# GEneral

## Related Sections

### Comply with Division 1 – General Requirements and all other Specification Divisions, including:

#### Section 01060 – Regulatory Requirements

#### Section 01300 – Submittals

#### Section 07900 – Joint Sealers

#### Section 08710 – Door Hardware

#### Section 09900 – Painting and Protective Coatings

## References

### Comply with the latest edition of the following statutes, codes, standards, and all amendments thereto:

#### American Society for Testing and Materials (ASTM International)

##### ASTM A 653 – Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dipped Process

##### ASTM B 29 – Specification for Pig Lead

##### ASTM B 749 – Standard Specification for Lead and Lead Alloy Strip, Sheet and Plate Products

#### Canadian General Standards Board (CGSB)

##### CAN/CGSB-1.181 – Ready-mixed Organic Zinc-Rich Coating

##### CAN/CGSB-51.20 – Thermal Insulation, Polystyrene, Boards and Pipe Coverings

#### Canadian Standards Association (CSA)

##### CSA A101 – Thermal Insulation, Mineral Fibre, for Buildings

##### CSA-G40.21 – Structural Quality Steels

##### CSA W59 – Welded Steel Construction (Metal Arc Welding)

#### Canadian Steel Door and Frame Manufacturers' Association (CSDFMA)

##### CSDFMA, Specifications for Commercial Steel Doors and Frames.

##### CSDFMA, Selection and Usage Guide for Steel Doors and Frames.

#### National Fire Protection Association NFPA.

##### NFPA 80 – Fire Doors and Windows

##### NFPA 252 – Door Assemblies, Fire Tests of Door Assemblies

#### Underwriters' Laboratories of Canada ULC.

##### CAN/ULC-S104 – Standard Method for Fire Tests of Door Assemblies

##### CAN/ULC-S105 – Standard Specification for Fire Door Frames Meeting the Performance Required by CAN/ULC-S104

##### CAN/ULC-S701.1 - Standard for Thermal Insulation, Polystyrene Boards

##### CAN/ULC-S702.1 - Standard for Mineral Fibre Thermal Insulation for Buildings

## Measurement and Payment

### All costs associated with the work of this Section shall be included in the price(s) for Item No(s). \_\_\_ in the Bid Form.

## Design Requirements

### Design exterior frame assembly to accommodate to expansion and contraction when subjected to minimum and maximum surface temperature of ‑35°C to 35°C.

### Maximum deflection for exterior steel entrance screens under wind load of 1.2 kPa not to exceed 1/175th of span.

## Submittals

### Shop Drawings:

#### Submit shop drawings in accordance with Section 01300 - Submittals.

#### Indicate each type of door, material, steel core thicknesses, mortises, reinforcements, location of exposed fasteners, openings, louvers, arrangement of hardware and fire rating and finishes.

#### Indicate each type frame material, core thickness, reinforcements, glazing stops, location of anchors and exposed fastenings and reinforcing, fire rating and finishes.

#### Include schedule identifying each unit, with door marks and numbers relating to numbering on the Contract Documents and the door schedule as indicated in the Contract Documents.

#### Submit test and engineering data, and installation instructions.

### Samples:

#### Submit samples in accordance with Section 01300 - Submittals.

## Requirements of Regulatory Agencies

#### Steel fire rated doors and frames: labelled and listed by an organization accredited by the Standards Council of Canada in conformance with CAN/ULC-S104 for ratings specified or indicated.

#### Provide fire labelled frame products for those openings requiring fire protection ratings, as scheduled. Test products in strict conformance with CAN/ULC-S104 and list by nationally recognized agency having factory inspection service and construct as detailed in Follow-Up Service Procedures/Factory Inspection Manuals issued by listing agency to individual manufacturers.

# PRODUCTS

## Materials

### Hot-dipped galvanized steel sheet: to ASTM A 653M, ZF75, unless noted otherwise.

### Reinforcement channel: to CSA-G40.21, Type 44W, coating designation to ASTM A 653M, ZF75, unless noted otherwise.

## Door Core Materials

### Stiffened: face sheets welded, insulated core.

#### Extruded polystyrene: CAN/ULC-S701-11, density 16 to 32 kg/m3.

#### Polurethane: To CAN/ULC-S704-14 rigid, modified poly/isocyanurate, closed cell board. Density 32 kg/m3.

#### Temperature rise rated TRR: Core composition to limit temperature rise on unexposed side of door to 250°C at 30 to 60minutes. Core to be tested as part of a complete door assembly, in accordance with CAN4‑S104-15, or NFPA 252, 2017 edition, covering Standard Method of Tests of Door Assemblies and shall be listed by a nationally recognized testing agency having factory inspection services.

## Adhesives

### Steel components: Heat resistant, spray grade, resin reinforced neoprene/rubber polychloroprene based, low viscosity, contact cement.

### Polystyrene and polyurethane cores: heat resistant, epoxy resin based, low viscosity, contact cement.

### Lock‑seam doors: fire resistant, resin reinforced polychloroprene, high viscosity, sealant/adhesive.

## Paint

### Steel doors and frames shall be field painted in accordance with Section 09900 – Painting and Protective Coatings. Weatherstrips shall be protected from paint. Finish shall be free of scratches or other blemishes.

## Accessories

### Door silencers: single stud rubber/neoprene type.

### Exterior and interior top and bottom caps: steel.

### Fabricate glazing stops as formed channel, minimum 16 mm height, accurately fitted, butted at corners and fastened to frame sections with counter‑sunk oval head sheet metal screws.

### Door bottom seal: As specified in Section 08710- Door Hardware.

### Metallic paste filler: to the manufacturer's standard.

### Fire labels: metal riveted.

### Sealant: As specified in Section 07900 – Joint Sealers.

### Make provisions for glazing as indicated and provide necessary glazing stops.

#### Provide removable stainless steel glazing beads for use with glazing tapes and compounds and secured with countersunk stainless steel screws.

#### Design exterior glazing stops shall be tamperproof.

## Frames Fabrication General

### Fabricate frames in accordance with CSDFMA specifications.

### Fabricate frames to profiles and maximum face sizes as indicated.

### Exterior frames: 1.6 mm welded type construction.

### Interior frames: 1.6 mm welded type construction.

### Blank, reinforce, drill and tap frames for mortised, templated hardware, using templates provided by finish hardware supplier. Reinforce frames for surface mounted hardware.

### Protect mortised cut-outs with steel guard boxes.

### Prepare frame for door silencers, 3 for single door, 2 at head for double door.

### Manufacturer's nameplates on frames and screens are not permitted.

### Conceal fastenings except where exposed fastenings are indicated in the Contract Documents.

### Provide factory‑applied touch up primer at areas where zinc coating has been removed during fabrication.

### Insulate exterior frame components with polyurethane insulation.

### Prepare frames for electrical devices including operators and security devices.

### Reinforce head of frames wider than 1200 mm.

## Frame Anchorage

### Provide appropriate anchorage to floor and wall construction.

### Locate each wall anchor immediately above or below each hinge reinforcement on hinge jamb and directly opposite on strike jamb.

### Provide two (2) anchors for rebate opening heights up to 1,520 mm and one (1) additional anchor for each additional 760 mm of height or fraction thereof.

### Locate anchors for frames in existing openings a maximum of 150 mm from the top and bottom of each jambs and intermediate at 660 mm o.c. maximum.

## Frames: Welded Type

### Welding: in accordance with CSA W59.

### Accurately mitre or mechanically joint frame product and securely weld on inside of profile.

### Cope accurately and securely weld butt joints of mullions, transom bars, centre rails and sills.

### Grind welded joints and corners to a flat plane, fill with metallic paste and sane to uniform smooth finish.

### Securely attach floor anchors to inside of each jamb profile.

### Weld in two (2) temporary jamb spreaders per frame to maintain proper alignment during shipment.

### Fabricate frame products for openings which are manageable with section, splice joints for field assembly.

### Securely attach lead to inside of frame profile from return to jamb soffit inclusive on door side of frame only.

## Door Fabrication General

### Doors: swing type, flush, with provision for glass and/or louvre openings as indicated in the Contract Documents.

#### Exterior doors: hollow steel construction.

#### Interior doors: hollow steel construction.

### 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.

### Blank, reinforce, drill doors and tap for mortised, templated hardware and electronic hardware.

### Factory prepare holes 12.7 mm diameter and larger except mounting and through‑bolt holes, on Site, at time of hardware installation.

### Reinforce doors where required, for surface mounted hardware. Provide flush steel top caps to exterior doors. Provide inverted, recessed, spot welded channels to top and bottom of interior doors.

### Provide factory‑applied touch‑up primer at areas where zinc coating has been removed during fabrication.

### Provide fire labelled doors for those openings requiring fire protection ratings, as scheduled. Test such products in strict conformance with CAN/ULC-S104 and list by nationally recognized agency having factory inspection service and construct as detailed in Follow-Up Service Procedures/Factory Inspection Manuals issued by listing agency to individual manufacturers.

### Manufacturer's nameplates on doors are not permitted.

## Hollow Steel Construction

### Form each face sheet for exterior doors from 1.6 mm sheet steel.

### Form each face sheet for interior doors from 1.6 sheet steel.

### Reinforce doors with vertical stiffeners, securely welded to each face sheet at 150 mm on centre maximum.

### Hardware reinforcing: 1.6 mm minimum.

### Floor anchors: 1.6 mm minimum.

### Channel spreaders: 1.2 mm minimum.

### Guard boxes: 0.9 mm minimum.

### Hinge reinforcing: 5.2 mm minimum.

### Glass moulding: 0.9 mm minimum.

### Jamb anchors: 1.6 mm minimum.

### Top, bottom, door and channel: 1.2 mm minimum.

### Frame members: 1.6 mm minimum.

### Fill voids between stiffeners of exterior doors with polyurethane core.

### Fill voids between stiffeners of interior doors with fibreglass core

# EXECUTION

## Installation General

### Install labelled steel fire rated doors and frames to NFPA 80, except where specified otherwise.

### Install doors and frames in accordance with the CSDFMA Installation Guide.

## Frame Installation

### Set frames plumb, square, level and at correct elevation.

### Secure anchorages and connections to adjacent construction.

### 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 1,200 mm wide. Remove temporary spreaders after frames are built‑in.

### Make allowances for deflection of structure to ensure structural loads are not transmitted to frames.

### Caulk perimeter of frames between frame and adjacent material, both sides.

### Maintain continuity of air barrier.

## Door Installation

### Install doors and hardware in accordance with the hardware templates manufacturer's instructions and Section 08710 – Door Hardware.

### Provide even margins between doors and jambs and doors and finished floor and thresholds as follows.

#### Hinge side: 1.0 mm.

#### Latch-side and head: 1.5 mm.

#### Finished floor, top of thresholds: 13 mm.

### Adjust operable parts for correct function.

### Install louvres.

## Finish Repairs

### Touch up with primer finishes damaged during installation.

### Fill exposed frame anchors and surfaces with imperfections with metallic paste filler and sand to a uniform smooth finish.

**END OF SECTION**