

1 General

1.1 RELATED REQUIREMENTS

- .1 07 92 10 - Joint Sealing.
- .2 08 71 10 - Finish Hardware.

1.2 REFERENCE STANDARDS

- .1 Canadian General Standards Board (CGSB).
  - .1 CAN/CGSB-1.181-99, Ready Mixed Organic Zinc-Rich Coating.
- .2 Canadian Standards Association (CSA).
  - .1 CSA W59-13, Welded Steel Construction (Metal Arc Welding).
- .3 Canadian Steel Door Manufacturers' Association (CSDMA).
  - .1 CSDMA, Recommended Specifications for Commercial Steel Door and Frame Products 08 11 00, 2006.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Shop drawings:
  - .1 Indicate each type of door, material, steel core thicknesses, mortises, reinforcements, location of exposed fasteners, openings, arrangement of hardware, and finishes.
  - .2 Indicate each type of frame material, core thickness, reinforcements, location of anchors and exposed fastenings reinforcing, 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.

2 Products

2.1 MATERIALS

- .1 Steel doors and frames: commercial quality, manufactured by current CSDMA member.
- .2 Hot dipped galvanized steel sheet: to ASTM A653M, ZF75, unless noted otherwise minimum base steel thickness in accordance with CSDMA Table 1 - Thickness for Component Parts.
- .3 Reinforcement channel: to CSA G40.20/G40.21, Type 44W, coating designation to ASTM A653M, ZF75.
- .4 Door Core Materials: Mineral fibre insulation, to CAN/ULC-S702.1, semi-rigid density 24 kg/m<sup>3</sup>.
- .5 Touch-up primer: to CAN/CGSB-1.181.
- .6 Door silencers: single stud rubber/neoprene type.

- .7 Metallic paste filler: to manufacturer's standard.

## 2.2 FABRICATION

- .1 Fabricate in accordance with CSDMA specifications.
- .2 Blank, reinforce, drill and tap doors and frames for mortised, templated hardware, and electronic hardware using templates provided by finish hardware supplier. Reinforce surface mounted hardware.
- .3 Cut out for door contacts.
- .4 Provide factory-applied touch-up primer at areas where zinc coating has been removed during fabrication.
- .5 Do welding in accordance with CSA W59.
- .6 Manufacturer's nameplates are not permitted.
- .7 Conceal fastenings except where exposed fastenings are indicated.
- .8 Fabrication - Frames:
  - .1 Fabricate fabricated from 1.6 mm thick sheet steel to profiles and maximum face sizes as indicated.
  - .2 Cut-outs and hardware preparation:
    - .1 Protect mortised cutouts with steel guard boxes for masonry walls/partitions.
    - .2 Prepare frame for door silencers, three (3) for single door.
  - .3 Frame Anchorage:
    - .1 Provide appropriate anchorage to floor and wall construction.
    - .2 Locate each wall anchor immediately above or below each hinge reinforcement on hinge jamb and directly opposite on strike jamb.
    - .3 Provide two (2) anchors for rebate opening heights up to 1520 mm and one (1) additional anchor for each additional 760 mm of height or fraction thereof.
    - .4 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.
  - .4 Accurately mitre or mechanically joint frame product and securely weld on inside of profile.
  - .5 Grind welded joints and corners to a flat plane, fill with metallic paste and sand to uniform smooth finish.
  - .6 Securely attach floor anchors to inside of each jamb profile.
  - .7 Weld in two (2) temporary jamb spreaders per frame to maintain proper alignment during shipment.
- .9 Fabrication - Doors:
  - .1 Doors: swing type, flush.
  - .2 Construction:
    - .1 Laminated core construction, with steel stiffeners laminated to face sheets. Fill voids between stiffeners, and within stiffeners, with mineral fibre insulation.
  - .3 Face sheets: 1.2 mm thick sheet steel.
  - .4 Seams: Grind welded seams to flat plane, fill with metallic paste filler and sand to uniform smooth finish.

- .5 Factory-prepare holes 12.7 mm diameter and larger except mounting and through-bolt holes, on site, at time of hardware installation.
- .6 Provide top and bottom of doors with recessed inverted channels; continuously weld at secure doors; spot weld remainder.

### 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 INSTALLATION

- .1 Install doors and frames in accordance with CSDMA Installation Guide.
- .2 Frame Installation:
  - .1 Set frames plumb, square, level and at correct elevation.
  - .2 Secure anchorages and connections to adjacent construction.
  - .3 Brace frames rigidly in position while building-in. Install temporary horizontal wood spreader at third points of door opening to maintain frame width. Remove temporary spreaders after frames are built-in.
  - .4 Make allowances for deflection of structure to ensure structural loads are not transmitted to frames.
- .3 Door Installation:
  - .1 Install doors and hardware in accordance with hardware templates and manufacturer's instructions and Section 08 71 10 - Finish Hardware.
  - .2 Clearance, as measured on pull side of door, as follows:
    - .1 Single door:
      - .1 Head: 3 mm.
      - .2 Jambs: 3 mm (at each jamb).
    - .2 Bottom:
      - .1 Exposed concrete floor: 19 mm.
      - .2 Quarry/ceramic tile floor: 15.9 mm.
      - .3 Other floor coverings: 12.7 mm.
  - .3 Adjust operable parts for correct function.

#### 3.3 FINISH REPAIRS

- .1 Touch up with primer finishes damaged during installation.
- .2 Fill exposed frame anchors surfaces with imperfections with metallic paste filler and sand to a uniform smooth finish.

#### 3.4 CLEANING

- .1 Progress Cleaning:
  - .1 Leave Work area clean at end of each day.
  - .2 Clean adjacent surfaces immediately.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment.

3.5 SCHEDULES

- .1 Refer to Door Schedule, located on drawings, for sizes and locations.

END OF SECTION

1 General

1.1 RELATED REQUIREMENTS

- .1 Section 08 11 00 - Metal Doors and Frames.

1.2 REFERENCE STANDARDS

- .1 Builders Hardware Manufacturers Association (BHMA).
  - .1 ANSI/BHMA A156.1-2016, Butts & Hinges.
  - .2 ANSI/BHMA A156.5-2020, Cylinder and Input Devices for Locks.
  - .3 ANSI/BHMA A156.6-2015, Architectural Door Trim.
  - .4 ANSI/BHMA A156.13-2017, Mortise Locks & Latches, Series 1000.
  - .5 ANSI/BHMA A156.16-2018, Auxiliary Hardware.

1.3 REQUIREMENTS OF REGULATORY AGENCIES

- .1 Use ULC listed and labelled hardware for doors in fire separations and exit doors.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Shop Drawings:
  - .1 Submit hardware schedule.
  - .2 Cross reference hardware set numbers, listed herein, with shop drawing hardware set numbers.
- .3 Product data:
  - .1 Indicate specified hardware, including make, model, material, function, size, finish, and other pertinent information.
  - .2 Clearly indicate required options and accessories.
- .4 Submit wiring diagrams for each door opening having electric hardware.

1.5 MAINTENANCE DATA

- .1 Provide operation and maintenance data for door closers, locksets, and door holders for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.
- .2 Brief maintenance staff regarding proper care, cleaning, and general maintenance.

1.6 MAINTENANCE MATERIALS

- .1 Submit maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Supply two (2) sets of wrenches for door closers and locksets.

1.7 DELIVERY AND STORAGE

- .1 Store finish hardware in locked, clean and dry area.
- .2 Package each item of hardware including fastenings, separately or in like groups of hardware, label each package as to item definition and location.

2 Products

2.1 DOOR HARDWARE

- .1 Hinges: to ANSI/BHMA A156.1, type numbers and sizes listed in hardware schedule. Provide non-removal pins (NRP) where indicated.
  - .1 Full mortise, ball bearing - 5-knuckle.
    - .1 Standard weight, steel: BHMA Code A8112.
- .2 Lock and latchsets (mortised): to ANSI/BHMA A156.13, designed for function as stated in schedule, having latch bolt throw of 19 mm and dead bolt throw of 25 mm; to accept cylinder specified. Provide box strike for dead bolts.
  - .1 Trim:
    - .1 Barrier-free compliant lever trim of style as selected by Departmental Representative; knob where scheduled.
  - .2 Mechanical functions (ANSI/BHMA):
    - .1 Storeroom, cylinder one side: BHMA F07.
- .3 Cylinders: to ANSI/BHMA A156.5, same make and finish as locksets. Key into keying system as directed.
- .4 Normal strikes: box type, lip projection not beyond jamb ASA dimensions.
- .5 Kick plates: to ANSI/BHMA A156.6, BHMA Code J102, width less 41 mm on push side of door and 25 mm on pull side of door than width of door x 250 mm high x 1.27 mm thick, unbevelled edges.
- .6 Door stop: to ANSI/BHMA A156.16, floor mounted, dome style, classification L02141. Use L02161 in lieu of L02141 when required to suit conditions.
- .7 Power-Assisted Door Operator:
  - .1 Power assist and low energy power operated doors: to ANSI/BMHA A156.19, surface mounted, electro-mechanical. Factory assembled with necessary components for proper operation and switching. 120 VAC, 60 cycle, 1 phase.
  - .2 Cover: full length across head; to provide a seal against dust, dirt and moisture.
- .8 Washroom control kit:
  - .1 Operator/locking components:
    - .1 Logic controller: 14 modes of operation, secured and unsecured restroom control modes, surge protection.
    - .2 Exterior operator buttons:
      - .1 Upper button: single gang flush mount 114 mm activation (wall) switch, stainless steel construction, and 'Wave to Open' sign in English, French and braille, LED light ring, Green/Red, with selectable 12/24V, AC/DC, built-in 85 db sounder, max 60mA current draw and form 'C' contact rated 3 Amp @ 30VDC and sign 'OCCUPIED WHEN RED' / 'VACANT WHEN GREEN' in English and French.
      - .2 Lower button: single gang flush mount 114 mm square stainless steel push plate. Engrave push plate with international handicapped logo. Finish to be satin stainless with blue logo. Tie lower button into system so that activation of lower button produces same result as activation of upper button.

- .3 Interior operator buttons:
  - .1 Upper button: double gang flush mount 114 mm activation (wall) switch, stainless steel construction, and 'Wave to Open' sign in English, French and braille, 12/24V AC/DC operation, built-in 85 db sounder, max 60 mA current draw and form C contacts rated at 5 Amps @ 30 VDC.
  - .2 Lower button: single gang flush mount 114 mm square stainless steel push plate. Engrave push plate with international handicapped logo. Finish to be satin stainless with blue logo. Tie lower button into system so that activation of lower button produces same result as activation of upper button.
- .4 Interior locking button:
  - .1 Upper button: single gang mount 70 mm x 114 mm activation (wall) switch, stainless steel construction, N/O contacts rated 3 Amps @ 30 VDC and sign 'Wave to Lock' in English, French and braille, LED light ring, Green/Red, with selectable 12/24V, AC/DC, built-in 85 db sounder, max 60 mA current draw, and sign 'LOCKED WHEN RED' in English and French.
  - .2 Lower button: single gang flush mount 114 mm square stainless steel push plate. Engrave push plate with international handicapped logo. Finish to be satin stainless with blue logo. Tie lower button into system so that activation of lower button produces same result as activation of upper button.
- .5 Column switch alternative:
  - .1 As an alternative to separate upper and lower operator and locking buttons described above, a column switch of appropriate length will be acceptable.
  - .2 Function and signage to be maintained.
- .6 Electric Strike: grade 2 'universal' strike to suit lockset complete with appropriate faceplate having horizontal adjustment, 12/24V AC/DC, selectable fail safe/fail secure.
- .7 Door contact: Recessed magnetic door contact; isolated magnet suitable for installation in a hollow door.
- .2 Emergency call components:
  - .1 Emergency button: Push/Pull operation, heavy gauge stainless steel faceplate, 41 mm vandal resistant red button, N/O and N/C contacts, rated 10 Amp @ 30 VDC with single gang LED annunciator with adjustable sounder, rated 85dB at 102 mm, weather and vandal resistant construction, brushed stainless steel faceplate, with 'ASSISTANCE REQUESTED'. 'White Out' text in English and French. Text shall not be legible unless annunciator is energized. Provide sign "PRESS FOR EMERGENCY ASSISTANCE" in English, French and braille.
  - .2 Dome light: Single gang LED dome light with adjustable piezo sounder, rated 93 dB at 1 metre, weather and vandal resistant construction, white. 180° visibility with 'ASSISTANCE REQUIRED' text, in English and French, printed on two sides of lens.
  - .3 Sign: 25 mm red lettering on white background; with ' IN THE EVENT OF AN EMERGENCY PUSH EMERGENCY BUTTON AND AUDIBLE AND VISUAL SIGNAL WILL ACTIVATE' in English, French and braille. Locate above activation switch.

- .3 Provide power supplies, wiring, and accessories as necessary for complete operation.
  - .9 Pictograms:
    - .1 Acrylic: engraved to provide raised figures/symbols; two-tone colours as selected by Departmental Representative.
      - .1 Pictogram: universal barrier-free accessible washroom consisting of:
        - .1 Toilet symbol.
        - .2 International symbol of access (wheelchair symbol).
        - .3 Bilingual braille text "Toilet Toilette".
        - .4 Style of toilet symbol and international symbol of access to be approved by Departmental Representative.
- 2.2 FASTENINGS
- .1 Supply screws, bolts, expansion shields and other fastening devices required for satisfactory installation and operation of hardware.
  - .2 Exposed fastening devices to match finish of hardware.
  - .3 Use fasteners compatible with material through which they pass.
- 3 Execution
- 3.1 INSTALLATION INSTRUCTIONS
- .1 Furnish metal door and frame manufacturers with complete instructions and templates for preparation of their work to receive hardware.
  - .2 Furnish manufacturers' instructions for proper installation of each hardware component.
  - .3 Install hardware to standard hardware location dimensions in accordance with Recommended Dimensional Standards for Commercial Steel Doors and Frames.
- 3.2 CLEANING
- .1 Progress Cleaning:
    - .1 Leave Work area clean at end of each day.
    - .2 Clean adjacent surfaces immediately.
    - .3 Clean hardware with damp rag and approved non-abrasive cleaner, and polish hardware in accordance with manufacturer's instructions.
    - .4 Remove protective material from hardware items where present.
  - .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools, and equipment.

### 3.3 SCHEDULE

.1 Set #1 (Mortise lock - Classroom - washroom control kit)

3 hinges	A8112 114 x 101 x 26D
1 lockset	F07 x 26D
1 kick plate	Code J102 x 200 mm x 32D
1 floor stop	L02141 x 26D
1 power-assisted door operator	
1 power supply	
1 washroom control kit with emergency call system	
1 pictogram	

MODE OF OPERATION:

- Entry: electric strike is open, exterior operator button light ring illuminates green. Entry by pushing door open or activating operator button operates power-assisted door operator.
- When inside: activate locking button. This engages electric strike (locks door), deactivate outside operator button making light ring illuminate red.
- Exiting: manually turn inside lever and open door (door contact resets system) or activating interior operator button opens electric strike, and power-assisted door operator opens door. Exterior operator button light ring illuminates green.
- Emergency Call System  
Occupant pushes emergency button. This releases electric strike and energizes LED annunciator and sounder within washroom and dome light with sounder outside. Both annunciators remain energized until latching push button switch is pulled out.

### 3.4 MOUNTING HEIGHTS

- .1 Dome light: 2000 mm.
- .2 Push buttons and signage: as indicated in Barrier Free Mounting Heights schedule located on drawings.

END OF SECTION