

## 1. GENERAL

### 1.1. RELATED REQUIREMENTS

- .1 Joint Sealants
- .2 Painting

### 1.2. REFERENCES

- .1 American Society for Testing and Materials International (ASTM)
  - .1 ASTM A 653/A 653M-[06a], Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
  - .2 ASTM B 209M, Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate [Metric]
- .2 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-1.181-[99], Ready-Mixed Organic Zinc-Rich Coating.
  - .2 CAN/CGSB-93.1-M85, Sheet Aluminum Alloy, Prefinished, Residential.
  - .3 CGSB 41-GP-19Ma-[84], Rigid Vinyl Extrusions for Windows and Doors.
- .4 Canadian Standards Association (CSA International)
  - .1 CSA-G40.20-[04]/G40.21-[04], General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
  - .2 CSA W59-[03], Welded Steel Construction (Metal Arc Welding).
  - .3 CSA W59.2 -M1991, Welded Aluminum Construction.
- .5 Canadian Steel Door Manufacturers' Association (CSDMA)
  - .1 CSDMA, Recommended Specifications for Commercial Steel Doors and Frames, 2000.
  - .2 CSDMA, Selection and Usage Guide for Commercial Steel Doors, [1990].
- .6 National Fire Protection Association (NFPA)
  - .1 NFPA 80-[99], Standard for Fire Doors and Fire Windows.
  - .2 NFPA 252-[03], Standard Methods of Fire Tests of Door Assemblies.
- .7 Underwriters' Laboratories of Canada (ULC)
  - .1 CAN/ULC-S701-[01], Standard for Thermal Insulation, Polystyrene, Boards and Pipe Covering.
  - .2 CAN4-S104-[M80], Standard Method for Fire Tests of Door Assemblies.
  - .3 CAN4-S105-[M85], Standard Specification for Fire Door Frames Meeting the Performance Required by CAN4-S104.

### 1.3. SYSTEM DESCRIPTION

- .1 Design Requirements:
  - .1 Design exterior frame assembly to accommodate to expansion and contraction when subjected to minimum and maximum surface temperature of -35 degrees C to 35 degrees C.
  - .2 Provide fire labelled frames for openings requiring fire protection ratings. Test products in conformance with CAN4-S104 and NFPA 252 listed by nationally recognized agency having factory inspection services.

### 1.4. ACTION AND INFORMATIONAL SUBMITTAL

- .1 Provide product data relevant to the product.
- .2 Provide shop drawings showing the following:
  - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Manitoba, Canada.
  - .2 Indicate each type of door, material, steel core thicknesses, mortises, reinforcements, location of exposed fasteners, openings, glazed, arrangement of hardware and fire rating and finishes.
  - .3 Indicate each type frame material, core thickness, reinforcements, glazing stops, location of anchors and exposed fastenings and fire rating and finishes.
  - .4 Indicate jamb and head details necessary to preserve the fire resistance rating of the assembly in which the door occurs.
  - .5 Include schedule identifying each unit, with door marks and numbers relating to numbering on drawings and door schedule.

**1.5. DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials to site when site is ready.
- .2 Store in vertical position, spaced to provide ventilation between components.
- .3 Clean and touch up abrasions or disfigurement caused by shipping or handling with zinc-rich primer.

**2. PRODUCTS**

**2.1. MATERIALS**

- .1 Sheet Steel: Galvanized steel ASTM A653/A653M, commercial grade (CS), Type B,
  - .1 Coating designation G90 for exterior doors and frames
  - .2 Coating designation A01 for interior doors and frames
- .2 Reinforcement Channel: To CSA G40.20/G40.21, Type44W, coating designation to ASTM A653M, ZF75.
- .3 Extruded aluminum: to ASTM B 221

**2.2. DOOR CORE MATERIALS**

- .1 Polyurethane: to CAN/ULC-S704 rigid, modified polyisocyanurate, closed cell board. Density 32 kg/m<sup>3</sup>. Thermal value R-11.0 minimum.
- .2 Temperature rise rated (TRR): core composition to limit temperature rise on unexposed side of door to 450 degrees F for duration determined by Manitoba Building Code requirements. Core to be tested as part of a complete door assembly, in accordance with CAN4-S104, covering Standard Method of Tests of Door Assemblies and listed by nationally recognized testing agency having factory inspection service.

**2.3. ADHESIVES**

- .1 Cores and Steel Components: heat resistant, structural reinforced epoxy, resin-based adhesive.
- .2 Lock-seam doors: Reinforced epoxy resin, high viscosity, thicksotropic sealant.

**2.4. PRIMER**

- .1 Rust inhibitive touch-up prime CAN/CGSB-1.181.

**2.5. 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: 16 gauge metal welded, thermally broken type construction.
- .4 Interior frames: 16 gauge metal welded type construction.
- .5 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.
- .6 Protect mortised cutouts with steel guard boxes.
- .7 Prepare frame for door silencers, 3 for single door, and 2 at head for double door.
- .8 Manufacturer's nameplates on frames and screens are not permitted.
- .9 Conceal fastenings except where exposed fastenings are indicated.
- .10 Provide factory-applied touch up primer at areas where zinc coating has been removed during fabrication.
- .11 Insulate exterior frame components with polyurethane 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 2 anchors for rebate opening heights up to 60" and 1 additional anchor for each additional 30" of height or fraction thereof.

**2.7. 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 Prior to shipment, components shall be designated with an identifier corresponding to the numbering on the approved submittal drawings.

**2.8. DOOR FABRICATION GENERAL**

- .1 Doors: swing type, flush, with provision for glass openings as indicated.
- .2 Exterior doors: laminated core construction, 20-gauge face sheet.
- .3 Interior doors: laminated core construction, 20-gauge face sheet.
- .4 Fabricate doors with longitudinal edges mechanically inter-locked with no visible edge seams.
- .5 Doors shall be mortised, blanked, reinforced, drilled and tapped at the factory for template hardware only, in accordance with the approved hardware schedule and templates provided by the hardware supplier.
- .6 Holes 12.7 mm (0.5") diameter and larger shall be factory prepared, except mounting and through-bolt holes, which are by others, on Site, at time of hardware installation. Holes less than 12.7 mm (0.5") diameter shall be factory prepared only when required for the function of the device (for knob, lever, cylinder, thumb or turn pieces) or when these holes

- over-lap function holes.
- .7 Doors shall be reinforced only, where required, for surface mounted hardware, anchor hinges, thrust pivots, pivot reinforced hinges, or non-templated hardware. Drilling and tapping is by others, on Site, at time of installation.
  - .8 Reinforce doors where required, for surface mounted hardware. Provide flush PVC top caps to exterior doors. Provide inverted, recessed, spot welded channels to top and bottom of interior doors.
  - .9 Provide factory-applied touch-up primer at areas where zinc coating has been removed during fabrication.
  - .10 Provide fire labelled doors for those openings requiring fire protection ratings, as scheduled. Such products shall be listed for conformance with CAN4-S104. All fire-rated doors shall bear the label of, and be listed by a nationally recognized testing agency having a factory inspection service. Labelling shall be in accordance with NFPA 80.
  - .11 Manufacturer's nameplates on doors are not permitted.

### **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 GENERAL**

- .1 Install labelled steel fire rated doors and frames to NFPA 80 except where specified otherwise.
- .2 Install doors and frames to CSDMA Installation Guide.

#### **3.3. 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 48" 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 exterior door frames between frame and adjacent material.
- .6 Maintain continuity of air barrier and vapour retarder.

#### **3.4. DOOR INSTALLATION**

- .1 Install doors and hardware in accordance with hardware templates and manufacturer's instructions and Section 08 71 00 - Door Hardware.
- .2 Provide even margins between doors and jambs and doors and finished floor and thresholds as follows:
  - .1 Hinge side: 1.0 mm, Latchside & Head: 1.5 mm, Finished Floor: 13 mm
- .3 Adjust operable parts for correct function.

**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.

**3.6. FIELD PAINTING**

- .1 Paint in accordance with Specifications. 2 Finish coats required.
  - .1 Touch up damaged surfaces and surfaces without shop coat with primer to NACE No.3/SSPC-SP-6 except as specified otherwise. Apply in accordance: MPI Architectural Painting Specification Manual.

**3.7. GLAZING**

- .1 Install glazing for doors and frames in accordance with Section 08 80 50 - Glazing.

**3.8. CLEANING**

- .1 Clean and wipe down doors and frames after install.

**END OF SECTION 08 11 00**