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**Part 1            General**

**1.1                RELATED SECTIONS**

- .1        Section 07 92 00 - Joint Sealants.
- .2        Section 08 71 00 - Door Hardware
- .3        Section 09 21 16 – Gypsum Board Assemblies

**1.2                REFERENCES**

- .1        ASTM A653/A653M-04A - Specification For Steel Sheet, Zinc-Coated (Galvanized) Or Zinc-Iron Alloy-Coated (Galvannealed) By The Hot-Dip Process.
- .2        CAN4-S104-M80 (R1985) - Fire Tests Of Door Assemblies.
- .3        CSA G40.20-04/G40.21-04 - General Requirements For Rolled Or Welded Structural Quality Steel/Structural Quality Steel.
- .4        CSA O151-04 - Canadian Softwood Plywood.
- .5        Canadian Steel Door Manufacturers Association (CSDMA), Recommended Dimensional Standards For Commercial Steel Doors And Frames, 2000.
- .6        Canadian Steel Door Manufacturers Association (CSDMA), Selection And Usage Guide For Steel Doors And Frames, 1990.
- .7        NFPA 80-1999 - Standard For Fire Doors.

**1.3                SUBMITTALS FOR REVIEW**

- .1        Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2        Product data: indicate door and frame configurations and finishes, location of cut-outs for hardware reinforcement.
- .3        Shop drawings:
  - .1        Indicate frame elevations, reinforcement, anchor types and spacing, location of cut-outs for hardware, and finish.
  - .2        Indicate door elevations, internal reinforcement, closure method, and cut-outs for glazing, and finishes.

**1.4                QUALITY ASSURANCE**

- .1        Conform to requirements of Canadian Steel Door and Frame Manufacturers Association Standards.

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**1.5 DELIVERY, STORAGE, AND PROTECTION**

- .1 Remove doors and frames from wrappings or coverings upon receipt on site and inspect for damage.
- .2 Clean and touch up scratches or disfigurement caused by shipping or handling with zinc rich primer.

**1.6 COORDINATION**

- .1 Coordinate the work with frame opening construction, door, and hardware installation.
- .2 Sequence installation to ensure wire connections are achieved in an orderly and expeditious manner.

**Part 2 Products**

**2.1 MATERIALS**

- .1 Sheet steel: galvanized steel to ASTM A653/A653M, commercial grade (CS), type B:
  - .1 coating designation Z275 for exterior doors and frames,
- .2 Reinforcement channel: to CSA G40.20/G40.21, type 44W, coating designation to ASTM A653M, ZF75.
- .3 Plywood: CSA O151 (CSP), canply grade SHG; unsanded, exterior use, thicknesses as indicated; urea-formaldehyde free.
- .4 Fire rating: 2-hour.

**2.2 ADHESIVES**

- .1 Cores and steel components: manufacturer's standard VOC compliant adhesive. Total VOC content of adhesive less than or equal to 250 g/l, less water, when tested to ASTM D2369.
- .2 Lock seam: manufacturer's standard VOC compliant sealant. Total VOC content of sealant less than or equal to 250 g/l, less water, when tested to ASTM D2369.
- .3 Construction adhesive: low VOC polyurethane construction adhesive, resistant to freezing; VOC limit:70 g/l (0.58 lb/gal) when tested in accordance with USEPA method 24 and ASTM D2369.

**2.3 ACCESSORIES**

- .1 Joint sealers - interior: acrylic latex, VOC compliant, to Section 07 92 00.
- .2 Door silencers: single stud rubber/neoprene.

- .3 Exterior top caps: rigid polyvinylchloride extrusion conforming to CGSB 41-GP-19MA.

## **2.4 FABRICATION - DOORS**

- .1 Interior doors: polystyrene insulated and stiffened construction. face sheet thickness as indicated.
- .2 Longitudinal edges: mechanically interlocked, tack welded.
- .3 Mortised, blanked, reinforced, drilled, and tapped for templated hardware, in accordance with templates provided by hardware supplier.
- .4 Reinforce for surface mounted hardware, anchor hinges, thrust pivots, pivot reinforced hinges, or non-templated hardware.
- .5 Top and bottom channels: inverted, recessed, welded steel channels.
- .6 Provide factory-applied touch-up primer at areas where zinc coating has been removed during fabrication.
- .7 Attach fire rated label to each fire rated door unit.

## **2.5 FABRICATION - FRAMES**

- .1 Interior frames: face sheet thickness as indicated, welded type construction.
- .2 Mortised, blanked, reinforced, drilled and tapped for templated hardware, in accordance with templates provided by hardware supplier.
- .3 Reinforce frames wider than 1200mm with roll formed steel channels fitted tightly into frame head, flush with top.
- .4 Prepare frames for silencers. provide three single silencers for single doors and mullions of double doors on strike side. provide two silencers on frame head at double doors without mullions.

## **2.6 FINISH**

- .1 Finish: painted.

## **Part 3 Execution**

### **3.1 EXAMINATION**

- .1 Verify that opening sizes and tolerances are acceptable; check floor area within path of door swing for flatness.
- .2 Verify doors and frames are correct size, swing, rating and opening number.

- .3 Remove temporary shipping spreaders.

### **3.2 INSTALLATION**

- .1 Install doors and frames to CSDMA.
- .2 Install fire-rated doors and frames in accordance with NFPA 80, and local authority having jurisdiction.
- .3 Coordinate with wall construction for anchor placement.
- .4 Coordinate installation of doors and frames with installation of hardware specified in Section 08 71 00.
- .5 Set frames plumb, square, level and at correct elevation.
- .6 Secure anchorages and connections to adjacent construction.
- .7 Brace frames rigidly in position while building-in. install wood spreaders at third points of frame rebate height to maintain frame width. provide vertical support at centre of head for openings exceeding 1200mm in width.
- .8 Remove wood spreaders after frames have been built-in.
- .9 Make allowance for deflection to ensure structural loads are not transmitted to frame product.
- .10 Install doors, and hardware in accordance with hardware templates and manufacturer's instructions.
- .11 Adjust operable parts for correct clearances and function.
- .12 Install door silencers.
- .13 Finish paint in accordance with Section 09 91 00.
- .14 Install roll formed steel reinforcement channels between two abutting frames. anchor to structure and floor.

### **3.3 ERECTION TOLERANCES**

- .1 Maximum diagonal distortion: 3 mm measured with straight edges, crossed corner to corner.

**END OF SECTION**

**Part 1 General**

**1.1 REFERENCES**

- .1 American National Standards Institute (ANSI) A117.1 Specification
  - .1 ANSI/BHMA A156.1-2006, Butts And Hinges.
  - .2 ANSI/BHMA A156.13-2005, Mortise Locks And Latches.
  - .3 ANSI/BHMA A156.3-2001, Exit Devices.
  - .4 ANSI/BHMA A156.4-2000, Door Controls (Closers)
  - .5 ANSI/BHMA A156.5-2001, Auxiliary Locks And Associated Products.
  - .6 ANSI/BHMA A156.7-2003, Template Hinge Dimensions.
  - .7 ANSI/BHMA A156.8-2005, Door Controls-Overhead Holders.
  - .8 ANSI/BHMA A156.15-2006, Closer/ Holder Release Device.
  - .9 ANSI/BHMA A156.16-2002, Auxiliary Hardware.
  - .10 ANSI/BHMA A156.18-2006, Materials And Finishes.
  - .11 ANSI/BHMA A156.22-2005, Door Gasketing And Edge Seal Systems.
  - .12 ANSI/BHMA A156.25-2002, Electrified Locking Devices.
  - .13 ANSI/BHMA A156.30-2003, American National Standards For High Security Cylinders.
- .2 Canadian Steel Door Manufacturer's Association (CSDMA).
  - .1 Standard hardware locations in accordance with the Canadian Steel Door And Frame Association Guidelines.
- .3 National Fire Protection Agency (NFPA)
  - .1 NBC National Building Code - Latest Edition
  - .2 NFPA-80 Standard For Fire Doors And Windows - Latest Edition
  - .3 NFPA-101 Life Safety Code - Latest Edition
  - .4 NFPA-105 Smoke And Draft Control - Latest Edition
  - .5 ULC Underwriters Laboratorie Canada

**1.2 ABBREVIATIONS**

- .1 The Following Abbreviations Are Applicable To This Section:
  - .1 HMD/PSF Hollow Metal Door, Pressed Steel Frame
  - .2 LH/RH Left Hand, Right Hand
  - .3 LHR/RHR Left Hand Reverse, Right Hand Reverse
  - .4 MK or MKD Master Keyed
  - .5 NRP Non Removable Pin
  - .6 TB/SB Thru Bolts, Sex Bolts

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.7	TJ	Top Jamb
.8	BB or FBB	Ball Bearing Hinges
.9	BC	Back Check
.10	BTB	Back To Back
.11	B3E Or B4E	Bevel 3 Or 4 Sides
.12	C to C or C/L	Centerline To Centerline
.13	CMK	Construction Masterkeyed
.14	CSC	Construction Specifications Canada
.15	CSK	Countersunk Screw Holes.
.16	Cyl.	Cylinder Of A Lock
.17	Deg.	Degree Of Opening
.18	Del	Delay Action
.19	DHI	Door And Hardware Institute
.20	DR	Door
.21	FC	Full Cover
.22	FS	Fail Safe
.23	FSE	Fail Secure
.24	FTMS	Full Template Machine Screws
.25	½ TMS	Half Template Machine Screws
.26	GMK	Grand Masterkeyed
.27	KA/KD	Keyed Alike, Keyed Different

### 1.3 SUBMITTALS

- .1 Product Data:
  - .1 Submit manufacturer's printed product literature, specifications and data sheets in accordance with Section 01 33 00.
- .2 Samples:
  - .1 Upon Departmental Representative request submit samples of door hardware. Identify each sample by label indicating applicable specification paragraph number, brand name and number, finish, and hardware package number.
  - .2 After approval samples will be returned for incorporation in the work.
- .3 Hardware List:
  - .1 Submit detailed hardware list and keying schedule. hardware schedule is to be submitted as per DHI vertical format which is in the "sequence and format for hardware schedules".
  - .2 Indicate specified hardware including make, model, material, function, size, finish and other pertinent information.
  - .3 Furnish other sections with templates required for hardware preparation and installation. Issue templates when requested so as not to cause any

delays but not before hardware list has received final review by Departmental Representative.

- .4 Keying schedule to be in accordance with DHI manual "keying systems names and nomenclature". Key schedule is not to hold up the processing of the hardware list.
- .4 Manufacturer's instructions: submit manufacturer's installation instructions.
- .5 Closeout submittals: provide operation and maintenance data for door closers, locksets, door holders, electrified hardware and fire exit hardware for incorporation into operations and maintenance manuals specified in Section 01 78 00 - Closeout Submittals.
- .6 Provide guarantee.
  - .1 Closers 10 years.
  - .2 Mortise locks 10 years mechanical / 2 years electrical.
  - .3 Exit device 3 years.
  - .4 Hinges lifetime of building.
  - .5 All other hardware 1 year.

#### **1.4 QUALITY ASSURANCE**

- .1 Meet requirements of National Building Code of Canada and other applicable regulations.
- .2 Test reports: certified test reports showing compliance with specified performance characteristics and physical properties.
- .3 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .4 Upon completion of finish hardware installation, hardware supplier shall inspect work and shall certify in writing that all items and their installation are in accord with requirements of contract documents and are functioning properly.

#### **1.5 PRODUCT DELIVERY, HANDLING & STORAGE**

- .1 Packing, shipping, handling and unloading:
  - .1 Deliver, store, handle and protect materials in accordance with Section 01 61 00.
  - .2 Package each item of hardware including fastenings, separately or in like groups of hardware, with necessary screws, keys, instructions and installation templates.
  - .3 All items of hardware should be itemized and tagged as per the approved finish hardware schedule.
  - .4 Shortages will not delay installation.
  - .5 Items damaged in shipment will be replaced properly with proper material.
  - .6 All hardware shall be handled in a manner to avoid damage, marking and scratching.

.7 hardware is to be inventoried on site and confirmed by the Contractor and hardware supplier.

.2 Storage and protection:

.1 Store hardware in locked, clean and dry area.

## **1.6 WASTE DISPOSAL AND MANAGEMENT**

.1 Separate and recycle waste materials in accordance with Section 01 74 21.

## **1.7 MAINTENANCE**

.1 Provide maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.

.2 Provide three sets of maintenance tools for closers, locks and exit devices as well as a complete set of installation instructions.

.3 Arrange for an appointment with the Departmental Representative to instruct them of proper use, service, adjusting and maintenance of the hardware furnished in this section.

.4 Extra material if required.

## **Part 2 Products**

### **2.1 HARDWARE ITEMS**

.1 Only locksets and latch sets listed are acceptable for use on this project.

.2 Use one manufacturer's products only for all similar items.

.3 Manufacturer's listed:

.1 Hinges

.1 Hinges butts and hinges: to ANSI/BMHA A156.1.

.2 Stainless steel, full mortise, templated, 5 knuckle, 2 permanently lubricated ball bearings, non-removable pin (NRP), 114 X 114 X 3.4mm, finished to ANSI 626.

.1 Acceptable manufacturer : Sargent - Assa Abloy Door Security Solutions Canada, 160 Four Valley Drive, Vaughan, Ontario, L4h 4t9, or approved alternate.

.2 Mortise locksets

.1 Heavy duty mortise locksets to ANSI A156.13, series 1000, security grade 1.

.2 Function: ANSI F07 - Storeroom Function.

.3 All locksets to be lever function and finished in satin chrome.

.4 Round rose, satin chrome.

- .5 ANSI standard strikes with ANSI Box.
- .6 Lever design: solid handle, round bar contoured in a "C" shape with angle return, similar in design and style as the Sargent "J" lever, Schlage "93" or Corbin "Lustra"
- .7 Cylinders and keying: cylinders from same manufacturer as lockset 1, pin mortised unit, keyed into new grand master system.
- .8 Quantity: one per set of double doors.
- .9 Acceptable manufacturer: Sargent - Assa Abloy Door Security Solutions Canada, 160 Four Valley Drive, Vaughan, Ontario, L4h 4t9, or approved alternate.
- .3 Auxiliary trim & devices: applies to all double doors.
  - .1 Flush bolts to ANSI/BHMA A156.16, cast brass or bronze, 300mm long, wrought brass pin 199mm throw, spring holds bot in either open or closed position, dust proof strikes, finish to ANSI 626.
    - .1 Acceptable Manufacturer : Rockwood Manufacturing - Assa Abloy Door Security Solutions Canada, 160 Four Valley Drive, Vaughan, Ontario, L4h 4t9, or approved alternate.
  - .2 Overhead stops to ANSI/BHMA A156.8, zinc die cast, circular shape, concave rubber insert, concealed mounting, 60mm diameter x 25mm projection, finished to ANSI 626.
    - .1 Acceptable Manufacture: Sargent - Assa Abloy Door Security Solutions Canada, 160 Four Valley Drive, Vaughan, Ontario, L4h 4t9, or approved alternate.
- .4 Thresholds to ANSI/BHMA A156.21, extruded aluminum threshold, with continuous vinyl barrier, 133mm wide x 22mm high x full width of door opening, mill finish.
  - .1 Acceptable product: Sargent - Assa Abloy Door Security Solutions Canada, 160 Four Valley Drive, Vaughan, Ontario, L4h 4t9, or approved alternate.
- .5 Weatherstrip:
  - .1 Head and jamb seal: extruded aluminum frame 35mm width, sponge neoprene insert, clear anodized finish.
    - .1 Acceptable Manufacturer: Sargent - Assa Abloy Door Security Solutions Canada, 160 Four Valley Drive, Vaughan, Ontario, L4h 4t9, or approved alternate.
  - .2 Door bottom seal:
    - .1 Extruded aluminum frame 35mm width and rubber sweep, clear anodized finish.
      - .1 Acceptable Manufacturer: Sargent - Assa Abloy Door Security Solutions Canada, 160 Four Valley Drive, Vaughan, Ontario, L4h 4t9, or approved alternate.

**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 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.

**2.3 FINISHES**

.1	Description	Material	Bmha
.2	Exterior Hinges	Stainless Steel Metal, Satin	630
.3	Locks	Stainless Steel Metal, Satin	630
.4	Flatware	Stainless Steel Metal, Satin	630
.5	All Other Items Satin Chromium	Plated	626

**2.4 KEYING**

- .1 All locks to be master keyed to a new factory registered master key system. all locks to be master keyed as per the Departmental Representatives instructions.
- .2 All cylinders to be construction master keyed.
- .3 All locks and cylinders to be visually keyed.
- .4 Consult with the Departmental Representative and secure written approval of the complete keying layout prior to placing lock order with the factory.
- .5 Grand master keys and master keys shall be sent directly to the Departmental Representative by registered mail, return receipt if requested.
- .6 Supply:
  - .1 Master keys 5
  - .2 Change Keys/Lock 4
  - .3 Construction Master keys 5

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**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 door hardware in accordance with Manufacturer's instructions, using special tools and jigs. Fit accurately and apply securely. Ensure That hardware is installed correctly. Issue instructions if required to sections concerned.
- .2 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 Manufacturers' Association.
- .3 Installation is to be done by a qualified tradesman, if technical assistance is required contact the hardware supplier.
- .4 Where door stop contacts door pulls, mount stop to strike bottom of pull.
- .5 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.
- .6 Remove construction cores and locks when directed by Departmental Representative; install permanent cores and check operation of locks.
- .7 Hardware should not be installed until all finishing is complete.
- .8 All hardware to be installed level plumb and true.
- .9 All operating parts to work freely and smoothly.
- .10 Exterior thresholds to be set in exterior sealants.

**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.
- .4 All defective or damaged hardware will have to be repaired or replaced at the contractors expense.

### **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 Manufacturer'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 FIELD QUALITY CONTROL**

- .1 An inspection report will be required 6 months after substantial completion by a qualified Departmental Representative to note any deficiencies. The inspection should include checking each lock against the key schedule to make sure the correct locks and cylinders are on the proper doors.

### **3.6 PROTECTION**

- .1 Protection must be given to all products and finishes until such time as the Departmental Representative accepts the project.

### **3.7 CERTIFICATION**

- .1 After installation, hardware supplier is to have a regular member of the Departmental Representative inspect and certify in writing that all items and their installations are in accordance with specified requirements.

**END OF SECTION**