

Part 1 General

1.1 SECTION INCLUDES

- .1 Bi-folding exterior doors.
- .2 Operating hardware, supports and controls.

1.2 RELATED SECTIONS

- .1 Section 05 50 00 - Metal Fabrications.
- .2 Section 07 92 00 - Joint Sealants: Perimeter sealant and backup materials.
- .3 Section 08 71 00 - Door Hardware.
- .4 Section 08 80 50 - Glazing
- .5 Division 26 – Electrical.

1.3 REFERENCES

- .1 Aluminum Association (AA)
 - .1 DAF 45-2003(R2009), Designation System for Aluminum Finishes.
- .2 American Society for Testing and Materials International, (ASTM).
 - .1 ASTM A500/A500M-18, Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and shapes.
 - .2 ASTM A513/A513M-19, Standard Specification for Electric-Resistance-Welded Carbon and Alloy Steel Mechanical Tubing.
 - .3 ASTM A1011/A1011M-18a, Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-high Strength..
 - .4 ASTM D523-14(2018), Standard Test Method for Specular Gloss.
 - .5 ASTM D822/D822M-13(2018), Standard Practice for Filtered Open-Flame Carbon-Arc Exposures of Paint and Related Coatings.
- .3 Canadian Standards Association (CSA International).
 - .1 CSA G164-18, Hot Dip Galvanizing of Irregularly Shaped Articles.
- .4 Master Painters Institute (MPI).
 - .1 MPI Architectural Painting Specifications Manual, Current Edition.
- .5 National Electrical Manufacturers Association (NEMA)
- .6 The Society for Protective Coatings (SSPC)
 - .1 SSPC-Paint 20, Zinc-Rich Coating (Type I – Inorganic, and Type II – Organic).

1.4 SYSTEM DESCRIPTION

- .1 Design Requirements.
- .1 Design exterior door assembly to withstand windload to the following:
 - .1 Wind Pressure Classification: 4 EN 12444 ja EN 12424.
- .2 Design door panel assemblies with thermal insulation factor minimum 2.11 RSI.

1.5 SUBMITTALS

- .1 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications and datasheet in accordance with Section 01 33 00.
- .2 Shop Drawings
 - .1 Submit shop drawings in accordance with Section 01 33 00.
 - .2 Indicate sizes, service rating, types, materials, operating mechanisms, glazing locations and details, hardware and accessories, required clearances and electrical connections.
- .3 Manufacturer's Instructions:
 - .1 Submit manufacturer's installation instructions.

1.6 CLOSEOUT SUBMITTALS

- .1 Provide operation and maintenance data for folding door hardware for incorporation into manual specified in Section 01 78 10.

1.7 QUALITY ASSURANCE

- .1 Pre-Installation Meetings: conduct pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements. Comply with Section 01 31 01.

1.8 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 20.
- .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .3 Dispose of corrugated cardboard, polystyrene, plastic packaging material in appropriate on-site bin for recycling in accordance with site waste management program.
- .4 Divert unused metal and wiring materials from landfill to metal recycling facility.
- .5 Divert unused paint material from landfill to official hazardous material collections site.
- .6 Do not dispose of unused paint materials into sewer systems, into lakes, streams, onto ground or in locations where it will pose health or environmental hazard.
- .7 Unused or damaged glazing materials are not recyclable and must not be diverted to municipal recycling programs.

Part 2 Products

2.1 MANUFACTURERS

- .1 Manufacturer: Findoor Industrial Inc., Westeros, Alberta, www.findoor.ca.
Product: 2-8 Leaf Folding Door Inward or Outward Opening.
- .2 Substitutions: Section 01 62 00.

2.2 MATERIALS

- .1 HSS Steel Tube: ASTM A500/A500M, ASTM A513/A513M. (Optional)
- .2 Galvanized steel sheet: commercial quality Z-180 zinc coating.
- .3 Steel sheet: commercial quality to ASTM A1011/A1011M.
- .4 Primer for Steel: to MPI #76, Primer, Alkyd, Quick Dry, for Metal.
- .5 Primer for Galvanized Steel Surfaces: Organic zinc-rich primer to MPI#18 or SSPC-Paint 20 Type II.
- .6 Insulation: Closed Cell Polystyrene 60psi meeting CAN/ULC-S701.

2.3 DOOR FABRICATION

- .1 Form steel sheet on vertical edges with no visible welds on exterior or interior panel faces. Grind smooth and flush exposed welds and welds which may interfere with installation of related components.
- .2 Assemble components by means of spot or arc welding or coated rivet system or adhesive and self-tapping screws to manufacturer's recommendations.
- .3 Door thickness: 60 mm.
- .4 Factory pre-drill hinge locations
- .5 Finish: factory finish; choice from 13 standard colours
- .6 Glazing: Section 08 80 50, double unit passive solar glazing installed in manufacturers extruded anodized aluminum frame. Size: 500 mm x 1100 mm.

2.4 HARDWARE

- .1 Operating Hardware: Guide tracks and brackets, carriers.
- .2 Top roller guide track: galvanized steel minimum 6 mm thick.

- .3 Rollers: full floating, grease packed, hardened steel, ball bearing, stamped tire.
- .4 Roller brackets: adjustable, rubber or galvanized steel.
- .5 Jamb Hinges: elevating steel type, with ball bearings, galvanized, minimum three per leaf.
- .6 Fold Hinges: 6mm galvanized steel, minimum one per leaf
- .7 Weatherstripping.
 - .1 Sills: adjustable dual edged reinforced door sweeps in retainer.
 - .2 Jambs and head: bulb type EPDM, internally reinforced, to manufacturer's standard.
 - .3 Center Panel Meeting Surface: EPDM type, internally reinforced, with no exposed fasteners on exterior face of panels.
- .8 Finish ferrous hardware items with minimum zinc coating of 300 g/m² to CSA G164.

2.5 FACTORY FINISH

- .1 Prefinished steel with factory applied heat cured powder coating.
 - .1 Colour: Selected from manufacturers 13 standard colours
 - .2 Specular gloss: 30 units +/- 5 in accordance with ASTM D523.
 - .3 Coating thickness: not less than 25 micrometres.
 - .4 Resistance to accelerated weathering for chalk rating of 8, colour fade 5 units or less and erosion rate less than 20 % to ASTM D822 as follows:
 - .1 Outdoor exposure period 1000 hours.
 - .2 Humidity resistance exposure period 1000 hours.

2.6 ALUMINUM FINISHES

- .1 Finish exposed aluminum component surfaces in accordance with Aluminum Designation System for Aluminum finishes.
 - .1 Clear anodic finish: designation AA-A41 Class 1.

2.7 ELECTRICAL OPERATOR

- .1 Manufacturer: Entrematic Group; Product: Ditec Dor 1BHS.
- .2 Electrical Operation: Overhead mounted electro-mechanical drive unit designed for high cycle operation, on doors with two articulating leaves, consisting of electric motor, limit-switch unit, and telescopic arm; instantaneously reversible, capable of opening and closing rapidly, gradual start and stop; automatically locking in closed position.
- .3 Manual Operation: Equip electrical operator with disengaging mechanism converting system to free-wheeling mode for manual operation.
- .4 Ingress Protection Rating: IP55.
- .5 Connecting Rods: Attach connecting rods to rotating drive arm on operator and to control arms attached to the door.

- .1 Drive type: Positive drive, maintain door under firm control at all times.
- .6 Electric motor: of sufficient size to operate doors under normal operating conditions.
 - .1 Main Power Supply: 120VAC, 1phase, 60 Hz
 - .2 Motor Power Supply: 24 VDC, 2 x 12 Amp.
- .7 Electric Controls: furnished by folding door manufacturer in accordance with the latest NEMA standards.
- .8 Controls: Programmable logic controller with digital message display or LED indicators. Include programmable close timers and programmable inputs/outputs.
- .9 Motor starters: factory wired with overload and under voltage protection; equipped with mechanical interlocks. Enclose control components in one enclosure; include wiring diagram inside of cover plate.
- .10 Pushbuttons: One (1) momentary pressure three-button push-button station marked "OPEN", "CLOSE" and "STOP".
- .11 Limit switches: Stop travel of folding door in fully open or fully closed position.
- .12 Safety edges: Provide electric safety edges on leading edge of doors to reverse door upon contact with obstruction. (Optional)
- .13 Photo eyes: Provide one (1), jamb mounted, thru-beam type photo eyes, NEMA 4 rated.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

- .1 Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

3.2 INSTALLATION

- .1 Install doors and hardware in accordance with manufacturer's instructions.
- .2 Rigidly support rail and operator and secure to supporting structure.
- .3 Touch-up steel doors with primer where galvanized finish damaged during fabrication.
- .4 Install operator including electrical motors, controller units, pushbutton stations, relays, photocells and other electrical equipment required for door operation.
- .5 Adjust operator so that door fully clears door opening.
- .6 Lubricate and adjust door operating components to ensure smooth opening and closing of doors.
- .7 Adjust weatherstripping to form a weather tight seal.

- .8 Adjust doors for smooth operation.

3.3 CLEANING

- .1 Perform cleaning after installation to remove construction and accumulated environmental dirt.
- .2 Remove traces of primer, caulking, clean doors and frames.
- .3 Clean glass and glazing materials with approved non-abrasive cleaner.
- .4 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION