# VICWEST

ACM Submittal Package

Mercury Panel System
c/w Alpolic and Reynobond options


vicwest

www.vicwest.com

# Title Page

# When you need to make a lasting design statement

As rigid and dependable as heavy gauge steel yet lightweight and flexible, our Architectural panels allow you the freedom to create your vision without compromise.

Enjoy complete design freedom with VICWEST's state of the art composite and solid metal panels. Designed with your no-compromise imagination in mind, our Architectural Panels provide limitless creative solutions for walls, columns, fascias and custom curtain walls.

With its diversity of surface treatment and high strength-to weight ratio, our Architectural Panels offer an unbeatable combination of unlimited flexibility, long-term durability and cost-effectiveness.

## You design WE deliver

At VICWEST, we believe that the inherent limitations of building materials should never stand in the way of an architect of designer's creative visions. That is why develop our products like our customers design their projects: with an eye toward limitless possibilities and maximum efficiency, flexibility and reliability.

From concept to completion, VICWEST delivers what you need, when you need it and where you need it.

vicwest

## Composite Metal Panel - Mercury Metal Panel System

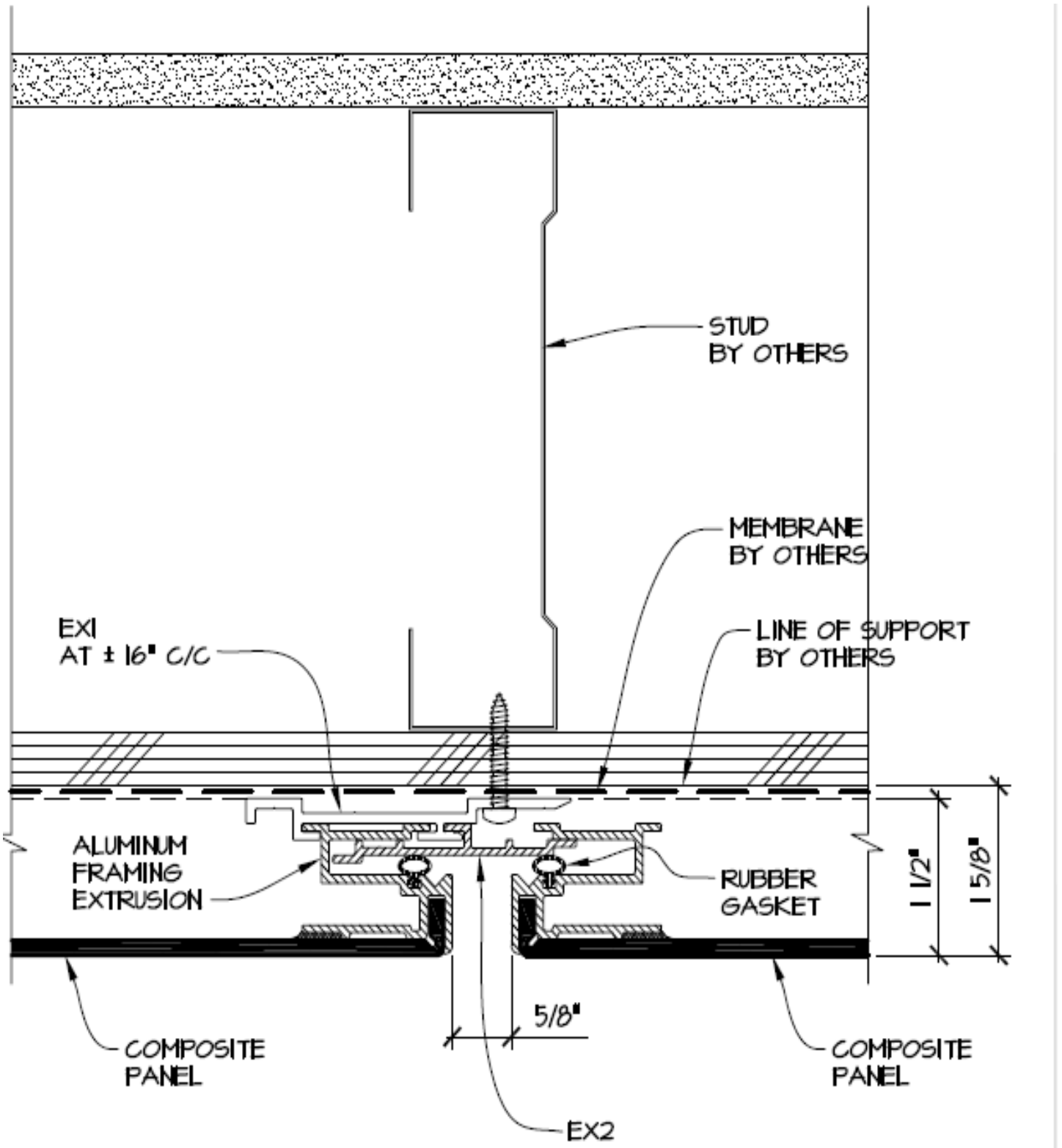



**Figure 1 - Typical Vertcal Joint**

**Composite Metal Panel - Mercury Metal Panel System**

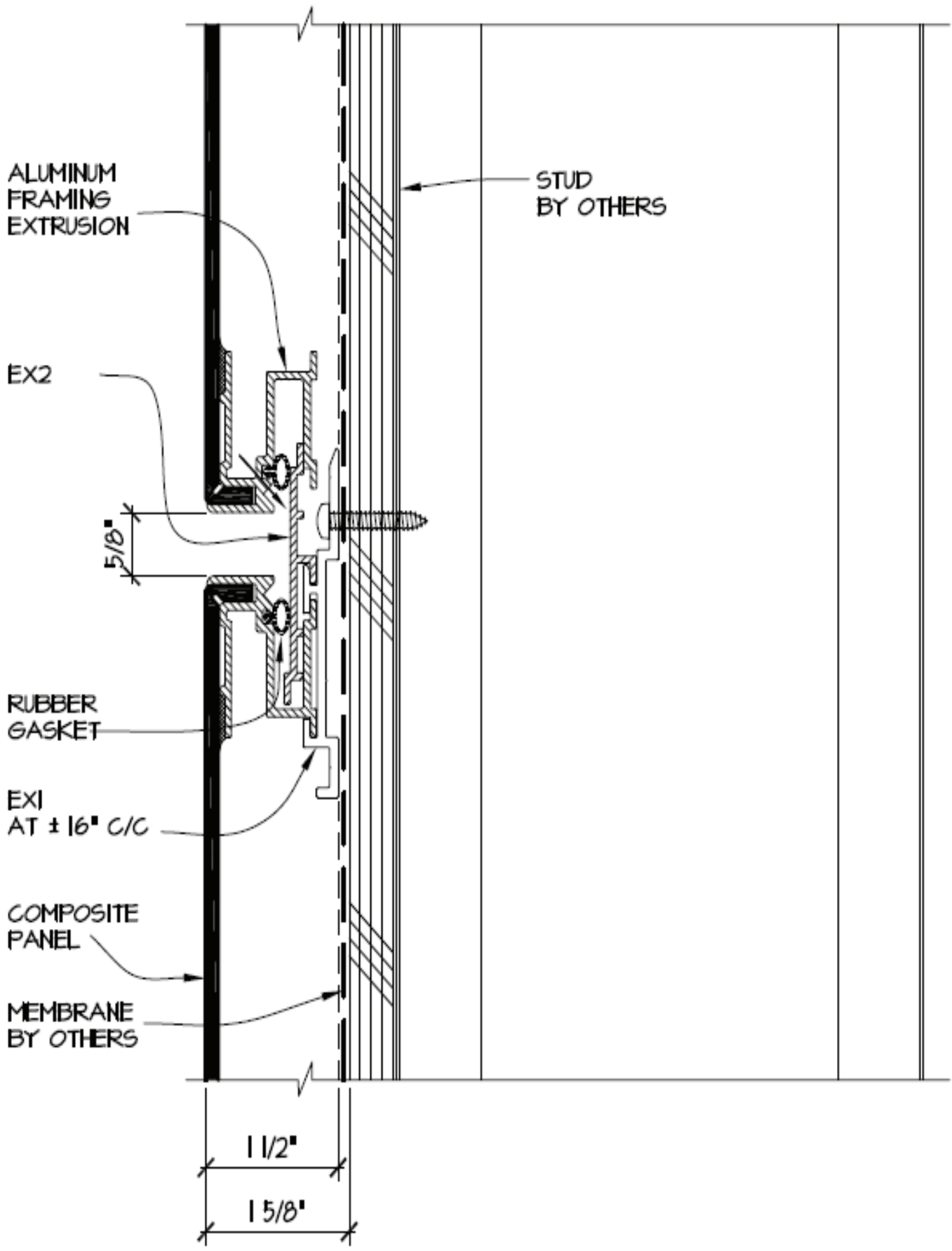



**Figure 2 - Typical Vertcal Joint**

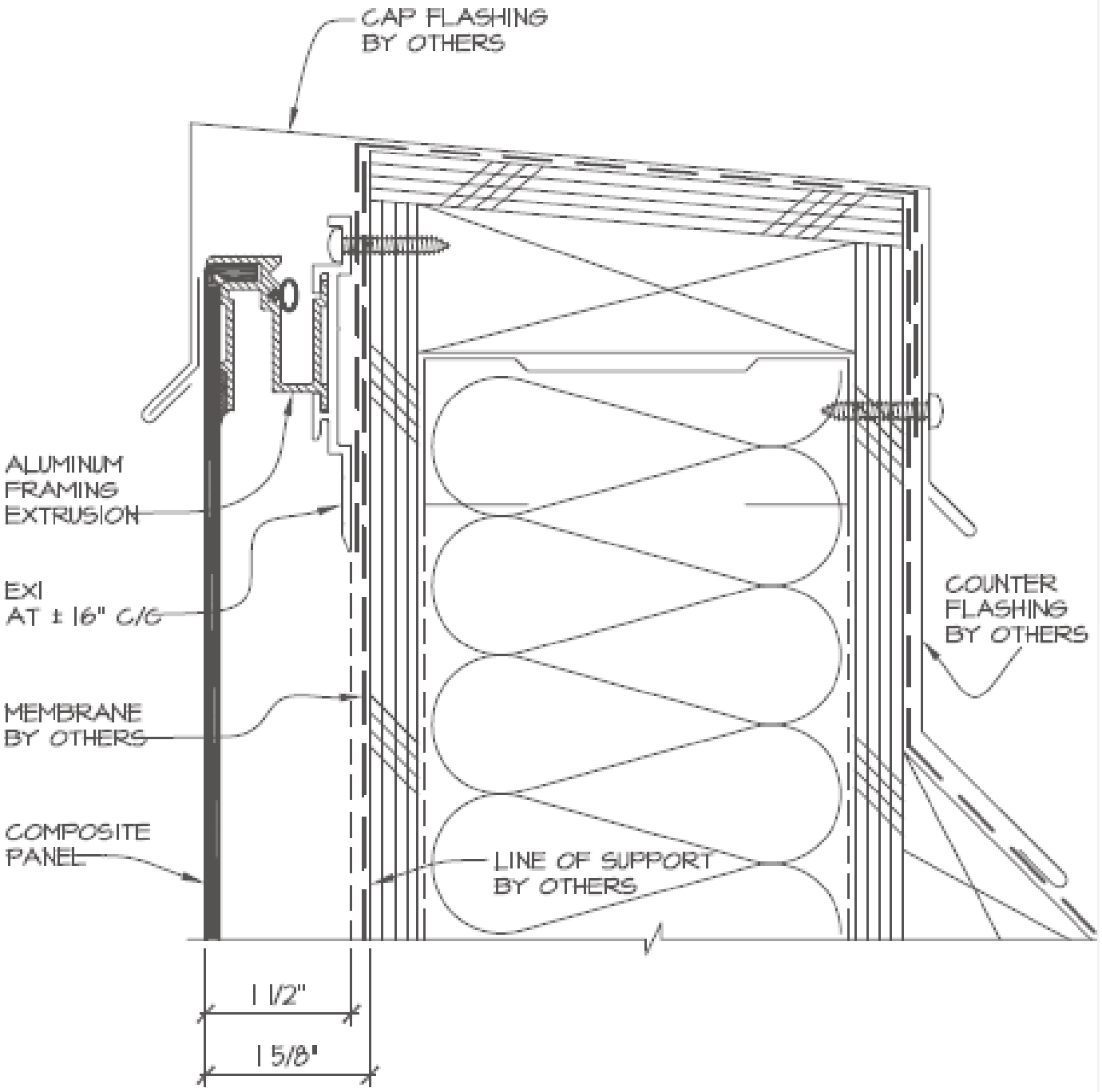



**Figure 3 - Flashed Parapet**

**Composite Metal Panel - Mercury Metal Panel System**

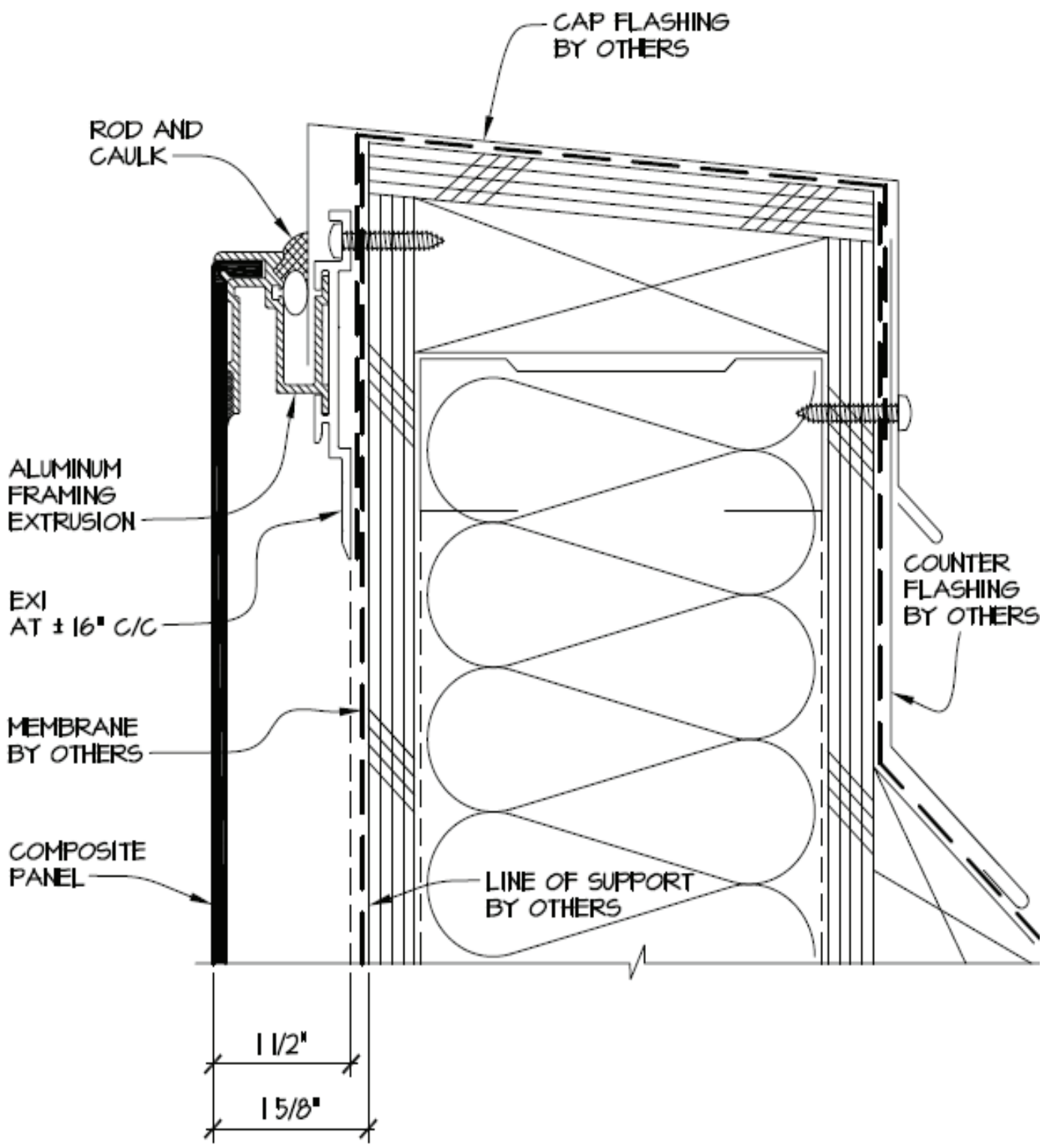



**Figure 4 - Flashed Parapet**

**Composite Metal Panel - Mercury Metal Panel System**

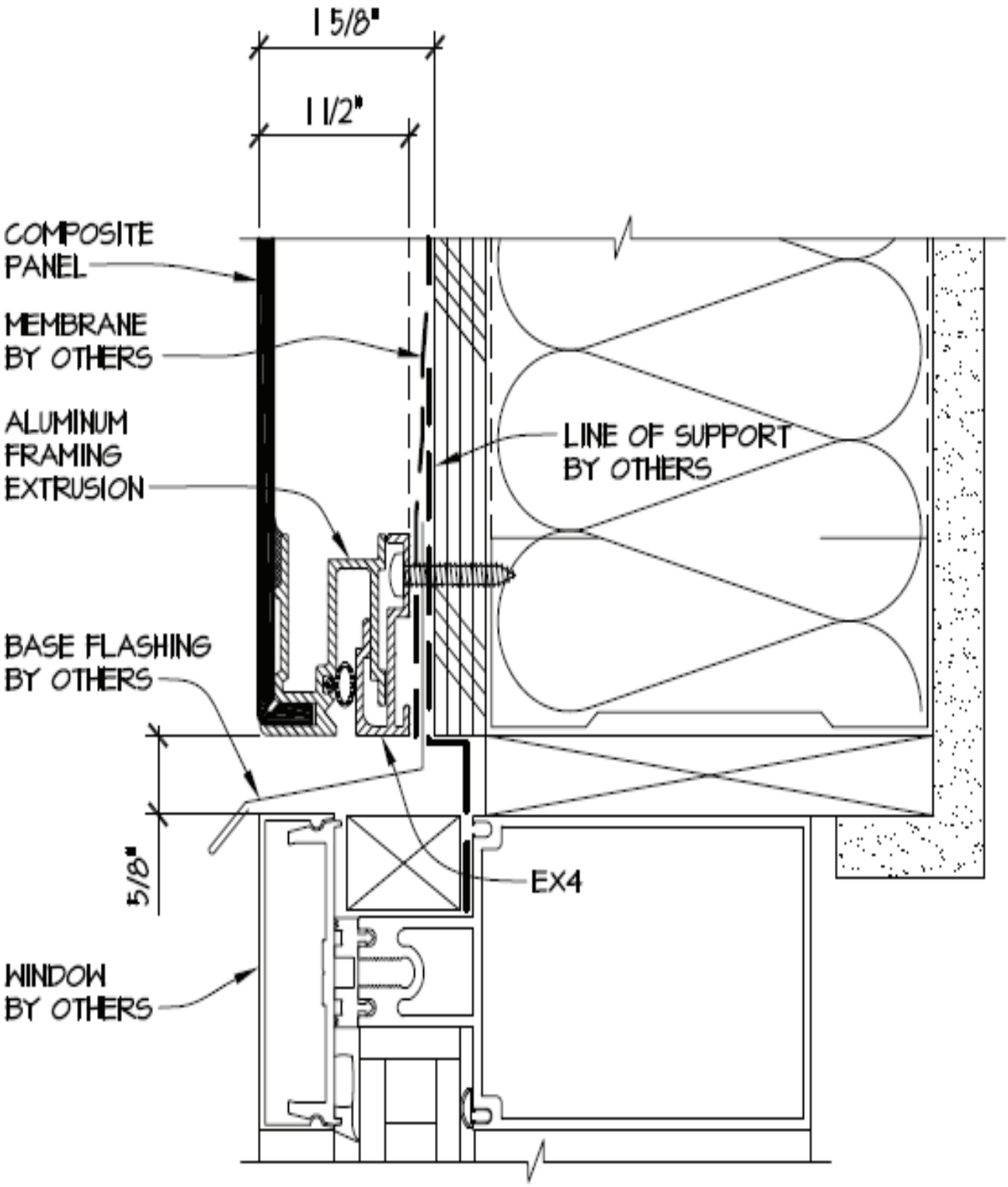



**Figure 5 - Window Head**

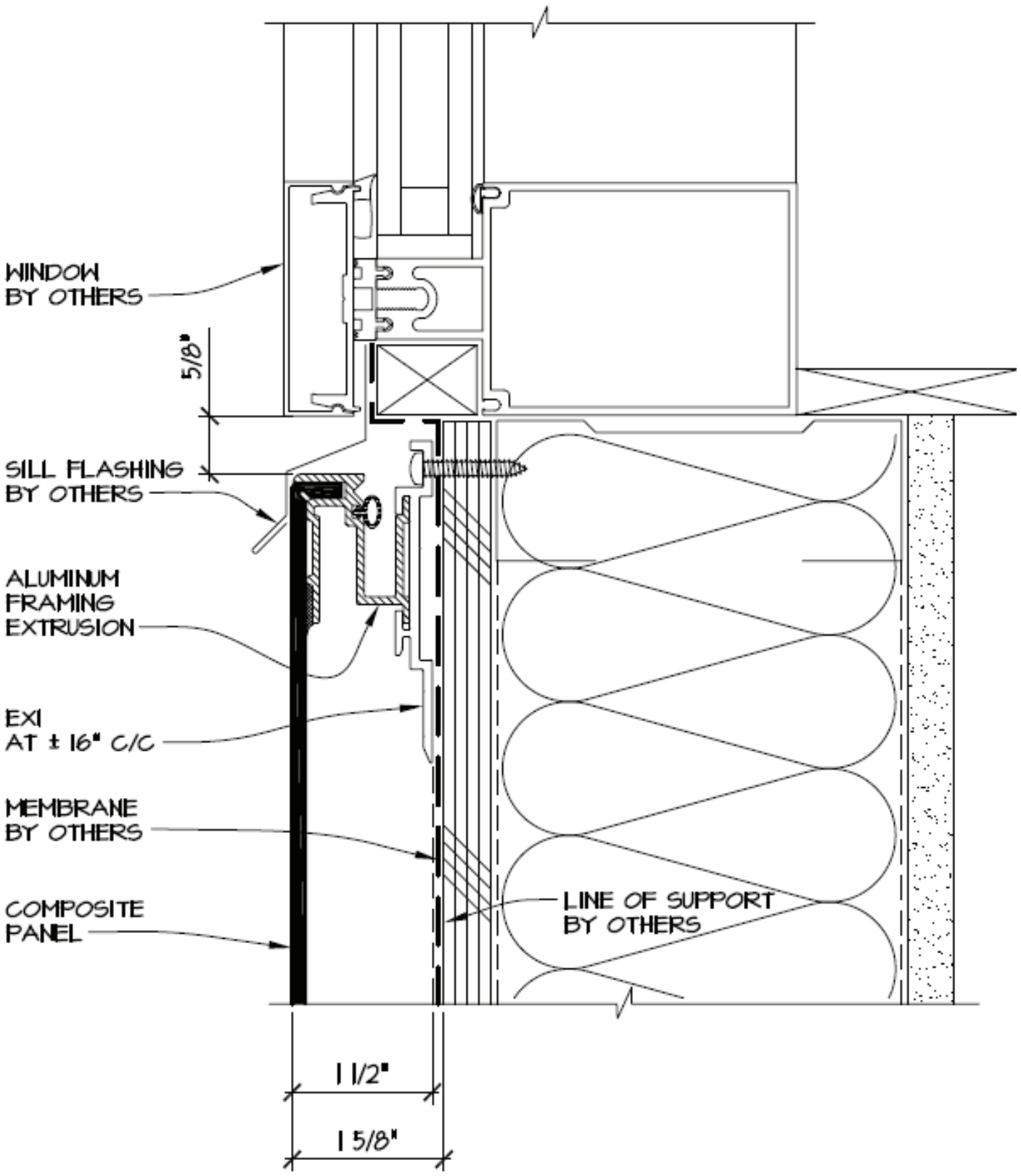



**Figure 6 - Window Sill**

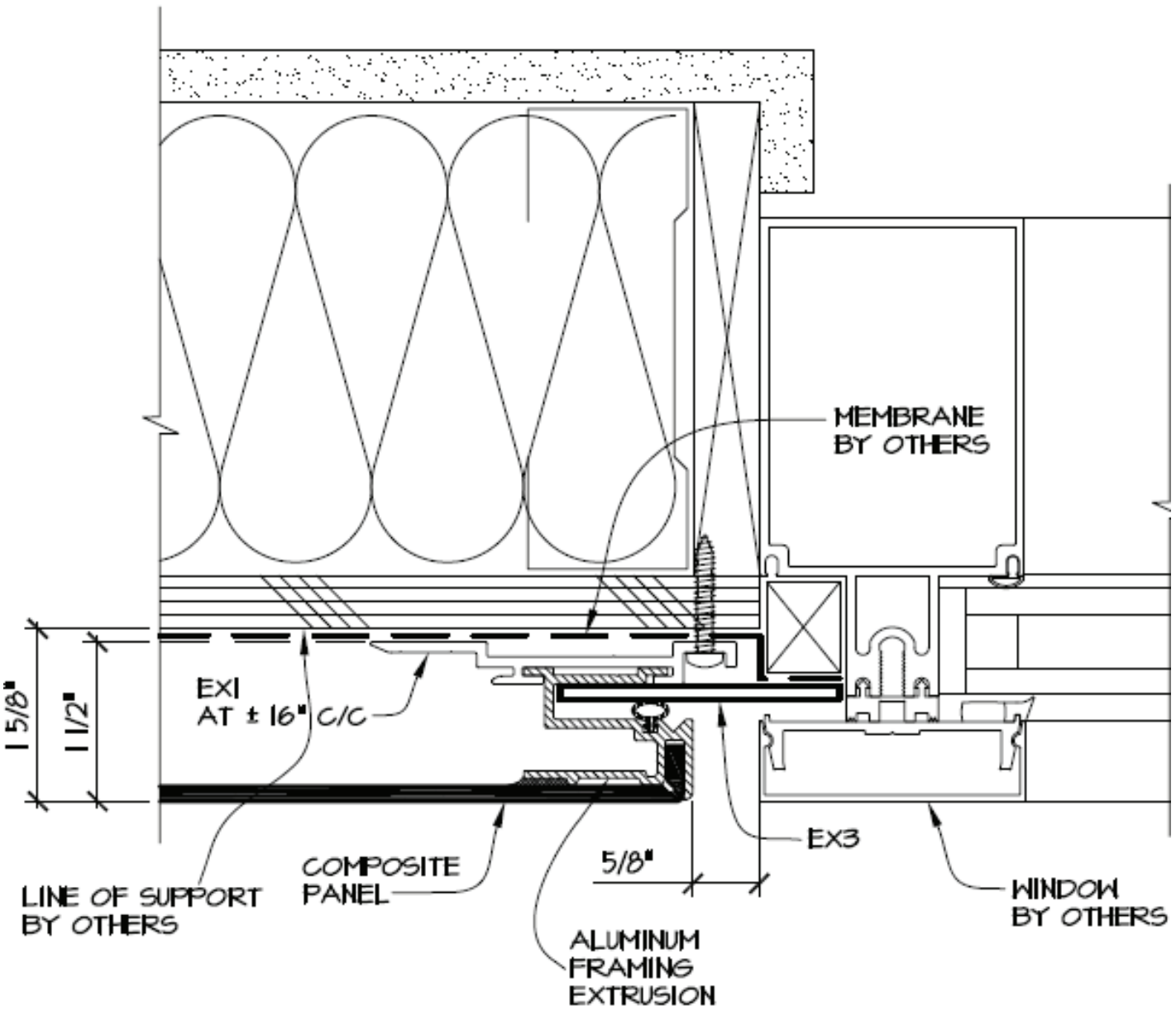



**Figure 7 - Window Jamb**

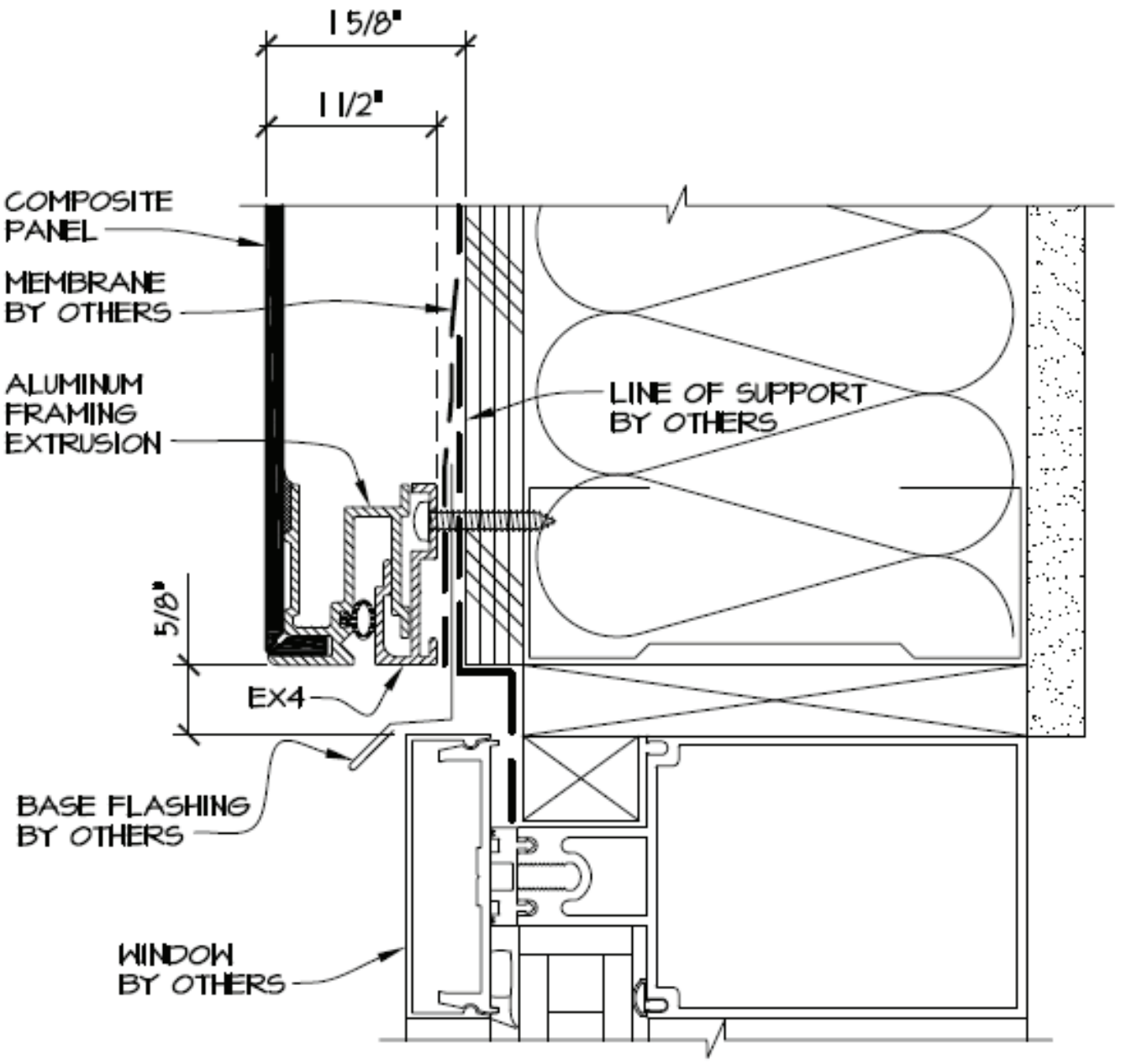



**Figure 8 - Window Head**

## Composite Metal Panel - Mercury Metal Panel System

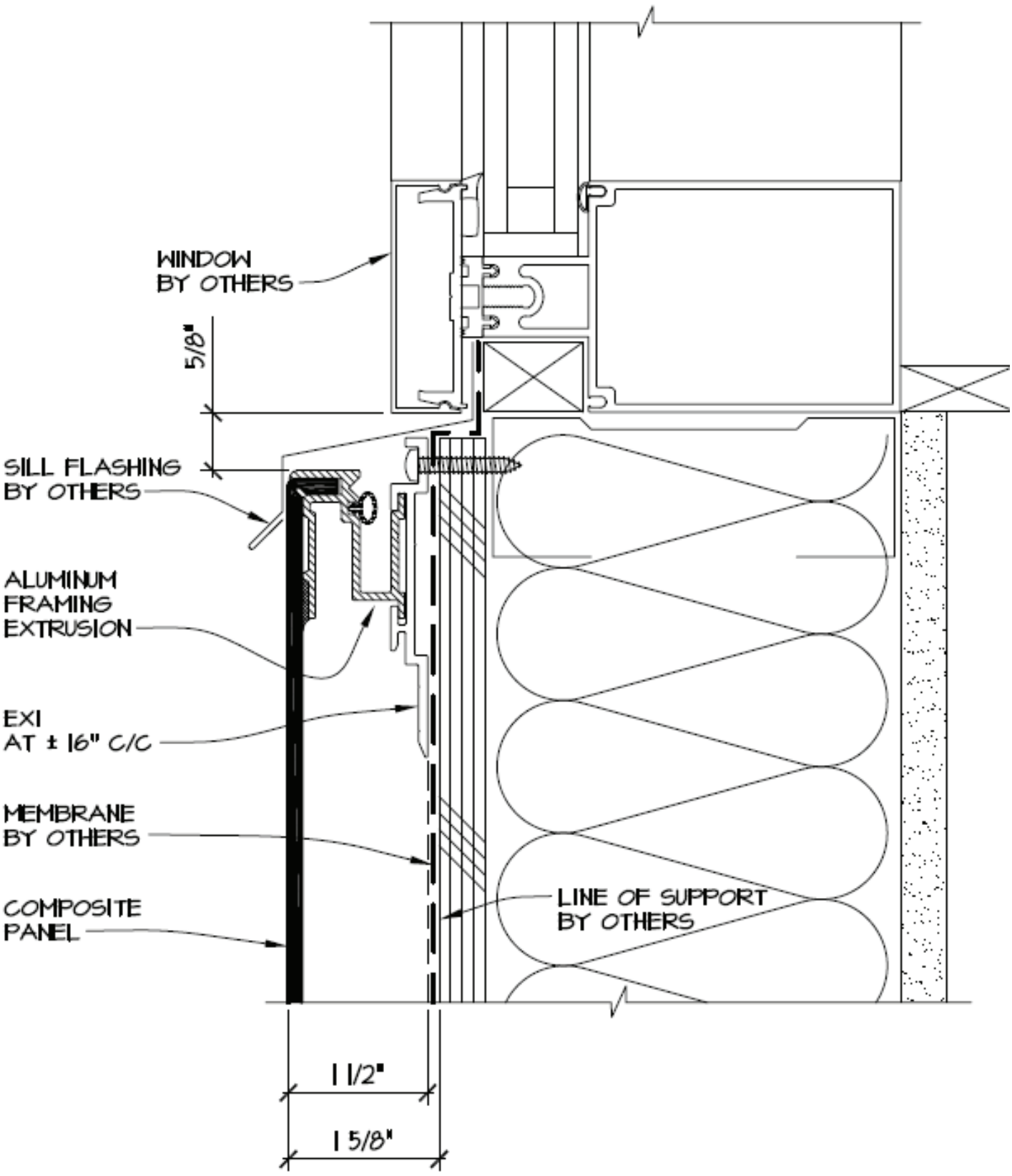



**Figure 9 - Window Sill**

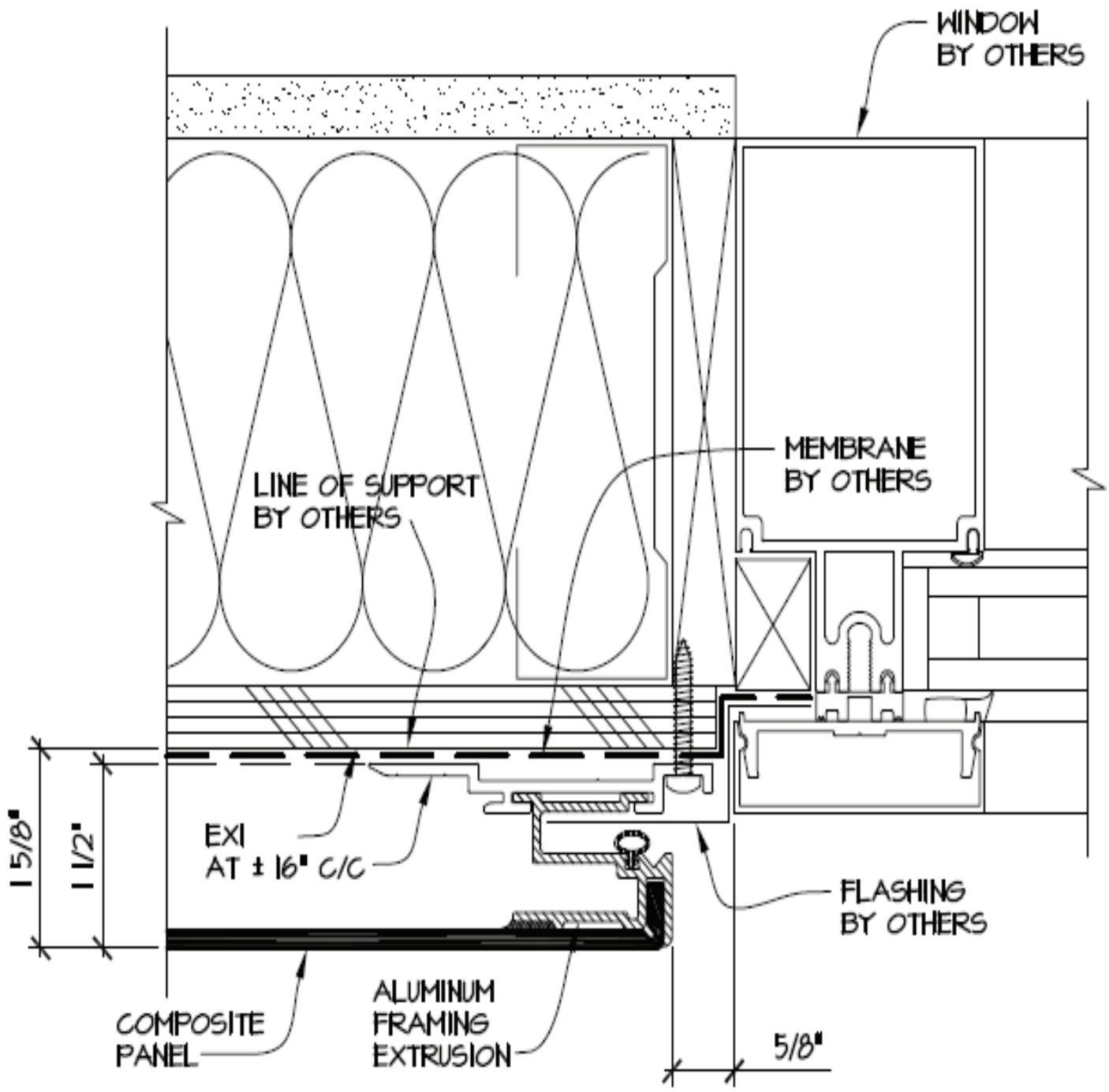



**Figure 10 - Window Jamb**

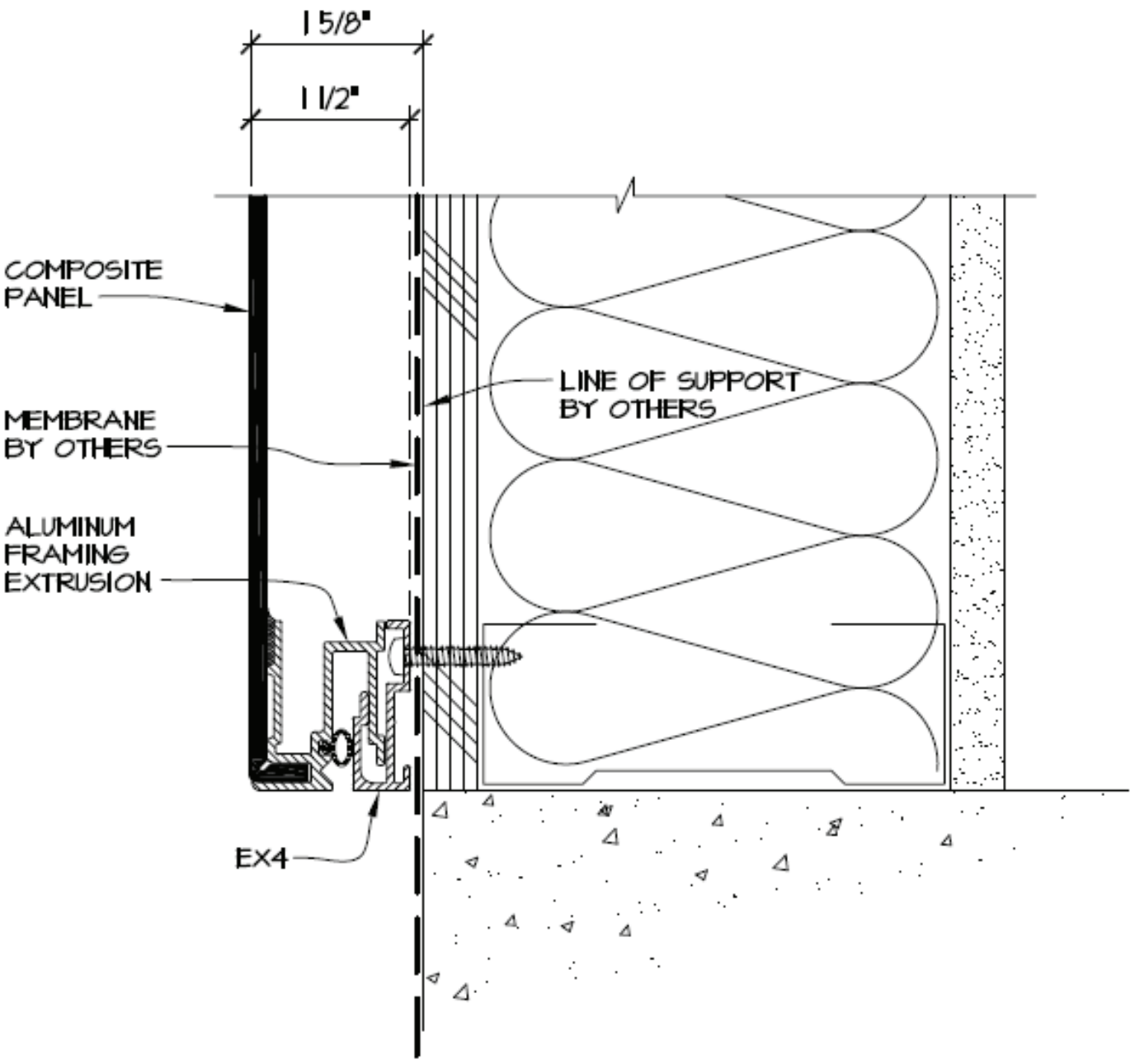



**Figure 11 - Base Detail**

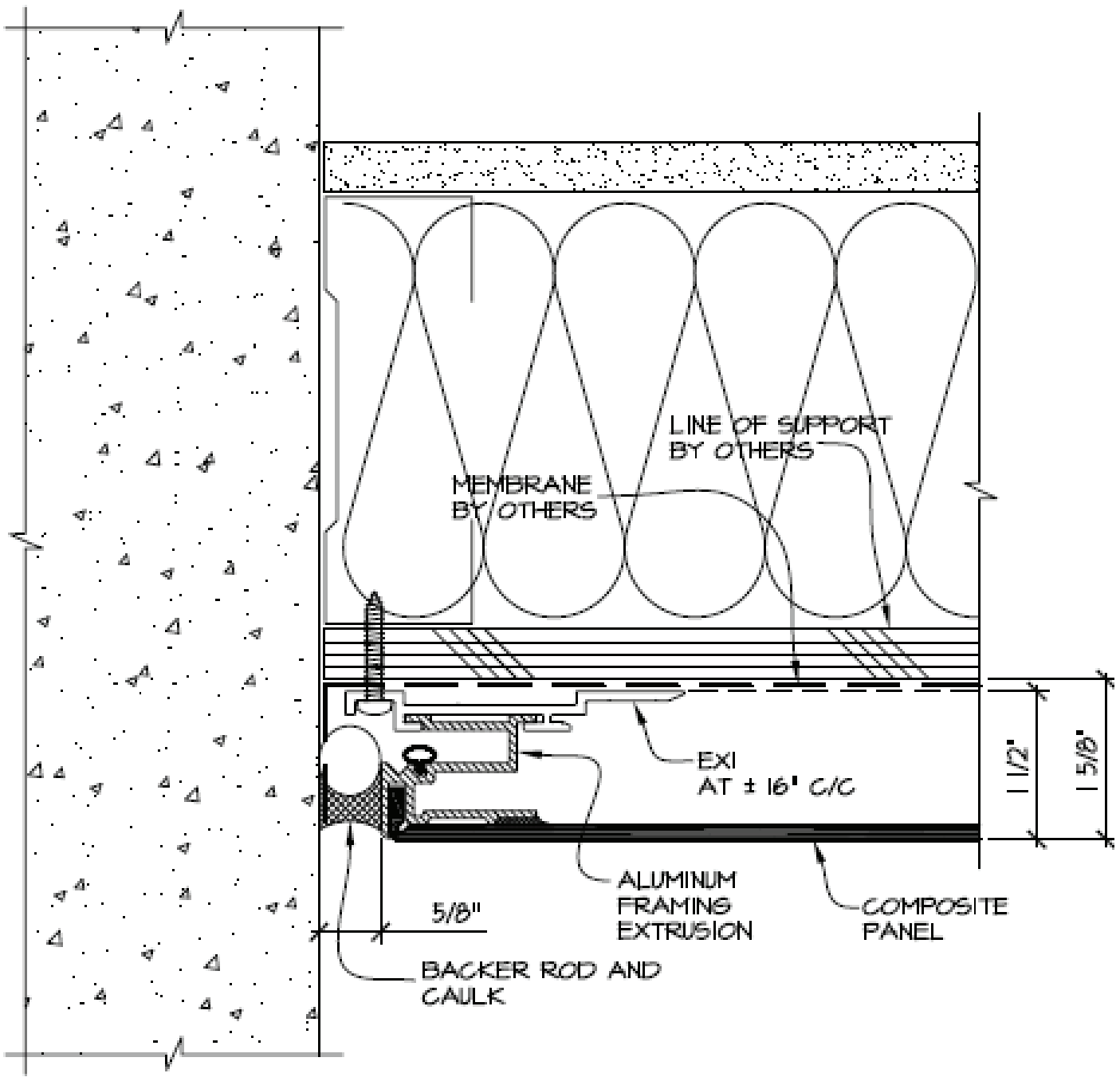



**Figure 12 - End Wall Detail**

## Composite Metal Panel - Mercury Metal Panel System

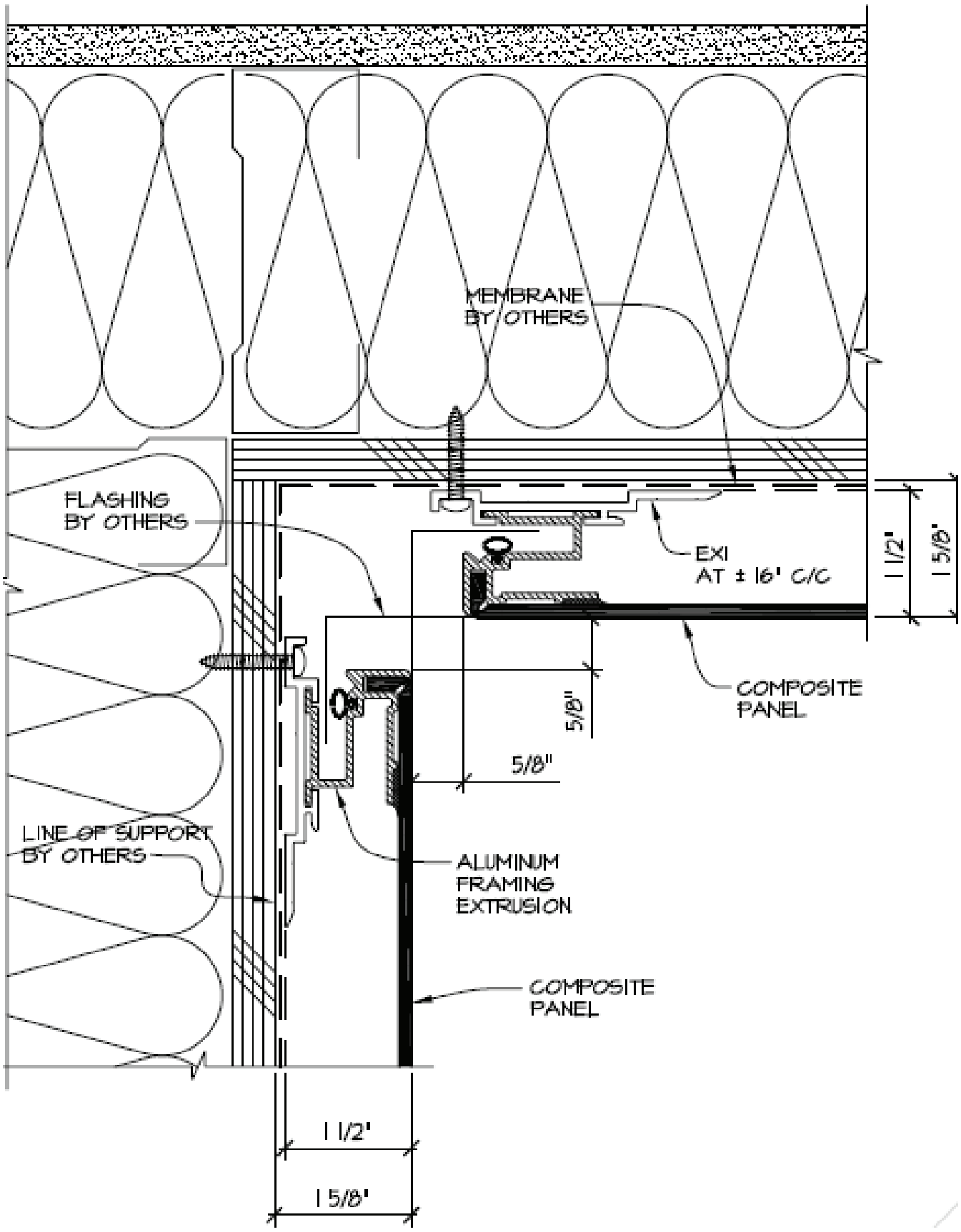



**Figure 13 - Inside Comer**

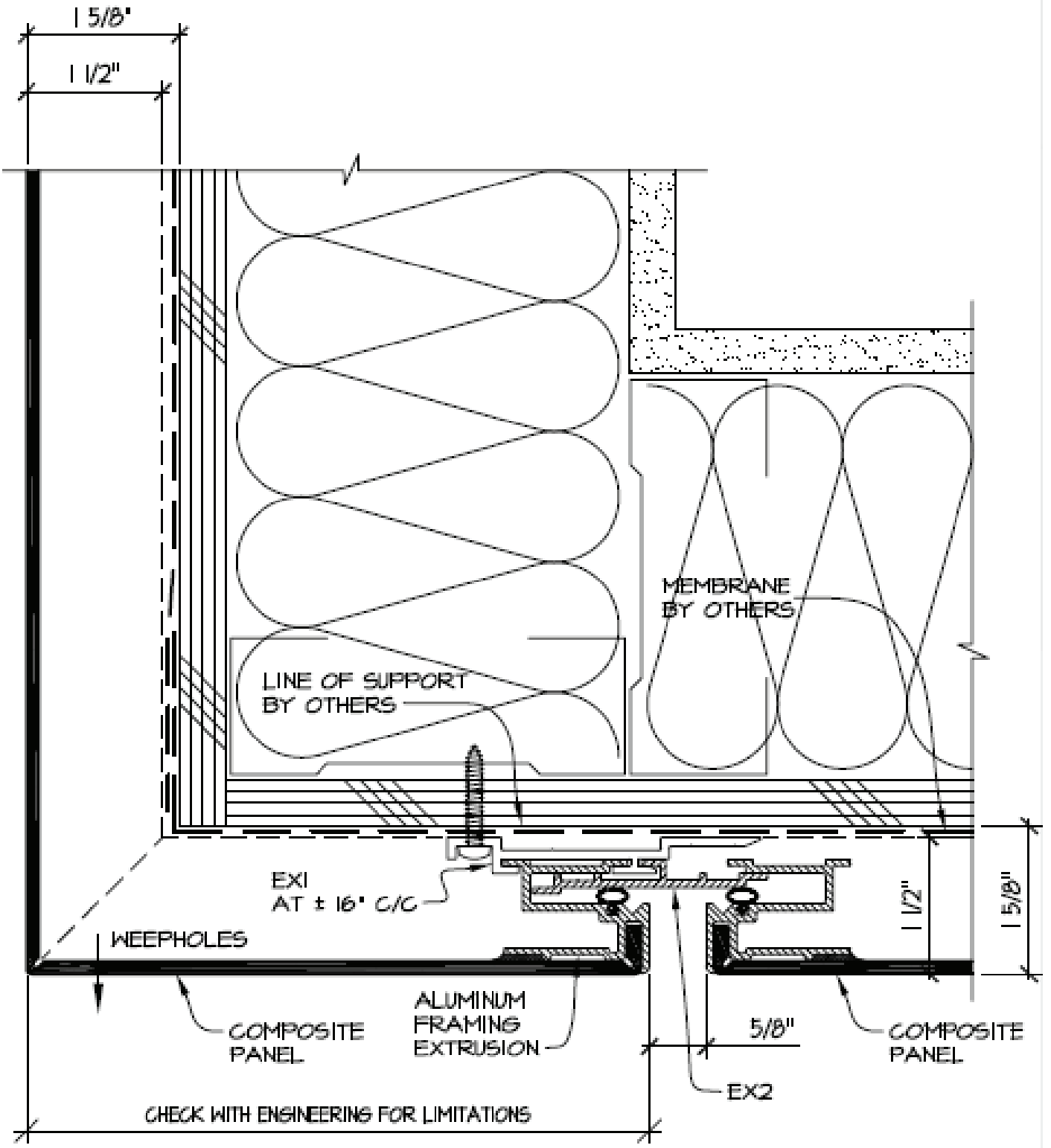



**Figure 14 - Soft Detail**

## Composite Metal Panel - Mercury Metal Panel System

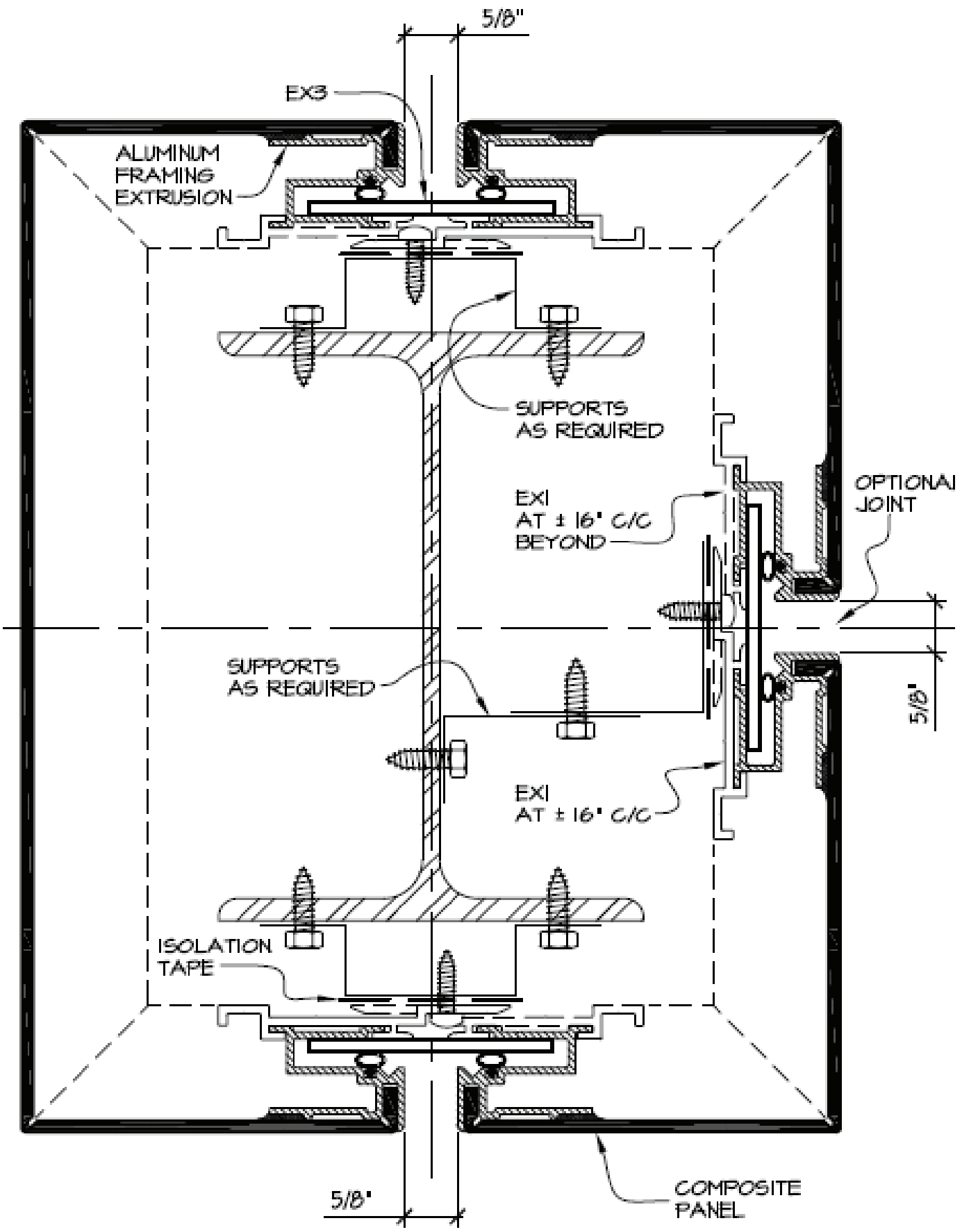



**Figure 15 - Rectangular Column Cover**

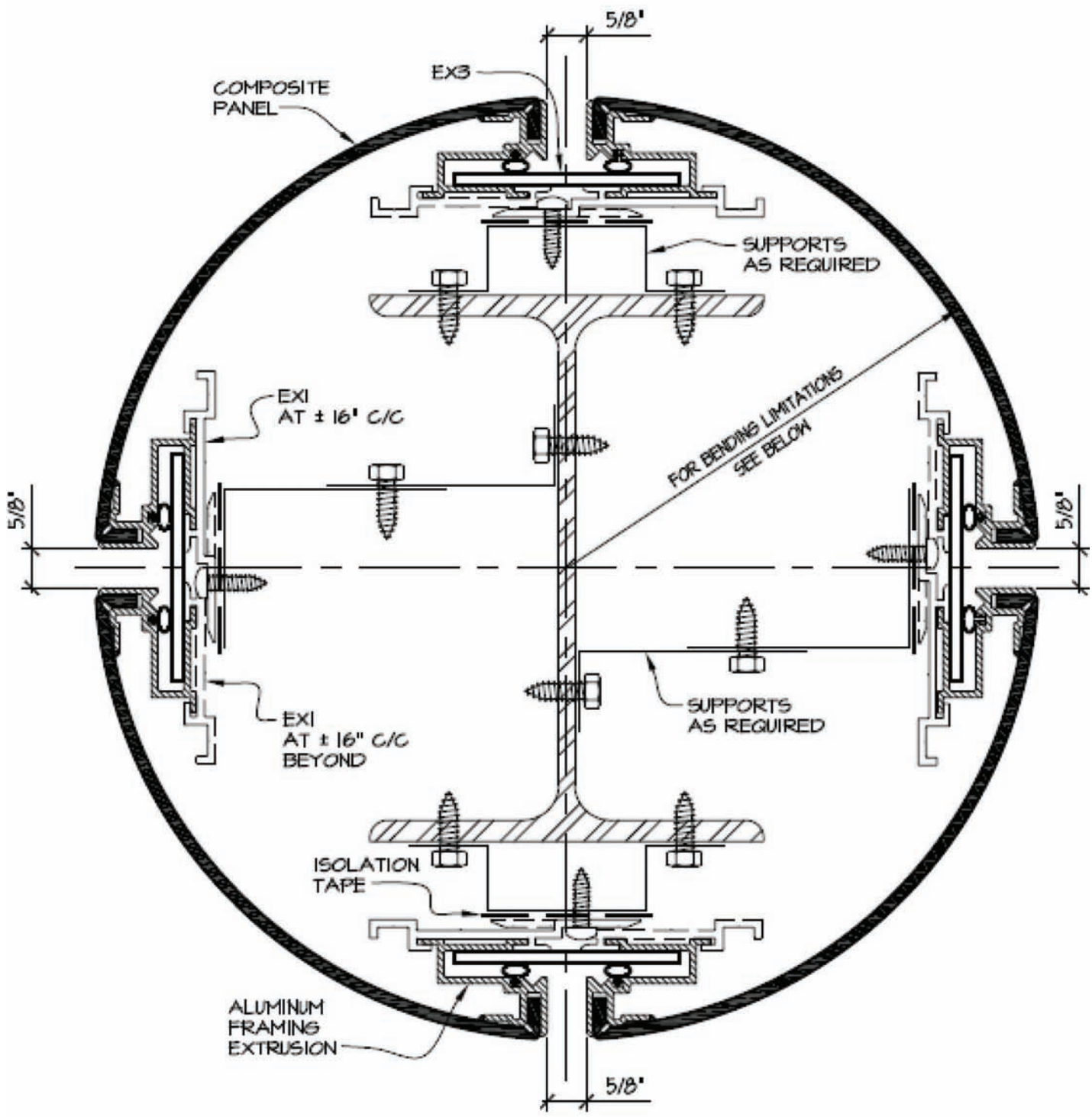
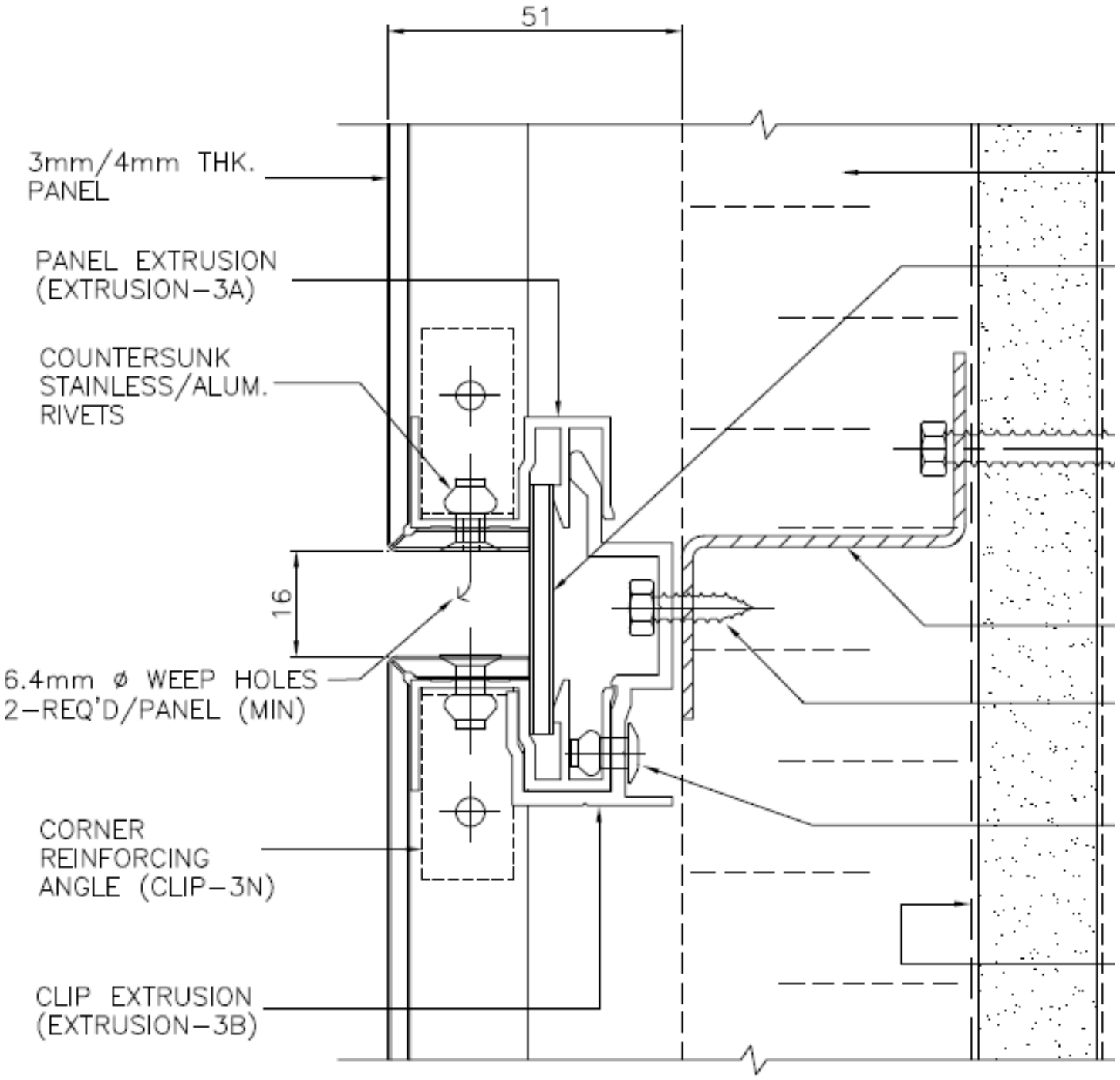


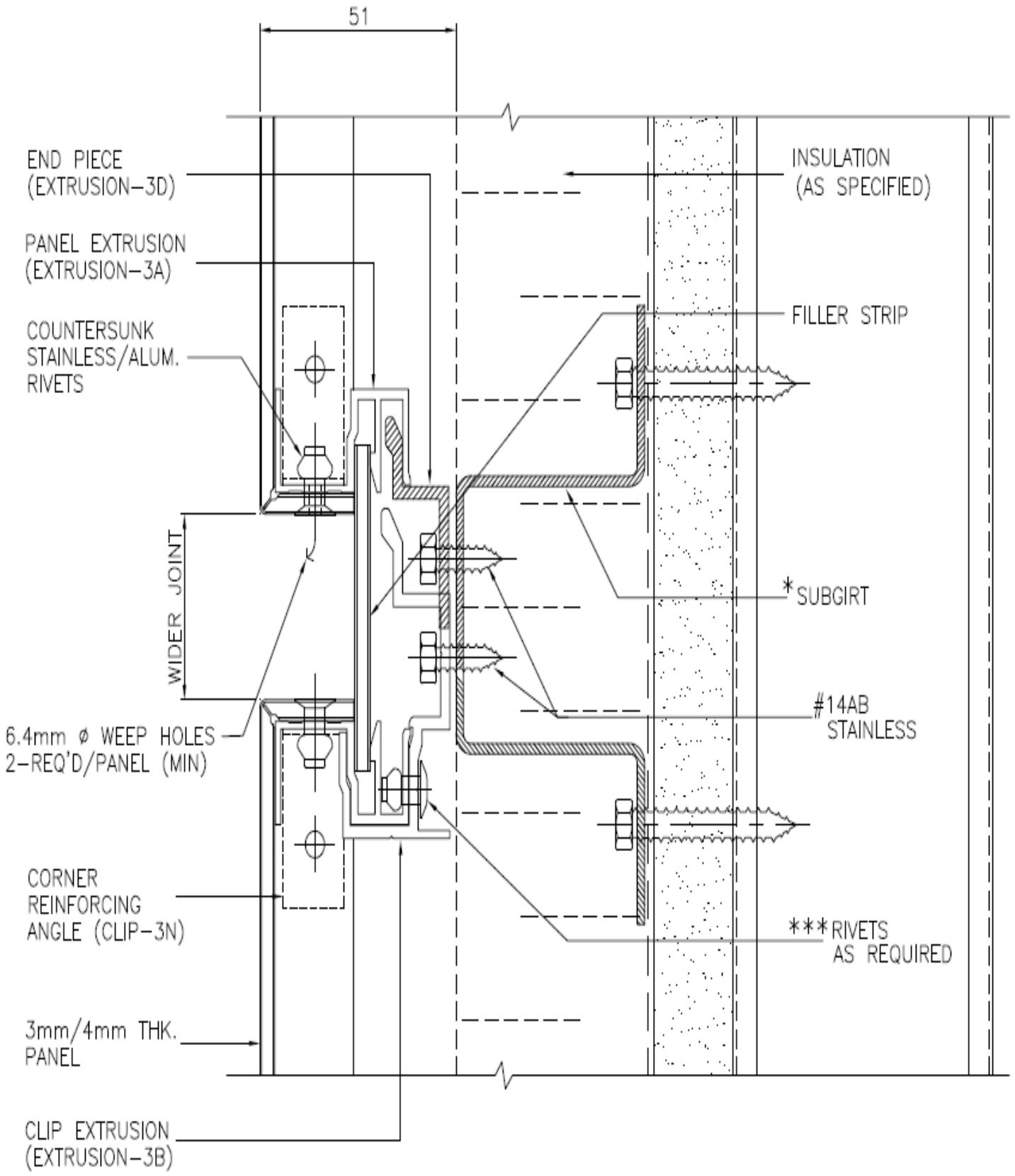

**Figure 16 - Round Column Cover**

## VICWEST System 3- Composite Panel System 3



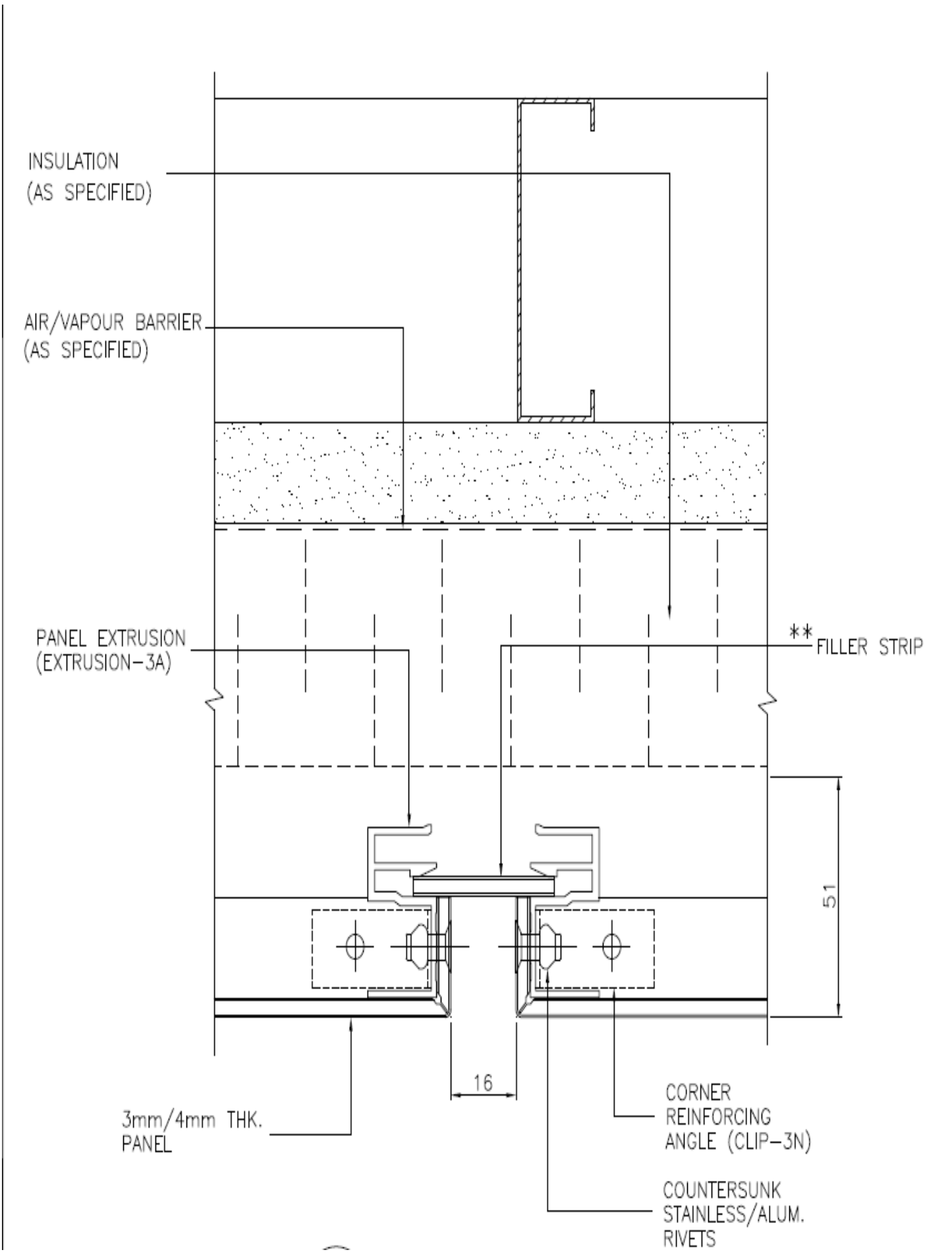

**Horizontial Joint Detail - 1**

## VICWEST System 3- Composite Panel System 3



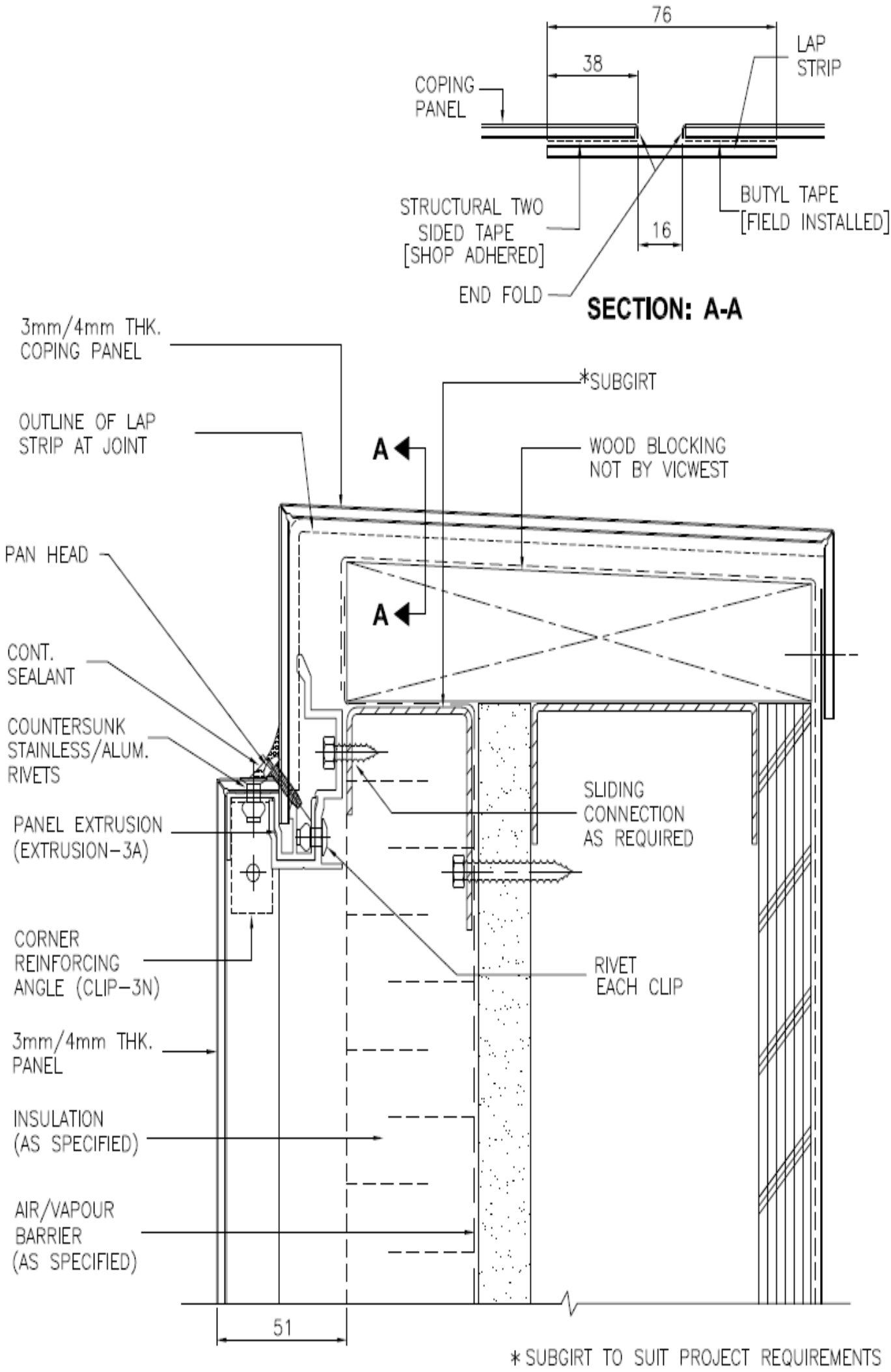

**Horizontial Joint Detail -1A**

## VICWEST System 3- Composite Panel System 3



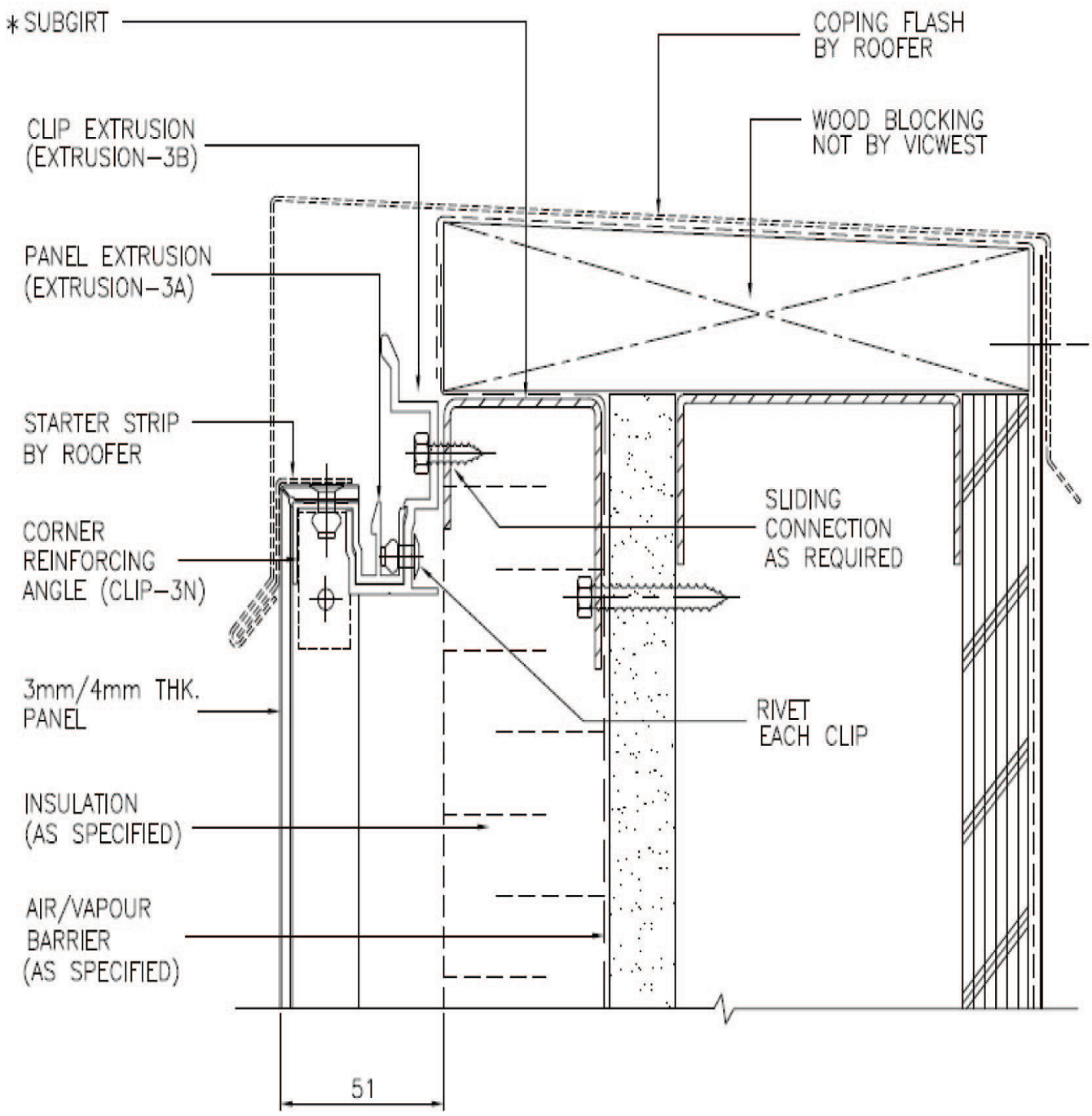

**Vertical Joint Detail**

## VICWEST System 3- Composite Panel System 3

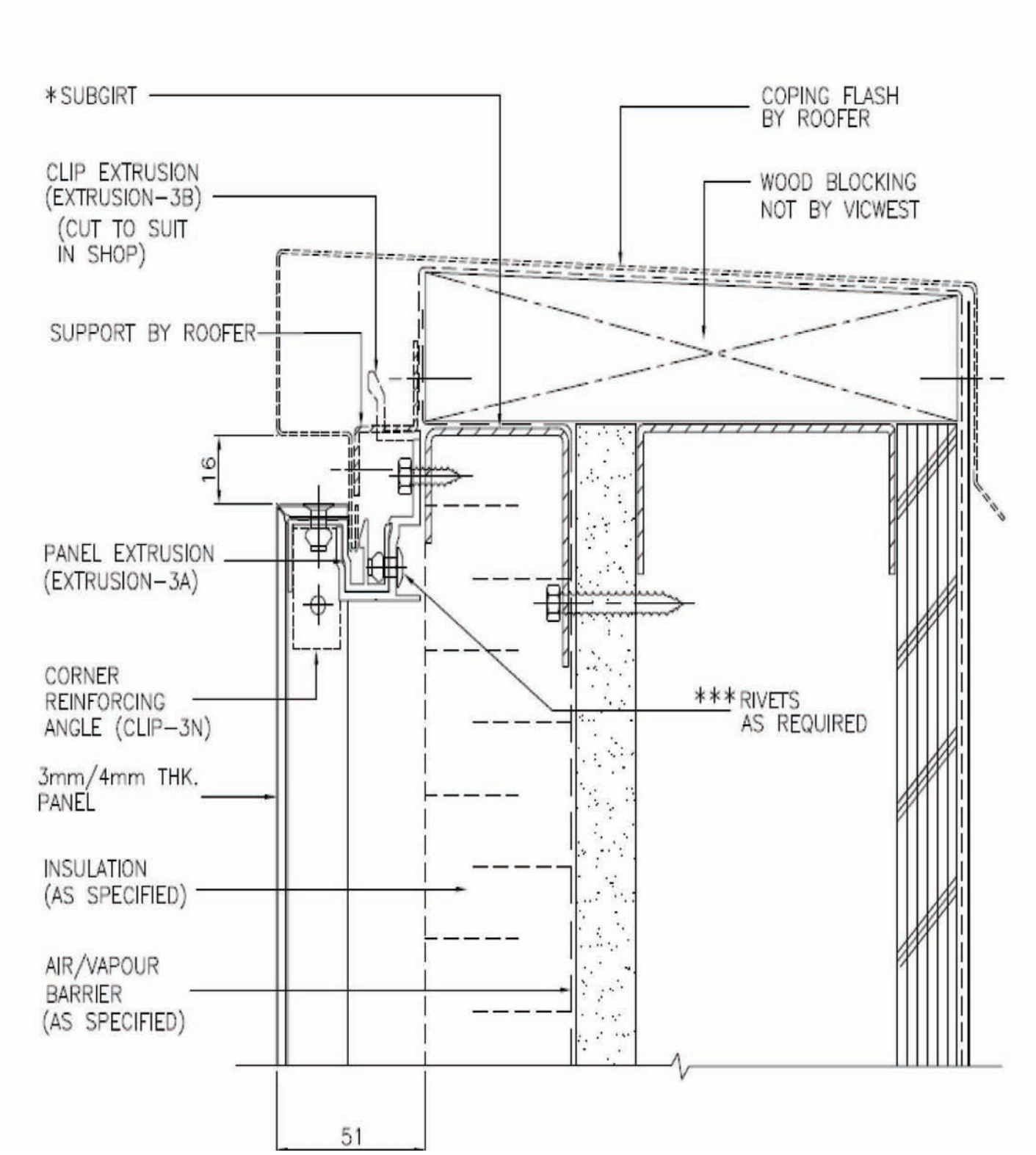



**Parapet Joint Detail - 1**

## VICWEST System 3- Composite Panel System 3

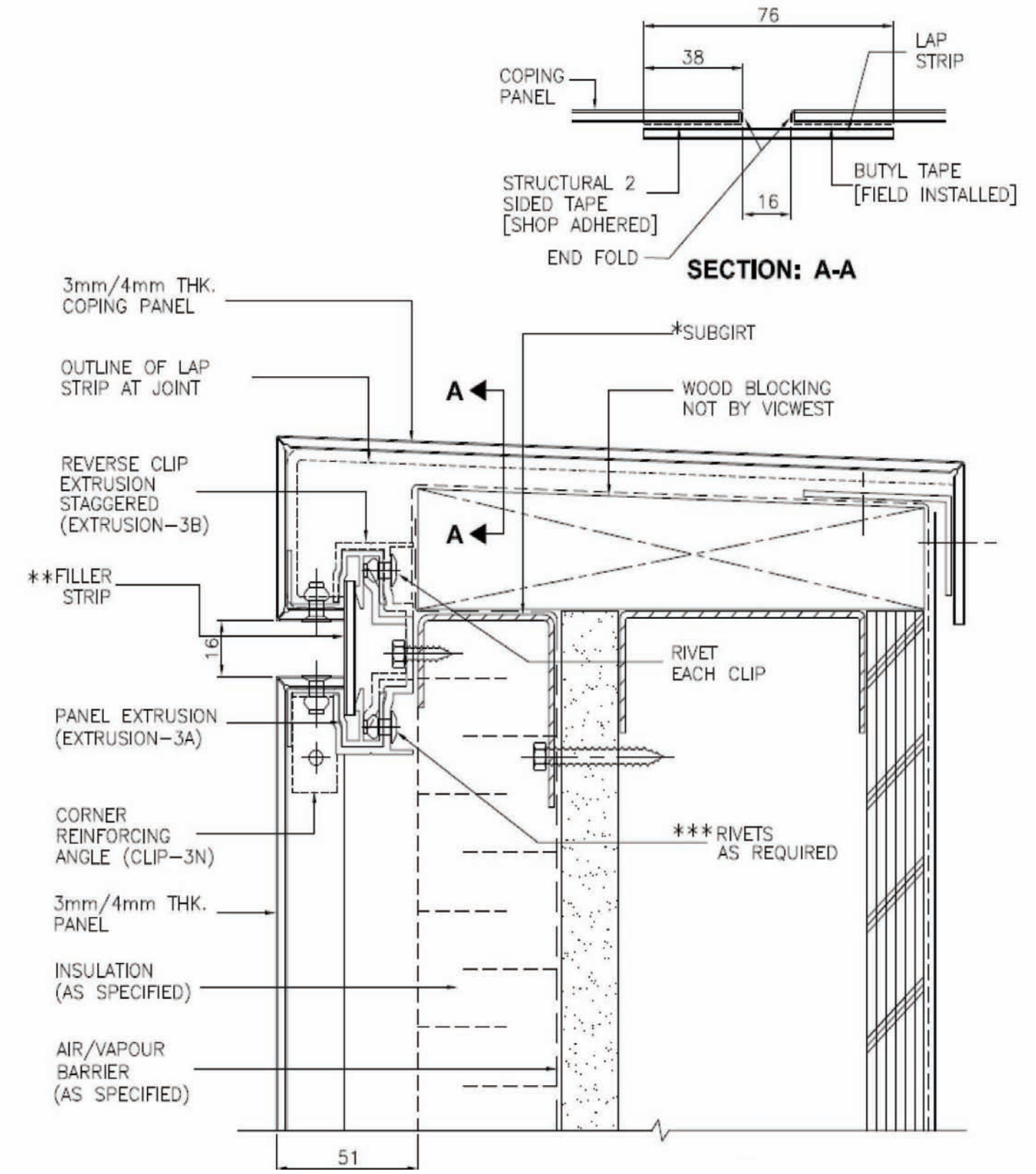



**Parapet Joint Detail - 1A**



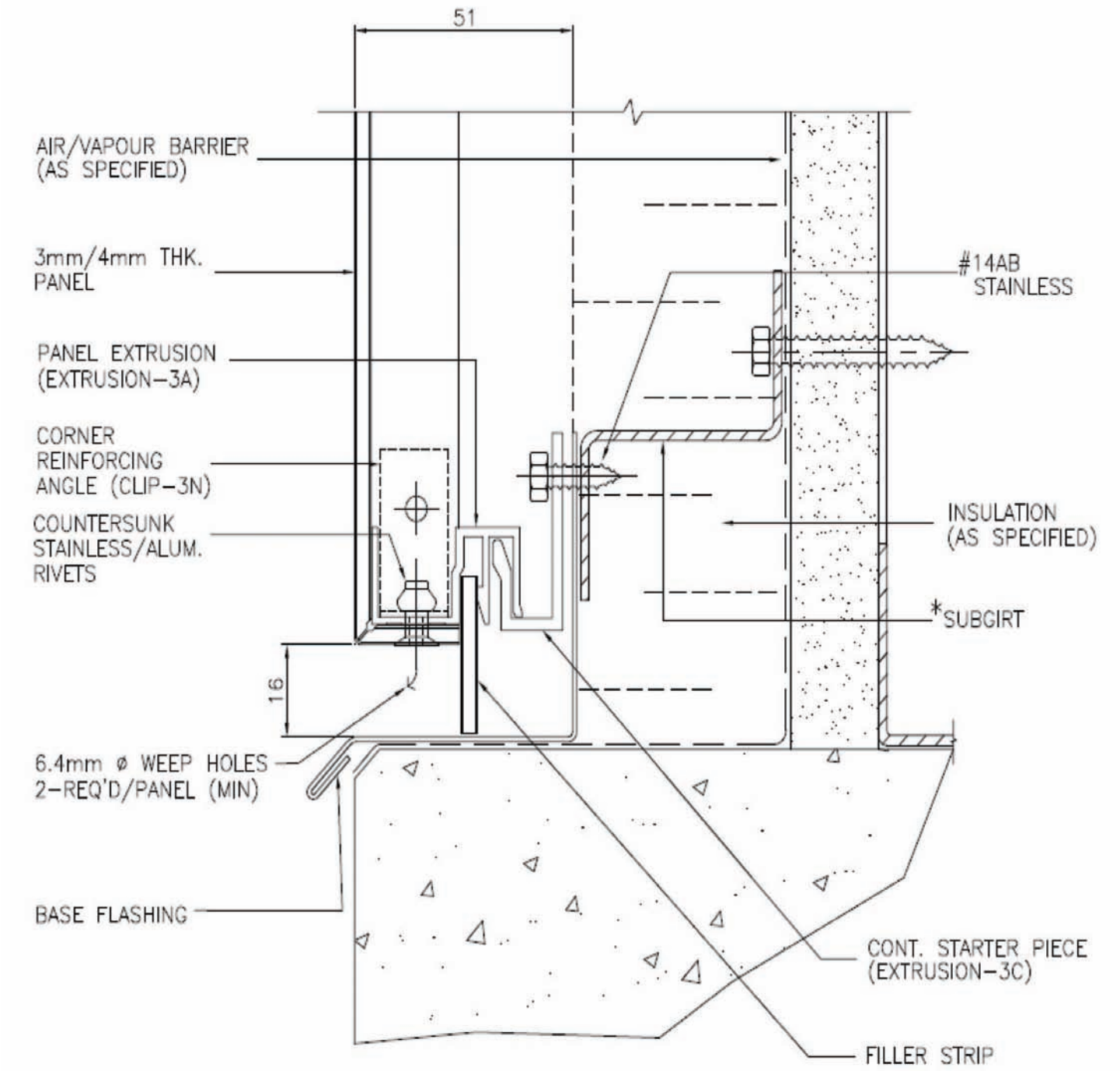

**Parapet Joint Detail - 1B**

## VICWEST System 3- Composite Panel System 3



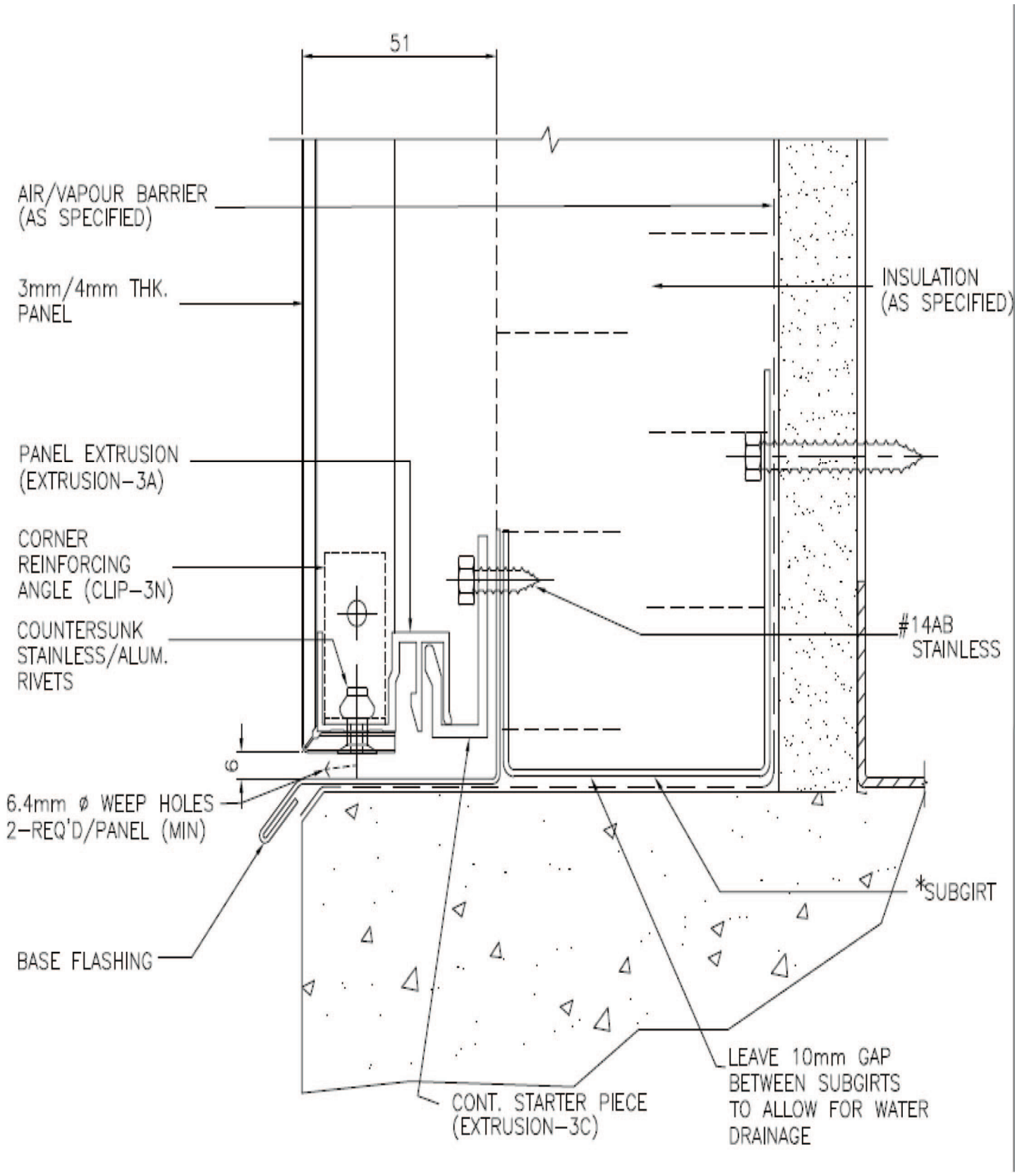

**Parapet Joint Detail - 1C**

## VICWEST System 3- Composite Panel System 3



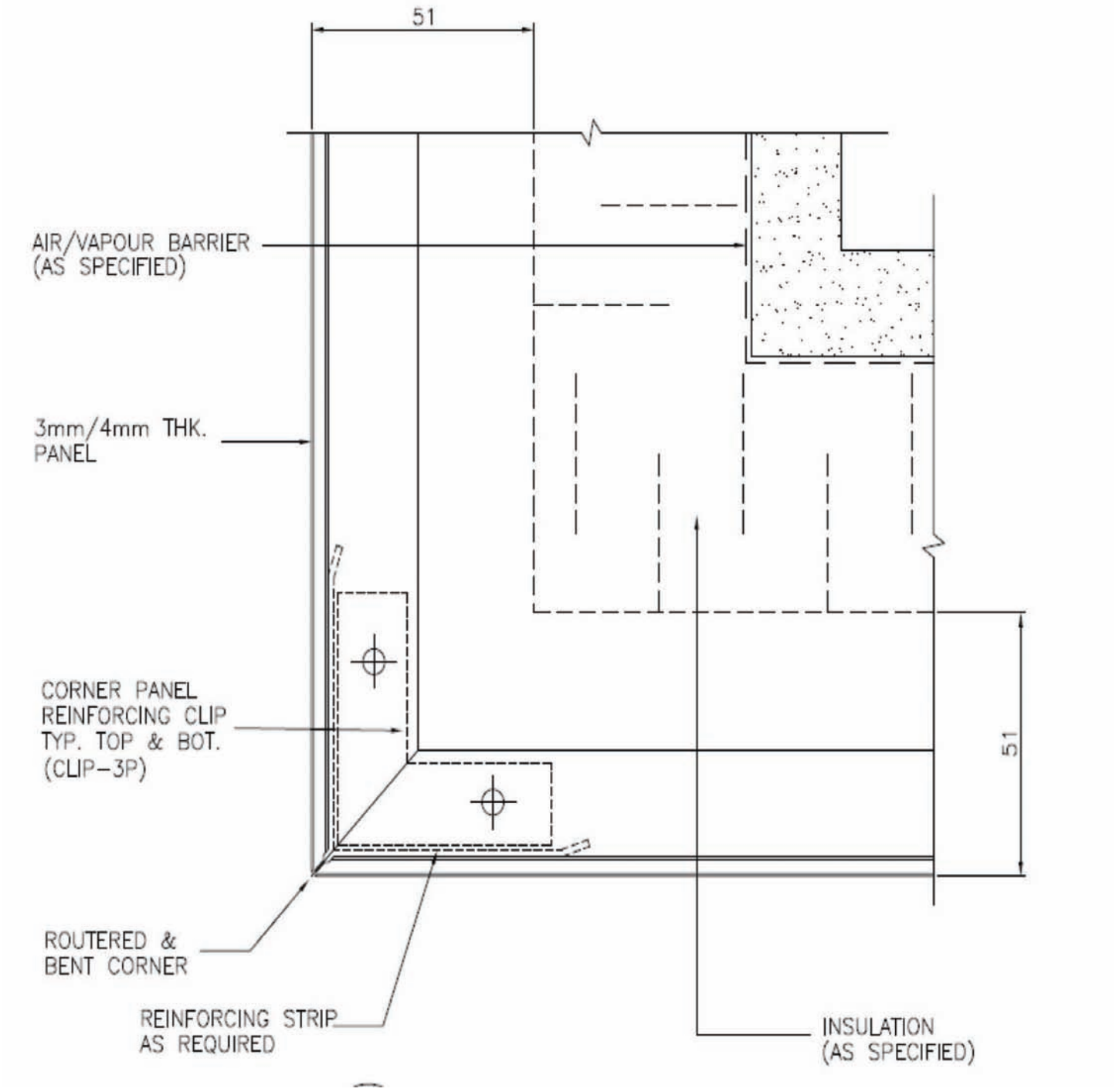

**Base Detail - 1**

## VICWEST System 3- Composite Panel System 3



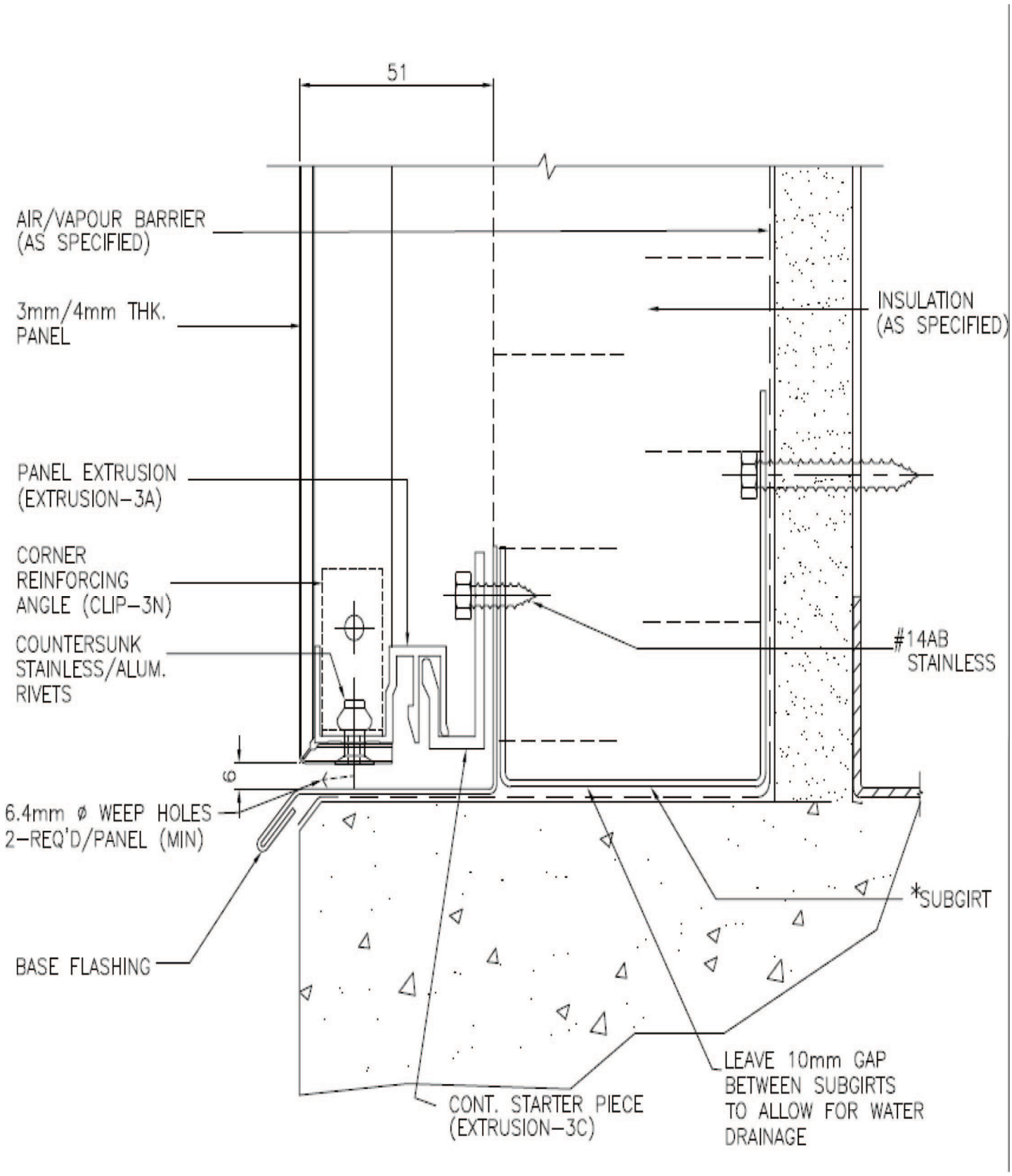

**Base Detail - 1A**

## VICWEST System 3- Composite Panel System 3



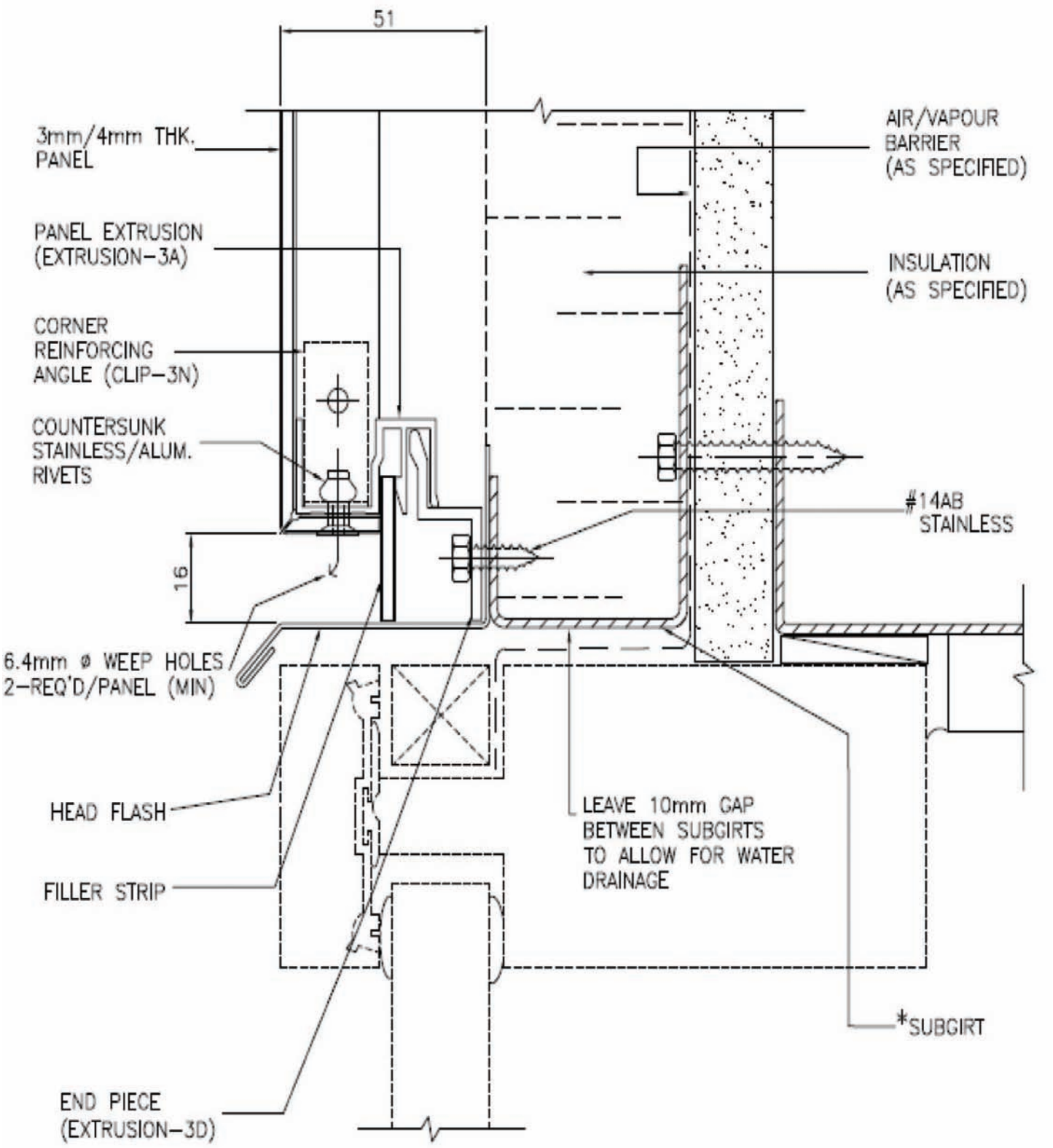

**Corner Detail - 1**

## VICWEST System 3- Composite Panel System 3



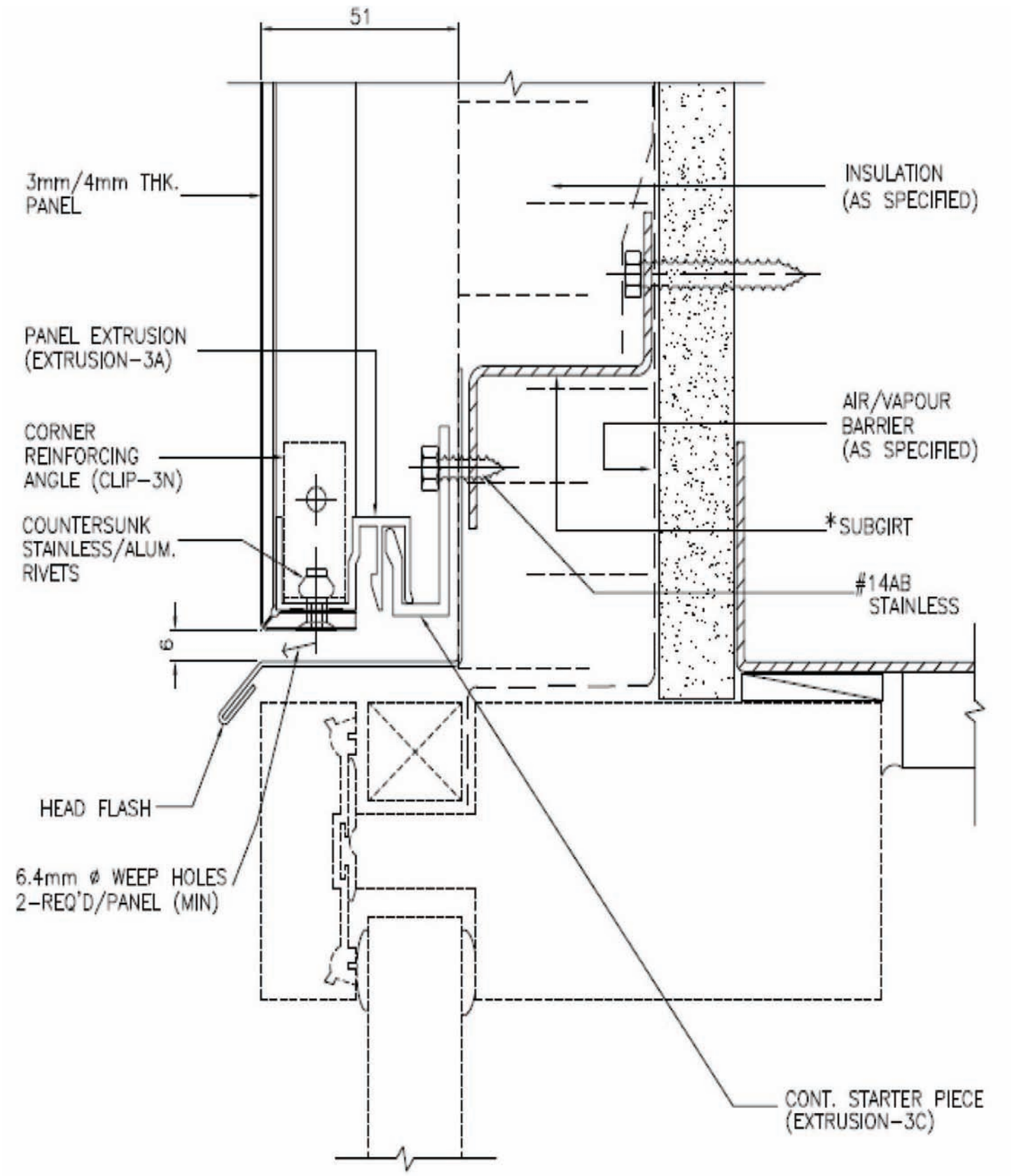

**Corner Detail -1A**

## VICWEST System 3- Composite Panel System 3

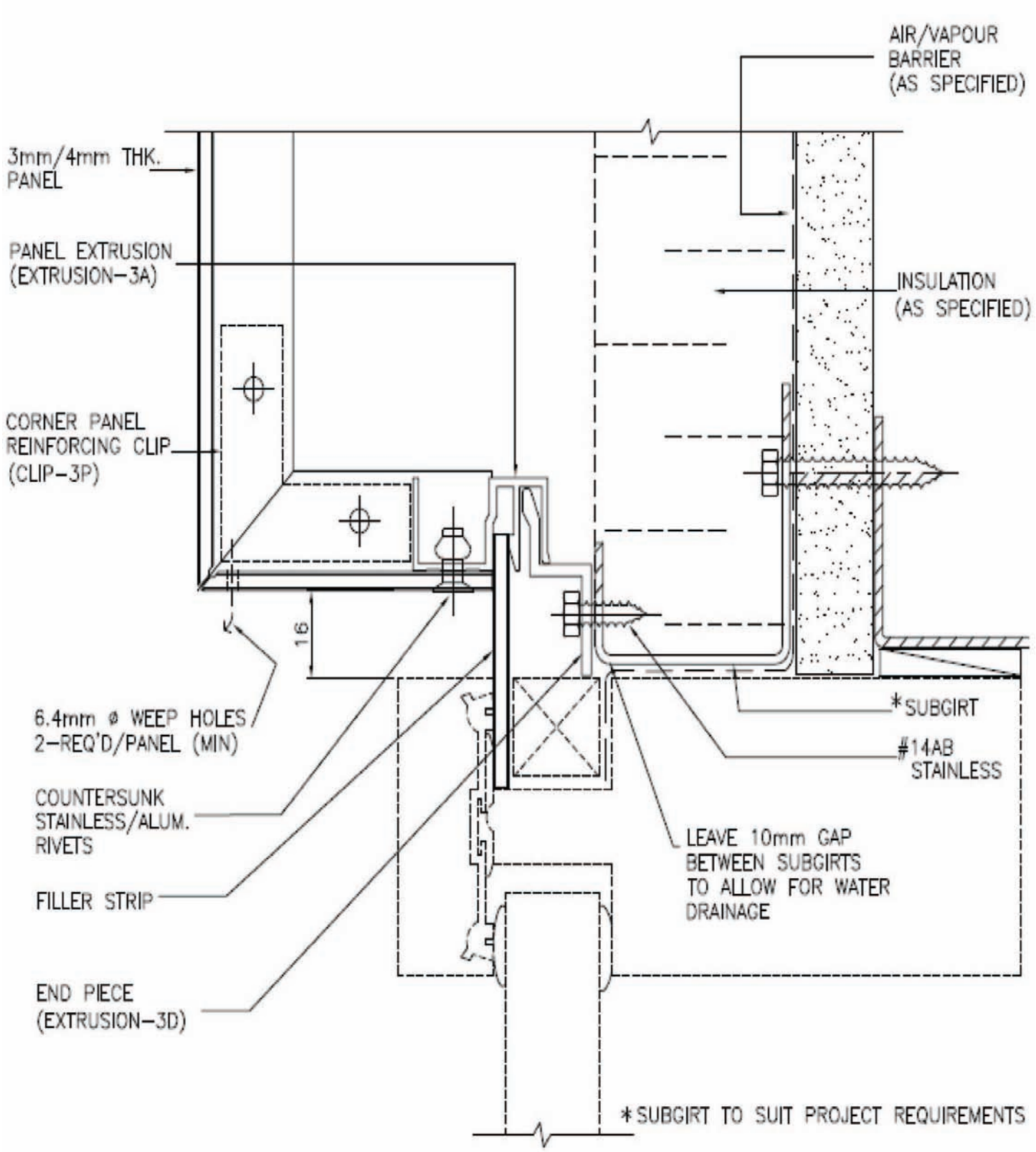



**Window Head Detail**

## VICWEST System 3- Composite Panel System 3

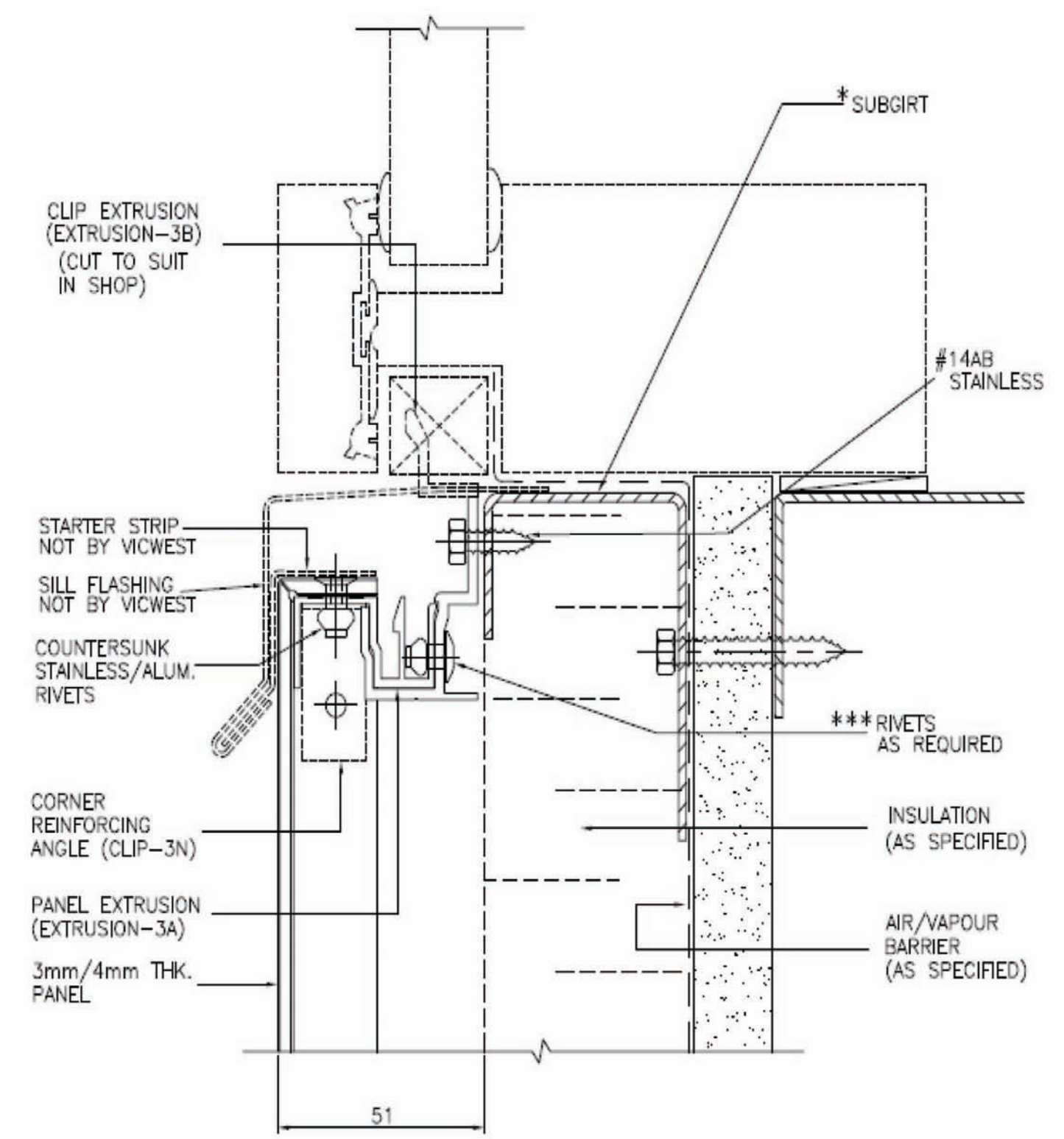



**Window Head Detail - 1A**

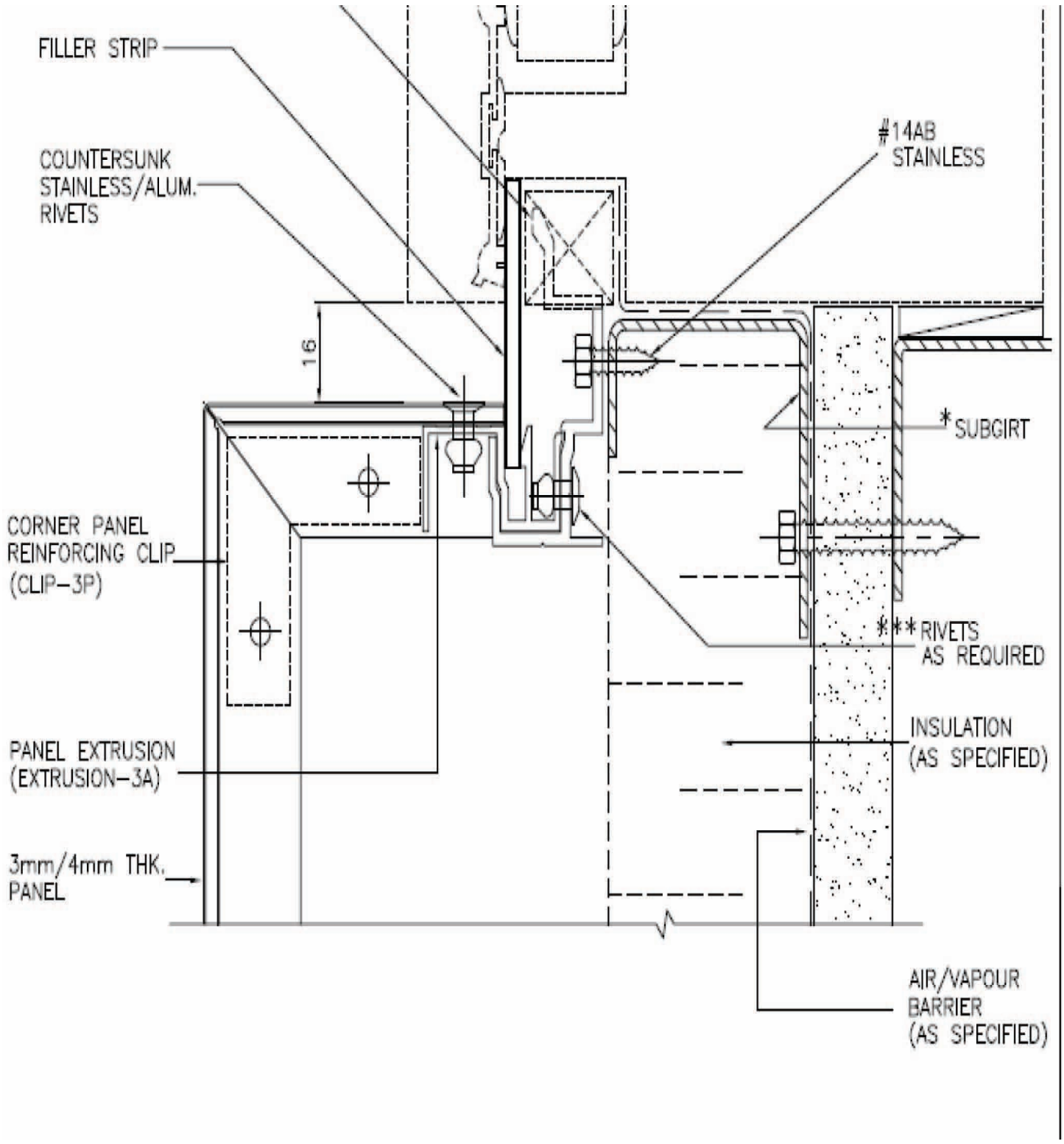



**Window Head Detail - 1B**

## VICWEST System 3- Composite Panel System 3

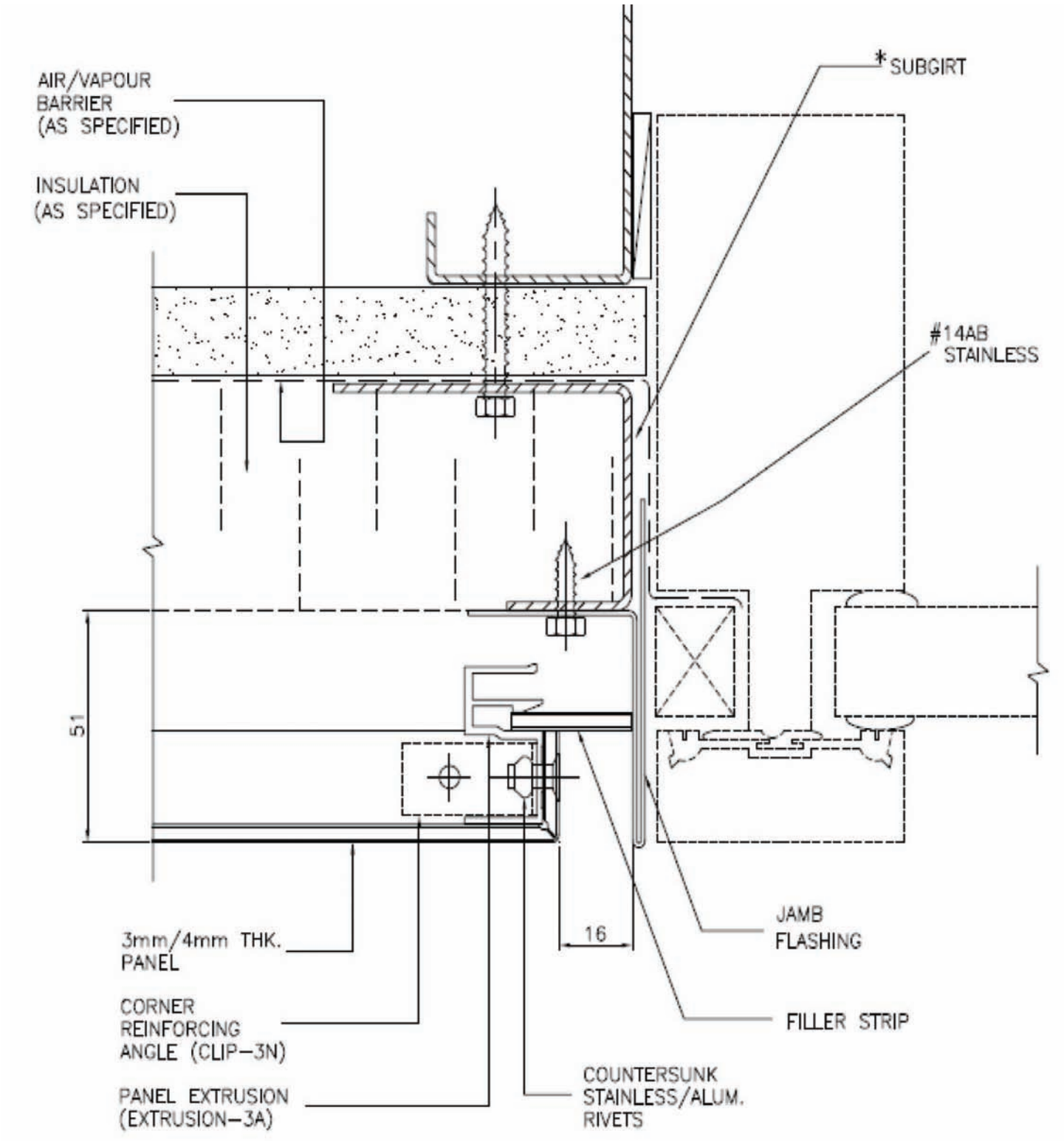



**Window Sill Detail - 1**



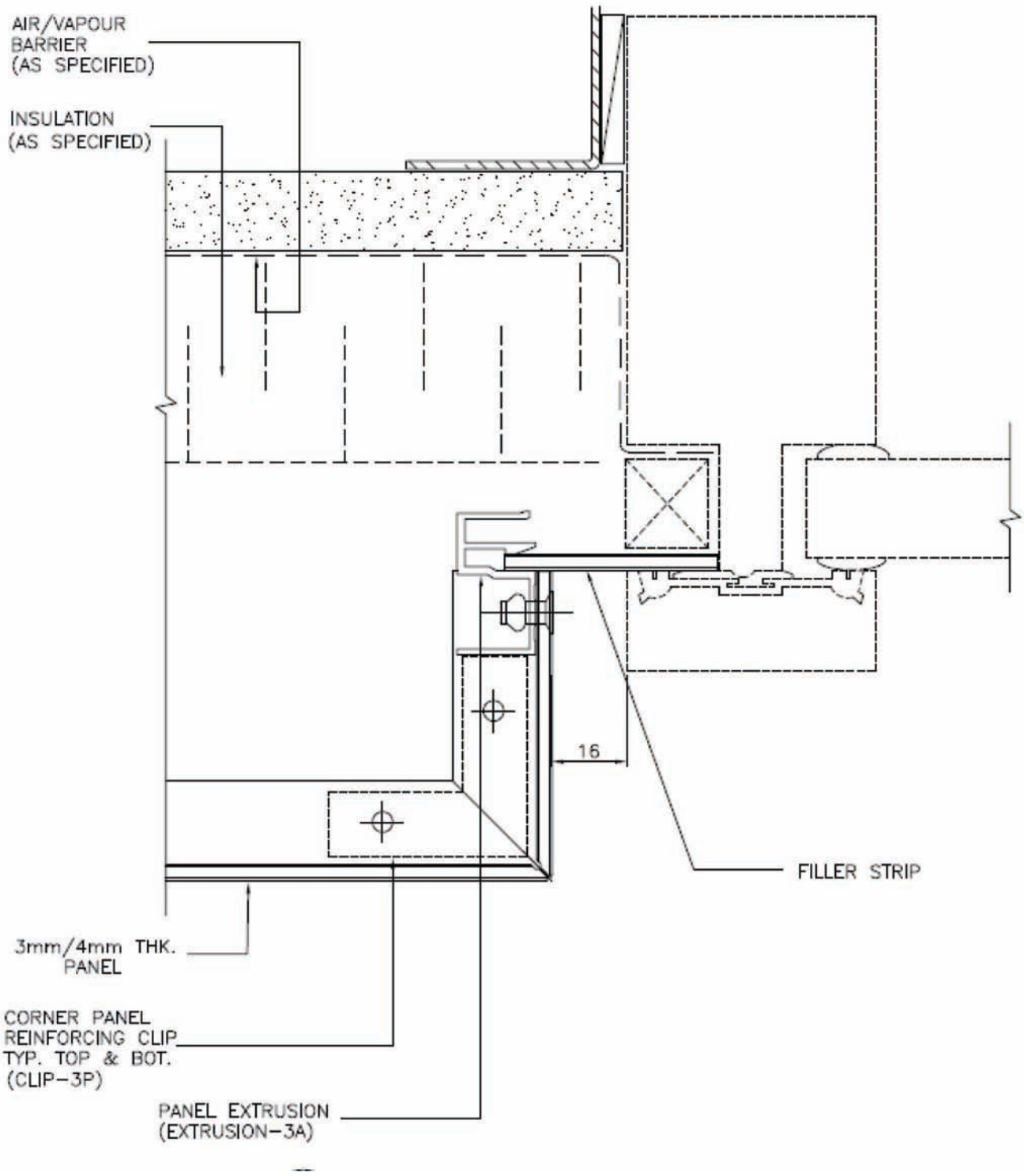

**Window Sill Detail - 1A**

## VICWEST System 3- Composite Panel System 3



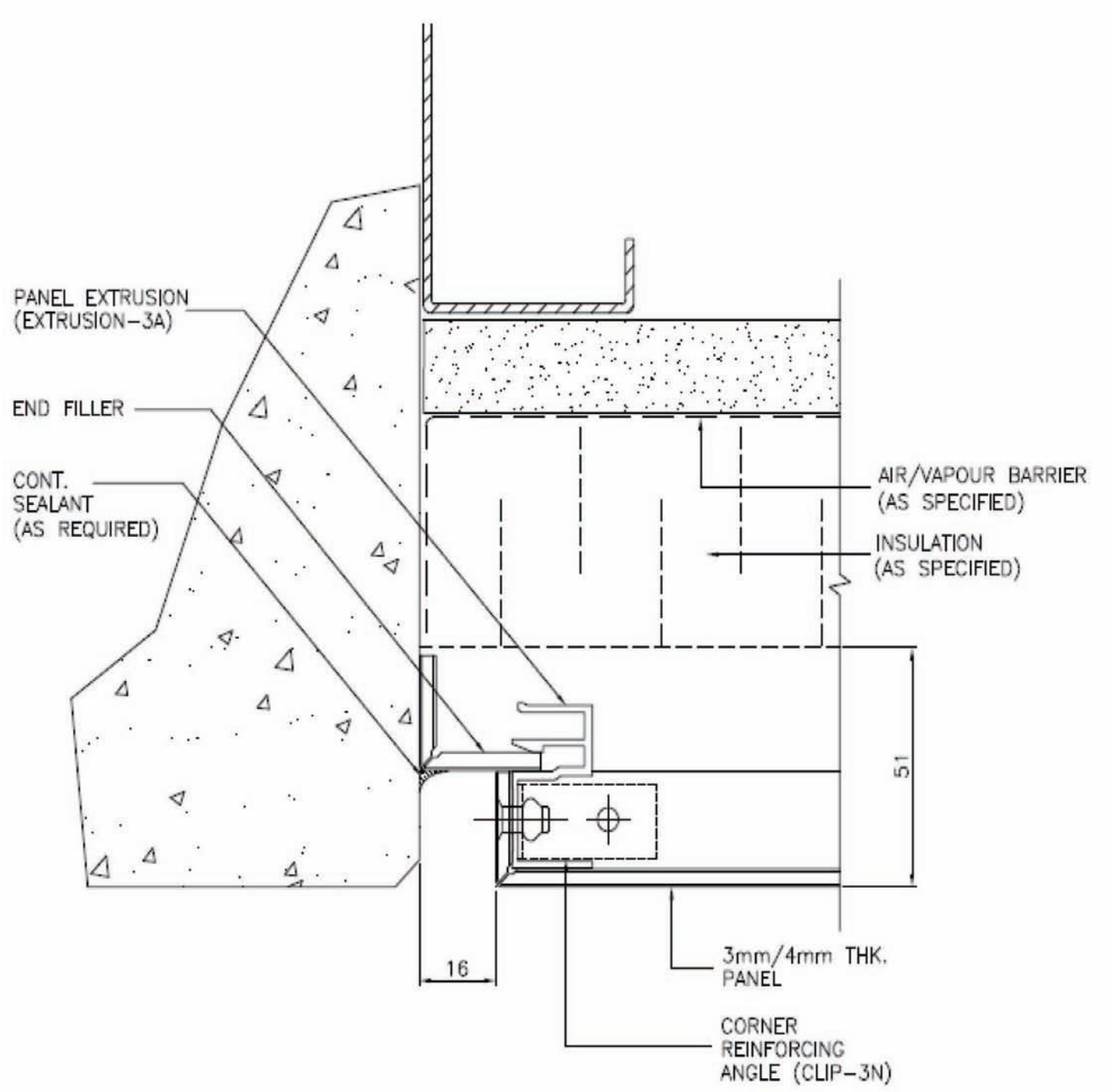

**Window Jamb Detail - 1**

## VICWEST System 3- Composite Panel System 3



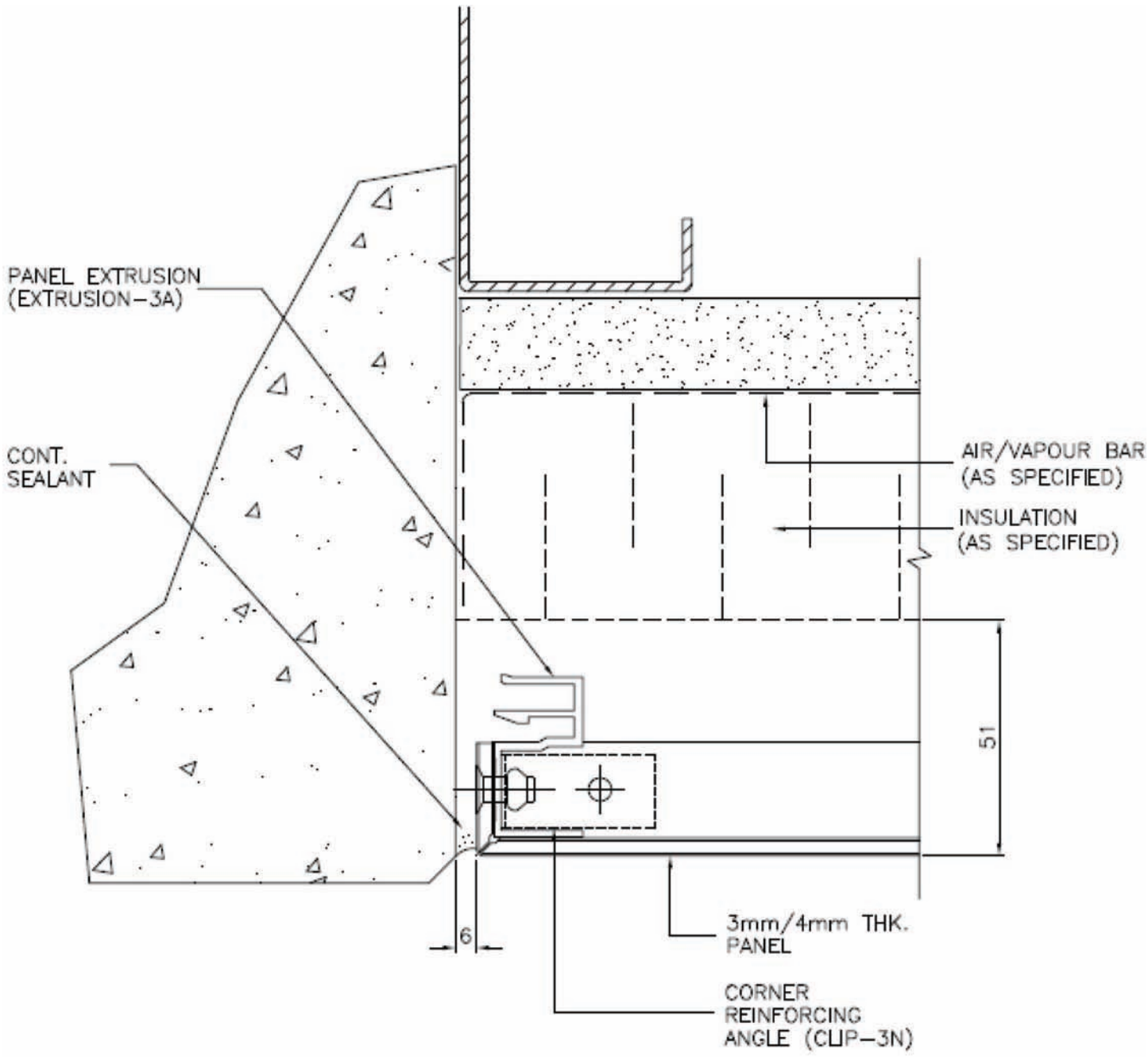

**Window Jamb Detail - 1A**

## VICWEST System 3- Composite Panel System 3



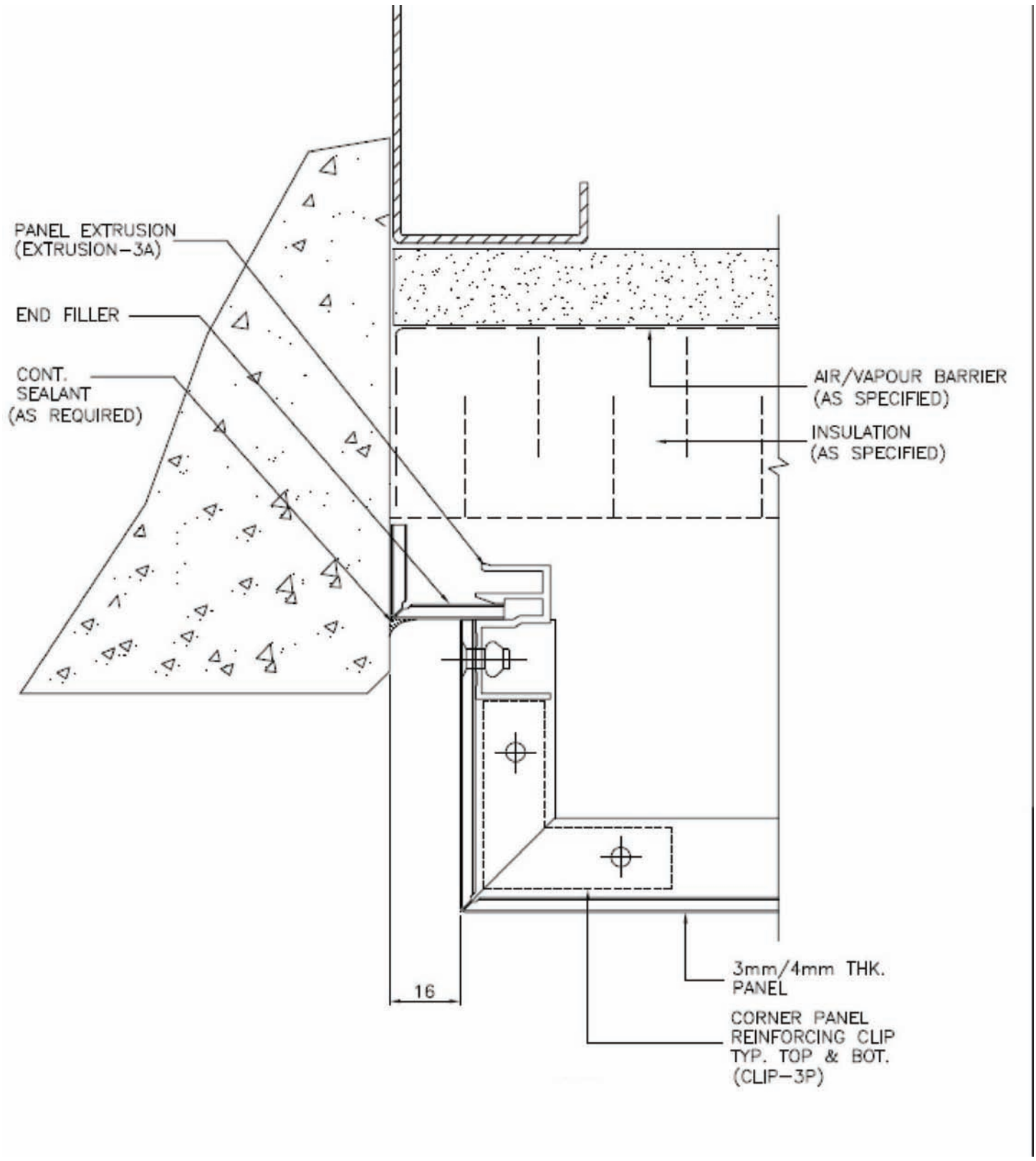

**End Detail - 1**

## VICWEST System 3- Composite Panel System 3




**End Detail - 1A**

## VICWEST System 3- Composite Panel System 3




**End Detail - 1B**

# Materials from Apolic and REYNOBOND

## Alpolic

### Leed Nc 2.2 Contribution -Data Sheet

The Following Has Been Developed To Provide The Information Needed By The Leed Project Team For The Determination Of The Contribution Of The Alpolic Fr Panels Towards Specific Leed Nc Points. In The Event Further Information Is Required Contact Alpolic At 1-800-422-7270 Ext1.

## Alpolic Painted Acm Fr Core

### Materials and Resources

**MR Credit 4.1:** One point is awarded if the materials selected for the project have arecycle content of 10% based on total value. The recycle content is determined as the sum of the post consumer recycle content plus one half of the pre consumer recycle content. For material assemblies, such as cladding systems, the recycled content value shall be determined by weight.

**MR Credit 4.2:** One point is awarded if the materials selected for the project have a recycle content of 20%. The recycle content is determined using the same method asnoted for Credit 4.1

| | % weight of panel | % Post Consumer Recycle Content | % Pre Consumer Recycle Content | Total = 100% Post Consumer + 50% Pre Consumer Recycle Content | |
|---|---|---|---|---|---|
| 4 mm ACM fr | | | | | |
| Aluminum Skins | 35.4 | 12.5 | 64.2 | 44.6 | |
| fr Core | 64.6 | 0 | 0 | 0 | |
| 4 mm Panel | 100 | 4.4 | 22.7 | 15.76 | |
| | | | | | |
| 6 mm ACM fr | | | | | |
| Aluminum Skins | 24.8 | 12.5 | 64.2 | 44.6 | |
| fr Core | 75.2 | 0 | 0 | 0 | |
| 6 mm Panel | 100 | 3.1 | 15.9 | 11.1 | |
| ***Note: The total recycle content of the panels should be combined with the other components of the cladding system to determine the contribution of the wall cladding to the overall project point qualification*** | | | | | |

**MR Credit 5.1: 1 point. Regional Materials 10%**

**MR Credit 5.2: 1 point. Regional Materials 20%**

The ALPOLIC fr painted ACM panels are produced from several different materials such as aluminum coil, polyethylene, coatings, and protective film. Due to the nature of these materials, specifically their high recycle content it is not possible to identify and quantify the initial extraction location or all of the subsequent processing points. For this reason it is recommended that ALPOLIC fr not be included in the calculations for this credit.

## Indoor Environmental Quality

**EO Credit 4.2: 1 point.** The intent of this credit is to reduce the harmful or irritating indoor air contaminants that the building occupants or installers are exposed to.All coatings applied to the ALPOLIC fr ACM panels are factory applied using acoating line with an in line regenerative thermal oxidizer, which eliminates the release of the VOC content of the coating. By factory applying the coatings the need for field painting and the accompanying VOCs are eliminated.

## Innovation in Design

**ID Credit 1.1 to 1.4: 4** points are available in this section for exceptional performance in meeting the requirements in other sections of the LEED NC rating system or for an innovative performance on green building categories which are not addressed in other sections of the rating system.

The high recycle content of the ALPOLIC fr panels can support the projects exceeding the recycle content required in MR Credit 4.2, thereby qualifying for an Innovation in Design credit. The ALPOLIC panels also provide a highly durable and long life time cladding option.

SPEC DATA

## Materials - Apolic

# METAL WALL PANELS

ALPOLIC® MATERIALS


### 1. Product Name
ALPOLIC[a]/fr Composite Fire-Rated Metal Panels

### 2. Manufacturer
Mitsubishi Plastics Composites America, Inc.
401 Volvo Parkway
Chesapeake, VA 23320
(800) 422-7270
Fax: (757) 436-1896
E-mail:info@alpolic.com
www.alpolic-northamerica.com

### 3. Product Description
Basic Use
ALPOLIC[a]/fr Composite Metal Panels are used for cladding of non-residential and residential
structures. They are manufactured, fabricated and installed to withstand stress from deflection and thermal movement and to maintain performance criteria stated by the manufacturer.

### Composition & Materials
ALPOLIC/fr Composite Fire-Rated Metal Panels are composed of 3 or 4 mm thick, mineral filled fire resistive thermoplastic core material that meets performance characteristics specified when fabricated into composite assembly. Face sheets are aluminum 3105-H14 alloy, or equivalent, 0.020" (0.51 mm) thick. Sheets are thermally bonded in continuous process to core material.

### Finishes
ALPOLIC/fr panels are available with fluorocarbon and polyester coatings. The fluorocarbon finish is a Lumiflon[a] based resin. miflon-based fluoropolymer resin coatings meet or exceed values expressed in AAMA 2605 where relevant to coil coatings. Stainless steel and titanium finishes are available.

### Colors
A pallet of bright, vibrant and vivid colors in a wide gloss range is available. A Class 1 anodized
finish is available, as well as a stone series finish.

### Limitations
Deflection of perimeter framing member should not exceed L/175 normal to plane of the wall; deflection of individual panels should not exceed L/60. At connection points of framing members to anchors, anchor deflection in any direction should not exceed 1/16" (1.6 mm). Allow for free horizontal and vertical thermal movement, due to expansion and contraction of components over a temperature range. Fabrication, assembly and erection procedures should take into account the ambient temperature range at the time of the respective operation. Wall design shouldfeature provisions to drain to the exterior face of the wall any leakage of water at joints and any condensation that can occur within the construction.

### 4. Technical Data
Applicable Standards
ASTM International
- ASTM C297 Standard Test Method for Tensile Strength on Flat Sandwich Constructions inFlatwise Plane
- ASTM C976 Standard Test Method for Thermal Performance of Building Assemblies by Means of a Calibrated Hot Box (Withdrawn2002)
- ASTM D696 Standard Test Method for Coefficient of Linear Thermal Expansion of Plastics Between -30°C and 30°C With a Vitreous Silica Dilatometer
- ASTM D1781 Standard Test Method for Climbing Drum Peel for Adhesives
- ASTM D1929 Standard Test Method for Determining Ignition Temperature of Plastics
- ASTM E8 Standard Test Method for Tension Testing of Metallic Materials
- ASTM E72 Standard Test Methods for Conducting Strength Tests of Panels for Building Construction
- ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials
- ASTM E108 (Modified) Standard Test Methods for Fire Tests of Roof Coverings
- ASTM E119 Standard Test Methods for Fire Tests of Building Construction and Materials
- ASTM E283 Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across
the Specimen
- ASTM E330 Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference
- ASTM E331 Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls and Doors by Uniform Static Air Pressure Difference
- ASTM E413 Standard Classification for Rating Sound Insulation

**American Architectural Manufacturers Association** (AAMA) - AAMA 2605 Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels Underwriters' Laboratories of Canada, Ltd. (ULC) - CAN/ULC S134M

### Approvals
International Building Code (IBC) Research
Report Number NER 672
National Building Code (Canada)
City of New York MEA 142-99-E
City of Los Angeles RR 25362
Miami Dade NOA 06-0531.12/.13

### Physical / Chemical Properties
Tested for resistance to delamination as follows:
- Bond strength (ASTM C297)
  - 427 psi (3 MPa)minimum
- Peel strength (ASTM D1781)
- 22.5 in-lbs/in (100 N-m/m) minimum
- No degradation in bond performance after 8 hours of submersion in boiling water and after 21 days of immersion in water at 70 degrees F (21 degrees C)
- Coefficient of expansion (ASTM D696)
- 13 × 10-6 in/in/°F
- Tensile yield 4 mm (ASTM E8)
  - 6344 psi (44 MPa)
- Tensile strength 4 mm (ASTM E8)
  - 7126 psi (49 MPa)
- Elongation - E8: 4 mm - 5%
- Thermal conductance (ASTM C976)
  - 10.75 Btu/(ft2 × h × °F)
  (18 W/(m2 × K))
- Sound transmission coefficient
  (ASTM E413) -26

# METAL WALL PANELS

Mitsubishi Plastics Composites America, Inc.

**Fire Performance**
- Flamespread (ASTM E84) - 0
- Smoke developed (ASTM E84) - 10 (for 4 mm FR)
- Surface flammability - Pass when tested permodified ASTM E108
- Flash point (ASTM D1929) - 811 degrees F (433 degrees C)
- Ignition temperature (ASTM D1929) - 837 degrees F (447 degrees C)
- UBC 26-9 (NFPA 285) Intermediate Scale Multi Story Apparatus Test - Passed (4 and 6 mm)
- UBC 26-3 Room Corner Test - Passed (4 mm)
- ASTM E119 One Hour and Two Hour Rated Installs - Passed (4 mm)
- CAN/ULC S134M Canadian Full Scale Test -Passed (4 mm)

Fire test performance has established approval on Types 1, 2, 3, 4 and 5 construction throughout the United States and Canada.

**5. Installation**

Preparatory Work

Field Measurements

Verify actual dimensions and openings by field measurement before fabrication. Show recorded measurements on shop drawings. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays. Submit shop drawings showing layout, profiles and product components, including anchorage, accessories, finish colors and textures. Include details showing thickness and dimensions of various system parts, fastening and anchoring methods, locations of joints and gaskets,movement. Submit selection and verification samples for finishes, colors and textures. and location and configuration of joints necessary to accommodate thermal

**Delivery & Storage**

Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact. Finish of panels is protected by heavy duty removable plastic film during production. Panels are packaged for protection against transportation damage. Exercise care in unloading, storing and installing panels to prevent bending, warping, twisting and surface damage. Store materials protected from exposure to harmful weather conditions and at temperature conditions recommended by ALPOLIC. Store panels in well-ventilated space out of direct sunlight. Do not store panels in any enclosed space where ambient temperature can exceed 120 degrees F (49 degrees C). Avoid contact with any other materials that might cause staining, denting or other surface damage.

**Methods**

Shop fabricate to sizes and joint configurations indicated on the drawings. Where final dimensions cannot be established by field measurement, provide allowance for field adjustment as recommended by the fabricator.

Form panel lines, breaks and angles to be sharp and true, with surfaces that are free from warp or buckle. Fabricate with sharply cut edges, with no displacement of aluminum sheet or protrusion of core.

**Production Tolerances**
- Width - ± (1 mm/m)
- . Length - ± (1 mm/m)
- Thickness - ± 0.008″ (0.2 mm) for 4 mm panel
- Bow - Maximum 0.5% length or width
- Squareness - Maximum 0.2″ (5 mm)
- Edges of sheets shall be square and trimmed with no displacement of aluminum sheets or protrusion of core material

Install panels plumb, level and true, compliance with manufacturer's recommendations. Anchor panels securely in place, in accordance with fabricator's approved shop drawings. Comply with fabricator's instructions for installation of concealed fasteners and with provisions of specifications for installation of joint sealers with fabricator's approved shop drawings. Comply with fabricator's instructions for installation of concealed fasteners and with provisions of specifications for installation of joint sealers.

**Installation Tolerances**

Maximum deviation from horizontal and vertical alignment of installed panels is 0.25" in 20' (6.4 mm in 6 m), non-cumulative. Complete installation recommendations are available from the manufacturer.

**Precautions**

Repair panels with minor damage so that repairs are not discernible at a distance of 10' (3 m). Remove and replace panels damaged beyond repair. Remove protective film immediately after installation of joint sealers and immediately prior to completion of composite metal panel work.

**Building Codes**

Current data on building code requirements and product compliance can be obtained fromALPOLIC technical support specialists. Installation must comply with requirements of all applicablelocal, state and national code jurisdictions.

**6. Availability & Cost**

Availability

Contact manufacturer for information on distributionand local availability.

Cost

Budget installed cost information can be obtained from the manufacturer.

**7. Warranty**

Contact manufacturer for information on warranty conditions, exclusions, duration and remedies.

8. Maintenance

These panels, when properly installed, require no specific maintenance. An occasional pressure washing can be required depending on local environmental conditions. Periodic inspection for sealant integrity is advised to ensure long-term system performance.

**9. Technical Services**

A staff of trained personnel offers design assistance and technicals support. for technical assistance, contact ALPOLIC, Mitsubishi Plastics Composites America, Inc.

**10. Filing Systems**
- Reed First Source
- MANU-SPEC[a]
- Additional product information is availablefrom the manufacturer upon request.

# ALPOLIC Warranty Request Form

To whom the warranties should be made out (Company or Job)

Complete physical location ofjob (Include project name, complete address of where panels are installed : st reet, city, state, zip/postal code)

Project Architect/Owner: _____ Phone: _____

Address: _____

Email address: _____

Please send completed fOl1n to Laura J Levine Fax # 757 436 1896
Email-Laura@ALPOLIC,com

**Materials -REYNOBOND**

**Alcoa Architectural Products**
555 Guthridge Court
Technology Park/Atlanta
Norcross, GA 30092 USA
Tel: 1 770 840 6456
Fax: 1 770 734 1581

**Production Information**

March 2009

Alcoa's Aluminum Reynobond® (painted or brushed finish) is a composite material manufactured using coil coated aluminum over a polyethylene core. The polyethylene core is new material. The aluminum skins are 90% recycled material.

The Aluminum Reynobond® recycled material content, by weight, is shown below:

**Recycled content by weight for 4mm Reynobond® PE = 45%**

**Recycled content by weight for 4mm Reynobond® FR = 33%**

**Recycled content by weight for 6mm Reynobond® PE (no 6mm FR available) = 32%**

**Recycled content by weight for 3mm Reynobond® PE = 51%**

The recycled aluminum is all Post Industrial (Pre Consumer), with no Post Consumer content.

Reynobond® is manufactured in Eastman, GA 31023.

Thank you for choosing Reynobond®.

Stan Steingold, PE

# Engineering Properties U.S. and Metric Equivalent

## Typical Engineering Properties

Composite-designed Reynobond® panels consist of a thermoplastic compound core faced with two sheets of aluminum. There are two varieties, a Polyethylene (PE) core and a Fire Resistant (FR) core.

| Property | | Units | RB120PE-3 mm | RB160PE-4 mm | RB240PE-6 mm | RB-160FR-4 mm | Solid Alumi-num(1) |
|---|---|---|---|---|---|---|---|
| Thickness | | Inches mm | 0.118<br>3.0 | 0.157<br>4.0 | 0.236<br>6.0 | 0.157<br>4.0 | 0.197<br>5.0 |
| Weight | | lb/ft²<br>Kg/m² | 0.94<br>4.59 | 1.12<br>5.47 | 1.49<br>7.28 | 1.53<br>7.48 | 2.78<br>13.57 |
| Bond Intergirty | Min. Bond Strength ASTD 1781 | in-lb/in<br>Nm/m | 40<br>178 | 40<br>178 | 40 178 | 22.5<br>100 | —<br>— |
| | Flatwise Shear ASTM D1002 | lb/in²<br>MPa | 1,297<br>8.94 | 1,221<br>8.42 | 2,055<br>14.7 | 92.8<br>6.4 | —<br>— |
| Allowable Bending Stress | | lb/in2<br>MPa | 11,500 79.3 | 11,500 79.3 | 11,500 79.3 | 11,500<br>79.3 | 11,500<br>79.3 |
| Coefficient of Expansion ASTM E228 | | in/in/°F<br>mm/mm/°C | 1.31x10⁻⁵<br>2.36x10⁻⁵ | 1.31x10⁻⁵<br>2.36x10⁻⁵ | 1.31x10⁻⁵<br>2.36x10⁻⁵ | 1.31x10⁻⁵<br>2.36x10⁻⁵ | 1.31x10⁻⁵<br>2.36x10⁻⁵ |
| Stiffness (EI) | | lb in²/in<br>MPa cm⁴/m | 807 9.1x10³ | 1,140<br>12.8x103 | 1,896<br>21.4x10³ | 1,262<br>14.3x103 | 6,434<br>74.1x103 |
| Flexural Mod-ulus Aged per ASTM C393 | | lb/in²<br>MPa | 8.3x10⁶<br>57.2x10³ | 6.0x106<br>41.4x103 | 4.0x10⁶<br>27.6x10³ | 6.7x106<br>46.2x103 | 10x106<br>68.9x103 |
| Moment of Inertia | | in⁴/in<br>cm⁴/m | 0.97x10⁻⁴ 0.159 | 1.89x10⁻⁴<br>0.310 | 4.58x10⁻⁴<br>0.751 | 1.89x10⁻⁴<br>0.310 | 6.37x10⁻⁴<br>1.042 |
| Section Modu-lus | | in³/in<br>cm³/m | 1.65x10⁻³ 1.065 | 2.41x10⁻³<br>1.555 | 3.88x10⁻³<br>2.503 | 2.41x10⁻³<br>1.555 | 6.47x10⁻³<br>4.167 |
| Tensile Yield ASTM D638 | | lb/in²<br>MPa | 8,300 57.23 | 6,405 44.16 | 5,314<br>36.64 | 6,367<br>43.90 | 19,000<br>130.0 |
| Flatwise Tensile ASTM C297 | | lb/in²<br>MPa | 1,483 10.22 | 1,371<br>9.45 | 1,099<br>7.58 | 961<br>6.62 | —<br>— |
| "R" Thermal Resistance (core only) | | Ft2hr°F / BTU<br>m²K / w | 0.034 6.0x10⁻³ | 0.051 9.0x10-3 | 0.086<br>15.1x10⁻³ | 0.026<br>— | —<br>— |
| STC Sound Transmission Coefficient ASTM E90 | | —<br>— | —<br>— | 26 | —<br>— | —<br>— | —<br>— |
| Maximum Width | | Inches<br>mm | 62<br>1,575 | 62 1,<br>575 | 62 1,<br>575 | 62 1,575 | —<br>— |
| Maximum Length | | Inches<br>mm | 243<br>6,172 | 243<br>6,172 | 243<br>6,172 | 243 6,172 | —<br>— |

1 Solid aluminum properties are based on Alloy 3105-H25. Information contained herein or related hereto is intended only for evaluation by technically skilled persons, with any use thereof to be at their independent discretion and risk. Such information is believed to be reliable, but Alcoa Architectural Products ("Alcoa") shall have no responsibility or liability for results obtained or damages resulting from such use. Alcoa grants no license under, and shall have no responsibility or liability for infringement of, any patent or other proprietary right. Nothing in this document should be construed as a warranty or guarantee by Alcoa, and the only applicable warranties will be those set forth in Alcoa acknowledgment or in any printed warranty documents issued by Alcoa. The foregoing may be waived or modified only in writing by an Alcoa officer. For a complete technical overview of all Reynobond products, visit www.alcoaarchitecturalproducts.com.

EVOLUTION TECHNICAL DATA SHEETS

# RUSPERT®

PREMIUM FIXING SOLUTIONS

Description:

Ruspert® metal finish is a non-organic, high grade metal surface processing technology that prevents corrosion. It consists of three layers: the first layer; a metallic zinc layer, the second; a high grade anticorrosion chemical conversion film, and a third outer layer; baked ceramic surface coating. The distinguishing feature of Ruspert® is the tight joining of the baked ceramic surface coating and the chemical conversion film. These layers are bonded together through chemical reactions, and this unique method of combining layers results in a rigid combination of the coating films.

Ruspert® treatment does not attribute its anti-corrosion properties to merely a single material, but the synergy of these three layers, which combined have superb rustproof qualities. Compatible with metal coated and painted surfaces, fasteners coated with Ruspert® are resistant to acid and alkaline attack, galvanic corrosion and hydrogen embrittlement. These fasteners conform to corrosive gas test standard (Kesternich) DIN50018 SFW-0.25 and give a Salt Spray Fog Test to exceed (JISZ2731) 504 Hours.

Features:

- Superior corrosion resistance. Excellent against gas, weathering and other kinds of corrosive factors including Salt Water.
- Resistant to Acid and Alkaline Attack, Galvanic Corrosion and Hydrogen Embrittlement.
- Corrosion resistance against scratches. Composite layers minimise the effect of scratches on the protection coating.
- Electrolytic corrosion resistance. Less contact corrosion with other metals.
- Low process temperature. The drying temperature below 200ºC protects the products from metallo graphic changes.
- A variety of colours. Various colours to suit different purposes.
- Paintable.

Ruspert Coating Colour Samples (from Evolution Products):

Silver/ Grey Ruspert

Blue Ruspert

Green Ruspert

* All tests reported on this data sheet were carried out by the Nihon Ruspert Co. Ltd


UNIT 5, BLOCK 16, CLYDESMILL ROAD,
CLYDESMILL INDUSTRIAL ESTATE,
GLASGOW, G32 8RE.
TEL: 0141 646 0055. FAX: 0141 646 0033
EMAIL: sales@evolutionfasteners.co.uk.
WEBSITE: www.evolutionfasteners.co.uk

## Finishes and Colours

Our extensive selection of surface treatments along with coil painted or natural metals enables you to create designs and effects that no other panel system can achieve. Whether you're looking for traditional muted colors, newer, brighter and cleaner colors, faux fi nishes, metallic, mica, or natural metal surfaces, with our combination of unique coating and paint technology, you can create the look you want.
Here are a few examples of what's available:


Colors shown are as close to actual colors allowed by the printing process.

More stock and custom colors and fi nishes are available, such as perlized,decorative and prismatic fi nishes, and two-color panels. For more information,visit our Commercial section at www.vicwest.com.

# Technical information

### Flatness

- Tolerances such as camber and thickness are carefully controlled throughout the manufacturing process.
- The Architectural Panel's excellent rigidity allows for the elimination of dimpling, buckling and oil canning.
- Superior flatness combined with inherent rigidity allows the surface to remain stable under ever-changing thermal conditions.

### Fabrication

- Easy cutting, grooving, punching, drilling and curving.
- Panels can be designed so as to create curves, reverse curves and small radii.
- Tight return edges.

### Paint and Resin Systems

- Lumifl on®, a high-performance resin coating that offers:
  - a rich palette of vivid colors
  - a broad spectrum of gloss levels superior recoating ability
- Polyester
- Class 1 Anodized
- PVDF (Kynar)
- Lumifl on®, Polyester, Class 1 Anodized and Kynar 500TM all meet the AAMA 2605 criteria and offer:
  - superior abrasion characteristics
  - field paintable
  - solid and metallic finishes.

### Retrofit

Nowadays, the renovation of and/or additions to existing buildings make up alarge segment of the construction market. The Architectural Panel offers a lightweight solution to the modernization and overall esthetic improvement of existing structures. Whether applied over light gauge stud framing, or lightweight or masonry substrates, the Architectural Panel's flat and rigid appearance is a cost-effective alternative when renovating a building.

### Performance test

VICWEST wall systems meet airtightness and water-penetration requirements in accordance with AAMA 501-94.

**Test procedures:**

ASTM E283-91 – Air infi ltration and exfiltration
ASTM E331-00 – Water penetration
ASTM E330-97 – Wind-load resistance

- Superior flatness combined with inherent rigidity allows the surface to remain stable under ever-changing thermal conditions.

### Product tolerance

- **Width:** ± 0.08″ (2mm)
- **Length:** ± 0.16″ (4mm)
- **Thickness:** 3 mm ± 0.008″ (0.2mm)
  4 mm ± 0.008″ (0.2mm)
  6 mm ± 0.012″ (0.3mm)
- **Bow:** maximum 0.5% in length and/or width.
- **Squareness:** maximum 0.2″ (5mm).

### Fire performance

Our systems have been tested by independent testing laboratories using the following, nationally-recognized fi re tests:

- ASTM E84 Surface Burning
- UBC26-3 Corner Test (4mm): Passed
- CAN/ULC S-134M (4mm): Passed
- UBC 17-2, Potential Heat Release: <6000 BTU/ft$^2$

**Code Evaluation Reports:**

1. BOCA Evaluation Services, Inc.
   – Research Report No. 97-17
2. SBCCI PST & ESI
   – Report No. 9816
3. ICBO Evaluation Services, Inc.
   – Evaluation Report ER-4934
4. City of L.A.
   – Research Report No. 25362
5. New York City
   – MEA 142-97-E
6. SFBC
   – South Florida Building Code Notice of acceptance
   NOA-00-0315.06
   NOA-00-0315.07
7. National Building Code

### Range of sizes

- **Width:** 32.5"–62" (826-1575mm)
- **Length:** 6'–24' (1829-7315mm)

vicwest

Test's

ITS Intertek Testing Services
ETL SEMKO

# Test

REPORT OF
PRODUCT EVALUATION
CONDUCTED ON A
COMPOSITE METAL CLAD WALL SYSTEM

FOR

MERCURY METALS LTD. 7481 VANTAGE WAY
RICHMOND, BC V4G 1C9 CANADA
REPORT PREPARED BY
INTERTEK TESTING SERVICES NA LTD. WARNOCK HERSEY
211 SCHOOLHOUSE STREET COQUITLAM,
BC V3K 4X9 CANADA
REPORT NUMBER: 3031744

DATE: OCTOBER 18, 2002

# Report

## Test's - Preface and Introduction

**Preface**

All services undertaken are subject to the following general policy:

1. This report is fur .he: cAdusi y e: u:,t VfIlltertek. Testing Services NA Ltd.'s (II 8's) clIent and is provided pursuant to the agreement between ITS and its client. ITS's responsibility and liability are limited to the terms and conditions of the agreement. ITS assume no liability to any party, other than to the client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report.

2. Only the client is authorized to copy or distribute this report and then only in its entirety. Any use of the ITS name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by ITS.

3. The observations and test results in this report are relevant only to the sample tested. This repcct by itself does not imply that the material, product or service is or has ever been under an ITS certification program.

**Introduction**

As requested, Intertek Testing Services N.A. Ltd. Warnock Hersey has conducted a series of performance tests on aComposite Metal Clad Wall System submitted to our Coquitlam Laboratory by Mercury Metals Ltd .. Testing was conducted on 8 and 9, 2002.

The sample was tested for Air Tightness, Water Resistance and Wind Load Resistance.

**Product Description**

The test assembly consisted of a 2x4 wood stud wall panel measuring 12'-6" wide x 10'-6" heigh. The studs weJespaced 16" apart and were sheathed using ;6" OSB. The OSB was secured using #8 x 2" flathead screws spaced 12" apart. The perimeter of the panel had a 1-1/2" x 1-1/2" x 0.048" galvanized steel channel set at the perimeter edge of the OSB to act as containment piece.

The entire surface of the sheathing was covered with Bituminous Membrane (Soprema) with the layers running horizontally and lapped a minimum of 6" starting from the bottom and working upward. The lap seams were sealed with mastic. Galvanized steel subgirts (18 ga 0.053") were fastened horizontally over the bituminous membrane and were secured using W' x 1-112" hex head screws spaced 16" apart. A strip of 6" wide bituminous membrane was lapped from the wall membrane over the fastening leg of the subgirts. Its edges were sealed using mastic caulking.

Fibre reinforced polyurethane foam insulation panels (2-1/8" thick) were set into the sub girts. The insulation pan~ls were anchored at their lower edge using galvanized steel disks with #10 x 4-1/2" hex head screws spaced at 43" apart.

Horizontal and vertical aluminum clips or tracks were fastened to the outboard edge of the sub girts using #8 x 3/4" panhead screws.

The panels were secured to the aluminum clips. Three horizontal panels measured 95-1/4" wide x 34-1/4" high, one measured 95-1/4" wide x 18-1/2" high and the one vertical panel measured 49-4" wide x 122-1/2" high. These panels completed the finished wall system.

For more details, please see drawings in Appendix II and photographs in Appendix III.

## Test's - Results

### 1. Air Tightness Test

A Meriam Instrument Co. Laminar Flow Element Model No. 50MW20-2F SIN 705960-WI in conjunction with a Meriam Instrument Co. 8" W.C. Model No. 40HEX35WM SIN 748930-H2 calibrated inclined manometer, a AFD Model Type 504 ITS ill P52722, and Dwyer 16" ITS ill 1010 were using to measure the volume of air passing through the test sample.

### 2. Air Infiltration/Exfiltration

Air infiltration and Exfiltration tests was performed in accordance with ASTM E283-91 "Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen" using various test pressures.

**Infiltration**

| Section | Pressure Differential | | Crack Length | | Area | | Result | |
|---|---|---|---|---|---|---|---|---|
| | Pa | psf | m | ft | m | ft | $m^3$ /hr*m | $cfmlft^2$ |
| Overall Mock-Up | 75 | 1.57 | 35.21 | 115.524 | 35.21 | 115.524 | 0.05 | 0.008 |
| Overall Mock-Up | 300 | 6.24 | 35.21 | 115.524 | 35.21 | 115.524 | 0.15 | 0.02 |

**Exfiltration**

| Section | Pressure Differential | | Crack Length | | Area | | Result | |
|---|---|---|---|---|---|---|---|---|
| | Pa | psf | m | ft | m | ft | m3/hr*m | cfmlfe |
| Overall Mock-Up | 75 | 1.57 | 35.21 | 15.524 | 35.21 | 115.524 | 0.002 | 0.0004 |
| Overall Mock-Up | 300 | 6.24 | 35.21 | 15.524 | 35.21 | 115.524 | 0.02 | 0.004 |

### 3. Water Tightness Test

A water resistance test was performed on the sample in accordance with ASTM E547-96 "Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Cyclic Static Air Pressure Differential" A Dwyer 16 ITS ID 1010 manometer was used to measure the pressures. A calibrated water sprayassembly was used to deliver the water on the test sample.

The test was performed using a pressure differential of 700 Pa (15 pst) and a water spray rate of at least 204 Llm2 per hour (5.0 US gal/ff . h). The period consisted offour cycles offive minutes with the pressure applied and one minute with the pressure released.

During the 24 minute test period, no water leakage was observed.
Upon completion of the test, an additional water test was undertaken. The test was perfonned on the sample in accordance with ASTM: E-33 1-96 "Standard Test lv!ethod Jor Water Penetration of Exterior Windows, Curtain Walls and Doors by Uniform Static Air Pressure Difference"
The test was perfom1ed using a pressure differential of 700 Pa (15 pst) and a water spray rate of at least 204 Llm2 per hour (5.0 US gal/ff . h). The period consisted of one fifteen-minute cycle with the pressure applied.

During the IS-minute test period, no water leakage was observed.

### 4. Wind Load Resistance

A uniform load test was conducted in accordance with ASTM E-330-97el "Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference". A Dwyer 36" manometer (sin 52613) was used to measure pressures and three Mitutoyo Digamatic Indicators ITS ID 9-0344,52630, and 52629 was used to measure the deflection of the door.

A test was conducted using a test pressure of 2500 Pa (52 pst). The maximum residual deflection recorded from positive and negative pressure tests at the center of the vertical panel was 2.66 mm (0.105"); the maximum allowable was 3.11 mm (0.123") (based Ll1000).

The test sample was subjected to a Structural Test Pressure using positive and negative pressures of 5000 Pa (104pst).

At 4500 Pa (93.6pst) in the inward direction the 2 x 4 studs broke in bending while applying the 5000 Pa (104 pst). There was no permanent deformation or breakage to the cladding system. As the evaluation was for the cladding system and not the structural backing, the system met the requirements for Wind Load.

## Test- Conclusion

**Test History**
See Appendix I for test history and modifications.

**Conclusion**
The Composite Metal Clad Wall System described herein met the performance criteria as per the manufacturer'srequirements.

INTERTEK TESTING SERVICES NA LTD.
'Warnock Hersey

Tested and Reported by:

Heiko Neugebauer
LaboratOlY Supervisor, Construction Products

Reviewed by:

Cam Robinson, P.Eng.
Manger, Construction Products

HN/lrh