

Partie 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 03 30 00 – Cast-in Place Concrete.
- .2 Section 05 21 00 – Steel Joist Framing.
- .3 Section 05 31 00 – Steel Decking.
- .4 Section 05 50 00 – Metal Fabrications.
- .5 Section 06 10 00 – Rough Carpentry.
- .6 Section 07 19 00 – Water Repellents.
- .7 Section 07 21 13 – Board Insulation.
- .8 Section 07 21 16 – Blanket Insulation.
- .9 Section 07 21 23 – Loose Fill Insulation.
- .10 Section 07 21 29.03 – Sprayed Insulation – Mineral Fibre.
- .11 Section 07 26 00 – Vapour Retarders.
- .12 Section 07 62 00 – Sheet Metal Flashing and Trim.
- .13 Section 07 92 00 – Joint Sealants.
- .14 Section 08 11 00 – Metal Doors and Frames.
- .15 Section 08 36 12 – Metal Sectional Doors.
- .16 Section 08 90 00 – Louvres and Vents.
- .17 Section 09 22 16 – Non-structural Metal Framing.

1.2 REFERENCES

- .1 Aluminum Association (AA)
 - .1 AA-DAF-45-03, Designation System for Aluminum Finishes.
- .2 ASTM International
 - .1 ASTM A653/A653M-11, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - .2 ASTM E96/E96M-10, Standard Test Methods for Water Vapor Transmission of Materials.
- .3 Canadian General Standards Board (CGSB)
 - .1 CGSB 41-GP-6M-83, Sheets, Thermosetting Polyester Plastics, Glass Fibre Reinforced.

- .4 Department of Justice Canada (Jus)
 - .1 Canadian Environmental Protection Act (CEPA), 1999 (R2008).
- .5 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .6 South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards
 - .1 SCAQMD Rule 1113-A2011, Architectural Coatings.
 - .2 SCAQMD Rule 1168-A2005, Adhesives and Sealants Applications.
- .7 The Master Painters Institute (MPI)
 - .1 Architectural Painting Specification Manual - current edition.
 - .1 MPI EXT 5.1C.
- .8 Underwriters Laboratories' of Canada (ULC)
 - .1 CAN/ULC-S702-09, Standard for Thermal Insulation, Polystyrene, Boards and Pipe Covering.
 - .2 CAN/ULC-S704-2011], Standard for Thermal Insulation, Mineral Fibre for Buildings.
 - .3 CAN/ULC-S706-09, Standard for Wood Fibre Insulating Boards for Buildings.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for cementitious materials and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Submit 2 copies of WHMIS MSDS in accordance with Section 01 35 29.06 - Health and Safety Requirements. Indicate VOC's for cementitious materials.
- .3 Shop Drawings:
 - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Quebec, Canada.
 - .1 Indicate dimensions, wall openings, head, jamb, sill and mullion detail, materials and finish, anchor details, compliance with design criteria and requirements of related work.
- .4 Samples:
 - .1 Submit duplicate 300 x 300 mm samples of wall system, representative of materials, finishes and colours.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.

- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials off ground, indoors, in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect cementitious panels from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.
- .4 Packaging Waste Management: remove for reuse and return by manufacturer of pallets, crates, padding, packaging materials as specified in Construction Waste Management Plan in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

1.5 ENVIRONMENTAL REQUIREMENTS

- .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and provision of material safety data sheets (MSDS) acceptable to Labour Canada.

1.6 ACCEPTABLE PRODUCTS AND MATERIALS

- .1 Where a particular brand name is stipulated, see Instructions to Bidders for procedure for requesting approval of substitute materials and products

Partie 2 Products

2.1 DESIGN REQUIREMENTS

- .1 Design composite building panel wall to provide for thermal movement of component materials caused by ambient temperature range of 75 degrees C without causing buckling, failure of joint seals, undue stress on fasteners or other detrimental effects.
- .2 Include expansion joints to accommodate movement in wall system and between wall system and building structure, caused by structural movements, without permanent distortion, damage to infills, racking of joints, breakage of seals, or water penetration.
- .3 Design members to withstand dead load and wind loads as calculated in accordance with NBC and applicable Municipal/Territorial regulations, to maximum allowable deflection of 1/180 of span.
- .4 Provide for positive drainage of condensation occurring within wall construction and water entering at joints, to exterior face of wall in accordance with NRC "Rain Screen Principles".
- .5 Design wall system to accommodate specified erection tolerances of structure.
- .6 Maintain following installation tolerances.
 - .1 Maximum variation from plane or location shown on approved shop drawings: 5 mm/m of length and up to 15 mm/100 m maximum.

- .2 Maximum offset from true alignment between two adjacent members abutting end to end, in line: 0.75 mm.

2.2 MATERIALS

- .1 Cementitious Board: 8 mm thick.
 - .1 Density: 1.9g/cm³.
 - .2 Modulus of elasticity: 16,000 Mpa.
 - .3 Modulus of rupture:
 - .1 Crosswise: 31 MPa.
 - .2 Lengthwise: 21 MPa.
 - .3 Average: 26 MPa.
 - .4 Maximum Shrinkage (10 years final): 1.7mm/m panel.
 - .5 Thermal expansion coefficient: 0.01 mm/m/⁰K.
 - .6 Frost resistance cycles: passed 1000 cycles.
 - .7 Weight of 8 mm panel: 16kg/m².
 - .8 UV resistance: 0.5 - 2 depending on colour.
 - .9 Acceptable product:
 - .1 Swisspearl, Xpressiv collection, Dark Grey 8220 colour.
 - .2 Replacement products and materials: approved by addendum in accordance with Instructions to Bidders.
- .2 Aluminum extrusions: Aluminum Association alloy AA6063-T5.
- .3 Sealants: Refer to Section 07 92 00 – Sealants.
- .4 Fasteners: stainless steel, purpose made, self tapping, provided by panel manufacturer, colour matched to panel colour.
- .5 Galvanized steel sheet: commercial grade to ASTM A653/A653M with Z275 zinc coating, 20 gauge, mill finish.
- .6 Aluminum sheet: mill finish, 0.80 mm thick.
- .7 Steel primer: to MPI EXT 5.1C.

2.3 COMPONENTS

- .1 Panels: Colour coating on 8 mm thick cement sheet.
- .2 Z bar assembly, galvanized steel, 20 gauge, 38 mm x 25 mm x 38 mm, installed vertically. Enamelled steel sheet backing, colour to match panels.
- .3 Horizontal joints: formed aluminum sheet, enamelled, pressure attached between panel and Z bar.
- .4 Extruded aluminum sections to ventilate and deflect water as indicated on drawings.

2.4 FABRICATION

- .1 Cut panels as indicated on drawings to provide 6 mm wide joint after installation.
- .2 Brake form metal flashings to profile required, in maximum lengths.
- .3 Paint ungalvanized steel clips, supports and reinforcing steel with steel primer or isolation coating.
- .4 Separate aluminum surfaces from galvanized steel surfaces to prevent electrolytic reactions.
- .5 Do not use silicon or polysulfide (Thiokol) seals which may stain surfaces. Verify compatibility of sealing compound with cementitious panes prior to application.

Partie 3 Execution

3.1 EXAMEN

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate in presence of Departmental Representative.
 - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.2 INSTALLATION

- .1 Follow manufacturer's installation recommendations.
- .2 Protect surface of metals in contact with concrete, mortar, plaster or other cementitious surface with isolation coating.
- .3 Touch up building framing members with primer as required.
- .4 Install vertical Z bars, spaced as indicated and according to panel dimensions.
- .5 Apply compression gaskets to framing members and formed aluminum sheet between horizontal joint Z sections.
- .6 Secure to building framing system with screws. Install sub-girt supports at panel joints.
 - .1 Ensure flatness and alignment to specified tolerances.
- .7 Install head and sill flashings, edge trim, cap pieces and fillers.
- .8 Insert prefinished panels into framing system, tight and flush against gasket, ensuring full contact:
 - .1 Space rivets horizontally along edge minimum 40 mm.
 - .2 Space rivets vertically along edge minimum 80 mm.
 - .3 Align joints in accordance with drawings and indicated tolerances.

- .9 Embed edges of panels cut on site in appropriate sealant provided by the panel manufacturer.

3.3 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Wash down exposed acrylic exterior surfaces using solution of mild domestic detergent in warm water, applied with soft clean wiping cloths.
 - .2 Wash down exposed aggregate exterior surfaces using fine water spray.
 - .3 Remove excess sealant with recommended solvent.
 - .4 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

3.4 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by mineral fibre reinforced panel installation.

END OF SECTION