

Dri-Design

December 1, 2011

Corporate Offices: PO Box 1286, Holland, Michigan 49422-1286
P: (616) 355-2970 Fax: (616) 355-2972 Website: www.dri-design.com

Product Guide Specification

Specifier Note: This product guide specification is written according to the Construction Specifications Institute (CSI) current versions of MasterFormat, SectionFormat and PageFormat and as described in The Project Resource Manual—CSI Manual of Practice, Fifth Edition.

Use this specification as the basis for developing a project specification. Section must be carefully reviewed and edited by the Architect/Design Professional to meet the requirements of the project and local building code. Coordinate this section with other specification sections in addition to the Drawings.

Windows 2010: Upon completion of section editing, you may turn-off “Specifier Notes” as follows:
Click on “File” then on “Options” then “Display” and remove check-mark for “Hidden text” in two locations.

SECTION 07 4213.16

METAL PLATE WALL PANELS

Specifier Note: This section covers Dri-Design Metal Plate Wall Panels. Consult with Dri-Design for technical assistance in editing this section for the specific project requirements.

PART 1- GENERAL

1.01 SECTION INCLUDES

- A. Metal plate wall panels.
 - 1. Aluminum.
 - 2. Copper.
 - 3. Stainless steel.

Specifier Note: Edit the following list of related requirements for the project. List any other sections with work directly related to the work of this section.

1.02 RELATED REQUIREMENTS

- A. Section 05 4000 – Cold-Formed Metal Framing: 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.

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.

Specifier Note: Edit the following list of reference standards to those being used for the project.

1.04 REFERENCE STANDARDS

- A. AAMA CW-RS-1 – The Rain Screen Principle and Pressure Equalized Wall Design; 2004.
- B. AAMA 501.1 – Standard Test Method for Water Penetration of Windows, Curtain Walls and Doors Using Dynamic Pressure; 2005.
- C. AAMA 508 – Voluntary Test Method and Specification for Pressure Equalized Rain Screen Wall Cladding Systems; 2007.
- D. AAMA 611 - Voluntary Standards for Anodized Architectural Aluminum; 1998.
- E. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels; 2011.

- F. ASTM B 117 - Standard Practice for Operating Salt Spray (Fog) Apparatus; 2011.
- G. ASTM C 754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 2009.
- H. ASTM D 523 - Standard Test Method for Specular Gloss; 2008.
- I. ASTM D 2244 – Standard Practice for Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates; 2011.
- J. ASTM D 2247 - Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity; 2011.
- K. ASTM D 4214 - Standard Test Methods for Evaluating the Degree of Chalking of Exterior Paint Films; 2007.
- L. 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; 2004.
- M. ASTM E 330 - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference; 2010.
- N. ASTM E 331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference; 2009.
- O. ASTM E 1233 – Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights, and Curtain Walls by Cyclic Air Pressure Differential; 2006.
- P. LEED – Leadership in Environmental and Energy Design.
- Q. NAAMM – National Association of Architectural Metal Manufacturers.
- R. SMACNA – Sheet Metal and Air Conditioning Contractor’s National Association.

1.05 ADMINISTRATIVE REQUIREMENTS

- A. Coordination: Coordinate panel assemblies with rain drainage, flashing, trim, stud back-up, soffits, and other adjoining work.

Specifier Note: Review Preinstallation meeting information and coordinate with project architect to confirm that this Work is extensive enough to justify and for specific meeting requirements.

- B. Preinstallation Meeting:
 - 1. Attendees:
 - a. Owner.
 - b. Architect.
 - c. Installer.
 - d. Panel manufacturer's representative.
 - e. Structural support installer.
 - f. Installers whose work interfaces with or affects 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.

Specifier Note: Edit the following list of submittal requirements and provide only those that pertain to the project. Verify section number and title for Administrative Requirements in Division 01.

1.06 SUBMITTALS

- A. See Section 01 3000 – Administrative Requirements, for submittal procedures.
- B. 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.

PROJECT NO.:
DATE:

PROJECT NAME
PROJECT LOCATION

- C. 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.
 - 1. Provide distinction between factory-, shop-, and field-assembled work.
 - 2. Provide details of following items at full scale.
 - a. Manufacturer's standard sheet metal trims.
 - b. Component construction, anchorage method, and hardware.
- 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:

Specifier Note: Revise following paragraphs to suit Project.

- 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: For each type of exposed finish required, and prepared on samples of size indicated below:
 - 1. Metal Plate Wall Panels: 2 inch by 3 inch, aluminum.
 - 2. Metal Plate Wall Panels: 6 inch by 6 inch, [copper] or [stainless steel].
 - F. Product Test Reports: Submit test reports based on evaluation of comprehensive tests performed by qualified testing agency, for each product.
 - G. Manufacturer's Installation Instructions: Include any special procedures required by project conditions.
 - H. Maintenance Data: Include data for metal plate wall panels.

Specifier Note: Submit copy of sample warranty to provide Architect or Owner the opportunity to verify warranty coverage meets requirements.

- I. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

Specifier Note: Review Sustainable Design information and coordinate with LEED Reports required or other Division 01 sustainable requirements for the project.

- J. 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

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with at least three years of documented experience.
- B. Installer: Company specializing in performing work of this section with at least three years of experience.
 - 1. Install system in strict compliance with manufacturers Installation Guide.
- C. Source Limitations: Obtain each type of metal plate wall panel from single source and from single manufacturer.

Specifier Note: Review Mock-Up information and coordinate with project architect for project requirements.

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. Construct mockup of typical wall panels with typical details as shown on Drawings or as directed by Architect.
 - 2. As part of mockup, provide at least four panels indicating a four-way panel joint of panels showing full thickness, and including supports, attachments, and accessories.
 - 3. Approved mockups [may] [may not] be part of completed Work.
 - a. Approved mockups do not constitute approval of deviations from Contract Documents contained in mockups unless approved in writing by Architect.

1.09 DELIVERY, STORAGE, AND HANDLING

AUTHOR
FILE NAME

METAL PLATE WALL PANELS
07 4213.16 - 3

PROJECT NO.:
DATE:

PROJECT NAME
PROJECT LOCATION

- 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. Store panels to ensure dryness, with positive slope for drainage of water.
- 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 panel prior to 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 written 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.

1.11 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Wall System Warranty: Provide joint written warranty by manufacturer and installer, agreeing to correct defects in manufacturing or installation within a [two] or [_____] 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 of metals and other materials beyond normal weathering.

Specifier Note: Review available warranty and warranty periods for units and components.
70 percent flouropolymer type paint finish; 10 years – Standard, 20 years available
50 percent flouropolymer type paint finish; 5 years only
Class 1 anodized type paint finish; 5 years – Standard, 10 years available

Dri-Design does not ship unfinished metal plate wall panels.

- C. Panel Finish Warranty: Provide joint written warranty by manufacturer and installer, agreeing to repair finish of metal plate wall panels that show evidence of deterioration of factory-applied finishes within specified warranty period.
 - 1. Finish Warranty Period: [_____] years from date of Substantial Completion.

Specifier Note: Edit the following in accordance with project requirements.

- 2. Warranty Coverage: Based on AAMA 2605 aluminum finish requirements.
 - a. Fading, Loss of Color Retention: Loss of 5 Delta E units (Hunter) or less in accordance with ASTM D 2244.
 - b. Chalking, Chalky White Powder on Panel Surface: Chalking at No. 8 or less for colors or No. 6 for white in accordance with ASTM D 4214.
 - c. Loss of Adhesion: Loss of 10 percent due to cracking, checking or peeling, or failure to adhere to bare metal.
 - d. Gloss Retention: 50 percent or less in accordance with ASTM D 523.
 - e. Salt Spray, Accelerated: At least 4,000 hours in accordance with ASTM B 117.
 - f. Humidity Testing, Accelerated: At least 4,000 hours in accordance with ASTM D 2247.

PART 2 - PRODUCTS

AUTHOR
FILE NAME

METAL PLATE WALL PANELS
07 4213.16 - 4

2.01 MANUFACTURER

- A. Dri-Design 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.

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 pressure equalized rainscreen, aluminum wall panel system, in compliance with AAMA 508 and as follows.
1. Pressure Equalization: Positive pressure loading to 25 psf (1200 Pa) for 100 three second cycles; ASTM E 1233.
 2. Air Leakage: Less than 0.06 cfm per sf of wall area, tested at 6.24 psf, in accordance with ASTM E 283.
 3. Water Penetration
 - a. Static: No water infiltration under static pressure when tested in accordance with ASTM E 331 at a differential of 10 percent of inward acting design load, at least 15 psf after 15 minutes.
 - b. Dynamic: at least 6.24 psf (300 Pa); AAMA 501.1.
 4. Structural: Provide systems tested in accordance with ASTM E 330 and certified to be without permanent deformation or failure of structural members.

Specifier Note: Edit the following list of materials; provide information directly related to project specified. Select appropriate items in brackets [_____] as necessary to satisfy project requirements.

2.03 MATERIALS

- A. [Aluminum] [Copper] or [Stainless Steel] Plate: Alloy and temper as recommended by manufacturer for application and in compliance with manufacturers design requirements.

Specifier Note: Panel depth may be specified in range from 1 1/4 to 4 inches depending on material. Edit the following to satisfy project requirements.

- B. Panel Depth: [1 1/4 inch, nominal] [_____] or [As indicated on Drawings].
- C. Panel Size: As indicated on Drawings.
- D. Panel Joints: [5/8 inch] [1 inch] or [As indicated on Drawings].

Specifier Note: Select from the following panel materials in accordance with project requirements.

Contact Dri-Design for other metals that are available, such as Titanium, Rimex Metals (www.rimexmetals.com), Rigidized Metals (www.rigidized.com), and Weathered Steel (Cor-ten®).

Maximum panel size for aluminum is 48 x 48 inch, square; 30 x 60 inch, rectangular; 24 x 120 inch, long rectangular. Contact Dri-Design for project specific requirements.

- E. Aluminum Material: Tension-leveled, smooth 3003-H14 manganese alloy.
1. Thickness: [0.050 inch] [0.062 inch] [0.080 inch] or [0.125 inch].
 2. Weight: Less than 1 1/2 lbs per sf.
 3. Finish: [Two-Coat Fluoropolymer] [Three-Coat Fluoropolymer] [Four-Coat Fluoropolymer] [Two-Coat Mica Fluoropolymer] [Clear Anodized Finish] or [Color Anodized Finish].

Specifier Note: Maximum panel size for copper is 30 x 30 inch, square; 24 x 48 inch, rectangular. Contact Dri-Design for project specific requirements.

- F. Copper Material:
1. Thickness: [24 ounce] [32 ounce] or [48 ounce].
 2. Weight: Less than 3 lbs per sq ft.
 3. Finish: [Bright copper] or [Pre-patina copper].

Specifier Note: Contact Dri-Design for additional options available for stainless steel finishes.

- G. Stainless Steel Material: [Type 304] or [Type 316].
1. Thickness: [18 gage] or [22 gage].

2. Weight: Less than 3 lbs per sf.
3. Finish: [No. 4 Bright Polished] or [No. 8 Mirror-like Polished].

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. Wall Panel Material:
 - a. Aluminum: Stainless steel fasteners.
 - b. Stainless Steel: Stainless steel fasteners.
 - c. Copper: Use copper, stainless steel, or hardware-bronze fasteners.

Specifier Note: Verify that panel substrate is at least 5/8 inch thick exterior plywood, if not; select from the following sub girts in accordance with project requirements.

- E. Sub Girts: Galvanized, provide size and gage in accordance with project requirements.
1. Hat type furring channel.
 2. C, U or Z type furring channel.
 3. Flat Strap: At least 14 gage.
 4. 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 Section 06 1000.
- 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 product information.

Specifier Note: Edit the following in accordance with project requirements.

2.06 FINISHES

- A. Comply with NAAMM's - Metal Finishes Manual for Architectural and Metal Products, for recommendations of designating finishes.
- B. Aluminum Finishes:
1. Superior Performance Organic Coating System: AAMA 2605 multiple coat, thermally cured polyvinylidene fluoride system.
 - a. Two-Coat Fluoropolymer: AAMA 2605, fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pre-treat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
 - b. Three-Coat Fluoropolymer: AAMA 2605, fluoropolymer finish containing not less than 70 percent PVDF resin by weight in both color coat and clear topcoat. Prepare, pre-treat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
 - c. Four-Coat Fluoropolymer: AAMA 2605, fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat and clear coats. Prepare, pre-treat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
 - d. Two-Coat Mica Fluoropolymer: AAMA 2605, fluoropolymer finish with suspended mica flakes containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pre-treat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
 2. Color Anodized Finish: AAMA 611, Class I, colored anodic coating not less than 0.7 mils thick.

PROJECT NO.:
DATE:

PROJECT NAME
PROJECT LOCATION

3. Clear Anodized Finish: AAMA 611, Class I, clear anodic coating not less than 0.7 mils thick.
 4. Color: [] or [As selected by Architect from manufacturer's standard range].
- C. Field Touch-Up Materials: As recommended by coating manufacturer for field application.

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.

3.02 PREPARATION

- A. Miscellaneous Framing: Install sub girts, base angles, sills, furring, and other wall panel support members and anchor according to ASTM C 754 and panel manufacturer's written instructions.

Specifier Note: Edit the installation requirements as required for project. Refer to technical information available on website for additional information.

3.03 INSTALLATION

- A. Install wall panels in accordance with manufacturer's written 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 fasten perimeter of panel or compromise internal gutter.
- B. Install wall panels for orientation, sizes, and locations as indicated on 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 shims to plumb substrates as necessary for installation of wall panels.
- F. Install weather tight seals at perimeter of wall panel openings.
- G. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, 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.
- H. Install weather tight escutcheons for pipe and conduit penetrating exterior walls.
- I. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action as recommended by wall panel manufacturer.
- J. 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.

AUTHOR
FILE NAME

METAL PLATE WALL PANELS
07 4213.16 - 7

PROJECT NO.:
DATE:

PROJECT NAME
PROJECT LOCATION

3. Install starter extrusion at base course and at cut panel locations.
- K. 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.
- L. Weather Barrier: Install weather barrier behind wall panels and over substrate in accordance Section 07 25 00.

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 CLEANING

- A. Upon completion of wall panel installation, clean finished surfaces as recommended by panel manufacturer.
- B. Upon completion of wall panel installation, clear weep holes and drainage channels of obstructions and dirt.

3.06 PROTECTION

- A. Protect installed products from damage during subsequent construction.
- B. Replace wall panels damaged or deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION