

PART 1 GENERAL

1.1 Related Sections

- .1 Section 07 92 10 - Joint Sealing: Caulking of joints between frames and other building components.
- .2 Section 08 71 10 - Door Hardware - General: Supply of finish hardware, including weatherstripping and mounting heights.
- .3 Section 09 91 23 - Interior Painting.

1.2 References

- .1 American Society for Testing and Materials (ASTM International)
 - .1 ASTM A653/A653M, Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - .2 ASTM B29, Specification for Refined Lead.
 - .3 ASTM B749, Specification for Lead and Lead Alloy Strip, Sheet and Plate Products.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-1.181, Ready-Mixed Organic Zinc-Rich Coating.
 - .2 CGSB 41-GP-19Ma, Rigid Vinyl Extrusions for Windows and Doors.
- .3 Canadian Standards Association (CSA International)
 - .1 G40.20/G40.21, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
 - .2 CSA W59, Welded Steel Construction (Metal Arc Welding) (Metric Version).
- .4 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.
- .5 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.
- .6 Underwriters' Laboratories of Canada (ULC)
 - .1 CAN4-S104, Fire Tests of Door Assemblies.
 - .2 CAN4-S105, Fire Door Frames Meeting the Performance Required by CAN4-S104.
- .7 CAN/ULC-S701, Thermal Insulation, Polystyrene, Boards and Pipe Covering.
- .8 CAN/ULC-S702, Thermal Insulation, Mineral Fibre, for Buildings.
- .9 CAN/ULC-S704, Thermal Insulation, Polyurethane and Polyisocyanurate Boards, Faced.

1.3 Design Requirements

- .1 Design exterior frame assembly to accommodate 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 1/175th of span.

1.4 Shop Drawings

- .1 Indicate each type of door, material, steel core thicknesses, mortises, reinforcements, location of exposed fasteners, openings, glazing, louvers, arrangement of hardware and fire rating and finishes.
- .2 Indicate each type frame material, core thickness, reinforcements, glazing stops, location of anchors and exposed fastenings reinforcing, fire rating and finishes.
- .3 Include schedule identifying each unit, with door marks and numbers relating to numbering on drawings and door schedule.
- .4 Submit test and engineering data, and installation instructions.

1.5 Requirements

- .1 Steel fire rated doors and frames: labelled and listed by an organization accredited by Standards Council of Canada in conformance with CAN4-S104M for ratings specified or indicated.
- .2 Provide fire labelled frame products for those openings requiring fire protection ratings, as scheduled.

1.6 Waste Management And Disposal

- .1 Remove from site and dispose of packaging materials at appropriate recycling facilities.

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, except:
 - .1 Doors: 1.2 mm (18 gauge)
 - .2 Frames: 1.6 mm (16 gauge)
- .2 Reinforcement: to CSA G40.20/G40.21, Type 44W, coating designation to ASTM A653M.

2.2 Door Core Materials

- .1 Stiffened: face sheets welded, insulated core.
 - .1 Polyurethane: to CAN/ULC-S704 rigid, modified poly/isocyanurate, closed cell board. Density 32 kg/m³.

2.3 Adhesives

- .1 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. Protect weatherstrips 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 Top and bottom caps: rigid polyvinylchloride extrusion conforming to CGSB 41-GP-19Ma steel.
- .3 Metallic paste filler: to manufacturer's standard.

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 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 Protect mortised cutouts with steel guard boxes.
- .6 Prepare frame for door silencers, 3 for single door, 2 at head for double 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.

2.8 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 o.c. 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.

2.10 Door Fabrication General

- .1 Doors: swing type, flush, with provision for glass and/or louvre openings as indicated.
- .2 Exterior doors: 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 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 Provide fire labelled doors for those openings requiring fire protection ratings, as scheduled. Test such products in strict conformance with CAN4-S104 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.
- .9 Manufacturer's nameplates on doors are not permitted.

2.11 Hollow Steel Construction

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

- .2 Reinforce doors with vertical stiffeners, securely laminated to each face sheet at 150 mm on centre maximum.
- .3 Fill voids between stiffeners of exterior doors with polyurethane core.

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 Apply insulation.

PART 3 EXECUTION

3.1 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.

3.2 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.

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 - General.
- .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, 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

Part 1 General

1.1 SCOPE OF WORK

- .1 In general, Work in this Division includes:
 - .1 Installation of a new cabinet within the Effluent Monitoring Station for the recording of information and the storage of records.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for cabinet and hardware and include product characteristics, performance criteria, physical size, finish and limitations.
- .2 Hardware List:
 - .1 Submit contract hardware list.
 - .2 Indicate specified hardware, including make, model, material, function, finish and other pertinent information.

1.3 CLOSEOUT SUBMITTALS

- .1 Operation and Maintenance Data: submit operation and maintenance data for cabinet hardware for incorporation into the O&M Manual.

1.4 QUALITY ASSURANCE

- .1 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with the manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials indoors in accordance with manufacturer's recommendations for a clean, dry, well-ventilated area.
 - .2 Store and protect cabinet and hardware from nicks, scratches, and blemishes.
 - .3 Protect prefinished surfaces.
 - .4 Replace defective or damaged materials with new.

Part 2 Products

2.1 CABINET MATERIALS

- .1 Fabricate cabinet out of suitable materials such as plywood or MDF.

2.2 CABINET HARDWARE

- .1 Cabinet hardware: to ANSI/BHMA A156.9, designated by letter B and numeral identifiers as listed below.
 - .1 Hinges: concealed, type piano, finish galvanized.

2.3 FASTENINGS

- .1 Supply screws, bolts, expansion shields and other fastening devices required for satisfactory installation and operation of hardware.
- .2 Exposed fastening devices to match finish of hardware.
- .3 Use fasteners compatible with material through which they pass.

Part 3 Execution

3.1 INSTALLATION

- .1 Manufacturer's Instructions: comply with manufacturer's written recommendations, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.
- .2 Install hardware to standard hardware location dimensions in accordance with manufacturer's recommendations and to project design requirements.
- .3 Install key control cabinet and establish key control set-up.

3.2 ADJUSTING

- .1 Adjust cabinet hardware for optimum, smooth operating condition.
- .2 Lubricate hardware and other moving parts.
- .3 Adjust cabinet door hardware to ensure tight fit at contact points with frames.

3.3 DEMONSTRATION

- .1 Demonstrate operation, operating components, adjustment features, and lubrication requirements.

3.4 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by cabinet and miscellaneous hardware installation.

END OF SECTION

PART 1 GENERAL

1.1 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 Canadian General Standards Board (CGSB).
 - .1 CAN/CGSB-69.17, Bored and Preassembled Locks and Latches.
 - .2 CAN/CGSB-69.18/ANSI/BHMA A156.1, Butts and Hinges.
 - .3 CAN/CGSB-69.19/ANSI/BHMA A156.3, Exit Devices.
 - .4 CAN/CGSB-69.20/ANSI/BHMA A156.4, Door Controls (Closers).
 - .5 CAN/CGSB-69.21/ANSI/BHMA A156.5, Auxiliary Locks and Associated Products.
 - .6 CAN/CGSB-69.22/ANSI/BHMA A156.6, Architectural Door Trim.
 - .7 CAN/CGSB-69.24/ANSI/BHMA A156.8, Door Controls - Overhead Holders.
 - .8 CAN/CGSB-69.26/ANSI/BHMA A156.10, Power-operated Pedestrian Doors.
 - .9 CAN/CGSB-69.28/ANSI/BHMA A156.12, Interconnected Locks and Latches.
 - .10 CAN/CGSB-69.29/ANSI/BHMA A156.13, Mortise Locks and Latches.
 - .11 CAN/CGSB-69.30/ANSI/BHMA A156.14, Sliding and Folding Door Hardware.
 - .12 CAN/CGSB-69.31/ANSI/BHMA A156.15, Closer/Holder Release Device.
 - .13 CAN/CGSB-69.32/ANSI/BHMA A156.16, Auxiliary Hardware.
 - .14 CAN/CGSB-69.33/ANSI/BHMA A156.17, Self-closing Hinges and Pivots.
 - .15 CAN/CGSB-69.34/ANSI/BHMA A156.18, Materials and Finishes.
 - .16 CAN/CGSB-69.35/ANSI/BHMA A156.19, Power Assist and Low Energy Power Operated Doors.
 - .17 CAN/CGSB-69.36/ANSI/BHMA A156.20, Strap and Tee Hinges and Hasps.

1.2 Submittals

- .1 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications and data sheets.
- .2 Hardware List:
 - .1 Submit contract hardware list.
 - .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.

1.3 Delivery, Storage, and Handling

- .1 Packing, Shipping, Handling and Unloading:
 - .1 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 locked, clean and dry area.

1.4 Waste Disposal and Management

- .1 Remove from site and dispose of packaging materials at appropriate recycling facilities.

1.5 Maintenance

- .1 Extra Materials:
 - .1 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 unless noted otherwise.

2.2 Door Hardware

- .1 Hardware Items

.1	Hinges	CB1960 114 x 102 NRP	630	Stanley
.2	Rim Exit Device	2100 x 217F	626	Yale
.3	Weatherstrip	W50		Crowder
.4	Sweep seals	W13S		Crowder
.5	Threshold	CT10		Crowder
.6	Door stop/holder	100H Series	630	Glynn Johnson
- .2 Provide exit device with Medeco cylinder keyed to City of Winnipeg requirements. The City will provide lock number before keying.
- .3 Butts and hinges:
 - .1 Butts and hinges: to CAN/CGSB-69.18, designated by letter A and numeral identifiers, followed by size and finish, listed in Hardware Schedule.
- .4 Exit devices: to CAN/CGSB-69.19.
- .5 Door Closers and Accessories:
 - .1 Door controls (closers): to CAN/CGSB-69.20, designated by letter C and numeral identifiers listed in Hardware Schedule, size in accordance with CAN/CGSB-69.20, table A1.
 - .2 Door controls - overhead holders: to CAN/CGSB-69.24, designated by letter C and numeral identifiers listed in Hardware Schedule.

- .3 Closer/holder release devices: to CAN/CGSB-69.31, designated by letter C and numeral identifiers listed in hardware schedule.
- .4 Power-operated pedestrian doors: to CAN/CGSB-69.26.
- .5 Power assist and low energy power operated doors: to CAN/CGSB-69.35.
- .6 Auxiliary locks and associated products: to CAN/CGSB-69.21, designated by letter E and numeral identifiers listed in Hardware Schedule.
- .7 Architectural door trim: to CAN/CGSB-69.22, designated by letter J and numeral identifiers listed in Hardware Schedule.
- .1 Door protection plates: kick plate, 1.27 mm thick stainless steel.

2.3 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 Where pull is scheduled on one side of door and push plate on other side, supply fastening devices, and install so pull can be secured through door from reverse side. Install push plate to cover fasteners.
- .5 Use fasteners compatible with material through which they pass.

2.4 Keying

- .1 Provide door with Medeco cylinder master keyed to City of Winnipeg requirements. The City will provide lock number before keying.
- .2 Stamp keying code numbers on keys and cylinders.
- .3 Provide construction cores.

PART 3 EXECUTIVE

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 (Modular Construction) prepared by Canadian Steel Door and Frame Manufacturers' Association.
- .2 Where door stop contacts door pulls, mount stop to strike bottom of pull.
- .3 Install key control cabinet.
- .4 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.
- .5 Remove construction cores when directed by Contract Administrator; install permanent cores and check operation of locks.

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.

END OF SECTION