MATERIAL

1 GENERAL

1.1 SCOPE OF WORK

1.1.1 Work of this Section shall include design, fabrication, supply and installation of aluminum composite panels, with an air barrier (and subgirts if required).

1.2 RELATED WORK

1.2.1 Stud framing: Section _____

1.2.2 Structural steel: Section _____

1.2.3 Exterior sheathing or plywood: Section _____

1.3 QUALITY ASSURANCE

1.3.1 Supplier/installer shall have a minimum 15 years proven experience and must have completed at least 5 major projects in the specified aluminum composite material panel system.

1.3.2 Fabricator shall meet the standards of the Premium MCM Fabricator Certification program and be certified by Metal Construction Association (MCA) as a **Premium MCM Fabricator.**

1.4 DESIGN AND PERFORMANCE REQUIREMENTS

1.4.1 Design, fabricate and erect a pressure equalized wall panel system to meet the following requirements:

1.4.1.1 Rain Penetration: prevent rain penetration through wall system. Design system based on “Rain Screen Principle”. Incorporate means of draining to the exterior.

1.4.1.2 Wind Load: Design wall system to resist wind loads, positive and negative, expected in this geographical region without causing rattling, vibration or excessive deflection of panels, overstressing of fasteners, clips and other detrimental effects on system. The panel system shall be designed to withstand local positive and negative wind load pressures at a maximum deflection of L/60 measured at the centers of panels, and L/180 measured at perimeters.

1.4.1.3 Structural and Thermal Movement: Accommodate movement of supporting structural framing and movement caused by the thermal expansion and contraction of system component parts without causing bowing, buckling, delamination, oil canning, failure of joint seals, excessive stress on fasteners or any other detrimental effects.

1.4.2 Panel flatness tolerance: Fabricate panels not exceeding the following tolerances:

1.4.2.1 Rises and falls across panel, (local bumps and depressions) will not be accepted.

1.4.2.2 .080" (2mm) in a concave/convex direction, measured perpendicular to normal plane.

1.4.3 Panel removal: System/procedure to allow removal of individual panels within wall system.

1.4.4 Maximum deviation from vertical and horizontal alignment of erected panels: ¼" in 20'-0" (6mm in 6m).

1.4.5 Testing: Provide wall assembly that has been tested and certified to conform to the following criteria:

1.4.5.1 Air Leakage: Not more than 0.006 (cfm)/sf of wall area 0.11$m^3/h/m^2$, when tested at 6.24 psf (300 Pa) in accordance with ASTM E283.

1.4.5.2 Water Penetration: No water infiltration under static pressure when tested in accordance with ASTM E331 at a pressure level of 14.61 psf (700 kPa) minimum, after 15 minutes.

(a) Water penetration is defined as the appearance of uncontrolled water in the wall.

(b) Wall design shall feature provisions to drain to the exterior face of the wall any leakage of water at joints and any condensation that may occur within the construction.

1.4.5.3 Structural: Provide systems that have been tested in accordance with ASTM E330 at a design pressure of 65 psf (3.12 kPa) and have been certified to be without permanent deformation of failures of structural members.

1.5 SAMPLES

1.5.1 Submit samples in accordance with Section _____.

1.5.2 Submit duplicate, minimum 5" x 7" samples of each colour selected.

1.6 SHOP DRAWINGS

1.6.1 Submit shop drawings in accordance with Section _____.

1.6.2 Indicate elevations, profiles, dimensions and thickness of panels and joint details.

1.6.3 Indicate attachment clips, system extrusions, fastening, anchor and installation details.

1.7 MAINTENANCE DATA

1.7.1 Provide maintenance data for cleaning and maintenance of aluminum finishes for incorporation into manual.

1.8 MOCK-UP

1.8.1 Submit mock-up in accordance with Section _____.
1.8.2 Erect mock-up panel approximately _____long x _____ high in location as directed by Engineer.

1.8.3 Mock-up panel shall include all components of the wall system and will be incorporated into work once approved.

1.9 PRODUCT DELIVERY, HANDLING AND STORAGE

1.9.1 Protect panel face with a plastic film adhered to panel in accordance with panel manufacturer's recommendation.

1.9.2 Store components and materials in accordance with panel manufacturer's recommendations.

1.10 KYNAR PANEL FINISH WARRANTY

1.10.1 Provide a manufacturer's written warranty: Finish panel manufacturer's written warranty covering failure of factory-applied exterior finish on composite metal panels within the warranty period; warrant finish per ASTM D 4214 for chalk not in excess of 8 NBS units and fade not in excess of 5 NBS units. Warranty period for finish; 20 years after the date of substantial completion.

1.11 MATERIAL AND WORKMANSHIP WARRANTY

1.11.1 Warranty against defects or deficiencies shall be for a period of one year from date of substantial completion.

2 PRODUCTS

2.1 PANELS

2.1.1 Aluminum Composite Material (ACM)

2.1.1.1 Composition: Two sheets of aluminum sandwiching a core of extruded thermoplastic, formed in a continuous process without the use of glues or adhesives between dissimilar materials. Bond integrity testing to adhere to ASTM D1781-76.

2.1.1.2 Aluminum face sheets: aluminum alloy 3003, thickness: 0.020" (0.51mm).

2.1.1.3 Panel thickness: 4mm (.157").

2.1.1.4 Panel weight: 1.12 lbs/sq.ft. (5.5 kg/sq.m.).

2.1.1.5 Tolerances:

2.1.1.5.1 Panel bow: Maximum 0.8% of panel dimension (width or length).

2.1.1.5.2 Panel Dimensions: Take site measurements before proceeding with production unless dimensions can be guaranteed by General Contractor.

2.1.1.5.3 Panel lines, breaks and angles to be sharp and true; panel surfaces to be free from warp or buckle.

2.1.1.6 Panel System: Dry Joint SL-2000 with ½" (12.5mm) wide panel joints using proprietary aluminum extrusions.

2.1.1.7 Acceptable material and manufacturer:

2.1.1.7.1 Alucobond supplied by Sobotec Ltd., 67 Burford Rd., Hamilton, Ontario, L8E 3C6 Tel: (905) 578-1278.

2.1.2 Panel finishes: Kynar, two/three coat, coil-coated baked enamel finish containing Kynar 500 polyvinylidene fluoride resin. Colours: From standard colour range _____ (or custom match: _____).

2.1.3 Panel and Wall Accessories:

2.1.3.1 Provide proprietary aluminum extrusions to manufacturer's standard profiles for a complete installation.

2.1.3.2 Fasteners: as recommended by the panel manufacturer, concealed and non-corrosive.

2.1.3.3 Extrusions and extrusion clips for attaching panels to the sub-structure: purpose made aluminum. Extrusions shall be full length around panel perimeter for panel reinforcement and alignment. Intermittent clips are unacceptable.

2.1.3.4 Plastic shims, shall be used as thermal separator between extrusions and subgirts.

2.1.3.5 Subgirts: If required, to be manufactured from G-90 galvanized and shall be designed to accommodate expansion and contraction, dynamic movements and design load requirements.

2.1.3.6 Joint filler strip: same material and colour as panels. Use of caulking at joints is not acceptable.

3 INSTALLATION EXCUTION

3.1 WALL PANEL SYSTEM

3.1.1 Before proceeding, examine work of other sections upon which this section depends.

3.1.2 Install air barrier and subgirts.

3.1.3 Erect panels and joint filler strip in accordance with system manufacturer's details and instructions and so as to meet specified design criteria and performance.

3.1.4 Finished work shall be securely anchored, free of distortion and surface imperfections, uniform in colour.

3.1.5 Use concealed fastenings only.

3.1.6 Install panels plumb, true, level and in alignment to established lines and elevations.

3.2 CLEAN-UP

3.2.1 Remove protective film from panels.

3.2.2 Repair and touch-up with colour matching high grade enamel minor surface damage.

3.2.3 Replace damaged panels and components which cannot be satisfactorily repaired.

End of Section