

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 07 92 10 - Joint Sealers.
- .3 Section 08 71 10 - Door Hardware.
- .4 Section 09 91 23 - Painting.

1.2 REFERENCES

- .1 American Society for Testing and Materials (ASTM International)
 - .1 ASTM A653/A653M-01a, 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 G40.20/G40.21-98, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
 - .2 CSA W59-M1989(R2001), Welded Steel Construction (Metal Arc Welding) (Metric Version).
- .4 Canadian Steel Door Manufacturers' Association, (CSDMA).
 - .1 CSDMA, Specifications for Commercial Steel Doors and Frames, 1990.
 - .2 CSDMA, Recommended Selection and Usage Guide for Commercial Steel Doors, 1990.
- .5 National Fire Protection Association (NFPA)
 - .1 NFPA 80-99, Standard for Fire Doors and Fire Windows.
 - .2 NFPA 252-99, Standard Methods of Fire Tests of Door Assemblies.
- .6 Underwriters' Laboratories of Canada (ULC)
 - .1 CAN4-S104-80(R1985), Fire Tests of Door Assemblies.
 - .2 CAN4-S105-85(R1992), Fire Door Frames Meeting the Performance Required by CAN4-S104.
- .7 CAN/ULC-S701-01, Thermal Insulation, Polystyrene, Boards and Pipe Covering.
- .8 CAN/ULC-S702-97, Thermal Insulation, Mineral Fibre, for Buildings.
- .9 CAN/ULC-S704-01, Thermal Insulation, Polyurethane and Polyisocyanurate Boards, Faced.

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.

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 louvered, 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 reinforcing fire rating finishes.
- .4 Include schedule identifying each unit, with door marks and numbers relating to numbering on drawings and door schedule.

Part 2 Products

2.1 MATERIALS

- .1 Hot dipped galvanized steel sheet to ASTM A653M, minimum base steel thickness in accordance with CSDMA Table 1 – Thickness for component parts.

2.2 DOOR CORE MATERIALS

- .1 Insulated core construction: R=6.6
 - .1 Expanded polystyrene: CAN/ULC – S 701, Density 16 to 32 kg/m³.

2.3 ADHESIVES

- .1 Polystyrene and polyurethane cores: heat resistant, epoxy resin based, low viscosity, contact cement.
- .2 Lock-seam doors: fire resistant, resin reinforced polychloroprene, high viscosity, sealant/adhesive.

2.4 PRIMER

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

2.5 PAINT

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

2.6 ACCESSORIES

- .1 Door silencers: single stud rubber/neoprene type.

- .2 Exterior top and bottom caps: rigid polyvinylchloride extrusion conforming to CGSB 41-GP-19Ma.
- .3 Metallic paste filler: to manufacturer's standard.
- .4 Sealant: Section 07 92 10 – Joint Sealers.

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: 1.6 mm (16 ga) welded thermally broken type construction.
- .4 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.
- .5 Prepare frame for door silencers, 3 for single door, 2 at head for double door.
- .6 Manufacturer's nameplates on frames and screens are not permitted.
- .7 Conceal fastenings except where exposed fastenings are indicated.
- .8 Provide factory-applied touch up primer at areas where zinc coating has been removed during fabrication.

2.8 FRAME ANCHORAGE

- .1 Provide appropriate anchorage to floor and wall construction, coordinate with General Contractor.

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.

2.10 DOOR FABRICATION GENERAL

- .1 Doors: swing type, flush.
- .2 Exterior doors: hollow steel construction.

- .3 Fabricate doors with longitudinal edges locked seam. Seams: visible.
 - .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 PVC 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 permitted on hinge side of door concealed front view.
- 2.11 HOLLOW STEEL CONSTRUCTION**
- .1 Form each face sheet for exterior doors from 1.6 mm (16 gauge) sheet steel with polystyrene core laminated under pressure to face sheets.
- 2.12 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 Exterior doors to be insulated with foam core.
- 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 and Section 08 71 10 - 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.
 - .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.

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

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01 33 00 – Submittal Procedures.
- .2 Section 01 61 00 - Common Product Requirements
- .3 Section 01 78 00 - Closeout Submittals
- .4 Section 13 12 30 – Greenhouses (Aluminum Doors & Frames)

1.2 REFERENCES

- .1 Canadian Steel Door and Frame Manufacturers' Association (CSDFMA)
 - .1 CSDFMA Canadian Metric Guide for Steel Doors and Frames (Modular Construction): standard hardware location dimensions.
- .2 Builders Hardware Manufacturers Association (BHMA) and American National Standard Institute (ANSI)
 - .1 ANSI/BHMA A156.1, Butts and Hinges.
 - .2 ANSI/BHMA A156.3, Exit Devices.
 - .3 ANSI/BHMA A156.4, Door Controls - Closers.
 - .4 ANSI/BHMA A156.5, Auxiliary Locks and Associated Products
 - .5 ANSI/BHMA A156.6, Architectural Door Trim.
 - .6 ANSI/BHMA A156.8, Door Controls - Overhead Holders
 - .7 ANSI/BHMA A156.13, Mortise Locks and Latches
 - .8 ANSI/BHMA A156.15, Closer/Holder Release Device.
 - .9 ANSI/BHMA A156.16, Auxiliary Hardware.
 - .10 ANSI/BHMA A156.18, Materials and Finishes
 - .11 ANSI/BHMA A156.21, Thresholds
 - .12 ANSI/BHMA A156.22, Gasket 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.
 - .1 Include templates and associated information for the use of the Aluminum Door & Frame Manufacture to prep for the hardware.
- .2 Hardware List:
 - .1 Submit contract hardware list in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Indicate specified hardware, including make, model, material, function, size, finish and other pertinent information.
- .3 Manufacturer's Instructions:

- .1 Submit manufacturer's installation instructions.
- .4 Closeout Submittals
 - .1 Provide operation and maintenance data for door closers, locksets, door holders electrified hardware and fire exit hardware for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.
- 1.4 **QUALITY ASSURANCE**
 - .1 Pre-installation Meetings: conduct pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements.
- 1.5 **DELIVERY, STORAGE, AND HANDLING**
 - .1 Packing, Shipping, Handling and Unloading:
 - .1 Deliver, store, handle and protect materials in accordance with Section 01 61 00 - Common Product Requirements.
 - .2 Package each item of hardware including fastenings, separately or in like groups of hardware, label each package as to item definition and location.
 - .2 Storage and Protection:
 - .1 Store finishing hardware in a locked, clean and dry area on shelving and off the floor.
- 1.6 **MAINTENANCE**
 - .1 Extra Materials:
 - .1 Provide maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.
 - .2 Supply two sets of wrenches for door closers, locksets, and fire exit hardware.
- Part 2 Products**
- 2.1 **HARDWARE ITEMS**
 - .1 Use one manufacturer's products only for similar items.
 - .2 The following hardware items are standards of acceptance and are to be read in conjunction with the floor plans:
 - .1 Hardware Group A
Hardware for Doors to Rooms 124, 125, 126, 127, 128 & 129
NOTE: Aluminum Doors & Frames by Section 13 12 30.
Architectural Hardware by Section 08 71 00.

18 Hinges: McKinney TA 314 ET 4 ½ x 4 26D
6 Locksets: Sargent 7837 PT LC 32D Paddle Trim to be installed "Push Up, Pull Down". Pull paddle to have factory engraving: "Pull". Cylinder to be supplied by Owner.
6 Closures: Sargent 1431 OZ EN Top Jamb Mounted With Deep Reveal Arm
6 Overhead Stop/holders: Sargent 599H x 26D
6 Thresholds: KN Crowder CT-64 (1067 mm Door)

6 Sweeps: KN Crowder W-24 S (1067 mm Door)

.2 Hardware Group B

Hardware for Replacement pair of Doors between existing and new greenhouse areas.

NOTE: Aluminum Door & Frame by Section 13 12 30.
Architectural Hardware by Section 08 71 00.

2 Hinges: Roton 780-300HD 2108 mm US28 Half-Surface Gear Hinges
2 Exit Devices: Sargent NB 8710F 32D Top Latch Surface Vertical Rod Exit devices
2 Closures: Sargent 1431 H EN Top Jamb Mounted with Hold-Open Arms
2 Floor Stops: Standard Metal S102L 26D
1 Threshold: KN Crowder CT-65 1829 mm Aluminum Sill
2 Sweeps: KN Crowder W-24S 914 mm Surface Mounted

.3 Hardware Group C

Hardware for Door from Corridor 123 to Stair Vestibule.

NOTE: Aluminum Door & Frame by Section 13 12 30.
Architectural Hardware by Section 08 71 00.

3 Hinges: McKinney TA 314 ET 4 ½ x 4 26D
1 Lockset: Sargent 7815 PT 32D Paddle Trim to be installed "Push UP, Pull Down". Pull paddle to have factory engraving: "Pull".
1 Closer: Sargent 1431 OZ EN Top Jamb Mounted with deep reveal arm
1 Overhead Stop: Sargent 5995 x 26D
1 Threshold: KN Crowder CT-64 (1067 mm Door)
1 Sweep: KN Crowder W-24 S (1067 mm Door)

.4 Hardware Group D

Hardware for Door to Exterior from Stair

NOTE: Aluminum Door & Frame by Section 13 12 30.
Architectural Hardware by Section 08 71 00.

3 Hinges: McKinney TA 314 NRP ET 4 ½ x 4 26D
1 Exit Device: Sargent 8804 ETL 32D Rim Device with exterior lever trim. Cylinder to be supplied by Owner.
1 Closer: Sargent 1431 OZ EN Top Jamb Mounted w/ Deep reveal arm
1 Threshold: KN Crowder CT-49 (1067 mm Door)

.5 Hardware Group E

Hardware for new exit door to be installed in the exterior wall of the existing Header House adjacent to the greenhouse. Door is insulated hollow metal door in thermally broken pressed steel frame.

3 Hinges: McKinney TA 314 NRP ET 4 ½ x 4 26D

- 1 Exit Device: Sargent 8804 ETL 32D Rim Device with exterior lever trim.
Cylinder to be supplied by Owner.
- 1 Closer: Sargent 1431-P9 EN Regular Parallel Arm Application.
- 1 Overhead Stop/Holder: Sargent 598H x 26D
- 1 Threshold: KN Crowder CT-49 (914 mm Door)
- 1 Weatherstripping: KN Crowder W-20 S 1 x 914, 2 x 2133, CA

2.2 FASTENINGS

- .1 Use only fasteners provided by manufacturer. Failure to comply may void warranties and applicable licensed labels.
- .2 Supply screws, bolts, expansion shields and other fastening devices required for satisfactory installation and operation of hardware.
- .3 Exposed fastening devices to match finish of hardware.
- .4 Use fasteners compatible with material through which they pass.

2.3 KEYING

- .1 Pre-keyed Cylinders are to be supplied by Owner. Contractor to install.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

- .1 Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.
- .2 Furnish metal door and frame manufacturers with complete instructions and templates for preparation of their work to receive hardware.
- .3 Furnish manufacturers' instructions for proper installation of each hardware component.

3.2 INSTALLATION

- .1 Install hardware to standard hardware location dimensions in accordance with Canadian Metric Guide for Steel Doors and Frames prepared by Canadian Steel Door and Frame Manufacturers' Association.
- .2 Use only manufacturer's supplied fasteners. Failure to comply may void manufacturer's warranties and applicable licensed labels. Use of "quick" type fasteners, unless specifically supplied by manufacturer, is unacceptable.

3.3 ADJUSTING

- .1 Adjust door hardware, operators, closures and controls for optimum, smooth operating condition, safety and for weather tight closure.
- .2 Lubricate hardware, operating equipment and other moving parts.
- .3 Adjust door hardware to provide tight fit at contact points with frames.

3.4 CLEANING

- .1 Perform cleaning after installation to remove construction and accumulated environmental dirt.
- .2 Clean hardware with damp rag and approved non-abrasive cleaner, and polish hardware in accordance with manufacture's instructions.
- .3 Remove protective material from hardware items where present.

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

3.5

DEMONSTRATION

- .1 Owner's Staff Briefing:
 - .1 Brief maintenance staff regarding:
 - .2 Proper care, cleaning, and general maintenance of projects complete hardware.
 - .3 Description, use, handling, and storage of keys.
 - .4 Use, application and storage of wrenches for door closers, locksets and exit hardware.
- .2 Demonstrate operation, operating components, adjustment features, and lubrication requirements.

END OF SECTION