

**Part 1 General**

**1.1 RELATED REQUIREMENTS**

- .1 Section 07 92 00 – Joints Sealant
- .2 Section 09 91 00 - Painting

**1.2 REFERENCES**

- .1 American Society for Testing and Materials International (ASTM)
  - .1 ASTM A653/A653M-19a, Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- .1 American National Standards Institute (ANSI)
  - .1 ANSI/SDI A250.8-2017, Specification for Standard Steel Doors and Frames (SDI-100)
- .2 Canadian Standards Association (CSA International)
  - .1 CSA-G40.20-13/G40.21-13 (R2018), General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
  - .2 CSA W59-18, Welded Steel Construction (Metal Arc Welding).
- .3 Canadian Steel Door Manufacturers' Association (CSDMA)
  - .1 CSDMA, Recommended Specifications for Commercial Steel Doors and Frames, 2006.

**1.3 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Provide product data: Indicate door and frame configurations and finishes, location of cut-outs for hardware reinforcement.
- .3 Shop Drawings:
  - .1 Indicate frame elevations, frame section, reinforcement, anchor types and spacing, location of cut-outs for hardware, and finish.
  - .2 Indicate door elevations, internal reinforcement, closure method, and cut-outs for glazing, and finishes.
  - .3 Include schedule identifying each unit, with door marks and numbers relating to numbering on drawings and door schedule.

**1.4 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.

**Part 2 Products**

**2.1 MATERIALS**

- .1 Hot dipped galvanized steel sheet: to ASTM A653M, Z275.
- .2 Reinforcement channel: to CSA G40.20/G40.21, Type 44W, coating designation to ASTM A653M, Z275

**2.2 DOOR CORE MATERIALS**

- .1 Expanded Polystyrene Core: Rigid extruded fire retardant, closed cell board, density 16 to 32 kg/m<sup>3</sup>, thermal values RSI 1.0 minimum, Type 1, in accordance with CAN/ULC-S701.
- .2 Stiffened: face sheets welded, insulated core.
- .3 Adhesive for cores and steel components: Manufacturer's standard heat resistant.

**2.3 ACCESSORIES**

- .1 Door silencers: single stud rubber/neoprene type.
- .2 Top and bottom caps: Inverted, (legs facing inward) continuously welded, weathertight steel channel.
- .3 Joint Sealers: to Section 07 92 00, colour to match adjacent wall finish.

**2.4 DOOR FABRICATION**

- .1 Fabricate frames in accordance with CSDMA specifications and as follows:
  - .1 Exterior Doors: Stiffened construction.
  - .2 Face sheet thickness: 1.7 mm
  - .3 Reinforce doors with vertical stiffeners, securely welded to face sheets at 150 mm on centre maximum.
  - .4 Fill voids between stiffeners of doors with polystyrene core.
  - .5 Longitudinal Edges: Mechanically interlocked, continuously welded.
  - .6 Mortised, blanked, reinforced, drilled and tapped for templated hardware, in accordance with templates provided by hardware supplier.
  - .7 Reinforce for surface mounted hardware, anchor hinges, thrust pivots, pivot reinforced hinges, or non-templated hardware.

- .8 Top and Bottom Channels:
  - .1 Recessed, welded steel channels. (legs facing inward); Continuously welded.
- .9 Provide factory-applied touch-up primer at areas where zinc coating has been removed during fabrication.
- .2 Manufacturer's nameplates on doors are not permitted.
- .3 Attach fire rated label to each fire rated door

## **2.5 FRAMES FABRICATION**

- .1 Interior Frames: Face sheet thickness: 1.7 mm
  - .1 Welded type construction.
  - .2 Welding in accordance with CSA W59.
  - .3 Accurately mitre or mechanically joint frame product and securely weld on inside of profile.
  - .4 Weld in 2 temporary jamb spreaders per frame to maintain proper alignment during shipment.
- .2 Mortised, blanked, reinforced, drilled and tapped for templated hardware, in accordance with templates provided by hardware supplier.
- .3 Reinforce frames wider than 1200 mm with roll formed steel channels fitted tightly into frame head, flush with top.
- .4 Prepare frames for three (3) silencers.
- .5 Provide appropriate anchorage to floor and wall construction.
  - .1 Locate each wall anchor immediately above or below each hinge reinforcement on hinge jamb and directly opposite on strike jamb.
  - .2 Provide 2 anchors for rebate opening heights up to 1520 mm and 1 additional anchor for each additional 760 mm of height or fraction thereof.
  - .3 Locate anchors for frames in existing openings not more than 150 mm from top and bottom of each jambs and intermediate at 660 mm on centre maximum.
- .6 Attach fire rated label to each fire rated frame

## **2.6 FINISH**

- .1 Finish: Field painted in accordance with Section 09 91 00

**Part 3 Execution**

**3.1 MANUFACTURER'S INSTRUCTIONS**

- .1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

**3.2 EXAMINATION**

- .1 Verify that opening sizes and tolerances are acceptable; check floor area within path of door swing for flatness.
- .2 Verify doors and frames are correct size, swing, rating and opening number.
- .3 Remove temporary shipping spreaders.

**3.3 INSTALLATION GENERAL**

- .1 Install doors and frames to CSDMA Installation Guide.

**3.4 INSTALLATION**

- .1 Install doors and frames to CSDMA.
- .2 Frames:
  - .1 Coordinate with wall construction for anchor placement.
  - .2 Set frames plumb, square, level and at correct elevation.
  - .3 Secure anchorages and connections to adjacent construction.
  - .4 Brace frames rigidly in position while building-in.
  - .5 Install wood spreaders at third points of frame rebate height to maintain frame width.
  - .6 Provide vertical support at centre of head for openings exceeding 1200 mm in width.
  - .7 Remove wood spreaders after frames have been built-in.
  - .8 Make allowance for deflection to ensure structural loads are not transmitted to frame product.
  - .9 Foam fill shim space at perimeter of frame and open back sections
  - .10 Caulk perimeter of door frame to Section 07 92 00.
- .3 Doors:
  - .1 Install doors, and hardware specified in Section 08 71 00 in accordance with hardware templates and manufacturer's instructions.
    - .1 Adjust operable parts for correct clearances and function.
    - .2 Install door silencers and coordinate installation of glazing.

**END OF SECTION**

**Part 1 General**

**1.1 RELATED SECTIONS**

- .1 Division 01 – General Requirements.
- .2 Section 23 05 05 – Installation of Pipework.

**1.2 SHOP DRAWINGS**

- .1 Submit shop drawings in accordance with Division 01 – General Requirements.
- .2 Submit catalogue details for each type of door illustrating profiles, dimensions and methods of assembly.

**1.3 CLOSEOUT SUBMITTALS**

- .1 Provide maintenance data for cleaning and maintenance of stainless steel finishes for incorporation into manual in accordance with Division 01 – General Requirements.

**1.4 WASTE MANAGEMENT AND DISPOSAL**

- .1 Separate and recycle waste materials in accordance with Division 01 – General Requirements.

**1.6 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Division 01 – General Requirements and Manufacturer’s written instructions.
- .2 Apply temporary protective coating to finished surfaces. Remove coating after erection. Do not use coatings that will become hard to remove or leave residue.
- .3 Leave protective covering in place until final cleaning of building.

**Part 2 Products**

**2.1 ACCESS DOORS**

- .1 Supply and install as necessary to gain access to all concealed mechanical equipment for operating, inspecting, adjusting, servicing.
- .2 Sizes: Except as indicated otherwise, to be minimum sizes as follows:
  - .1 For body entry: 600 x 600 mm.
  - .2 For hand entry: 300 x 300 mm.
- .3 Construction: Rounded safety corners, concealed hinges, screwdriver latch, anchor straps, able to open 180 and drywall tape edge.
- .4 Materials:
  - .1 Tiled or marble surfaces and other special areas: Stainless steel with brushed satin or polished finish as directed by Engineer.

- .2 Other areas: Prime coated steel.

## **2.2 EXCLUSIONS**

- .1 Lay-in tile ceilings. In this instance, use unobtrusive identification locators.
- .2 Fire Rated Applications: Use fire-rated access door.

## **Part 3 Execution**

### **3.1 INSTALLATION**

- .1 Installation:
  - .1 As per Manufacturer's instructions.

### **3.2 LOCATION**

- .1 Location: Ensure that equipment is clearly within view and accessible for operating, inspecting, adjusting, servicing without the need for special tools.

### **3.3 FIELD QUALITY CONTROL**

- .1 Verification requirements in accordance with Division 01 – General Requirements.

### **3.4 CLEANING**

- .1 Proceed in accordance with Division 01 – General Requirements.
- .2 Upon completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

END OF SECTION

**Part 1 General**

**1.1 RELATED REQUIREMENTS**

- .1 Section 08 11 00 Metal Doors and Frames

**1.2 REFERENCES**

- .1 American National Standards Institute (ANSI) / Builders Hardware Manufacturers Association (BHMA)
  - .1 ANSI/BHMA A156.1-2000, American National Standard for Butts and Hinges.
  - .2 ANSI/BHMA A156.2-2003, Bored and Preassembled Locks and Latches.
  - .3 ANSI/BHMA A156.4-2000, Door Controls - Closers.
  - .4 ANSI/BHMA A156.5-2001, Auxiliary Locks and Associated Products.
  - .5 ANSI/BHMA A156.6-2005, Architectural Door Trim.
  - .6 ANSI/BHMA A156.8-2005, Door Controls - Overhead Stops and Holders.
  - .7 ANSI/BHMA A156.10-1999, Power Operated Pedestrian Doors.
  - .8 ANSI/BHMA A156.12-2005, Interconnected Locks and Latches.
  - .9 ANSI/BHMA A156.13-2002, Mortise Locks and Latches Series 1000.
  - .10 ANSI/BHMA A156.14-2002, Sliding and Folding Door Hardware.
  - .11 ANSI/BHMA A156.15-2006, Release Devices - Closer Holder, Electromagnetic and Electromechanical.
  - .12 ANSI/BHMA A156.16-2002, Auxiliary Hardware.
  - .13 ANSI/BHMA A156.18-2006, Materials and Finishes.
  - .14 ANSI/BHMA A156.19-2002, Power Assist and Low Energy Power - Operated Doors.
- .2 Canadian Steel Door and Frame Manufacturers' Association (CSDMA)
  - .1 CSDMA Recommended Dimensional Standards for Commercial Steel Doors and Frames

**1.3 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 hardware and include product characteristics, performance criteria, physical size, finish and limitations.

- .3 Hardware List:
  - .1 Submit detailed hardware list and keying schedule. Hardware Schedule is to be submitted as per DHI vertical format which is in the “Sequence and Format for Hardware Schedules”.
  - .2 Indicate specified hardware including make, model, material, function, size, finish and other pertinent information.
  - .3 Furnish other Sections with templates required for hardware preparation and installation.
    - .1 Issue templates when requested so as not to cause any delays but not before hardware list has received final review by Engineer-Architect.
  - .4 Keying Schedule to be in accordance with DHI manual “Keying Systems Names and Nomenclature”.
    - .1 Key schedule is not to hold up the processing of the hardware list.
  - .5 Wiring Diagrams will only be supplied after the final approval of the Hardware Schedule.
    - .1 Submit wiring diagrams as requested for proper installation of electrical, electrical-mechanical and electrical-magnetic products.
- .4 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
- .5 Manufacturer's Instructions: submit manufacturer's installation instructions.

#### **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 door hardware for incorporation into manual.
- .3 Provide three sets of maintenance tools for closers, locks and exit devices as well as a complete set of installation instructions.

#### **1.5 QUALITY ASSURANCE**

- .1 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

#### **1.6 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements 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 Package items of hardware including fastenings, separately or in like groups of hardware, label each package as to item definition and location.
- .4 Storage and Handling Requirements:
  - .1 Store materials indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect door hardware from nicks, scratches, and blemishes.
  - .3 Protect prefinished surfaces with wrapping strippable coating.
  - .4 Replace defective or damaged materials with new.

## **Part 2 Products**

### **2.1 HARDWARE ITEMS**

- .1 Use one manufacturer's products only for similar items.

### **2.2 DOOR HARDWARE**

- .1 All fasteners to come complete with the hardware as described.
  - .1 Hardware supplier must be advised immediately if required fasteners are not enclosed with hardware.
- .2 Hardware must be installed with fasteners supplied by the manufacturer.
  - .1 All non-conforming fasteners will be removed and replaced with conforming type at the contractor's expense.
- .3 Hinges Butts and hinges: to ANSI/BMHA A156.1.
  - .1 Non removable pins (NRP) for all doors.
  - .2 Material: Stainless steel
  - .3 All hinges to be five-knuckle design and ball bearing.
  - .4 All electric hinges to be supplied with plug in connectors as specified.
  - .5 Finish Stain Stainless Steel.
- .4 Mortise locks and latches: to ANSI/BMHA A156.13, Series 1000, Operational Grade 1 with all standard trim
  - .1 Locks shall be easily re-handed.
  - .2 Multi-functional lock body to make it easy to change functions in the field.
  - .3 Construction: Lock functions shall be manufactured in a single-sized case formed from 2.6mm steel minimum.
  - .4 Locks shall have field adjustable, beveled, armored front, with a 3mm thickness minimum.
  - .5 Locks shall have a one piece, 19mm throw anti-friction stainless steel latch.

- .6 Backset: 70mm.
- .7 Strikes shall be non-handed with a curved lip. To ensure proper alignment, trim, knobs or levers, shall be through-bolted and fully interchangeable between rose and escutcheon.
- .8 Lever handles: "LNL" design.
- .9 Roses: round.
- .10 Finished to stainless steel
- .11 Cylinders: key into keying system as noted as directed.
- .5 Architectural door trim: to ANSI/BHMA A156.6, finished to stainless steel 630.
  - .1 Door Kickplate: 1.3 mm thick stainless steel, 203mm high, unbevelled edges, width less 40mm push side, width less 25mm on pull side for single doors. Width less 25mm for pairs. Stainless steel 630
  - .2 Door Push plates: 1.3 mm thick stainless steel, size 89mm x 381mm, finished to stainless steel 630.
  - .3 Door Pulls: 19mm round pull, 228.6mm centre to centre pulls, with 76mm x 305mm protection plate, mount type 1, stainless steel 630.
- .6 Overhead stop: to ANSI/BMHA A156.8, heavy duty construction, BHMA Grade 1 Certified, stainless steel construction.
  - .1 Holder Selector: Turn knob to activate and deactivate the hold open function
  - .2 Thru bolts capture channel and end caps.
  - .3 Heavy duty shock spring absorbs load and gradually stops door.
  - .4 Sized as per manufacturer's guidelines. Take into account other hardware mounted on doors.
  - .5 Finishes stainless steel, 630.
- .7 Door Stops: to ANSI/BMHA A156.16 Finished to 26D.
  - .1 Wall stops classification, convex or concave, cast brass or bronze. Fasteners to suite wall conditions.
- .8 Thresholds: to ANSI/BMHA A156.21.
  - .1 Saddle threshold 152.4 mm wide x full width of door opening, extruded aluminum mill finish, serrated surface.
- .9 Door Gasketing and Edge Seal Systems: to ANSI/BMHA A156.22.
  - .1 Head and Jambs Seal:
    - .1 Extruded aluminum frame and neoprene insert, clear anodized finish.
    - .2 Surface overhead stops and exit device strikes to mount below weatherstrip to provide continuous seal.

- .2 Bottom Seal
  - .1 Extruded Aluminum frame and nylon brush sweep, clear anodized finish.
  - .2 Heavy duty, door seal of extruded aluminum frame and solid closed cell neoprene weather seal, recessed in door bottom, closed ends, automatic retract mechanism when door is open, clear anodized finish.

## **2.3 FASTENINGS**

- .1 Use only fasteners provided by manufacturer. Failure to comply may void warranties and applicable licensed labels.
- .2 Supply screws, bolts, expansion shields and other fastening devices required for satisfactory installation and operation of hardware.
- .3 Exposed fastening devices to match finish of hardware.
- .4 Where pull is scheduled on one side of door and push plate on other side, supply fastening devices, and install so pull can be secured through door from reverse side. Install push plate to cover fasteners.
- .5 Use fasteners compatible with material through which they pass.

## **2.4 KEYING**

- .1 Doors, to be keyed differently in groups master keyed as directed.
- .2 Prepare detailed keying schedule in conjunction with Departmental Representative.
- .3 Supply keys in duplicate for every lock in this Contract.
- .4 Supply 3 master keys for each master key or grand master key group.

## **Part 3 Execution**

### **3.1 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 Supply metal door and frame manufacturers with complete instructions and templates for preparation of their work to receive hardware.
- .3 Supply manufacturers' instructions for proper installation of each hardware component.
- .4 Install hardware to standard hardware location dimensions in accordance with CSDFMA Canadian Metric Guide for Steel Doors and Frames (Modular Construction).
- .5 Where door stop contacts door pulls, mount stop to strike bottom of pull.
- .6 Use only manufacturer's supplied fasteners.
  - .1 Use of "quick" type fasteners, unless specifically supplied by manufacturer, is unacceptable.

### **3.2 ADJUSTING**

- .1 Adjust door hardware, operators, closures and controls for optimum, smooth operating condition, safety and for weather tight closure.
- .2 Lubricate hardware, operating equipment and other moving parts.
- .3 Adjust door hardware to ensure tight fit at contact points with frames.

### **3.3 CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Leave Work area clean at end of each day.
  - .2 Clean hardware with damp rag and approved non-abrasive cleaner, and polish hardware in accordance with manufacturer's instructions.
  - .3 Remove protective material from hardware items where present.
  - .4 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

### **3.4 DEMONSTRATION**

- .1 Keying System Setup:
  - .1 Set up key control system with file key tags, duplicate key tags, numerical index, alphabetical index and key change index, label shields, control book and key receipt cards.
  - .2 Lock key cabinet and turn over key to Departmental Representative.
- .2 Maintenance Staff Briefing:
  - .1 Brief maintenance staff regarding:
    - .1 Proper care, cleaning, and general maintenance of projects complete hardware.
    - .2 Description, use, handling, and storage of keys.
    - .3 Use, application and storage of wrenches for door closers locksets and fire exit hardware.
- .3 Demonstrate operation, operating components, adjustment features, and lubrication requirements.

### **3.5 PROTECTION**

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

### **3.6 SCHEDULE & SETS**

- .1 See Drawings for Hardware Set

**END OF SECTION**