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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 074210 (07 42 10)

METAL WALL PANELS

Specifier Notes: This section covers Umicore Building Products USA, Inc. VM ZINC Zinc-alloy, Composite Metal wall panels as manufactured by Original Equipment Manufacturers (COMPOSITE SYSTEM MANUFACTURERS).

Panel substrate and framing designs can vary greatly. The Architect should consult model building code, specific ZINC COMPOSITE SYSTEM MANUFACTURERS product user guide and architectural manual, or building envelope consultant for additional information of appropriate wall designs. System design must adhere to the rainscreen principle. Sheathing, insulation, weather resistive barrier, and vapor retarder installation may be specified in this section or in other sections.

Consult the specific Composite System Manufacturer for assistance in editing this section for the specific application.

PART 1 - GENERAL

1. 1 SECTION INCLUDES

A. Zinc-alloy Composite Metal (ZCM) wall panels.

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 05100 (05 10 00) – Structural Steel

B. Section 06100 (06 10 00) – Rough Carpentry: Framing and Sheathing (Back-up Walls)

C. Section 07210 (07 21 00) – Building Insulation (Thermal Insulation): insulation.

D. Section 07270 (07 27 00) – Air Barriers.

E. Section 07620 (07 62 00) – Sheet Metal Flashing and Trim: Fascia, copings, flashings, and other sheet metal work.

F. Section 07920 (07 92 00) – Caulking and Sealants.

G. Section 09200 (09 20 00) – Interior Wall Finishes.

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. AAMA 508 – Voluntary Test Method and Specification for Pressure Equalized Rain Screen Wall Cladding Systems.

B. AAMA 509 – Voluntary Test and Classification Method for Drained and Back Ventilated Rain Screen Wall Cladding Systems

C. ASTM D 1781 – Climbing Drum Peel Test for Adhesive Materials

D. ASTM E 84 – Surface Burning Characteristics of Building Materials.

E. ASTM E 283 – Rate of Leakage Through Exterior Windows, Curtain Walls and Doors.

F. ASTM E 330 – Structural Performance of Exterior Windows, Curtain Walls, and Doors Under the Influence of Wind Loads

G. ASTM B 117 – Method of Salt Spray (Fog) Testing)

H. ASTM D 1735 – Method for Water Fog Testing of Organic Coatings

I. ASTM B69 – Standard Specification for Architectural Rolled Zinc

1.4 SYSTEM DESCRIPTION

A. Provide complete ZCM wall panels as indicated, including:
   1. Factory-formed, Zinc-alloy, Metal Composite wall panels.
   2. Attachment components, designed according to the rainscreen principle.
   3. Weather-resistive barrier materials.

B. Thermal Movements:
   1. Provide ZCM, including flashings, trim and accessories that allows for thermal movement as directed by the Composite System Manufacturer.
   2. Provide fasteners and components that resist rotation and avoid shear stress as a result of system thermal movements.

1.5 SUBMITTALS

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

B. Product Data: Submit Composite System Manufacturer 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 Composite System Manufacturer, including plans, elevations, sections, and details, indicating installation layout of VM-ZCM, with keyed references to termination points. Include the following:
   1. Details of ZCM panels including dimensions.
   2. Details for joining and securing metal Composite wall panels, including layout of 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 Composite wall panel assembly and attachments.
   8. Details of terminations, such as edge conditions, corners, starter and termination courses.

D. Samples for Verification: Submit Composite System Manufacturer samples for each type of exposed component required, including:
   1. ZCM Wall Panel System: Minimum 96" long by 36" wide in VM ZINC Quartz Zinc (VM-ZCM). Include fasteners and supporting system (2 of each) required for installation.
   2. Trim and Closures: 36" long sample of each type of trim and closure, including fasteners, cleats and components as required for trim at parapet, corners, or base of wall conditions.
   3. Accessories: 36" 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. VM-ZCM Composite System Fabricator Qualifications: The Fabricator of the VM-ZCM wall panel system shall document experience with projects of similar type and scope

B. Source Limitations: Obtain VM-ZCM® wall panel system from:

1. Miller Clapperton System 500 www.millerclapperton.com
2. NOW System 4100-Z: drained, rear-ventilated rainscreen system with open joints (www,nowspecialities.com)
3. NOW System 4200-Z: drained, rear-ventilated rainscreen system with aluminum joint filler strip - available in any color up to 3" wide reveal (www.nowspecialties.com)
4. Custom Metal Contracting System 20 www.custommetal.ab.ca
5. Sobotec Ltd. SL-2000 Ventilated Rain Screen www.sobotec.com

OR Others compatible with zinc as confirmed by Umicore Building Products.

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

C. Mock-ups:

1. Before installing VM-ZCM 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. 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 panel 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 zinc Composite System Manufacturer within 5 days.
5. Leave strippable protective UV-resistant film on metal wall panels.

B. Storage and Handling:

1. Store materials in clean areas in accordance with zinc Composite System Manufacturer 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. Material: As per zinc Composite System Manufacturer.

2. Installation: As per installer.

4

3. Panel Integrity: 10 years from date of substantial completion as offered by the ZCM core manufacturer.

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

PART 2 - PRODUCTS

2.1 MANUFACTURER

A. VM-ZCM as manufactured by:

1. Mitsubishi Plastics Composites America, Inc.
   ALPOLIC
   401 Volvo Parkway
   Chesapeake, VA 23320
   www.alpolic-northamerica.com

2. OR Equal

2.2 MATERIALS

A. Metal: ZCM factory-formed, zinc-alloy, metal wall panel.

1. Architectural Rolled Zinc Alloy as per ASTM B69.

B. ZCM Wall Panels:

1. Factory formed and consisting of:
   a. One outer layer of VM ZINC Quartz Zinc "skin" with dark gray aspect with luminance "Y" from 22 and 25 on exposed side.
   b. Mineral filled Fire-resistant Core.
   c. One outer layer of VM ZINC Quartz Zinc "skin" with dark gray aspect with luminance "Y" from 22 and 25 on exposed side.

C. Product Performance:

1. Bond Integrity: When tested for bond integrity, in accordance with ASTM D-1781 (Simulating resistance to panel delamination), there shall be no adhesive failure of the bond:
   a. Peel Strength: 22 in-lb/in as manufactured.
   b. Peel Strength: 22in-lb/in after 8 hours in water at 200° F (93° C)
   c. Peel Strength: 22 in-lb/in after 21 days soaking in water at 70° F (21° C)

Specifier Notes: 4 mm thickness is stock. 6mm thickness for glazed systems.

D. Product Tolerances:
   1. Width: + or – 0.08” (2mm)
   2. Length: + or – 0.16” (4mm)
   3. Thickness 4mm: + or – 0.008” (0.2mm) **OR** 6mm: + or – 0.008” (0.2mm)
   4. Bow: Maximum 0.5% of length and/or width
   5. Squareness: Maximum 0.2” (5mm)

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

2.3 ACCESSORIES

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

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 pre-weathering 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.

A. Install ZCM wall panels in accordance with Composite System 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 panels plumb, level, square, true to line, and within installation tolerances and according to the premier manufacturer's written and published instructions and guidelines.

D. Install panels and system for free and noiseless vertical and horizontal thermal movement due to expansion and contraction.

E. 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.

F. 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.

3.3 CLEANING

A. Clean exposed metal surfaces in accordance with manufacturer's instructions.
B. Clean and neutralize flux materials. Remove excess solder or caulk.
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. Ensure that all adjacent masonry surfaces are prepped and cleaned before removing plastic film.
F. Handle unprotected zinc face material with clean gloves and long sleeves throughout all stages of end use: fabrication, installation, building occupancy, and maintenance.

3.4 PROTECTION

A. Protect installed metal wall panel system as per Composite System 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