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| Version | Date | Description of Revisions |
| 1 | August 30, 2006 | Approved final document. |
| 2 | November 13, 2009 | Modified ‘Related Section’ |
| 3 | March 15, 2011 |  |
| 4 | June 11, 2012 | Addition of References and Replacement Parts sections on this page |
| 5 | July 6, 2012 | Reformatted to Reduce White Space |
| 6 | April 23, 2015 | General formatting |
| 7 | September 2, 2015 | First draft Phase 1 review (AV) |
| **8** | **December 14, 2015** | **Updated, Finalized Specification – Legal Reference eDOCS #6295416 v3 (AV)** |

NOTE:

This is a CONTROLLED Document. Any documents appearing in paper form are not controlled and should be checked against the on-line file version prior to use.

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**The on-line copy is the current version of the document.**

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## Related Sections

### *[Under "Related Sections", identify other Sections that are related to, and/or dependent on, the work results or information specified elsewhere. The list should be limited to Sections with specific information that the reader might expect to find in this Section, but is specified elsewhere. For example, if hardware for aluminum entrances is specified in the aluminum entrance Section, a cross-reference would be appropriate in the finish hardware Section. The purpose of this cross-referencing is for information only, to aid in finding those other requirements—not to define the scope of the Section.*

### *Cross-referencing here may also be used to coordinate assemblies or systems whose components may span multiple Sections and which must meet certain performance requirements as an assembly or system.*

### *Contractor is responsible for coordination of the Work.*

### *This Section is to be completed/updated during the design development by the Consultant. If it is not applicable to the section for the specific project it may be deleted.]*

### *[List Sections specifying installation of products supplied but not installed under this Section and indicate specific items.]*

### Section [\_\_\_\_\_\_ – \_\_\_\_\_\_\_\_\_\_\_\_]: Execution requirements for ...[item]... specified under this Section.

### *[List Sections specifying products installed but not supplied under this Section and indicate specific items.]*

### Section [\_\_\_\_\_\_ – \_\_\_\_\_\_\_\_\_\_\_\_]: Product requirements for ...[item]... for installation under this Section.

### *[List Sections specifying related requirements.]*

### Section [\_\_\_\_\_\_ – \_\_\_\_\_\_\_\_\_\_\_\_]: [Optional short phrase indicating relationship].

#### Section 01060 – Regulatory Requirements

#### Section 01300 – Submittals

#### Section 07900 – Joint Sealers

#### Section 08110 – Steel Doors and Frames and Connectors

#### Section 08710 – Door Hardware

#### Section 08800 – Glazing

## References

*[Delete .1 if Section 01060 – Regulatory Requirements is included in Contract Documents.]*

### 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/A653M-15, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

##### ASTM B 29-14, Standard Specification for Refined Lead.

##### ASTM B 749-14, Standard Specification for Lead and Lead Alloy Strip, Sheet and Plate Products.

#### Canadian General Standards Board CGSB.

##### *[Consultant to determine whether there is an applicable CGSB standard that would be relevant to this specification and amend as required; or delete this provision]*

#### Canadian Standards Association CSA.

##### CAN/CSA-G40.20-13/G40.21-13, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.

##### CSA W59-13, 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, 2016 edition, Standard for Fire Doors and Other Openings Protectives.

##### NFPA 252, 2012 edition, Standard Methods of Fire Tests of Door Assemblies.

#### Underwriters' Laboratories of Canada ULC.

##### CAN4-S104-15, Standard Method for Fire Tests of Door Assemblies.

##### CAN4-S105-09, Standard Specification for Fire Door Frames Meeting the Performance Required by CAN/ULC-S104

##### CAN/ULC-S701-11, Standard for Thermal Insulation, Polystyrene, Boards and Pipe Covering.

##### CAN/ULC-S702-14, Standard for Thermal Insulation Mineral Fibre for Buildings.

##### CAN/ULC-S704-11, Standard for Thermal Insulation, Polyurethane and Polyisocyanurate, Boards, Faced.

## Measurement and Payment

*[Choose one of the following payment language provisions that best suits the individual project.*

*If this Section is not specifically referenced by an item in the Bid Form, please use the following language:*

### The work of this Section will not be measured separately for payment. All costs associated with the work of this Section shall be included in the Contract Price.

*OR If this Section is specifically referenced in the Bid Form, use the following language and identify the relevant item in the Bid Form:*

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

*If the work of this Section is to be measured and paid for by several different methods, please amend the standard wording given above to reflect the different methods of measurement and payment.*]

## 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, [glazed] [louvred], 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] [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. *[Consultant to develop a Door Schedule and ensure such is part of 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 Standards Council of Canada in conformance with CAN4-S104-15 [NFPA 252, 2012 edition] 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 [CAN4-S104-15,] [ASTM E 152] or [NFPA 252, 2012 edition] 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

*[Various materials for use under this section are listed. Ensure that only materials required for project remain.]*

### Hot dipped galvanized steel sheet: to ASTM A653/A653M-15, [ZF75]. Minimum base steel thickness in accordance with CSDMA Table 1 – Thickness for Component Parts.

### Reinforcement channel: to CAN/CSA-G40.20-13/G40.21-13, Type 44W, coating designation to ASTM A653/A653M-15, [ZF75].

## Door Core Materials

### Stiffened: face [laminated] [sheets welded], [uninsulated] [insulated] core.

#### Fibreglass: to CAN/ULC-S702-14, semi-rigid Type \_\_\_\_\_\_ density 24 kg/m3.

#### Extruded polystyrene: CAN/ULC-S701-11, Type \_\_\_\_\_\_, 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, 2012 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.

## Primers

### Touch up prime in accordance with *[Consultant to provide alternate standard to the withdrawn CAN/CGSB-1.181-99]*.

## Paint

### Steel doors and frames shall be field painted in accordance with Section 09900 - Painting. 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: [\_\_\_\_\_].

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

### Fire labels: metal riveted.

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

### Glazing: As specified in Section 08800 – Glazing.

### 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 thermally broken type construction.

### Interior frames: 1.6 mm [welded] [knocked-down] type construction.

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

### 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.

## 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 W59-13.

### 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 [\_\_\_\_] in sections, [\_\_\_\_] x [\_\_\_\_] mm, 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.

## Frames: Knocked-Down Type

### Ship knocked-down type frames unassembled.

### Provide frames with mechanical joints which inter-lock securely and provide functionally satisfactory performance when assembled and installed in accordance with CSDFMA Recommended Installation Guide for Steel Doors and Frames.

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

## Frames: Slip-on Type

### Ship slip-on type frames unassembled.

### Provide frames with mechanical joints which inter-lock securely and provide functionally satisfactory performance when installed in accordance with CSDFMA Recommended Installation Guide for Steel Doors and Frames and manufacturers' instructions.

### Provide slip-on frames with manufacturers' proprietary design of wall anchorage comprising single, adjustable tension type per jamb and provision for secure attachment of each jamb base to stud runners.

## Door Fabrication General

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

### 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.

*[Holes less than 12.7 mm diameter can be factory prepared when required for function of device for knob, lever, cylinder, thumb or turn pieces or when these holes over-lap function holes. Consultant to determine project requirements and specify here.]*

### 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 [CAN4-S104,] [] or [NFPA 252, 2012 edition] and list by nationally recognized agency having factory inspection service capabilities and experience and construct as detailed in Contract Documents. *[Consultant to determine whether “ Follow-Up Service Procedures/Factory Inspection Manuals” exist and are applicable as issued by listing agency to individual manufacturers of fire doors and amend Contract Documents and this section as required]*

### 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 fibreglass core.

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

## Thermally Broken Doors and Frames

### Acceptable Models and Manufacturers:

#### [Flush, steel stiffened, labelled

##### ASSA ABLOY, Fleming Door Products;

##### Macotta Co. Ltd. LS Series,*[Consultant to confirm]*

##### Metal Door Hardware Ltd.

##### Approved Equivalent]

#### [Flush, steel stiffened, unlabelled:

##### ASSA ABLOY, Fleming Door Products

##### Macotta Co. Ltd. LS Series *[Consultant to confirm]*

##### Metal Door Ltd.

##### Approved Equivalent]

#### [Flush, insulated to RSI 1.9, unlabelled:

##### ASSA ABLOY, Fleming Door Products

##### Macotta Co. Ltd. LS Series *[Consultant to confirm]*

##### Metal Door Hardware Ltd.

##### Approved Equivalent]

### Fabricate thermally broken doors by using insulated core and separating exterior parts from interior parts with continuous interlocking thermal break.

### Thermal break: rigid polyvinylchloride extrusion conforming to *[Consultant to provide alternate standard to the withdrawn 41-GP-19MA]*.

### Fabricate thermally broken frames separating exterior parts form interior parts with continuous interlocking thermal break.

### Apply insulation.

# EXECUTION

## Installation General

### Install labelled steel fire rated doors and frames to NFPA 80 2016 edition, 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] [and] [vapour retarder].

## Door Installation

### Install doors and hardware in accordance with the hardware templates manufacturer's instructions and Section 08710 – Door Hardware. *[Use the following paragraph when fire doors are specified.]*

### 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.

## Glazing

### Install glazing for doors in accordance with the manufacturer’s instructions and Section 08800 – Glazing.

**END OF SECTION**