



*"Changing the Standard by Design"*  
BUILDING ENVELOPE SOLUTIONS

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**SECTION 07 42 43**

**2025**

**CARTER ARCHITECTURAL PANELS, INC.**  
**EVO™ RIVETLESS™ with etalbond®**  
ALUMINUM COMPOSITE METAL (ACM)  
**CAN/ULC S134 WALL ASSEMBLY SPECIFICATION**  
**ASHRAE 90.1-16 compliant**

*SPEC NOTE: Optional text is indicated by square brackets [ ]. Delete unwanted items and square brackets in final specification.*

**PART 1 - GENERAL**

**1.01 SECTION INCLUDES**

- .1 Aluminum Composite Material (ACM) [pressure equalized rainscreen] [wet-seal] [dry-seal] panels.
- .2 Exterior Wall Insulation:
  - .1 Provide a thermal, air barrier and water-resistive barrier wall system for exterior cold-formed metal wall assemblies. Work includes:
    - .1 Provide exterior wall insulation.

*. SPEC NOTE: Re 1.01.3. Items listed are available at extra cost and not included with basic panel package.*

- .3 Accessories including Z-girts, roof caps, drip flashing, jamb flashing through wall flashing, and all other architectural trims.
- .4 Standards for Consideration and Supporting Evidence
  - .1 Carter Architectural Panels, Inc., is recognized as the leading ACM/MCM Attachment System Designer and Distributor. Through rigorous testing to meet performance criteria Carter obtained our **Code Compliance Research Report (CCRR)**, which will be referred to as **CCRR-0474** hereafter.
  - .2 The **CCRR-0474** addresses compliance with the following codes:
    - 2021, 2018 International Building Code (**IBC**)
    - 2020 Florida Building Code (**FBC**) including High Velocity Hurricane Zones (**HVHZ**); (**TAS 202, TAS 201** and **TAS 203**)

- Carter Panel Systems comply with IBC Section 1406 and ICC-ES AC25 (Acceptance Criteria for Metal Composite Material (MCM/ACM))
  - Carter Panel Systems may be used on buildings of **Type I, II, III, or IV** construction for installations greater than 40 feet above grade.
- .3 Relevance of **CCRR-0474**:
- CCRR-0474 Acceptance means the tested panel was one complete fabricated unit and evaluated on the basis-of-design for a real-world utilization.
  - Included in the construction/fabrication of the tested assembly is both the chosen outer ACM plank material and [insulation and AVB material if designed and required], as well as and inclusive of, the extruded attachment system and components required to secure the finished wall panel to the sub-structure, inclusive of but not limited to Z-girts/Hat-channels, filler strips/splines. Etc.
  - **CCRR-0474 is unique in that it is inclusive of the entire panel and attachment assembly, where others are not.**

## 1.02 RELATED REQUIREMENTS BY OTHERS

- [.1 Section 06 10 00 – Rough Carpentry]
- [.2 Section 07 21 00 – Thermal Insulation]
- [.3 Section 07 27 00 – Air Barrier]
- [.4 Section 07 92 00 – Joint Sealants]
- [.5 Section 07 92 19 – Acoustical Joint Sealants]
- [.6 Related Sections to be performed by others]:
  - .1 Division 01: Administrative, procedural, and temporary work requirements.
  - .2 Section [054000 - Cold-Formed Metal Framing:] [ \_\_ - \_\_\_\_:]  
Load bearing, metal exterior wall framing assemblies.
  - .3 Section [092116 – Gypsum Board Assemblies:] [ \_\_ - \_\_\_\_:]  
Interior gypsum board wall finish.
- .7 General Notes:
  - .1 The design and construction of the exterior cold-formed metal wall assemblies and supporting structure is the responsibility of the project architect, engineer, general contractor, and the building owner. The structure must be designed to resist all live, dead, snow, wind and construction loadings without excessive deflections as dictated by the governing building codes.

- .2 The selection and use of exterior wall insulations, as well as other wall system components, to meet the requirements for any given project is at the sole discretion of the owner or his designated agent or representative.
- .3 Only skilled, trained workmen familiar with **Johns Manville (JM) CladStone™ 45 Water & Fire Block Insulation** and the various other components, such as the **KOA Clip™ (ASHRAE 90.1-16 compliant)** for the **EVO™ CAN/ULC S134** wall system, shall be used to perform the required work.

### 1.03 REFERENCE STANDARDS

#### .1 ACM Panels

- .1 AAMA 2605 Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.
- .2 ASTM B 209 Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
- .3 ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials.
- .4 ASTM D1929 Standard Test Method for Determining Ignition Temperature of Plastics.
- .5 ASTM D1781 Standard Test Method for Climbing Drum Peel for Adhesives
- .6 UL 1715 Standard for Fire Test of Interior Finish Material
- .7 **CAN/ULC S134** is a standard method of fire test of exterior wall assemblies used to evaluate the fire performance and burning characteristics of an exterior wall with controlled fire exposure. The test measures the fire spread over the cladding, heat flow from a controlled fire to the exterior wall, and the fire spread within the wall assembly.

*(see 2.01.2 Composite Panels; see 2.03.1.5 Finishes)*

- .8 Code Compliance Research Report (CCRR); **CCRR-0473** recognizes etalbond® ACM/MCM 4mm FR core.

#### .2 Exterior Wall Insulation

1. ASTM C165 - [2012], Standard Test Method for Measuring Compressive Properties of Thermal Insulations.
2. ASTM C303 - [2012], Standard Test Method for Dimensions and Density of Preformed Block and Board-Type Thermal Insulation.
3. ASTM C518 - [2010], Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.

4. ASTM C612 - [2010], Standard Specification for Mineral Fiber Block and Board Thermal Insulation.
5. ASTM C665 - [2011], Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.
6. ASTM C795 - [2013], Standard Specification for Thermal Insulation for Use in Contact with Austenitic Stainless Steel.
7. ASTM C1104/C1104M - [2013], Standard Test Method for Determining the Water Vapor Sorption of Unfaced Mineral Fiber Insulation.
8. ASTM C1338 - [2008], Standard Test Method for Determining Fungi Resistance of Insulation Materials and Facings.
9. ASTM E84 - [2012b], Standard Test Method for Surface Burning Characteristics of Building Materials.
10. ASTM E96/E96M - [2010], Standard Test Methods for Water Vapor Transmission of Materials.
11. ASTM E136 - [2011], Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 degrees C.
12. US Green Building Council (USGBC).
1. LEED v4-[2014], LEED (Leadership in Energy and Environmental Design):Green Building Rating System.

### .3 Panel Attachment System

- .1 *(see 1.07 Design & Performance Requirements; see 1.08 Technical Data utilizing proprietary EVO™ RIVETLESS™ perimeter extrusions)*

## 1.04 PRE-INSTALLATION MEETINGS

- .1 Coordinate products, techniques, and sequencing of related work with Section [01 31 19 - Project Meeting] [and] [ 01 31 19.33-Pre-Installation Meetings].

## 1.05 SUBMITTALS

- .1 Under provisions of [Section 01 33 00], provide the following:
  - .1 LEED Credits: Conform to [Section 01 81 13 “Sustainable Design Requirements”] for documentation of LEED Credits re: Certification of Project under LEED [caGBC] [USGBC] 2012 Rating System.
  - .2 Product Data: manufacturer’s printed sheets or pages illustrating the products to be incorporated into the project.
  - .3 Shop Drawings: Detail drawings showing openings, components, panel profile, dimensions, and other details of each condition and attachment such as treatment at edges, terminations, and flashings.
  - .4 Product Samples: 150 mm x 150 mm (6” x 6”) showing specified finish for each location.

- .5 Product Test Reports: Indicate compliance of product requirements from qualified independent testing agency (**AAMA; ASTM; CAN/ULC S134; CCRR; intertek;**)
  - .6 Manufacturer's Instructions: Indicate installation requirements, rough-in dimensions, and special procedures.
  - .7 Sample Warranty: As specified by this Section.
  - .8 Maintenance Data: Panel replacement instructions and cleaning information.
- .2 Submittals for Review:
    - .1 Product Data: Submit manufacturer's product data and installation instructions for each wall system component product required.
    - .2 Reports: Submit documentation verifying wall system components meet or exceed specified requirements.
      - .1 ASTM E2357 air barrier system testing
      - .2 ASTM E331 water penetration testing
      - .3 UL1715 fire testing
      - .4 Submit list on insulation manufacturer's letterhead of materials and accessories to be incorporated into Work.
      - .5 MSDS report.
      - .6 Include product name.
      - .7 Include preparation instructions and recommendations, installation methods, and storage and handling requirements.
      - .8 Include contact information for manufacturer and their representative for this Project.
      - .9 Submit evaluation service reports or other independent testing agency reports showing compliance with specified performance characteristics and physical properties.
    - .3 Samples:
      - .1 Submit 12x12 inch sample(s) of **EVO™ JM CladStone™ 45 Water & Fire Block Insulation** in thickness used on Project.
      - .2 Submit 3 total sample(s) of each exterior wall insulation fasteners/washers and veneer anchors.

## 1.06 QUALITY ASSURANCE

- .1 Metal Wall Panel Manufacturer Qualifications: Minimum 3 years experience in metal fabrication and supplying metal wall panel systems.
- .2 Metal Wall Panel Installer Qualifications: Minimum 3 years experience installing commercial metal wall panel systems.
- .3 Metal Wall Panel Fabricators must be an approved EVO™ RIVETLESS™ Fabricator and must manufacture EVO™ RIVETLESS™ architectural panels to the tolerances and attributes established under the provisions of EVO™ RIVETLESS™ North America.

- .4 Only skilled, trained workmen familiar with **JM CladStone™ 45 Water & Fire Block Insulation** and the various other components of the **EVO™ CAN/ULC S134** exterior wall system shall be used to perform the required work. Board Insulation Installer Quality Assurance: Work experience of [3] years minimum with work like this Section.

## 1.07 DESIGN & PERFORMANCE REQUIREMENTS

### ACM PANELS

- .1 **Design**, fabricate and install an Aluminum composite material (ACM) pressure equalized rainscreen (PER) panel system in fire-rated (FR)] core, to the following standards & requirements:
  - .1 The ACM panel design **MUST** be 100% free of all fasteners in both the panel face and panel perimeter. All mounting hardware must also be fully concealed with color matched splines utilizing the same Kynar/PvDF paint technology as the coil coated ACM, provided by manufacturer.
  - .2 Only a Progressive System (independent panel, one-from-another), using sliding male-female clip components, which are held to the panels perimeter extrusion, without the use of rivets or screws, meets the description of an engineered **EVO™ RIVETLESS™** panel design. This design must enable a single panel to be independently removed and re-installed. *(The procedure for successfully completing a retrofit panel is provided to the installer upon certification of installation protocol).*
  - .3 Any ACM panel attachment system not meeting the standards & requirements outlined above (1.07.1.1; 1.07.1.2), or any panel system utilizing a track or grid layout, or one that involves a “picture frame style” post-painted extrusion incorporating a face panel, or one that utilizes adhesives in place of mechanical fasteners in the panel design, are **NOT** considered as equal or comparable in design or performance, to the **EVO™** architectural panel system.

- .2 **Structural Performance:** **EVO™** ACM panel system can withstand the effects of the following loads, based on testing in accordance with **ASTM E330 /E330M-14:**

*Note: The default deflection of the support framing was restricted to L/180 referencing AAMA 508-21 Section 6.1.1*

- .1 Wind Load: *Maximum Pressure achieved* = **6,064<sup>1</sup> (126.6 lbs/ft<sup>2</sup>)**  
*(equivalent to 224 mph / 360 km/h based on Enswiler formula)*
- .2 Specified Design Load: 3,591 Pa (75.0 lbs/ft<sup>2</sup>)
- .3 Positive Loading Net Deflection: (+3,591 Pa; 75.0 lbs/ft<sup>2</sup>) = 0.39 inches (8.15mm)
- .4 Negative Loading Net Deflection: (-3,591 Pa; -75.0 lbs/ft<sup>2</sup>) = 0.33 inches (7.59mm)

(<sup>1</sup> Cladding system did not disengage from the wall assembly. The EVO™ RIVETLESS™ panel system did not fail at 6,064 Pa., whereas the vertical supporting steel studs buckled in the center)

- .3 **Air Infiltration:** Air leakage of not more than 0.06 cfm/ lbs/ft<sup>2</sup> (0.3 L/s per sq. m) when tested according to **ASTM E 283-19** at the following test-pressure difference:
  - .1 EVO™ RIVETLESS™ panel systems Test-Pressure Differential: Infiltration  
75 Pa @ 1.57 lbs/ft<sup>2</sup> : 0.1 L/s m<sup>2</sup> (0.02 CFM/ft<sup>2</sup>)  
**300 Pa @ 6.24 lbs/ft<sup>2</sup> : 0.2 L/s m<sup>2</sup> (0.04 CFM/ft<sup>2</sup>)**
- .4 **Water Penetration under Static Air Pressure:** No continuous streaming was observed when tested according to **ASTM E 331-00** at the following test-pressure difference over a period of 15 continuous minutes and only 0.85% wetting of surface area, less than the 5% allowable.
  - .1 Test-Pressure Differential: *Maximum Pressure achieved* = **6.24 lbs/ft<sup>2</sup> @ 300 Pa**
- .5 **Water Penetration Resistance using Dynamic Pressure:** Any water that penetrated the exterior rain screen cladding was controlled and drained to the exterior with no continuous streaming observed. Tested according to **AAMA 508-21, Section 6.7, Referencing AAMA 501.1-05** at the following test-pressure over a period of 15 continuous minutes at velocity of 50 mph (80 km/h) and only 0.51% wetting of surface area, well less than the 5% allowable.
  - .1 Test-Pressure Differential: *Maximum Pressure achieved* = **6.24 lbs/ft<sup>2</sup> @ 300 Pa**
- .6 **Pressure Equalization Behaviour Analysis:** The EVO™ RIVETLESS™ rainscreen panel system **meets the requirements** for Wind Gust Pressure Differential: *Not to exceed 50% of maximum pressure.*
  - .1 **Maximum External Gust Pressure** = 25.1 lbs/ft<sup>2</sup> @ 1,200 Pa = **39%** pressure differential, as required by AAMA 508-21, (ASTM E1233M-14).
- .7 **Thermal Movements:** EVO™ RIVETLESS™ ACM panel system has been designed to accommodate vertical and horizontal thermal movement of components, preventing buckling, opening of joints and other detrimental effects when subjected to seasonal temperature cycles. Systems that incorporate enlarged holes or loose-fitting attachments to accommodate for thermal fluctuations, are **NOT** considered as equal or comparable in design or performance, to the EVO™ RIVETLESS™ pressure equalized rainscreen panel system.
  - .1 Temperature Change (Range): [120 deg F 67 deg C, ambient; 180 deg F 100 deg C, material surfaces].

- .8 **Fire Propagation Characteristics:** Aluminum Composite Material wall panel system **CAN/ULC S134** testing.
- .1 EVO™ RIVETLESS™ panel system **met** the Conditions of Acceptance of **CAN/ULC S134** test criteria. See the Intertek test report available from Carter Architectural Panels, Inc., [www.carterpanels.com](http://www.carterpanels.com). (**CAN/ULC S134** Test Report with etalbond® 4mm FR core) (Report # P4166.02-121-24-RO)
- .2 1.06.8.1 Conditions of Acceptance are Supporting Evidence required for CCRR-0474

EXTERIOR WALL INSULATION

- .6 **Performance Characteristics:**  
**JM CladStone™ 45 Water & Fire Block Insulation:** Non-combustible, lightweight, water repellent, semi-rigid insulation to ASTM C612 Type IA, IB, II, III, IVA, IVB.
  - .1 Board insulation for exterior cavity wall: To ASTM C612 Type IA, IB, II, III, IVA, IVB.
    - .1 Fire performance:
      - a. Non-combustibility: To ASTM E136.
      - b. Surface Burning Characteristics: To ASTM E84.
        - 1) Flame spread: 0.
        - 2) Smoke developed: 0.
    - .2 Thermal resistance
      - .1 2” and less R value/1 inch at 75 °F: 4.3 h ft<sup>2</sup> °F/Btu to ASTM C518
      - .2 2.5” and greater R value/1 inch at 75 °F: 4.3 h ft<sup>2</sup> °F/Btu to ASTM C518.
    - .3 Water vapor permeance: 27.2 Perm minimum.
    - .4 Moisture sorption: 1 % maximum to ASTM C1104/C1104M.
    - .5 Fungi resistance: Zero mould growth to ASTM C1338.
    - .6 Corrosive resistance:
      - a. Steel to ASTM C665: Pass.
      - b. Stainless steel to ASTM C795: Pass.
    - .7 Recycled content: [16] [40] % minimum.
    - .8 Acoustical performance sound absorption co-efficients to ASTM C423.

Sound Absorption Co-efficiencies at Frequencies

Thickness (inches)	125	250	500	1000	2000	4000	NRC
1.5	0.19	0.55	1.03	1.06	1.02	1.01	0.90



2	0.26	0.71	1.14	1.09	1.04	1.03	1.00
3	0.72	0.93	0.88	0.84	0.90	0.97	0.90

## 1.08 TECHNICAL DATA

Applicable Standards for the ACM component of the EVO™ RIVETLESS™ CAN/ULC S134 pressure equalized rainscreen (PER) wall panel attachment system:

### RAINSCREEN TESTING

**AAMA 508-07 Compliant**

### AIR/WATER/WIND PERFORMANCE

AAMA 501.1-05 (Dynamic)

ASTM E 1233 (Modified)

ASTM E 283 (Static)

ASTM E 330 (Static)

ASTM E 331 (Static)

### FIRE TEST METHOD

#### **CAN/ULC S134 Compliant**

**CAN/ULC S134** and is a standard method of fire test of exterior wall assemblies used to evaluate the fire performance burning characteristics of an exterior wall with controlled fire exposure. The test measures the fire spread over the cladding, heat flow from a controlled fire to the exterior wall, and the fire spread within the wall assembly. Passing the **CAN/ULC S134** ensures compliance with the National Building Code of Canada, meaning the materials contained within the wall assembly – vapor barrier, insulation, extrusions, and cladding material – together limit flame spread, which is a critical requirement for buildings above 40 feet from grade.

## 1.09 MOCK-UP

*SPEC NOTE: Mock-up is only specified for special or large projects and only upon request.*

- .1 Provide a mock-up on building consisting of complete cladding system, including but not limited to metal furring, panels, securement devices, sealants, and mouldings for approval. Cladding finish and mouldings to be of finish and color as designated by the [Architect].
- .2 Location of mock-up to be as directed by [Architect]. Size to be four panels minimum in a 2 over 2 configuration. Alternate pattern can be requested by Architect.

- .3 Modify mock-up as necessary for [Architect] approval. Mock-up [may] [may not] remain in place as part of completed work. Mock-up to represent standard for completed work.

## 1.10 DELIVERY, STORAGE, AND HANDLING

- .1 .1 Handle and store products to prevent damage, soiling, and in accordance with manufacturer's instructions.
- .2 Store packaged or bundled products in original and undamaged crates with manufacturer's seals and labels intact. Do not remove from packaging or crates until required for installation.
- .2 Deliver material in accordance with Section 01 61 00 - Common Product Requirements
  - .1 Deliver materials and accessories in insulation manufacture's original packaging with identification labels intact and in sizes to suit project.
  - .2 Ensure insulation materials are not exposed to moisture during delivery.
  - .3 Replace wet or damaged insulation materials.
- .3
  - .1 Storage and Handling Requirements: Store materials off ground in dry location and protected from exposure to harmful weather conditions and at temperature conditions recommended by manufacturer.
  - .2 Store in original packaging until installed.
- .4 Packaging Waste Management:
  - .1 Separate and recycle waste packaging materials in accordance with Section 01 74 19 - Construction Waste Management and Disposal.
  - .2 Remove waste packaging materials from site and dispose of packaging materials at appropriate recycling facilities.
  - .3 Collect and separate for disposal paper and plastic material in appropriate on-site storage containers for recycling [in accordance with Waste Management Plan].

## 1.11 PACKAGING WASTE MANAGEMENT

- .1 Return undamaged pallets and crates to manufacturer of systems employed. All other plastics, packaging foam, banding and fasteners are to be disposed of by panel installer.

## 1.12 ENVIRONMENTAL CONSIDERATIONS (LEED)

- .1 Sustainable Design Submittals:
  - .1 The United States Green Building Council (USGBC) developed the Leadership in Energy and Environmental Design (LEED)® Rating System

as the standard for green buildings. The LEED system establishes basic requirements for various aspects of sustainable design.

- .2 **JM CladStone™ 45 Water & Fire Block Insulation** exterior wall insulation products may help in the process of qualifying for LEED credits with Section [01 35 21].
  - .1 EA Prerequisite 2: Minimum Energy Performance
  - .2 EA Credit 1: Thermal value of insulation contributing to overall energy performance of building.
  - .3 MR Credit 4: Recycled Content of insulation indicating percentages by weight of pre-consumer and post-consumer recycled content.
  - .4 MR Credit 5: Verify location where insulation is extracted, processed and manufactured.

.2 ACM Coil MR (Material and Resources) Credit:

etalbond® by ELVAL® material manufactured by ELVAL® Colour  
 3rd km Inofyta Peripheral Rd.,  
 32 011, Saint Thomas, Viotia, Greece email: ecs@elval-colour.com

**MR Credit 4: Recycled Content:** One point is awarded if the sum of post-consumer recycled content plus one half of the pre-consumer content is at least 10%. If the same value is at least 20% as determined by the same method then 2 points are awarded.

<u>Product Summary</u>	<u>Total Content (100% post + 50% Pre)</u>	<u>LEED Points</u>
4mm PE	35%	2 points
4mm FR	17.3%	1 point
6mm PE	32.5%	2 points

.3 6061-T6 EVO™ Extrusion

Material percentages may vary from batch to batch. Standard blending formula calls for a **minimum of 10% post-consumer aluminum in every blend**. The final percentage is between 10% and 15% on 6063 type grades. Other alloys such as 6061 often have a higher percentage of post-consumer scrap. These alloys can contain in excess of **30%**. The EVO™ architectural panel system is produced using 6061-T6.

1.13 WARRANTY

- .1 etalbond® by ELVAL® 4MM FR ACM Panel: Provide manufacturer’s standard [5 year] [10 year] warranty against panel integrity.
- .2 Finish Coating Performance: Provide manufacturer’s standard [10, 20, 30 year] warranty against fading, color change, chalking, peeling, cracking, or delaminating of the coating system.

- .3 **Johns Manville CladStone™ 45 Water & Fire Block Insulation** exterior wall insulation:
  - .1 Project Warranty: Refer to Contract Conditions for project warranty provisions.
  - .2 Manufacturer's warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is not intended to limit other rights Owner may have under Contract Conditions.
  - .3 Warranty period: [1] years commencing on Date of Substantial Performance of Work.

## **PART 2 – PRODUCTS**

### **2.01 MANUFACTURERS**

- .1 Aluminum composite metal panels to be obtained as single source from Carter Architectural Panels approved EVO™ RIVETLESS™ manufacturers.
- .2 COMPOSITE PANELS
  - .1 etalbond® by ELVAL® material manufactured by ELVAL® Colour 3rd km Inofyta Peripheral Rd., 32 011, Saint Thomas, Viotia, Greece email: ecs@elval-colour.com
  - .2 Aluminum Face Sheets:
    - .1 Thickness: 0.50mm (0.020") (nominal)
    - .2 Alloy: AA3000 or AA5000 Series (Painted material)
  - .3 Panel Thickness and Weight:
    - .1 [4mm (0.157"): 1.12 lbs./ft²] [6mm (0.236"): 1.50 lbs./ft²]
  - .4 Core: (PE) or (FR)
  - .5 Product Performance
    - .1 Bond Integrity
 

When tested for bond integrity, in accordance with ASTM D1781 (simulating resistance to panel delamination), there shall be no adhesive failure of the bond a) between the core and the skin nor b) cohesive failure of the core itself below the following values:
    - .2 Peel Strength:
 

Greater than 100 N-mm/mm (22.5 in-lb/in) as manufactured.  
Greater than 100 N-mm/mm (22.5 in-lb/in) after 21 days soaking in water at 70°F
  - .6 Fire Performance
    - .1 ASTM E 84: Flame Spread = "Passed Class A"
    - .2 Smoke Developed = "Passed Class A"
    - .3 **CAN/ULC S134** Tested EVO™ etalbond® by ELVAL® 4MM FR Core

### .3 EXTERIOR WALL INSULATION

- .1 Manufacturer: Johns Manville Canada Inc. 3330 Marleau Ave, Cornwall, Ontario, K6H6B5, Phone: 613-932-4565, Toll Free: 1-800-644-4013 Building Insulation, URL: [www.jm.com](http://www.jm.com)
- .2 Substitutions: [Under provisions of Division 01 23 13] [Not permitted.]

## 2.02 MATERIALS

*SPEC NOTE: Delete items not required.*

### .1 ACM Wall Panel System

- .1 etalbond® by ELVAL® Carter Architectural Panels, Inc. by (Approved Manufacturer) [Pressure Equalized Rainscreen] [wet-seal] [dry-seal] wall cladding.
- .2 Thickness: [4 mm (0.157")] [6 mm (0.250")].
- .3 Panel Depth: (1.75") from face of panel too substrate.
- .4 Core: [Fire Rated (FR)]
- .5 Aluminum Composite Material: etalbond® by ELVAL®
- .6 Manufacturer's standard, as shown on drawings, and as follows:
  - .1 Z-girts: [18 ga.; 16 ga.] steel galvanized to ASTM A653 G90.
  - .2 Aluminum Extrusions: EVO™ RIVETLESS™ extrusions, Mill finish (6061-T6).
- .2 **Johns Manville CladStone™ 45 Water & Fire Block Insulation** - Non-combustible, lightweight, water repellent, semi-rigid insulation to ASTM C612 Type IA, IB, II, III, IVA, IVB.
  - .1 Size: [16] [24] x 48 inches.
  - .2 Thickness: [1] [1.5] [2] [2.5] [3] [3.5] [4] [4.5] [5] [5.5] [6] inches.
  - .3 Thicknesses 2" and below Density 4.4 lb/ft<sup>3</sup> to ASTM C303
  - .4 Thicknesses 2.5" and above Density:
    - a. Outer layer: 6.24 lb/ft<sup>3</sup> to ASTM C303.
    - b. Inner layer: 3.75 lb/ft<sup>3</sup> to ASTM C303.
  - .5 Acceptable Material: **JM CladStone™ 45 Water & Fire Block Insulation.**
- .3 Accessories:
  - .1 Mechanical fasteners in accordance with insulation manufacturer's written recommendations.

- .2 Insulation Clips: in accordance with manufacturer's written recommendations. CAN/ULC S134 Test utilized KOA Clip™ to comply with the requirements of ASHRAE 90.1-16

## 2.03 FABRICATION

*SPEC NOTE: see Quality Assurance (1.06.3 above for Manufacturer qualifications/criteria)*

### .1 ACM Wall Panels

- [.1 FR ACM Formed Panel: Comprised of a one-hour fire retardant, mineral-filled, fire-resistant extruded core sandwiched between two nominal 0.020" coil coated 3000 or 5000 series aluminum skins.]
- .2 Fabrication Method: Rout and return system utilizing a CNC cutting table with automatic pressure foot to control cutting depth and vacuum bed for sheet support.
  - .1 Fabrication Method: Prepare EVO™ RIVETLESS™ extrusions for securing to ACM panel in accordance with manufacturer's written instructions and in accordance with AAMA 508-07.
- .3 Fabricated Panel Tolerances
  - .1 Length: Plus 1.6 mm (0.062 inch).
  - .2 Width: Plus 1.6 mm (0.062 inch).
  - .3 Depth: Plus or minus 0.2 mm (0.008 inch).
  - .4 Panel Bow: 0.8 percent maximum of panel length or width.
  - .5 Squareness: 5 mm (0.2 inch) maximum.
- .4 Rainscreen Panels: Provide for positive drainage of condensation and water entering at joints to exterior face of wall in accordance with "Rain Screen Principles". Panels to have drainage holes in bottom of each panel measuring 10 mm (3/8") diameter on 406mm (16") minimum to 610mm (24") maximum centers, to comply with AAMA 508-07.

*SPEC NOTE: Finish (2.03.5.1) below is shown as example only. Specify actual finish(es) as per ACM coil manufacturer (see 2.02.1.5 Materials above).*

### .5 Finishes

- .1 PPG Duranar (PVdF) fluoropolymer containing 70% Kynar 500/Hylar 5000 resins to AAMA 620, [\_\_\_\_\_color].

## **PART 3 – EXECUTION**

### **3.01 EXAMINATION**

- .1 Verify that substrate conditions are acceptable (plumb and level) prior to installation of products. Commencement of work or any parts thereof indicate acceptance of prepared substrates.
- .2 Surfaces to receive panel system barrier to be sound, dry, clean, and free from oil, grease, dirt, excess mortar, or other contaminants. Fill spalled areas to provide an even plane.
- .3 Verification of Conditions: Verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for insulation installation in accordance with manufacturer's written recommendations.
  1. Visually inspect substrate in presence of consultant.
  2. Ensure surfaces are free of snow, ice, frost, grease and other deleterious materials.
  3. Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Consultant.
- .4 Start of insulation installation indicates installer's acceptance of substrate installation conditions.

### **3.02 PROJECT CONDITIONS**

- .1 Confirm that all building structural steel members have been erected. Exterior wall stud framing finished surfaces shall be clean and free of irregularities that will affect the placement or performance of the **EVO™ CAN/ULC S134** Wall Solution, including, but not limited to dirt, debris, miscellaneous fasteners or warped, defective or otherwise damaged framing.
- .2 Exterior wall steel studs framing members shall be a minimum of 3 5/8 inch depth, minimum 20 gauge and spaced a maximum of 24 inches on center with lateral bracing every 4 feet vertically. However, due to project specific conditions, the gauge of steel and frequency of spacing may vary and is the responsibility of the engineering firm overseeing this scope of work.
- .3 Confirm that the metal (exterior wall) steel stud framing, bottom track, sitting on the floor and the top track attached to the ceiling, have been sealed per standard building practices to prevent air leakage at these locations.
- .4 Verify that metal wall studs, opening framing, bridging, bracing and other framing support members and anchorage have been installed within thermal wall system alignment tolerances and requirements.
- .5 Do not proceed with **EVO™ CAN/ULC S134** Wall Solution installation until unsatisfactory conditions have been corrected.
- .6 Installation of the **EVO™ CAN/ULC S134** Wall Solution constitutes acceptance of existing conditions and responsibility for satisfactory performance.

- .7 Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum result. Do not install products under environmental conditions outside the manufacturer's absolute limits.
- .8 **EVO™ CAN/ULC S134** Wall Solution should not be installed during adverse weather conditions, such as rain, sleet, snow or heavy winds.
- .9 Do not install wall system components on walls when water of any type is present. Do not apply any wall system component that is damp or wet.
- .10 If insulation boards get wet, ensure they are fully air dried before installing, sealing or covering.
- .11 Verify that all surfaces to be taped are free of frost, oil, grease, oxidation, dirt, loose paint, loose scale, or other deleterious materials that would impair bond.
- .12 Verify that items required to penetrate the thermal wall system are placed and penetrations gaps and cracks are properly sealed before installation is complete.
- .13 At no point between working days should the **EVO™ CAN/ULC S134** be left partially taped. All taping and flashing of a started section shall be completed and all exposed foam edges shall be sealed before the work day ends.
- .14 Protect adjacent work areas and finished surfaces from damage by this Section of Work.

### 3.03 WALL SYSTEM INSTALLATION

- .1 Install **EVO™ CAN/ULC S134** Wall Solution in accordance with manufacturer's recommendations. (see 3.03.4.4 below)
  - .1 Install **JM CladStone™ 45 Water & Fire Block Insulation**, in accordance with manufacturer's written recommendations.
  - .2 Install insulation to maintain continuity of thermal protection to building elements and spaces. Utilizing the **KOA Clip to meet ASHRAE 90.1-16** requirements to isolate thermal bridging within the building's envelope, has proven effective and withstood the **CAN/ULC S134** test.
  - .3 Fit insulation closely around electrical boxes, pipes, ducts, frames and other objects in or passing through insulation.
  - .4 Keep insulation minimum [3] inches from heat emitting devices such as recessed light fixtures, and minimum [2] inches from sidewalls of chimneys and vents.
  - .5 Do not enclose insulation until before inspection and receipt of Consultant's written approval.
- .2 Installation of Insulation Board for Exterior Cavity Wall Installations:
  - .1 Install insulation board in accordance with insulation manufacturer's written recommendations.
  - .2 Seal joints with acoustical joint sealant in accordance with Section [07 92 19 - Acoustical Joint Sealants].
- .3 Installation of Insulation Board for Foundations:



- .1 Install insulation board on foundation using all-purpose construction adhesive in accordance with insulation manufacturer's written recommendations.
- .2 Attach insulation board with 1.5 inches concrete nails and seal with bitumen sealing compound.
- .3 Seal joints with acoustical joint sealant in accordance with Section [07 92 19 - Acoustical Joint Sealants].

Additional information is available for Installation procedures, please contact us at the following: 1.844.888.5088 press 3

#### .4 ACM Panels

- .1 Install panels plumb, level and true, and in accordance with manufacturer's written instructions.
- .2 Anchor panels securely in place in accordance with fabricator's approved shop drawings.
- .3 Installation Tolerances: Maximum deviation from horizontal and vertical alignment of installed panels not to exceed 6.4 mm (0.25") in 6.1 m (20 feet), non-cumulative.
- .4 [When being installed within the HVHZ criteria, the EVO™ RIVETLESS™ system must be installed as described in Sections 3, 4, 5 of the CCRR-0474 report]. **CCRR-0473** recognizes the significance of a full system assembly and installation for real-world applications.
- .5 Additionally, utilizing the **KOA Clip** to prevent/decrease thermal bridging meets **ASHRAE 90.1-16** and can be installed for varying depths of wall assembly and has proven effective in **CAN/ULC S134**.

### 3.04 SITE QUALITY CONTROL

- .1 Upon Owner's request, provide wall panel fabricator's site service or periodic site visit to inspect product installation in accordance with fabricator's instructions in accordance with Section [01 45 00 - Quality Control].
  - .1 Manufacturer's Services:
    - .1 Arrange for payment for manufacturer's services.
    - .2 Have manufacturer review work involved in handling, installation, protection, and cleaning of insulation and accessories, and submit written reports in acceptable format to verify compliance of Work with Contract conditions.
  - .2 Manufacturer's Field Services: Provide manufacturer's field services consisting of product use recommendations and periodic site visits for product installation review in accordance with manufacturer's instructions.

- .1 Report any inconsistencies from manufacturer's recommendations immediately to Consultant.
- .3 Schedule site visits to review work at stages listed:
  - .1 After delivery and storage of drainage sheet and accessories, and when preparatory work on which Work of this Section depends is complete, but before installation begins.
  - .2 Twice during progress of work at 25% and 60% complete.
  - .3 Upon completion of Work, after cleaning is carried out.
- .2 Obtain reports within three days of review and submit immediately to Consultant.

### 3.05 ADJUSTING

- .1 Repair panels with minor damage so that repairs are not discernible at a distance of 3.1m (10'-0").
- .2 Remove and replace panels damaged beyond repair.
- .3 Remove protective film immediately upon completion of panel installation and prior to application of any joint sealants.

### 3.06 CLEANING

- .1 Clean installed products in accordance with manufacturer's instructions prior to Owner's acceptance.

### 3.07 WASTE MANAGEMENT

- .1 Remove from site damaged panels, packaging, temporary coverings, protective film and other debris resulting from the Work of this Section.

### 3.08 PROTECTION

- .1 Protect installed panel finishes from damage during construction.
- .2 Provide protective measures as required to ensure that installed panels are not damaged by the work of other trades.

**END**