

PART 1 - GENERAL

1.1 REFERENCES

- .1 American Society for Testing and Materials International (ASTM)
 - .1 ASTM A 653/A 653M, 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, Ready-Mixed Organic Zinc-Rich Coating.
- .3 Canadian Standards Association (CSA International)
 - .1 CSA-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).
- .4 Canadian Steel Door Manufacturers' Association (CSDMA)
 - .1 CSDMA, Recommended Specifications for Commercial Steel Doors and Frames.
 - .2 CSDMA, Selection and Usage Guide for Commercial Steel Doors.
- .5 South Coast Air Quality Management District (SCAQMD), California State
 - .1 SCAQMD Rule 1168, Adhesives and Sealants Applications.
- .6 Underwriters' Laboratories of Canada (ULC)
 - .1 CAN/ULC-S701, Standard for Thermal Insulation, Polystyrene, Boards and Pipe Covering.

1.2 ACTION AND INFORMATIONAL 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 Indicate each type of door, material, steel core thicknesses, reinforcement, location of fasteners and arrangement of hardware, insulation and finishes.
 - .2 Indicate each type frame material, core thickness, reinforcements, location of anchors and fastenings, reinforcing and finishes.
 - .3 Include schedule identifying each unit, with door marks and numbers relating to numbering on drawings and door schedule.

1.3 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.

PART 2 - PRODUCTS

<u>2.1 MATERIALS</u>	.1	Hot dipped galvanized steel sheet: to ASTM A 653M, 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 A 653M, ZF75.
<u>2.2 DOOR CORE MATERIALS</u>	.1	Polyurethane: to CAN/ULC-S704 rigid, modified poly/isocyanurate, closed cell board. Density 32 kg/m ³ .
<u>2.3 ADHESIVES</u>	.1	Heat resistant, epoxy resin based, low viscosity, contact cement.
<u>2.4 PRIMER</u>	.1	Touch-up prime CAN/CGSB-1.181.
<u>2.5 PAINT</u>	.1	Field paint steel doors and frames in accordance with Section 09 91 00 - Painting. Protect seals from paint. Provide final finish free of scratches or other blemishes.
<u>2.6 ACCESSORIES</u>	.1	Door silencers: single stud rubber/neoprene type.
	.2	Top and bottom caps.
	.3	Metallic paste filler: to manufacturer's standard.
	.4	Seals: to Section 08 71 00 – Door Hardware.
	.5	Sealant: to Section 07 92 00 – Joint Sealants.
<u>2.7 FRAMES FABRICATION GENERAL</u>	.1	Fabricate frames in accordance with CSDMA specifications.
	.2	Fabricate frames to profiles and maximum face sizes as indicated.
	.3	Frame: 1.6 mm (16 gauge) welded type construction.
	.4	Blank, reinforce, drill and tap frames for templated hardware, using templates provided by finish hardware supplier. Reinforce frames for surface mounted hardware.
	.5	Prepare frame for door silencers, 3 for single door.

- .6 Conceal fastenings except where exposed fastenings are indicated.
- .7 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.
- .2 Locate each wall anchor immediately above or below each hinge reinforcement on hinge jamb and directly opposite on strike jamb.
- .3 Provide two anchors for rebate opening heights up to 1520 mm and 1 additional anchor for each additional 760 mm of height or fraction thereof.

2.9 FRAMES: WELDED
TYPE

- .1 Welding in accordance with CSA W59.
- .2 Full profile welded.
 - .1 Accurately saw-mitre frame product and continuously weld on inside of profile.
 - .2 Grind welded joints and corners to a flat plane, fill with metallic paste and sand to uniform smooth finish.
- .3 Securely attach floor anchors to inside of each jamb profile.
- .4 Weld in 2 temporary jamb spreaders per frame to maintain proper alignment during shipment.

2.10 DOOR
FABRICATION GENERAL

- .1 Doors: swing type.
 - .1 Size: 915mm wide x 2150 high x 45mm thick.
- .2 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.
- .3 Blank, reinforce, drill doors and tap for templated hardware.
- .4 Factory prepare holes 12.7mm diameter and larger except mounting and through-bolt holes, on site, at time of hardware installation.
- .5 Reinforce doors where required, for hardware. Provide flush top caps.
- .6 Provide factory-applied touch-up primer at areas where zinc coating has been removed during fabrication.

2.11 DOORS:
CONSTRUCTION

- .1 Form face sheets for doors from 1.2 mm (18 gauge) sheet steel with polyurethane core laminated under pressure to face sheets.

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 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. 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.

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 Adjust operable parts for correct function.

3.5 FINISH REPAIRS

- .1 Touch up with primer finishes damaged during installation.
- .2 Fill exposed surfaces with imperfections with metallic paste filler and sand to a uniform smooth finish.

PART 1- GENERAL

<u>1.1 REFERENCES</u>	.1	American National Standards Institute (ANSI) / Builders Hardware Manufacturers Association (BHMA), current edition. .1 ANSI/BHMA A156.1, Butts and Hinges. .2 ANSI/BHMA A156.2, Bored and Preamsembled Locks and Latches. .3 ANSI/BHMA A156.6, Architectural Door Trim. .4 ANSI/BHMA A156.8, Door Controls - Overhead Stops and Holders. .5 ANSI/BHMA A156.16, Auxiliary Hardware. .6 ANSI/BHMA A156.18, Materials and Finishes.
	.2	Canadian Steel Door and Frame Manufacturers' Association (CSDMA) .1 CSDMA Recommended Dimensional Standards for Commercial Steel Doors and Frames.
<u>1.2 ACTION AND INFORMATIONAL SUBMITTALS</u>	.1	Submit in accordance with Section 01 33 00 - Submittal Procedures.
	.2	Product Data: .1 Submit manufacturer's instructions, printed product literature and data sheets for door hardware and include product characteristics, performance criteria, physical size, finish and limitations.
	.3	Hardware List: .1 Submit contract hardware list. .2 Indicate specified hardware, including make, model, material, function, size, finish and other pertinent information. .3 Indicate dimensions for door hardware mounting.
	.4	Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
	.5	Manufacturer's Instructions: submit manufacturer's installation instructions.
<u>1.3 CLOSEOUT SUBMITTALS</u>	.1	Submit in accordance with Section 01 78 00 - Closeout Submittals.
	.2	Operation and Maintenance Data: submit operation and maintenance data for door hardware for incorporation into manual.
<u>1.4 MAINTENANCE MATERIALS SUBMITTALS</u>	.1	Supply maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.
<u>1.5 QUALITY ASSURANCE</u>	.1	Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.6 DELIVERY,
STORAGE AND
HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with 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 Package items of hardware including fastenings, separately or in like groups of hardware, label each package as to item definition and location.
- .4 Storage and Handling Requirements:
 - .1 Store materials indoors, in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect door hardware from nicks, scratches, and blemishes.
 - .3 Protect prefinished surfaces with wrapping.
 - .4 Replace defective or damaged materials with new.

PART 2 - PRODUCTS

2.1 HARDWARE ITEMS

- .1 Use one manufacturer's products only for similar items.

2.2 DOOR HARDWARE

- .1 Locks and latches:
 - .1 Locks and latches: to ANSI/BHMA 156.2, Series 4000, Grade 1, extra heavy-duty cylindrical type.
 - .2 Design and operation meets intent of ANSI A117.1 – Accessible and Useable Building and Facilities, Section 404.2.6.
 - .3 Backset: 70 mm.
 - .4 Interchangeable core 7-pin: patented.
 - .5 Locksets to have anti-rotational studs that are through-bolted.
 - .6 Keyed lever with no exposed keeper hole.
 - .7 Each lever to have independent spring mechanism designed to control lever only.
 - .8 Outside lever sleeve seamless, one-piece construction, hardened steel alloy.
 - .9 Keyed lever, removable only after core is removed, by authorized control key, to allow access to knob keeper.
 - .10 Hub, side plate, anti-rotational studs one-piece casting with shrouded locking lug.
 - .11 Latch: solid brass 14 mm throw, front 57 mm x 28.5 mm beveled.
 - .12 Lever handles: zinc alloy
 - .13 Lever style: contour angle return.
 - .14 Rose style: 89 mm diameter convex.
 - .15 Strike: conforms to ANSI A115.2 for 44.5 mm doors, size: 124 mm x 32 mm with curved lip.
 - .16 Function code: storeroom.

- .17 Acceptable material:
 - .1 Manufacturer: Best, model: 9K3-S3, Heavy Duty Cylindrical Locks – Levers.
 - .2 Best Coremax interchangeable core.
 - .3 Refer to Keys and Keying this Section.
- .2 Butts and hinges:
 - .1 Butts and hinges: to ANSI/BHMA A156.1, designated by A 5112, size and finish, listed in Hardware Schedule, two permanently lubricated non-detachable ball bearings, stainless steel pins, hole in bottom for easy pin removal, full-mortise.
 - .2 Acceptable material: Stanley, FBB191 x 114 x 114 x stainless steel, or approved equal.
- .3 Door closers and accessories:
 - .1 Door controls (closers): to ANSI/BHMA A156.4, Grade 1, size in accordance with table A1, finish: powder coated aluminium, meets ADA requirements, with handed arm that provides overhead stop and hold open function with templated stop/hold-open points.
- .4 Architectural door trim: to ANSI/BHMA A156.6.
 - .1 Door protection plates: kick plate, type solid, 1.57 mm thick stainless steel, radius corners, size: 300 mm high, material: solid stainless steel.
 - .2 Acceptable material: Standard, K10C-305 x length to suit, stainless steel, or approved equal.
- .5 Auxiliary hardware: to ANSI/BHMA A156.16.
 - .1 Door silencer: type rubber.
- .6 Door Bottom Seal:
 - .1 Extruded aluminium frame and solid neoprene seal, overall height 45 mm, surface mounted, clear anodized finish.
 - .2 Acceptable material: KNC, W13S x 1220, or approved equal.
- .7 Perimeter Seals: (at head and jambs)
 - .1 Extruded aluminium frame and closed cell 4.8 mm thick neoprene insert, overall width 36mm, surface mounted, clear anodized finish.
 - .2 Acceptable material: KNC, W18CA, or approved equal.

2.3 MISCELLANEOUS HARDWARE

- .1 Padlocks for Walk-in Freezer door latches, Cold Room door latches and gate at exterior chainlink enclosure for condensers.
 - .1 Case: machined from solid extruded brass, standard finish 626 satin chromium plated.
 - .2 Shackle: stainless steel, locks at both heel and toe. Length of opening measured from top of case to inside of shackle opening when padlock is locked 50mm, cut resistant XSPL.
 - .3 Material: stainless steel.
 - .4 Diameter: 9.5mm.
 - .5 Width of opening: 22.2mm
 - .6 Interchangeable core.
 - .7 Core housing: 7 pin BEST core.
 - .8 Function: Key-retained, key cannot be removed from lock without the lock being returned to the locked state.
 - .9 Acceptable material: Best, model 41B772, Coremax patented

keying.

- .1 Refer to Keys and Keying this Section.

2.4 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.

2.5 KEYS AND KEYING

- .1 Refer also to Section 01 14 10 – Institutional Requirements for Contractors, item titled Key Control.
- .2 Provide keyed brass construction cores and keys during construction period. Construction control and operating keys and core must not be part of the institution's permanent keying system.
- .3 Permanent cores and keys:
 - .1 To be prepared in accordance with Keying Schedule and supplied to the facility.
 - .2 Stamped with applicable key mark for identification.
 - .3 These marks must not include the actual key cuts.
 - .4 Stamp permanent keys "DO NOT DUPLICATE."
- .4 Cylinders, removable and interchangeable core system:
 - .1 Acceptable material: Best Cormax patented 7-pin.
- .5 Transmit keys to Departmental Representative by Registered Mail, return receipt requested.
- .6 Furnish keys in the following quantities:
 - .1 4 each keys for each keyed core.
- .7 Installation of permanent cores:
 - .1 Permanent cores will be installed by the institution.
- .8 Keying:
 - .1 Instructions to follow.

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 Supply metal door and frame manufacturers with complete instructions

and templates for preparation of their work to receive hardware.

- .3 Supply manufacturers' instructions for proper installation of each hardware component.
- .4 Install hardware to standard hardware location dimensions in accordance with CSDFMA Canadian Metric Guide for Steel Doors and Frames (Modular Construction).
- .5 Install hardware to meet requirements of National Building Code 2015, with Manitoba amendments for Barrier-Free Design.
 - .1 Door operating device mounted no higher than 1100mm from finished floor.
- .6 Use only manufacturer's supplied fasteners.
- .7 Facility to remove construction cores and install permanent cores.

3.2 FINAL ADJUSTMENT

- .1 After installation is complete, contractor shall inspect the completed door openings to verify that installation of door, frame and hardware is complete and properly adjusted in accordance with Contract Documents and reviewed shop drawings.
 - .1 Adjust door hardware for optimum, smooth operating condition, safety and for tight closure.
 - .2 In accordance with manufacturer's instructions, lubricate hardware, operating equipment and other moving parts.
 - .3 Adjust door hardware to ensure tight fit at contact points with frames. Check locksets are properly installed and adjusted for proper operation.
 - .4 Verify levers are free from binding.
 - .5 Check and adjust closers to ensure proper operation.

3.3 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each day.
 - .2 Clean hardware with damp rag and approved non-abrasive cleaner, and polish hardware in accordance with manufacturer's instructions.
 - .3 Remove protective material from hardware items where present.
 - .4 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

3.4 PROTECTION

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

3.5 SCHEDULE

- .1 Refer to Door Schedule on drawings.

- .2 Padlock requirements:
 - .1 Cold Room doors:
 - .1 Refer to Door Schedule on drawings.
 - .2 Walk-in Freezer No.1 door.
 - .3 Walk-in Freezer No.2 door.
 - .4 Gate at exterior chainlink enclosure.