

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 08 11 00 - Metal Doors and Frames.
- .2 Section 08 14 16 - Flush Wood Doors
- .3 Section 09 21 16 - Gypsum Board Assemblies.

1.02 REFERENCES

- .1 Aluminum Association (AA)
 - .1 AA DAF 45-03(R2009), Designation System for Aluminum Finishes.
- .2 American National Standards Institute (ANSI)
 - .1 ANSI/ICC A117.1-2009, Standard for Accessible and Usable Buildings and Facilities.
- .3 ASTM International
 - .1 ASTM A123/A123M-15, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
 - .2 ASTM A653/A653M-15e1, Standard Specification for Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by Hot-Dip Process.
 - .3 ASTM B32-08(2014), Standard Specification for Solder Metal.
 - .4 ASTM B456-11e1, Standard Specification for Electrodeposited Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium.
- .4 Canada Green Building Council (CaGBC)
 - .1 LEED® Canada 2009 Rating System, LEED® Canada for New Construction and Major Renovations.
- .5 CSA Group
 - .1 CSA W47.2-11(R2015), Certification of Companies for Fusion Welding of Aluminum.
 - .2 CSA W59-13, Welded Steel Construction (Metal Arc Welding).
 - .3 CSA W59.2-M1991(R2013), Welded Aluminum Construction.
- .6 Canadian Sheet Steel Building Institute (CSSBI)
 - .1 CSSBI SSF 6-2012, Sheet Steel Facts #6, Metallic Coated Sheet Steel for Structural Building Products.

- .7 Green Seal (GS)
 - .1 GS-11-2015, Standard for Paints and Coatings.
 - .2 GS-36-2013, Adhesives for Commercial Use.
- .8 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .9 South Coast Air Quality Management District (SCAQMD)
 - .1 SCAQMD Rule 1113-16, Architectural Coatings.
 - .2 SCAQMD Rule 1168-A2011, Adhesive and Sealant Applications.
- .10 Master Painters Institute (MPI)
 - .1 Architectural Painting Specification Manual - 2017 edition.
 - .1 MPI #76, Quick Dry Alkyd Metal Primer.
 - .2 MPI #96, Quick Dry Enamel Gloss.

1.03 ACTION AND INFORMATION 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 signage and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop Drawings:
 - .1 Submit drawings.
 - .2 Submit catalogue sheets and full size templates.
 - .3 Indicate materials, thicknesses, sizes, finishes, colours, construction details, removable and interchangeable components, mounting methods, schedule of signs.
 - .4 Submit full size templates for individually fabricated or incised lettering indicating word and letter spacing.
- .4 Samples:
 - .1 Submit duplicate representative samples of each type sign, sign image and mounting method including, but not limited to: graphics, cast letters, sign box installation method, channel letters, and wall plates fixed mounting installation method.

- .5 Sustainable Design Submittals:
 - .1 LEED Canada submittals: in accordance with Section 01 35 21 - LEED Requirements.
 - .2 Recycled Content:
 - .1 Submit listing of recycled content products used, including details of required percentages or recycled content materials and products, showing their costs and percentages of post-consumer and post-industrial content, and total cost of materials for project.
 - .3 Regional Materials: submit evidence that project incorporates required percentage 30% of regional materials and products, showing their cost, distance from project to furthest site of extraction or manufacture, and total cost of materials for project.
 - .4 Low-Emitting Materials:
 - .1 Submit listing of adhesives and sealants and paints and coatings used in building, showing compliance with VOC and chemical component limits or restriction requirements.

1.04 CLOSEOUT SUBMITTALS

- .1 Submit in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Operation and Maintenance Data: submit operation and maintenance data for incorporation into manual.

1.05 QUALITY ASSURANCE

- .1 Welding Certification in accordance with CSA W47.2.

1.06 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 indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

- .2 Store and protect specified materials from damage, and nicks, scratches, and blemishes.
- .3 Replace defective or damaged materials with new.

2 PRODUCTS

2.01 MATERIALS

- .1 Raised character (cut-out) letters, numbers, and pictographs shall be 3 mm acrylic adhered to 5 mm opaque acrylic using a solvent adhesive, square corners, and non glare finish; colour-contrast required. Adhesive shall not be permitted to squeeze out around the letters, to avoid damage to the acrylic surface.
- .2 Mounted with tamper-resistant stainless steel screws, countersunk.
- .3 Self-stick tape: VHB tape for sign purposes, with synthetic self-stick adhesive on both sides. Width: to suite sign size.
- .4 Number plates shall be sized to accommodate number location on the door frame.

2.02 GENERAL FABRICATION REQUIREMENTS

- .1 Fabricate signs in accordance with details, specifications and shop drawings.
- .2 Build units square, true, accurate to size, free from visual or performance defects.
- .3 Accurately fit and securely join sections to obtain tight, closed joints.
- .4 Allow for thermal movement without distortion of components.

2.03 SIGN GRAPHICS

- .1 Sign graphics shall be well defined, arranged for balanced appearance, and properly work and letter spaced.
- .2 Sign lettering to be 'sans serif' font.

2.04 ROOM AND NUMBER PLATES

- .1 Plastic door number plates:
 - .1 Fabricate from 5 mm thick opaque coloured acrylic sheet.
 - .2 Sign graphics: 3 mm thick raised acrylic white letters.
 - .3 Provide square corners.
- .2 Provide plastic plate for mounting on door head.
- .3 Plastic room and number plates:
 - .1 Provide combined room name and number as required.

2.05 WALL PICTOGRAPHS

- .1 Fabricate from 5 mm thick opaque coloured acrylic sheet.
- .2 Sign graphics: apply 3 mm thick white acrylic; use international symbols for male, female and barrier free, without words.
- .3 Fixed mounting: use stainless steel countersunk screws or self-stick foam tape in combination with liquid silicone.
- .4 Washroom pictographs: cut-out figures without backgrounds.
- .5 Refer to Drawings for room designations.

2.06 FEATURE SIGNAGE

- .1 Gemini Sign Letters (Gemini Incorporated), or similar: minimum digits and letters to be 300 mm high prefinished baked enamel individual cast aluminum consistent with Aluminum Association Alloy Designation C443.2 unless anodic coating selected in which case cast aluminum will conform with Aluminum Association Alloy Designation 514.2 or A514.2. Pin mount to structure; ensure attachment to structure is designed and installed to withstand loads, including wind, rain and snow loads.
- .2 Colour shall closely match approved project colours utilizing manufacturer's full range. Refer to drawings for location. Include template.
- .3 Sign wording as directed by Departmental Representative.

3 EXECUTION

3.01 EXAMINATION

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for signage installation 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.

3.02 INSTALLATION

- .1 Manufacturer's Instructions: compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and data sheets.
- .2 Erect and secure signs plumb and level at elevations as directed by Departmental Representative.
- .3 Comply with sign manufacturer's installation instructions and approved shop drawings.
- .4 Mechanical attachment:
 - .1 To concrete or solid masonry: use lag screws and expansion bolts or screws and fibre plugs, as appropriate for stresses involved.
 - .2 To hollow masonry: use toggle bolts or equivalent.
 - .3 To steel: use bolts with nut and lock washers, self-tapping screws.
 - .1 Do steel welding to CSA W59 and aluminum welding to CSA W59.2.
 - .2 Finish exposed welds flush and smooth.
 - .4 To wood: use screws.
 - .5 Secure into framing members behind stud walls or above ceilings.
 - .6 Mechanical fasteners on exterior: non-staining, non-ferrous type.
 - .7 Fabricate special fasteners as required for installation conditions.

- .8 Mechanical fasteners and methods of attachment subject to Departmental Representative's approval.
 - .1 Obtain Departmental Representative's approval before fixing to structural steel.
- .5 Adhesive attachment:
 - .1 Use self-stick adhesive foam tape to manufacturer's instructions to fix sign and prevent "rocking".
 - .2 Keep tape maximum 1.6 mm from edges.

3.03 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 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.
 - .1 Leave signs clean.
 - .2 Remove debris from interior of sign boxes.
 - .3 Touch up damaged finishes.
- .3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal and Section 01 35 21 - LEED Requirements.
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.04 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by work of this Section.

END OF SECTION

1 GENERAL

1.1 WORK INCLUDED

- .1 To complete signage construction and related accessories as shown, specified or required, and summarized but not restricted, to:
 - .1 Supply and installation of conventional traffic control signage and related accessories.

1.2 RELATED WORK

- .1 Section 01 35 43 Environmental Procedures
- .2 Section 32 23 11 Excavating, Trenching and Backfilling
- .3 Section 32 13 13 Sitework Concrete (footings for post mounted signage)

1.3 REFERENCE STANDARDS

- .1 Posts: to CAN/CGSB-138.2-96 Steel Framework for Chain Link Fence
- .2 ASTM A325-14 Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength
- .3 ASTM B209M Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
- .4 Transport Association of Canada - Manual of Uniform Traffic Control Devices for Canada - latest edition.
- .5 PEI Department of Transportation, Infrastructure and Energy (DOTIE), General Provisions and Contract Specifications for Highway Construction - Latest Edition

1.4 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 21.
- .2 Place materials defined as hazardous or toxic waste in designated containers.

- .3 Seal emptied containers and store safely for disposal.
- .4 Use sealers, form release and stripping agents that are non-toxic, biodegradable and have zero or low VOC's.

1.5 LEED DOCUMENTATION

- .1 Submit a LEED material submittal form as specified in Section 01 35 21 - LEED Requirements, to identify recycled and/or regional content of materials for inclusion by the Owner/Consultant in a submission for LEED certification.
- .2 Conform to the requirements outlined in Section 01 74 21 - Construction Waste Management.

1.6 SUBMITTALS

- .1 Submit shop drawings of all contractor supplied sign plaques, mounting brackets and hardware to Departmental Representative for approval prior to fabrication.

2 PRODUCTS

2.1 POSTS

- .1 Posts to CAN/CGSB-138.2, galvanized steel pipe. Dimensions as indicated on Drawings.

2.2 ROADWAY SIGN

- .1 Roadway traffic control signage to be to the prevailing standards of the PEI DOTIE and to meet the requirements of the TAC "Uniform Traffic Control Devices for Canada" and as specified.
- .2 Traffic sign plaques required: As noted on Drawings.
- .3 Aluminum sheet: to ASTM B209M precut to required dimensions. Thickness to be minimum 2.1mm.
- .4 Message panels to be prepared and finished to PEI DOTIE specifications for preparation, primer, finishing, materials and mounting to poles.

2.3 FASTENERS

- .1 Bolts, nuts, washers: to ASTM A325, stainless steel or approved cast aluminum alloy resistant to galvanic corrosion action with specified sign plaques or mounting structure.

3 EXECUTION

3.1 INSTALLATION

- .1 Verify that other construction at sign locations has been completed prior to beginning Work of this Section.
- .2 Construct post foundations as shown on Drawings and set posts plumb within 12mm in 3000mm.
- .3 Fasten signboards securely to supporting posts and brackets.
- .4 Bolt sign panels to brackets with dome head stainless steel bolts thru bolted, paint bolt heads to match panel colour.
- .5 Where sign message is single side, colour rear of panel white and paint bottom bracket white where it crosses rear of panel.
- .6 Height of sign panel above finished grade to be as noted on Drawings or as directed by Departmental Representative.
- .7 Ensure that all sharp edges and burrs are removed from finished sign installations.

3.2 SIGN SCHEDULE

- .1 Sign locations are as shown on site layout drawings and as directed by Departmental Representative.

3.3 PROTECTION

- .1 Protect and maintain work of this Section including accessories, until acceptance of project work.
- .2 Immediately remove from the site damaged signage and accessories. Replace, repair, re-finish, or otherwise make good to the approval of the Departmental Representative.

PSPC
Green Gables-Phase 2
New Visitors Centre
Queens Co., PEI
Project No. R.081199.001

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SITE SIGNAGE

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END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 05 50 00 - Metal Fabrications.
- .2 Section 06 10 00 - Rough Carpentry.
- .3 Section 10 28 10 - Toilet and Bath Accessories.

1.02 REFERENCES

- .1 ASTM International
 - .1 ASTM A240/A240M-13c, Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.
 - .2 ASTM A666-10, Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
 - .3 ASTM A743/A743M-13a, Standard Specification for Castings, Iron-Chromium, Iron-Chromium-Nickel, Corrosion Resistant, for General Application.
 - .4 ASTM B86-13, Standard Specification for Zinc and Zinc-Aluminum (ZA) Alloy Foundry and Die Castings.
 - .5 ASTM B221-13, Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
 - .6 ASTM D2197-13, Standard Test Method for Adhesion of Organic Coatings by Scrape Adhesion.
 - .7 ASTM D2794-93(2010), Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).
 - .8 ASTM D6578/D6578M-13, Standard Practice for Determination of Graffiti Resistance.
 - .9 ASTM E84-13a, Standard Test Method for Surface Burning Characteristics of Building Materials.
- .2 Canada Green Building Council (CaGBC)
 - .1 LEED® Canada 2009 Rating System, LEED® Canada for New Construction and Major Renovations.
- .3 CSA Group (CSA)
 - .1 CSA B651-12(R2017), Accessible Design for the Built Environment.
 - .2 CAN/CSA G164-M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.

- .4 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .5 South Coast Air Quality Management District (SCAQMD)
 - .1 SCAQMD Rule 1168-A2011, Adhesive and Sealant Applications.
- .6 Underwriter's Laboratories of Canada (ULC)
 - .1 CAN/ULC S102-11, Standard Method of Tests for Surface Burning Characteristics of Building Materials and Assemblies.

1.03 PRE-INSTALLATION MEETINGS

- .1 Pre Installation Meetings: convene pre-installation meeting one week prior to beginning work of this Section and on-site installation, with contractor's representative and Departmental Representative in accordance with Section 01 32 16.07 - Construction Progress Schedule - Bar (GANTT) Chart to:
 - .1 Verify project requirements.
 - .2 Review installation and substrate conditions.
 - .3 Coordinate building trades.
 - .4 Review manufacturer's installation instructions.

1.04 ACTION AND INFORMATION SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's printed fabrication and installation instructions, printed product literature and technical datasheets for plastic toilet compartments and include product characteristics, performance criteria, physical size, finish, and limitations.
- .3 Submit 2 copies of WHMIS MSDS in accordance with Section 01 35 29.06 - Health and Safety Requirements.
- .4 Shop Drawings:
 - .1 Submit drawings and indicate fabrication details, plans, elevations, hardware, and installation details.

- .5 Samples:
 - .1 Submit duplicate 300 x 300 mm samples of panel showing finish on both sides, two finished edges and core construction.
 - .2 Submit duplicate representative samples of each hardware item, including brackets, fastenings and trim.
- .6 Submit test reports and certificates specified.
- .7 Manufacturer's field reports: submit manufacturer's written reports within 3-days of review, verifying compliance of Work.
- .8 Submit closeout data in accordance with Section 01 78 00 - Closeout Submittals:
 - .1 Provide manufacturer's printed recommendations for general maintenance, including cleaning instructions.
 - .2 Submit warranty.
- .9 Sustainable Design Submittals:
 - .1 LEED Canada submittals: in accordance with Section 01 35 21 - LEED Requirements.
 - .2 Recycled Content:
 - .1 Submit listing of recycled content products used, including details of required percentages or recycled content materials and products, showing their costs and percentages of post-consumer and post-industrial content, and total cost of materials for project.
 - .3 Regional Materials: submit evidence that project incorporates required percentage 20% of regional materials and products, showing their cost, distance from project to furthest site of extraction or manufacture, and total cost of materials for project.

1.05 COORDINATION AND SEQUENCING

- .1 Coordinate installation of anchorages for metal fabrications. Furnish setting drawings, templates, and direction for installing anchorages, including sleeves, inserts, anchor bolts, and items with integral anchors, that are to be incorporated into gypsum board assembly construction. Deliver such items to project site in time for installation in conformance with Construction Schedule.

1.06 QUALITY ASSURANCE

- .1 Source Limitations: Obtain toilet compartment components and accessories from single manufacturer.
- .2 Accessibility Requirements: Comply with requirements of CSA B651, and with requirements of authorities having jurisdiction
- .3 Test Reports: certified test reports showing compliance with specified requirements.
- .4 Certificates: product certificates signed by manufacturer certifying materials comply with requirements.

1.07 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 Do not deliver toilet compartments to site until building is enclosed and HVAC systems are in operation.
- .3 Deliver, handle, and store units in accordance with manufacturer's instructions.
- .4 Store units on raised wood pallets protected from the elements and corrosive materials.
- .5 Do not remove from crates or other protective covering until ready for installation.

1.08 PROJECT CONDITIONS

- .1 Field Measurements: where metal fabrications are indicated to fit walls and other construction, verify dimensions by field measurements before fabrication and indicate measurements on shop drawings. Coordinate fabrication schedule with Construction Schedule to avoid delaying the project work.
 - .1 Establish Dimensions: where field measurements cannot be made without delaying the Construction Schedule, establish dimensions and proceed with fabrications without field measurements. Coordinate wall and other contiguous construction to ensure actual dimensions correspond to established dimensions.
 - .2 Provide allowance for trimming and fitting at site.

1.09 WARRANTY

- .1 Manufacturer's Warranty: Provide manufacturer's warranty in which manufacturer agrees to repair or replace products that fail in materials or workmanship.
- .2 For the work of this Section, the 12 month warranty period prescribed in Subsection GC 32.1 of General Conditions "C" is extended to 24 months.

2 PRODUCTS

2.01 PERFORMANCE REQUIREMENTS - TOILET PARTITIONS

- .1 Graffiti Resistance (ASTM D6578): Passed cleaning test; 5 staining agents.
- .2 Scratch Resistance (ASTM D2197): Maximum load value exceeds 10 kilograms.
- .3 Impact Resistance (ASTM D2794): Maximum impact force exceeds 30 inch pounds.
- .4 Smoke Developed Index (CAN/ULC S102): Less than 450.
- .5 Flame Spread Index (CAN/ULC S102): Less than 75.
- .6 National Fire Protection Association/International Building Code Interior Wall and Ceiling Finish: Class B.
- .7 Uniform Building Code: Class II.
- .8 Provide support system for partitions and screens capable of withstanding effects of loads and stresses.
- .9 Meet requirements of NBC and requirements of authorities having jurisdiction.

2.02 MATERIALS

- .1 Phenolic Core: Compressed cellulose impregnated with phenolic resins. Provide smooth material, without creases or ripples.
- .2 Zinc Aluminum Magnesium and Copper Alloy (Zamac): to ASTM B86.
- .3 Stainless Steel Sheet: to ASTM A240 or A666, 300 series.

- .4 Stainless Steel Castings: to ASTM A743/A743M.
- .5 Aluminum: to ASTM B221.

2.03 COMPONENTS

- .1 General:
 - .1 Toilet Partitions: floor mounted, overhead braced.
 - .2 Urinal Screens: wall mounted.
 - .3 Supply and install structural support as required.
- .2 Door, Panel, and Pilaster Construction: solid phenolic core, composed of compressed cellulose fibers impregnated with resins. The surface laminate shall be fused to the resin impregnated core. All edges shall be machined and finished smooth with a 15 degree beveled edge. Material shall not delaminate even under extreme conditions. Materials shall be non-absorbent, impact and graffiti resistant. Materials shall be impervious to steam, soaps and detergents and will not mildew.
 - .1 Provide exposed surfaces free of pitting, visible seams and fabrication marks, stains, telegraphing of core material, or other imperfections.
 - .2 Core Material: Manufacturer's standard solid resin core of thickness required to provide finished thickness for doors, panels and pilasters.
- .3 Panels / Screens: shall be 13 mm thick, constructed from solid phenolic core.
- .4 Doors: shall be 19 mm thick, constructed from solid phenolic core.
- .5 Pilasters: shall be 19 mm thick, constructed from solid phenolic core. They shall be secured through the face of the shoe using Torx-head thru-bolts, 8 mm lag screw(s) (provided in manufacturer's shoe kit) shall be added to the floor edge of the pilaster for leveling.
- .6 Hardware, Heavy Duty: Manufacturer's heavy-duty stainless steel castings, including stainless steel tamper-resistant fasteners:
 - .1 Hinges: Self-closing surface mounted, through bolted, with gravity cams, adjustable to hold doors open at any angle up to 90 degrees, with emergency access by lifting door. Mount with stainless steel through-bolts.

- .2 Latch and Keeper: Surface-mounted slide latch with flat rubber-faced combination door strike and keeper, with provision for emergency access, meeting requirements for accessibility at accessible compartments.
- .3 Coat Hook: Combination hook and rubber-tipped stop, sized to prevent door from hitting compartment-mounted accessories. Provide wall bumper where door abuts wall. Provide formed L-shaped hook without stop at outswing doors. Mount with stainless steel through-bolts.
- .4 Door Pull: Barrier-free type suited for out-swinging doors, stainless steel.

- .7 Brackets: brackets shall be Type 304 stainless steel stirrup-type, single-ear, double-ear and U-brackets, with No.4 satin brushed finish.
- .8 Headrail: headrail shall be etched and anodized extruded aluminum with an anti-grip profile. It shall clamp over the pilaster and secure at the wall with stainless steel brackets.
- .9 Shoes: shoes shall be 1-piece, 100 mm high, Type 304 stainless steel with #4 satin brushed finish and shall be secured to the floor with Torx-head screws.
- .10 Urinal screens, 1070 mm high, of same construction as toilet partitions, to be wall hung with heavy-duty wall brackets, 3 per panel.

2.04 FABRICATION

- .1 Fabricate compartments in accordance with CAN/CSA B651.
- .2 Provide manufacturer's standard corrosion-resistant supports, leveling mechanism, and anchors at pilasters to suit floor conditions. Provide shoes at pilasters to conceal supports and leveling mechanism.
- .3 Privacy: partition manufacturer shall fabricate doors and panels tight together, gap free, to eliminate vertical gaps.

- .4 Door Size and Swings: Unless otherwise indicated, provide 660-mm wide, in swinging doors for standard toilet compartments and 914-mm wide, out swinging doors with a minimum 813-mm wide clear opening for compartments designated as accessible.
- .5 Provide formed and closed edges for doors, panels and pilasters. Miter and weld corners and grind smooth.
- .6 Provide internal reinforcement at areas of attached hardware and fittings. Temporarily mark location of reinforcement for tissue holders and grab bars.

2.05 FINISH

- .1 Finish: Doors and pilaster/panels same colour; colour as selected by Departmental Representative from manufacturer's full range.

3 EXECUTION

3.01 EXAMINATION

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for plastic toilet compartments installation 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.

3.02 INSTALLATION

- .1 Ensure supplementary anchorage, if required, is in place.
- .2 Do work in accordance with CSA B651.

3.03 ERECTION

- .1 Install partitions secure, plumb and square.
- .2 Provide and install manufacturer's recommended components for complete privacy of visible spaces between doors and pilasters, pilasters and panels and at walls.
- .3 Anchor mounting brackets to masonry or concrete surfaces using screws and shields: to hollow walls using bolts and toggle type anchors, and to steel supports with bolts in threaded holes.
- .4 Attach panel and pilaster to brackets with through-type sleeve bolt and nut.
- .5 Provide for adjustment of ceiling variations with screw jack through steel saddles made integral with pilaster. Conceal ceiling fixings with stainless steel shoes.
- .6 Provide templates for locating threaded studs through finished ceilings.
- .7 Equip each door with hinges, latch set, and coat hooks, and as follows:
 - .1 Mount coat hook on door.
 - .2 Provide 1 coat hook at 1650 mm for standard stalls.
 - .3 Provide 1 additional coat hook (2 total) at 1250 mm from floor on barrier free door:
 - .1 Adjust and align hardware for easy, proper function.
 - .2 Set door open position at 30° to front, and in compliance with CSA B651 at accessible units. Install door bumper; door mounting.
- .8 Equip out-swinging doors with door pulls on inside and outside of door in accordance with CSA B651.
- .9 Headrail braced partitions installation:
 - .1 Attach pilasters to floor with pilaster supports and level, plumb, and tighten installation with levelling device.
 - .2 Secure pilaster shoes in position.
 - .3 Secure headrail to pilaster face with not less than two fasteners per face.
 - .4 Set tops of doors parallel with overhead brace when doors are in closed position.

.10 Screen installation:

- .1 Provide urinal stall screens consisting of panel and pilaster as specified for toilet compartments.
- .2 Anchor screen panels to walls with 3 panel brackets.

3.04 ADJUSTING

- .1 Hardware Adjustment: Adjust and lubricate hardware according to hardware manufacturer's written instructions for proper operation. Set hinges on out swinging doors to return doors to fully closed position.

3.05 FILED QUALITY CONTROL

- .1 Manufacturers' Field Services:
 - .1 Provide manufacturers' field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions

3.06 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 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 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal and Section 01 35 21 - LEED Requirements.
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.07 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by Work of this Section.

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 06 10 00 - Rough Carpentry.
- .2 Section 09 21 16 - Gypsum Board Assemblies.

1.02 REFERENCES

- .1 ASTM International (ASTM)
 - .1 ASTM D5420-16, Standard Test Method for Impact Resistance of Flat, Rigid Plastic Specimen by Means of a Striker Impacted by a Falling Weight (Gardner Impact).
- .2 California Department of Public Health
 - .1 California Specification 01350, Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emission from Indoor Sources Using Environmental Chambers, Version 1.1, February 2010.
- .3 Canada Green Building Council (CaGBC)
 - .1 LEED® Canada 2009 Rating System, LEED® Canada for New Construction and Major Renovations.
- .4 Underwriters Laboratories of Canada (ULC)
 - .1 CAN/ULC S102-10, Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.

1.03 ACTION AND INFORMATION 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 fiberglass reinforced protective wall covering materials and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Installation Drawings:
 - .1 Indicate on drawings large scale details, materials, finishes, dimensions, anchorage and assembly.

- .4 Samples:
 - .1 Submit duplicate samples of manufacturer's colour options for initial selection and verification prior to ordering materials. Verification: ensure acceptance before ordering materials.
- .5 Test Reports:
 - .1 Submit certified test reports showing compliance with specified performance characteristics and physical properties.
- .6 Certificates:
 - .1 Submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .7 Sustainable Design Submittals:
 - .1 LEED Canada submittals: in accordance with Section 01 35 21 - LEED Requirements.
 - .2 At project start-up meeting, submit LEED Conformance Submittals for the following:
 - .1 Adhesives: Documentation identifying that VOC content is less than the VOC limits of State of California's South Coast Air Quality Management District (SCAQMD) Rule #1168.
 - .2 Sealants: Documentation identifying that VOC content is less than the VOC limits of State of California's South Coast Air Quality Management District (SCAQMD) Rule #1168.

1.04 QUALITY ASSURANCE

- .1 Surface-Burning Characteristics: Determined by testing identical products according to CAN/ULC S102 by a testing agency acceptable to authorities having jurisdiction.
 - .1 Flame-Spread Index: 25, equal to or less.
 - .2 Smoke-Developed Index: 450, equal to or less.
- .2 Test Reports:
 - .1 Submit certified test reports showing compliance with specified performance characteristics and physical properties.

- .3 Certificates:
 - .1 Submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .4 Mock-Ups:
 - .1 Install at Project site a mock-up using acceptable products and manufacturer-approved installation methods.
 - .2 Construct mock-up at location determined by Departmental Representative.
 - .3 Obtain Departmental Representative approval and acceptance of finish, color, texture, pattern, trim, fasteners, and quality of installation
 - .4 Mock-Up Size: full project height, full panel width, 2 panels demonstrating inside or outside corner treatment and attachment to substrate.
 - .5 Maintain mock-up during construction for quality comparison.
 - .6 Mock-up may be incorporated into final construction upon Departmental Representative approval.

1.05 PROJECT CONDITIONS

- .1 Do Not Begin Installation Until:
 - .1 Permanent heating and cooling equipment is in operation.
 - .2 Residual moisture from plaster, concrete, or terrazzo has dissipated.
- .2 During installation and within 48-hours before installation, maintain ambient temperature and relative humidity within limits required by type of plastic protective panel adhesive used and adhesive manufacturer's instructions.

1.06 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 indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect materials from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.

1.02 WARRANTY

- .1 For the work of this Section, the 12 month warranty period prescribed in Subsection GC 32.1 of General Conditions "C" is extended to 24 months.

2 PRODUCTS

2.01 WALL PANELS

- .1 Wall Panels:
 - .1 Types: FRP or 100% PVCu, GREENGUARD certified.
- .2 Approvals and Compliance:
 - .1 USDA/FDA compliant.
 - .2 Meets or surpasses hygienic standards of USP 797.
 - .3 VOC emissions: to California Specification 01350, pass.
 - .4 Impact Strength, ASTM D5420: ≥ 160 inch-pounds.
- .3 Dimensions: ≥ 2.3 mm thick, 1220 mm x 2440 mm.
- .4 Texture: smooth, or pebbled embossed texture.
- .5 Fire Rating: Class I/A.
- .6 Colour: standard white, or as otherwise selected by Departmental Representative from manufacturer's full range.

2.02 ACCESSORIES

- .1 Panel manufacturer's supplied or recommended joint strips, cut-tile transition strips, start and edge trim, polyurethane adhesive, caulking and mastic compounds and tools, and other accessories as required for a complete installation.
- .2 Stainless steel corners guards: to Section 10 26 00.01 - Wall and Corner Guards.

- .3 Welding rods: panel manufacturer's supplied or recommended weld rod.
- .4 Panel Seam Sealant: Bright white, 2-part urethane sealant, as recommended by panel manufacturer; VOC Content: 0.0 g/L; refer to Section 07 92 00 - Joint Sealants for perimeter joint sealants.
- .5 Rivets: Nylon drive rivets supplied by panel manufacturer, colour to match panels.

2.03 SOURCE QUALITY CONTROL

- .1 Quality control processes shall comply with requirements of Section 01 45 00 - Quality Control.
- .2 Obtain wall products from a single manufacturer, either by direct supply or combination of direct supply and factory recommendation. Factory recommendations shall be in writing and signed by factory-authorized signing authority.

3 EXECUTION

3.01 EXAMINATION

- .1 Verification of Conditions: verify that conditions are acceptable for product installation in accordance with manufacturer's written instructions.
 - .1 Check and verify that no irregularities exist that would affect quality of execution of work specified.
 - .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.

3.02 MANUFACTURER'S INSTRUCTIONS

- .1 Compliance: comply with wall covering manufacturer's printed assembly and installation instructions, technical datasheets, and recommended details.

3.03 PREPARATION

- .1 Clean substrates to remove substances that could impair bond of adhesive, including oil, grease, dirt, dust, or other contaminates.
- .2 Pre-condition panels by unpacking and placing in installation space a minimum of 24-hours before installation.
- .3 Lay out panels before beginning installation.
 - .1 Locate panel joints to provide equal panel widths at ends of walls.
 - .2 Locate panel joints to provide trimmed panels at corners a minimum of 300 mm wide.
- .4 Treat absorbent or porous substrates with manufacturer's recommended primer, applied to surface minimum 12-hours' prior to panel installation.
- .5 All electrical switches, power points etc., shall be in a first fix / installation state; if not found in this state, notify Departmental Representative. All electrical equipment shall only be moved or altered by a qualified electrician.
- .6 All plumbing should have pipe-work removed to a first fix or installation state and tails left protruding from the substrate; if not found in this state, notify Departmental Representative. Drill panels and slide over the pipe tails. All holes shall be drilled 3 mm oversize to allow for expansion, then sealed with manufacturer's recommended caulking. Plumbing work shall be done by a qualified plumber.
- .7 Hot pipes and steam pipes shall be insulated and a 3 to 6 mm expansion gap shall be created when installing panels around these pipes, then sealed with manufacturer's recommended sealant.
- .8 All pipes, fixing bolts, etc. extending through the panels shall have a minimum 3 mm expansion gap and be sealed using manufacturer's recommended sealant.
- .9 If fitting to door frames, place frames prior to installation of panels.

- .10 Complete any painting that may come in contact with panels prior to panel installation. Paint to be dry and past initial set before commencing panel installation.

3.04 INSTALLATION

- .1 Install panels in accordance with manufacturer's printed installation guide at locations indicated on the Drawings, plumb, level, square, flat, and in proper alignment. Installation methods and materials shall meet panel manufacturer's warranty conditions and requirements.
- .2 Install panels to be water-resistant and washable, and with manufacturer's recommended gap for panel field and corner joints.

3.05 FIELD QUALITY CONTROL

- .1 Manufacturer's Field Services: If requested by Departmental Representative, provide manufacturer's field service consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.
 - .1 Site Visits: prior to commencement of Work of this Section for review and training purposes, at 60% for review, and at completion of Work of this Section for Warranty review.

3.06 ADJUSTING

- .1 Repair minor damages to finish in accordance with manufacturer's instructions and as approved by Departmental Representative.
- .2 Remove and replace with new material, damaged components that cannot be successfully repaired, as determined by Departmental Representative.

3.07 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 Perform cleaning after installation to remove construction and accumulated environmental dirt.

- .3 Clean surfaces after installation using manufacturer's written recommended cleaning procedures.
- .4 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.
- .5 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .6 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal and Section 01 35 21 - LEED Requirements.
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.08 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by wall and corner guards installation.

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 06 10 00 - Rough Carpentry.
- .2 Section 09 21 16 - Gypsum Board Assemblies.

1.02 REFERENCES

- .1 ASTM International
 - .1 ASTM A167-99(2009), Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
 - .2 ASTM B456-03, Standard Specification for Electrodeposited Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium.
 - .3 ASTM A653/A653M-13, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - .4 ASTM A924/A924M-13, Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.
 - .5 ASTM C1503-08, Standard Specification for Silvered Flat Glass Mirror.
- .2 CSA Group (CSA)
 - .1 CSAB651-12(R2017), Accessible Design for the Built Environment.
 - .2 CAN/CSA G164-M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.

1.03 ACTION AND INFORMATION SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Provide manufacturer's printed product literature and data sheets and include product characteristics, performance criteria, physical size, finish and limitations.

- .3 Shop Drawings:
 - .1 Submit drawings indicating size and description of components, base material, surface finish inside and out, hardware and locks, attachment devices, description of rough-in-frame, building-in details of anchors for grab bars.
 - .2 Shop drawings for grab bars, building-in details, and attachment to structure shall be designed, signed and sealed by a structural engineer licensed to practice in the Province of Prince Edward Island. The installed grab bars shall be able to withstand a minimum downward pull of 2.2 kN. Shop Drawings to include engineering calculations.

- .4 Samples:
 - .1 Submit samples for review and acceptance.
 - .2 Samples will be returned for inclusion into work.

1.04 CLOSEOUT SUBMITTALS

- .1 Provide maintenance data for toilet and bath accessories for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.
 - .1 Include list of sources for disposable supplies, replacement parts and service recommendations.

1.05 MAINTENANCE MATERIAL SUBMITTALS

- .1 Tools:
 - .1 Provide special tools required for assembly, disassembly or removal for toilet and bath accessories in accordance with requirements specified in Section 01 78 00 - Closeout Submittals.
 - .2 Deliver special tools to Departmental Representative.

1.06 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 indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect toilet and bathroom accessories from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.

2 PRODUCTS

2.01 MATERIALS

- .1 Sheet steel: to ASTM A653/A653M with ZF001 designation zinc coating.
- .2 Stainless steel sheet metal: to ASTM A167, Type 304, with satin finish.
- .3 Stainless steel tubing: Type 304, commercial grade, seamless welded, minimum 1.2 mm wall thickness.
- .4 Fasteners: concealed screws and bolts hot dip galvanized, exposed fasteners to match face of unit. Expansion shields fibre, lead or rubber as recommended by accessory manufacturer for component and its intended use.
- .5 To the extent possible, supply products from a single manufacturer for all locations and components.

2.02 COMPONENTS

- .1 Toilet tissue dispenser: double roll type, surface mounted, chrome plated steel frame, capacity of 500 double ply roll, roll under spring tension for controlled delivery.
- .2 Paper towel dispenser: for roll paper towels, stainless steel cabinet, hinged front panel, refill indicator slot, lock and key, surface mounted.
- .3 Hand dryer: listed under re-examination service of ULC and CSA approved.
 - .1 Surface mounted, 115 Volt AC, 12.5 Amp, 900 Watts, 60 Hz, automatic sensor cycle warm air hand dryer, GREENSPEC approved and LEED Rated.
 - .2 Mounting height: as required by Manufacturer.
 - .3 Stainless steel cover.

- .4 Electronic dryer: power controlled by infrared admitting, receiving electronic control device positioned to dryer on when hands are placed under nozzle. Operation to continue for no more than 80 seconds of continued use. Filed adjustivbel.
- .4 Soap dispenser: liquid push-in valve, 102 mm spout, self-contained 340 mL translucent polyethylene 1.14 L tank, stainless steel piston and valve assembly, tamper proof filler lock, surface mounted, exposed metal components stainless steel.
- .5 Feminine napkin disposal bin: stainless steel, surface unit, continuous hinged door, self-closing, embossed with "napkin disposal", "receptacle de serviette-sanitaire" and universally accepted symbol, removable stainless steel receptacles fitted with spring clip for deodorizer block.
- .6 Grab bars: length(s) as indicated, satin finish, concealed mounting flanges, screw attachment, flanges welded to tubular bar, provided with steel back plates and all accessories. Knurl bar at area of hand grips. Grab bar material and anchorage shall be designed and installed to withstand downward pull of 2.2 kN.
- .7 Coat hooks: stainless steel with 75 mm projection.
- .8 Fixed mirrors: wall-mounted using hidden fastener system, frame of type 304 stainless steel, satin finish, No. 1 quality 6 mm thick select float glass mirror to ASTM C1503, 610 mm wide x 914 mm high or as otherwise indicated.
- .9 Diaper changing station: surface mounted wall unit of high impact fungi and bacteria resistant polyethylene, concealed full-length steel on steel hinge assembly, sanitary liner dispenser, safety belt, safety instructions in both official languages and graphic illustration, labelled with universally accepted symbol.

2.03 FABRICATION

- .1 Weld and grind joints of fabricated components flush and smooth. Use mechanical fasteners only where approved.
- .2 Wherever possible form exposed surfaces from one sheet of stock, free of joints.

- .3 Form surfaces flat without distortion. Maintain flat surfaces without scratches or dents.
- .4 Back paint components where contact is made with building finishes to prevent electrolysis.
- .5 Hot dip galvanize concealed ferrous metal anchors and fastening devices to CAN/CSA G164.
- .6 Shop assemble components and package complete with anchors and fittings.
- .7 Deliver inserts and rough-in frames to job site at appropriate time for building-in. Provide templates, details and instructions for building in anchors and inserts.
- .8 Provide steel anchor plates and components for installation on studding and building framing.

2.04 FINISHES

- .1 Stainless steel Type 304 with satin finish.
- .2 Manufacturer's or brand names on face of units not acceptable.

3 EXECUTION

3.01 EXAMINATION

- .1 Verification of Conditions: verify that conditions of substrates and surfaces to receive toilet and bathroom accessories previously installed under other Sections or Contracts are acceptable for product installation in accordance with manufacturer's instructions prior to toilet and bathroom accessories installation.
- .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
- .3 Proceed with installation only after unacceptable conditions have been remedied.

3.02 PREPARATION

- .1 Verify wall thickness and construction that will accept recessed accessories.

- .2 Verify that solid blocking for support and anchoring of washroom accessories is installed where required. Confirm exact height and location with Consultant and Manufacturers Instructions.
- .3 Verify that frames and anchors provided, whether by this Section or others, are correctly and securely installed ready to accept the accessory scheduled for the specific location.
- .4 Verify that painting is complete and dry in area of installation before accessories are installed.

3.03 INSTALLATION

- .1 Install and secure accessories rigidly in place as follows:
 - .1 Stud walls: install steel back-plate to stud prior to plaster or drywall finish. Provide plate with threaded studs or plugs.
 - .2 Hollow masonry units, existing plaster or drywall: use toggle bolts drilled into cell or wall cavity.
 - .3 Solid masonry, marble, stone or concrete: use bolt with lead expansion sleeve set into drilled hole.
 - .4 Toilet and shower compartments: use male to female through bolts.
- .2 Install grab bars on built-in anchors provided by bar manufacturer in accordance with engineered shop drawings.
- .3 Use tamper-proof screws/bolts for fasteners.
- .4 Fill units with necessary supplies shortly before final acceptance of building.
- .5 Install mirrors in accordance with manufacturer's printed installation requirements and installation details.

3.03 ADJUSTING

- .1 Adjust toilet and bathroom accessories components and systems for correct function and operation in accordance with manufacturer's written instructions.
- .2 Lubricate moving parts to operate smoothly and fit accurately.

3.04 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning. 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 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal and Section 01 35 21 - LEED Requirements. Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.05 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by toilet and bathroom accessories installation.

3.06 SCHEDULE

- .1 Locate accessories where indicated and to CSA B651. Exact locations determined by Departmental Representative.

END OF SECTION

1 GENERAL

1.1 WORK INCLUDED

- .1 Supply and installation of aluminum flagpole including reinforced concrete foundations, hardware and finishes.

1.2 RELATED WORK

- .1 Section 01 35 43 Environmental Procedures
- .2 Section 31 23 11 Excavation, Trenching and Backfilling
- .3 Section 32 13 13 Sitework Concrete

1.3 REFERENCE STANDARDS

- .1 The Aluminum Association (AA)
 - .1 DAF 45, Designation System for Aluminum Finishes.
- .2 ASTM B241/B241M Standard Specification for Aluminum and Aluminum - Alloy Seamless Pipe and Seamless Extruded Pipe.

1.4 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 21.
- .2 Place materials defined as hazardous or toxic waste in designated containers.
- .3 Seal emptied containers and store safely for disposal.
- .4 Use sealers, form release and stripping agents that are non-toxic, biodegradable and have zero or low VOC's.

1.5 LEED DOCUMENTATION

- .1 Submit a LEED material submittal form as specified in Section 01 35 21 - LEED Requirements, to identify recycled and/or regional content of materials for inclusion by the Owner/Consultant in a submission for LEED certification.
- .2 Conform to the requirements outlined in Section 01 74 21 - Construction Waste Management.

1.6 WARRANTY

- .1 Guarantee work for a period of one year after installation against workmanship, heaving, settlement and other product failure.

1.7 QUALITY ASSURANCE

- .1 Provide each flagpole as complete unit produced by single manufacturer, including fittings, accessories, bases and anchorage devices.

1.8 DELIVERY AND STORAGE

- .1 Check materials upon delivery to assure proper material has been received.
- .2 Prevent excessive mud, mortar, and like material from coming in contact with the materials.
- .3 Protect materials from damage. Do not damage coatings. Do not incorporate damaged materials into the project. Promptly remove damaged material from the site.
- .4 Store materials only in designated areas.
- .5 Maintain protection of this Work from time of installation until final finishes are applied.

1.9 ALLOWABLE TOLERANCES

- .1 Finish work within 12mm of specified elevations and locations.

1.10 SUBMITTALS

- .1 Submit shop drawings for flag pole and foundation as per project requirements.
 - .1 Installation instructions, materials and hardware. Indicate dimensions, finishes, base jointing, anchoring and support systems, cleats, halyard boxes, trucks, finials, and base collar for flagpoles.
 - .2 Foundation: Reinforcement plan and bolting information.

2 PRODUCTS

2.1 FLAG POLES

- .1 Aluminum Standard: Aluminum Association alloy AAA 6063-T5 seamless extruded aluminum tubing. Finish exposed surfaces of aluminum components in accordance with Aluminum Association Designation System for Aluminum Finishes - 1980, 'sateen' finish.
 - .1 7.6m /25'-0" long cone tapered flagpoles as complete unit including base, mounting brackets, anchorage and fittings. Standard of Acceptance: All-Canadian Flag Pole Co. ACC 35 or John Ewing & Co. Inc. - Quantity: 1.
 - .2 Seamless, uniform, straight line tapered section above cylindrical butt section.
 - .3 Taper: 25mm for every 1800mm of run.
 - .4 Provide internal splicing, self aligning sleeve of same material as flagpole for snug fitting, watertight field joints.
 - .5 Fittings:
 - .1 Finial: 100mm diameter ball of 1.6 mm minimum thick aluminum, anodized to match flagpole finish.
 - .2 Truck assembly: Cast aluminum, stainless steel ball bearing, nonfouling, revolving double truck assembly, finish to match flagpole.
 - .1 Internal halyard system: pole manufacturer's standard system. Exposed parts to match flagpole finish. Included lockable cleat box.
 - .2 Swivel snaps: two per halyard, chromium plated bronze, with neoprene or vinyl covers.
 - .6 Mounting:
 - .1 Fabricate ground-set foundation assembly for flush installation of flagpole as indicated on Drawings.
 - .2 Fabricate mounting of same metal as flagpoles where exposed and of galvanized steel where encased in concrete.

3 EXECUTION

3.1 GENERAL

- .1 Obtain approval by Departmental Representative of flagpole location prior to installation.
- .2 Fabricate reinforced concrete foundation as per Section 32 13 13 - Sitework Concrete.

3.2 BACKFILL

- .1 Backfill area to be free from debris and water.
- .2 Allow concrete to cure for 7 days prior to backfilling. Backfill to designated elevations with specified materials, compact and shape to required contours as indicated on Drawings.
- .3 Place backfill material in uniform layers not exceeding 150mm compacted thickness up to grades indicated. Compact each layer before placing succeeding layer.
- .4 Do not backfill around or over cast-in-place concrete within 24 hours after placing of concrete.

3.3 FLAG POLE

- .1 Shop apply isolation coating to metal surfaces of flagpole and base that will be encased in concrete.
- .2 Provide shop drawing of flagpole installation showing foundation, grounding of lightning rod, bolting and all attachments for review by Departmental Representative.
- .3 Install flagpole and all fittings to approved shop drawings and manufacturer's instructions.
- .4 Provide ground stakes for positive lightning ground for each groundset flagpole installation.
- .5 Check and adjust installed fittings for smooth operation of halyards.

3.4 PROTECTION

- .1 Protect and maintain work of this Section including accessories, until acceptance of project work.
- .2 Immediately remove from the site damaged furnishings and accessories. Replace, repair, re-finish, or otherwise make good to the approval of Departmental Representative.

END OF SECTION