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Interlocking 2009-08-24

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 07315 (07 42 13)

METAL WALL PANELS

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

Panel substrate and framing designs can vary greatly. The Architect should consult model building code, Umicore Building Products USA’s product user guide and architectural manual, 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, Interlocking Metal Wall Panel with reveal joint.

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
- B. Section 06100 (06 10 00) – Rough Carpentry: Framing and Sheathing
- C. Section 07210 (07 21 00) – Building Insulation (Thermal Insulation): 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 Underlayment.
- D. ASTM E 96 – Standard Test Methods for Water Vapor Transmission of Materials.

1.4 SYSTEM DESCRIPTION

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

1.5 SUBMITTALS

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- 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 panel 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 panels including seams, reveals, panel junctions, and dimensions.
 - 2. Details for joining and securing metal panels, including layout of clips, fasteners, and other attachments.
 - 3. Details of penetrations.
 - 4. Details of special conditions.
 - 5. Details of connections to adjoining work.
 - 6. Details of required accessory items.
 - 7. Metal wall panel assembly and attachments.
 - 8. Details of terminations, such as edge conditions, corners, starter and termination courses.
 - D. Samples for Verification: Submit panel manufacturer's samples for each type of exposed component required, including:
 - 1. Metal Wall Panel System: Minimum 24" long (600mm) by actual panel width, including finished seam. Include fasteners (2 of each) required for installation and laps. Provide each type of clip required for installation.
 - 2. Trim and Closures: 24" long (600mm) sample of each type of trim and closure, including fasteners, cleats, and components.
 - 3. Accessories: 24" (600mm) 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 sample 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 Panels of similar type to that specified.
- B. Installer's Qualifications:
 - 1. Engage an experienced installer who has completed metal wall panel 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. Interlocking Metal Wall Panels: Comply with 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 panels, 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 (minimum 6'x4') 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. Package metal wall panels for protection during transportation and handling
2. Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
3. Deliver materials so as not to be damaged or deformed.
4. Inspect delivered materials within 5 days from date of delivery. Report damaged materials to manufacturer within 5 days.
5. Leave strippable protective UV-resistant film on metal.

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 panel system only when weather conditions permit installation in accordance with panel manufacturer's written and published instructions and metal wall panel installation guides.

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.v zinc-us.com. E-mail: info@v zinc-us.com.
- B. Alternate: Dri-Design P.O. Box 1286, Holland, Michigan 49422. Phone (616) 355-2970. Fax (616)-355-2972. E-mail: Sales@Dri-Design.com

2.2 MATERIALS

- A. Metal: "VM ZINC® Interlocking Panel", 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. Panel Backside Coating:
 - a. Coating Thickness: 60 microns.
 - b. Abrasion Resistance, ASTM D 968, Method D: 140 liters.
 - 4. Surface Aspect:

Specifier Notes: Specify the required surface aspect of panels.
Backside coating only on non-compatible supports.

- a. Pre-weathered Zinc: "QUARTZ ZINC". Dark gray zinc with luminance "Y" between 21 and 26 on exposed side or architect approved equal color management system.
 - b. Pre-weathered Zinc: "ANTHRA ZINC". Charcoal black zinc with luminance Y between 4 and 8 on exposed side 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.
- 5. Dimensional Tolerances:
 - a. Coverage: Plus or minus 1/8 inch (3mm).
 - b. Ends Square: Plus or minus 1/16 inch (1.6 mm) on 12 inches (3.5mm).
 - c. Flatness: 1/8 inch (3mm) on 36 inches (914mm).
 - d. Overall length: Plus or minus 1/8 inch (3 mm).
- B. Interlocking metal wall panels:
 - 1. Factory formed, "Interlocking" Metal wall panel with reveal joint, with finished panel depth of 1" (25mm).
 - 2. Available pan width of panels: [7 ½ " face (200mm)] [9 ½ " face (242mm)] [11 ½ " face (292mm)] Center to center distances: [8" (203mm)] [10 " (254mm)] [12 " (305mm)] Panels are formed with interlocking lap at panel edges and smooth, flat pan; designed to be field assembled in sequential installation by engaging edges of each panel to edge of adjacent panel. Panels are attached to supports/substrates using concealed clips located under edges of panels.
 - 3. Reveal width joint: [¼" (6mm)], [½" (13mm)], [¾" (19mm)]
 - 4. Panel lengths: as indicated and required per jobsite conditions, with a maximum of 20'-0" (6100mm) horizontal, and a maximum of 12'-0" (3660mm) vertical.

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5. Interlocking panel with reveal joint wall system includes full range of fasteners, flashings, and terminations.

Specifier Notes: Specify horizontal, vertical metal wall panel orientation or both if required on project.

6. Panels are installed [horizontally from top of wall surface to bottom and include factory fabricated end-folds], [&] [vertically, laid in opposite direction of prevailing weather] with concealed clips and fasteners. Interlock the upper edge or succeeding edge of the panel into the clipped edge of the previously installed panel.

Specifier Notes: Specify "End-Folds" where desired on horizontal applications.

Specifier Notes: Verify product compatibility where products other than those listed in this article are to be specified and installed in conjunction with the metal panel system.

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/Slip sheet:
 - a. Type: High-permeability, spun-bonded, non-woven, polypropylene fabric.
 - b. Weight: 6.103 oz./sq. yd. (175 grams/m²).
 - c. Thickness: 0.023 inch (0.60 mm).
 - d. Water Vapor Transmission, ASTM E 96, Method A: 212 perms.
2. Acceptable Products:
 - a. VM 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".

2.4 THERMAL INSULATION

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

2.5 CLIPS AND FASTENERS FOR METAL WALL PANELS

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

- A. Clips
1. 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 Metal Wall Panels and clip attachment to steel substrate:
1. #12, [hot dipped galvanized steel] or [300 series stainless steel], thread design and length appropriate for substrate.
- C. Fasteners for Metal Wall Panels and 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 wind loads.
 2. Material: 300 series stainless steel.
 3. 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

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- 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, 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 piping, flashings, and penetrations through metal wall panel system.
 2. Examine primary and secondary framing to verify that girts, angles, channels, and other structural panel support members, sheathing, and anchorages have been installed correctly and are spaced properly.
 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 to verify actual locations of penetrations relative to seam locations of metal panels before 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.
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- A. Install metal wall panels 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.

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- 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. Flashing Membrane:
1. Install flashing membrane per manufacturer's recommendations.
 2. Lay in panel fashion to shed water, lapping joints, edges, per manufacturer's recommendations.
 3. Apply primer to deck surfaces, per manufacturer recommendations.
 4. Overlap sides and edges, and stagger per manufacturer's recommendations.
 5. Roll laps and field of membrane to provide an wrinkle free installation.
- E. Underlayment Installation:
1. Install and fasten fabric underlayment per manufacturer's recommendations.
 2. Lay in panel fashion to shed water, lapping ends, minimum of 6" (150 mm). Cover underlayment within 60 days with finished wall panel system.
- F. Panel Installation:
1. Install metal wall panels perpendicular to girts (hat channels). Attach panels with hidden clips and fasteners in spacing recommended by the manufacturer.
 2. Provide hidden starter strip or clips as recommended by the manufacturer.
 3. All end laps in panels shall be spaced with reveals, and provided with junction gutter, regardless of horizontal or vertical installation.
 4. Fasten metal panels in accordance with manufacturer's instructions.
 5. Attach the metal panels with specified fixed clips and screws with provision for thermal movement.
 6. Anchor metal panels and other components of the Work securely in place.
 7. Cut the panels with cutting shears to accommodate terminations, and placement around penetrations, and discontinuities. Do not field-cut metal panels by torch. At field modified panels, drill additional holes for fastening to substrate. Fasteners at field drilled holes shall be provided with neoprene gasketed washers. Concealed clips are also acceptable for securing the cut panel.
 8. Flash and seal the metal panels with weather closure at termination, edges and at perimeter of openings.
 9. Install trim and flashing, as metal panel installation proceeds.
 10. Fasten flashings and trim around openings and similar elements.
 11. Do not allow construction debris to contaminate panel system.
- G. Fasteners: Use fasteners of type and size that will secure components in compliance with design load requirements.
- H. Provide concealed fasteners and expansion provisions, where possible, in exposed work and locate to minimize possibility of leakage.
- I. Metal Protection: Do not install panels 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. Clean and neutralize flux materials. Remove excess solder.
- C. Clean finished surfaces on completion of metal installation, including removing unused fasteners, metal filings, rivet stems, pieces of flashing, and construction dust.
- D. Maintain metal panels in clean condition during construction.
- E. Remove plastic film from flashing and trim within 60 days of installation, 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