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3-Part CSI SPECIFICATION

SECTION 074213 - FORMED METAL WALL PANELS

CUSTOM BREAKFORMED METAL WALL PANEL SYSTEM

NOTES TO SPECIFIER:

The following specification language is intended to assist design professionals in specifying Pure + FreeForm metal cladding products using the Construction Specification Institute's 3-part Section Format. Sample language is provided for articles in Part 1 - General, Part 2 - Products, and Part 3 - Execution. The sample language, article/ paragraph numbering and overall section format should be edited to fit the design firm's specifications and the design intent for the project.

Articles and paragraphs of this product specification assume the Project Manual will contain Division 01 documents, including close coordination with the following sections, as appropriate: 012500-Substitution Procedures, 013300-Submittal Procedures, 014300-Quality Assurance, 016200-Product Options, 016600-Product Storage and Handling Requirements, 017400-Cleaning and Waste Management, 017700-Closeout Procedures, 017800-Closeout Submittals. If the project manual does not contain these Division 01 sections, requirements may be provided by the specifier under the appropriate articles within this section.

The Pure + FreeForm Specification program is designed to simplify the specification process by customizing the specification per product(s) selected. **This specification MUST be reviewed further for minor additions and modifications that are required to complete the specification.** This content is provided to you "as is" without warranty of any kind either express or implied including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose, title, non-infringement, security, or accuracy.

INSTRUCTIONS:

Contact your local Pure + FreeForm manufacturer's representative or Pure + FreeForm directly for assistance with specifications and detail coordination: www.purefreeform.com.

Optional items requiring selection by the specifier are noted below. Once selections are made and other options and brackets deleted, bold font and colored text should be reverted to match balance of document.

- Dimensional items to be reviewed by specifier are in **red**
- Color selections to be reviewed by specifier are in **blue**
- Sustainability requirements to be reviewed by specifier are in **green**
- Other areas that require edits noted as **[Edit as Required]**

SECTION 07 42 13 – **CUSTOM BREAKFORMED METAL WALL PANEL SYSTEM**

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes
 - 1. Factory-formed: concealed-fastener, metal wall panels.
 - 2. Finish must conform to AAMA 2605

1.3 RELATED SECTIONS (**Edit as Required**)

- A. Division 5 Section “Cold Formed Metal Framing”
- B. Division 6 Section “Rough Carpentry”
- C. Division 7 Section “Sheet Metal Flashing and Trim”

1.4 PERFORMANCE REQUIREMENTS

- A. General: Provide metal wall panel assemblies that comply with performance requirements specified as determined by testing manufacturers' standard assemblies similar to those indicated for this Project, by a qualified testing and inspecting agency.
- B. System shall meet performance criteria as installed. Either test data or signed and sealed engineering calculations shall document the performance of the panel system to meet design loads required.
- C. Wind Loading: Design and size components to withstand dead and live loads caused by wind pressures as follows: **[Edit as Required]**
 - 1. Positive pressure: _____ psf normal to panel.
 - 2. Negative pressure: _____ psf normal to panel.
- D. Maximum Deflection under Design Loads: **[Edit as Required]**
 - 1. 1/180 of span or

2. 1/240 of span.

1.5 SUBMITTALS

- A. Product Data: Manufacturer's current product specifications and installation instructions.
- B. Shop Drawings: Include small-scale elevations, as required. Show details of trim and flashing conditions, fastening and anchorage methods, weatherproofing techniques, terminations, and penetrations.
- C. Samples:
 1. Selection Samples: Submit actual metal chips with full range of colors available for Architect's selection.
 2. Verification Samples: Submit two samples of each type of metal panel required, not less than 12 inches (305mm), and illustrating finished panel profile.
- D. Product Test Reports: Submit copies of test reports or load tables verifying performance capability of panel system:
 1. Metal Wall Panels: Include reports for, Field Tested, ASTM E 84 Flame Spread Rating, Paint Performance Test to comply with AAMA 2605.
 2. Fastener test and pull-out calculations
 3. Load tables
 4. Maintenance Data
- E. Sustainable Design Submittals:
 1. Credit MR 4: Product Data indicating percentages by weight of postconsumer and preconsumer recycled content for products having recycled content.
 - a. Include statement that indicates costs for each product having recycled content.
 2. Credit MR 5: Provide certificates indicating location of material manufacturer and point of extraction, harvest, or recovery for each raw material to Project, by rail, by inland waterway, by sea and by all other means. Include statement indicating cost for each regional material, and fraction by weight that is considered regional.
 3. Credit EQ 4.1: For adhesives and sealants, provide manufacturers' product data including printed statement of VOC content.
 4. Red List Free Products.
 - a. Declare Label: Include The Living Future Institute label indicating Red List Free declaration status.

1.6 QUALITY ASSURANCE

- A. Installer: Company specializing in the type of work required for this project, with not less than 5 years of documented experience.
- B. Pre-Installation meeting: Convene meeting not less than one week prior to beginning installation between general contractor, installing contractor, owner's representative and manufacturer.

1.7 DELIVERY, STORAGE & HANDLING

- A. Do not deliver materials of this section to project site until suitable facilities for storage and protection are available.
- B. Protect materials from damage during transit and at project site. Store under cover, but sloped to provide positive drainage. Do not expose materials with strippable protective film to direct sunlight or extreme heat.
- C. Do not allow storage of other materials or allow staging of other work on installed metal panel system.
- D. Upon receipt of delivery of metal panel system, and prior to signing the delivery ticket, the installer is to examine each shipment for damage and for completion of the consignment.

1.8 WARRANTY

- A. Special Warranty on Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace material that shows evidence of deterioration of factory-applied finishes within specified warranty period.
 - 1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
 - a. Color Fading more than 5 Hunter units when tested according to ASTM D2244
 - b. Chalking in excess of a No. 8 rating when tested according to ASTM D4214
 - c. Cracking, checking or peeling, or failure of paint to adhere to bare metal
 - 2. Fluoropolymer Finish Warranty Period: 20 years from date of Substantial Completion.
- B. Special Installer's Warranty: Specified form in which Wall Installer agrees to repair or replace components of custom-fabricated sheet metal wall that fail in materials or workmanship within 2 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturer's Qualifications: All panels are to be factory formed and packaged per job requirements.
 - 1. Manufacturer shall have a minimum of ten (10) years experience in the factory fabrication of metal wall panels.
 - 2. Manufacturer must be certified to ISO 9001:2008 with design.
- B. Specification is based upon the products of Pure + FreeForm LLC. No other manufacturer of metal wall systems shall be accepted as an alternate product without prior written approval. These substitution requests must meet specifications and must be submitted a minimum of ten (10) days prior to date of bid.
- C. Coordinate with insulation requirements as noted by Architect.
- D. Secondary framing members as required for load criteria and wind requirements.

2.2 CUSTOM BREAKFORMED METAL WALL PANELS

- A. Concealed-fastener, Custom breakformed metal wall panels: Provide factory-formed metal wall panels designed to be field assembled by lapping and interconnecting side edges of adjacent panels. Include accessories required for weathertight installation at termination points.
 - 1. Custom Breakformed Metal Wall Panels: Formed with raised angular ribs at various spacing and heights.
 - 2. Basis-of Design Product: Pure + FreeForm Custom Breakformed Metal Wall Panel
 - 3. Available Manufacturers: Pure + FreeForm: info@purefreeform.com 612-208 8347
 - a. Aluminum Alloy: 3004 H32 Aluminum
 - b. Aluminum Thickness: **[0.8 mm]** **[1.0 mm]** **[1.2 mm]** **[1.5 mm]** **[2 mm]**
 - c. Texture: Smooth
 - 4. Panel Width: **[Edit as Required]**
 - 5. Panel Length: **[Edit as Required]**
 - 6. Panel Depth: **[Edit as Required]**
 - 7. Panel Orientation: **[Vertical]** **[Horizontal]**

8. Panel Face Description : *[Edit as Required or reference Arch drawing number]*
9. Concealed Panel Clips: Manufacturers standard stainless steel type

2.3 FINISHES

- A. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast. For best results, Pure +Freeform uses Lumiflon fluoropolymer coatings. Text shown below is an example. Revise or insert additional testing requirements in five fluoropolymer subparagraphs below if performance levels indicated in AAMA 2605 are insufficient.
- B. FEVE Fluoropolymer: AAMA 2605. Offset gravure, direct print fluoropolymer finish system containing 100 percent fluoroethylene vinyl ether (FEVE) resin in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
- C. Basis-of-Design Product, FEVE Resin:
 1. Lumiflon by Asahi Glass Company (AGC)
 2. Application: Panels and accessories.
 3. Exposed Surfaces:
 - b. Color: *[Custom color as selected by Architect. Insert Pure _ FreeForm color code here]*.
 - c. Texture: Manufacturer's standard *[“Exterior Clear Coat”] [“Extreme Gloss Matte”] [“High Gloss”] [“Matte”] [“Satin”] [“Ultra Matte”]*.
 - d. Polyvinylidene fluoride/ polyvinylidene difluoride (PVDF) resin finishes are NOT accepted.
 - e. Film finishes are NOT accepted.
 - f. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

2.3 FABRICATION

- A. Panels:
 1. Panels to be Factory fabricated in a controlled environment.
- B. Form all components true to shape, accurate in size, square and free from distortion or defects. Cut panels to precise lengths indicated on approved shop drawings or as required by

field conditions.

C. Accessories:

1. Factory fabricate trim and flashing components to match panels in standard lengths.
2. Clips to be stainless steel
3. Form panel lines, breaks, and angles to be sharp and true, with surfaces free from warp and buckle.
4. Fabricate wall panels as required to maintain fabrication tolerances and to withstand design loads.

D. Fabricate metal wall panels in a manner that eliminates condensation on interior side of panel and with joints between panels designed to form weathertight seals.

E. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

F. Panels, fabrication and installation shall meet the requirements of the Metal Construction Association Preformed Metal Wall Guidelines

PART 3 - EXECUTION

3.1 PREPARATION

A. Field Measurements

1. Field measurements should be taken by the installer for verification of dimensional correctness in relationship to original plans, prior to providing manufacturer with a bill of material.

B. Delivery, Storage and Handling

1. Do not deliver materials of this section to project site until suitable facilities for storage and protection are available.
2. Protect materials from damage during transit and at project site. Store under cover, but sloped to provide positive drainage. Do not expose materials with strippable protective film to direct sunlight or extreme heat.
3. Do not allow storage of other materials or allow staging of other work on installed metal panel system.
4. Upon receipt of delivery of metal panel system, and prior to signing the delivery ticket, the installer is to examine each shipment or damage and for completion of the consignment.

C. Sequencing and Scheduling

1. Installer shall coordinate with general contractor as to scheduled delivery time after receipt of field verified bill of material by manufacturer as it relates to actual project scheduling.

3.2 METAL WALL PANEL INSTALLATION, GENERAL

- A. General: Install metal wall panels in orientation, sizes, and locations indicated on Drawings. Install panels perpendicular to girts and subgirts, unless otherwise indicated. Anchor metal wall panels and other components of the Work securely in place, with provisions for thermal and structural movement.

1. Field cutting of metal wall panels by torch is not permitted.
2. Rigidly fasten metal wall panels and allow for thermal expansion and contraction as required by the panel manufacturer. Pre-drill panels as required.
3. Install screw fasteners.
4. Locate panel splices over, but not attached to, structural supports. Stagger panel splices and end laps to avoid a four-panel lap splice condition.
5. Apply elastomeric sealant continuously between metal base channel (sill angle) and concrete, and elsewhere as indicated or, if not indicated, as necessary for waterproofing and material compatibility.
6. Provide weatherproof seals for pipe and conduit penetrating exterior walls.

- B. Fasteners: Use fasteners of size and length as required for compatibility with substrate.

1. Aluminum Wall Panels: Use stainless-steel fasteners or metallic coated fasteners for surfaces exposed to the exterior and aluminum or galvanized steel fasteners for surfaces exposed to the interior.
2. Concealed fasteners shall have a high performance coating
3. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating, by applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by metal wall panel manufacturer.
4. Coat back side of aluminum wall panels with bituminous coating where wall panels will contact wood, ferrous metal, or cementitious construction.

- C. Joint Sealers: Install gaskets, joint fillers, and sealants where indicated and where required for weatherproof performance of metal wall panel assemblies.

- D. Provide water and air infiltration retarder / barriers as noted within project documents. **[Edit as Required]**

3.3 ACCESSORY INSTALLATION

- A. General: Install accessories with positive anchorage to building and weathertight mounting and provide for thermal expansion. Coordinate installation with flashings and other components.
1. Install components required for a complete sheet metal roofing assembly including trim, copings, ridge closures, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
 2. Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual" and NRCA Waterproofing Manual. Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.
 3. Panels, fabrication and installation shall meet the requirements of the Metal Construction Association Preformed Metal Wall Guidelines.
- B. Coordinate with installation of:
1. Cold Formed Metal Framing, as noted in Section 5
 2. Rough Carpentry, as noted in Section 6
 3. Sheet Metal Flashing and Trim, as noted in Section 7

3.4 CLEANING AND PROTECTION

- A. Remove temporary protective coverings and strippable films, if any, as metal wall panels are installed. Maintain in a clean condition during construction.
- B. Protection:
1. Provide as required completed work of this section will be without damager or deterioration at date of substantial completion.
- C. Touch up minor abrasions with matching paint provided by panel manufacturer. Remove and replace panels that cannot be satisfactorily touched up. See Metal Construction Association Technical Bulletin #95-1051.
- D. Sweep and remove chips, shavings and dust from roof on a daily basis during installation period. Leave installed work clean, free from grease, finger marks and stains. Remove all protective masking from material immediately after installation of product.

- E. Upon completion of installation, remove scraps and debris from project site.
- F. After metal wall panel installation, clear weep holes and drainage channels of obstructions, dirt and sealant.

END OF SECTION 07 42 13