

PART 1 - GENERAL

- 1.1 RELATED SECTIONS
- .1 Section 01 33 00 - Submittal Procedures.
 - .2 Section 01 74 22 - Construction/Demolition Waste Management And Disposal.
 - .3 Section 04 05 12 - Mortar and Masonry Grout.
 - .4 Section 07 92 10 - Joint Sealing: Caulking of joints between frames and other building components.
 - .5 Section 08 34 60 - Detention Door Hardware: Supply of finish hardware, including mounting heights.
 - .6 Section 08 80 50 - Glazing: Glazing.
 - .7 Section 09 91 23 - Interior Painting.
 - .8 Section 16: Wiring for electronic hardware.
- 1.2 REFERENCES
- .1 American Society for Testing and Materials (ASTM International)
 - .1 ASTM A 653/A653M-11, Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - .2 Canadian Standards Association (CSA International)
 - .1 G40.20/G40.21-04 (R2009), General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
 - .2 CSA W59-03 (R2008), Welded Steel Construction (Metal Arc Welding) (Metric Version).
 - .3 Canadian Steel Door Manufacturers' Association, (CSDMA).
 - .1 CSDMA, Selection and Usage Guide for Steel Doors and Frames, 1990.
 - .4 Hollow Metal Manufacturers Association: HMMA 863-04 - Detention Security Hollow Metal Doors and Frames - level 3.
- 1.3 DESIGN REQUIREMENTS
- .1 Design interior frame assembly to accommodate to expansion and contraction when subjected to minimum and maximum surface temperature of 0° 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, arrangement of hardware and fire rating and finishes.

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- .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.
- 1.5 REQUIREMENTS
- .1 Provide documentation sustaining test information conforming to ASTM F 1450-97 Standard test methods for Hollow Metal Detention Swinging Door Assemblies for Detention Facilities as follows:
 - .1 Detention Door (DD):
 - .1 Static Load Test B using 4000 kg:
 - .1 Max. deflection 15mm.
 - .2 Max. deflection after release 2.6mm.
 - .2 Rack Test Load C using 2650 kg:
 - .1 Max. deflection 90mm.
 - .2 Max. deflection after release 35mm.
 - .3 Door assembly impact test, 270 J energy constant:
 - .1 Lock impacts: 200,
 - .2 Hinge impacts 75,
 - .3 Glazing impacts 100.
 - .4 Door edge crush test:
 - .1 Load supported at deflection of less than 6mm: 3600 kg,
 - .2 Total load supported 4600 kg.
 - .5 Core: Exceed HMMA 863 standards for stiffened core.
 - .6 Fabrication Tolerances: To HMMA 863 Standards.
 - .7 Doors to conform to NAAHM 863-98 - Level 3.
 - .8 Door thickness: 50 mm.
- 1.6 DELIVERY, STORAGE AND PROTECTION
- .1 Section 01 61 00: Transport, handle, store, and protect products.
 - .2 Comply with HMMA 840.
 - .3 Weld minimum two temporary jamb spreaders per frame prior to shipment.
 - .4 Remove doors and frames from wrappings or coverings upon receipt on site and inspect for damage.
 - .5 Store in vertical position, spaced with blocking to permit air circulation between components.
 - .6 Store materials out of water and covered to protect from damage.
 - .7 Clean and touch up scratches or disfigurement caused by shipping or handling with zinc-rich primer.

1.7 WASTE MANAGEMENT AND DISPOSAL	.1	Separate and recycle waste materials in accordance with Section 01 74 19 - Construction/Demolition Waste Management And Disposal.
PART 2 - PRODUCTS		
2.1 MATERIALS	.1	Hot dipped galvanized steel sheet: to ASTM A 653M, ZF001, 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.
	.3	Steel sheet: cold rolled, commercial quality to ASTM A 366/A 366M, Class 1, wiped zinc coated surfaces.
2.2 DOOR CORE MATERIALS	.1	Construction: .1 Fill all spaces between individual components and welded reinforcing with rock wool batt insulation-packed tightly.
2.3 ADHESIVES	.1	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 26 – Interior Painting. Provide final finish shall be free of scratches or other blemishes.
2.6 ACCESSORIES	.1	Door silencers: single stud rubber/neoprene type, 3 per door.
	.2	Top and bottom caps: steel. Detention (DD) doors to have flush construction top and bottom.
	.3	Fabricate glazing stops as formed channel, minimum 25mm, accurately fitted, butted at corners and fastened to frame sections with counter-sunk oval head Torx bolts.
	.4	Metallic paste filler: to manufacturer's standard.
	.5	Sealant: clear silicon.
	.6	Make provision for glazing as indicated and provide necessary glazing stops. .1 All glazing stops to be tamper proof. .2 Locate tamper proof bolts on non-secure side of glazing. .3 Provide removable stainless steel glazing beads for use with glazing tapes and compounds and secured with countersunk stainless steel TORX bolts.

2.7 FRAMES
FABRICATION GENERAL

- .1 Fabricate frames in accordance with CSDFMA specifications from wipe coat zinc plated steel to ASTM A 366/A 366M, class 1.
- .2 Fabricate frames to profiles and maximum face sizes as indicated. Materials to be free from defects impairing strength, durability or appearance.
- .3 Detention Door (DD)frames: 2.6 mm (12 Ga.) welded type construction.
- .4 Blank, reinforce, drill and tap frames for mortised, templated hardware, using templates provided by finish hardware supplier. Reinforce frames for surface mounted hardware. Reinforce frames across the head where a closer is to be installed with a continuous 6 mm thick steel plate welded to both sides of the frame. Reinforce frames at each hinge and strike point with a minimum 6 mm steel plate of sufficient length to be welded at each end of hinge and strike opening. Reinforce heads of frames wider than 1200 mm.
 - .1 Provide min. reinforcing for detention doors (DD) as follows:
 - .1 Hinge: 6.2mm,
 - .2 Strike: 3.5mm,
 - .3 Lock Mounting plates and panels: 6.2 mm
 - .4 Lock mounting studs: 8 mm dia. Grade 8, threaded into lock mounting plates and welded in place
 - .5 Accessories: 3.5mm,
 - .6 Lock Housings: 3.2mm.
- .5 Protect mortised cutouts with steel guard boxes. Protect hardware mounting locations with steel dust and mortar boxes.
- .6 Provide 38-50mm diameter holes in frames to allow frames to be filled with mortar. After all voids have been filled weld purpose made covers in grout holes using steel of same thickness as frame and grind smooth so that covers are not detectable.
- .7 Prepare frame for door silencers, 3 for single door.
- .8 Manufacturer's nameplates on frames and screens are not permitted.
- .9 Conceal fastenings except where exposed fastenings are indicated.
- .10 Frames to be prime painted after assembly.
- .11 Provide factory-applied touch up primer at areas where zinc coating has been removed during fabrication.

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- .12 Where welded surface hinges are specified, provide reinforcement welded to door and frame as specified for each class of detention door.
- .13 Provide and install electrical conduit for electrically operated hardware as detailed on drawings. Conduit to be minimum of 12.7 mm galvanized EMT for low voltage controls.
- 2.8 FRAME ANCHORAGE
- .1 Provide appropriate anchorage to floor and wall construction.
- .2 Provide anchorage to concrete floor and steel angles frames to resist the loads specified in ASTM F 1450 for each class of detention door.
- .3 Locate each wall anchor immediately above or below each hinge reinforcement on hinge jamb and directly opposite on strike jamb.
- .4 Provide 3 anchors for rebate opening heights up to 1520 mm and 1 additional anchor for each additional 610 mm of height or fraction thereof.
- .5 Locate anchors for frames in existing openings not more than 150 mm from top and bottom of each jambs and intermediate at 610 mm o/c maximum.
- 2.9 FRAMES: WELDED TYPE
- .1 Welding in accordance with CSA W59.
- .2 Accurately miter or mechanically joint frame product and securely weld on inside of profile.
- .3 Cope accurately and securely weld butt joints.
- .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 DETENTION DOOR (DD) FABRICATION
- .1 Conforming to NAAHM 863-98, Level 3, pivot swing type, flush, with provision for glass as indicated.
- .2 Form each face of doors from 2.6mm (12 Ga.) zinc coated sheet steel. Weld or spot weld faces to edge channels and stiffeners to meet the requirements of stated above.
- .3 Fabricate 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 Edge channel thickness: min. 3.5mm thick.
- .5 Provide and install plate steel reinforcing welded within doors at the locations of security hinges and security locks or strikes, or other hardware as indicated in schedule to the following thicknesses:
 - .1 Hinge: 6.2mm,
 - .2 Lock or Strike: 10.0mm plus edge channel & door Skin. Strike to extend 300 mm above & below point of latch penetration.
 - .3 Bolts: 3.5mm,
 - .4 Misc. Hardware: 2.8mm.
- .6 Blank, reinforce, drill doors and tap for mortised, templated hardware and electronic hardware.
- .7 Factory prepare holes 12.7 mm diameter and larger except mounting and through-bolt holes, on site, at time of hardware installation.
- .8 Reinforce doors where required, for surface mounted hardware. Provide flush steel top caps to doors.
- .9 Prime paint doors after fabrication. Provide factory applied touch-up primer at areas where zinc coating has been removed during fabrication.
- .10 Provide and install 6mm plate steel reinforcing welded within doors at the locations of security hinges and security locks or strikes, as detailed on drawings.
- .11 Manufacturer's nameplates on doors are not permitted.
- .12 Bevel hinge and lock edges of doors 4mm in 57mm.
- .13 Supply doors complete with openings for glass to sizes shown on drawings. Glazing stops to be 25 x 25 mm solid steel stops. Secured with 8 mm dia. Security screws by Torx at 100 mm o/c with 6 mm engagement of steel reinforcing.
- .14 Construct any matching panels required in same manner as doors.
- .15 Acceptable detention door manufacturers: those with a minimum of 5 years experience in manufacturing detention doors and documents showing success in manufacturing detention doors used in a minimum of 2 institutions:
 - .1 Acceptable manufacturers: Apex Industries Ltd., Ambico Ltd., Fleming-Baron Door Products.

PART 3 - EXECUTION

3.1 INSTALLATION GENERAL

- .1 Install doors and frames to CSDFMA Installation Guide.

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- 3.2 FRAME INSTALLATION
- .1 Set frames plumb, square, level and at correct elevation.
 - .2 Secure anchorages and connections to adjacent construction.
 - .3 Secure anchorages and connections of detention doors to resist loadings as required and noted above.
 - .4 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.
 - .5 Grout all door frames fully, on sides and top. Seal electrical backboxes and lock boxes to prevent mortar from entering.
 - .6 Caulk perimeter of frames between frame and adjacent material with pick-proof epoxy.
 - .7 Co-operate with engineer supervisor provided by security hardware supplier to ensure proper installation, adjustment and operation of hardware.
- 3.3 DOOR INSTALLATION
- .1 Install doors and hardware in accordance with hardware templates and manufacturer's instructions and Section 08 34 60 – Detention Door Hardware.
 - .2 Provide even margins between doors and jambs and doors and finished floor as follows.
 - .1 Hinge side: 2.0 mm.
 - .2 Latchside and head: 2.0 mm.
 - .3 Finished floor: 38 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.
- 3.5 GLAZING
- .1 Install glazing for doors and frames in accordance with Section 08 80 50 - Glazing.
 - .2 Ensure removable glass stops are located on non-secure side of openings.

END

PART 1 - GENERAL

- 1.1 RELATED SECTIONS
- .1 Section 08 11 14 - Metal Doors and Frames.
 - .2 Section 09 91 23 - Interior Painting.
- 1.2 REFERENCE STANDARDS
- .1 Standard hardware location dimensions in accordance with drawings.
- 1.3 HARDWARE LIST
- .1 Submit contract hardware list and manufacturer's technical product data, including a photocopy of each hardware item, for all door hardware of this section. Submit in accordance with Section 01 33 00.
 - .2 Indicate specified hardware, including make, model, material, function, size, finish and other pertinent information.
 - .3 Hardware lists must include the hardware manufacturer's name and the model number for all hardware items.
 - .4 Hardware list must indicate all required mounting plates, brackets and special fasteners. Give manufacturer's names and catalogue numbers.
- 1.4 MAINTENANCE DATA
- .1 Provide operation and maintenance data for all door hardware. Include in O&M Manual specified in Section 01 78 00.
 - .2 Supply two sets of wrenches for door closers, locksets and exit devices.
- 1.5 DELIVERY AND STORAGE
- .1 Package each item of hardware separately. Label packages as to item definition and door location.

PART 2 - PRODUCTS

- 2.1 HARDWARE ITEMS
- .1 Manufacture hardware items to ANSI/BHMA Standards specified for each specific item.
 - .2 When specified standard does not exist, the hardware item shall be specifically made to suit the specific function. It shall be detention type quality and have been proven in use.
 - .3 Use one manufacturer's products only for all similar items. The new hardware shall match what has been used in the existing facility.
- 2.2 QUALITY CONTROL
- .1 Provide site inspection service of installed hardware by Hardware Supplier as specified in clauses 3.1.6 below.

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- 2.3 DOOR HARDWARE .1 Hardware set #1:
- | Qty | Description: |
|-----|--|
| 3 | FA No.5 FS Security hinge |
| 1 | FA 122M-1-01x US26D X 120VAC (24VAC or 24VDC Optional) c/w pigtail connectors to be handed over to Div 26 (Electrical) |
| 1- | #2 Loop pull x US32D |
| 1- | # 4-1S Flush pull x US32D |
| 1- | PH760 Heavy duty wall stop |
| 1 | Folger Adams 17 Latch with Paracentric Keys cut by manufacturer. 3 keys per door. |
| 2- | 3" x 4" Bolt on Food pass hinge assembly with integral stop (Torx screws) |
| 1- | ASSW-105A Magnetic reed switch (DPS) |
| 1- | MKS226- S-HM Key switch –Mogul cyl. To match Door lock. |
- 2.4 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.
- .4 Use countersunk stainless steel 3/8-16 oval heads 'Torx' security screws.
- 2.5 KEYING .1 Mogul keys:
- .1 Keying: Provide 3 keys per door, cut by manufacturer.
- PART 3 - EXECUTION
- 3.1 INSTALLATION INSTRUCTIONS .1 Furnish metal door and frame manufacturers with complete instructions and templates for preparation of their work to receive hardware.
- .2 Furnish manufacturers' instructions for proper installation of each hardware component.
- .3 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. Verify with Institution.
- .4 Quality Control: use only qualified door hardware installers having knowledge and past experience in prison hardware installation.
- .1 Upon request by Departmental Representative, submit written documentation on qualifications and

past work experience.

- .5 Coordinate the installation of the finish door hardware components.
 - .1 Ensure correct lockset function.
 - .2 During installation, check for proper alignment of hardware.
 - .3 Provide all labour as required to assist in the installation and correct functioning of the door hardware and the door access control system.

- .6 Site Inspection:
 - .1 Prior to substantial completion of project, a CSC Detention Hardware Specialist will make a final inspection of installed hardware.
 - .3 Inspection to include verification that:
 - .1 All hardware at each door, have been installed correctly and operate efficiently;
 - .2 Correct lockset function has been installed at each door.
 - .4 Make hardware adjustments while Hardware Specialist is present on site.
 - .5 Specialist shall submit written report to Departmental Representative attesting to above requirements and note deficiencies found, adjustments and rectifications made.
 - .6 Note that Departmental Representative will not issue certificate of Substantial Performance of the Work until site inspection and report has been received.

END

PART 1 - GENERAL

- 1.1 RELATED SECTIONS
- .1 Section 01 33 00 - Submittal Procedures.
 - .2 Section 01 45 00 - Quality Control.
 - .3 Section 01 78 00 - Closeout Submittals.
 - .4 Section 08 11 14 - 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.
 - .2 Environmental Choice Program (ECP).
 - .1 CCD-045-95, Sealants and Caulking.
 - .3 Flat Glass Manufacturers Association (FGMA).
 - .1 FGMA Glazing Manual - 1997.
- 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 Laminated Safety Glass for cell doors and lites B4/232 to B4/250: 12 mm total thickness of 6mm Plate Safety Glass, 3 Mil PVB Interlayer, 6mm Plate Safety Glass
 - .1 Polycarbonate Glazing for cell doors B4/252 and B4/254: 12 mm total thickness consisting of 6mm Lexguard MPC 500 or equivalent, 3 Mil Polyurethane PVB Interlayer, 6mm Lexguard MPC 500 or equivalent.

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- 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 colour.
- 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.
- 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 AND TRANSOMS
- .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 @ 200 o/c max.
- .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 manufacture'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.

END