

## SECTION 07 42 13.26

### ZINC ALLOY METAL PLATE WALL PANELS

#### PART 1 - GENERAL

##### 1.01 SECTION INCLUDES

- A. Zinc alloy metal plate wall panels.

##### 1.02 RELATED REQUIREMENTS

- A. Section 05 4000 – Cold-Formed Metal Framing: Wall panel substrates support framing.
- B. Section 06 1000 – Rough Carpentry: Plywood substrate wall sheathing
- C. Section 07 2500 – Weather Barriers: Air and moisture barrier required as part of metal wall panel assembly.
- D. Section 07 6200 – Sheet Metal Flashing and Trim: Field formed flashings and other sheet metal work.
- E. Section 07 9200 – Joint Sealants: Perimeter sealant.

##### 1.03 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.

##### 1.04 REFERENCE STANDARDS

- A. AAMA - American Architectural Manufacturers Association ([www.aamanet.org](http://www.aamanet.org))
  - 1. AAMA CW-RS-1 – The Rain Screen Principle and Pressure Equalized Wall Design; 2012
  - 2. AAMA 501.1 – Standard Test Method for Water Penetration of Windows, Curtain Walls and Doors Using Dynamic Pressure; 2005
  - 3. AAMA 501.2 - Quality Assurance and Diagnostic Water Leakage Field Check of Installed Storefronts, Curtain Walls, and Sloped Glazing Systems; 2009
  - 4. AAMA 508 – Voluntary Test Method and Specification for Pressure Equalized Rain Screen Wall Cladding Systems; 2014 [Testing based on 2007 Edition]
- B. ASTM International (American Society for Testing and Materials; [www.astm.org](http://www.astm.org))
  - 1. ASTM B69 - Standard Specification for Rolled Zinc; 2013
  - 2. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 2015
  - 3. ASTM E18 - Standard Test Methods for Rockwell Hardness of Metallic Materials; 2015
  - 4. 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; 04(2012)
  - 5. ASTM E330/E330M - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference; 2014
  - 6. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference; 00(2009)
  - 7. ASTM E1233/E1233M – Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights, and Curtain Walls by Cyclic Air Pressure Differential; 2014 [Testing based on 2006 Edition]
- C. LEED – Leadership in Energy and Environmental Design
- D. SMACNA – Sheet Metal and Air Conditioning Contractor’s National Association
- E. PS - Voluntary Product Standard; National Institute of Standards and Technology (NIST)
  - 1. PS-1 – Structural Plywood; 2009

##### 1.05 ADMINISTRATIVE REQUIREMENTS

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- A. Coordination: Coordinate panel assemblies with rain drainage, flashing, trim, stud back-up, soffits, and other adjoining work.
- B. Preinstallation Meeting:
  - 1. Attendees:
    - a. Owner.
    - b. Architect.
    - c. Installer.
    - d. Panel manufacturer's representative.
    - e. Structural support installer.
    - f. Installer's whose work interfaces with or affects wall panels including installers of doors, windows, and louvers.
  - 2. Review and finalize construction schedule.
  - 3. Verify availability of materials, installer's personnel, equipment, and facilities needed to maintain schedule.
  - 4. Review means and methods related to installation, including manufacturer's written instructions.
  - 5. Examine support conditions for compliance with requirements, including alignment and attachment to structural members.
  - 6. Review flashings, special siding details, wall penetrations, openings, and condition of other construction that affects this Work.
  - 7. Review temporary protection requirements for during and after installation of this Work.

## 1.06 SUBMITTALS

- A. See Section 01 3000 – Administrative Requirements, for submittal procedures.
- B. Product Data: Submit 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.
- C. Shop Drawings: Submit fabrication and installation layouts of metal plate wall panels; including details of edge conditions, joints, panel profiles, corners, anchorages, attachment system, trim, flashings, closures, and accessories; and special details.
  - 1. Provide distinction between factory-assembled, shop-assembled, and field-assembled work.
  - 2. Provide details of following items at full scale.
    - a. Manufacturer's standard sheet metal trims.
    - b. Components of wall panel construction, anchorage methods, and hardware.
- D. Coordination Drawings: Submit exterior elevations, drawn to scale, that have the following items shown and coordinated with each other, using input from installers of these items as follows:
  - 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. Samples: Submit for each type of exposed finish required, and prepared on samples of size indicated below:
  - 1. Zinc Alloy Metal Plate Wall Panels: At least 6 inch by 6 inch.
- F. Test and Inspection Reports: Submit test and inspection reports on each type of wall panel system provided for project based on evaluation of comprehensive tests performed by qualified testing agency.
- G. Maintenance Data: Submit maintenance data for metal plate wall panels
- H. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.
- I. Sustainable Design Submittals [**LEED Reports**]:
  - 1. Submit documentation from manufacturer for amounts of pre-consumer and post-consumer recycled content for products specified, and include statement indicating costs for materials having recycled content.
  - 2. Submit documentation showing manufacturing location, and location of harvested raw materials.

## 1.07 QUALITY ASSURANCE

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- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with at least five years of documented experience.
- B. Installer: Company specializing in performing work of this section and approved by manufacturer.
  - 1. Install system in strict compliance with manufacturer's installation instructions.
- C. Source Limitations: Obtain each type of metal plate wall panel from single source and from single manufacturer.

#### 1.08 MOCKUPS

- A. Mockups: Provide mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and to establish quality standards for fabrication and installation.
  - 1. Build mockup of typical wall panel assembly **[as shown on Drawings]** <insert size>, including **[corner,] [soffits,]** supports, attachments, and accessories.
    - a. Include at least four panels to represent a four-way panel joint and showing full thickness.
  - 2. Water Spray Test: Conduct water-spray test of mockup metal panel assembly, test water penetration in accordance with AAMA 501.2.
  - 3. Approval of mockups does not constitute approval of deviation from Contract Documents within mockups unless these deviations are approved by Architect in writing.
  - 4. Subject to compliance with requirements, approved mockups **[may]** or **[may not]** become part of completed Work if undisturbed upon Date of Substantial Completion.

#### 1.09 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
- B. Storage and Handling: Store materials in clean, dry, interior area in accordance with manufacturer's instructions.
- C. Deliver panels, components, and other manufactured items without damage or deformation.
- D. Protect panels during transportation, handling, and installation from weather, excessive temperatures and construction operations.
- E. Handle panels in strict compliance with manufacturer's instructions and recommendations, and in a manner to prevent bending, warping, twisting, and surface damage.
  - 1. Store panels vertically with top of panel down, storage of panels horizontally is not permitted.
- F. Store panels covered with suitable weather tight and ventilated covering.
- G. Provide storage of panels to ensure dryness, with positive slope for drainage of moisture.
- H. Do not store panels in contact with other materials that might cause staining, denting, or other surface damage.
- I. Remove strippable protective covering from zinc alloy panel only after installation.

#### 1.10 SITE CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit assembly of this Work to be performed according to manufacturer's installation instructions and warranty requirements.
- B. Field Measurements: Verify locations of structural members and wall opening dimensions by field measurements before panel fabrication and indicate measurements on Shop Drawings.
  - 1. Coordinate with construction schedule.

#### 1.11 WARRANTY

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- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Wall System Warranty: Provide wall panel manufacturer warranty, agreeing to correct defects in manufacturing of materials within one year period after Date of Substantial Completion.
  - 1. Failures include, but are not limited to, the following:
    - a. Structural failures, including rupturing, cracking, or puncturing.
    - b. Deterioration: Beyond normal weathering of wall system metals and other materials.
- C. Panel Material Warranty: Provide panel material manufacturer warranty, agreeing to repair finish of metal plate wall panels that show evidence of corrosive deterioration within specified warranty period.
  - 1. Finish Warranty Period: [\_\_\_\_\_] years from Date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.01 MANUFACTURERS

- A. Dri-Design – Zinc Alloy Wall Panel System.
  - 1. Address: 12480 Superior Ct., Holland, Michigan 49424.
  - 2. P.O. Box 1286 Holland, Michigan 49422-1286.
  - 3. Phone: (616) 355-2970; Fax: (616) 355-2972; Website: www.dri-design.com.
- B. Zinc Alloy Plate Material Supplier:
  - 1. Umicore Building Products; Product Architectural Zinc, VMZINC®
  - 2. Address: 3120 Highwoods Blvd.; Suite 104, Raleigh, NC 27604.
  - 3. Phone: (919) 874-7173; Fax: (919) 874-7140; Website: www.vmpzinc-us.com.

### 2.02 PERFORMANCE REQUIREMENTS

- A. Metal Plate Wall Panel Assemblies: Comply with performance requirements without failure due to defective manufacturing, fabrication, installation, or other construction defects.
- B. Design, fabricate, and erect a dry joint, pressure equalized rainscreen zinc alloy wall panel system without use of sealants, gaskets, or butyl tape, tested as installed in compliance with AAMA 508, and as follows:
  - 1. Cyclic Static Air Pressure Differential: Pass cycled pressure loading at 25 psf in 100 three-second cycles in accordance with ASTM E1233/E1233M.
  - 2. Air Infiltration: Pass when tested at 1.57 psf (25 mph) in accordance with ASTM E283.
  - 3. Water Penetration:
    - a. Static: Pass water penetration test under 25.0 psf positive static air pressure difference for at least 15 minutes with 5 gallons per sf per hour of water applied in accordance with ASTM E331.
    - b. Dynamic: Pass water penetration test under 15.0 psf dynamic pressure difference for at least 15 minutes with 5 gallons per sf per hour of water applied in accordance with AAMA 501.1.
  - 4. Structural: Provide systems tested in accordance with ASTM E330/E330M and certified to be without permanent deformation or failure of structural members.

### 2.03 MATERIALS

- A. Zinc Alloy Plate: Alloy and temper as recommended by manufacturer for application, Architectural Rolled Zinc, Type 1-Cut from Strip, in accordance with ASTM B69 and manufacturers performance requirements.
  - 1. Thickness: [1.0 mm (0.039 inch)] or [1.5 mm (0.059 inch)].
  - 2. Tensile Strength: Range of 14 to 38 ksi; ASTM B69.
  - 3. Hardness: Range of 54 to 74; in accordance with Rockwell tester for 15T scale; ASTM E18.
- B. Panel Depth: [1 1/4 inch, nominal] [\_\_\_\_\_] or [As indicated on Drawings].
- C. Panel Size: As indicated on Drawings.
- D. Panel Joints: As indicated on Drawings.
- E. Color:

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1. Preweathered Zinc:
  - a. Quartz Zinc; zinc finish with dark grey aspect.
  - b. Anthra Zinc; zinc with black aspect.
2. Pigmented Preweathered Zinc:
  - a. Pigmento Blue, zinc with blue pigmented aspect.
  - b. Pigmento Red, zinc with red pigmented aspect.
  - c. Pigmento Green, zinc with green pigmented aspect.
  - d. Pigmento Brown, zinc with brown pigmented aspect.
3. AZENGAR® Zinc:
  - a. Engraved zinc with matt aspect.

## 2.04 FABRICATION

- A. Fabricate and finish wall panels within manufacturer's facilities and fulfill indicated performance requirements demonstrated by laboratory testing.
  1. Comply with indicated profiles and with dimensional and structural requirements.

## 2.05 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. Provide integral drainage system and manufactures standard extrusions at termination of dissimilar materials.
- C. Flashing and Trim: Match material, finish, and color of adjacent wall panels.
  1. Thickness: At least 0.040 inch.
  2. Refer to Section 07 6200.
- D. Panel Fasteners: Designed to withstand design loads, with at least 7/16 inch diameter head and neoprene washer.
  1. Material: Provide stainless steel fasteners, or coated fastener approved by panel manufacturer or project wall consultant.
- E. Sub-Girts: Galvanized, provide size and gage in accordance with project requirements.
  1. Furring Channel: Provide Hat, C, U or Z type as recommended by manufacturer.
  2. Flat Strap: At least 14 gage, 0.0747 inch (1.90 mm) thick.
  3. Refer to Section 05 4000.
- F. Substrate Wall Sheathing: Plywood, PS 1, Grade C-D, Exposure I, at least 5/8 inch thick.
  1. Refer to Drawings and Section 06 1000 for requirements.
- G. Weather Barriers: Provide climate specific weather barrier with performance characteristics for air penetration, water vapor transmission, and water penetration resistance.
  1. Refer to Section 07 2500 for requirements.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Examine substrates, and Work areas and conditions with Installer present for compliance with requirements for installation tolerances, wall panel supports, and other conditions affecting performance of this Work.
- B. Examine wall framing to verify that girts, angles, channels, studs, and other structural wall panel support members and anchorage have been installed within alignment tolerances required by wall panel manufacturer.
- C. Verify that weather barrier has been installed over sheathing or substrate to prevent air infiltration or water penetration.
- D. Examine rough-in for components and systems penetrating wall panels to coordinate actual penetration locations relative to wall panel joint locations prior to installation.
- E. Proceed with installation only after unsatisfactory conditions have been corrected.

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### 3.02 PREPARATION

- A. Miscellaneous Framing: Install sub-girt, base angles, sills, furring, and other wall panel support members and provide anchorage in accordance with ASTM C754 for gypsum panel type substrates and panel manufacturer's installation instructions.

### 3.03 INSTALLATION

- A. Install wall panels in accordance with manufacturer's installation instructions, including pressure equalized rainscreen installation method and installation guidelines.
  - 1. Wall panels consist of single sheets of metal formed with interlocking gutter and drainage system integral to the panel with single horizontal attachment for dry-joint rainscreen assembly.
  - 2. Use of secondary drainage channels, brackets, support pins, joint sealants or gaskets to manage the drainage of wall panel system is not permitted.
  - 3. Attach wall panels using progressive interlocking method, engaging bottom of panel in top of previous panel working bottom up, and left to right.
  - 4. Install wall panels with single top attachment in pre-punched holes to allow individual panels to move due to thermal expansion.
  - 5. Do not compromise internal gutter.
- B. Installers shall wear gloves and long sleeve shirts to prevent oils on fingers and skin from leaving marks on zinc alloy surfaces.
  - 1. Use mineral oil approved by zinc alloy supplier to remove finger prints.
- C. To limit damage due to galvanic action on metal panels from water flowing over surfaces, install metals in the following order from top to bottom; aluminum, zinc, galvalume, lead, and copper.
- D. Install wall panels for orientation, sizes, and locations as indicated on Drawings.
- E. Install wall panels with proper anchorage and other components for this Work securely in place.
- F. Install wall panels with provisions for thermal and structural movement.
- G. Install shims to plumb substrates as necessary for installation of wall panels.
- H. Install weather tight seals at perimeter of wall panel openings.
  - 1. Test for proper adhesion on small unexposed area of solid surfacing prior to use.
  - 2. Refer to Section 07 9200.
- I. Flashing and Trim: Comply with performance requirements, manufacturer's installation guidelines, and SMACNA - Architectural Sheet Metal Manual.
  - 1. Provide concealed fasteners where possible, and set units true to line and level as indicated.
  - 2. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.
  - 3. Install flashing and trim as wall panel Work proceeds.
- J. Install weather tight escutcheons for pipe and conduit penetrating exterior walls.
- K. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action as recommended by wall panel manufacturer.
- L. Install attachment system to support wall panels and with provisions to provide a complete weather tight wall system, including sub girts, extrusions, flashings and trim.
  - 1. Include attachment to supports and trims at locations using dissimilar materials.
  - 2. Do not apply sealants to joints, unless noted otherwise on Drawings or Shop Drawings.
  - 3. Install starter extrusion at base course and at cut panel locations.
- M. Install accessories with positive anchorage to building and weather tight mounting and provisions for thermal expansion, and coordinate installation with flashings and other components.
  - 1. Install components required for a complete wall panel assembly including trim, copings, flashings and other accessory items.

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- N. Weather Barrier: Install weather barrier behind wall panels and over substrate in accordance with requirements of Section 07 2500.

### 3.04 TOLERANCES

- A. Shim and align wall panel units with installed tolerances of 1/4 inch in 20 feet, non-cumulative, on level, plumb, and location lines as indicated.

### 3.05 FIELD QUALITY CONTROL

- A. Testing Agency: **[Owner will engage]** or **[Engage]** a qualified independent testing agency to perform field tests and inspections.
- B. Water-Spray Test: After installation and in coordination with Mockup requirements, test area of assembly **[shown on Drawings] [as directed by Architect]** or **<Insert area>** for water penetration in accordance with AAMA 501.2.
- C. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect completed metal wall panel installation, including accessories.
- D. Remove and replace metal wall panels where tests and inspections indicate that they do not comply with specified requirements.
- E. Perform additional tests and inspections, at Contractor's expense, to verify compliance of replaced wall panels or necessary additional work with specified requirements.
- F. Prepare test and inspection reports.

### 3.06 CLEANING

- A. Upon completion of wall panel installation, clean finished surfaces as recommended by panel manufacturer and panel material supplier.
- B. Clean zinc surfaces of fingerprints immediately with wall panel manufacturer approved mineral oil.
- C. Upon completion of wall panel installation, clear weep holes and drainage channels of obstructions and dirt.

### 3.07 PROTECTION

- A. Protect installed products from damage during subsequent construction.
- B. Provide protection of wall panels as necessary due to cleaning of adjacent materials with chemicals that may harm wall panel finish.
- C. Replace wall panels damaged or deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

**END OF SECTION**