

PART 1 - GENERAL

1.1 REFERENCES

- .1 ASTM International
 - .1 ASTM A 1008/A 1008M-10, Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable.
 - .2 ASTM D 523-08, Standard Test Method for Specular Gloss.
 - .3 ASTM D 822-01(2006), Standard Practice for Filtered Open-Flame Carbon-Arc Exposures of Paint and Related Coatings.
 - .2 Canada Green Building Council (CaGBC)
 - .1 LEED Canada-NC-2009, LEED (Leadership in Energy and Environmental Design): Green Building Rating System Reference Package For New Construction and Major Renovations.
 - .3 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-1.105-M91, Quick-Drying Primer.
 - .2 CAN/CGSB-1.213-04, Etch Primer (Pretreatment Coating or Tie Coat) for Steel and Aluminum.
 - .3 CAN/CGSB-1.181-99, Ready-Mixed, Organic Zinc-Rich Coatings.
 - .4 CSA International
 - .1 CAN/CSA-G164-M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.
 - .5 Environmental Choice Program (ECP)
 - .1 CCD-016-97(R2005), Thermal Insulation.
 - .2 CCD-047-98(R2005), Architectural Surface Coatings.
 - .3 CCD-048-98(R2006), Surface Coatings - Recycled Water-borne.
 - .6 Green Seal Environmental Standards (GS)
 - .1 GS-11-2008, 2nd Edition, Paints and Coatings.
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| 1.1 REFERENCES
(Cont'd) | .7 | South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards
.1 SCAQMD Rule 1113-A2007, Architectural Coatings. |
| 1.2 ADMINISTRATIVE REQUIREMENTS | .1 | Pre-Installation Meetings:
.1 Convene pre-installation meeting 1 week prior to beginning work of this Section and on-site installation, with Contractor's Representative and Departmental Representative in accordance with Section 01 31 19 - Project Meetings to:
.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. |
| 1.3 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 doors, hardware, and accessories and include product characteristics, performance criteria, physical size, finish and limitations. |
| | .3 | Shop Drawings:
.1 Indicate sizes, service rating, types, materials, operating mechanisms, hardware and accessories, required clearances and electrical connections. |
| | .4 | Certificates: submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements. |
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| 1.3 ACTION AND
INFORMATIONAL
SUBMITTALS
(Cont'd) | .5 | Test Reports: submit certified test reports showing compliance with specified performance characteristics and physical properties. |
| | .6 | Manufacturers Reports:
.1 Manufacturer's Field Reports: submit manufacturer's written reports within 3 days of review, verifying compliance of Work, as described in Part 3 - FIELD QUALITY CONTROL. |
| | .7 | Sustainable Design Submittals:
.1 In accordance with Section 01 35 21 - LEED Requirements. |
| 1.4 CLOSEOUT
SUBMITTALS | .1 | Submit in accordance with Section 01 78 00 - Closeout Submittals. |
| | .2 | Operation and Maintenance Data: submit operation and maintenance data for sectional metal doors for incorporation into manual. |
| 1.5 MAINTENANCE
MATERIAL SUBMITTALS | .1 | Submit in accordance with Section 01 78 00 - Closeout Submittals. |
| | .2 | Spare parts:
.1 Supply spare parts for sectional metal doors as follows:
.1 Door rollers:6.
.2 Weatherstripping: 1 sets.
.3 Springs and cables.
.2 Store where directed. Identify each part and reference to appropriate door. |
| 1.6 QUALITY
ASSURANCE | .1 | Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements. |
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- 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, indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect sectional metal doors, hardware and accessories from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.
 - .4 Develop Construction Waste Management Plan related to Work of this Section and in accordance with Section 01 35 21 - LEED Requirements.
 - .5 Packaging Waste Management: remove for reuse or return of pallets, crates, padding, banding, and packaging materials as specified in Construction Waste Management Plan in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal and Section 01 35 21 - LEED Requirements.

PART 2 - PRODUCTS

- 2.1 DESIGN CRITERIA
- .1 Design exterior door assembly to withstand wind load of 1 kPa with a maximum horizontal deflection of 1/240 of opening width.
 - .2 Design door panel assemblies with thermal insulation factor 4.4 RSI.
 - .3 Design door assembly to withstand minimum 1600 cycles per annum, and 160,000 total life cycle.
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- 2.2 MATERIALS
- .1 Galvanized steel sheet: commercial quality Z275 zinc coating.
 - .2 Insulation: to meet design requirements.
 - .3 Glazing: not applicable.
 - .4 Cable: multi-strand galvanized steel aircraft cable.

- 2.3 DOORS
- .1 Fabricate insulated panel doors of interlocking sections as indicted.
 - .2 Panels:
 - .1 Formed under pressure, galvanized steel faces bonded to 100% CFC + HCFC-Free Polyurethane core.
 - .2 Complete with flexible top seal.
 - .3 Two coat exterior polyester finish on interior and exterior skins.
 - .4 Mechanically interlocked interior and exterior skins.
 - .5 Continuous galvanized steel reinforcement for hardware attachment.
 - .6 Bottom safety-edge/artic grade weatherstrip.
 - .7 Perimeter and between-panel arctic grade weatherstrip.
 - .8 Panel thickness: 45mm thick with thermal value of RSI 4.4.
 - .3 Assemble components to manufactuer's recommendations.

- 2.4 HEAVY DUTY INDUSTRIAL HARDWARE
- .1 Track: lift hardware with 75 mm size 2.66 mm core thickness galvanized steel track.
 - .2 Track Supports: 2.3 mm core thickness continuous galvanized steel angle track supports.
 - .3 Track: standard hardware with 75 mm size 2.66 mm core thickness galvanized steel track as indicated.
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| 2.4 HEAVY DUTY
INDUSTRIAL HARDWARE
(Cont'd) | .4 | Spring counter balance: heavy duty oil tempered torsion spring with manufacturer's standard brackets.
.1 Drum: 200 mm diameter die cast aluminum.
.2 Shaft: 25 mm diameter galvanized steel. |
| | .5 | Rollers: full floating grease packed hardened steel, ball bearing size to suit track. |
| | .6 | Roller brackets: adjustable, minimum 2.5 mm galvanized steel. |
| | .7 | Hinges: heavy duty, secured with rivets or self-tapping screws. |
| | .8 | Cable: galvanized steel aircraft cable diameter to suit. |
| | .9 | Two slide bolt interior locks. No exterior hardware. |
| 2.5 ACCESSORIES | .1 | Overhead horizontal track and operator supports: galvanized steel, type and size to suit installation. |
| | .2 | Track guards: 5 mm thick formed sheet 1500 mm high track guards. |
| | .3 | Pusher springs. |
| | .4 | Handles:
.1 Flat bar door latch.
.2 Handles: operated from outside. |
| | .5 | Finish ferrous hardware items with minimum zinc coating of 300 g/m ² to CAN/CSA-G164. |
| 2.6 PREFINISHED
STEEL SHEET | .1 | Prefinished steel with factory applied "Barrier" finish coating.
.1 Class F1S.
.2 Colour as selected by Departmental Representative from manufacturer's standard range.
.3 Specular gloss: 30 units +/- in accordance with ASTM D 523. |
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- 2.6 PREFINISHED .1 (Cont'd)
STEEL SHEET .4 Resistance to accelerated weathering for
(Cont'd) chalk rating of 8, colour fade 5 units or less
and erosion rate less than 20% to ASTM D 822
as follows:
.1 Outdoor exposure period 1000 hours.
.2 Humidity resistance exposure period
1000 hours.
- 2.7 OPERATORS .1 Equip doors for operation by:
.1 Electric motor, jackshaft type.
.2 Complete with auxiliary chain hoist with
galvanized steel chain.
.2 Cable fail safe device.
.1 Able to stop door immediately if cable
breaks on door free fall. Braking capacity 500
kg.
- 2.8 ELECTRICAL .1 Electrical motors, controller units, remote
OPERATOR pushbutton stations, relays and other
electrical components: to CSA approval with
CSA enclosure.
.2 Power supply: 208V, 3 phase, 60 Hz.
.1 Confirm electrical supply before
submitting shop drawings.
- 2.9 FINISH SCHEDULE .1 All steel components to be powder coated
finished, to manufacturer's standard.
.2 This applies to tracks, brackets, handles,
chain, and other steel component.
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PART 3 - EXECUTION

- 3.1 EXAMINATION .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for sectional metal 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 Manufacturer's Instructions: comply with manufacturer's written recommendations, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.
- .2 Install doors and hardware in accordance with manufacturer's instructions.
- .3 Rigidly support rail and operator and secure to supporting structure.
- .4 Touch-up steel doors with primer where galvanized finish damaged during fabrication.
- .5 Install operator including electrical motors, controller units, pushbutton stations, relays and other electrical equipment required for door operation.
- .6 Lubricate and adjust door operating components to ensure smooth opening and closing of doors.
- .7 Adjust weatherstripping to form a weather tight seal.
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3.2 INSTALLATION .8 Adjust doors for smooth operation.
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3.3 FIELD QUALITY .1 Manufacturer's Field Services:
CONTROL

- .1 Obtain written reports from manufacturer verifying compliance of Work, in handling, installing, applying, protecting and cleaning of product within 3 days of review.
- .2 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.
- .3 Ensure manufacturer's representative is present before and during critical periods of installation and testing.
- .4 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 Upon completion of Work, after cleaning is carried out.

3.4 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 Remove traces of primer; clean doors and frames.
- .3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal and Section 01 35 21 - LEED Requirements.
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

- 3.5 PROTECTION .1 Protect installed products and components
from damage during construction.
- .2 Repair damage to adjacent materials caused by
sectional metal door installation.