

SECTION 07 42 13.16

MODULAR METAL WALL PANELS

This section includes editing notes to assist the user in editing the section to suit project requirements. These notes are included as hidden text, and can be revealed or hidden by the following method in Microsoft Word:

Display the FILE tab on the ribbon, click OPTIONS, then DISPLAY. Select or deselect HIDDEN TEXT.

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Pressure-equalized aluminum plate exterior wall panel system.

B. Related Requirements:

1. Division 01 - General Requirements: Administrative, procedural, and temporary work requirements.
2. Section [05 40 00 - Cold-Formed Metal Framing.] [____ - ____.]
3. Section [06 11 00 - Framing and Sheathing.] [06 16 43 - Gypsum Sheathing.] [____ - ____.]
4. Section [07 28 00 - Moisture Barriers.] [____ - ____.]
5. Section [07 62 00 - Sheet Metal Flashing and Trim.] [____ - ____.]
6. Section [07 92 00 - Joint Sealants.] [____ - ____.]
7. Section [08 51 13 - Aluminum Windows.] [____ - ____.]
8. Section [08 44 13 - Glazed Aluminum Curtain Walls.] [____ - ____.]

1.2 REFERENCES

A. American Architectural Manufacturers Association (AAMA):

1. 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.
2. 501 - Methods of Test for Exterior Walls.
3. 508 - Voluntary Test Method and Specification for Pressure Equalized Rain Screen Wall Cladding Systems.

B. Aluminum Association (AA):

1. ADM - Aluminum Design Manual.
2. DAF-45 - Designation System for Aluminum Finishes.

C. American Society of Civil Engineers (ASCE) ASCE/SEI 7 - Minimum Design Loads for Buildings and Other Structures.

D. ASTM International (ASTM):

1. B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
2. E330 - Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
3. E331 - Standard Test Method for Water Penetration of Exterior Windows, Curtain Wall, and Doors by Uniform Static Air Pressure Difference.
4. E1233/E1233M - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights, and Curtain Walls by Cyclic Air Pressure Differential.

E. American Welding Society (AWS):

1. D1.1/D1.1M - Structural Welding Code - Steel.
2. D1.2/D1.2M - Structural Welding Code - Aluminum.

1.3 SYSTEM DESCRIPTION

- A. Performance Requirements: Provide installed system designed to withstand specified loadings while maintaining allowable deflection, thermal movement performance without defects, damage, or failure.
- B. Deflection and Thermal Movement: Provide system designed to resist to positive and negative wind loading in accordance with Building Code.
 - 1. Perimeter framing deflection: Maximum L/175 normal to plane of wall.
 - 2. Panel deflection: Maximum L/60.
 - 3. Anchor deflection: Maximum 0.0625 inch (1.6 mm) at connection points of framing members to anchors.
 - 4. At 150 of design pressure, no permanent deformation exceeding L/1000 or failure to structural members.
 - 5. Thermal movement: Allow for horizontal and vertical thermal movement over temperature range of minus 20 to plus 180 degrees F (minus 29 to 82 degrees C).
 - a. Not permitted: Buckling, opening of joints, undue stress on fasteners, failure of sealants, or other detrimental effects.
- C. System Requirements:
 - 1. Pressure equalized rainscreen system (PER):
 - a. Tested to AAMA 508 modified ASTM E1233/E1233M.
 - 1) Lag between cavity and cyclic wind pressure: Maximum 0.08 seconds.
 - 2) Maximum differential between cavity and cyclic wind pressure: 50 percent of maximum test pressure.
 - b. Static water penetration: ASTM E331, tested to AAMA 508 under static pressure at minimum 12.0 PSF (575 Pa) for 15 minutes:
 - 1) Water penetrating exterior rainscreen cladding including condensation controlled and drained to exterior.
 - 2) Water droplets contacting air/water barrier: Maximum 5 percent of air/water barrier surface
 - 3) No continuous stream of water on air/water barrier.
 - c. Dynamic water infiltration: AAMA 501.1, tested to AAMA 508 with wall pressure equivalent to 12.0 PSF (575 Pa) for 15 minutes:
 - 1) Water penetrating exterior rainscreen cladding including condensation controlled and drained to exterior.
 - 2) Water droplets contacting air/water barrier: Maximum 5 percent of air/water barrier surface
 - 3) No continuous stream of water on air/water barrier.
 - d. Structural performance: ASTM E330, modified to AAMA 508, tested to minimum 30.0 PSF (1436 Pa) pressure with joinery closed, taped or sealed, with deflections not to exceed limitations defined herein.

1.4 SUBMITTALS

- A. Action Submittals:
 - 1. Shop Drawings: Include elevations, layout, profiles, and components including:
 - a. Details showing thickness and dimensions of system parts, edge conditions, attachments, corners, fastening and anchoring methods, locations of joints and gaskets, location and configuration of joints necessary to accommodate thermal movement, and trim and flashings.
 - b. Signed and sealed by qualified Design Professional in Project jurisdiction.
 - 2. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each material and accessory.
 - 3. Samples:
 - a. Selection samples: Manufacturer's color charts or chips illustrating full range of available colors, finishes, and patterns.
 - b. Verification samples:
 - 1) System assembly: 12 x 12 inches (300 x 300 mm) samples including anchors, supports, fasteners, closures and other accessories.
 - 2) Each color or finish selected, minimum 3 x 4 inches (75 x 100 mm).

- B. Informational Submittals:
1. System calculations: System fabricator's system design and engineering analysis/calculations including:
 - a. Mounting system including anchorages, connections, and fasteners.
 - b. Location, type magnitude, and direction of loads imposed on building structural frame.
 - c. Signed and sealed by qualified Design Professional in Project jurisdiction.
 2. Material test reports: Certified test reports showing compliance with specified performance requirements, and third-party listing documenting compliance to comparable code section.
 3. Certificates: Product certificates signed by manufacturer certifying that materials comply with specified performance requirements.
 4. System fabricator's certified system test reports: Certify system compliance with specified performance characteristics or third-party listing documenting compliance to comparable code section.
- C. Closeout Submittals:
1. Warranty: Executed system warranty.

1.5 QUALITY ASSURANCE

- A. Qualifications:
1. Manufacturer qualifications:
 - a. Minimum 10 years continuous experience manufacturing specified wall panel systems.
 - b. Provide list of previous projects of similar scope, including date of installation and name of Architect.
 2. Installer qualifications:
 - a. Minimum 5 years continuous experience installing specified wall panel systems.
 - b. Provide list of previous projects of similar scope, including date of installation and name of Architect.
 3. Regulatory Requirements: Wall panel system evaluated and are in compliance with applicable building code.
- B. Mockup:
1. Size: Minimum [8 x 8] [] x [] feet.
 2. Locate [] [where directed.]
 3. Approved mockup may [not] remain as part of the Work.
- C. Pre-Installation Conference:
1. Convene at Project site [2] [] weeks prior to beginning installation.
 2. Attendance: [Owner,] [Architect,] [Contractor,] [Construction Manager,] system fabricator, system installer, and related trades.
 3. Review and discuss Contract Documents, system manufacturer's literature, project conditions, scheduling, and other matters affecting application.
 4. Tour representative areas for installation; discuss installation construction, related work, work conditions, and materials compatibility.

1.6 WARRANTY

- A. Painted Finish: Provide manufacturer's 20 year warranty against cracking, peeling, fading, or chalking of panel finish.
- B. Anodized Finish: Provide manufacturer's 5 year warranty against fading or chalking of panel finish.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Contract Documents are based on CLADLOK Modular Plate Panel System by CEI Materials, LLC.
www.CEIMaterials.com

2.2 MATERIALS

- A. Aluminum Sheet: ASTM B209, 3003-H14 alloy and temper.

2.3 FINISHES

- A. Exterior Finish:
 - 1. Meet performance criteria of AAMA 2605.
 - 2. Type: [Standard two coat finish.] [Standard two coat Mica finish.] [Standard three coat finish.] [Custom two coat finish.] [Custom two coat Mica finish.] [Custom three coat finish.] [Standard one coat FEVE clear finish.] [Standard specialty finish.]
 - 3. Color: [_____] [To be selected from manufacturer's full color range.]

**** OR ****

- B. Exterior Finish: AA DAF-45, M12C22A41, Class I anodized, clear.

**** OR ****

- C. Exterior Finish: AA DAF-45, M12C22A44, Class 1 anodized, [light bronze] [medium bronze] [dark bronze] [black] [_____] color.

2.4 ACCESSORIES

- A. Provide fabricator's standard system accessories, including fasteners, anchorage devices, and attachments for specific applications indicated.
- B. Attachment Components: Extruded aluminum, formed to resist design loads.
- C. Flashing and Trim: Match material, finish, and color of adjacent wall panels, minimum 0.040 inch (1.0 mm) thick.
- D. Panel Fasteners: Series 300 stainless or approved corrosion-resistant coated steel, minimum 7/16 inch (6.8 mm) diameter head with neoprene washers.
- E. Subgirts: Specified in Section [05 40 00.] [_____.]
- F. Wall Sheathing: Specified in Section [06 11 00.] [06 16 43.] [_____.]
- G. Moisture Barrier: Specified in Section [07 28 00.] [_____.]
- H. Joint Sealants: Specified in Section [07 92 00.] [_____.]

2.5 FABRICATION

- A. System Type: Pressure equalized rainscreen; open joint design with allowance for ventilation while preventing excessive water to contact air/water barrier.
- B. System Depth: 1-3/4 inches (44 mm).
- C. Aluminum Panels: 0.080 inch thick.
- D. Shop fabricate panels to dimensions and joint configurations indicated based on assumed design temperature of 70 degrees F (21 degrees C).
- E. Form panel lines, breaks and angles sharp and true, with surfaces free from warp and buckle.
- F. Provide integral drainage system to route entrapped moisture to exterior of wall assembly.

- G. Welding to conform to AWI D1.1/D1.1M and D1.2/D1.2M.
- H. Fabrication Tolerances:
 - 1. Width: Plus or minus 0.079 inch (Plus or minus 2 mm).
 - 2. Length: Plus or minus 0.079 inch (Plus or minus 2 mm).
 - 3. Squareness: Plus or minus 0.079 inch (Plus or minus 2 mm).

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install system in accordance with manufacturer's instructions and approved Shop Drawings.
- B. Install system support members and anchorage devices.
- C. Install system plumb, level, and true to line.
- D. Do not cut, trim, weld, or braze components in manner that could damage finish, decrease strength, or result in visual imperfection or failure in performance.
- E. Install flashings and trim to maintain visual continuity of system.
- F. Separate dissimilar metals with bituminous paint, plastic shims, or other approved methods as defined by AA DM. Use gasketed or corrosion-resistant coated fasteners to corrosive or electrolytic action between metals.
- G. Welding to conform to AWI D1.1/D1.1M and D1.2/D1.2M.
- H. Install joint sealants as specified in Specified in Section [07 92 00.] [__ __ __.]
- I. Installation Tolerances:
 - 1. Maximum deviation from horizontal and vertical alignment of installed panels: 0.25 inch in 20 feet (6.4 mm in 6.1 m), noncumulative.

3.2 FIELD QUALITY CONTROL

- A. Conduct water spray tests on mockup of panel system to AAMA 501.2.

3.3 ADJUSTING

- A. Remove and replace system components damaged beyond repair.
- B. Repair minor damage so that repairs are not discernible at distance of 10 feet (3 m) from surface at 90 degree angle per AAMA 2605.

3.4 CLEANING

- A. Remove protective films immediately after installation.
- B. Ensure that weep holes and drainage channels are unobstructed.

3.5 PROTECTION

- A. Protect installed panel system from damage during remainder of work on Project.

END OF SECTION