



ACCU-PLY

Composite Wall System Specification 07410

1.0 GENERAL

1.1 RELATED WORK

- 1.1.1 Section 03300 Cast-in Place Concrete
- 1.1.2 Section 04200 Unit Masonry
- 1.1.3 Section 05100 Structural Metal Framing
- 1.1.4 Section 05500 Metal Fabrications
- 1.1.5 Section 07195 Air Barriers
- 1.1.6 Section 07200 Insulation
- 1.1.7 Section 07513 Membrane Roofing
- 1.1.8 Section 07600 Flashing and Sheet Metal

1.2 SYSTEM DESCRIPTION

- 1.2.1 Custom made, preformed, prefinished, aluminum composite, framed modular wall system.

1.3 PERFORMANCE REQUIREMENTS (DESIGN CRITERIA)

- 1.3.1 Panel: Metal panel system, including its support and attachments, shall be designed to resist positive and negative wind loads as calculated in the latest edition of the National Building Code of Canada and its supplement, using a 1/30 return period. Adequate stiffening shall be provided to prevent wind induced vibrations and fatigue problems.
- 1.3.2 Deflection Movement: Maximum deflection not to exceed L/180. The panel shall exhibit no permanent deformation when subject to these loads. Allowance shall be made in the panel design for movement within the system caused by deflection in the building structure.
- 1.3.3 Thermal Movement: Allowance shall be made for expansion and contraction of all parts of the metal panel assembly caused by surface temperatures varying from minus 40 degrees Celsius to plus 40 degrees Celsius. Such variation in temperature shall not cause buckling, stress on enclosed or adjoining materials or fasteners, or in any way impair the performance or appearance of the system.
- 1.3.4 Sub system design to incorporate a gridlock extrusion system on drywall or other support sub-wall systems.
- 1.3.5 No exterior panel joint caulking will be permitted.
- 1.3.6 Fastening: Panel assembly shall be fastened to the building structure in a manner, which transmits all loads to the main structure without exceeding the capacity of any fastener.

1.4 FIELD QUALITY CONTROL

- 1.4.1 Inspection: the manufacturer's representative prior to the enclosure and concealment of these products shall carry out thorough inspections of the air barrier and insulation in the system.
- 1.4.2 All walls and openings are to within $\pm 3\text{mm}$ ($\pm 1/8"$) of location shown on architectural drawings. Also, structure is to be plumb within 1:1000 of overall height.
- 1.4.3 Final inspection and approval of completed work shall be carried out by the manufacturer's representative and the contractor.

1.5 REFERENCES

- 1.5.1 ASTM A653 "Standard Specification for Sheet Steel, Zinc Coated (Galvanized) by the Hot Dip Process".
- 1.5.2 ASTM B209 Aluminum Sheet and Plate

1.5.3. ASTM B221 Extruded Aluminum Shapes.

1.6 SUBMITTALS (SHOP DRAWINGS)

- 1.6.1 Drawings: Contractor's drawings shall clearly indicate by wall elevations and/or section details all material thickness', finishes connections, inserts, joint conditions, method of anchorage, number of anchors, supports, fastenings reinforcements, method of supporting and integrating mechanical and electrical fixtures, trim and accessories.
- 1.6.2 Design: Calculations shall be signed and sealed by a Professional Engineer, attesting to the ability of the metal panel assembly to withstand the specified loads, including inward and outward loads and loads under fastenings to the structure.
- 1.6.3 Identification: Panels shall be identified on shop drawings as to building location to facilitate panel removal and replacement due to construction and/or occupant damage.

1.7 DELIVERY, STORAGE AND HANDLING

- 1.7.1 Package, crate and cover components to protect surfaces from damage and deterioration.
- 1.7.2 Store components off ground to prevent twisting, bending and defacement. Slope to shed moisture.

1.8 MOCK UP

- 1.8.1 To be part of the finished wall system installed at a location, which will display typical connections of the project.

2.0 PRODUCTS

2.1 PANEL TYPE

- 2.1.1. Form modular panels from minimum 4mm prefinished composite aluminum sheet. The composite aluminum sheet will consist of two 0.51mm minimum aluminum skins bonded in a continuous process to a thermal-plastic core in low-density polyethylene (PE - for non-fire resistant applications). Aluminum skins to be alloy 3105 H25.
- 2.1.2. Acceptable system is **Accu-Ply** (PE) by Flynn Canada Ltd. or approved equal by the architect, 7 days prior to tender closing.

2.2 FABRICATION

- 2.2.1 All work to be fabricated with straight lines, square corners or smooth bends, free from twists or warps, kinks dents and other imperfections, which may affect appearance or serviceability.
- 2.2.2 Panel flatness in all directions across the surface to be a maximum of 0.06%.
- 2.2.3 System shall have a flush appearance from the exterior with no surface fixings or other irregularities and with no reveal other than the joint extrusion width.
- 2.2.4 Panels shall be aligned with no lap or reveal other than the extrusion width to permit expansion and contraction.
- 2.2.5 Fasteners used to fix the aluminum extrusions at panel joint lines to be hidden.
- 2.2.6 Thickness of metal and details of assembly and support shall provide sufficient strength and stiffness to resist distortion of finished surface.
- 2.2.7 Exposed edges and ends of metal shall be dressed smooth, free from sharp edges.

2.4 FASTENERS

- 2.4.1 Fasteners to be stainless steel and concealed at all locations. Sufficient quantities of fasteners of the proper size for fastening of the work shall be provided.

2.5 OPENINGS

- 2.5.1 Openings shall be provided and coordinated with the work of other installers. Holes to accommodate the work of other sections to be provided in the panel prior to finishing whenever possible. The perimeter of holes greater than 300mm x 300mm shall be reinforced to details shown on drawings or the manufacturers standard.

2.6 FLASHINGS

- 2.6.1 Wherever practical at corners, jambs and abutments, flashings will be permitted. Panel design to include for these connections. Flashings shall be prefinished material to match composite sheet.
- 2.6.2. Exposed surfaces of aluminum extrusions to be painted to match the finish of the panels. Colour(s) _____.

2.7 PANEL FINISHES

- 2.7.1 Prefinished fluorocarbon base with 70% Kynar Resins, Colour(s) _____.
- 2.7.2 Coating thickness to be 0.025mm (+- 0.005mm) to NCAA 11-12, F minimum using Eagle Turquoise T2375.
- 2.7.3 Impact test method ASTM D2794 Gardner variable impact tester.
- 2.7.4 Aluminum substrate to be alloy 3003 or 5052 conforming to ASTM B209.
- 2.7.5 Adhesion test methods NCAA 11-5 and ASTM 3359-02 crosshatched.

2.8 WEATHERING CHARACTERISTICS (to the following minimum standards)

- 2.8.1 Humidity Resistance: Test Methods ASTM D714-56, ASTM D2247-87. Coating shall have none or few blisters after 3000 hours.
- 2.8.2 Salt Spray Resistance: Test Method ASTM B-117-85 Salt Fog Cabinet. Coating shall have none or few blisters after 3000 hours.
- 2.8.3 Chemical Resistance: Test Method ASTM D 1308-79 Procedure 6.2. No discolouration or blistering after 15 minute spot test with 10% muriatic acid. No discolouration or blistering after 18 hour spot check with 20% sulfuric acid.
- 2.8.4 Abrasion Resistance: Test Method ASTM D968-81 Falling Sand. Coating shall resist abrasion of not less than 50 litres of sand.
- 2.8.5 Colour Retention: Test Method ASTM D2244-79. No colour change greater than the 5 NBS units when measured after 5000 hours.
- 2.8.6 No objectionable chalking in excess of 8 when rated per ASTM D-659-86.

3.0 EXECUTION

3.1 PREPARATION

- 3.1.1 Develop all dimensions from the architectural drawings and where possible coordinate with field dimensions to obtain final panel layout.

3.2 INSTALLATION

- 3.2.1. Prior to installation, inspect structural to ensure all walls and openings are within $\pm 3\text{mm}$ ($\pm 1/8"$) of location shown on architectural drawings. Also, structure is to be plumb within 1:1000 of overall height. Installation is not to proceed until the building is within these tolerances.
- 3.2.2. Support system shall be attached to the structure as required to transmit design loads.
- 3.2.3. Framing and other components shall be straight to match plane of panel as required to meet the installed panel tolerances with straight, sharply formed edges.
- 3.2.4. After their correct position has been determined and allowances for expansion, building movement, uniform joint width and alignment of all parts has been determined, the components shall be permanently fastened.
- 3.2.5. Installed panels shall not deviate from overall plane or alignment by more than 1:1000.
- 3.2.6. Install flashings to divert all moisture to the exterior.
- 3.2.7. Install exterior metal cladding to extrusion supports by hidden fasteners.
- 3.2.8. Remove all excess materials, debris and equipment at completion.
- 3.2.9. Clean all panels free of grim and dirt at time of installation.