

American Metalcraft, Inc.  
28 Andrew Way  
Villa Rica, Georgia 30180  
Phone 769-486-5007  
Website www.americanmetalcraft.com  
Email scott@americanmetalcraft.com

## Guide Specification

Specifier Notes: This guide specification is written in Construction Specifications Institute (CSI) 3-Part Format in accordance with *The CSI Construction Specifications Practice Guide, MasterFormat, SectionFormat, and PageFormat.*

This Section must be carefully reviewed and edited by the Architect to meet the requirements of the Project and local building code. Coordinate this Section with Conditions of the Contract, Division 01, other specification sections, and the Drawings. Delete all Specifier Notes after editing this Section.

Section numbers and titles are based on *CSI MasterFormat 2018 Edition.*

## SECTION 07 42 13.16

### METAL PLATE WALL PANELS

Specifier Notes: This Section covers American Metalcraft, Inc. dry-joint, pressure-equalized, fluoropolymer-finished, rain screen, aluminum wall panel system, including metal plate wall panels. Consult American Metalcraft, Inc. for assistance in editing this Section as required for the Project.

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Metal plate wall panels.

##### 1.2 RELATED REQUIREMENTS

Specifier Notes: Edit the following list of related sections as required for the Project. Limit the list to sections with specific information that the reader might expect to find in this Section, but is specified elsewhere.

- A. Section 05 40 00 – Cold-Formed Metal Framing.
- B. Section 06 16 00 – Sheathing.

- C. Section 07 21 00 – Thermal Insulation.
- D. Section 07 25 00 – Weather Barriers.
- E. Section 07 27 26 – Fluid-Applied Membrane Air Barriers.
- F. Section 07 62 00 – Sheet Metal Flashing and Trim.
- G. Section 07 92 00 – Joint Sealants: Perimeter sealant.

### 1.3 REFERENCE STANDARDS

Specifier Notes: List reference standards used elsewhere in this Section, complete with designations and titles. Delete reference standards from the following list not used in the edited Section.

- A. American Architectural Manufacturers Association (AAMA) ([www.aamanet.org](http://www.aamanet.org)):
  1. AAMA CW-RS-1 – The Rain Screen Principle and Pressure-Equalized Wall Design.
  2. AAMA 501.1 – Standard Test Method for Water Penetration of Windows, Curtain Walls and Doors Using Dynamic Pressure.
  3. AAMA 501.2 – Quality Assurance and Diagnostic Water Leakage Field Check of Installed Storefronts, Curtain Walls and Sloped Glazing Systems.
  4. AAMA 508 – Voluntary Test Method and Specification for Pressure Equalized Rain Screen Wall Cladding Systems.
  5. AAMA 2605 – Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.
- B. ASTM International (ASTM) ([www.astm.org](http://www.astm.org)):
  1. ASTM C 754 – Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.
  2. ASTM D 523 – Standard Test Method for Specular Gloss.
  3. ASTM D 2244 – Standard Practice for Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates.
  4. ASTM D4214 – Standard Test Methods for Evaluating the Degree of Chalking of Exterior Paint Films.
  5. 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.
  6. ASTM E 330 / E 330M – Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
  7. ASTM E 331 – Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.
  8. ASTM E 1233 / E 1233M – Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights, and Curtain Walls by Cyclic Air Pressure Differential.
  9. ASTM G 85 – Standard Practice for Modified Salt Spray (Fog) Testing.
- C. National Association of Architectural Metal Manufacturers (NAAMM) ([www.naamm.org](http://www.naamm.org)):
  1. NAAMM Metal Finishes Manual for Architectural and Metal Products.

- D. Sheet Metal and Air Conditioning Contractors' National Association (SMACNA) ([www.smacna.org](http://www.smacna.org)):
  - 1. SMACNA Architectural Sheet Metal Manual.

#### 1.4 COORDINATION

- A. Coordinate metal plate wall panel installation with rain drainage, flashing, trim, stud back-up, soffits, and other adjoining work.

#### 1.5 PREINSTALLATION MEETINGS

Specifier Notes: Edit the Preinstallation Meetings article as required for the Project.

- A. Convene preinstallation meeting [1 week] [2 weeks] [\_\_\_\_\_ weeks] before start of installation of wall panels.
- B. Meet with the following:
  - 1. Contractor.
  - 2. Architect.
  - 3. Wall panel manufacturer's representative.
  - 4. Wall panel installer.
  - 5. Structural support installer.
  - 6. Other installers whose work interfaces with or affects wall panels, including installers of doors, windows, and louvers.
- C. Review and finalize construction schedule and verify availability of materials, installer's personnel, equipment, and facilities needed to make progress and avoid delays.
- D. Review methods and procedures related to wall panel installation, including manufacturer's installation instructions.
- E. Examine structural support conditions for compliance with requirements, including alignment between and attachment to structural members.
- F. Review flashing, special siding details, wall penetrations, openings, and condition of other construction that will affect wall panels.
- G. Review requirements for temporary protection of wall panels during and after installation.
- H. Review coordination with other Work.

#### 1.6 SUBMITTALS

Specifier Notes: Edit the Submittals article as required for the Project. Delete submittals not required.

- A. Submittals: Comply with Division 01.

- B. Product Data: Submit manufacturer's product data for each type of product indicated, including 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 manufacturer's shop drawings, including plans, elevations, sections, and details, indicating dimensions, tolerances, materials, components, fabrication, fasteners, finish, and accessories.
  - 1. Include exterior elevations, that have the following items shown and coordinated with each other, using input from installers of these items:
    - a. Metal plate wall panels and attachments.
    - b. Girts.
    - c. Wall-mounted items including doors, windows, louvers, and lighting fixtures.
    - d. Penetrations of wall by pipes and utilities.
- D. Samples: Submit manufacturer's sample for each type of exposed finish required.
  - 1. Sample Size for Metal Plate Wall Panels: Minimum 6 inches by 6 inches.
- E. Manufacturer's Certification: Submit manufacturer's certification that materials comply with specified requirements and are suitable for intended application.
- F. Test and Inspection Reports: Submit manufacturer's test and inspection reports on each type of metal plate wall panel system provided, based on evaluation of tests performed by qualified, independent testing agency.
- G. Manufacturer's Project References: Submit manufacturer's list of 10 successfully completed metal plate wall panel projects of similar size and scope to this Project, including project name and location, name of architect, and type and quantity of metal plate wall panels furnished.
- H. Installer's Project References: Submit installer's list of 10 successfully completed metal plate wall panel projects of similar size and scope to this Project, including project name and location, name of architect, and type and quantity of metal plate wall panels installed.
- I. Care and Maintenance Instructions: Submit manufacturer's care and maintenance instructions, including cleaning and repairing instructions.
- J. Warranty Documentation: Submit manufacturer's warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

## **1.7 QUALITY ASSURANCE**

- A. Manufacturer's Qualifications: Manufacturer regularly engaged in the manufacturing of metal plate wall panels of similar type to that specified for a minimum of 10 years.
- B. Installer's Qualifications:
  - 1. Installer regularly engaged in installation of metal plate wall panels of similar type to that specified for a minimum of 5 years.
  - 2. Use persons trained for installation of metal plate wall panels.

## 1.8 DELIVERY, STORAGE, AND HANDLING

### A. Delivery Requirements:

1. Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
2. Deliver materials without damage or deformation.

### B. Storage and Handling Requirements:

1. Store and handle materials in accordance with manufacturer's instructions.
2. Keep materials in manufacturer's original, unopened containers and packaging until installation.
3. Store materials in clean, dry area indoors.
4. Protect wall panels from weather, excessive temperatures, and construction operations.
5. Handle wall panels to prevent bending, warping, twisting, and surface damage.
6. Do not store materials directly on floor or ground.
7. Store wall panels vertically with top of panels down.
8. Storage of Wall Panels Horizontally: Not permitted.
9. Store wall panels covered with suitable weather tight and ventilated covering.
10. Store wall panels to ensure dryness, with positive slope for drainage of moisture.
11. Do not store wall panels in contact with other materials that might cause staining, denting, or other surface damage.
12. Remove strippable protective covering from wall panels immediately before installation.
13. Protect materials and finish during storage, handling, and installation to prevent damage.

## 1.9 AMBIENT CONDITIONS

- A. Do not install materials under ambient conditions outside manufacturer's limits.

## 1.10 WARRANTY

- A. Wall System Warranty: Provide wall panel manufacturer warranty, agreeing to correct defects in manufacturing of materials within a 1-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.

- B. Wall Panel Finish Warranty: Provide wall panel finish manufacturer warranty, agreeing to repair finish of metal plate wall panels that show evidence of deterioration of factory-applied finishes within specified warranty period.

Specifier Notes: Specify finish warranty period. Period ranges from 0 to 20 years from date of Substantial Completion, depending on project location, choice of coating, and coating manufacturer. Consult American Metalcraft, Inc. for additional information.

1. Finish Warranty Period: \_\_\_\_\_ years from date of Substantial Completion.
2. Warranty Coverage: In accordance with AAMA 2605 for 70 percent PVDF resin on aluminum finish requirements and if proper maintenance has been followed in accordance with returned, signed, and agreed upon warranty.

- a. Fading, Loss of Color Retention, ASTM D 2244: Loss of 5 Delta E units (Hunter) or less.
- b. Chalking, Chalky White Powder on Wall Panel Surface, ASTM D 4214: Chalking at No. 8 or less for colors or No. 6 for white.
- c. Loss of Adhesion: Loss of 10 percent due to cracking, checking, or peeling, or failure to adhere to bare metal.
- d. Gloss Retention, ASTM D 523: 50 percent or less.
- e. Salt Spray, Accelerated, ASTM G 85: At least 4,000 hours.

## **PART 2 PRODUCTS**

### **2.1 MANUFACTURERS**

- A. Manufacturer: American Metalcraft, Inc., 28 Andrew Way, Villa Rica, Georgia 30180. Phone 769-486-5007. [www.americanmetalcraft.com](http://www.americanmetalcraft.com). [scott@americanmetalcraft.com](mailto:scott@americanmetalcraft.com).

Specifier Notes: Specify if substitutions will be permitted.

- B. Substitutions: [Not permitted] [Comply with Division 01].
- C. Single Source: Provide materials from single manufacturer.

### **2.2 METAL PLATE WALL PANELS**

- A. Metal Plate Wall Panels: Dry-joint, pressure-equalized, fluoropolymer-finished, rain screen, aluminum wall panel system, including metal plate wall panels.
  - 1. Conformance: AAMA 508.
  - 2. Design: AAMA CW-RS-1.

### **2.3 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, rain screen aluminum wall panel system without use of sealants, gaskets, or butyl tape, tested as installed in compliance with AAMA 508, and as follows.
  - 1. Pressure Equalization Cycling, ASTM E 1233: Pass cycled pressure loading from 5 psf to 25 psf for 100 three-second cycles at 0.08 seconds or less.
  - 2. Air Infiltration, ASTM E 283: 0.12 cfm per sf of wall area, tested at 1.57 psf (25 mph).
    - a. Maintain air/water barrier leakage rate at 0.11 to 0.13 cfm per sf at 1.57 psf when tested in accordance with ASTM E 283 in compliance with AAMA 508 criteria.
  - 3. Water Penetration:
    - a. Static, ASTM E 331: Pass water penetration test under static pressure at a differential of 10 percent of inward acting design load, with 15 psf pressure differences for at least 15 minutes with 5 gal per sf per hour of water applied.
    - b. Dynamic, AAMA 501.1: Pass water penetration test under dynamic pressure of 6.24 psf.

4. Structural Performance, ASTM E 330: Provide systems tested and certified to be without permanent deformation or failure of structural members.
- C. Thermoplastic Core Material: Not acceptable.

## 2.4 MATERIALS

- A. Aluminum Plate: Thickness as recommended by wall panel manufacturer for application and in compliance with manufacturer's design requirements.
1. Aluminum: Tension-levleed, fluoropolymer PVDF finish.
  2. Aluminum Alloy: 3003-H14.

Specifier Notes: Specify thickness of the aluminum plate based on design loads. Delete thicknesses not required.

3. Thickness: [0.060 inch] [0.080 inch] [0.090 inch] [0.120 inch].

- B. Wall Panels:
1. Depth: Nominal 1-1/4 inches to 1-1/2 inches.
  2. Size: Indicated on the Drawings.
  3. Joints: Indicated on the Drawings.
  4. Composite Material: Not acceptable.
- C. Wall Panel Fasteners:
1. Suitable fasteners designed to withstand design loads.
  2. Material: Stainless steel with neoprene washers.

## 2.5 FABRICATION

- A. Fabricate and finish wall panels within manufacturer's facilities.
- B. Comply with indicated profiles and with dimensional and structural requirements.
- C. Fulfill indicated performance requirements demonstrated by laboratory testing.
- D. Paint wall panels after fabrication to eliminate exposed raw edges.

## 2.6 FINISHES

- A. Comply with NAAMM Metal Finishes Manual for Architectural and Metal Products for recommendations of designating finishes.
- B. Superior Performance Organic Coating System: AAMA 2605, multiple-coat, thermally cured, polyvinylidene fluoride (PVDF) resin system.

Specifier Notes: Specifier two-coat or three-coat fluoropolymer system.

1. Two-Coat Fluoropolymer System:

- a. AAMA 2605, fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat.
- b. Prepare, pre-treat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturer's installation instructions.
2. Three-Coat Fluoropolymer System:
  - a. AAMA 2605, fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat.
  - b. Prepare, pre-treat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturer's installation instructions.
- C. Field Touch-Up Materials: As recommended by coating manufacturer for field application.

## **2.7 ACCESSORIES**

- A. Metal Plate Wall Panel Accessories:
  1. Provide components required for a complete metal plate wall panel assembly including flashing, trim, copings, fascia, sills, corners, and similar items.
  2. Match material and finish of wall panels, unless otherwise indicated.
- B. Flashing and Trim:
  1. Match material, finish, and color of adjacent wall panels.
  2. Thickness: Minimum 0.040 inch.
  3. Specified in Section 07 62 00.
- C. Sub-Girts:
  1. Material: Galvanized steel.
  2. Size and gage in accordance with project requirements.
- D. Furring Channel:
  1. Hat type.
  2. 2 inches to accommodate insulation thickness.
  3. Minimum 16 gauge.
- E. Substrate Wall Sheathing: Specified in Section 06 16 00 and as indicated on the Drawings.
- F. Weather Barriers: Specified in Section 07 25 00 and as indicated on the Drawings.
- G. Sealants: As recommended by wall panel manufacturer for openings and perimeter conditions.

## **PART 3 EXECUTION**

### **3.1 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 the 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 before installation.
- E. Notify Architect of conditions that would adversely affect installation or subsequent use.
- F. Do not begin preparation or installation until unacceptable conditions are corrected.
- G. Field Measurements:
  - 1. Verify locations of structural members and wall opening dimensions by field measurements before metal plate wall panel fabrication.
  - 2. Indicate field measurements on shop drawings.

### **3.2 PREPARATION**

- A. Miscellaneous Framing: Install subgirts, base angles, sills, furring, and other wall panel support members and provide anchorage in accordance with ASTM C 754 for gypsum panel type substrates and wall panel manufacturer's installation instructions.

### **3.3 INSTALLATION**

- A. Install wall panels in accordance with manufacturer's installation instructions, including pressure equalized rain screen installation method and installation guidelines.
  - 1. Use of secondary drainage channels, brackets, support pins, joint sealants, or gaskets to manage drainage of wall panel system is not permitted.
  - 2. Attach wall panels using progressive tab and slot interlocking method, engaging bottom of panel in top of previous panel working bottom up, and left to right.
  - 3. Install wall panels with single top attachment in pre-punched holes to allow individual panels to move due to thermal expansion.
  - 4. Do not compromise internal gutter.
- B. Install wall panels to orientation, sizes, and locations as indicated on the Drawings.
- C. Install wall panels with proper anchorage and other components for this Work securely in place.
- D. Install wall panels with provisions for thermal and structural movement.
- E. Install wall panels weather tight.
- F. Install shims to plumb substrates as necessary for installation of wall panels.
- G. Install weather tight seals at perimeter of wall panel openings.
  - 1. Test for proper adhesion on small unexposed area of solid surfacing before use.

- H. Flashing and Trim: Install flashing and trim in accordance with performance requirements, manufacturer's installation instructions, and SMACNA Architectural Sheet Metal Manual.
  - 1. Provide concealed fasteners, where possible, and set units true to line, level, and plumb.
  - 2. Install work with laps, joints, and seams weather resistant.
  - 3. Install flashing and trim as wall panel installation progresses.
- I. Install weather tight escutcheons for pipe and conduit penetrating exterior walls.
- J. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action in accordance with wall panel manufacturer.
- K. Do not apply sealants to joints, unless otherwise indicated on the Drawings.
- L. Install accessories with positive anchorage to building and provisions for thermal expansion, and coordinate installation with flashing and other components.
  - 1. Install components required for a complete wall panel assembly including flashing, trim, copings, fascia, sills, corners, and other accessory items.
- M. Air/Weather Barrier: Install air/weather barrier behind wall panels and over substrate as specified in Section 07 25 00.
- N. Install insulation between Z-clips as specified in Section 07 21 00.

### **3.4 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 on the Drawings.

### **3.5 FIELD QUALITY CONTROL**

- A. Testing Agency: Owner may 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 as directed by Architect 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 wall panel installation, including accessories.
- D. Remove and replace wall panels where tests and inspections indicate 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 and submit to Architect.

### **3.6 ADJUSTING**

- A. Repair minor damages to finish in accordance with manufacturer's instructions and as approved by Architect.
- B. Remove and replace with new material, damaged components that cannot be successfully repaired, as determined by Architect.

### **3.7 CLEANING**

- A. Clean wall panels promptly after installation in accordance with manufacturer's instructions.
- B. Do not use harsh cleaning materials or methods that could damage finish.
- C. Clear weep holes and drainage channels of obstructions and dirt promptly after installation of wall panels.

### **3.8 PROTECTION**

- A. Protect Work of this Section from damage until Substantial Completion.

**END OF SECTION**