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## Product Guide Specification

Specifier Notes: This product guide specification is written according to the Construction Specifications Institute (CSI) 3-Part Format, including *MasterFormat*, *SectionFormat*, and *PageFormat*, as described in *The Project Resource Manual—CSI Manual of Practice, Fifth Edition*.

The 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 other specification sections and the Drawings. Delete all “Specifier Notes” after editing this section.

Section numbers and titles are from *MasterFormat 1995 Edition*, with numbers and titles from *MasterFormat 2004 Edition* in parentheses. Delete version not required.

### SECTION 07415 (07 42 13)

#### METAL WALL PANELS

Specifier Notes: This section covers Umicore Building Products USA, Inc. “VM ZINC® Flatlock” factory-formed, zinc-alloy, metal wall panels.

Wall panel substrate and framing designs can vary greatly. The Architect should consult model building code, Umicore Building Products USA’s literature, or building envelope consultant for additional information of appropriate wall designs. Sheathing, insulation, weather resistive barrier, and vapor retarder installation may be specified in this section or in other sections.

Consult Umicore Building Products USA, Inc. for assistance in editing this section for the specific application.

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Factory-formed, zinc-alloy, metal wall panel system.

##### 1.2 RELATED SECTIONS

Specifier Notes: Edit the following list of related sections as required for the project. List other sections with work directly related to this section.

- A. Section 05400 (05 40 00) – Cold-Formed Metal Framing: Secondary support framing supporting metal wall panels.
- B. Section 06100 (06 10 00) – Rough Carpentry.
- C. Section 07210 (07 21 00) – Building Insulation (Thermal Insulation): Wall insulation.
- D. Section 07260 (07 26 00) – Vapor Retarders.
- E. Section 07270 (07 27 00) – Air Barriers.
- F. Section 07620 (07 62 00) – Sheet Metal Flashing and Trim: Fascia, copings, flashings, and other sheet metal work.
- G. Section 07920 (07 92 00) – Joint Sealants.

### 1.3 REFERENCES

Specifier Notes: List standards referenced in this section, complete with designations and titles. This article does not require compliance with standards, but is merely a listing of those used.

- A. ASTM B 32 – Standard Specification for Solder Metal.
- B. ASTM D 968 – Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive.
- C. ASTM D 1970 – Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection.
- D. ASTM E 96 – Standard Test Methods for Water Vapor Transmission of Materials.

### 1.4 SYSTEM DESCRIPTION

- A. Provide complete Flatlock metal wall panel system as indicated, including:
  - 1. Factory-formed, zinc-alloy, metal wall panels.
  - 2. Attachment system components.
  - 3. Weather-resistive barrier materials.
- B. Thermal Movements:
  - 1. Provide metal wall panel system that allows for thermal movements.
  - 2. Provide clips that resist rotation and avoid shear stress as a result of metal wall panel system thermal movements.

### 1.5 SUBMITTALS

- A. Comply with Section 01330 (01 33 00) – Submittal Procedures.

- B. Product Data: Submit panel manufacturer's product data, including details of construction relative to materials, dimensions of individual components and profiles, finishes, and panel manufacturer's written and published installation instructions and installation guides.
- C. Shop Drawings: Submit installer's shop drawings as verified by manufacturer, including plans, elevations, sections, and details, indicating installation layout of metal wall panel system, with keyed references to termination points. Include the following:
  - 1. Details of metal wall panels, including dimensions.
  - 2. Details for joining and securing metal wall panel system, including layout of fasteners, clips, and other attachments. Include pattern of seams.
  - 3. Details of wall penetrations.
  - 4. Details of special conditions.
  - 5. Details of connections to adjoining work.
  - 6. Details of required accessory items.
  - 7. Metal wall panel system.
- D. Samples for Verification: Submit panel manufacturer's samples for each type of exposed component required, including:
  - 1. Metal Wall Panel System: Minimum 24 inches (600 mm) long by standard panel width, including finished seams. Include fasteners and clips.
  - 2. Trim and Closures: 24" long (600 mm) sample of each type of trim and closure, including fasteners cleats and components.
  - 3. Accessories: 24" (600 mm) long sample of each type of accessory.
- E. Qualification Data: Submit qualification data for panel manufacturer and installer to demonstrate capabilities and experience. Refer to AIA A305 Qualification Form as guide for submittal.
- F. Warranties: Submit warranties from:
  - 1. Manufacturer.
  - 2. Installer.

## 1.6 QUALITY ASSURANCE

- A. Panel Manufacturer's Qualifications: Manufactured a minimum of 250,000 square feet of metal wall panel systems of similar type to that specified.
- B. Installer's Qualifications:
  - 1. Engage an experienced installer who has completed metal wall panel system installation similar in material, design, forming method, and extent to that indicated for this Project and with a record of successful in-service performance.
  - 2. Provide evidence of the field installer's participation in manufacturer's training course.
- C. Metal Wall Panel System Standard: Comply with panel manufacturer's written and published instructions.

Specifier Notes: Edit the following paragraph as required for the project.

- D. Mock-ups:

1. Before installing metal wall panel system, construct mock-ups. Verify selection made under sample submittals and demonstrate aesthetic effects and qualities of materials and execution as required by Architect.
2. Build mock-ups to comply with the following requirements:
  - a. Construct mock-ups in location and of size as directed by Architect.
  - b. Receive approval of mock-ups by Architect in writing.
  - c. Approval of mock-ups does not constitute approval of deviations from the Contract Documents contained in mock-ups, unless such deviations are specifically approved by Architect in writing.
  - d. Approved mock-ups may become part of the completed Work, if undisturbed at time of Substantial Completion and approved by Architect in writing.

## **1.7 DELIVERY, STORAGE, AND HANDLING**

### **A. Delivery:**

1. Inspect delivered materials within 5 days from date of delivery. Report damaged materials to panel manufacturer within 5 days.
2. Deliver materials to site in panel manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and panel manufacturer.
3. Deliver materials so as not to be damaged or deformed.
4. Package metal wall panels for protection during transportation and handling.
5. Leave strippable protective UV-resistant film on metal wall panels.

### **B. Storage and Handling:**

1. Store materials in clean areas in accordance with manufacturer's instructions.
2. Unload, store, and erect metal panels in a manner to prevent bending, warping, twisting, and surface damage.

## **1.8 PROJECT CONDITIONS**

- ### **A. Weather Limitations:** Install metal wall panel system only when weather conditions permit installation in accordance with manufacturer's instructions.

## **1.9 WARRANTY**

### **A. Warranty Period:**

1. Materials: 5 years from date of Substantial Completion. (Provided by the Panel Manufacturer.)
2. Installation: 2 years from date of Substantial Completion. (Provided by the Installer.)

Specifier Notes: Edit the above as required by architect/owner and as agreed to by panel manufacturer.

## **PART 2 PRODUCTS**

### **2.1 MANUFACTURER**

- ### **A. Metal Wall Panel Manufacturer:** Umicore Building Products USA, Inc., 3120 Highwoods Blvd., Suite 104, Raleigh, North Carolina 27604. Phone (919) 874-7173. Fax (919) 874-7140. Website [www.vmzinc-us.com](http://www.vmzinc-us.com). E-mail [info@vmzinc-us.com](mailto:info@vmzinc-us.com).

## 2.2 METAL WALL PANELS

- A. Metal: "VM ZINC® Flatlock" factory-formed, zinc-alloy, metal wall panel.
1. Zinc Alloy: 99.995 percent electrolytic high-grade zinc with alloy additives of copper (0.08 percent to 0.20 percent), titanium (0.07 percent to 0.12 percent), and aluminum (0.015 percent).
  2. Thickness: 0.039 inch (1.00 mm).
  3. Surface Aspect:

Specifier Notes: Specify required surface aspect of metal wall panels.

- a. Preweathered Zinc: "QUARTZ ZINC". Dark gray zinc with luminance Y between 21 and 26 on exposed side or architect approved equal color management system.
  - b. Preweathered Zinc: "ANTHRA ZINC". Charcoal black zinc with luminance Y between 4 and 8 on exposed sides or architect approved equal color management system.
  - c. Pigmented Preweathered Zinc: "PIGMENTO BLUE". Zinc with a blue pigmented coating.
  - d. Pigmented Preweathered Zinc: "PIGMENTO RED". Zinc with a red pigmented coating.
  - e. Pigmented Preweathered Zinc: "PIGMENTO GREEN" Zinc with a green pigmented coating.
4. Dimensional Tolerances:
- a. Coverage: Plus or minus 1/8 inch (3 mm).
  - b. Flatness: 1/8 inch (3 mm) on 36 inches (914 mm).
  - c. Curvature: 1/32" (0.8mm).
- B. Metal Wall Panels:
1. Form with flat-lock seam at panel edges and smooth, flat pan.
  2. Field install in sequential order.
  3. Engage lower edge of each panel to upper edge of panel below and engage right side of preceding panel's left side.
  4. Mechanically attach panels to supports using concealed clips engaged in upper and left seams of panels.

Specifier Notes: Specify size Standard sizes for flatlock panels are 16" by 36". Panels can be 16" wide and up to 9'-8" in length.

Specifier Notes: Verify product compatibility if products other than those listed in this article are to be specified and installed in conjunction with the metal wall panels. Use Underlayment as specified below with non-compatible substrates.

## 2.3 WEATHER-RESISTIVE BARRIER MATERIALS

- A. Available Products: Subject to compliance with requirements, weather-resistive barrier materials that may be incorporated into the Work include, but are not limited to, the materials specified.
- B. Hydrophobic Weather-Resistive Barrier:

Specifier Notes: Specify fabric underlayment as described below or another type of hydrophobic weather-resistive barrier of equal performance.

1. Fabric Underlayment:
    - a. Type: High-permeability, spun-bonded, non-woven, polypropylene fabric.
    - b. Weight: 6.103 oz/sq. yd (175grams/sq.m)
    - c. Thickness: 0.023 inch (0.60 mm)
    - d. Water Vapor Transmission, ASTM E 96, Method A: 212 perms.
  2. Acceptable Products:
    - a. Zinc Plus Underlay by Umicore Building Products.
    - b. Fabric underlayment approved by the panel manufacturer.
- C. Flashing Membrane: Self-adhering, high-temperature sheet:
1. Slip-resisting, polyethylene-film top surface laminated to layer of butyl or SBS-modified asphalt adhesive, with release-paper backing; cold applied.
  2. Minimum Thickness: 30 to 40 mils (0.76 to 1.0 mm).
  3. Provide primer when recommended by flashing membrane manufacturer.
  4. Thermal Stability, ASTM D 1970, 240 degrees F (116 degrees C): Stable.
  5. Low Temperature Flexibility, ASTM D 1970, Minus 20 degrees F (29 degrees C): Passes.
  6. Available Products:
    - a. Carlisle Coatings & Waterproofing, Div. of Carlisle Companies Inc.; CCW WIP 403HR High Performance Underlayment.
    - b. Grace, W. R. & Co.; "Vycor Ultra HT".

## 2.4 THERMAL INSULATION

- A. Insulation: As specified in Section 07210 (07 21 00).

## 2.5 CLIPS AND FASTENERS FOR METAL WALL PANELS

Specifier Notes: Specify 300 series stainless steel for use in marine environments.

- A. Clips:
1. [Hot dip galvanized steel] [or] [300 series stainless steel].
  2. Pre-punched for attachment into substrate.
  3. Thickness: 0.020" (0.5mm).
  4. Designed to withstand negative load requirements.
- B. Fasteners for clip attachment to steel substrate:
1. #12, [hot dip galvanized steel] [or] [300 series stainless steel], thread design and length appropriate for substrate.
- C. Fasteners for clip attachment to wood substrate:
1. #12, 300 series stainless steel, thread design and length appropriate for substrate.
- D. Exposed Fasteners:
1. Self tapping screws, bolts, self locking rivets and other suitable fasteners designed to withstand design loads.
  2. Material: 300 series stainless steel.
  3. Heads: Factory applied coating to match color of metal.
- Heads: Factory applied coating to match color of metal.

## 2.6 ACCESSORIES

- A. Flashing and Trim:
1. Shop or Field-fabricated from zinc-alloy sheets.

Specifier Notes: Specify flashing and trim thickness. Consult manufacturer for more information. Specify thicker products where trim with level surface may be required for aesthetic reasons.

2. Minimum Thickness: 0.031 inch (0.80mm).
3. Seal against weather.
4. Provide finished appearance.
5. Provide pull-out resistance and flatness.
6. Match surface aspect of adjacent metal wall panels.
7. Flashing Backside Coating:
  - a. Coating Thickness: 60 microns.
  - b. Abrasion Resistance, ASTM D 968, Method D: 140 liters.
8. Backer plates: Provide metal backing plates at panel edges, terminations, openings, splices, and where recommended by manufacturer, consisting of Zinc Plus or stainless steel sheet goods formed in configuration and thickness recommended by manufacturer.
9. Cleats: Continuous G90 galvanized cleats, formed in configuration, and thickness as recommended by the manufacturer, minimum 0.0239" (0.60mm)
10. Ventilation screen: 51% open perforated zinc, 0.039" (1.00mm) thickness, by metal wall panel manufacturer.

- B. Exposed Fasteners:
1. Self tapping screws, bolts, self locking rivets and other suitable fasteners designed to withstand design loads.
  2. Material: 300 series stainless steel.
  3. Heads: Factory applied coating to match color of metal.

- C. Solder and Stripping for Accessories:
1. Solder for Zinc-Alloy: ASTM B 32, 60 percent lead and 40 percent tin with low antimony, as recommended by manufacturer.
  2. Stripping:
    - a. "Stay-Clean" soldering flux for removal of zinc-alloy preweathering layer.
    - b. Abrasive disc for removal of backside coating.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with installer present, for compliance with requirements for installation tolerances, metal wall panel supports, and other conditions affecting performance of work.

1. Verify that substrate is plumb, sound, dry, smooth, clean, sloped for drainage, and completely anchored, and that provision has been made for wall drains, flashings, and penetrations through metal wall panels.
2. Examine primary and secondary wall framing to verify that purlins, angles, channels, and other structural panel support members and anchorages have been installed correctly.
3. Prepare written report, endorsed by installer, listing conditions detrimental to performance of Work of this section. Submit copy of report to Architect.

B. Examine roughing-in for components and systems penetrating metal wall panels to verify actual locations of penetrations relative to seam locations of metal wall panels before wall panel installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION

Specifier Notes: Consult manufacturer's instructions for assistance in editing this article as required for the project.

A. Install metal wall panel in accordance with manufacturer's written and published instructions and installation guides.

B. Install panels in orientation and locations indicated on the Drawings.

1. Locations include, but are not limited to:
  - a. Top of wall (parapet, copings).
  - b. Corners.
  - c. Bases.
  - d. Framed openings.
  - e. Fascias.
  - f. Fillers.
  - g. Starter and termination edge trims.
  - h. Junction and reveal trims.
  - i. Starter and termination trims.
  - j. .Z closure trims.

C. Install metal wall panels plumb, level, square, true to line, and within installation tolerances.

D. Self-Adhering Sheet Underlayment:

1. Install underlayment per manufacturer's recommendations.
2. Lay in shingle fashion to shed water, lapping joints, edges, per manufacturer's recommendations.
3. Apply primer to sheathing substrates, per manufacturer's recommendations.
4. Overlap sides and edges, and stagger per manufacturer's recommendations.
5. Roll laps and field of underlayment to provide a wrinkle free installation.

E. Underlayment Installation:

1. Install and fasten fabric underlayment per manufacturer's recommendations.
2. Lay in shingle fashion to shed water, lapping joints, edges, minimum of 6" ( 150 mm) . Cover underlayment within 60 days.



- F. Panel Installation:
  - 1. Install metal wall panels perpendicular to girts and subgirts, unless otherwise indicated.
  - 2. Anchor metal wall panels and other components of the Work securely in place, with provisions for thermal and structural movement.
  - 3. Do not field-cut metal wall panels by torch.
  - 4. Fasten metal wall panels in accordance with manufacturer's instructions.
  - 5. Flash and seal metal wall panels with weather closure edges and at perimeter of openings.
  - 6. Install flashing and trim as metal wall panel work proceeds.
  - 7. Fasten flashings and trim around openings and similar elements.
  - 8. Do not allow construction debris to contaminate metal wall panels.
- G. Fasteners: Use fasteners of type and size that will secure wall components in compliance with design load requirements.
- H. Conceal fasteners and expansion provisions, where possible, in exposed work and locate to minimize possibility of leakage.
- I. Fasten metal wall panels to substrate supports with concealed clips at each flat-lock joint at location, spacing, and with fasteners in accordance with manufacturer's instructions.
  - 1. Install clips to supports with specified fasteners.
  - 2. Nest flat-lock seams and fasten together by interlocking.
  - 3. Form laps and joints to shed water.
- J. Metal Protection: Do not install metal wall panel system with non-compatible materials. Protect the metal wall panels from masonry and products containing lime by leaving the protective coating on the zinc until project and clean-up completion.

### **3.3 TOLERANCES**

- A. Installation Tolerances:
  - 1. Maximum Alignment per Panel Variation: 1/8 inch (3 mm).

### **3.4 CLEANING**

- A. Clean exposed metal surfaces in accordance with manufacturer's instructions.
- B. Remove protective films within 60 days of installation.
- C. Clean and neutralize flux materials. Remove excess solder.
- D. Clean finished surfaces on completion of metal wall panel installation, including removing unused fasteners, metal filings, rivet stems, and pieces of flashing.
- E. Maintain metal wall panels in clean condition during construction, removing all film per elevation on the same day.

### **3.5 PROTECTION**

- A. Protect installed metal wall panel system as per manufacturer's recommendation to ensure that, except for normal weathering, panel system will be without damage or deterioration at time of Substantial Completion.

**END OF SECTION**