

## SECTION 074219 - METAL PLATE WALL PANELS

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. Section includes metal plate wall panels in Natural Materials. **[Copper][Zinc][Stainless Steel]**
- B. Related Sections:
  - 1. Division 05 Section "Cold-Formed Metal Framing" for cold-formed metal framing supporting metal wall panels.
  - 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.
  - 3. Division 07 Section "Weather Resistive Barrier" for Air and Moisture barrier required as part of the metal wall panel assembly.

## 1.3 DEFINITION

- A. 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. Design, fabricate, and erect a pressure equalized "rainscreen" aluminum wall panel system to meet the requirements of **AAMA 508-7** Voluntary Test Method and Specifications for Pressure Equalized Rain Screen Wall Cladding Systems, specifically as follows.

- A. Pressure Equalization: ASTM E1233 Cyclic Static Air Pressure Differential Testing; Positive pressure loading to 1200 pa. (25psf) for 100 three second cycles.
- B. Air Leakage: Not more that 0.06 (cfm)/sf of wall area when tested at 6.24 psf in accordance with ASTM E283.
- C. 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, 15.00 psf min. after 15 minutes.
- D. Water Penetration; Dynamic: AAMA 501.1 Dynamic Water Test at a minimum of 300 Pa (6.24 psf.)

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

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of metal plate wall panel and accessory.
- B. 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.
  - 1. Accessories: Include details of the following items, at a full scale.
    - a. Manufacturers Standard Sheet Metal Trims – **[Copper][Zinc][Stainless Steel]**
- C. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below:
  - 1. Metal Plate Wall Panels: 6"x6" **[Copper][Zinc][Stainless Steel]**Sample
- D. 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. Metal plate wall panels and attachments.
  - 2. Girts
  - 3. Wall-mounted items including doors, windows, louvers, and lighting fixtures.
  - 4. Penetrations of wall by pipes and utilities.
- E. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each product.
- F. Maintenance Data: For metal plate wall panels to include in maintenance manuals.
- G. Warranties: Sample of Manufacturers standard warranty

## 1.6 QUALITY ASSURANCE

- A. Installer Qualifications: An employer of workers trained and approved by manufacturer.
- B. Source Limitations:
  - 1. Source Limitations: Obtain each type of metal plate wall panel from single source from single manufacturer.
  - 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."

- C. Obtain each type of metal plate wall panel from single source from single manufacturer.
- D. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.
  - 1. Build mockup of typical wall panels and typical details as shown on Drawings or as directed by Architect, at a minimum include 4 panels indicating a four-way joint of the panels by full thickness, including supports, attachments, and accessories. .
  - 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
  - 3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
- E. Pre-installation Conference:
  - 1. Meet with Owner, Architect, and metal plate wall panel Installer, metal plate wall panel manufacturer's representative, structural-support Installer, and installers whose work interfaces with or affects panels including installers of doors, windows, and louvers.
  - 2. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
  - 3. Review methods and procedures related to metal plate wall panel installation, including manufacturer's written instructions.
  - 4. Examine support conditions for compliance with requirements, including alignment between and attachment to structural members.
  - 5. Review flashings, special siding details, wall penetrations, openings, and condition of other construction that will affect metal plate wall panels.
  - 6. Review temporary protection requirements for metal plate wall panel assembly during and after installation.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. 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 manufacturers instructions and recommendations. Protect from damage from weather, excessive temperatures and construction operations.
- B. 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.
- C. 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.
- D. Remove strippable protective covering on metal plate wall panel prior to installation.

#### 1.8 PROJECT CONDITIONS

- A. 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.

- B. 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.

## 1.9 COORDINATION

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

## 1.10 WARRANTY

- A. 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 warranty period.
  1. Failures include, but are not limited to, the following:
    - a. Structural failures, including rupturing, cracking, or puncturing.
    - b. Deterioration of metals and other materials beyond normal weathering.
  2. Warranty Period: One year from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 PANEL MATERIALS

- A. **[Copper][Zinc][Stainless Steel]** Plate: Alloy and temper as recommended by manufacturer for application and in strict adherence to Manufacturers "Design Guide". **[Copper of 0.063" minimum thickness][Zinc (Select One) 1mm or 1.5mmthickness ][Stainless Steel minimum 18 gauge thickness]** Wall Panel System unless otherwise specified.

### 2.2 MISCELLANEOUS METAL FRAMING

- A. Subgirts: 7/8" hat section, C- or Z-shaped sections, gauge per project requirements or Minimum 14ga. flat strap Nominal thickness.

### 2.3 MISCELLANEOUS MATERIALS

- A. **[Copper][Zinc][Stainless Steel]** Formed Flashings: Alloy, temper and gauge recommended by manufacturer for type of use and finish indicated.
- B. Panel Fasteners: Suitable fasteners designed to withstand design loads. Stainless steel with a minimum 7/16" diameter head and neoprene washer.

## 2.4 METAL PLATE WALL PANELS

- A. Metal Plate Wall Panels: Provide factory-formed, metal plate wall panels fabricated from single sheets of metal formed into Dri-design dry-joint pressure equalized rainscreen system 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.
1. Product Basis for Design: Panels shall be manufactured by **Dri-Design, Holland, Michigan. (616) 355-2970** Subject to compliance with manufacturers requirements, provide the following
    - a. Dri-design [**Copper**][**Zinc**][**Stainless Steel**] Wall Panels
  2. Material: [**Copper**][**Zinc**][**Stainless Steel**]. Thickness [**Copper min. 0.063"**][**Zinc 1mm – 1.5mm**][**Stainless Steel 18 gauge min. ]**
  3. Panel Depth: 1.25" (**panel depth can be specified in a range from 1.25" – 4" depending on material**)
  4. Color: As indicated by manufacturer's designations selected by Architect.

## 2.5 ACCESSORIES

- A. Metal Plate Wall Panel Accessories: Provide components required for a complete metal plate wall panel assembly including trim, copings, fascia, mullions, sills, corner units, flashings, and similar items. Match material and finish of panels unless otherwise indicated.
- B. Manufacturers Standard Flashings formed from [**Copper**][**Zinc**][**Stainless Steel**]. Provide integral drainage system and manufactures standard extrusions at termination of dissimilar materials.
- C. Flashing and Trim: Same material, finish, and color as adjacent metal plate wall panels, minimum 0.040 inch thick unless otherwise indicated.
- D. 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. Consult Div. 7 Weather Resistive Barriers for specific requirements of the project.

## 2.6 FABRICATION

- A. 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

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

## PART 3 - EXECUTION

## 3.1 EXAMINATION

- A. 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.
  - 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.
  - 2. Verify that weather-resistant sheathing paper has been installed over sheathing or backing substrate to prevent air infiltration or water penetration.
- B. 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.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

## 3.2 PREPARATION

- A. 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

- A. 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.
  - 1. Commence metal plate wall panel installation
  - 2. Shim or otherwise plumb substrates receiving metal plate wall panels.
  - 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.
  - 4. Install flashing and trim as metal plate wall panel work proceeds.
  - 5. Provide weather tight escutcheons for pipe and conduit penetrating exterior walls.
- B. Fasteners:
  - 1. Use stainless-steel fasteners
  - 2. Copper Plate Wall Panels: Use copper, stainless-steel, or hardware-bronze fasteners.
- C. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action as recommended by metal plate wall panel manufacturer.
- D. Attachment System, General: Install attachment system required to support metal plate wall panels and to provide a complete weather tight wall system, including subgirts, manufacturer's extrusions, flashings and trim.

1. Include attachment to supports and extrusion trims at dissimilar-materials
2. Do not apply sealants to joints unless otherwise indicated on Drawings or Manufacturers Shop Drawings.
3. Include manufactures starter extrusion at base course and at cut panel locations.

E. 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.

1. Install metal plate wall panels with single top attachment in pre-punched holes to allow individual panels to free-float. Do not fasten perimeter of panel or compromise internal gutter.
2. Do not apply sealants to joints unless otherwise indicated on Drawings at dissimilar materials.

### 3.4 ACCESSORY INSTALLATION

- A. General: Install accessories with positive anchorage to building and weather tight mounting and provide for thermal expansion. Coordinate installation with flashings and other components.
1. Install components required for a complete metal plate wall panel assembly including trim, copings, flashings and similar items.
- B. 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.
- C. Weather Resistive Barrier: Install weather barrier behind metal plate panels over substrate according to the requirements specified in Division 07 Section "Weather Resistive Barrier".

### 3.5 ERECTION TOLERANCES

- A. 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

- A. On completion of metal plate wall panel installation, clean finished surfaces as recommended by panel manufacturer.
- B. After metal plate wall panel installation, clear weep holes and drainage channels of obstructions, dirt.
- C. 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 074219