

PART 1 GENERAL

- 1.1 Work Included
 - .1 Insulated sectional metal thermocore overhead doors.
- 1.2 Related Work
 - .1 Electrical Power Supply – as per electrical spec
- 1.3 Shop Drawings
 - .1 Clearly indicate material, operating mechanisms, and required clearance.
- 1.4 Guarantee
 - .1 Provide a written guarantee stating that items specified under this section are guaranteed against defects in material, workmanship and operation for one (1) year from date of Total Performance.
- 1.5 Design Requirements
 - .1 Design door panels to withstand wind load of 96kg/m² with a maximum horizontal deflection of 1/240 of opening width.

PART 2 PRODUCTS

- 2.1 Doors
 - .1 Steel Sections: Door sections shall be constructed from galvanized sheet steel, a corrosion-resistant embossed steel no less than 0.4 mm thick, coated with approximately 55% aluminium, 1.6% silicon, with the balance being zinc.
 - .2 Door sections shall be manufactured by a continuous formed- in-place polyurethane lamination process resulting in a homogeneous sandwich of even textured polyurethane insulation of metal/foam/metal construction to form a section 41 mm thick. Sections shall be rolled-formed to produce a thermal break preventing heat or cold conductivity. Sections shall have an RSI of 2.32.
 - .3 Joints between sections shall be designed with pivotable round horizontal links to eliminate accumulated water from flowing down the inside of the door when opened.
 - .4 Sections shall be equipped with 1.6 mm steel end caps for bracket and end hinge attachment.
 - .5 Exterior Finish: Embossed steel sections shall be mill finished to accept field painting.
- 2.2 Hardware
 - .1 Weather Seals: Thermalplastic rubber tube seal shall be fitted inside every joint between the sections to prevent air infiltration.
 - .1 Top section of the door shall be EPDM rubber sealing strip to provide firm seal against the header when the door is in the closed position.
 - .2 Door with an opening width wider than 6 mm shall be provided with an EPDM rubber head flexible seal fitted to aluminium extruded strip. This flexible seal shall provide proper seal against header doorframe regardless of outside/inside temperature variances.
 - .2 EPDM Rubber Severe Weather Blade-Type Jamb Seal: This seal shall attach to the nylon jamb seal retainer to form a weather-tight seal against the outside skin of the door.

- .3 EPDM Double –Bottom Sealing Weather-strip: This combination double flanged/'o' type bottom weather-strip shall conform to minor irregularities in the floor.
- .4 Track: Track shall be 76 mm heavy gauge galvanized steel designed for clearances shown. Provide complete track assembly including brackets, bracing, and reinforcing for rigid support of the track for the required door type and size. Slope tracks at proper angle from vertical to ensure tight closure at jambs when the door is closed. Weld or bolt to track supports. Vertical tracks shall be 2.2 mm thick, horizontal tracks shall be 2.2 mm thick and additionally reinforced.
- .5 Reinforcements and Supports: Provide galvanized steel track reinforcement and support members. Secure, reinforce, and support tracks as required for size and weight of door to provide strength and rigidity, and to ensure against sag, sway, and detrimental vibration during opening and closing of doors.
 - .1 Support and attach tracks and attached to wall. Support horizontal (ceiling tracks) with continuous angle welded in accordance with manufacturer's specification for size and weight of door.
- .6 Glazing: Standard Full Vision- Window Panel glazing material shall be glass dual pane.
- .7 Counterbalancing System: all doors shall be equipped with helical wound torsion springs having a minimum spring life of 25,000 cycles. Spring material shall be made of high tensile music wire.
- .8 Trussing: Doors shall be engineered to withstand 96kg/m² wind load. Trussing for wind reinforcement is standard on doors wider than 6 m. doors over 760 mm height utilize a reinforced truss.
- .9 Torsion Shaft: All doors shall be supplied with 34 mm solid steel shaft keyed the entire shaft length, in accordance with manufacturer's specifications.
- .10 Roller Brackets: Provide heavy-duty fully adjustable roller brackets to each end reinforcement place per manufacturer's recommendations. The adjustable roller brackets are to provide an easy adjustment of the door to the jamb to achieve the proper seal. Use self-tapping fasteners to secure brackets to the door sections.
 - .1 Provide heavy-duty, rust resistant hardware, with galvanized fasteners, to suit type of door.
- .11 Bottom Corner Brackets: All bottom corner brackets shall be equipped with adjustable roller brackets (except reinforced heavy duty bottom corner bracket) all brackets shall feature the locking wedge on the cable fastener for complete adjustments (except reinforced heavy duty bottom corner bracket, which shall use a clamp).
- .12 Rollers: Provide heavy-duty rollers, with 10 steel ball bearings in case-hardened steel races. Extend roller shaft through both brackets where double brackets are required. Provide roller tires to suit size of track.
- .13 Step handles: Provide aluminium cast recessed step plate on outside door with attaching lift handle for inside of door.
- .14 Locks: provide an interior slide bolt.
- .15 Cable Drums: Provide cast aluminium cable drums grooved to receive the proper diameter cable for the weight of the door with two extra safety wraps and dual locking screws.
- .16 Cable Drums: Galvanized aircraft type rated at 50,000 cycles or better.

- .17 Provide additional support mounting brackets to top door section to accept overhead door operator, galvanized steel, size and gauge to suit, to prevent door deflection.
- 2.3 Operation
 - .1 Equip doors for operation by:
 - .1 Hand, install two handles on inside face of door.
 - .2 Chain hoist with nylon rope.
 - .3 Electrical push-pull type operator.
- 2.4 Electrical Operator (Trolley Type For Standard Lift)
 - .1 Commercial type, industrial grade electrical motors, controller units, remote push button stations, relays, and other electrical components: to CSA and ULC approval.
 - .2 Power Supply: 240 V, single phase, 60 Hz.
 - .3 Controller Units with integral motor reversing starter, two heater elements for overload protection, pilot light, including three push buttons with open-stop-close designations in English and control relays as applicable.
 - .4 Digital Wireless Keypad Entry Switch: As indicated on plan, flush mounted jamb, located 1370 mm above floor level.
 - .5 Provide combination roll rubber safety switch with limit switches for full length of bottom rail of bottom section of door, enabling door to reverse to open position when coming in contact with object on closing cycle.
 - .6 Manual Safety Release: Wire cable leading from door panel to drive yolk, when pulled during power failure, to free door for manual operation.
- 2.5 Safety Controls
 - .1 Provide controls that reverse door closure when downward motion is physically impeded.
 - .2 Provide electronic/infrared sensors, set at manufacturer's suggested height to reverse downward motion of door when the sensors detect an object in the path of the door.
- PART 3 EXECUTION**
- 3.1 Installation
 - .1 Install door, track, and operating equipment complete with necessary hardware, jamb and head mold stops, anchors, etc.
 - .1 Mount counterbalance mechanism with manufacturer's fully adjustable ball bearing brackets at each end of the shaft. Furnish torsion shaft centre support bearings as required for size and weight of doors. Unsupported span not to exceed 2.4 m.
 - .2 Fasten vertical track assembly to framing at not less than 600 mm on centre. Hang horizontal track from structural overhead framing with angle or channel hangers, welded and bolt-fastened in place. Provide sway bracing, diagonal bracing, and reinforcing as required for rigid installation of track and door operating equipment.
 - .3 Upon completion of installation, including Work by other trades, lubricate, test and adjust doors to operate easily, free from warp, twist, or distortion and fitting weather tight for entire perimeter.

- .2 Install electrical motor controller units, push button stations, relays and other electrical equipment required for door operation.