneer over the face of the fire-resistance-rated (one-, two-, three- or four-hour) exterior wall construction, provided the MCM system is installed on the outer surface of the exterior wall in a manner such that the attachments do not penetrate through the entire exterior wall assembly.
- 5.8** Evidence must be submitted to the code official of weather tightness of the wall cladding system in accordance with Section 1406.6 of the 2018 IBC [Section 1407.6 of the 2015, 2012 and 2009 IBC].
- 5.9** Alucobond® Plus wall panels may be used as interior finish where Class A, B, and C materials are required under Chapter 8 of the IBC.
- 5.10** Alucobond® Plus wall panels may be used as components of kiosks where installed under the limitations specified in Section 402.6.2 of the 2018, 2015 and 2012 IBC [Section 402.11 of the 2009 IBC (Section 402.10 of the 2006 IBC)].
- 5.11** Alucobond® Plus wall panels may be used as components of **children's** playground structures where installed under the limitations of Section 402.6.3 of the 2018, 2015 and 2012 IBC [Section 402.12 of the 2009 IBC (Section 402.11 of the 2006)].
- 5.12** Alucobond® Plus wall panels may be used as plastic panels and signs where installed under the limitations specified in Section 402.6.4 of the 2018, 2015 and 2012 IBC [Section 402.16 of the 2009 IBC (Section 402.15 of the 2006 IBC)].
- 5.13** Alucobond Plus soffit panels must be installed under the limitations of Section 705 of the 2018, 2015, 2012 and 2009 IBC [Section 704 of the 2006 IBC].
- 5.14** The Alucobond® Plus wall panels are produced in Benton, Kentucky, 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** Data in accordance with NFPA 285.
- 7.0 IDENTIFICATION**
- 7.1** The panels are identified by a label noting the name and address of 3A Composites USA, Inc., the product name, the thickness, the flame-spread index, and the evaluation report number (ESR-1185).
- 7.2** The report holder's contact information is the following:
- 3A COMPOSITES USA INC.**
POST OFFICE BOX 507
208 WEST 5TH STREET
BENTON, KENTUCKY 42025-0507
(800) 626-3365
www.3ACompositesUSA.com
infor.usa@3acomposites.com

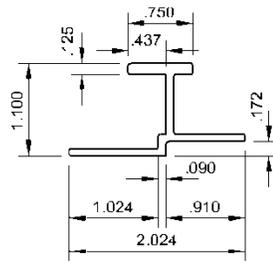


PANEL EXTRUSION LAYOUT

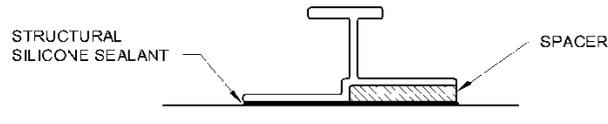


TYPICAL PANEL - PANEL JOINT PROFILE

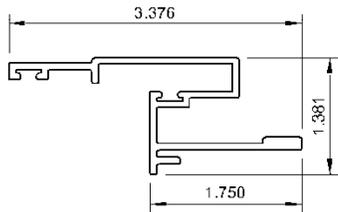
FIGURE 1



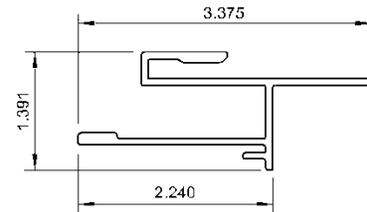
SECTION A-A
INTERMEDIATE STIFFENER PROFILE
(ALL WALLS .063 UNLESS NOTED)



ALUCOBOND PLUS
WALL PANEL

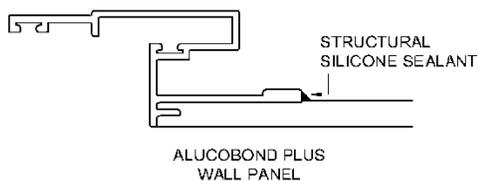


SECTION B-B
FRAME PROFILE
(ALL WALLS .063 UNLESS NOTED)

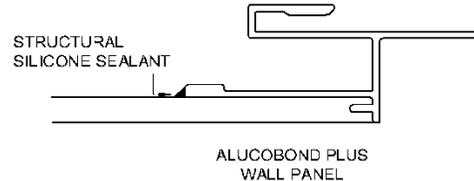


SECTION C-C
FRAME PROFILE
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FIGURE 2

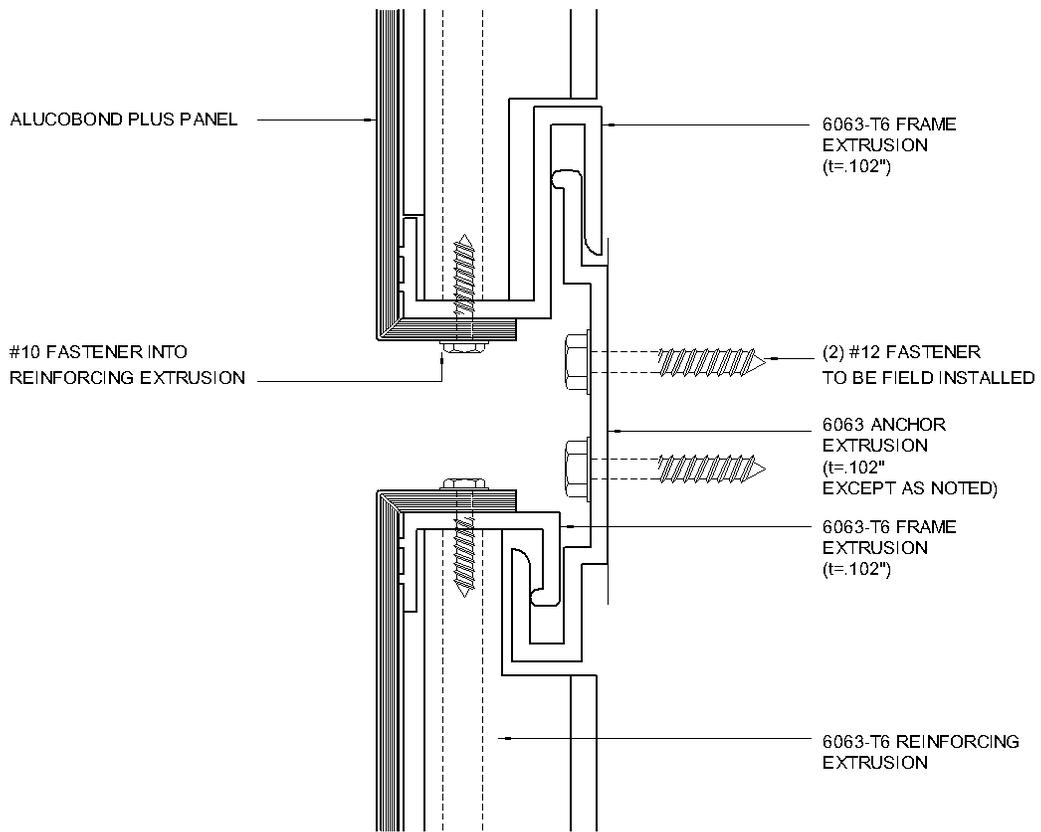


ALUCOBOND PLUS
WALL PANEL

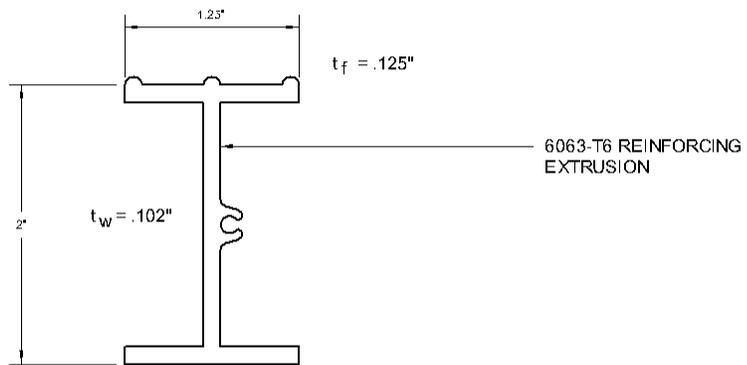


ALUCOBOND PLUS
WALL PANEL

CEG ATTACHMENT SYSTEM



CONNECTION DETAIL



THESE DRAWINGS ARE FOR ILLUSTRATION PURPOSES ONLY. THEY ARE NOT INTENDED FOR USE AS CONSTRUCTION DOCUMENTS FOR THE PURPOSE OF DESIGN, FABRICATION OR ERECTION.

FIGURE 3—REINFORCING EXTRUSION

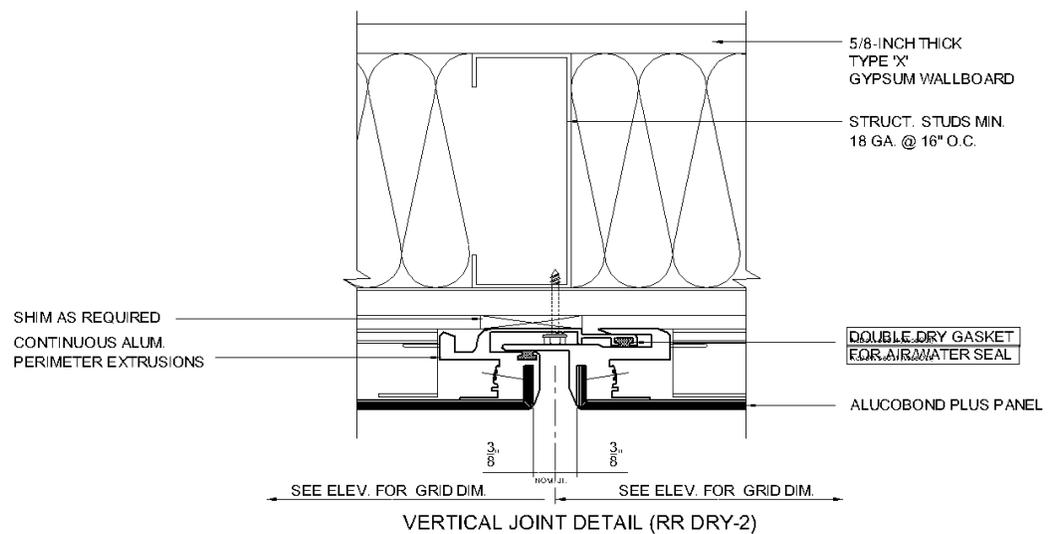
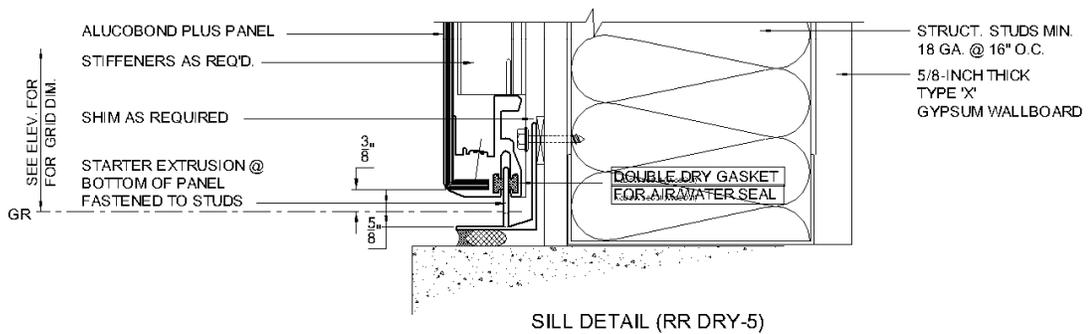
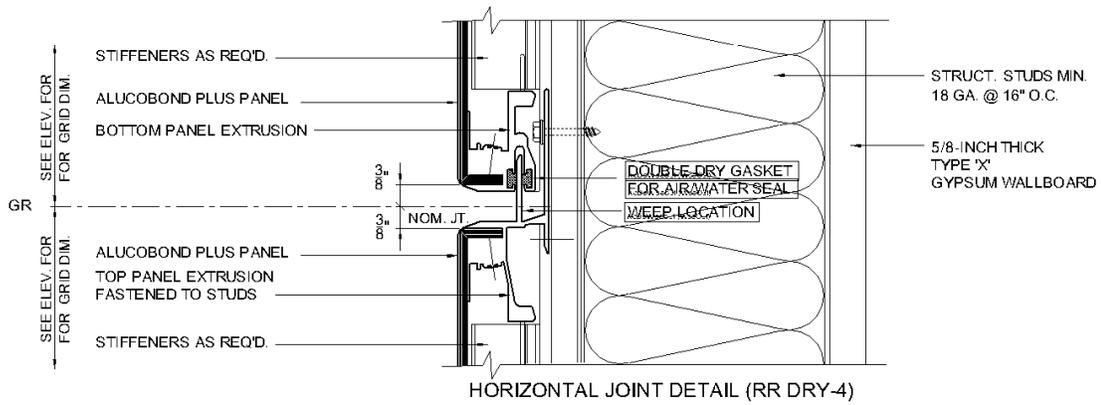
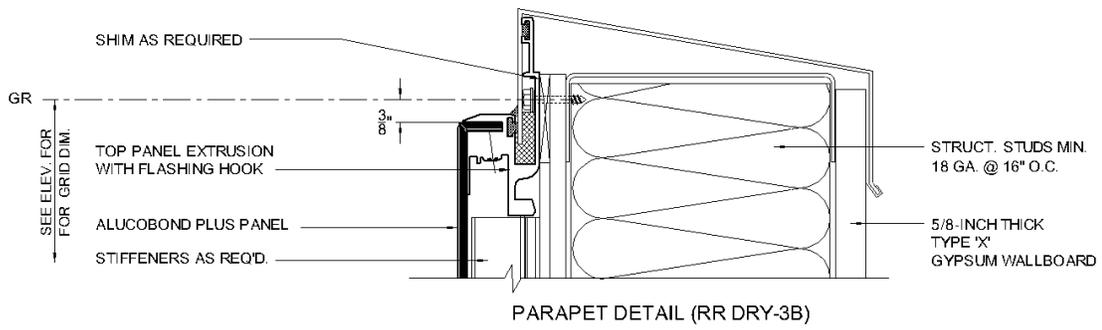


FIGURE 4—DETAILS FOR NONCOMBUSTIBLE ALTERNATIVES – ROUT AND RETURN WITH PERIMETER EXTRUSIONS

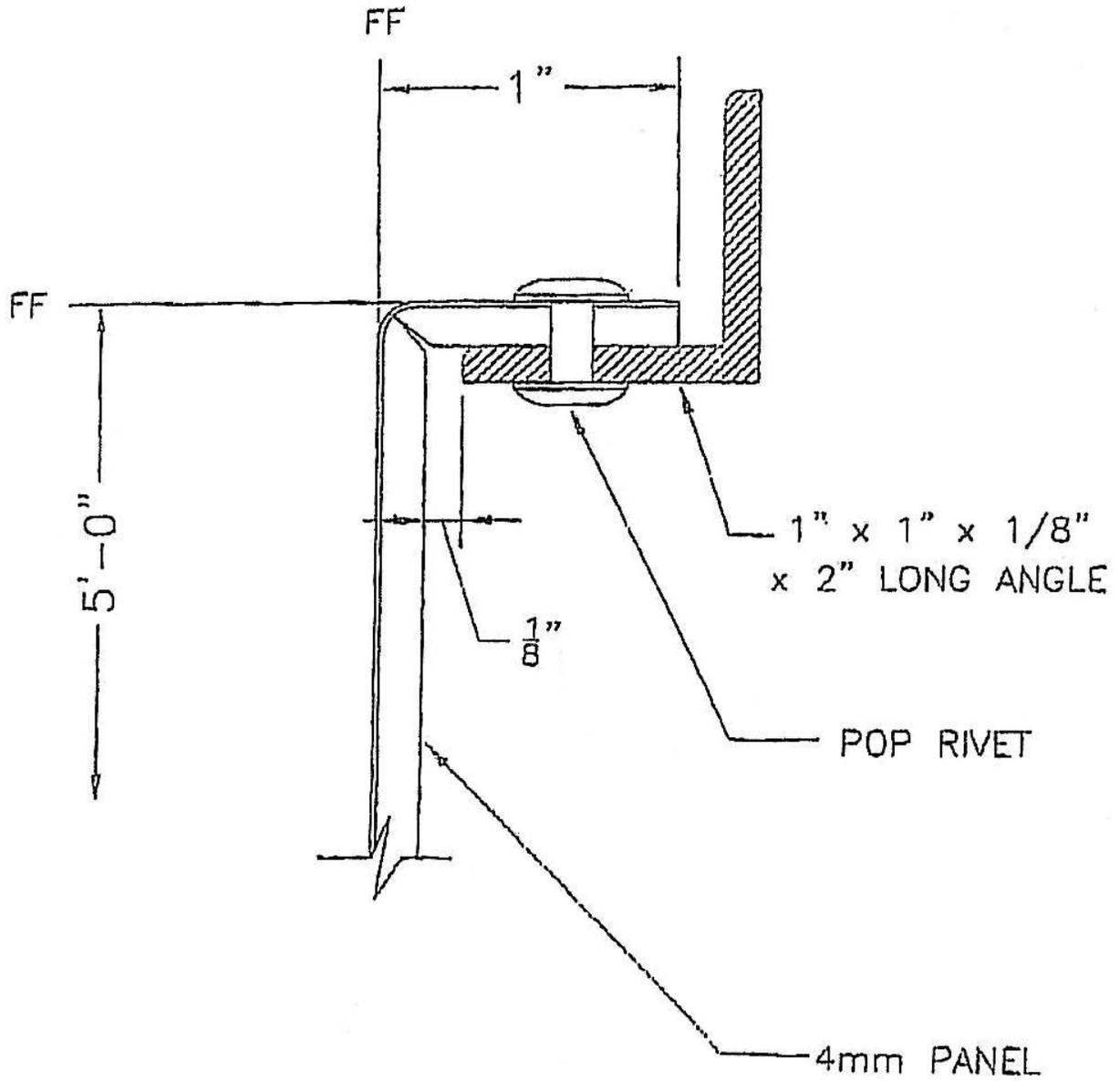


FIGURE 5—ROUT AND RETURN CLIP ATTACHMENT