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DEC 2022

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DIVISION 7: THERMAL AND MOISTURE PROTECTION SECTION 074213 – METAL WALL PANELS

PART 1 – GENERAL

1.1 DESCRIPTION

- .1 General Requirements
Division 1, General Requirements, is part of this specification and shall apply as if repeated here
- .2 Work furnished and included:
 - .1 Supporting sub-girts.
 - .2 Exterior metal cladding profile.
 - .3 Interior metal liner profile.
 - .4 Accessories including associated flashings, closures, sealants and fasteners.
- .3 Related work not included:
 - .1 Structural framing members including purlins, eave and ridge elements, and other elements required to support the cladding system.
 - .2 Doors, louvers, sashes, ventilators as well as their supporting framing.
 - .3 Caulking of elements in 1.1.3.
 - .4 All flashings, flats or sheet metal work not directly associated with the Metal Wall Panels.

1.2 STANDARDS

- .1 Design of cladding system in accordance to the latest edition of:
 - .1 CAN/C.S.A. Standard S136 latest editions for the Design of Cold Formed Steel Structural Members.
 - .2 Canadian Sheet Steel Building Institute Standards 10M and 20M.
 - .3 National Building Code of Canada (latest edition).
 - .4 Applicable local codes and standards.
 - .5 ASTM A653/A653M-04a Specification for Sheet Steel, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated by the Hot-Dip Process.
 - .6 ASTM A792/A792M-03, Specification for Sheet Steel, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
 - .7 CSSBI S8-2001, Quality & Performance Specification for Prefinished Sheet Steel Used for Building Products.
 - .8 CSSBI Fact Sheet #3, Care and Maintenance of Prefinished Sheet Steel Building Products.
 - .9 CSSBI Fact Sheet #13, Position Paper on Oil Canning.
 - .10 CSSBI Fact Sheet # 24, Natural Finish Metallic Coatings.



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1.3 QUALITY ASSURANCE

- .1 Manufacturer of wall system and installer of the Metal Wall Panels shall demonstrate a minimum of five years' experience in the fabrication and installation of projects of similar scope.
- .2 This section establishes the standard of quality required for the complete metal wall system. Proposed substitutions must meet this standard, and will be considered as follows:
 - .1 A written request for approval of a substitution is received at least ten (10) days prior to tender closing.
 - .2 The request includes a complete item-by-item description comparing the proposed substitution to the specified system, together with manufacturer's literature, samples, test data, engineering standards and performance evaluation indicating comparable standards to those specified.
 - .3 No substitutions shall be made after the bid date.

1.4 DESIGN REQUIREMENTS

- .1 Design wall system to resist:
 - .1 {Wind loads, positive and negative, expected in this geographical region NBCC climatic data, 50 year probability} {### kPa}.
 - .2 Deflection of the wall system is not to exceed 1/180th of the span for the wind load based on serviceability limit states.
 - .3 Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, overstressing of components, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime sky heat loss.
 - .1 Temperature Change (Range): 20 deg C, ambient; 40 deg C, material surfaces.
 - .4 Design expansion joints to accommodate movement in cladding and between cladding and structure to prevent permanent distortion or damage to the cladding.
 - .5 Design wall system to maintain the following erection tolerances:
 - .1 Maximum variation from plane or location shown on shop drawings: 20 mm/10 m (3/4 inch/30 feet).
 - .2 Maximum offset from true alignment between two adjacent members abutting end to end in line: 1 mm (0.04 inches).

1.5 SAMPLES

- .1 Submit samples of standard coloured metal cladding profile for review by the consultant, prior to fabrication.



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1.6 SHOP DRAWINGS

- .1 Submit shop drawings in accordance with Section [01 33 23].
 - .1 Indicate arrangement of cladding system, including dimensions, location of joints, profiles of inner and outer skin, types and locations of supports, fasteners, flashing, closures and all metal components related to the cladding installation.
 - .2 Drawings shall be signed and sealed by a Professional Engineer, attesting to the ability of the metal panels' assembly to withstand the specified loads.

1.7 MAINTENANCE DATA

- .1 Provide maintenance data for cleaning and maintenance of panel finishes for incorporation into manual specified in Section [## ## ##].

1.8 PRODUCT DELIVERY, HANDLING AND STORAGE

- .1 Store components and materials in accordance with panel manufacturer's recommendations. Panels should be stored in a clean, dry place. One end should be elevated to allow moisture to run off.
- .2 Protect prefinished steel during fabrication, transportation, site storage and erection, in accordance with CSSBI Standards.

1.9 GUARANTEE

- .1 For work in this section, warranty by installer against defects or deficiencies in materials or workmanship shall be for a period of one year from date of substantial completion.



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PART 2 – PRODUCTS

2.1 MATERIALS

- .1 Metal Wall System:
 - .1 Sub-girts: Minimum 1.21 mm (0.048”) thick formed galvanized steel, ASTM A653M Grade 230 with Z275 zinc coating. Full depth of wall system, factory notched and formed to match liner.
- .2 Steel Cladding:
 - .1 Profile: Profile shall be Agway Metals profile ()
- .3 Base material : Z275 galvanized sheet steel conforming to ASTM A653M Grade 230 or {AZ 150} {AZ 180} Galvalume sheet steel conforming to ASTM A792M Grade 230 or aluminum or zinc or copper.
- .4 Core Thickness: Nominal core thickness of [] mm []”.
- .5 Coating: material to be aluminum, stainless steel, copper, Indaten or plain finished or prefinished with {Perspectra Plus Series} {10,000 Series} {Barrier Series} {Metallic Series} {Elite Series} on one side with a standard wash coat on the reverse.
- .6 Colour: Colour shall be QC[]. {Barrier Series coating thickness will be [] mills on the exterior exposed side and [] mills on the reverse. Colour to be selected by consultant from manufacturer’s standard colour range and must be specified at time of tender.

2.2 ACCESSORIES

- .1 Flashing: In accordance with Section [07 62 00]. Material to match cladding in exposed locations, galvanized material in concealed locations. Custom fabricated to suit architectural details, as required. Use preformed corner pieces only. Double back exposed edges.
- .2 Closures: Foam and Metal closures to suit profiles selected, to manufacturer’s recommendations.
- .3 Sealants:
 - .1 Concealed: Tape or compound, non-skinning, non-drying, butyl rubber.
 - .2 Exposed: {Acrylic co-polymer to CGSB 19GP-5M} {One part silicone to CGSB CAN2-19.13}.

2.3 FABRICATION

- .1 Fabricate components to comply with dimensions, profiles, gauges and details as shown on the shop drawings, including fascia and soffit panels and all companion flashing.
- .2 Fabricate all components of the system in the factory, ready for field installation.
- .3 Provide metal liner and cladding and all accessories in longest practicable length to minimize field lapping of joints.



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PART 3 – EXECUTION

3.1 EXAMINATION

- .1 Prior to proceeding with installation of the Metal Wall Panel System, inspect the work of all preceding trades to ensure conformity to drawings. All discrepancies or incomplete work should be reported, in writing, to the Architect and General Contractor for corrective measures. Installation of the wall assembly shall not proceed until all discrepancies are corrected.

3.2 INSTALLATION

- .1 Sub-girt framing system:
 - .1 Install sub-girts. Frame all openings in the cladding.
- .2 Flashing:
 - .1 Install starter flashing, drip and other flashing, corners, edgings, window and door flashing as shown on the drawings.
- .3 Exterior Cladding:
 - .1 Install exterior cladding {and soffit} in accordance with manufacturer's standard installation procedures, providing proper laps and detailing to ensure a weather tight face.
 - .2 Install finishing flashing and cap flashing.
- .4 Sealants:
 - .1 Install sealants at junctions with adjoining work, and where shown on the drawings, in accordance with Section [07 92 00].

3.3 CLEAN-UP

- .1 Clean exposed panel surfaces in accordance with manufacturer's instructions.
- .2 Repair and touch up with colour matching high grade enamel minor surface damage, only where permitted by the Architect and only where appearance after touch-up is acceptable to Architect.
- .3 Replace damaged panels and components that, in opinion of the Architect, cannot be satisfactorily repaired.