

PART 1 – GENERAL

1.1 GENERAL INSTRUCTIONS

- .1 Read and be governed by conditions of the *Contract Documents*, including Sections of Division 01.

1.2 SECTION INCLUDES

- .1 1.1 General Instructions
- .2 1.2 Section Includes
- .3 1.3 Summary
- .4 1.4 Submittals
- .5 1.5 Closeout Submittals
- .6 1.6 Quality Assurance
- .7 1.7 Delivery, Storage, and Handling
- .8 2.1 Manufacturer
- .9 2.2 Performance/Design Requirements
- .10 2.3 Materials
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- .12 2.5 Hardware
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- .19 3.4 Adjusting and Cleaning

1.3 SUMMARY

- .1 Section includes:
 - .1 Sectional overhead metal doors.
 - .2 All costs associated with the work of this Section shall be included in the *Contract Price*.

1.4 SUBMITTALS

- .1 Submit required submittals in accordance with Section 01 33 00 – Submittal Procedures.
- .2 *Product* data sheets:
 - .1 Submit manufacturer's *Product* data sheets for *Products* proposed for use in the work of this Section.
- .3 *Shop Drawings*:
 - .1 Include details of each door and frame type, hardware types and locations, frame profiles, door and frame elevations, anchor details and locations.

- .2 Include schedule identifying each unit, with door marks and numbers relating to numbering on the *Drawings* and in the door schedule.
- .3 Indicate materials, operating mechanisms, required clearances and electrical connections

1.5 CLOSEOUT SUBMITTALS

- .1 Operation and maintenance data:
 - .1 Submit manufacturer's maintenance instructions for incorporation into the operation and maintenance manuals in accordance with Section 01 77 00 – Contract Closeout Procedures and Submittals.

1.6 QUALITY ASSURANCE

- .1 Qualifications:
 - .1 Manufacturers: The *Contractor* shall ensure that sectional doors are manufactured by a firm with a minimum of five years' experience in the fabrication and installation of sectional doors. The *Contractor* shall ensure that manufacturers proposed for use, which are not named in these *Specifications*, submit evidence of ability to meet performance and fabrication requirements specified, and include a list of five projects of similar design and complexity completed within the past five years.
 - .2 Installers / applicators / erectors: The *Contractor* shall ensure that the installation of sectional doors is performed by the authorized representative of the manufacturer.

1.7 DELIVERY, STORAGE, AND HANDLING

- .1 Package or crate, and brace *Products* to prevent distortion in shipment and handling. Label packages and crates, and protect finish surfaces by sturdy wrappings.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- .1 Acceptable *Product*:
 - .1 Aluminum A175A-NDS as supplied by Northern Dock Systems Inc. or *Equivalent*.

2.2 PERFORMANCE/DESIGN REQUIREMENTS

- .1 Design exterior door assembly to withstand windload of 1 kPa (0.1 PSI) with a maximum horizontal deflection of 1/240 of opening width.
- .2 Design door panel assemblies with thermal insulation factor R14.
- .3 Design door panel assemblies to withstand minimum 100,000 cycles per annum.

2.3 MATERIALS

- .1 General:
 - .1 Single-Source Responsibility: *Provide* doors, tracks, motors, and accessories from one manufacturer for each type of door. *Provide* secondary components from source acceptable to manufacturer of primary components.
 - .2 Galvanized steel sheet: 0.5 mm (0.02") roll formed commercial quality in accordance with ASTM A653/A653M-08 with Z275 zinc coating to both faces.

- .3 Steel structural shapes, plates, bars, angles, dowels, and the like: in accordance with CSA G40.21-04, grade 300W.
- .4 Aluminum extrusions: 6063-T6 alloy and temper, clear anodized.
- .5 Touch-up primer: in accordance with CAN/CGSB 1.181-M99 for galvanized steel surfaces.
- .6 Insulation: polyurethane, to achieve R14.
- .7 Glazing: clear, sealed, insulated, tempered, grey tinted units fitted into Polyvinyl Chloride (PVC) snap-on mouldings for easy replacement.
- .8 Cable: multi-strand galvanized steel aircraft cable in accordance with ASTM A1023M.
- .9 Solid kick proof bottom section (plywood core).

2.4 ACCESSORIES

- .1 Overhead horizontal track and operator supports: galvanized steel, type and size to suit installation.
- .2 Track guards: 5 mm (1/4") thick formed sheet 1500 mm (59") high.
- .3 Pusher springs.
- .4 Weather stripping: aluminum vinyl C 'Arctic' standard.

2.5 HARDWARE

- .1 All hardware to be galvanized steel.
- .2 Track: standard hardware with 75 mm (3") size minimum 2.28 mm (0.09") core thickness galvanized steel track.
- .3 Track supports: 2.3 mm (0.1") core thickness continuous galvanized steel angle track supports constructed of 32 mm (1-1/4") x 4.76 mm (0.2") steel angle neatly cut and connected. Punched steel angle is not acceptable.
- .4 Spring counter balance: heavy duty oil tempered torsion spring with manufacturer's standard brackets and as follows:
 - .1 Minimum rating: 100,000 cycles per annum.
 - .2 Drum: 133 mm (5.2") diameter.
 - .3 Shaft: 25 mm (1") diameter solid steel.
 - .4 *Install* cycle counter device.
- .5 Top roller carrier: galvanized steel minimum 2.28 mm (0.09") thick adjustable.
- .6 Rollers: full floating, grease packed hardened steel, ball bearing minimum 75 mm (3") diameter, stamped tire.
- .7 Roller brackets: adjustable, galvanized steel, 2.5 mm (0.1") thick.
- .8 Hinges: standard duty industrial 2.28 mm (0.09") thick galvanized steel.
- .9 Cable: minimum 4 mm (0.2") diameter galvanized aircraft cable.

2.6 FINISHES

- .1 Exposed aluminum surfaces; anodized to American Architectural Manufacturers Association (AAMA) 611:
 - .1 Clear anodized in accordance with AA Designation AA-M12C22A41

2.7 MOTORIZED OPERATION

- .1 Motorized Operation: Jackshaft type:
 - .1 Heavy duty: SDI Model S19.85 or equivalent, voltage to suit supply voltage.
 - .2 Auxiliary operation: include hand chain to operate door manually and independently of motor operator. Incorporate interlock to disconnect motor mechanically and electrically when auxiliary operator is engaged.
 - .3 *Provide* momentary relay contact for off-delay timers, and rated for 25 cycles per hour or 100 cycles per *Day*.
- .2 Electrical supply is 230V, 1HP, 60Hz.
- .3 Operator to open doors at a rate of 610 mm (24") per second.
- .4 Entrapment Protection:
 - .1 Photoelectric sensors.
- .5 Operator Controls:
 - .1 Type: Push-button.
 - .2 Function: operated control stations with open, close, and stop buttons for surface mounting, for interior location.
- .6 Special Operation:
 - .1 *Provide* radio controlled operators, including remote operators for exterior operation of doors, as follows:
 - .1 Receiver to be Chamberlain Model 412 HMC or *Equivalent*.
 - .2 Remote to be Chamberlain Model 972 LMC or *Equivalent*.

2.8 FABRICATION

- .1 Fabricate work of this Section with materials, and with component dimensions and gauges, reinforcing, attached anchors and fastenings of adequate strength to prevent warping, buckling, opening of joints and seams, loosening of hardware, distortion, and displacement within limits of intended and specified use.
- .2 Conceal and weld connections wherever possible.
- .3 Fit joints and junctions between components tightly and in true planes.
- .4 Isolate from each other dissimilar metals, and metal from concrete or masonry to prevent electrolysis. On aluminum, use bituminous paint in concealed locations and lacquer where exposed to view.
- .5 Finishing:

- .1 File and grind exposed welds smooth.
- .2 Zinc coating: clean and smooth ground surfaces at welds, fill if necessary, and prime all areas from which zinc coating has been removed with zinc rich paint applied in a minimum thickness of 0.102 mm (0.004").

PART 3 - EXECUTION

3.1 EXAMINATION

- .1 Examine building structure, finishes and conditions at the *Place of the Work*.
- .2 Notify the *Consultant* of any adverse conditions which could jeopardize system installation or system operation. Do not proceed until such conditions have been documented, assessed, rectified and approved for installation. Starting work indicates acceptance of conditions unless the *Consultant* is notified otherwise in writing.

3.2 ELECTRICAL WIRING

- .1 Power shall be brought up to circuit breaker/disconnect switch adjacent to controller under the work of Divisions 26 and 28 and in conformance with requirements specified therein.
- .2 Wiring from motor to switches, controls, starters, safety devices and other items requiring power shall be carried out under this Section.
- .3 Use Electrical Metallic Tubing (EMT) conduit for fixed wiring. Use purpose-made and approved type flexible cables or cords at applicable locations; adequately support so as not to impede access or foul moving parts of equipment.

3.3 INSTALLATION – GENERAL

- .1 *Install* sectional overhead doors and operators in accordance with door manufacturer's printed instructions.
- .2 The *Contractor* shall ensure that the work of this Section is performed by qualified personnel approved by door manufacturer.
- .3 Secure guides to steel framing members, header box to side guides and the motor to header box.
- .4 Drill and tap door frames to receive hardware. Fasten door tracks and stops to door frame by means of machine bolts; welding will not be permitted.
- .5 Fit doors snugly to edges of jambs and heads of frames. Doors shall operate smoothly and freely under all conditions of operation. Door shall sit in any position in door opening and shall not drift upward or downward.
- .6 Furnish necessary appurtenances relating to door installation, including those required on door frames.
- .7 Upon completion of installation of doors and operating equipment, lubricate moving parts prior to putting into operation. Supply oil to gear reduction units and grease sprockets, bearings, cables, link chains and door guides. Check and re-adjust as required, items of operating hardware, including weather stripping.
- .8 *Install* doors to operate freely and to close tight.

3.4 ADJUSTING AND CLEANING

- .1 Adjust work of this Section to ensure free-running, tightly closing and properly counterbalanced operation. Ensure that installation is free from warp, twist or other distortion. Lubricate operating hardware.
- .2 Refinish damaged or defective work, at the *Contractor's* expense, so that no variation in surface appearance is discernible. Refinish work at the *Site* only if approved by the *Consultant*.
- .3 Clean work on completion of installation.
- .4 Adjust weather-stripping to form a weathertight seal.

END OF SECTION