

1 General

1.1 **SUMMARY**

.1 Section Includes

- .1 Furnish labour, materials, equipment, and services necessary for installation of prefinished metal roof and wall systems including but not limited to:
 - .1 Prefinished sheet metal siding/panels.
 - .2 Girts, clips, fasteners, closures, flashings and sealants.
 - .3 Insulation.
 - .4 Air barriers and waterproof membranes
 - .5 Related work as shown on the drawings or specified herein

1.2 **REFERENCES**

- .1 Conform to the latest edition of the following:
 - .1 ASTM A792/A792M, Standard Specification for Steel Sheet, 55 % Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
 - .2 ASTM C612, Standard Specification for Mineral Fiber Block and Board Thermal Insulation.
 - .3 ASTM C726, Standard Specification for Mineral Wool Roof Insulation Board.
 - .4 ASTM E96/E96M, Standard Test Methods for Water Vapor Transmission of Materials.
 - .5 CSA G164M, Hot Dip Galvanizing of Irregularly Shaped Articles.
 - .6 CSA O121, Douglas Fir Plywood.

1.3 **DESIGN CRITERIA**

- .1 Details and information indicated on drawings are schematic, showing general intent only and not to be considered or construed to be the engineering design for the system or to be complete or adequate to meet the design criteria.
- .2 Whereas certain of the details and sections show anchors, clips, etc., these are indicative and diagrammatic only and are shown to alert other trades to their presence to co-ordinate with the work of their Sections.
- .3 Design metal siding/panel assemblies capable of withstanding structural movement, thermally induced movement, and exposure to weather without failure or infiltration of water into building interior.
- .4 Design metal siding/panel system to prevent rattling and vibration of panels, overstressing of fasteners and clips, and other detrimental effects on the system.
- .5 Deflection of the wall system is not to exceed L/180th of the span for the wind load based on serviceability limit states.

1.4 **SUBMITTALS**

.1 Shop Drawings:

.1 Submit Shop Drawings in accordance with Section 01 33 00. Show the following:

- .1 Submit shop drawings and complete design calculations for the systems and documentation in regard to the reactions of the metal siding/panel due to thermal expansion and contraction, positive and negative wind pressure and assurance that the thermal movement and wind forces have sufficient attachments, supports, bracing and anchorage.
- .2 Submit shop and erection drawings, clearly indicating materials and products to be supplied. Indicate dimensions, profiles, thicknesses, anchor details, joints, fasteners, connections, attachments, flashings, sealants, conditions at parapet, junctions, corners, trims, and the relationship with adjacent components and construction. Indicate compliance with design criteria and requirements of related work.
- .3 Shop drawings and calculations to bear the seal and signature of a Professional Engineer responsible for the design of the Work, licensed to design structures and registered in the province of Ontario.

.2 Samples:

- .1 Submit 300 mm x 300 mm samples of metal siding/panel finish for review by Consultant. Submit samples in actual base metal thickness and in selected finish and all necessary items to show a joint between adjacent panels. Samples to be clearly labelled with project number, date, and name of Contractor.

1.5 **QUALITY ASSURANCE**

- .1 Installer executing Work, must have a minimum of five (5) years continuous Canadian experience in application of Products, systems and assemblies specified and shall be trained and approved by manufacturer.

1.6 **DELIVERY, STORAGE AND HANDLING**

- .1 Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- .2 Assembled units and/or their component parts to be transported, handled and stored in a manner to preclude damage. Accessory materials required for erection at the Site to be delivered to the Site in manufacturer's labelled containers. Remove units or components which are cracked, bent, chipped, scratched or otherwise unsuitable for installation and replace with new.
- .3 Store materials on Site in a manner to prevent damage thereto, or deterioration of finish.. Store away from chemically aggressive substances and away from site traffic.
- .4 Stack panels tilted to provide water run-off, free from ground contact on firm, level, non-staining supports extending full width of sheet.
- .5 Where possible, pile individual sheets or panel length and types separately. Cover components with non-plastic sheet coverings loosely shrouded over stacks, to protect from direct sunlight and moisture penetration. Anchor coverings to prevent blow off. Vent to allow air movement but not to allow entry of wind driven rain.

- .6 Adequately protect the structure and work of other trades during delivery, storage, handling and erection of the Work.

1.7 **WARRANTY**

- .1 Warrant Work against defects in materials and workmanship in accordance with the General Conditions, for a period of five (5) years from date of Substantial Performance and agrees to repair or replace faulty materials or Work which appears during the warranty period, without cost to the Owner. Defects include but not limited to deformation, buckling, leakage, weather tightness, failure of anchors and fastenings, and sealants.
- .2 Panel finish: Warrant for a period of 30 years. Defects include but not limited to failure of paint coating including discoloration, finish peeling, bond failure and extensive color fading.
- .3 Promptly make good defects and/or failures in the Work upon written notification by the Owner. Remedy includes labour, materials, equipment and services required to make good defective work, and to replace components and finishes and the Owner's property damaged or disturbed in the course of remedying defects.

2 Products

2.1 **ACCEPTABLE MANUFACTURER**

- .1 Products and manufacturers specified establish performance, quality required and are not intended to restrict submission by other manufacturers.
- .2 Acceptance of products from other manufacturers is subject to review by the Consultant, for conformity with the specifications and meeting the physical characteristics of the specified products. Include compliance with referenced standards. Submittals which do not include adequate product evaluation are not considered.
 - .1 Vicwest (Basis of Design)
 - .2 Agway Metals
 - .3 Metl-Span
 - .4 Or accepted equivalent

2.2 **MATERIALS**

- .1 Preformed Metal Cladding (Wall and Soffit Panels):
 - .1 Panel Material: Galvanized steel sheet, 22 gauge thickness, commercial quality sheet, conforming to ASTM A653/A653M, Grade 230 with Z275 coating. Preformed panels to be of required base steel nominal thickness to meet design requirements.
 - .2 Sheet steel used for flashings, girts, sub-girts, Z bars and brackets, conforms to ASTM A653/A653M, Grade 230 with a minimum Z275 coating.
 - .1 Girts, sub-girts, Z bars, clips brackets to be of the required base steel nominal thickness to meet design requirements. Thermal clips to be slotted to minimize thru-metal conductivity.
 - .2 Metal flashings, copings, cap flashings, closures and the like to be base steel nominal thickness of 0.61 mm and thicker to suit application to prevent oil-canning.

- .3 Panel Finish: Silicone Modified Polyester (SMP) coated sheet steel, prefinished to requirements of CSSB S8. "Weather X" by Vicwest, "Silicone Modified Polyester (SMP) System by Valspar or accepted equivalent.
- .4 Acceptable Product:
 - .1 "AD 300 - Hidden Fastener System" by Vicwest or accepted equivalent
 - .2 Colour: Charcoal Grey 56072
- .2 Soffit panels: Match finish and colour of metal cladding.
- .3 Insulation:
 - .1 Semi rigid mineral wool insulation. Minimum density of 65 kg/m³ tested to ASTM C612. Thickness as indicated on Drawings.
 - .1 "CavityRock" by Rockwool.
 - .2 "Thermafiber RainBarrier" by Owens Corning.
 - .3 "JM CladStone Water & Fire Block Insulation" by Johns Manville.
 - .4 Or accepted equivalent
 - .4 Vapour Barrier Membrane: Modified Bituminous Type, minimum 40 mil thick, self-adhering sheet consisting of rubberized asphalt laminated to polyethylene film with release liner on adhesive side:
 - .1 Acceptable Products
 - .1 "Perm-A-Barrier by Grace Construction Products
 - .2 "Air Shield Air/Vapour Barrier" WR Meadows
 - .3 "Blueskin SA" by Henry Company
 - .4 "Soprseal Stick 1100T" by Soprema
 - .5 "ExoAir 110" by Tremco
 - .2 Transition and through-wall flashing membrane:
 - .1 Minimum 40 mils thick, self-adhering sheet; complete with a cross-laminated polyethylene filed as recommended by primary membrane manufacturer and compatible with other components of the air/vapour barrier assembly.
 - .3 Provide air/vapour barrier membrane and transition at openings in cladding or at locations where continuity is required.
- .5 Plywood Sheathing:
 - .1 16 mm thick minimum and/or thicknesses as indicated on drawings, fire retardant treated, exterior grade, Douglas Fir plywood, veneer core, Select Sheathing - Tight Face, unsanded, "B" faces and conforming to CSA O121M.
- .6 Sealants:
 - .1 Concealed:

- .1 Tape or compound, non-skinning, non-drying, butyl rubber.
 - .2 Sealant tape to be macro-polyisobutylene preformed sealant tape designed for use in metal cladding assemblies.
- .2 Exposed.
 - .1 Sealant "Type A" as specified in Section 07 92 00 - Joint Sealants
 - .2 Provide primers, bond breakers and cleaning agents as recommended by the sealant manufacturer.
- .7 Fasteners: of type, materials, size, corrosion resistance required to fasten miscellaneous metal framing members to substrates.
 - .1 Concealed fasteners located within wall: self-drilling, self-tapping galvanized screws as recommended by manufacturer.
- .8 Bituminous Paint.
 - .1 Conforming to CAN/CGSB 1.108, Type 2.
- .9 Field Touch-Up Paint.
 - .1 Zinc rich anti-corrosion primer, conforming to CAN/CGSB 1.181; "Galvafruid, Grade SB" by W.R. Meadows of Canada Limited and top coating of type and colour to match finish sheet.
- 3 Execution
- 3.1 **EXAMINATION**
 - .1 Verify actual site dimensions and location of adjacent material prior to commencing Work. Examine substrates to receive the Work and ensure that work of other sections is complete and that there are no conditions which adversely affect the Work.
 - .2 Notify the Consultant immediately of unsatisfactory conditions. Do not proceed with the Work until unsatisfactory conditions have been corrected.
 - .3 Commencement of the Work implies acceptance of surfaces and conditions.
- 3.2 **INSTALLATION**
 - .1 Install metal siding/panel, fasteners, trims and related items in accordance with manufacturer's written instructions and reviewed shop drawings,
 - .2 Anchor metal siding/panel and other components of the Work are securely in place, with provisions for thermal and structural movement.
 - .3 Flashing
 - .1 Install starter flashing, drip and other flashing, and corners, edgings, window and door flashing as shown on the Drawings.
 - .4 Insulation.
 - .1 Install insulation in accordance with manufacturer's recommendations. Ensure insulation is positively fixed to liner to prevent sagging.

.5 Exterior Cladding.

- .1 Install exterior cladding 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.

.6 Sealants.

- .1 Install sealants at junctions with adjoining work, and where shown on the drawings, in accordance with Section 07 92 00.
- .7 Isolate materials where necessary to prevent electrolysis due to dissimilar metal-to-metal contact or metal-to-masonry and concrete contact. Use bituminous paint, butyl tape or other approved divorcing material.

3.3 **CLEANING**

- .1 Remove, as the work progresses, excess or foreign material which would set up or become difficult to remove from finished surfaces.
- .2 Do final cleaning upon completion of the Work.
- .3 Remove excess sealant by the moderate use of mineral spirits or other solvent acceptable by the sealant manufacturer.

End of Section