**SECTION 07 42 63**  
**FABRICATED WALL PANEL ASSEMBLIES**  
Engineered Façade - Karrier™ Insulated Barrier Wall Panel with Aluminum and Metal Composite Panel

**PART 1 - GENERAL**

1.1 **SECTION INCLUDES**

A. Barrier Wall system of Steel faced, polyurethane (polyisocyanurate) insulated metal wall panels used as an insulated barrier wall.

B. Cladding Panels fabricated from:
   1. Aluminum Composite Material (ACM)
   2. Metal Composite Material (MCM)

C. Accessories including Karrier Rails, Light Gauge Metal Framing outboard of the Insulated Metal Wall Panels, Cladding Rails, fasteners, flashings, and perimeter trim.

D. **RELATED SECTIONS**
   1. Section 06 10 00 – Rough Carpentry
   2. Section 05 40 00 – Cold Formed Metal Framing

Supporting Steel: Minimum Gauge Requirement of 18 for all structural supports required for installation of panels. Support members shall be installed within the following tolerances and requirements:

a. Plus or minus 1/8 inch in 5 feet in any direction along plane of framing.

b. Plus or minus 1/4 inch cumulative in 20 feet in any direction along plane of framing.

c. Plus or minus 1/2 inch from framing plane on any elevation.

d. Plumb or level within 1/8 inch at all changes of transverse for pre-formed corner panel applications.

e. Installed to L/240 stiffness criteria required to suit ACM/MCM applications.

f. Provide bearing support behind vertical joints of horizontal panel systems and horizontal joints of vertical panel systems. Width of support shall be 5 inches minimum, or double stud spaced 6 inches out-to-out.

1.2 **REFERENCES**

A. American Architectural Manufacturers Association (AAMA)
   1. AAMA 501.1: Standard Test Method for Metal Curtain Walls for water penetration using Dynamic Pressure
2. AAMA 501.2: Quality Assurance and Diagnostic Water Leakage Field Check of Installed Storefronts, Curtain Walls and Sloped Glazing Systems
3. AAMA 508-07: Voluntary Test Method and Specification for Pressure Equalized Rain Screen Wall Cladding Systems
4. AAMA 809.2 Voluntary Specification test for Non-Drying Sealants
5. AAMA 2605: Coating test utilizing 70% reagent grade Nitric Acid vapor for an exposure time of 30 minutes

B. ASTM International

1. ASTM A653: Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
3. ASTM A792: Standard Specification for Steel Sheet, 55 percent Aluminum-Zinc Alloy-Coated by the Hot–Dip Process
4. ASTM A924: Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process
5. ASMT B117: Method of Salt Spray (Fog) Testing
9. ASTM C645: Standard Specification for Non-Structural Steel Framing Members
11. ASTM D635: Standard Test Method for Rate of Burning and/orExtent and Time of Burning of Plastics in a Horizontal Position
12. ASTM D822: Practice for Operating Light and Water Exposure Apparatus (Carbon-Arc Type) for Testing Paint, Varnish, Lacquer, and Related Products
18. ASTM D1781: Climbing Drum Peel Test for Adhesives
21. ASTM D2244: Standard Practice for Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates
22. ASTM D2247: Practice for Testing Water Resistance of Coatings in 100% Relative Humidity
24. ASTM D3359: Methods for Measuring Adhesion by Tape Test
25. ASTM D3363: Method for Film Hardness by Pencil Test
30. ASTM E283: Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen
32. ASTM E331: Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference

C. National Fire Protection Agency (NFPA)

D. UL Underwriters Laboratories
   1. UL 263: Standard for Fire Tests of Building Construction and Materials

E. UL Canada (ULC) Approvals:
   2. CAN/ULC-S102: Standard Method of Test for Surface Building Characteristics of Building Materials and Assemblies
   3. CAN/ULC-S127: Standard Corner Wall Method of Test for Flammability Characteristics of Non-Melting Building Materials
   4. CAN/ULC-S134: Fire Test of Exterior Wall Assemblies

F. International Organization for Standardization (ISO)
   1. ISO 14025: Environmental Labels and Declarations

G. ALUMINUM ASSOCIATION
   1. AA-C22-A41: Anodized - Clear Coatings.
   2. AA-C22-A42: Anodized - Integral Color Coatings
1.3 ADMINISTRATIVE REQUIREMENTS

A. Pre-installation meeting: Conduct a pre-installation meeting at the job site attended by Owner, Architect, Manufacturer’s Technical Representative, Panel Installer, and Contractors of related trades. Coordinate structural support requirements in relation to barrier wall panel assembly, installation [insert any special coordination requirements for the exterior finish material], coordination of flashing for both barrier wall panel and exterior finish material, treatment of fenestration, and other requirements specific to the project.

1.4 SUBMITTALS

A. Refer to Section [01 33 00 Submittal Procedures] [insert section number and title].

B. Product Data: Submit manufacturer current technical literature for each type of product.

C. Shop Drawings: Submit detailed drawings and panel analysis showing:
   1. Profile
   2. Gauge of both exterior and interior sheet of barrier wall panel.
   3. Location, layout and dimensions of barrier wall panel.
   4. Location and type of fasteners
   5. Shape and method of attachment of all trim
   6. Locations and type of sealants
   7. Installation sequence
   8. Coordination Drawings: Provide elevation drawings and building sections which show panels in relationship to required locations for structural support as well as exterior wall finish material. Include panel details, details showing attachment to structural support, and details showing flashing and trim that continue through to exterior finish material.
   9. Other details as may be required for a weathertight installation

D. Assembly Analysis: Provide wall panel assembly calculations to verify panels will withstand the design wind loads indicated without detrimental effects or deflection exceeding L/180. Include resistance to fastener pullout.

E. Samples: Provide nominal 3 x 5 inch of each color indicated. [Provide panel width by 8 inches long minimum] [Insert size].

F. LEED 2009 Submittals:
   1. Energy and Atmosphere (EA)
      1. Energy Analysis for Credit EA 1: Demonstrating percentage of performance improvement compared with the baseline building performance rating.
   2. Material and Resources (MR)
      1. Product Certificates for Credit [MR 4]: For products having recycled content, documentation indicating percentages by weight of postconsumer and pre-consumer recycled content.
2. Product Certificates for Credit [MR 5]: For products and materials required to comply with requirements for regionally manufactured materials. Include statement indicating cost, location of manufacturer, and distance to Project for each regionally manufactured material.

3. Indoor Environmental Quality (IEQ)
   1. Product Data for Credit [IEQ 4.1]: For sealants, including printed statement of VOC content
   2. Product Data for Credit [IEQ 4.2]: For paints and coatings, including printed statement of VOC content

4. Innovation in Design (ID)
   1. [Documentation for Credit [ID 1] [ID 1.1]: [Include specific requirements related to documenting credit.]

5. Pilot Credit 61: Material Disclosure and Assessment
   1. Environmental Product Declaration

G. LEED v4 Submittals:

   1. Energy and Atmosphere
      1. Energy Analysis: Demonstrating percentage of performance improvement compared with the baseline building performance rating.

   2. Materials and resources
      1. Building Life-Cycle Impact Reduction

   3. Building product disclosure and optimization
      1. Environmental Product Declaration (EPD) conforming to ISO 14025, 14040, 14044, EN 15804 or ISO 21930 with Cradle to Grave boundaries.

   4. Sourcing of Raw Materials: publically released reports that comply with LEED requirements for raw material source and extraction reporting
      1. Material Ingredients: Publically produced, complete Health Product Declaration with full disclosure of known hazards in compliance with the Health Product Declaration Open Standards.

   5. Indoor Environmental Quality
      1. Low Emitting Materials: Compliance sheets indicating adhesives and gasket are within the published VOC emissions thresholds.

   6. Innovation in Design
      1. Documentation for Credit: Include specific requirements related to documenting credit.
H. Miscellaneous Certifications:
   1. Submit documentation that products have been certified in accordance with ISO 14025.

I. Quality Assurance Submittals:
   1. Design Data, Test Reports: Provide manufacturer test reports indicating product compliance with requirements.
   2. Manufacturer Erection Instructions: Provide manufacturer’s written installation instructions including proper material storage, material handling, installation sequence, panel location(s), and attachment methods, details and required trim and accessories.

J. Mock-up:
   1. Building consisting of complete cladding system, including but not limited to metal furring, panels, securement devices, sealants, and moldings for approval. Cladding finish and moldings to be of finish and color as designated by the architect. 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.
   2. 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.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications:
   1. Manufacturer shall have a minimum of five (5) years experience in the production of metal wall panels. Manufacturer shall demonstrate past experience with examples of projects of similar type and exposure.
   2. Manufacturer to be registered with a Program Operator with a Certified, Environmental Product Declaration, in conformance with ISO 14025, for Insulated Metal Panels.

B. Installer Qualifications: Authorized by the manufacturer and the work shall be supervised by a person having a minimum of five (5) years experience installing insulated wall panels on similar type and size projects and installation of ACM MCM systems.
   1. [Pre-qualified installer NAME ADDRESS CONTACT INFO]
   2. 

1.6 DELIVERY, STORAGE AND HANDLING

A. Refer to Section [01 60 00 Product Requirements] [insert section number and title].

B. Deliver panel materials and components in manufacturer’s original, unopened, undamaged packaging with identification labels intact.

C. Store wall panel materials on dry, level, firm, and clean surface. Stack no more than two bundles high. Elevate one end of bundle to allow moisture run-off, cover and ventilate to allow air to circulate and moisture to escape.
1.7 WARRANTY

A. Limited Warranty: Standard form in which manufacturer agrees to repair or replace items that fail in materials or workmanship within specified warranty period. The items covered by the warranty include structural performance including bond integrity, deflection and buckling.

1. Warranty Period: Two (2) years from date of Substantial Completion, or 2 years and 3 months from the date of shipment from manufacturer’s plant, whichever occurs first.

B. The aluminum composite material manufacturer shall warrant for a period of 30 years against Max 5 fade based on ASTM D2244 and Max 8 chalk based on ASTM D4212 and delamination of the paint finish.

C. The aluminum composite material manufacturer shall warrant for a period of 10 years that the material will be free from defects including delamination.

PART 2 - PRODUCTS

2.1 MANUFACTURER

A. Insulated Barrier Wall Panels and Cladding System:


2. Benchmark by Kingspan Insulated Panels Ltd. 12557 Coleraine Drive, Caledon, ON L7E 3B5 (866-442-3594) (www.kingspanpanels.ca).

B. Substitution Limitations:

1. Submit written request for approval of substitutions to the architect [a minimum of [14] days prior to the date for receipt of bids] [Insert time period]. Include the following information:

   1. Name of the materials and description of the proposed substitute.
   2. Detailed drawings, cut sheets, performance and test data.
   3. List of projects similar scope and photographs of existing installations.
   4. Test reports indicating compliance with the performance criteria.
   5. Other information necessary for evaluation.

2. After evaluation by architect, approval will be issued via addendum. No verbal approval will be given.

3. Substitutions following award of contract are not allowed except as stipulated in Division 01 – General Requirements.
2.2 PERFORMANCE AND DESIGN CRITERIA

A. Design Criteria:

1. Wind Loads: [As indicated on Drawings] [Insert wind loads for zones 4 and 5 (psf)].
2. Deflection criteria of supporting structure and Karrier Wall Panels shall be L/240 for application of ACM/MCM system.
3. Deflection criteria shall be [L/180] [insert project specific deflection criteria] for ACM/MCM exterior cladding panels.

B. Performance Criteria - Insulated Barrier Wall Panel:

1. Structural Test: Structural performance shall be verifiable by witnessed structural testing for simulated wind loads in accordance with ASTM E72 or E330.
2. Fatigue Test: There shall be no evidence of metal/insulation interface delamination when the panel is tested by simulated wind loads (positive and negative loads), when applied for two million alternate cycles of L/180 deflection.
3. Freeze / Heat Cycling Test: Panels shall exhibit no delamination, surface blisters, permanent bowing or deformation when subjected to cyclic temperature extremes of minus 36 deg. F to plus 180 deg. F temperatures for twenty one, eight-hour cycles.
4. Water Penetration: There shall be no uncontrolled water penetration through the panel joints at a pressure differential of 20 psf, when tested in accordance with ASTM E331.
5. Dynamic Water Penetration: There shall be no uncontrolled water penetration through the panel assembly at a pressure difference of 12 psf, when tested in accordance with AAMA 501.1.
6. Air Infiltration: Air infiltration through the panel shall not exceed 0.01 cfm/sf at 20 psf air pressure differential when tested in accordance with ASTM E283.
7. Humidity Test: Panels shall exhibit no delamination or metal interface corrosion when subjected to plus 140 deg. F temperature and 100 percent relative humidity for a total of 1500 hours (62 days).
8. Autoclave Test: Panels shall exhibit no delamination or shrinkage/melting of the foam core from the metal skins after being subjected in an autoclave to a pressure of 2 psig (13.8kPa) at a temperature of plus 218 deg. F (plus 103 deg. C) for a period of 2 1/2 hours.
9. Panel Fire Endurance Tests:
   1. Fire Endurance Test – 10 minutes: Panels remained in place without joint stitch fastening per CAN/ULC-S101.
10. Flame Spread and Smoke Developed Tests on Exposed Insulating Core:
   1. Flame Spread: Less than 25.
   2. Smoke Developed: Less than 250.
   3. Tests performed in accordance with CAN/ULC-S102 and ASTM E84.
11. Fire Test Response Characteristics: Steel-faced panels with polyisocyanurate (ISO) core shall fully comply with Chapter 26 of International Building Code regarding the use of Foam Plastic.
1. NFPA 259 Potential Heat Content; established for foam core.
2. NFPA 268 Ignitability Using Radiant Heat Source; successfully passed acceptance criteria.
4. UL 263 Fire Resistive Rating; classified as a component of a fire-rated wall assembly for 1-hour, 2-hour, and 3-hour rating Design No. U053 (rated assemblies include appropriate layers of fire-rated Type X gypsum board).
5. ASTM D1929 Minimum Flash and Self Ignition; established for foam core.
6. S101, S102, S127, S134 UL Canada fire test standards; successfully passed.

12. Insulating Core: Polyisocyanurate (ISO) core, ASTM C591 Type IV, CFC and HCFC free, compliant with Montreal Protocol and Clean Air Act, with the following minimum physical properties:

1. Core is 95 percent closed cell when tested in accordance with ASTM D6226.
2. Core shall provide a nominal R-value of 7.2 per inch thickness when tested in accordance with ASTM C518 at a mean temperature of 75 deg. F.
3. Foam has a density of 2.2 to 2.8 pounds per cubic foot when tested in accordance with ASTM D1622.
4. Compressive Stress: 19 psi when tested in accordance to ASTM D1621
5. Shear Stress: 25 psi when tested in accordance with ASTM C273
6. Tensile Stress: 23 psi when tested in accordance with ASTM D1623
7. Heat Aging at 212 degrees F:
   1. 1 day: plus 1 percent volume change
   2. 7 days: plus 3 percent volume change
   3. Tested according to ASTM D2126
8. Low Temperature Aging at minus 40 degrees F:
   1. 1 day: 0 percent volume change
   2. 7 days: 0 percent volume change
   3. Tested according to ASTM D2126

2.3 INSULATED BARRIER WALL PANELS

A. Panel Description:

2. Panel thickness: [2 inches] [2 ½ inches] [3 inches] [4 inches] [5 inches] [6 inches] thick.
3. Panel width: 42 inches [36 inches] [30 inches] [24 inches] [As indicated on drawings].
4. Panel Lengths: Minimum 8 feet, maximum 52 feet.
5. Panel Attachment: Shall consist of fasteners and formed steel Karrier Rail placed at each panel side joint.
7. Vertical Joint Treatment (for horizontal panels): Fill joints with Spray Foam per manufacturer’s instructions.
9. Exterior and Interior Face of Panel:

1. Material:
1. Steel coil material shall be in accordance with ASTM A755: [AZ50 Galvalume®/ Zincalume® (55 percent aluminum, 45 percent zinc) in accordance with ASTM A792] [Grade 33, G90 galvanized steel in accordance with ASTM A653 and A924].

2. Gauge: 26 gauge interior and exterior.

2. Profile: Shadowline.
3. Exterior and interior panel texture: Non-directional stucco embossed.
4. Paint Finish:
   1. Finish System: Modified polyester, dry film thickness of 1.0 mil including primer.
   2. Color: Imperial White interior and exterior

B. Insulated Barrier Wall Panel Accessories:
   1. Self drilling fasteners shall be plated steel with neoprene washer, 1/4 -14 diameter as recommended by manufacturer.
   2. Size: Length as recommended by manufacturer.

   2. Karrier Rails: Manufacturer’s standard, ASTM A653 cold-formed Grade 50 ksi, 16 gauge (0.054 inch), G90 hot-dip galvanized Karrier Rails.
   3. Perimeter Trim: Fabricated perimeter trim shall be minimum 22 gauge steel or .040 aluminum.

C. Spray Foam: Two-part urethane foam as recommended by manufacturer.

2.4 ENGINEERED FAÇADE CLADDING SYSTEM

A. Aluminum Composite Material (ACM): 4 mm Fire Retardant (0.157 inches thick)

B. Metal Composite Material (MCM): 4 mm Fire Retardant (0.157 inches thick)

C. Composition: Two sheets of [Aluminum] [Copper] [Brass] [Zinc] [Stainless Steel] sandwiching a solid core of extruded thermoplastic material formed in a continuous line process.

D. Facing Thickness (ACM):
   1. 0.50 mm (0.0197 inches) Aluminum.

E. System Characteristics:
   1. Rout and Return shop formed edges with perimeter extrusions.
   2. Horizontal and vertical joint reveals to be a dry design, visible metal spline of same material, thickness, and finish as the base panel.
   3. Progressive system using sliding male-female clip components held within the perimeter extrusions without rivets or screws.
4. Design capable of individual panel removal and re-installation without affecting adjacent panels.
5. System must not generally have visible fasteners telegraphing or fastening on the panel faces or any other compromise of a neat and flat appearance.
6. System shall use back side stiffeners as required, spaced per engineering analysis to provide buckling resistance and limit deflection to no greater than L/180.
7. Field fabrication shall be allowed where necessary, but shall be kept to an absolute minimum. All fabrication shall be done under controlled shop conditions when possible.

F. Exterior Finish:

1. Painted Aluminum Systems (ACM):
   1. Coil coated KYNAR® 500 or HYLAR® 5000 based Polyvinylidene Fluoride (70% PVDF) tested in accordance with AAMA 2605.
   2. Color: (Select one of the following)
      1. [Standard color as selected by the owner/architect/engineer from manufacturer's standard color palette]
      2. [Custom color to be matched by the panel supplier]
      3. [Holo™ color shifting paint finish]
      4. [Corten steel effect finish]
      5. [Stone imitation finish]
      6. [Exterior grade mirror finish]
      7. [Wood grain finish selected from standard color palette]
   3. Coating Thickness:
      1. Colors (base coat): 1.0 mil (±0.2 mil)
      2. [Clear (where applicable): 0.50 mil (±0.05 mil)]

   1. [Clear]
   2. [Light Bronze]
   3. [Champagne]

3. Copper (MCM):
   1. [Natural]
   2. [Natural with Clear Coat]

4. Zinc (MCM):
   1. Select from manufacturer’s standard color palette.

5. Stainless Steel (MCM):
   1. [2D finish]
   2. [WF30 brushed finish]

6. Brass (MCM):
   1. Natural Alloy.

G. Performance Criteria – ACM/MCM Exterior Wall Cladding Panel:

1. Bond Integrity: When tested for bond integrity, in accordance with ASTM D1781, there shall be no adhesive failure of the bond between the core and skin, or cohesive failure of the core itself below the following Peel Strength values:
   1. Greater than 100 N-mm/mm (22.5 in-lb/in) as manufactured
   2. Greater than 100 N-mm/mm (22.5 in-lb/in) after 21 days soaking in water at 70°F
2. Structural Test: Structural performance shall be verifiable by witnessed structural testing for simulated wind loads in accordance with ASTM E330.
   1. Panels shall be engineered to withstand the Design Wind Loading based upon the local building code, but in no case less than 20 pounds per square foot (psf).
   2. Maximum panel deflection shall not exceed L/180 under the design wind loads. Back side stiffeners shall be added as necessary per engineering calculations.
   3. Maximum anchor deflection shall not exceed 1/16 inch.

3. Thermal Movements: Panel system shall be designed to accommodate vertical and horizontal thermal movement of components to prevent buckling, opening of joints, and other detrimental effects when subjected to seasonal temperature cycles.
   1. Temperature Change (Range):
      [-20 deg. F, +120 deg. F ambient, +180 deg. F material surfaces]
      [insert project specific extremes based on color and seasonal temperature history].

4. Fire Performance:
   1. ASTM E 84:
      Flame Spread = Passed Class A
      Smoke Developed = Passed Class A
   2. NFPA 285: Passed Acceptance Criteria

H. Finish Performance Criteria – Painted Aluminum Systems:

2. Impact per ASTM D-2794 Gardner Variable Impact Tester with 5/8" mandrel:
   1. Coating shall withstand reverse impact of 1.5 inch-pounds per mil substrate thickness.
   2. Coating shall adhere tightly to metal when subjected to number 600 Scotch Tape pick-off test. Slight minute cracking permissible. No removal of film to substrate.
3. Adhesion per ASTM D-3359:
   1. Coating shall not pick off when subjected to an 1" x 1" x 1/16" grid and taped with number 600 Scotch Tape.
4. Humidity Resistance per ASTM D-2247:
   1. No formation of blisters when subject to condensing water fog at 100% relative humidity and 100°F for 4000 hours.
5. Salt Spray Resistance per ASTM B-117:
   1. Expose coating system to 4000 hours, using 5% NaCl solution.
   2. Corrosion creepage from scribe line: 1/16" max.
   3. Minimum blister rating of 8 within the test specimen field.
6. Weather Exposure (Outdoor):
   1. Ten-year exposure at 45° angle facing south Florida exposure.
   2. Maximum color change of 5 Delta E units as calculated in accordance with ASTM D-2244.
   3. Maximum chalk rating of 8 in accordance with ASTM D-4214.
   4. No checking, crazing, adhesion loss.
7. Chemical Resistance:
   1. ASTM D-1308 utilizing 10% Muriatic Acid for an exposure time of 15 minutes. No loss of film adhesion or visual change when viewed by the unaided eye.
   2. ASTM D-1308 utilizing 20% Sulfuric Acid for an exposure time of 18 hours. No loss of film adhesion or visual change when viewed by the unaided eye.
3. AAMA 2605 utilizing 70% reagent grade Nitric Acid vapor for an exposure time of 30 minutes. Maximum color change of 5 Delta E units as calculated in accordance with ASTM D-2244.

I. Façade Cladding Accessories:

1. Fasteners:
   1. Hex head, self-drilling fasteners as recommended by manufacturer.
   2. Material:
      b. 300 series Stainless Steel for aluminum-to-galvanized connections.
   3. Size: As recommended by manufacturer.

2. Engineered Façade Cladding Support System:
   2. Hat Channels, Depth [7/8 inch (22 mm)] [1 inch (25 mm)] [1 1/2 inches (38 mm)] [as indicated on contract drawings].
   3. Z-Girts, Depth [4 inch (102 mm)] [5 inch (127 mm)] [6 inches (152 mm)] [as indicated on contract drawings].
   4. Deep Truss Assemblies: Fabricated from Z-Girt and C-Stud sections, designed by qualified professional engineer.
   5. Spacing and Orientation: As required to effectively support the façade cladding and transmit dead loads and exterior wind pressures to the Karrier Panel Barrier Wall System.
   6. Support system must be approved by Kingspan Engineering Services prior to completed drawings.

2.5 ACCESSORIES

A. Exposed Joint Sealant: Compliant with ASTM C920, as recommended by manufacturer.

B. Butyl Sealants: Non-skinning/curing type compliant with AAMA 809.2 as recommended by manufacturer.

C. Butyl Tape: As recommended by manufacturer.

D. Fasteners (concealed/exposed/non-corrosive): As recommended by panel manufacturer. Do not expose fasteners except where unavoidable and then match finish of adjoining metal [Fasteners to be Determined by Engineering Review].

E. Accents and reveals [protruding] [recessed]: Extruded aluminum sections as indicated on contract drawings, 6063-T6 alloy, [spray applied Kynar 500] [Class 1 Anodized], color as indicated.
PART 3 - EXECUTION

3.1  EXAMINATION

A. Provide field measurements to manufacturer as required to achieve proper fit of the preformed wall panel envelope. Measurements shall be provided in a timely manner so that there is no impact to construction or manufacturing schedule.

B. Supporting Steel: All structural supports required for installation of panels shall be by Section 054000. Support members shall be installed within the following tolerances:

1. Plus or minus 1/8 inch in 5 feet in any direction along plane of framing.
2. Plus or minus 1/4 inch cumulative in 20 feet in any direction along plane of framing.
3. Plus or minus 1/2 inch from framing plane on any elevation.
4. Plumb or level within 1/8 inch at all changes of transverse for pre-formed corner panel applications.
5. Verify that bearing support has been provided behind vertical joints of horizontal panel systems and horizontal joints of vertical panel systems. Width of support shall be 5 inches minimum.

C. Examine individual panels upon removing from the bundle; notify manufacturer of panel defects. Do not install defective panels.

3.2  INSTALLATION – INSULATED BARRIER WALL PANEL

A. Installation shall be in accordance with manufacturer’s installation guidelines and recommendations.

B. Install panels plumb, level, and true-to-line to dimensions and layout indicated on approved shop drawings.

C. Cut panels prior to installing, where indicated on shop drawings, using a power circular saw with fine tooth carbide tip blade per manufacturer’s instructions. Personnel should wear respiratory and eye protection devices.

1. Outside corners shall be field mitered, inside corners shall be butt jointed, and provide perimeter trim per manufacturers approved shop drawings and standard details.

D. Butyl Weather Barrier Sealant:

1. Apply non-skinning butyl sealant as shown on shop drawings and manufacturer’s installation instructions as necessary to establish the vapor barrier for the panels.
2. Use non-skinning butyl tube sealant only for tight metal-to-metal contact.
3. Do not use non-skinning butyl tube sealant to bridge gaps.
4. Remove any strippable plastic film from metal surfaces to which butyl sealant will be applied.
E. Fill gaps and joints between panel ends, all corner transitions, and fenestration perimeters with urethane spray foam.

F. Karrier Rail Attachment:
   1. Attachment at panel joint: Set Karrier Rails in non-skinning butyl. Place 1/4-14 panel fasteners through Karrier Rails. Fasteners are concealed within the joint of the panel. Use bonded neoprene sealing washer on fasteners. Secure Karrier Rail with panel to structural supports.
   2. Secure opposite side of Karrier Rail, using 1/4-14 fasteners into structural supports behind the wall panel surface. Use bonded neoprene sealing washer on fasteners.
   3. Space fasteners as recommended by manufacturer or otherwise indicated on the approved shop drawings.
   4. Alter Karrier Rails as required to accommodate panel accessories per approved shop drawings and manufacturer’s standard details.

G. Install perimeter trim for insulated barrier wall panels, where indicated and where trim will be concealed by finish materials.

3.3 INSTALLATION – EXTERIOR FAÇADE CLADDING

A. Installation shall be in accordance with manufacturer’s installation guidelines and recommendations.

B. Install cavity-wall support framing per the shop drawings.

C. Install exterior panels plumb, level, and true-to-line to dimensions and layout indicated on approved shop drawings. Do not hard-fasten the exterior ACM/MCM cladding. Panels must not be restrained against thermal movement.

D. Install 4.0pcf density mineral fiber insulation at each intermediate floor level in cavity between Karrier Panel and ACM/MCM cladding compliant with NFPA 285 testing.

E. Do not cut, trim, weld, or braze component parts during erection in a manner which would damage the finish, decrease strength, or result in visual imperfection or a failure in performance. Return component parts which require alteration to shop for re-fabrication, if possible, or for replacement with new parts.

F. Separate dissimilar metals and use gasketed fasteners where needed to eliminate the possibility of corrosive or electrolytic action between metals.

G. Cut panels prior to installing, where indicated on shop drawings, using a power circular saw with fine tooth carbide tip blade per manufacturer’s instructions. Personnel should wear respiratory and eye protection devices.

   1. Outside corners shall be mitered, inside corners shall be butt jointed, and provide perimeter trim per manufacturers approved shop drawings and standard details.
H. Sealant installation for exposed joints
   1. Clean and prime surfaces to receive exterior exposed sealants in accordance with sealant manufacturer’s recommendations.
   2. Follow sealant manufacturer’s recommendations for joint width-to-depth ratio, application temperature range, size and type of backer rod, and compatibility of materials for adhesion.
   3. Direct contact between butyl and silicone sealants shall not be permitted.

3.4 TRIM INSTALLATION
   A. Place trim and trim fasteners only as indicated per details on the approved shop drawings.
   B. Field drill weep holes where appropriate in horizontal trim; minimum 1/4 inch diameter at 24 inches on center.
   C. Place a continuous strip of butyl tube sealant or tape between the inside back face of closure trims and interior panel faces for proper vapor seal.

3.5 FIELD QUALITY CONTROL
   A. Testing shall be performed on Barrier Wall Panel prior to the installation of the finish wall materials.
   B. Testing Agency: Owner shall engage an independent testing and inspection agency acceptable to the architect to perform field tests and inspections and to prepare reports of findings.
   C. Field Water Test: After completing portion of barrier wall panel assembly including accessories, test a 2-bay area selected by the architect for water penetration in accordance with AAMA 501.2 or ASTM E1105.

3.6 CLEANING AND PROTECTION
   A. Remove protective film immediately after installation.
   B. Touch-up, repair or replace metal panels and trim that have been damaged.
   C. After metal wall panel and cladding installation, clear weep holes and drainage channels of obstructions, dirt, and sealant.
   D. Remove and replace panels that have been damaged beyond repair as a direct result of the panel installation.
   E. Any additional protection, after installation, shall be the responsibility of the General Contractor.

END OF SECTION
DISCLAIMER:

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