

PART 1 - GENERAL

1.1 RELATED
SECTIONS

- .1 Section - 07 92 10 Joint sealing.
- .2 Section - 08 80 50 Glazing
- .3 Section - 09 91 13 Exterior painting
- .4 Section - 09 91 23 Interior 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 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-1.181-[99], Ready-Mixed Organic Zinc-Rich Coating.
 - .2 CGSB 41-GP-19Ma-[84], Rigid Vinyl Extrusions for Windows and Doors.
- .3 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).
- .4 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].
- .5 South Coast Air Quality Management District (SCAQMD), California State
 - .1 SCAQMD Rule 1113-04, Architectural Coatings.
 - .2 SCAQMD Rule 1168-05, Adhesives and Sealants Applications.
- .6 Underwriters' Laboratories of Canada (ULC)
 - .1 CAN/ULC-S701-11, Standard for Thermal

Insulation, Polystyrene, Boards and Pipe Covering.

.2 CAN/ULC-S702-09, Standard for Thermal Insulation, Mineral Fibre, for Buildings.

.3 CAN/ULC-S704-03, Standard for Thermal Insulation, Polyurethane and Polyisocyanurate Boards, Faced.

.4 CAN4-S104-M80, Standard Method for Fire Tests of Door Assemblies.

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

1.4 SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Provide product data: in accordance with Section 01 33 00 - Submittal Procedures.

.3 Provide shop drawings: in accordance with Section 01 33 00 - Submittal Procedures.

.1 Submit drawings stamped and signed by professional engineer registered or licensed in Nova Scotia, Canada.

.2 Indicate each type of door, material, steel core thicknesses, mortises, reinforcements, location of exposed fasteners, openings, glazed, arrangement of hardware and finishes.

.3 Indicate each type frame material, core thickness, reinforcements, glazing stops, location of anchors and exposed fastenings reinforcing.

.4 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 in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Waste Management and Disposal:
 - .1 Separate waste materials for recycling in accordance with Section 01 74 22 - Construction/Demolition Waste Management and Disposal.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Commercial type Steel doors:
- .2 Hot dipped galvanized steel sheet: to ASTM A 653M, ZF75, 1.6mm (16 gauge) minimum base steel thickness in accordance with CSDMA Table 1 - Thickness for Component Parts.
- .3 Reinforcement channel 5mm: to CSA G40.20/G40.21, Type 44W, coating designation to ASTM A 653M, ZF75.

2.2 DOOR CORE
MATERIALS

- .1 Honeycomb construction:
 - .1 Structural small cell, 24.5 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 and welded, honeycomb or insulated core.
 - .1 Fibreglass: to CAN/ULC-S702, semi-rigid Type, density 24 kg/m³.
 - .1 Expanded polystyrene: CAN/ULC-S701, density 16 to 32 kg/m³.

2.3 ADHESIVES

- .1 Honeycomb cores and steel components: heat resistant, spray grade, resin reinforced neoprene/rubber polychloroprene based, low viscosity, contact cement.
- .2 Polystyrene and polyurethane cores: heat resistant, epoxy resin based, low viscosity, contact cement.

2.4 PRIMER

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

2.5 PAINT

- .1 Field paint steel doors and frames in accordance with Section[s] 09 91 23 - Interior Painting, 09 91 13 - Exterior Painting. Protect weatherstrips from paint. Provide final finish free of scratches or other blemishes.

2.6 ACCESSORIES

- .1 Door silencers: single stud rubber/neoprene type.
- .2 Exterior and interior top and bottom caps: 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 Metallic paste filler: to manufacturer's standard.
- .5 Sealant: Type 1.
- .6 Glazing: 13mm clear, tempered.
- .7 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.
 - .2 Design exterior glazing stops to be tamperproof.

2.7 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: 1.9 mm welded thermally broken type construction.
- .4 Interior frames: 1.9mm welded slip-on 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, 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.

2.8 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 on centre maximum.

2.9 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 Fabricate frame products for openings as indicated on drawings

2.10 FRAMES:
SLIP-ON TYPE

- .1 Ship slip-on type frames unassembled.
- .2 Provide frames with mechanical joints which inter-lock securely and provide functionally satisfactory performance when installed in accordance with CSDMA Recommended Installation Guide for Steel Doors and Frames and manufacturers' instructions.
- .3 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.

2.11 DOOR

- .1 Doors: swing type, flush, with provision for glass

FABRICATION GENERAL

and/or louvre openings as indicated.

- .2 Exterior doors: reinforced insulated steel construction. Interior doors: reinforced 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 Doors: manufacturers' proprietary construction, tested and/or engineered as part of a fully operable assembly, including door, frame, gasketing and hardware in accordance with ASTM E 330 to provide blast resistance.
- .5 Blank, reinforce, drill doors and tap for mortised, templated hardware and electronic hardware.
- .6 Factory prepare holes 12.7 mm diameter and larger except mounting and through-bolt holes, on site, at time of hardware installation.
- .7 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.
- .8 Provide factory-applied touch-up primer at areas where zinc coating has been removed during fabrication.
- .9 Manufacturer's nameplates on doors are not permitted.

2.12 DOORS:
HONEYCOMB CORE
CONSTRUCTION

- .1 Form face sheets for exterior doors from 1.6mm sheet steel with polystyrene polyurethane core laminated under pressure to face sheets.
- .2 Form face sheets for interior doors from 1.6mm sheet steel with honeycomb core laminated under pressure to face sheets.

2.13 HOLLOW STEEL
CONSTRUCTION

- .1 Form face sheets for exterior doors from 1.6 mm sheet steel.

- .2 Form face sheets for interior doors from 1.6mm sheet steel.
- .3 Reinforce doors with vertical stiffeners, securely welded to face sheets at 150 mm on centre maximum.
- .4 Fill voids between stiffeners of exterior doors with polystyrene polyurethane core.
- .5 Fill voids between stiffeners of interior doors with honeycomb temperature rise rated core.

2.15 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.
- .3 Fabricate thermally broken frames separating exterior parts from interior parts with continuous interlocking thermal break.
- .4 Apply insulation.

PART 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 doors and frames to CSDMA Installation Guide.

3.3 FRAME

- .1 Set frames plumb, square, level and at correct

INSTALLATION

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.

3.4 DOOR
INSTALLATION

- .1 Install doors and hardware as per 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 thresholds: 13 mm.
- .3 Adjust operable parts for correct function.
- .4 Install louvres.

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

PART 1 - GENERAL

1.1 RELATED

SECTIONS

- .1 Section 01 33 00 - SUBMITTAL PROCEDURES.
- .2 Section 01 78 00 - CLOSEOUT SUBMITTALS.
- .3 Section 08 11 00 - METAL DOORS AND FRAMES.

1.2 REFERENCES

- .1 Canadian General Standards Board (CGSB).
 - .1 CAN/CGSB-12.1-M90, Tempered or Laminated Safety Glass.
 - .2 CAN/CGSB-12.3-M91, Flat, Clear Float Glass.
 - .3 CAN/CGSB-12.12-M90, Plastic Safety Glazing.
- .2 Environmental Choice Program (ECP).
 - .1 CCD-045-95, Sealants and Caulking.
- .3 Flat Glass Manufacturers Association (FGMA).
 - .1 FGMA Glazing Manual - 1997.
- .4 American society for testing for material international. (ASTM)
 - .1 ASTM-84 (01), test surface for surface burning characteristics of building materials.
 - .2 ASTM-1233 (98), Test method for security glazing materials and systems.

1.3 SUBMITTALS

- .1 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Shop Drawings:
 - .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
- .3 Manufacturer's Instructions:
 - .1 Submit manufacturer's installation instructions.

1.4 QUALITY
ASSURANCE

- .1 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Pre-installation Meetings: conduct pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements.

PART 2 - PRODUCTS

2.1 MATERIALS: FLAT
GLASS

- .1 Safety glass: to CAN/CGSB-12.1
 - .1 Tempered glass (Type 2), Clear Transparent, 6 mm and 13mm thick.

2.2 ACCESSORIES

- .1 Setting blocks: Neoprene, 80-90 Shore A durometer hardness to ASTM D 2240, length of 25 mm for each square meter of glazing minimum 100 mm x width of glazing rabbet space minus 1.5 mm x height to suit glazing method, glass light weight and area.
- .2 Spacer shims: Neoprene, 50-60 Shore A durometer hardness to ASTM D 2240, 75 mm long x one half height of glazing stop x thickness to suit application. Self-adhesive on one face.
- .3 Glazing tape:
 - .1 Preformed butyl compound with integral resilient tube spacing device, 10-15 Shore A durometer hardness to ASTM D 2240; coiled on release paper; 12 x 2 mm size; black color.

PART 3 - EXECUTION

3.1 MANUFACTURER'S

- .1 Compliance: Comply with manufacturer's written data, including product technical bulletins, product

INSTRUCTIONS

catalogue installation instructions, product carton
installation instructions, and data sheets.

3.2 EXAMINATION

- .1 Verify that openings for glazing are correctly sized and within tolerance.
- .2 Verify that surfaces of glazing channels or recesses are clean, free of obstructions, and ready to receive glazing.

3.3 PREPARATION

- .1 Clean contact surfaces and wipe dry.
- .2 Seal porous glazing channels or recesses with substrate compatible primer or sealer.
- .3 Prime surfaces scheduled to receive sealant.

3.4 INSTALLATION:
DOORS

- .1 Cut glazing tape to length; install on glazing light. Seal corners by butting tape and sealing junctions with sealant.
- .2 Place setting blocks at 1/4 points, with edge block maximum 150 mm from corners.
- .3 Rest glazing on setting blocks and push against tape for full contact at perimeter of light or unit.
- .4 Cut glazing tape to length and set against permanent stops, projecting 1.6 mm above sight line.
- .5 Place setting blocks at 1/4 points, with edge block maximum 150 mm from corners.
- .6 Place glazing tape on free perimeter of glazing in same manner described.
- .7 Install removable stop without displacement of tape. Exert pressure on tape for full continuous contact. Install stops in place using security screws @ 100 o/c max. Screws must engage a minimum of 6mm thick

solid steel reinforcement.

.8 Knife trim protruding tape.

3.5 CLEANING

.1 Perform cleaning after installation to remove construction and accumulated environmental dirt.

.2 Remove traces of primer, caulking.

.3 Remove glazing materials from finish surfaces.

.4 Remove labels after work is complete.

.5 Clean glass using approved non-abrasive cleaner in accordance with manufacturer's instructions.

.6 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

3.6 PROTECTION OF FINISHED WORK

.1 After installation, mark light with an "X" by using removable plastic tape or paste.