
Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
- .3 Section 07 92 10 - Joint Sealing: Caulking of joints between frames and other building components.
- .4 Section 09 91 23 - Interior Painting.

1.2 REFERENCES

- .1 American Society for Testing and Materials (ASTM International)
 - .1 ASTM A653/A653M-15e1, Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - .2 ASTM B29-14, Specification for Refined Lead.
 - .3 ASTM B749-14, Specification for Lead and Lead Alloy Strip, Sheet and Plate Products.
- .2 Canadian Standards Association (CSA International)
 - .1 G40.20/G40.21-2013, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
 - .2 CSA W59-13, Welded Steel Construction (Metal Arc Welding) (Metric Version).
- .3 Canadian Steel Door Manufacturers' Association, (CSDMA).
 - .1 CSDMA, Specifications for Commercial Steel Doors and Frames.
 - .2 CSDMA, Recommended Selection and Usage Guide for Commercial Steel Doors.
- .4 National Fire Protection Association (NFPA)
 - .1 NFPA 80, Standard for Fire Doors and Fire Windows.
 - .2 NFPA 252, Standard Methods of Fire Tests of Door Assemblies.
- .5 Underwriters' Laboratories of Canada (ULC)
 - .1 CAN4-S104-2015, Fire Tests of Door Assemblies.
- .6 CAN/ULC-S701-11, Thermal Insulation, Polystyrene, Boards and Pipe Covering.
- .7 CAN/ULC-S702.1 (2014), Thermal Insulation, Mineral Fibre, for Buildings.

1.3 DESIGN REQUIREMENTS

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

- .2 Maximum deflection for exterior steel entrance screens under wind load of 1.2 kPa not to exceed $1/175^{\text{th}}$ of span.

1.4 SHOP DRAWINGS

- .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Indicate each type of door, material, steel core thicknesses, mortises, reinforcements, location of exposed fasteners, openings, glazed louvred, arrangement of hardware and finishes.
- .3 Indicate each type frame material, core thickness, reinforcements, glazing stops, location of anchors and exposed fastenings and reinforcing finishes.
- .4 Include schedule identifying each unit, with door marks and numbers relating to numbering on drawings and door schedule.

1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
- .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .3 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard packaging material in appropriate on-site for recycling in accordance with Waste Management Plan.
- .4 Divert unused paint and sealant materials from landfill to official hazardous material collections site approved by Departmental Representative.

Part 2 Products

2.1 MATERIALS

- .1 Hot dipped galvanized steel sheet: to ASTM A653M, ZF75, minimum base steel thickness in accordance with CSDMA Table 1 - Thickness for Component Parts.
- .2 Reinforcement channel: to CSA G40.20/G40.21, Type 44W, coating designation to ASTM A653M, ZF75.
- .3 Composites: balance of core materials used in conjunction with lead: in accordance with manufacturers' proprietary design.

2.2 DOOR CORE MATERIALS

- .1 Stiffened: face sheets welded, insulated core.
 - .1 Fibreglass: to CAN/ULC-S702, semi-rigid.

2.3 PRIMER

- .1 Touch-up prime CAN/CGSB-1.181.

2.4 PAINT

- .1 Field paint steel doors and frames in accordance with Sections 09 91 23 - Interior Painting. Protect weatherstrips from paint. Provide final finish shall be free of scratches or other blemishes. Colour Pacific Turquoise.

2.5 ACCESSORIES

- .1 Door silencers: single stud rubber/neoprene type.
- .2 Exterior top and bottom caps: rigid polyvinylchloride extrusion steel.
- .3 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.
- .4 Door bottom seal.
- .5 Metallic paste filler: to manufacturer's standard.
- .6 Sealant: One component silicone, see Section 07 92 10 – Joint Sealing.
- .7 Glazing: 6 mil tempered glass (both sides), double glazed, thermal unit.
- .8 Make provisions for glazing as indicated and provide necessary glazing stops.
 - .1 Provide removable stainless steel glazing beads for use with glazing tapes and compounds and secured with countersunk stainless steel screws dry glazing of snap-on type.
 - .2 Design exterior glazing stops to be tamperproof.

2.6 FRAMES FABRICATION GENERAL

- .1 Fabricate frames in accordance with CSDMA specifications.
- .2 Fabricate frames to profiles and maximum face sizes as indicated.
- .3 Exterior frames: 1.2 mm welded and thermally broken type construction. Knock down frames are not acceptable.
- .4 Blank, reinforce, drill and tap frames for mortised, templated hardware, reuse existing door hardware on existing doors, reinstall on new doors.
- .5 Protect mortised cutouts with steel guard boxes.
- .6 Prepare frame for door silencers, 3 for single door.
- .7 Manufacturer's nameplates on frames and screens are not permitted.

- .8 Conceal fastenings except where exposed fastenings are indicated.
- .9 Provide factory-applied touch up primer at areas where zinc coating has been removed during fabrication.
- .10 Insulate exterior frame components with polyurethane insulation.

2.7 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 2 anchors for rebate opening heights up to 1520 mm and 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 o.c. maximum.

2.8 FRAMES: WELDED TYPE

- .1 Welding in accordance with CSA W59.
- .2 Accurately mitre or mechanically joint frame product and securely weld on inside of profile.
- .3 Cope accurately and securely weld butt joints of mullions, transom bars, centre rails and sills.
- .4 Grind welded joints and corners to a flat plane, fill with metallic paste and sand to uniform smooth finish.
- .5 Securely attach floor anchors to inside of each jamb profile.
- .6 Weld in 2 temporary jamb spreaders per frame to maintain proper alignment during shipment.
- .7 Securely attach lead to inside of frame profile from return to jamb soffit (inclusive) on door side of frame only.
- .8 Insulate exterior frame components with polyurethan insulation.

2.9 DOOR FABRICATION GENERAL

- .1 Doors: swing type, flush, with provision for glass and/or louvre openings as indicated.
- .2 Exterior doors: insulated hollow steel construction.
- .3 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.

- .4 Blank, reinforce, drill doors and tap for mortised, templated hardware .
- .5 Factory prepare holes 12.7 mm diameter and larger except mounting and through-bolt holes, on site, at time of hardware installation.
- .6 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.
- .7 Provide factory-applied touch-up primer at areas where zinc coating has been removed during fabrication.
- .8 Manufacturer's nameplates on doors are not permitted.

2.10 HOLLOW STEEL CONSTRUCTION

- .1 Form each face sheet for exterior doors from 1.6 mm sheet steel.
- .2 Reinforce doors with vertical stiffeners, securely welded to each face sheet at 150 mm on centre maximum.
- .3 Fill voids between stiffeners of exterior doors with semi rigid glass fibre insulation core.

2.11 THERMALLY BROKEN DOORS AND FRAMES

- .1 Fabricate thermally broken doors by using insulated core and separating exterior parts from interior parts with continuous interlocking thermal break.
- .2 Thermal break: rigid polyvinylchloride extrusion conforming to CGSB 41-GP-19Ma.

2.12 OVERHEAD LOADING DOOR REPAIRS

- .1 Replace overhead loading door panels as described on the Architectural drawings.
- .2 Repair overhead door tracks as described on the Architectural drawings.
- .3 Repair or replace overhead door tracks as described on the Architectural drawings.

Part 3 Execution

3.1 INSTALLATION GENERAL

- .1 Install doors and frames to CSDMA 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 Caulk perimeter of frames between frame and adjacent material.
- .6 Maintain continuity of air barrier and vapour retarder.

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 Latchside and head: 1.5 mm.
 - .3 Finished floor, top of carpet noncombustible sill and thresholds: 13 mm.
- .3 Adjust operable parts for correct function.
- .4 Install louvres.

3.4 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.

END OF SECTION