PART 1. GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 – Documents and samples to be submitted.

.2 Section 01 74 21 – Construction and demolition waste management and disposal.

.3 Section 01 78 00 – Documents and items to submit upon work completion.

.4 Section 05 50 00 – Metalwork – Spring, actuator and rail brackets: Galvanized steel, type and dimensions that meet the installation requirements.

.5 Section 08 80 50 – Glazing.

.6 Section 09 91 23 – Indoor painting, sealing of openings – Refurbishment work.

.7 Section 16, with regards to power supply, connections and cables.

1.2 REFERENCES

.1 The Aluminum Association Inc. (AA).

- Aluminum Association Designation System for Aluminum Finishes-[DAF 45-03].

.2 American Society for Testing and Materials International, (ASTM).

- ASTM A1008/A1008M-[02e1], Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.
- ASTM D523-[99(R1999)], Test Method for Specular Gloss.
- ASTM D822-[01], Standard Practice for Filtered Open-Flame Carbon-Arc Exposures of Paint and Related Coatings.
- ASTM C518-91, Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
- ASTM A653, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- ASTM E283, Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.

.3 Canadian General Standards Board (CGSB).

- CAN/CGSB-1.105-[M91], Quick Drying Primer.
- CAN/CGSB-1.213-[95], Etch Primer (Pretreatment Coating) for Steel and Aluminum.
- CAN/CGSB 1-1.181-[99], Ready-Mixed Organic Zinc-Rich Coating.
- CAN/CGSB 51-GP-21M, Thermal Insulation, Urethane and Isocyanurate, Unfaced.
- CAN/CGSB-51.26-M86, Thermal Insulation, Urethane and Isocyanurate, Boards, Faced.

.4 Canadian Standards Association (CSA)/CSA International.

- CAN/CSA-G164-M92 (C2003), Hot Dip Galvanizing of Irregularly Shaped Articles.

.5 Environmental Choice Program (PCE).

- CCD-016-[97], Thermal insulation.

- CCD-047a-[98], Coatings, paints.
- CCD-048-[95], Recycled water-borne surface coatings.

1.3 DESCRIPTION OF THE WORKS

.1 Design requirements

- Exterior doors and associated rails shall be designed to withstand a wind load of 1 kPa, with a deflection in the horizontal plane that does not exceed 1/240 of the width of the door opening. They shall be designed to comply with industry standards (DASMA).
- Sectional doors shall have a thermal resistance value (RSI) of 2.81, according to standard ASTM C-518-91.
- The doors and associated rails shall be designed to withstand at least 1 000 operating cycles per year and shall have a global lifetime of 10 years.

1.4 DOCUMENTS/SAMPLES TO SUBMIT

.1 Specification sheets

- Submit the products' specification sheets and the manufacturer's data and documentation in accordance with Section 01 33 00.

.2 Shop drawings

- Submit the required shop drawings in accordance with Section 01 33 00 – Documents and samples to be submitted.
- Shop drawings shall indicate: the door type, dimensions and service specifications; the materials; the type of operating mechanism; the location and details of the glazing; the details of hardware and accessories; and the required clearances and electrical connections.

.3 Submit the installation instructions provided by the manufacturer.

1.5 DOCUMENTS/ITEMS TO SUBMIT UPON WORK COMPLETION

.1 Provide the instructions required for the operation and maintenance of overhead doors and their hardware parts, and include them into the manual specified in Section 01 78 00 – Documents and items to submit upon work completion.

1.6 QUALITY ASSURANCE

.1 Test reports: Submit test reports certifying that the products, materials and equipment comply with the physical characteristics and performance criteria laid down in the provisions.

.2 The manufacturer shall have an established program of quality control such as ISO-9001:2008.

.3 The installation work shall be carried out by a company with recognized experience in the specified type of product.

1.7 WASTE MANAGEMENT AND DISPOSAL

.1 Separate and recycle waste materials in accordance with Section 01 74 21 – Construction and demolition waste management and disposal, as well as the requirements laid out in the waste reduction plan.

.2 Remove all packaging materials from site and route them to appropriate recycling facilities.

.3 Place corrugated cardboard, polystyrene and plastic packaging materials in the appropriate on-site recycling bins in accordance with the waste management program in effect on the site.

.4 Route unused metal wiring and items to a metal recycling facility approved by professionals.

.5 Route unused paint products to an authorized collection site for hazardous materials approved by professionals.

.6 It is prohibited to dump unused paint products in the sewer, in a stream, in a lake, on the ground or any other place where it might pose a risk to health or the environment.

.7 Unused or damaged glazing materials are not recyclable and are excluded from municipal recycling programs.

1.8 MAINTENANCE

.1 Replacement equipment and materials

- Provide the required spare parts in accordance with Section 01 78 00 – Documents and items to submit upon work completion.
- Provide the following spare parts for up-and-over sectional doors:
  - .1 Panels;
  - .2 Rollers;
  - .3 Weatherstripping;
  - .4 Springs.
- Store the equipment at the specified location. Identify each item by associating it with the relevant door.

PART 2. PRODUCTS

2.1 MATERIALS AND EQUIPMENT

.1 Aluminium plate: Commercial grade, 3105 H16, surface-mounted, with woodgrain finish.

.2 Aluminum profiles: AA6063-T5 alloy of the Aluminum Association.

.3 Glazing: Complying with design requirements.

2.2 DOORS

.1 The doors shall be the GX-175-FV model, as manufactured by Portes Garex.

.2 Glazed panels: 3 mm double-glazed sealed units mounted on a stainless steel spacer. Glazing shall be inserted into a 1.73 mm thick tubular aluminum profile, which shall be white, black or naturally coloured anodized aluminum.

.3 Kicks proof panels; made of two (2) rolled sheet steel by adhesive on plywood against white, black or natural anodized. The panel is fixed to the assembly of aluminum sections with PVC moldings.

.4 Assembly of the various parts: Arc or spot welding, riveting, or by means of adhesive and screws.

.5 Primer paint: Doors shall be manufactured from prepainted steel parts.

2.3 PREFINISHED STEEL PLATE

.1 Prefinished steel plate, factory-coated with a layer of polyester.

- Colour: Selected among the manufacturer's standard colours.
- Specular gloss: 30 units minimum, with a tolerance of ± 5 units, according to the standard A-653, CS type B.
- Thickness of the paint layer: At least 20 micrometres.
- Resistance to weathering: 10 years.

2.4 WEATHERSTRIPPING

- **PVC** weatherstripping, full width at the top and bottom of each section to ensure thermal breakage and airtightness according to standard ASTM E-283.
- U-shaped extruded neoprene weatherstripping, full width, to install at the bottom of the doors in a **PVC or aluminum** extrusion.
- 65 mm flexible weatherstripping installed on top of the upper panel using a **PVC or aluminum** moulding.
- Extruded weatherstripping made of **PVC, commercial aluminum or aluminum screw cover** and high-quality vinyl for intense cold, to install on the side and top bars of the door frames, in accordance with the manufacturer's specifications. The weatherstripping colour shall be selected from the manufacturer's standard colours

2.5 TYPE OF DOOR OPERATION

.1 Doors shall be equipped with the following accessories depending on the type of door operation.

- Manual operation: Two handles installed inside.
- Mechanical operation: **chain pick, chain hoist.**

2.6 INDUSTRIAL HARDWARE

.1 Guiding rails: **Standard configuration, for door opening with low headroom, elevation, vertical or roof pitch**, 75 mm in width, galvanized steel at least 2.75 mm (12 gauge) thick, bare metal.

.2 Guiding rail brackets: Continuous or galvanized steel angle, 2.75 mm (12 gauge) thick, bare metal.

.3 Balancing springs: 10 000-cycle oil-tempered heavy duty torsion springs, fitted with brackets in accordance with the manufacturer's specifications.

- Cable drum: 133 mm minimum, die-cast aluminum.
- Shaft: Diameter of **25,3 or 32 mm,** galvanized steel.

.4 Top roller holders: Galvanized steel, 3.13 mm thick, adjustable.

.5 Rollers: Hardened steel, oil lubricated, free lateral movement, ball bearing, 75 mm diameter, solid steel bandage.

.6 Hinges: Heavy duty, single or double, galvanized steel, 3.13 mm in accordance with the manufacturer's specification.

.7 Cable: Aircraft cable, galvanized steel, 4 mm diameter minimum, in accordance with the manufacturer's specifications.

.8 Reinforcements: Doors 3708 mm and over shall be provided with horizontal reinforcement bars. The type of reinforcement bar will depend on the door's width. Consult the engineering department in order to comply with deflection standards.

.9 Precision bearing: High-quality ball bearing for doors over 300 kg.

.10 Pusher springs.

.11 Rail guards: Height of 1524 mm, shaped steel plate approximately 5 mm thick.

.12 Safety device that immobilizes door upon detection of a cable break when closing the door; maximum load of 450 kg.

.13 Steel caps, 20 gauge, 1.06 mm.

2.7 ELECTRIC DOOR OPENERS

.1 Electric door openers: With driving shaft, **central or side** mounting.

.2 Electric motors, control devices, remote control stations with push buttons, relays and other electrical devices: CSA-approved, in a CSA-type enclosure.

.3 Electrical power supply: **120, 240, 600 V, 1,3 phase,** 60Hz.

- Motor: **½ , ¾, 1** hp.

.4 Control devices comprising a built-in motor reversing switch, a thermal protection device against overloads, and a push button, as appropriate.

.5 Tensioning bar between the door shaft and the actuator.

.6 Control devices:

- Remote control stations with push buttons: Surface-mounted, with push buttons identified as OPEN-STOP-CLOSE.
- Key switch installed on push button.
- Photoelectric cell.
- Auto-close timer.
- Remote transmitter.
- Safety switch: Set of contactors hidden in a rubber safety edge at the bottom of the doors and along the full width of the doors. When an obstacle is detected, this device stops the closing of the door and command its immediate reopening.

.7 Manual operation of doors equipped with a door opener with a driving shaft

- A device, operated from the ground, shall allow for the disengagement of the opener's driving shaft and the manual operation of the door in case of failure of the power supply.
- The door opener shall include the following:

  .1 A lock switch that cuts the power supply as long as the door opener is in manual operation mode.

.8 Manual operation of doors equipped with a central door opener

- The door opener must be connected to the door via a device that allows for quick uncoupling in case of failure of the power supply.

.9 Automatic switch-on and switch-off lighting fixtures, equipped with a timer.

.10 Door operating speed: 300 mm/s.

.11 Control transformers: For 24 VAC control voltage.

.12 Mounting brackets: Galvanized steel, thickness and dimensions that meet the installation requirements.

PART 3. IMPLEMENTATION

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: Comply with the manufacturer's written requirements, recommendations and specifications, including technical bulletins and installation instructions provided in the product catalogs and on packaging cartons, as well as indications found on specification sheets.

3.2 INSTALLATION

.1 Install doors and related hardware parts according to the manufacturer's instructions.

.2 Secure rails and door openers properly and fix the brackets to the load-bearing framework.

.3 If necessary, touch up the areas where the galvanized finish has been damaged during assembly with primer.

.4 Install electrical motors, control devices, control stations with push buttons, relays and other electrical equipment required for the operation of the doors.

.5 Lubricate springs and adjust moving parts to ensure smooth operation of doors.

.6 Adjust weatherstripping to ensure proper weathertightness.

.7 Adjust doors to ensure smooth operation.

3.3 CLEANING

.1 Once the installation of doors is completed, clean the site to remove all dirt and debris resulting from construction work.

.2 Remove all traces of paint, caulking, epoxy resin and filler. Clean the doors.

.3 Clean glazing with a nonabrasive approved cleaning product.

.4 When installation work is completed, removed from site all surplus materials, waste materials, tools and safety barriers.

END OF SECTION