

# **SECTION 07 42 13.26 - Zinc Alloy Metal Plate Wall Panels**

## **NorthClad® ZN Formed Natural Zinc Panel System**

### **Published: 08/2019**

#### **PART 1 GENERAL**

##### **1.01 SECTION INCLUDES**

- A. Interlocking zinc wall panel dry joint, pressure-equalized rainscreen system.
- B. Accessories including sub girts, zinc panel splines, zinc panel bases, head flashings, clips, shims, fasteners, and zinc trim prefinished to match zinc wall panels.

##### **1.02 RELATED SECTIONS**

- A. Section 05 40 00 - Cold-Formed Metal Framing
- B. Section 06 10 00 - Rough Carpentry
- C. Section 06 16 43 - Gypsum Sheathing
- D. Section 07 25 00 - Air Barriers
- E. Section 07 62 00 - Sheet Metal Flashing and Trim
- F. Section 07 92 00 - Joint Sealants

##### **1.03 REFERENCE STANDARDS**

- A. AAMA-American Architectural Manufacturers Association ([www.aamanet.org](http://www.aamanet.org)):
  - 1. AAMA 501.1 - Standard Test Method for Water Penetration of Windows, Curtain Walls and Doors Using Dynamic Pressure.
  - 2. AAMA 508-07 - Voluntary Test Method and Specifications for Pressure Equalized Rain Screen Wall Cladding Systems.
- B. ASTM International([www.astm.org](http://www.astm.org)):
  - 1. ASTM B 69 - Standard Specification for Rolled Zinc; 2011.
  - 2. ASTM C 754 - Standard Specification for Installation of Steel Framing Members to Receive Screw Attached Gypsum Panel Products: 2009.
  - 3. ASTM E 18 - Standard Test Methods for Rockwell Hardness of Metallic Materials: 2011.
  - 4. ASTM E 283 - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
  - 5. ASTM E 330 - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
  - 6. ASTM E 331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.
  - 7. ASTM E 1233 - Standard Test Method for Structural Performance of Exterior Windows, Door, Skylights, and Curtain Walls by Cyclic Air Pressure Differential; 2006.
- 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).

##### **1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Coordination:
  - 1. Conform to provisions of Section 01 31 13 for coordination with work of other Sections.
  - 2. Coordinate with Section 07 25 00 for application of weather resistive barrier over exterior sheathing substrate specified.

3. Conform to provisions of Section 06 16 43 following installation of sub girt system as required to seal and make a continuous air barrier.
4. Preconstruction Meeting:
  - a. Conform to provisions of Section 01 31 19.
  - b. Attendees: Architect, Installer, Structural Support Installer, Installers whose work interfaces with or affects wall panels.
  - c. Review and finalize construction schedule.
  - d. Verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
  - e. Review methods and procedures related to zinc metal panel installation, including manufacturer's written instructions.
  - f. Examine support conditions for compliance with requirements, including alignment between and attachment to the structural members.
  - g. Review flashings, special details, wall penetrations, openings, and condition of other construction that will affect zinc wall panels.
  - h. Review governing regulations and requirements for insurance, certificates, tests, and inspections as applicable.
  - i. Review temporary protection requirements for zinc wall panel assembly during and after installation.
  - j. Review wall panel observation and repair procedures after zinc wall panel installation.
5. Meeting Time: Minimum 3 weeks prior to commencement of work covered by this Section and related work affecting work covered by this Section.
6. Location: Project Site.

## **1.05 DESIGN REQUIREMENTS**

- A. Components: Designed and manufactured to withstand dead and live loads caused by positive and negative wind pressure acting normally to plane of zinc wall panels in accordance with International Building Code, Chapter 16.
  1. Wall Panel Deflection:  $L/180$ .
  2. Perimeter Framing Deflection:  $L/180$ .
  3. Thermal Movement: Design system to accommodate vertical and horizontal thermal movement of components without causing excessive stress on fasteners when subjected to recurring temperature variations.
  4. Drainage: Design for positive drainage of water leakage and condensation to exterior of wall panel system.

## **1.06 PERFORMANCE REQUIREMENTS**

- A. Provide following testing documentation. Testing documentation must be current and meet or exceed specified design and performance requirements, and documented and certified by an independent testing agency acceptable to Architect and applicable building code jurisdiction.
  1. Air Infiltration: Maximum of 0.117 cubic feet per minute per square foot of wall area at
  2. 1.57 pounds per square foot in accordance with ASTM E 283 in compliance with AAMA 508 criteria.
  3. Structural Performance: Permanent deformation not to exceed  $L/175$  in accordance with ASTM E 330 in compliance with AAMA 508 criteria.
  4. Water Penetration:
    - a. No unrestrained water penetration under a static pressure differential of 6.24 pounds per square foot in accordance with ASTM E 331.

- b. Water penetration not to exceed 3.2 square feet at 6.24 pounds per square foot in accordance with AAMA 501.1.
  - c. No streaming water or droplets/mist on more than 5% of weather resistive barrier in accordance with AAMA 508-07.
- 5. Pressure Equalized Rainscreen Performance:
  - a. Pressure cycling not to exceed 0.08 seconds (100 cycles at 25.00 pounds per square foot) in accordance with ASTM E 1233.
- 6. Meet or exceed specified design and performance requirements.

## **1.07 SUBMITTALS**

- A. Submit under provisions of Section 01 33 00.
  - 1. LEED Credits: Conform to Section 01 81 13 for documentation of LEED Credits contributing to certification of Project under requirements of USGBC LEED-NC 2.2 Green Building Rating System for Sustainable Building.
  - 2. Buy American Act Certification: Submit documentation certifying that products comply with provisions of the Buy American Act 41 U.S.C. 10a-10d.
  - 3. Product Test Reports:
    - a. Indicate compliance of products with requirements of this Section.
    - b. Provide report documentation certified by a qualified, independent testing agency.
  - 4. Shop Drawings:
    - a. Provide details at a minimum scale of 1½ inch per foot.
  - 5. Product Data:
    - a. Provide manufacturer's technical data, installation instructions, standard detail drawings specific to this project, and accessory data showing conformance with specified requirements.
    - b. Provide data for fasteners including clips and fastener types.
    - c. Indicate provisions for thermal expansion and contraction.
  - 6. Product Samples: Provide 2-inch by 3-inch samples for each specified finish.
  - 7. Sample Warranty: Meet or exceed provisions specified by this Section.

## **1.08 QUALITY ASSURANCE**

- A. Manufacturer Qualifications:
  - 1. Minimum of 10 years' experience in fabricating and supplying metal wall panel systems.
  - 2. Provide review and approval of shop drawings showing conditions differing from panel manufacturer's standard details prior to installation.
- B. Installer Qualifications:
  - 1. Minimum 7 years' experience installing commercial metal wall panel systems.
  - 2. Employ job-site foreman, with minimum of 3 years' experience supervising installation of metal wall panel work of this section.
  - 3. Foreman: Continuously on site for duration of work of this section for this project.
- C. Single Source Responsibility:
  - 1. Provide system and components for this Section under responsibility of single metal wall panel manufacturer.

## **1.09 WARRANTY**

- A. Provide Warranties under provisions of Section 01 78 36.
  - 1. Material Warranty: Provide zinc material manufacturer warranty, agreeing to replace defective materials for a period of 5 years.

2. Finish Warranty: Provide zinc finish warranty agreeing to replace defective materials for a period of 20 years.
3. Contractor: 5-year labor warranty for panel installation, including, flashings, sealants, fasteners, and accessories to remain weatherproof.

## **1.10 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver components, sheets, zinc wall panels, and other manufactured items to prevent damage or deformity.
  1. Package zinc wall panels for protection during transportation and handling.
  2. Unload, store, and erect zinc wall panels in a manner to prevent bending, warping, twisting, and surface damage.
  3. Store zinc wall panels vertically and cover with suitable weather tight and ventilated covering. Store zinc wall panels to ensure dryness, with positive slope for drainage of water. Do not store zinc wall panels in contact with other materials that may cause staining, denting, or other surface damage. Do not allow storage space to exceed 120 degrees Fahrenheit.

## **Part 2 PRODUCTS**

### **2.1 SYSTEMS**

- A. Interlocking zinc wall panel dry joint, pressure-equalized rainscreen system: Install over substrate system.

### **2.2 MANUFACTURERS**

- A. Subject to compliance with requirements, provide products manufactured by NorthClad® Rainscreen Solutions, 11831 Beverly Park Rd, Bldg. C, Everett, WA 98204, telephone (425) 740-3702, email: dkillian@northclad.com, website: www.northclad.com.
  1. NorthClad® Zn: Zinc NorthClad® Zn Series wall panel system.
  2. Submit alternate tested systems by other manufacturers/fabricators to architect not less than 30 days prior to bid.

### **2.3 ZINC PANEL MATERIALS**

- A. Zinc material suppliers: Jarden Architectural Zinc Products, Rheinzink America, elZinc
- B. Zinc Alloy Plate: Alloy and temper as recommended by manufacturer for application, Architectural Rolled Zinc, Type 1-Cut from Strip, in accordance with ASTM B 69 and manufacturers performance requirements.
  1. Thickness: .8mm, 1mm, 1.5mm, 2mm.
  2. Tensile Strength: Range of 14 to 38 ksi; ASTM B 69.
  3. Hardness: Range of 54 to 74; in accordance with Rockwell tester for 15T scale; ASTM E 18.

Specifier Note: Panel depth may be specified in range from 1-1/4 to 3 inches; provide information in compliance with project requirements.

- C. Panel Depth: 1¼ Inch Nominal.
- D. Panel Size: As indicated on Drawings and as Material Allows.
- E. Panel Joints: ½-inch reveal Horizontal and Vertical.
- F. Color: Varies by zinc supplier. Zinc is a natural metal. Expect slight color variations.

### **2.4 FABRICATION**

- A. Tolerances: Panel bow not to exceed L/175 panel dimension in width and length.
- B. Allow for field adjustments as recommended by the manufacturer where final dimensions cannot be established by field measurement prior to panel fabrication.

- C. Expansion/Contraction: Engineer panels to permit expansion and contraction.
- D. Strippable Protective Film: Factory applied for protection of weather face finish and removed upon completion of the panel installation. Failure to remove the film may lead to over- exposure and damage to the panel.

## **2.5 FASTENERS**

- A. Installer supplied fasteners and clips tested to meet provisions of this section, as approved by engineer of record.
- B. Concealed Sheet Metal Fasteners: Self-drilling, self-tapping, non-corrosive fasteners.
- C. Fastener Lengths: Penetrate framing and subgirts, and other framing systems in accordance with the fastener manufacturer's recommendations.

## **2.6 SYSTEM COMPONENTS**

- A. Subgirts:
  - 1. Provide G90 galvanized steel of gauge and spacing required to comply with metal wall panel system's structural requirements as recommended by the panel manufacturer and engineer of record in accordance with approved shop drawings.
  - 2. To avoid galvanic reaction, separate dissimilar materials.

## **2.7 FLASHINGS**

- A. Metal Flashing, Fascias, and Trim:
  - 1. Material, color, and finish to match adjacent wall panels.
  - 2. Conform to provisions of Section 07 60 00.
- B. Cutting and Fitting:
  - 1. Make all cuts neat, square, and true.
  - 2. Saw-cut panels, de-burr edges, and clean filings from adjacent surfaces.

## **2.8 WEATHER BARRIERS**

- A. Provide Climate Specific Weather Barrier with Performance Characteristics for Air Penetration, Water Vapor Transmission and Water Penetration Resistance.
- B. Refer to Section 07 25 00 for Requirements.

# **Part 3 EXECUTION**

## **3.1 EXAMINATION**

- A. Installer to verify conditions are satisfactory to receive work of this Section before beginning.
  - 1. Verify substrate installation is complete, flat, and true to plane.
  - 2. Verify that structural wall panel support members and anchorages have been installed within alignment tolerances required by wall panel manufacturer.
  - 3. Verify that weather barrier has been installed to prevent air or water penetration.
  - 4. Verify that rough in for components and systems penetrating wall panels are coordinated with actual wall panel joint locations prior to installation.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

## **3.2 PREPARATION**

- A. Field Measurements: Verify dimensions prior to fabrication of metal panels and flashings.
  - 1. Protect surrounding areas and surfaces to preclude damage during work of this Section.
  - 2. Lay out work before beginning installation as necessary for true, plumb, and aligned panel installations.
  - 3. Verify locations of joints and panel lengths.

## **3.3 INSTALLATION**

- A. Conform to manufacturer's instructions and provisions of Contract Documents.
- B. Wall Panels consist of single sheets of metal formed with interlocking gutter and drainage system integral to the panel with a single horizontal attachment for dry joint rainscreen assembly.
- C. Attach Wall Panels using progressive interlocking method, engaging bottom of panel to top of previous panel, working bottom up and left to right.
- D. Install Wall Panels as indicated on Shop Drawings.
- E. Install Wall Panels and other components for this Work securely in place, with proper anchorage.
- F. Install Wall Panels to allow thermal movement.
- G. Plumb substrates and install shims as necessary for installation of Wall Panels.
- H. Flashing and Trim: Comply with performance requirements, manufacturer's guidelines, and SMACNA – Architectural Sheet Metal Manual.
  - 1. Provide concealed fasteners where possible, and set true to line and level.
  - 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.
- I. Install escutcheons for pipe and conduit penetrating exterior walls.
- J. Metal Protection: Separate dissimilar metals.
- K. Install attachment system to support wall panels and a complete wall system, including sub-girts, flashing and trim.
  - 1. Do not apply sealant to joints, unless noted otherwise on Shop Drawings.
  - 2. Install starter at base course, fenestration heads and cut panel locations.
- L. Install accessories using proper anchorage to building and weather tight mounting, providing for thermal movement. Coordinate installation with flashings and other components.
  - 1. Install components required for a complete Wall Panel assembly including flashing, trim, coping and other accessories.
- M. Weather Barrier: Install weather barrier over substrate and behind Wall Panels in accordance with the requirements of Section 07 25 00.

### **3.4 TOLERANCES**

- A. Shim and align Wall Panels with installed tolerances of ¼ inch in 15 feet, non-cumulative, level, plumb and on location lines.

### **3.5 FIELD QUALITY CONTROL**

- A. Installer Field Services:
  - 1. Correct identified defects and irregularities.
  - 2. Replace damaged, soiled, or discolored panels.

### **3.6 PROTECTION**

- A. Take measures to protect metal panel installations from construction activities for duration of Project.
  - 1. Do not permit activities that may result in gouging, scratching, or denting metal panels and flashing.
  - 2. Provide protection of Wall Panels, as necessary, from chemicals that may cause harm, during the cleaning of adjacent materials.
  - 3. Replace Wall Panels damaged or deteriorated beyond repair.

### **3.7 CLEANING**

- A. Upon completion of Wall Panel installation, clean finished surfaces as recommended by Wall Panel manufacturer.

1. Upon completion of Wall Panel installation, clear weep holes and drainage channels of obstructions and dirt.
2. Leave installation clean and free from residue and debris from work of this Section.

**END OF SECTION**