

¹SECTION 074210 - METAL PLATE WALL PANELS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

- 1.1.1 Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY:

- 1.2.1 Section includes metal plate wall panels.
- 1.2.2 Related Sections:
 - 1.2.2.1 Division 05 Section "Cold-Formed Metal Framing" for cold-formed metal framing supporting metal wall panels.
 - 1.2.2.2 Division 07 Section "Sheet Metal Flashing and Trim" for field-formed flashings and other sheet metal work not part of metal wall panel assemblies.
 - 1.2.2.3 Division 07 Section "Weather Resistive Barrier" for Air and Moisture barrier required as part of the metal wall panel assembly.

1.3 DEFINITION:

- 1.3.1 Metal Plate Wall Panel Assembly: Metal plate wall panels, attachment system components, miscellaneous metal framing, and accessories necessary for a complete weather tight wall system based on AAMA - CW-RS -1-04 The Rain Screen Principle and Pressure Equalized Wall Design.

1.4 PERFORMANCE REQUIREMENTS:

General Performance: Metal plate wall panel assemblies shall comply with performance requirements without failure due to defective manufacturing, fabrication, installation, or other defects in construction. Testing shall be performed without any intermediate flashings or perimeter caulking. Design, fabricate, and erect a pressure equalized "rainscreen" aluminum wall panel system to meet the requirements of **AAMA 508-14** Voluntary Test Method and Specifications for Pressure Equalized Rain Screen Wall Cladding Systems, specifically as follows.

- 1.4.1 Pressure Equalization: ASTM E1233 Cyclic Static Air Pressure Differential Testing; Positive pressure loading to 1200 pa. (25psf) for 100 three second cycles.
- 1.4.2 Air Leakage: Not more than 0.6 (cfm)/sf of wall area when tested at 1.57 psf in accordance with ASTM E283.
- 1.4.3 Water Penetration; Static: No water infiltration under static pressure when tested in accordance with ASTM E331 at a differential of 10% of inward acting design load, 6.24 psf min. after 15 minutes.
- 1.4.4 Structural: Provide systems that have been tested in accordance with ASTM E330 and have been certified to be without permanent deformation or failures of structural members.

1.5 SUBMITTALS:

- 1.5.1 Product Data: For each type of product indicated. Include construction details, material descriptions,

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dimensions of individual components and profiles, and finishes for each type of metal plate wall panel and accessory.

- 1.5.2 Shop Drawings: Show fabrication and installation layouts of metal plate wall panels; details of edge conditions, joints, panel profiles, corners, anchorages, attachment system, trim, flashings, closures, and accessories; and special details. Distinguish among factory-, shop-, and field-assembled work. Fully dimension and layout all panels and accessories.
 - 1.5.2.1 Accessories: Include details of the following items, at a full scale. Not less than 12 inches in length.
 - 1.5.2.1.1 Manufacturers Standard Extrusions.
 - 1.5.2.1.2 Special extrusions required to meet with the intent of the Contract Documents and as required by the Architect.
- 1.5.3 Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below:
 - 1.5.3.1 Metal Plate Wall Panels: 2"x3" Sample Chips.
- 1.5.4 Coordination Drawings: Exterior elevations, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:
 - 1.5.4.1 Metal plate wall panels and attachments.
 - 1.5.4.2 Girts.
 - 1.5.4.3 Wall-mounted items including doors, windows, louvers, and lighting fixtures.
 - 1.5.4.4 Penetrations of wall by pipes and utilities.
- 1.5.5 Qualification Data: For Manufacturer and for Installer.
- 1.5.6 Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each product.
- 1.5.7 Maintenance Data: For metal plate wall panels to include in maintenance manuals.
- 1.5.8 Warranties: Sample of Manufacturers standard warranty for not less than five years after date of substantial completion.

1.6 QUALITY ASSURANCE:

- 1.6.1 Installer Qualifications: An employer of workers trained and approved by manufacturer, having been in business for not less than five years.
- 1.6.2 Source Limitations:
 - 1.6.2.1 Source Limitations: Obtain each type of metal plate wall panel from single source from single manufacturer.
 - 1.6.2.2 Installer: Pre-Qualified Company specializing in performing the work of this Section shall install the system in strict compliance with the written "Installation Guide."

- 1.6.3 Obtain each type of metal plate wall panel from single source from a single manufacturer located within 500 miles of the project. Manufacturer must meet Buy America requirements and have a completed five projects with interlocking panels as specified.

1.7 DELIVERY, STORAGE, AND HANDLING:

- 1.7.1 Deliver components, metal plate wall panels, and other manufactured items so as not to be damaged or deformed. Package panels for protection during transportation and handling. Store and handle in strict compliance with manufacturer's instructions and recommendations. Protect from damage from weather, excessive temperatures and construction operations.
- 1.7.2 Store and erect metal plate wall panels in a manner to prevent bending, warping, twisting, and surface damage. Do not store panels horizontally. Always store vertically with top of panel down.
- 1.7.3 Store covered with suitable weather tight and ventilated covering. Store panels to ensure dryness, with positive slope for drainage of water. Do not store panels in contact with other materials that might cause staining, denting, or other surface damage.
- 1.7.4 Remove strippable protective covering on metal plate wall panel prior to installation.
- 1.7.5 Protect installed panels from damage until final completion. Remove and replace any damaged panels at no cost to the owner if damaged prior to final acceptance.

1.8 PROJECT CONDITIONS:

- 1.8.1 Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit assembly of metal plate wall panels to be performed according to manufacturer's written instructions and warranty requirements.
- 1.8.2 Field Measurements: Verify locations of structural members and wall opening dimensions by field measurements before metal plate wall panel fabrication and indicate measurements on Shop Drawings.
- 1.8.3 Installer is responsible for verifying that all existing site conditions are appropriate for installation of this system. Review the conditions on site with the General Contractor and other trades prior to installation. Note any deficiencies in substrates that may affect the installation of this system. Do not proceed until conditions are acceptable for installation.

1.9 COORDINATION:

- 1.9.1 Coordinate metal plate wall panel assemblies with rain drainage work, flashing, trim, and construction of studs, soffits, and other adjoining work.

1.10 WARRANTY:

- 1.10.1 Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal plate wall panel assemblies that fail in materials or workmanship within specified two year warranty period.
- 1.10.1.1 Failures include, but are not limited to, the following:
- 1.10.1.1.1 Structural failures, including rupturing, cracking, or puncturing.
- 1.10.1.1.2 Deterioration of metals and other materials beyond normal weathering.
- 1.10.1.2 Warranty Period: Two years from date of Substantial Completion.

1.10.2 Special Warranty on Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal plate wall panels that show evidence of deterioration of factory-applied finishes within specified warranty period.

1.10.2.1 Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 – PRODUCTS

2.1 PANEL MATERIALS:

2.1.1 Aluminum Plate: Alloy and temper as recommended by manufacturer for application and in strict adherence to Manufacturers “Modular AL metal wall panel system” of 3105-H14 Aluminum. Thickness shall be .050” minimum .080” maximum.

2.2 MISCELLANEOUS METAL FRAMING:

2.2.1 Sub-girts: Minimum 16ga. 7/8” hat section, C- or Z-shaped sections, Minimum 16ga. flat strap, minimum 16ga. Nominal thickness.

2.3 MISCELLANEOUS MATERIALS:

2.3.1 Aluminum Extrusions: Alloy and temper recommended by manufacturer for type of use and finish indicated.

2.3.2 Panel Fasteners: Suitable fasteners designed to withstand design loads. Stainless or equivalent corrosive resistant fastener with a minimum 7/16” diameter head.

2.4 METAL PLATE WALL PANELS:

2.4.1 Metal Plate Wall Panels: Provide factory-formed, metal plate wall panels fabricated from single sheets of metal formed into dry-joint pressure equalized rainscreen system with interlocking gutter and drainage system integral to the panel with single horizontal factory pre-punched attachment to complete dry-joint rainscreen assembly. The use of secondary drainage channels, brackets, support pins, joint sealants or gaskets to manage the drainage of the system are not allowed.

2.4.1.1 Product Basis for Design: The basis for this design is the **Modular AL** manufactured by **Petersen Aluminum Corporation**. (www.pacclad.com) 800-323-1960 Subject to compliance with manufacturers requirements, provide the following

2.4.1.1.1 Centria

2.4.1.1.2 Pohl Metal Panel Systems

2.4.1.1.3 Other manufacturers must be approved ten days prior to bid by addendum.

2.4.1.2 Subject to compliance with all requirements, products of like kind and equal quality and design may be bid. Submit letter on manufacturer’s letterhead indicating compliance with all criteria indicated in Contract Documents not less than seven (10) days prior to Bid Date.

2.4.1.3 Material: Tension-leveled, smooth 3003-H14 Aluminum. Thickness shall be .050” minimum.

2.4.1.4 Panel Depth: 1.375” minimum.

2.4.1.5 Exterior Finish: Kynar finish as manufactured by Sherwin Williams.

2.4.1.6 Color: Architect shall choose from of 46 standard colors.

2.5 ACCESSORIES:

2.5.1 Metal Plate Wall Panel Accessories: Provide components required for a complete metal plate wall panel assembly including trim, copings, fascia, sills, corner units, flashings, and similar items. Match material and finish of panels unless otherwise indicated.

2.5.2 Manufacturers Extrusions: Formed from extruded aluminum. Provide integral drainage system and manufactures standard extrusions at termination of dissimilar materials.

2.5.3 Copings, Flashing and Trim Essential to System: Same material, finish, and color as adjacent metal plate panels, minimum .040 inch thick unless otherwise indicated. Provided by panel manufacturer and installed in accordance with approved shop drawings.

2.5.4 Weather Resistive Barriers: Provide a weather barrier with performance characteristics for Air Penetration, Water Vapor Transmission and Water Penetration Resistance. Weather Barriers can be climate specific. Subject to compliance with manufacturer's requirements provide the following:

2.5.4.1 Carlisle air/vapor barrier 705 HT underlayment

2.6 FABRICATION:

2.1.1 General: Panels shall be factory fabricated and finished by manufacturer to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.

2.7 GENERAL FINISH REQUIREMENTS:

2.7.1 Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

2.8 ALUMINUM FINISHES:

2.8.1 Two-Coat Fluoropolymer: AAMA 2605. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight. Prepare, pre-treat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

PART 3 - EXECUTION

3.1 EXAMINATION:

3.1.1 Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, metal plate wall panel supports, and other conditions affecting performance of the Work.

3.1.1.1 Examine wall framing to verify that girts, angles, channels, studs, and other structural panel support members and anchorage have been installed within alignment tolerances required by metal plate wall panel manufacturer.

3.1.1.2 Verify that weather-resistant sheathing paper has been installed over sheathing or backing substrate to prevent air infiltration or water penetration.

3.1.2 Examine roughing-in for components and systems penetrating metal plate wall panels to verify actual locations of penetrations relative to seam locations of panels before installation.

3.1.3 Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION:

3.2.1 Miscellaneous Framing: Install subgirts, base angles, sills, furring, and other miscellaneous metal plate wall panel support members and anchorage according to ASTM C 754 and panel manufacturer's written instructions.

3.3 METAL PLATE WALL PANEL INSTALLATION:

3.3.1 General: Install metal plate wall panels according to manufacturer's written instructions in orientation, sizes, and locations indicated on Drawings. Install panels according to manufacturer's pressure equalized rainscreen installation method in strict accordance to the manufacturer's installation guidelines. Anchor panels and other components of the Work securely in place, with provisions for thermal and structural movement.

3.3.1.1 Commence metal plate wall panel installation

3.3.1.2 Shim or otherwise plumb substrates receiving metal plate wall panels.

3.3.1.3 Flash and seal metal plate wall panels with weather closures at perimeter of all openings. Do not begin installation until weather barrier and flashings that will be concealed by panels are installed.

3.3.1.4 Install flashing and trim as metal plate wall panel work proceeds.

3.3.2 Fasteners:

3.3.2.1 Aluminum Plate Wall Panels: Use aluminum or stainless-steel fasteners for surfaces exposed to the exterior and aluminum or galvanized-steel fasteners for surfaces exposed to the interior.

3.3.3 Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action as recommended by metal plate wall panel manufacturer.

3.3.4 Attachment System, General: Install attachment system required to support metal plate wall panels and to provide a complete weather tight wall system, including sub-girts, manufacturer's extrusions, flashings and trim.

3.3.4.1 Include attachment to supports and extrusion trims at dissimilar-materials

3.3.4.2 Do not apply sealants to joints unless otherwise indicated on Drawings or Manufacturers Shop Drawings.

3.3.5 Rainscreen-Principle Installation: Provide manufacturer's standard pressure-equalized rainscreen- principle system factory-formed, metal plate wall panels fabricated from single sheets of metal formed with interlocking gutter and drainage system integral to the panel with single horizontal attachment to complete dry-joint rainscreen assembly. The use of secondary drainage channels, brackets, support pins, joint sealants or gaskets to manage the drainage of the system are not allowed. Attach metal plate wall panels in a progressive interlocking method by engaging bottom of panel in top of previous panel working left to right.

3.3.5.1 Install metal wall panels with top attachment in pre-punched holes to allow individual panels to expand & contract. Do not fasten perimeter of panel or compromise internal gutter.

3.3.5.2 Do not apply sealants to joints unless otherwise indicated on Drawings at dissimilar materials.

3.4 ACCESSORY INSTALLATION:

3.4.1 General: Install accessories with positive anchorage to building and weather tight mounting and provide for thermal expansion. Coordinate installation with flashings and other components.

3.4.1.1 Install components required for a complete metal plate wall panel assembly including trim, copings, corner and standard extrusion covers, flashings and similar items.

3.4.2 Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.

3.4.3 Weather Resistive Barrier: Install Air & Moisture barrier behind metal plate panels over substrate according to the requirements specified in Division 07 Section "Weather Resistive Barrier".

3.5 ERECTION TOLERANCES:

3.5.1 Installation Tolerances: Shim and align metal plate wall panel units within installed tolerance of 1/4 inch in 20 feet, non-cumulative, on level, plumb, and location lines as indicated.

3.6 CLEANING:

3.6.1 On completion of metal plate wall panel installation, clean finished surfaces as recommended by panel manufacturer.

3.6.2 After metal plate wall panel installation, clear weep holes and drainage channels of obstructions, dirt.

3.6.3 Replace metal plate wall panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 07421