SECTION 07 42 13
EXTRUDED ALUMINUM WALL PANELS

## PART 1 GENERAL

1.1 SECTION INCLUDES

A. Field assembled metal wall panel system including a sealed vapor barrier liner panel, insulation, sub-girts and concealed fastener exterior profile.

B. Uninsulated concealed fastener metal wall panel system.

C. Concealed fastener, track mounted rainscreen modular wall panel system.

1.2 RELATED SECTIONS

A. Section 05 10 00 - Structural Metal Framing.

B. Section 07 21 26 - Blown Insulation.

C. Section 07 27 26 - Fluid-Applied Membrane Air Barriers.

D. Section 07 60 00 - Flashing and Sheet Metal.

E. Section 07 90 00 - Joint Protection.

1.3 REFERENCES

A. American Architectural Manufacturer's Association (AAMA):
1. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum.
2. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels.
3. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.

B. ASTM International (ASTM):
1. ASTM B 221 - Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
2. ASTM B 209-14 - Specification for Aluminum and Aluminum Alloy Sheet and Plate.
3. ASTM E 330/E330 M -14 - Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
4. ASTM B 893-98(2018) - Standard Specification for Hard-Coat Anodizing of Magnesium for Engineering Applications
5. ASTM E 84, Standard Test Method for Surface Burning Characteristics of Building Materials.
6. ASTM E 136 Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C

C. American Institute of Steel Construction (AISC):
1. Code of Standard Practice.

D. American Society of Civil Engineers (ASCE):
1. ASCE-7, Minimum Design Loads for Buildings and Other Structures.

1.4 SUBMITTALS

A. Submit product data, test reports, in accordance with quality assurance and performance requirements specified herein.

B. LEED Submittals: Credit MR 4.1/MR4.2, Manufacturer's Product Data indicating the following:

1. Percentages by weight of post-consumer and pre-consumer recycled content.
2. Percentage of raw materials and manufacturing site.

C. Submit panel shop drawings consisting of design and shop drawings, finish specifications, and other data necessary to clearly describe the design, materials, sizes, layouts, construction details, and elevations. Submit small-scale layouts of panels and large-scale details of edge conditions, joints, fastener and corners placement, flashings, penetrations, and special details.
1. Drawings shall be approved prior to fabrication.

D. Submit structural design calculations.
1. A professional engineer registered in the state where the project is located shall certify the calculations.

E. Material Samples:
1. Panels: One of each type, full panel width by 12 inches long.
2. Fasteners: Two of each type with statement of intended use.
3. Closures: One of each type of metal closure, where requested.
4. Clips: Two of each type.
5. Base profile: One piece 12 inches long.

F. Selection Samples for color: for each finish product specified, furnish two color chip samples selected from the manufacturer's full range of available colors and patterns.

G. Verification Samples for Color: For each finish product specified, two samples, minimum size 8 by 6 inches, representing actual product, color, and patterns.

H. Qualification Information: For Installer firm, proof of installer's manufacturer trained field supervisor.

I. Warranty: Submit proposed warranty meeting requirements of this Section.

1.5 QUALITY ASSURANCE

A. Manufacturer's Qualifications: The manufacturer shall have had a minimum of five years' experience in the successful completion of projects employing similar materials, applications, and performance requirements.
1. Manufacturer shall provide a list of five similar completed projects with addresses of the project location, architect, and owner.

B. Installer Qualifications: The wall systems contractor shall have had a minimum of five years experience in the successful completion of projects employing similar materials, applications, and performance requirements.
1. The wall systems contractor shall provide a list of five similar completed projects with addresses of the project location, architect, and owner.

C. Calculations supporting structural performance of the wall panels shall be prepared by a professional structural engineer.

D. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
1. Finish areas designated by Architect.
2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
3. Refinish mock-up area as required to produce acceptable work.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Materials shall be unloaded and stored per the manufacturer's instructions to prevent damage

due to handling and weather.

1.7 PROJECT CONDITIONS

A. Field Measurements not by ALIVA: it is the panel installers responsibility to verify locations of structural members, adjoining construction and wall openings dimensions by field measurement before panel fabrication and indicated measurements on final shop drawings.
   1. Coordinate with constructions schedule to ensure panel assemblies fit properly and do not delay construction progress.
   2. Established dimensions: where field measurements cannot be made without delaying construction progress, guarantee dimensions and proceed with fabrication of wall panel assemblies corresponding to the established dimensions.

1.8 WARRANTY

A. Material Warranty: The manufacturer shall warrant that the materials and accessories furnished in accordance with these specifications shall remain free from defects in material and factory workmanship for a period of two years from date of shipment.

B. Paint Finish Warranty: The manufacturer shall warrant against fading, chalking, peeling, cracking, checking, chipping, or erosion to base metal of the exterior panel finish, in accordance with the paint supplier's standards.
   1. Warranty Period: 20 years.

**PART 2 PRODUCTS**

2.1 MANUFACTURERS

A. Alucovering extruded aluminum panels provided by Aliva USA Inc, 1030 Salem Rd, Union NJ 07083 https://www.aliva.it/us/index.asp Contact: (917) 750-7487 email: info@Aliva.it

B. Substitutions: Not permitted.

C. Substitutions: Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements. Evidence shall be submitted to demonstrate equivalency to the products and performance levels specified. The written request shall include:
   1. A description for substitution, including details of all conditions at panels.
   2. Independent test reports verifying compliance with the performance requirements.
   3. A detailed list of each item that does not fully comply with the specifications.
   4. A letter stating that the manufacturer or wall systems contractor proposing the substitution will pay additional costs incurred by subcontractors affected by the proposed substitution.

2.2 CONCEALED FASTENER METAL WALL PANELS

A. System Description:
   1. Metal Wall Panels over Outside-Insulated Framed Wall System: Single casing layer, concealed fastener metal wall panels applied as exterior rainscreen cladding. Wall framing specified in other specification section. Exterior sheathing specified in other specification section. Applied membrane that provides air, moisture, and water vapor control specified in other specification section. Insulation within the framing and applied outboard of the sheathing specified in other specification section. Metal wall panel installation specified in this Section includes secondary thermal brake metal sub-girt framing and mounting clips for panel attachment.
   2. Metal Wall Panels over Masonry Wall System: Single casing layer, concealed fastener metal wall panels applied as exterior rain screen cladding over a masonry wall. Rigid board insulation specified in other specification section. Applied membrane that provides air, moisture, and water vapor control specified in other specification section. Metal wall

panel installation specified in this Section includes secondary thermal brake metal sub-girt framing and mounting clips for panel attachment.

3. Metal Wall Panels over Uninsulated Framed Screen Wall System: Single casing layer, concealed fastener horizontal/vertical metal wall panels applied as exterior barrier cladding over wall framing specified in other specification section. Water-resistive barrier specified in other specification section. Metal wall panel installation specified in this Section includes secondary thermal brake metal sub-girt framing and mounting clips for panel.

B. Metal Wall Panels, General: Factory extruded, concealed fastener panels with interconnecting joints, fastened to supports by clip with concealed fasteners.

C. System Performance Requirements: Provide metal wall panel assemblies meeting performance requirements as determined by application of specified tests by a qualified testing agency on manufacturer's standard assemblies.
   1. Structural Performance: Provide metal wall panel assemblies capable of withstanding the effects of indicated loads and stresses within limits and under conditions indicated, per ASTM E 330:
      a. Wind Loads: Determine loads based on uniform pressure, importance factor, exposure category, and basic wind speed indicated on drawings.
      b. Limits of Deflection: Metal wall panel assembly shall withstand scheduled wind pressure with the following allowable deflection:
         1) Maximum allowable deflection limited to L/360 deflection of panel perimeter normal to plane of wall with no evidence of failure.
      c. Secondary Metal Framing: Design secondary metal framing for metal wall panel assembly according to ASTM E 330/E330 M-14
   2. Thermal Movements: Allow for thermal movements from variations in both ambient and internal temperatures. Accommodate movement of support structure caused by thermal expansion and contraction.
   3. Fire rating: ASTM E 84 Class A; ASTM E136 non-combustible material

D. Aluminum extruded panels: ASTM B221 14 compliance for 6XXX aluminum extruders.
   1. Face Sheet: Min. 0.080 inch nominal thickness.
   2. Surface: Smooth.
   3. Surface: Extrusion directional.
   4. Aluminum Products Recycled Content: Average of postconsumer recycled content plus one-half of pre-consumer recycled content not less than 50 percent.

E. Color:
   1. Exterior Surface: ..... complete with ALIVA code, based on architect selection.
   2. Exterior Surface finish: ..... complete with ALIVA code, based on architect selection.

F. Modular Metal Panels: Factory extruded, aluminum panels fabricated from aluminum billet.
   1. Panel Depth: Minimum 1 inch.
   2. Panel Flatness: Maximum allowable distortion: 1/32 inch in 24 inches in length direction.
   3. Stiffeners: no extruded stiffeners needed for panels until 1’-4” tall.
   4. Panel Joints: concealed joint.
   5. Panel Sizes: As indicated on drawings.
   6. Standard System Depth: not less than 2 inches.
   7. Aluminum Material: Heat threated T6 or higher
   8. Weight: min. 1.6lb per square foot or higher.
   9. Panel should be non-combustible and solid aluminum.

G. Aluminum Extrusions: ASTM B221 14.

H. Unexposed Finish: Manufacturer's standard min. 20 mic nom. PPC finish, higher if requested

I. Exposed Trim, Flashings, Fastener Finish: Match panel finish.
   1. Thickness: 0.080 inch Nominal when bended components.

2. Thickness: 0.080 inch Minimum when extruded.

J. Accessories: Provide manufacturer's factory-formed clips, shims, flashings, sealants, and tapes for a complete installation.
1. Thermally broken brackets and subframe system must be provided by the manufacturer.

K. Fabrication - General: Fabricate modular metal panels and accessories at factory identical to tested units using manufacturer's standard procedures and processes necessary to meet performance requirements.
1. Provide components of modular metal panel system that are products of one manufacturer, including modular metal panels, extrusions, head and sill trim, bottom weep, base extrusion, and metal copings.
2. Modular Metal Panels: Fabricate modular metal panels with extruded aluminum stiffeners requiring no further fabrication or modification in field.

**PART 3 EXECUTION**

3.1 EXAMINATION

A. Examine wall panel substrate with Installer present. Inspect for erection tolerances and other conditions that would adversely affect installation of metal wall panels.

B. Wall Substrate: Confirm that wall substrate is within tolerances acceptable to metal wall panel system manufacturer.
1. Maximum substrate and dry wall framing deviations from flat plane acceptable:
a. 1/2-inch in 20 feet vertically or horizontally.
b. 1/2-inch across building elevation.
c. 1/8-inch in 5 feet.

C. Framing: Inspect framing that will support metal wall panels to determine if support components are installed as indicated on approved shop drawings. Confirm presence of acceptable framing members at recommended spacing to match installation requirements of metal wall panels.

D. Air/Moisture Barriers: Confirm that work has been completed, inspected, tested as required.

E. Openings: Verify windows, doors, louvers penetrations match layout on shop drawings.

F. Correct out-of-tolerance work and other deficient conditions prior to proceeding with metal wall panel system installation.

3.2 SECONDARY FRAMING INSTALLATION

A. Secondary Metal Sub-Girt Framing: Install secondary metal framing components to tolerances indicated, as shown on approved shop drawings. Install secondary metal stud framing and other drywall supports per ASTM C 1007 and manufacturer's recommendations.

3.3 METAL WALL PANEL INSTALLATION

A. General: Install metal wall panels in accordance with approved shop drawings and manufacturer's recommendations. Install metal wall panels in orientation, sizes, and locations indicated. Anchor metal wall panels and other components securely in place. Provide for thermal and structural movement:

B. Attach panels to metal framing using recommended clips, screws, fasteners, and adhesives anchors as indicated on approved shop drawings.
1. Fasteners for Steel Wall Panels: Stainless-steel for exterior locations, locations exposed to moisture and interior location.
2. Fasten metal wall panels to supports with concealed clips at each joint at location, spacing, and with fasteners recommended by manufacturer. Install clips to supports with self-drilling screws.

3. Provide weatherproof protection for penetrating of utilities from exterior walls.
4. Dissimilar Materials: Where elements of metal wall panel system are in contact with dissimilar materials, treat faces and edges in contact with dissimilar materials as recommended by manufacturer.

C. Joint profile: Install joint profiles where indicated on approved shop drawings.

3.4 ACCESSORY INSTALLATION

A. General: Install metal wall panel accessories with positive anchorage to building and provide for thermal expansion. Coordinate installation with flashings and other components.
1. Install related flashings and sheet metal trim per requirements of section.
2. Install components required for a complete metal wall panel assembly, including trim, copings, corners, lap strips, flashings, closure strips, and similar items.
3. Comply with performance requirements, manufacturer's written installation instructions.
4. Provide concealed fasteners except where noted on approved shop drawings.
5. Set units true to line and level as indicated.

3.5 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a service representative authorized by metal wall panel manufacturer to inspect completed installation. Submit written report.

B. Correct deficiencies noted in manufacturer's report.

3.6 CLEANING AND PROTECTION

A. Clean finished surfaces as recommended by metal wall panel manufacturer. Clear weep holes of obstructions, dirt or wastage. Maintain in a clean condition during construction.

B. Replace damaged panels and accessories that cannot be repaired by finish touch-up.

END OF SECTION