
SECTIONAL ALUMINUM DOORS

PART 1 GENERAL

1.1. GENERAL REQUIREMENTS

1.1.1. General Conditions and Division 01 apply to this section.

1.2. RELATED WORK

Section 05500: Metal Fabrication, Door frames
Section 07900: Joint Sealers
Section 09900: Painting and finishing
Section 11169: Loading Dock Equipment
Division 16: Power supply to Electric Operators

1.3. QUALITY ASSURANCE

1. Design doors to withstand horizontal wind loads while in the closed position of 0.47 kPa (10 psf). Maximum deflection while the door is in open horizontal position shall not exceed 1/120 of the span.
2. Installation shall be only by the specified manufacturer or an authorized representative for the region.

1.4. SUBMITTALS

1. Submit detailed shop drawings to the Consultant for review, in accordance with Section 01300.
2. Shop drawings shall clearly show door assemblies, hardware, operating components including adjacent construction. Show elevations, sections and details and clearances required for the door assemblies.
3. Shop drawings shall be of best quality craftsmanship, specifically prepared on standard size drawing sheet.
4. Door manufacturer shall provide complete installation instructions for doors and hardware.
5. Provide a letter of conformance indicating that the doors are installed in accordance to the drawings and the specifications.

PART 2 PRODUCTS

2.1. MANUFACTURER

1. Standard of Acceptance: Alumatite door model "P175" 1 3/4" (45 mm) thick aluminum construction as manufactured by Richards-Wilcox Canada Inc., with minimum requirements as specified herein:
2. Alternates will be considered provided they meet the minimum specification within and are approved & accepted in writing prior to tender closing.

2.2. MATERIALS

2.2.1. Sections:

1. Sections assembly: Door sections shall be fabricated from 1 3/4 inch (45 mm) thick 6036-T6 aluminum alloy extrusions with heavier walls at hardware mounting locations. The stile and rail shall be assembled using 1/4 inch (6 mm) diameter hexagon head bolts.

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2. Center stiles: 3 inch (76 mm) wide.
3. End stiles: 2-1/2 inch (64 mm) wide. Double end stiles for door width over 16'-3" (4953 mm).
4. Top rail: 2-3/16 inch (56 mm) wide.
5. Bottom rail: 2-9/16 inch (65 mm) wide.
6. Pair of meeting rails: 4-1/2 inch (114 mm) wide.
7. Seals: Continuous replaceable seal between sections.
8. Finish: Clear anodized, White and Bronze painted.
9. Trusses: Provide adequate number of galvanized steel linear type reinforcing trusses to meet the wind loading.

2.2.2 Paneling:

1. Paneling 5/8" (16 mm) thick, triple-wall extruded polycarbonate clear panels, $R= 2.5 \text{ ft}^2\text{hF/Btu}$ ($U= 2.271 \text{ W/ m}^2\text{K}$), light transmission 74%, SHGC= 0.75 retained with polyethylene gaskets.
2. UV Protection: The exterior side of the polycarbonate is protected with a coextruded layer warranting resistance to atmospheric agents and U.V. rays.
3. Fire Reaction: ASTM E84-01 Flame spread and smoke developed: Class A.
4. Colours: - Stock: Clear, Dark Bronze, Western Bronze. Optional: Blue, Green and White.

2.2.4 Hardware:

1. Standard of Acceptance: Linear Hardware System as manufactured by Richard-Wilcox Canada. Doors shall be equipped with double end roller brackets and long stem rollers.
2. Finish: Door hardware, tracks and track mounting hardware and torsion assembly mounting brackets, fabricated from commercially galvanized steel.
3. Track: 12ga (2.75 mm) thick, commercial galvanized roll formed track 3 1/8 inch (80 mm) overall outside dimension. Horizontal track curve available in 16 inch (406 mm) radius.
4. Vertical Track Mounting: Adjustable Continuous Track Angle (ADCA) bolted type, field adjustable, sloped to ensure weather tight seal, shall be fabricated from 13ga (2.4mm) commercially galvanized steel, designed to provide continuous tracks support for vertical track. **Combination angle and clip mounting not acceptable.**
5. Hinges: Linear type, fabricated from 12ga (2.75 mm) thick galvanized steel with embossments designed to resist higher load and to provide greater stability and improved performance. Doors width 16'-3" (4953 mm) and over shall have double end hinges featuring full width bushing for both the hinge pivot and roller carries to allow for ease installation and eliminating any possibility of misalignment of the hinges.
6. Track Hangers: Minimum 1 1/4" x 1 1/4" x 0.078 inch (32 x 32 x 2 mm) galvanized steel angles suitably spaced to transmit door weight to the building structure.
7. Weather-stripping: Doors shall be equipped with a heavy duty, **factory installed continuous top seal to seal against header**, continuous co-polymer joint bulb seal between sections and vinyl bulb shaped astragal on the bottom edge of the door. Dual Durometer vinyl jamb weather seal bolted to the

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continuous adjustable mounting angle (ADCA) for easy replacement, as supplied by Richards-Wilcox Canada.

8. Rollers: Steel rollers 3 inch (76 mm) diameter, with ten (10), 5/16 inch (8 mm) diameter ball bearings, 7/16 inch (11 mm) diameter roller axles and both inner and outer ball races of hardened steel. Length of roller stem as required.
9. Linear Roller Brackets: Fabricated from 12ga (3.1 mm) galvanized steel.
10. Shaft and Counter Balance Springs: Helically wound torsion springs manufactured from oil tempered spring wire stress relieved, minimum 10,000 cycles. Aluminum die cast grooved drums and flexible galvanized aircraft cables, 7 x 19 construction, mounted on 1 inch (25.4 mm) CRS solid steel shaft, keyed full length, mounted on ball bearings
11. Bumper springs shall be installed at the end of each horizontal track to stop door over travel.
12. Track Guards: Continuous 3/16" thick x 5'-0" (4.5 mm x 1524 mm) high, chamfered 45 degree at top, gray prime finish.
13. Door quantity, size and hardware lift type as shown in door schedule and/or drawings.

2.2.5 Electric operator:

1. Provide jack shaft type electric operators, as shown on Drawings, to operate the door at approximate speed of 8 inch (200 mm) per second.
2. Jack Shaft Operator: Lift Master industrial duty logic control type operator with on board radio receiver, model "H" to NEMA 1, shall be equipped with an adjustable friction clutch, time delay on reverse, solenoid brake integral enclosure containing the controls and floor level disconnect and emergency manual chain hoist assembly with electrical interlock, motor ___ HP minimum, suitable for ___ volts, _ Ph, 60 Hz power supply.
 - a) Provide one push button station "OPEN/CLOSE/STOP" to NEMA 1, for inside wall mounting near the door jamb on the operator side.
 - b) Provide and install a "Featheredge" Reversing Safety Edge along the bottom edge of door to reverse on contact with an object as supplied by Service Door Industries. **Hose type pneumatic safety edges will not be accepted.** Power to the safety edge shall be supplied by a reelite.
3. Power supply and fused disconnect near the opening on the operator side by division 16. Wiring from the fused disconnect to the operator and to the controls by the door contractor.

2.3 FABRICATION

1. Fabricate the work true to dimensions detailed and square, and to the reviewed shop drawings, free from distortion and defects detrimental to the appearance and performance.
2. Verify the door opening dimensions prior to the fabrication of the doors.
3. Doors shall be 1 inch (25.4 mm) higher than finished openings and extend 1 inch (25.4 mm) beyond jamb on either side of finished opening width.
4. Shop and field connections shall comply with CAN/CSA S16.1-M.
5. Accurately fit joints and intersecting members with adequate fastenings.

PART 3 EXECUTION

3.1 EXAMINATION

1. Prior to commencement of work of this Section, thoroughly examine opening frames and frame extensions to receive the doors and related components for installation. Ensure that the opening

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frames are square and plumb. Ensure that the floor is level and square to building lines, so that the door properly seal against the frame and floor.

2. Report to the Consultant in writing of any condition adversely affecting this work.
3. Proceed with the installation of the doors only when site conditions are satisfactory for the installation. Commencement of the overhead door installation constitutes acceptance of the opening conditions, any subsequent problems arising during the door installation will be the responsibility of the door installer.

3.2 INSTALLATION

1. **Installation shall be by door manufacturer or by authorized manufacture's representative for the region, as specified herein.**
2. Install doors, tracks and operating equipment complete with necessary hardware, weather-stripping, anchors, hangers, brackets and accessories, in accordance to manufacturer's printed instructions.
3. Assemble and erect work plumbs, true, square, straight, level and accurate as per Drawings and reviewed shop drawings.
4. Isolate metals where necessary to prevent corrosion due to contact with dissimilar metals and between metals, masonry and concrete. Use bituminous paint or butyl tape or as recommended, in writing, by the door manufacturer.
5. Supply written instructions, drawings, and where necessary provide supervision for the installation of items to be built in by work of other Sections.
6. Steel member's etc. including jamb extensions and spring pads, by Division 5 and as per structural drawings. All other mounting brackets, angles etc., required for the proper installation of work of this Section, shall be the responsibility of the door manufacturer.
7. Complete installation must be to the satisfaction of the Consultant. Any and all aspects of installation adversely affecting appearance and/or performance of such installation shall be deemed unacceptable and shall be fully replaced at no additional cost to the Owner.

3.2.1 Door:

1. Install sectional door in strict accordance with final reviewed shop drawings, manufacturer's instructions and as specified herein.
2. Fit, align and adjust overhead door assemblies, level and plumb, to ensure smooth operation and to provide correct closure to the satisfaction of the Consultant.
3. Ensure that complete installation includes tracks, operating equipment, necessary hardware, weather-stripping, anchors, hangers, brackets and any other accessories deemed necessary. Include any other items, not specified herein, but is required for a complete installation.

3.2.2 Hardware:

1. Install all necessary hardware, jamb and head mold strips, anchors, inserts, hangers and equipment supports in accordance with final reviewed shop drawings, manufacturer's instructions and as specified herein.
2. Mount counterbalancing mechanism with brackets at each end of shaft and at maximum 8'-0" (2438 mm) o/c. in between.
3. Fasten vertical track assembly to opening frame at maximum 1'-8" (508 mm) o/c. vertically. Install additional track anchors where deemed necessary by the Consultant.
4. Support the horizontal track to transmit the door dead and operating loads to the building structure. Install sufficient supports, anchors, fasteners etc. so that the track assembly is rigid and free from undue movement as required by the door manufacturer and to the satisfaction of the Consultant. Install additional track anchors where deemed necessary by the Consultant.

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5. Provide bumper springs at the end of each track.
6. Ensure that weather-stripping is securely fastened and adjusted to provide effective seal.

3.2.3 ADJUSTMENT AND DEMONSTRATION

1. Lubrication:
 - I. Upon completion of installation of doors and operating equipment, lubricate moving parts before operation.
 - II. Grease sprockets, bearings, cables, link chains and guides. Lubricant shall be as recommended by the manufacturer.
2. Demonstration:
 - I. Test the door operation and adjust doors for smooth operation, free from warp, twist or distortion. Demonstrate the operation to the satisfaction of the Consultant at the same time of acceptance of the completed work.
 - II. Submit to the Owner a copy of proposed preventative maintenance program for overhead doors and other related components requiring regular maintenance and check-ups.

END OF SECTION