

Part 1 General

1.1 REFERENCES

- .1 Canadian Steel Door and Frame Manufacturers Association - Manufacturing Standard for Steel Doors and Frames.
- .2 Canadian Steel Door and Frame Manufacturers Association - Manufacturing Specifications for Steel Doors and Frames.
- .3 Canadian Steel Door and Frame Manufacturers Association - Canadian Metric Guide for Steel Doors and Frames (Modular Construction).
- .4 CAN/ULC-S701-05 - Thermal Insulation, Polystyrene, Boards and Pipe Covering.
- .5 CAN/ULC-S710.1-05 - Standard for Thermal Insulation - Bead-Applied One Component Polyurethane Air Sealant Foam, Part 1.
- .6 CAN4-S104-M80 (R1985) - Fire Tests of Door Assemblies.
- .7 CAN4-S105-85 (R1992) - Fire Door Frames Meeting the Performance Required by CAN4-S104.
- .8 CGSB 41-GP-19MA - Exterior Top Caps - Rigid polyvinylchloride extrusion.
- .9 NFPA 80-2007 - Standard for Fire Doors and Fire Windows.

1.2 SUBMITTALS FOR REVIEW

- .1 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.

1.3 QUALITY ASSURANCE

- .1 Refer to Section 01 45 00 - Quality Control.

1.4 REGULATORY REQUIREMENTS

- .1 Fire Rated Door and Frame Construction: Labelled and listed to CAN4-S104M.
- .2 Installed Door and Frame Assembly: Conform to NFPA 80 for fire rated class as indicated.

1.5 DELIVERY, STORAGE, AND PROTECTION

- .1 Remove doors and frames from wrappings or coverings upon receipt on site and inspect for damage.
- .2 Store in vertical position, spaced with blocking to permit air circulation between components.
- .3 Store materials on planks or dunnage, out of water and covered to protect from damage.

- .4 Clean and touch up scratches or disfigurement caused by shipping or handling with zinc-rich primer.

1.6 COORDINATION AND SPECIAL REQUIREMENTS

- .1 Coordinate the work with frame opening construction, door, and hardware installation.
- .2 Refer to Specification Section 08 70 00 Hardware for the detailed requirements regarding the supply and installation of doors and hardware.
- .3 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 (G90) for exterior doors and frames,
 - .2 Coating designation ZF001 (A01) for interior doors and frames.
- .2 Reinforcement Channel: To CSA G40.20/G40.21, Type 44W, coating designation to ASTM A653M, ZF75.

2.2 DOOR CORE MATERIALS

- .1 Polystyrene Core: Rigid extruded fire retardant, closed cell board, density 16 to 32 kg/m³ (1 to 2 pcf), thermal values RSI 1.0 (R-6.0) minimum, Type 1, in accordance with CAN/ULC-S701.

2.3 ADHESIVES

- .1 Cores and Steel Components: Heat resistant, structural reinforced epoxy, resin based adhesive.
- .2 Lock Seam: Reinforced epoxy resin, high viscosity, thicksotropic sealant.

2.4 ACCESSORIES

- .1 Primer: Zinc chromate type.
- .2 Foam Sealant: CAN-ULC-S710.1, single component, expanding polyurethane foam.
- .3 Joint Sealers - Interior: Acrylic, to Section 07 92 00.
- .4 Joint Sealers - Exterior: Silicone, to Section 07 92 00; colour to match adjacent wall finish.
- .5 Door Silencers: Single stud rubber/neoprene.
- .6 Exterior Top Caps: Rigid polyvinylchloride extrusion conforming to CGSB 41-GP-19MA.
- .7 Frame Thermal Breaks: Rigid polyvinylchloride extrusion conforming to CGSB 41-GP-19MA.

2.5 FABRICATION - DOORS

- .1 Exterior Doors: Both face sheets 1.519 mm (0.0598 inch, 16 gauge) steel.

- .1 Reinforce doors with vertical stiffeners, welded to each face sheet at 150 mm (6 inches) on center maximum.
- .2 Fill voids between vertical stiffeners with polystyrene insulation.
- .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 Exterior Door: Flush PVC top caps.
- .7 Provide factory-applied touch-up primer at areas where zinc coating has been removed during fabrication.
- .8 Attach fire rated label to each fire rated door unit.

2.6 FABRICATION - FRAMES

- .1 Exterior Frames: 1.897 mm (0.0747 inch, 14 gauge) thick base metal thickness.
 - .1 Door Frames: 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 1200 mm (48 inches) 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.
- .5 Attach fire rated label to each fire rated frame unit.

2.7 FINISH

- .1 Doors and Frames: ZF180 (A60) galvanized.
- .2 Finish: Field painted in accordance with Section 09 91 00.

Part 3 Execution

3.1 EXAMINATION

- .1 Section 01 71 00 – Examination and Preparation: Verify existing conditions before starting work.
- .2 Verify that opening sizes and tolerances are acceptable; check floor area within path of door swing for flatness.
- .3 Verify doors and frames are correct size, swing, rating and opening number.
- .4 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 glass and glazing.
- .5 Coordinate installation of doors and frames with installation of hardware specified in Section 08 70 00
- .6 Set frames plumb, square, level and at correct elevation.
- .7 Secure anchorages and connections to adjacent construction.
- .8 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 1200 mm (48 inches) in width.
- .9 Remove wood spreaders after frames have been built-in.
- .10 Make allowance for deflection to ensure structural loads are not transmitted to frame product.
- .11 Install doors, and hardware in accordance with hardware templates and manufacturer's instructions.
- .12 Adjust operable parts for correct clearances and function.
- .13 Install louvre and door silencers.
- .14 Finish paint in accordance with Section 09 91 00.
- .15 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 (1/8 inch) measured with straight edges, crossed corner to corner.

END OF SECTION

Part 1 General

1.1 COORDINATION

- .1 Provide inserts and anchoring devices that will be built into other Work for installation of access door assemblies.
- .2 Coordinate delivery with other Work to avoid delay.

1.2 SUBMITTALS

- .1 Comply with Section 01 33 00 - Submittal Procedures.
- .2 Shop Drawings:
 - .1 Door and panel units: Show types, elevations, thickness of metals, full size profiles of door members.
 - .2 Hardware: Show materials, finishes, locations of fasteners, types of fasteners, locations and types of operating hardware, and details of installation.
 - .3 General: Show connections of units and hardware to other Work. Include schedules showing location of each type and size of door and panel units.
- .3 Product Data: Manufacturer's technical data for each type of access door and panel assembly, including setting drawings, templates, fire-resistive characteristics, finish requirements, and details of anchorage devices.
 - .1 Include complete schedule, types, locations, construction details, finishes, latching or locking provisions, and other pertinent data.
- .4 Manufacturer's Installation Instructions: Indicate installation requirements and rough-in dimensions.

1.3 QUALITY ASSURANCE

- .1 Refer to Section 01 45 00 - Quality Control.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Package and ship per manufacturer's recommendations.
- .2 Store per manufacturer's instructions.
 - .1 Store in dry area out of direct sunlight.

1.5 WARRANTY

- .1 Provide manufacturer's 12-month written warranty.
- .2 Warrant materials and fabrication against defects after completion and final acceptance of Work.
 - .1 Repair defects, or replace with new materials, faulty materials or fabrication developed during the warranty period at no expense to Department Representative.

Part 2 Products

2.1 DESIGN REQUIREMENTS

- .1 Obtain specific locations and sizes for required access doors and frames from trades, including mechanical and electrical, requiring access to concealed equipment and indicate on submittal schedule.

2.2 MATERIALS

- .1 Commercial quality, cold steel sheet.

2.3 NON-RATED ACCESS DOORS AND FRAMES

- .1 Flush Access Doors with Exposed Flanges (Non-Rated Access Door with Gasket)
 - .1 Basis-of-Design Product: Subject to compliance with requirements, provide Nystrom; MNTC Architectural – Alternate submission as per section 01 33 00 - Submittal Procedures.
 - .2 Description: Face of door flush with frame, with 3/4 inch (25.4 mm) (25.4 mm) (19.05 mm) exposed flange.
 - .3 Locations: Wall and ceiling.
 - .4 Door Size: Refer to drawings.
 - .5 Galvannealed Steel:
 - .1 Door Material: Nominal 0.064 inch (1.6 mm) (1.6 mm), 16 gauge.
 - .2 Frame Material: Nominal 0.064 inch (1.6 mm) (1.6 mm), 16 gauge.
 - .3 Finish: rust inhibitive prime coat.
 - .6 Hinges: continuous stainless steel piano hinge.
 - .7 Latch and Lock: Cam latch, screwdriver operated.
Secure steel post for padlock use.
 - .8 Gasket: 1/8 inch by (3.175 mm) by 1/2 inch by (12.7 mm) on all four sides.

2.4 FABRICATION

- .1 Manufacture each access panel assembly as an integral unit ready for installation.
- .2 Welded construction: Furnish with a sufficient quantity of 1/4 inch (6.35 mm) mounting holes to secure access panels to types of supports indicated.
- .3 Recessed panel: Form face of panel to provide specified recess for application of finish material. Reinforce panel as required to prevent buckling.
- .4 Furnish number of latches required to hold door in flush, smooth plane when closed.

Part 3 Execution

3.1 EXAMINATION

- .1 Verify that rough openings for door and frame are correctly sized and located.
- .2 Verify mechanical and electrical requirements for ceiling or wall access panels.

3.2 INSTALLATION

- .1 Install access door and frame units per manufacturer's written instructions.
- .2 Install frames plumb and level in opening. Secure rigidly in place.
- .3 Position units to provide convenient access to concealed Work requiring access.
- .4 Fire-rated units: Include UL or Warnock-Hersey labels.

3.3 ADJUSTING AND CLEANING

- .1 Adjust panel after installation for proper operation.
- .2 Remove and replace panels or frames that are warped, bowed, or damaged.

END OF SECTION

Part 1 General

1.1 REFERENCE DOCUMENTS

- .1 Canadian Steel Door and Frame Manufacturer's Association:
 - .1 Standard hardware location dimensions in accordance with Canadian Metric Guide for Steel Doors and Frames (Modular Construction).

1.2 ADMINISTRATIVE REQUIREMENTS

- .1 Sequencing: deliver hardware required for shop application in ample time so as not to impede the progress of the Work.

1.3 SUBMITTALS

- .1 Product Data
 - .1 Refer to Section 01 33 00 - Submittal Procedures.
- .2 Shop Drawings:
 - .1 Hardware Schedule: submit a detailed hardware schedule indicating the following:
 - .1 Door and frame types, sizes, door swings.
 - .2 Type, style, function, size and finish of each hardware item.
 - .3 Mounting heights, fastenings and other pertinent information.
 - .4 Name and manufacturer of each item.
 - .5 Location of all hardware items cross-referenced to door numbers indicated on floor plans and in door and frame schedule.
 - .6 Explanation of all abbreviations, symbols and codes contained in schedule.
- .3 Certificates:
 - .1 After completion of all construction work, certify on a form acceptable to the Departmental Representative, that all items of finish hardware have been adjusted and are working properly and that all hardware on fire rated labeled doors conforms to the requirements of (ULC) Underwriters Laboratories of Canada.
- .4 Manufacturers' Instructions:
 - .1 Include, with each item of hardware the following:
 - .1 Installation instructions.
 - .2 Deliver finish hardware with all items in individual packages, legibly marked and adequately labelled indicating the part of the work for which it is intended.

1.4 CLOSEOUT SUBMITTALS

- .1 Operation and Maintenance Data:
 - .1 Comply with requirements of Section 01 78 00 - Closeout Procedures.
 - .2 Provide the following:
 - .1 One copy of manufacturer's key biting list. Forward by hand, together with keys.
 - .2 Manufacturer's maintenance instructions.
 - .3 Complete parts lists.
 - .4 Manufacturer's installation and operation instructions for all operable hardware.

1.5 MAINTENANCE MATERIAL SUBMITTALS

- .1 Tools:
 - .1 Provide two sets of wrenches for door closers, lock and latch sets and exit devices.
 - .2 Provide special tools required for installation.

1.6 DELIVERY, STORAGE, AND HANDLING

- .1 Storage and Handling Requirements:
 - .1 Provide a locked storage room with adequate shelving and bin space to properly receive and stock hardware prior to installation.
 - .2 Protect knobs, handles, push plates and pulls with adhesive release paper, of type that is easily removed without marring finish.

Part 2 Products

2.1 FASTENINGS

- .1 Supply screws, bolts, expansion shields and other fastening devices required for satisfactory installation and operation of hardware.
- .2 Match exposed fastening devices to finish of hardware.
- .3 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.
- .4 Use fasteners compatible with material through which they pass.
- .5 Use sex nuts and bolts for doors without special reinforcing for closers.

2.2 KEYING

- .1 Determine detailed requirements for master keying system upon consultation with the Department Representative, prior to finalizing keying schedule.
- .2 Form keys from nickel silver.
- .3 Provide two change keys for each lock except where otherwise required. Provide all other keys as required to meet keying system requirements.

Part 3 Execution

3.1 INSTALLATION

- .1 Provide metal door and frame manufacturers with complete instructions and templates for preparation of their work to receive hardware.
- .2 Install all hardware items to manufacturer's instructions and recommendations.
- .3 Where hardware items are required to be installed onto or into surfaces that are to be later painted or finished, install hardware completely to ensure proper fit, remove and store until finishing is complete, and then re-install.
- .4 Drill and countersink units which are pre-prepared for anchorage of fasteners. Space fasteners and anchors to manufacturer's recommendations. Use only fasteners supplied by hardware manufacturers
- .5 Install hardware to heights and centers as indicated in hardware schedule, as reviewed by the Departmental Representative.
- .6 Protect doors and frames from damage due to installation of hardware.

3.2 INSTRUCTION

- .1 Instruct user's personnel in:
 - .1 Proper care, cleaning and general maintenance of hardware.
 - .2 Operation of key control system. Make periodic checks during warranty period to ensure functional efficiency of the system.

3.3 HARDWARE SCHEDULE

Hardware Group 1

2/915 x 2135 x 45 x IHMD x PSF

Roof Access Drs.

6	only Butts	A5111 114 x 101 x NRP x ANSI A156.1	630
1	Mortise Lockset	ANSI 156.13 F07 x Lever x Plain Rose	626
1	Mortise Cylinder Key To Existing System		626
2	Door Closer	C02021 x PT 4G x ANSI A156.4	689
2	Kickplate	J102 x 250 x DW x ANSI A156.6	630
2	Flushbolts	L04081 x 300 mm x ANSI A156.16	626
1	Weatherstrip	R3E164 2/DW x 2/DH x ANSI A156.22	689
1	Astragal	R5Y636 x DH x ANSI A156.22	630

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Related Requirements:
 - .1 Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
 - .2 Section 01 33 00 - Submittal Procedures: For administrative and procedural requirements for processing of submittals during the construction phase.
 - .3 Section 01 77 00 - Closeout Procedures: For administrative and procedural requirements for completion of the Work.
 - .4 Section 09 91 00 - Painting: For field painting of door louvres.

1.2 REFERENCES

- .1 Reference Standards:
 - .1 ASTM International (ASTM):
 - .1 ASTM A153/A153M-09, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
 - .2 ASTM A240/A240M-13b, Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications
 - .3 ASTM A653/A653M-11, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process
 - .4 ASTM A879/A879M-12, Standard Specification for Steel Sheet, Zinc Coated by the Electrolytic Process for Applications Requiring Designation of the Coating Mass on Each Surface
 - .5 ASTM A1008/A1008M-12a, Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable
 - .6 ASTM F2329-11, Standard Specification for Zinc Coating, Hot-Dip, Requirements for Application to Carbon and Alloy Steel Bolts, Screws, Washers, Nuts, and Special Threaded Fasteners

1.3 ACTION SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 – Submittal Procedures.
 - .1 Product Data:
 - .1 Materials description for door louvres including details showing mounting type, frame type, materials, and construction.
 - .2 Installation instructions for each product specified.

- .2 Shop Drawings:
 - .1 Include details of each frame type, elevation of frame and louvre, anchorage and accessory items.
 - .2 Schedule showing each type of door louvre, locations, sizes, and other data pertinent to installation
 - .3 Indicate installation procedures and accessories required for a complete installation.

1.4 QUALITY ASSURANCE

- .1 Refer to Section 01 45 00 - Quality Control.

1.5 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver, store, and handle door louvres using means and methods that will prevent damage, deterioration, or loss.
 - .1 Deliver units in manufacturer's original packaging, properly labeled for identification.

Part 2 Products

2.1 PERFORMANCE REQUIREMENTS

- .1 Free Air Flow Area:
 - .1 50 percent.

2.2 700 SERIES - INVERTED SPLIT Y-BLADE LOUVRE

- .1 Inverted Split Y-Blade Louvre Assembly. Two rows of Inverted split Y-blades with 1-inch (25.40 mm) blade spacing, resulting in a non-vision or sight-restrictive view, attached to 3/4-inch (19.05 mm) deep welded frame, by interlocking construction, and subsequently mounted in a surrounding frame.
 - .1 Louvre and Frame Material: 18-gauge cold-rolled steel (CRS).
 - .2 Surrounding Frame: 2-piece frame 1-1/4 inches (31.75 mm) high with corners mitered and welded, and with pre-punched mounting holes for attachment to door from 2 sides.
 - .3 Louvre and Frame Finish: Factory-applied powder coat finish.
 - .1 Color Options: Gray Primer (G).
 - .4 Frame Size: 24"x18"
 - .5 Fasteners: Tamper proof security fasteners.

2.3 MATERIALS

- .1 Steel Sheet: Uncoated or electrolytic zinc coated, ASTM A879/A879M, cold rolled steel sheet substrate complying with ASTM A1008/A1008M, Commercial Steel (CS), exposed.

- .2 Metallic-Coated Steel Sheet: ASTM A653/A653M, Commercial Steel (CS), Type B; with minimum G60 (Z180) or A60 (ZF180) metallic coating.

2.4 FABRICATION

- .1 General: Furnish each louver and frame assembly manufactured as an integral unit, complete and ready for installation.
- .2 Metal Surfaces: For metal surfaces exposed to view in the completed Work, provide materials with smooth, flat surfaces without blemishes.
- .3 Frames: Grind exposed welds smooth and flush with adjacent surfaces.
 - .1 Provide mounting holes in frames for attachment of units to doors.

Part 3 Execution

3.1 EXAMINATION

- .1 Examine substrates for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
 - .1 Notify the Contractor in writing of conditions detrimental to proper and timely completion of the installation.
 - .2 Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- .1 General: Comply with manufacturer's written instructions for installing door louvers.
- .2 Install door louvers in door openings to result in finished assembly which meets the applicable fire rating of doors, if any.

3.3 ADJUSTING

- .1 Remove louver frames that are warped, bowed, or otherwise damaged, and replace with new components.

3.4 CLEANING

- .1 Refer to Section 01 74 11 - Cleaning.

END OF SECTION