

DIVISION 08

OPENINGS

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 04 05 00 - Common Work Results for Masonry.
- .2 Section 07 90 00 - Joint Sealers.
- .3 Section 08 71 00 - Door Hardware.
- .4 Section 09 91 00 - Painting.

1.2 REFERENCES

- .1 American Society for Testing and Materials (ASTM)
 - .1 ASTM A653/A653M, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - .2 ASTM E152, Methods for Fire Tests of Door Assemblies.
- .2 Canadian General Standards Board (CGSB).
 - .1 CAN/CGSB-1.181, Ready-Mixed Organic Zinc-Rich Coating.
 - .2 CGSB 41-GP-19, Rigid Vinyl Extrusions for Windows and Doors.
- .3 Canadian Standards Association (CSA)
 - .1 CAN/CSA-G40.21, Structural Quality Steels.
 - .2 CSA W59, Welded Steel Construction (Metal Arc Welding).
- .4 Canadian Steel Door and Frame Manufacturers' Association, (CSDFMA):
 - .1 CSDFMS, Specifications for Commercial Steel Doors and Frames.
 - .2 CSDFMA, Recommended Selection and Usage Guide for Commercial Steel Doors.
- .5 National Fire Protection Association (NFPA)
 - .1 NFPA 80, Fire Doors and Windows.
 - .2 NFPA 252, Door Assemblies, Fire Tests of.
- .6 Underwriters' Laboratories of Canada (ULC)
 - .1 CAN4-S104M, Fire Tests of Door Assemblies.
 - .2 CAN4-S105M, Fire Door Frames.
 - .3 CAN/ULC-S702, Standard for Mineral Fibre Thermal Insulation for Buildings.

1.3 SHOP DRAWINGS

- .1 Submit shop drawings in accordance with Section 01 33 00 – Submittal Procedures.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Store frames in dry location, above ground to prevent corrosion.
- .2 Protect by suitable means until installation. Brace and stack to prevent wracking, bending, twisting and other damage.
- .3 Replace or make good materials that become damaged or defective as directed by Contract Administrator.

Part 2 Products

2.1 MATERIALS

- .1 Hot dipped galvanized steel sheet: to ASTM A653/A653M coating designation for locations as follows.
 - .1 Exterior doors and frames, and Doors Z275 (G90) with factory applied primer as specified in this Section.
 - .2 Minimum base steel thickness (gauge) in accordance with CSDFMA Table 1, except as follows:
 - .1 Door face sheets: 1.2 mm (18 gauge).
 - .2 Frames: 1.6 mm (16 gauge).
 - .3 Astragals: 1.9 mm (14 gauge).
 - .4 Floor anchors: 1.6 mm (16 gauge).
 - .5 Jamb anchors: "T" strap type 1.6 mm (16 gauge); "L" type 1.2 mm (18 gauge); stirrup-strap type 15 x 250 x 1.6 mm (16 gauge); stud type 1.2 mm (18 gauge); wire type 4.0 mm (9 gauge).
 - .6 Reinforcing steel: locks, strikes, 1.6 mm (16 gauge); butts, hinges 3.4 mm (10 gauge); surface mounted hardware 2.7 mm (12 gauge).
 - .7 Flush bolts: 3.4 mm (10 gauge).
 - .8 Channel reinforcement for openings: 0.9 mm (20 gauge).
 - .9 Mortar guard boxes: 0.8 mm (22 gauge).
 - .10 Jamb spreaders: 1.2 mm (18 gauge).
- .3 Reinforcement channel: to CAN/CSA-G40.21, Type 44W, coating designation ZF75 to ASTM A653/A653M.

2.2 DOOR CORE MATERIALS

- .1 Honeycomb construction: structural small cell, 25 mm maximum kraft paper honeycomb, weight: 36.3 kg per ream minimum, density: 16.5 kg/m³ minimum sanded to required thickness.
- .2 Stiffened: face sheets laminated, insulated core: fibreglass to CAN/ULC-S702, semi-rigid Type 1 density 24 kg/m³.
- .3 Thermal insulation material must:
 - .1 not require being labeled as poisonous, corrosive, flammable or explosive under the Consumer Chemical and Container Regulations of the Hazardous Products Act;
 - .2 be manufactured using a process that uses chemical compounds with the minimum ozone depletion potential (ODP) available.
- .4 Batt-type thermal insulation materials must:
 - .1 contain when calculated on 12-month rolling basis:
 - .1 over 35 % recycled material by weight of the finished product if made from glass fibre, or
 - .2 over 45 % recycled material by weight of the finished product if made from mineral composition.

2.3 ADHESIVES

- .1 Select Adhesives which:

- .1 do not contain volatile organic compounds in excess of 5 % by weight as measured by EPA Method 24-24A, 40 C.F.R., Part 60, Appendix A (1991), Method 18,48 Federal Register 48, no. 202, October 18, 1983 Method 1400 NIOSH Manual of Analytical Methods, Volume 1, February 1984, Environmental Protection Agency Method 8240 GC/MS Method for Volatile Organics, September 1986, as demonstrated through calculation from records of the amounts of constituents used to make the product;
 - .2 are accompanied by detailed instructions for proper application so as to minimize health concerns and maximize performance;
 - .3 are accompanied by information describing proper disposal methods for containers.
- .2 Honeycomb cores and steel components: heat resistant, spray grade, resin reinforced neoprene/rubber (polychloroprene) based, low viscosity, contact cement.

2.4 ACCESSORIES

- .1 Primer: to CAN/CGSB-1.181.
- .2 Door silencers: single stud rubber/neoprene type.
- .3 Top and bottom caps:
 - .1 Exterior doors: rigid polyvinylchloride extrusion conforming to CGSB 41-GP-19M
- .4 Sealant (caulking): as specified in Section 07 90 00 – Joint Sealers.
- .5 Spray foam sealant: spray-applied polyurethane foam sealant, CFC and urea formaldehyde free, non-expanding, non-shrinking after cure. Ener-Foam, Insta-Seal.
- .6 Metallic paste filler: to manufacturer's standard.
- .7 Fire labels: metal riveted.

2.5 FRAMES FABRICATION GENERAL

- .1 Exterior frames: welded, thermally broken type construction.
- .2 Blank, mortise, reinforce, drill and tap frames and reinforcements to receive hardware and electronic hardware using templates provided by door hardware supplier. Reinforce internally for surface mounted hardware.
- .3 Top hinge reinforcement: weld in top hinge reinforcement with 20 mm leg to hinge reinforcement, 25 mm leg to frame.
- .4 Reinforce head of frames wider than 1200 mm.
- .5 Protect mortised cutouts with steel guard boxes for frames installed in masonry and concrete walls.
- .6 Prepare frame for door silencers, three for single door.
- .7 Manufacturer's nameplates on frames and screens are not permitted.
- .8 Conceal fastenings except where exposed fastenings are indicated.
- .9 Insulate exterior frame components with fibreglass batt insulation.

2.6 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 anchors for rebate opening heights up to 1520 mm and one additional anchor for each additional 760 mm of height or fraction thereof.

2.7 FRAMES: THERMALLY BROKEN TYPE

- .1 Fabricate thermally broken frames using insulated core and separating exterior parts from interior parts with continuous interlocking thermal break.
- .2 Thermal break: rigid polyvinylchloride (PVC) extrusion conforming to CGSB 41-GP-19Ma.
- .3 Do not fix together frame sections with screws or other fastening devices. Manufacture frames in a manner to provide adequate integral strength to ensure trouble free operation.
- .4 Fill closed frame sections with fibreglass insulation.

2.8 DOOR FABRICATION GENERAL

- .1 Doors: swing type, flush.
- .2 Exterior doors: hollow steel, insulated core construction.
- .3 Interior doors: honeycomb construction.
- .4 Fabricate doors with longitudinal edges welded. Seams: grind welded joints to a flat plane, fill with metallic paste filler and sand to a uniform smooth finish.
- .5 Construct rail and stile doors, and matching panels in same manner as flush doors.
- .6 Blank, reinforce, drill doors and tap for mortised, templated hardware and electronic hardware.
- .7 Reinforce doors where required, for surface mounted hardware.
- .8 Manufacturer's nameplates on doors permitted on hinge side of door concealed from view.

2.9 DOORS: HONEYCOMB CORE CONSTRUCTION

- .1 Form each face sheet for interior doors from sheet steel with honeycomb - temperature rise rated core laminated under pressure to face sheets.

2.10 SHOP PRIMING

- .1 Provide touch-up primer at areas where zinc coating has been removed during fabrication or installation.
- .2 For doors and frames fabricated of steel sheet with Z275 (G90) designation galvanized coating apply in factory one coat of zinc-rich primer CAN/CGSB-1.181 to all exposed surfaces. Properly pre-treat and prepare surfaces before application of primer to ensure good primer adhesion.

Part 3 Execution

3.1 INSTALLATION GENERAL

- .1 Install labeled steel fire rated doors and frames to NFPA 80 except where specified otherwise.

- .2 Install doors and frames to CSDFMA Installation Guide.

3.2 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. Provide vertical support at centre of head for openings over 1200 mm wide. Remove temporary spreaders after frames are built-in.
- .4 Make allowances for deflection of structure to ensure structural loads are not transmitted to frames.
- .5 Maintain continuity of air barrier.
- .6 Coordinate installation with Electrical Section for installation of junction boxes and conduit for electric hardware, wiring and controls.

3.3 DOOR INSTALLATION

- .1 Install doors and hardware in accordance with hardware templates and manufacturer's instructions.
- .2 Provide even margins between doors and jambs and doors and finished floor and thresholds as follows.
 - .1 Hinge side: 1.0 mm.
 - .2 Latch side and head: 1.5 mm.
 - .3 Finished flooring and thresholds: 13 mm, except where doors are fitted with exit rod devices margin shall be 6 mm.
- .3 Adjust operable parts for correct function.

3.4 CAULKING AND SEALING

- .1 At exterior openings, fill head and jamb frame sections with foam sealant. Fill shim space around perimeter of frames with foam sealant.
- .2 For both interior and exterior frames seal joint between frames and adjacent construction with sealant (caulking). Apply sealant around full perimeter of frames, on both sides of opening.
- .3 For frames at exterior openings provide foam backer rod or bond breaker tape behind sealant.
- .4 Apply sealants in accordance with Section 07 90 00 – Joint Sealers. Provide smooth, neat bead, tooled to slight concave profile.

3.5 FINISH REPAIRS

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

END OF SECTION

Part 1 General

1.1 RELATED WORK

- .1 Section 08 11 13 - Hollow Metal Doors and Frames

1.2 REFERENCE STANDARDS

- .1 Canadian Steel Door and Frame Manufactures' Association (CSDFMA)
 - .1 Canadian Metric Guide for Steel Doors and Frames (Modular Construction).

1.3 SUBMITTALS

- .1 Shop Drawings:
 - .1 Submit shop drawings in accordance with Section 01 33 00 – Submittal Procedures.
 - .2 Submit shop drawings for electrified hardware. Identify manufacturer, model, function, finish, options and other pertinent information. List each item separately.
 - .3 Provide description of operation for each different hardware set or function.
 - .4 Include schematic wiring diagrams, electrical service requirements, interconnection diagrams.
 - .5 Include parts lists and part numbers for each item.
- .2 Submit manufacturer's installation instructions.

1.4 QUALITY ASSURANCE

- .1 Regulatory Requirements: hardware for doors in fire separations and exit doors certified by a Canadian Certification Organization accredited by Standards Council of Canada.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Package each item of hardware including fastenings, separately or in like groups of hardware. Label each package as to item definition and location.
- .2 Maintain inventory list with hardware schedule.
- .3 Store finishing hardware in locked, clean and dry area.

Part 2 Products

2.1 HARDWARE ITEMS

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

2.2 TEMPLATES AND REINFORCING UNITS

- .1 Supply all necessary templates, blueprints and reinforcing units to Subcontractors requiring such items for completion of their portion of the Work.

2.3 LOCKSETS

- .1 Bring in locksets from factory properly itemized as to keying and location.
- .2 Except where indicated otherwise provide locksets with backsets as follows:

- .1 Lever handles: 70 mm
- .2 Knobs: 127 mm, except where door design doesn't allow deep backset use 70 mm or as specified in Door Hardware Schedule.

2.4 BUTTS

- .1 Provide doors up to and including 2150 mm in height and 900 mm in width with 1½ pair butts, unless indicated otherwise.

2.5 KICKPLATES

- .1 Material: Type 316 stainless steel, satin finish.
- .2 Sizes: width of plate less 40 mm on push side of door and 25 mm on pull side.
- .3 Fasteners: oval head screws of same material and finish as kickplate being fastened.
- .4 Provide on one side of door.

2.6 FASTENINGS

- .1 Supply screws, bolts, expansion shields and other fastening devices required for satisfactory installation and operation of hardware.
- .2 Use fasteners supplied by manufacturers with each specific hardware item only. No substitutions will be permitted.
- .3 Exposed fastening devices to match material and finish of hardware.
- .4 Include provisions for drilling push/pull plates to accept lock cylinder where both items occur on the same door.
- .5 Use fasteners compatible with material through which they pass.

2.7 KEYING

- .1 Confirm all keying details with the City of Winnipeg.
- .2 Supply 2 keys per lock and 4 master keys.
- .3 All locks to be MEDECO.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

- .1 Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.
- .2 Furnish door and frame manufacturers with complete instructions and templates for preparation of their work to receive hardware.
- .3 Furnish manufacturers' instructions for proper installation of each hardware component.

3.2 INSTALLATION

- .1 Install hardware to standard hardware location dimensions in accordance with CSDFMA Canadian Metric Guide for Steel Doors and Frames (Modular Construction).

- .2 The following dimensions are only to be used as a general guide in the placement of hardware. Where special items are concerned, or uncertainty exists, check with the Contract Administrator before fitting. Dimensions indicated are from finish floor to centre line of item, except as noted.
 - .1 Knob Locksets: 1024 mm
 - .2 Deadlock: 1220 mm
 - .3 Kick Plate: Bottom of door (300 mm x 300 mm)

3.3 THRESHOLDS

- .1 Install threshold plates level over entire length and width to ensure door bottom seals seal properly to thresholds.
- .2 Grout under thresholds with non-shrink grout to ensure solid and secure installation.
- .3 At exterior openings provide two beads of sealant under threshold plates. Sealant as specified in Section 07 90 00 – Joint Sealers.

3.4 ADJUSTMENT AND CLEANING

- .1 After work is complete adjust hardware for proper function.
- .2 After work is complete clean and polish hardware finishes. Remove dust, dirt, smudges and other markings.

3.5 FINAL INSPECTION AND CERTIFICATION

- .1 The hardware supplier shall, upon completion of the work, visit the job site, check the installation of hardware, and certify in writing to the Contract Administrator that the hardware, as specified, has been correctly installed and is in proper working order.

END OF SECTION