
PART 1 GENERAL

1.1 REFERENCES

- .1 Underwriters Laboratories (UL).
 - .1 UL 508 (Edition 7) Standard for Industrial Control Panels.

1.2 ADMINISTRATIVE REQUIREMENTS

- .1 Pre-Installation Meetings:
 - .1 Convene pre-installation meeting 1 week prior to beginning work of this Section, with Contractor's Representative and Departmental Representative:
 - .1 Verify project requirements.
 - .2 Review installation and substrate conditions.
 - .3 Co-ordination with other construction subtrades.
 - .4 Review manufacturer's written installation instructions and warranty requirements.
 - .2 Arrange for site visit with Departmental Representative prior to start of Work to examine existing site conditions adjacent to demolition Work.
 - .3 Hold project meetings every week.
 - .4 Ensure site supervisor, project manager and subcontractor representatives attend.
 - .5 Departmental Representative will submit written notification of change to meeting schedule established upon contract award 24 hours prior to scheduled meeting.

1.3 DEFINITIONS

- .1 Activation Device: Device that, when actuated, sends an electrical signal to the door operator to open the door.
- .2 Safety Device: A device that detects the presence of an object or person within a zone where injury could occur and provides a signal to stop the movement of the door.
- .3 High Performance Door: A powered door characterized by sliding action that is designed to sustain heavy usage at relatively high speeds.
- .4 High Speed Door: (subcategory of high performance doors). A non-swinging door used primarily to facilitate vehicular access or material transportation, with a minimum opening rate of 813 mm per second and a minimum closing rate of 600 mm per second.

1.4 ACTION AND INFORMATIONAL 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 door components and include product characteristics, performance criteria, physical size, finish and limitations.
- .2 Include construction details, material descriptions, dimensions of individual sub-assemblies (side frames, header, control panel, motor), profiles for slats, and finishes.
- .3 Include operating characteristics, electrical characteristics, and furnished accessories.
- .4 Include description of automatic closing device and testing and resetting instructions.
- .3 Shop Drawings:
 - .1 Include plans, elevations, sections, and mounting details.
 - .2 Show locations of controls, locking devices, and other accessories.
 - .3 Include diagrams for power, signal, and control wiring.
 - .4 Indicate assembly details and dimensions of fabrication, required clearances and electrical connections.
- .4 Samples:
 - .1 Submit for review and acceptance of each unit.
 - .2 Samples will be returned for inclusion into work.
 - .3 Submit duplicate 300 x 300 mm section of curtain fabric.
- .5 Manufacturers Reports:
 - .1 Manufacturer's Field Reports: submit manufacturer's written reports within 3 days of review, verifying compliance of Work.

1.5 CLOSEOUT SUBMITTALS

- .1 Submit in accordance with Section 01 78 00 – Closeout Submittals.
- .2 Operation and Maintenance Data: Provide manufacturers operating and maintenance manuals including a detailed parts list for high performance overhead rolling rubber doors in quantity as required in Section 01 78 00 – Closeout Submittals.

1.6 QUALITY ASSURANCE

- .1 Source Limitations: Obtain each type of door, frame, operator and sensor components specified in this Section from a single source, same manufacturer unless otherwise indicated.

1.7 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 off ground and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

- .2 Store and protect rolling rubber doors from nicks, scratches, and blemishes.
- .3 Replace defective or damaged materials with new.

1.8 WARRANTY

- .1 High Performance Rolling Rubber Doors shall be free of defects in material and workmanship for a period of one (1) year from the date of substantial completion.
- .2 Manufacturer agrees to repair or replace components which fail to perform as follows:
 - .1 5-year / 1,000,000 Cycle Limited Warranty on Drive Motor and Gearbox.
 - .2 2-year / 300,000 Cycle Limited Warranty on all other Mechanical and Electrical Components.
 - .3 Door Fabric:
 - .1 Styrene-butadiene rubber (SBR) door panels (curtains) will be free of defects in materials and workmanship for the LIFETIME of the door.
- .4 During the warranty period a factory-trained technician shall perform service and affect repairs. A safety inspection shall be performed after each adjustment or repair and a completed inspection form shall be submitted to the Departmental Representative.

PART 2 PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- .1 Opening Speed:
 - .1 Counterbalanced System: Door to operate at a speed up to 1524 mm per second.
- .2 Operation Cycles:
 - .1 Drive motor and gearbox capable of operating for not less than 1,000,000 cycles. One operation cycle is complete when a door is opened from the closed position to the fully open position and returned to the closed position.
 - .2 Wind Resistance:
 - .1 Windlock and Guide System: up to 210 km/hr sustained wind speed.

2.2 DOOR ASSEMBLY

- .1 Rolling Rubber Curtain Design:
 - .1 Two (2) layers of Styrene Butadiene Rubber (SBR) each 0.8mm thick, 60 durometer; sandwiched with 1-ply, 50kg polyester cord center.
 - .1 Complete with bonded SBR beveled continuous windlock on each side of panel, providing normal resiliency and flexibility at temperatures ranging from -40 C to +85 C.
 - .2 Breaking strength 1100 lbs/in/ply.
 - .3 Bottom Bar: Bottom bar shall extend the full width of the curtain,

sufficient to maintain the bottom edge of the curtain parallel to the door threshold at all times.

- .1 The bottom bar shall be constructed of solid fiberglass pultrusion profiles bolted together and shall not have any rigid components extending into the side frames.
- .2 150 mm tall weatherproof rubber loop made of EPDM able to seal uneven finished floors.
- .3 Door to be provided with wireless failsafe electric safety edge (see Safety Devices).
- .4 Vision Panels: Polyvinyl chloride (PVC).
 - .1 Glazed Panels: Replaceable 254 mm x 457.2 mm windows.

.2 Curtain Jamb Guides:

- .1 Frame assemblies constructed of steel members to form a slot of sufficient depth to allow the thicker edges of the rubber curtain windlock to move freely in the guides at all times. Steel members are to be of sufficient thickness and rigidity to maintain the windlock within the guides while enabling the windlock to break away during impact.
 - .1 The windlock feature runs the full height of the door curtain and is contained in the side frames to secure the door under wind pressure and to decrease air infiltration.
 - .2 Galvanized steel guides and frame shall be chemical and corrosion resistant painted finish.
 - .3 Side frames or components mounted to side frames shall not impede the clear opening width of the door at any location.

.3 Door Header:

- .1 Top Roll System: Minimum 219 mm diameter, steel tube from 4.75 mm thick steel complying with ASTM A513.
 - .1 Drum tube deflection shall not exceed 2.5 mm/m of opening width.
 - .2 Drive barrel shafts are constructed of minimum 50.8 mm diameter 1045 bolt-on steel shafts.
- .2 Idler: Fabric guiding barrel, constructed of minimum 168 mm O.D. round tubing with a minimum wall thickness of 3.0 mm and supported by minimum 51 mm diameter 1018 steel shafts.
- .3 Top Plates: Minimum 9.5 mm hot-rolled steel with heavy-duty, self-aligning bearings with cast iron housings to support both the spring and idler barrels. 50.8 mm diameter shaft bearing shall be load-rated at 48 000 N dynamic and 28500 N static. 51 mm diameter idler shaft bearing shall be load-rated at 36000 N dynamic and 19600 N static.
- .4 Springless System: Direct Drive only. No counter-balance or torsion springs allowed.

2.3 OPERATION

- .1 Equip door for operation by:

- .1 Electric motor operator.

2.4 ELECTRICAL OPERATOR

- .1 Electric Door Operator: Reversible-type motor with controller for motor exposure indicated.
 - .1 Usage Classification: Heavy duty, 20 or more cycles per hour and over 500 cycles per day.
 - .2 Motor Exposure: Exterior and Interior use.
 - .3 Side Mounted: Operator is mounted to the header assembly on the left or right side of door and connected to door drive shaft.
 - .4 Electrical Characteristics:
 - .1 Phase: Three phase.
 - .2 Volts: 600 Volt.
 - .5 Operator: Up to 3.35 horsepower.
 - .1 The motor and gearbox shall be designed for high cycle operation.
 - .6 Drive System: Heavy-duty drive unit featuring a self-inhibiting worm gear.
 - .7 Emergency Manual Operation: Motor brake disengagement and chain hoist accessible from the ground level allowing manual opening and closing of the door during a power outage.
 - .8 Limit Switches: Equip each motorized door with adjustable switches interlocked with motor controls and set to automatically stop door at fully opened and fully closed positions.
 - .9 Timer: Each door to have automatic closing controlled by an adjustable hold open time delay.

2.5 CONTROL PANEL

- .1 MCC Variable Frequency Control System.
 - .1 MCC VectorControl™ variable frequency control system housed in a NEMA 4 rated enclosure.
 - .2 Controls must include a frequency control drive system capable of infinitely variable speed control in both the up and down directions and integrated programmable capability allowing field customization of logic I/O functionality without adding components.
 - .3 Operational parameters must be set from the Graphical User Interface (GUI).
 - .4 Controller comes with factory set parameters, a 64 bit scrollable graphic/text display that shows functional information during normal operation and will advise if maintenance is required or of abnormal situations.
 - .5 Controls must be fully self-diagnostic thru the GUI and provide corrective actions for error conditions.
 - .6 Control interface must display options and guidance in full text displayed language. Language options must be available in English and French languages.
 - .7 Door must be provided with electronic encoder. A proximity or rotary switch must be provided to accommodate the top position reference.

2.6 ACTIVATION DEVICES

- .1 General: Provide activation devices for condition of exposure and for long-term, maintenance-free operation under normal traffic load for type of occupancy indicated. Coordinate activation and safety devices with door operation and door operator mechanisms.
- .2 Pedestrian Type Activation Device
 - .1 Three push button switch; buttons for Open-Close-Stop. Located on interior adjacent to the door
- .3 Vehicle Type Activation Devices:
 - .1 Radio Control Activation: Near proximity portable push button remote control programmable to individual doors or multiple doors in common.
 - .1 Four Button Remote Control. Each control shall have activation button for each overhead door.

2.7 SAFETY DEVICES

- .1 Provide safety devices for condition of exposure and for long-term, maintenance-free operation under normal traffic load for type of occupancy indicated. Coordinate safety devices with door operation and door operator mechanisms.
- .2 Door to be provided with Safety Light Curtain System.
 - .1 Light curtain must be housed inside of the side jamb guide assembly and cover an area to a height of no less than 1830 mm.
 - .2 Light curtain system must have a minimum of 40 infrared thru-beam optical sensors.

2.8 STEEL FINISHES

- .1 Powder-Coat Finish: Manufacturer's standard baked-on finish consisting of prime coat and thermosetting topcoat. Comply with coating manufacturer's written instructions for cleaning, pretreatment, application, and minimum dry film thickness.
 - .1 Color: Orange.

PART 3 EXECUTION

3.1 EXAMINATION

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for overhead rolling doors 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.

3.2 INSTALLATION

- .1 Install high performance overhead coiling doors and operating equipment complete with necessary hardware, anchors, inserts, hangers, and equipment supports; according to manufacturer's written instructions and as specified.
- .2 Install high performance overhead coiling doors, hoods, controls, and operators at the mounting locations indicated for each door.

3.3 FIELD QUALITY CONTROL

- .1 Have manufacturer of products supplied under this Section review Work involved in handling, installation, protection and cleaning of its products, and submit written reports in acceptable format to verify compliance of Work with Contract.
- .2 Manufacturer's Field Services:
 - .1 Obtain written reports from manufacturer verifying compliance of Work, in handling, installing, applying, protecting and cleaning of product within 3 days.
- .3 Submit manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.
- .4 Ensure manufacturer's representative is present before and during critical periods of installation.
- .5 Schedule site visits to review Work at stages listed:
 - .1 After delivery and storage of products, and when preparatory Work on which Work of this Section depends is complete, but before installation begins.
 - .2 Twice during progress of Work at 25% and 60% complete.
 - .3 Upon completion of Work, after cleaning is carried out.

3.4 START-UP SERVICE

- .1 Engage a factory-authorized service representative to perform startup service.
 - .1 Perform installation and startup checks according to manufacturer's written instructions.
 - .2 Test and adjust controls and safety devices. Replace damaged and malfunctioning controls and equipment.

3.5 ADJUSTING

- .1 Adjust hardware and moving parts to function smoothly so that doors operate easily, free of warp, twist, or distortion.
 - .1 Adjust exterior doors and components to be weather-resistant.
- .2 Lubricate bearings and sliding parts as recommended by manufacturer.
- .3 Adjust seals to provide tight fit around entire perimeter.

3.6 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 Clean metals with damp rag and approved non-abrasive cleaner in accordance with manufacturer's instructions.
 - .2 Remove traces of primer, caulking; clean doors and frames.

3.7 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by overhead rolling door installation.

END OF SECTION