

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 06 08 99 – Rough Carpentry for Minor Works
- .2 Section 07 27 10 - Modified Bituminous Sheet Air Barrier.
- .3 Section 07 92 00 – Sealant
- .4 Section 08 71 00 – Door Hardware
- .5 Section 08 80 50 – Glazing
- .6 Section 08 71 00 – Finish Hardware
- .7 Section 09 91 00 - Painting: Field painting of doors and frames

1.2 REFERENCES

- .1 American Society for Testing and Materials International (ASTM)
 - .1 ASTM A653/A653M-06a, Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- .1 American National Standards Institute (ANSI)
 - .1 ANSI/SDI A250.8-2014, Specification for Standard Steel Doors and Frames (SDI-100)
- .2 Canadian Standards Association (CSA International)
 - .1 CSA-G40.20-04/G40.21-04, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
 - .2 CSA W59-03, Welded Steel Construction (Metal Arc Welding).
- .3 Canadian Steel Door Manufacturers' Association (CSDMA)
 - .1 CSDMA, Recommended Specifications for Commercial Steel Doors and Frames, 2000.
 - .2 CSDMA, Selection and Usage Guide for Commercial Steel Doors, 1990.

1.3 SYSTEM DESCRIPTION

- .1 Design Requirements:
 - .1 Design exterior frame assembly to accommodate to expansion and contraction when subjected to minimum and maximum surface temperature of -35 degrees C to 35 degrees C.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Provide product data: Indicate door and frame configurations and finishes, location of cut-outs for hardware reinforcement.
- .3 Shop Drawings:
 - .1 Indicate frame elevations, frame section, 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.
 - .3 Include schedule identifying each unit, with door marks and numbers relating to numbering on drawings and door schedule.

1.5 DELIVERY, STORAGE AND HANDLING

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

Part 2 Products

2.1 MATERIALS

- .1 Hot dipped galvanized steel sheet: to ASTM A653M, Z275.
- .2 Reinforcement channel: to CSA G40.20/G40.21, Type 44W, coating designation to ASTM A653M, Z275

2.2 DOOR CORE MATERIALS

- .1 Expanded Polystyrene Core: Rigid extruded fire retardant, closed cell board, density 16 to 32 kg/m³, thermal values RSI 1.0 minimum, Type 1, in accordance with CAN/ULC-S701.
- .2 Stiffened: face sheets welded, insulated core.
- .3 Adhesive for cores and steel components: Manufacturer's standard heat resistant.

2.3 ACCESSORIES

- .1 Door silencers: single stud rubber/neoprene type.
- .2 Top and bottom caps: Inverted, (legs facing inward) continuously welded, weathertight steel channel.
- .3 Joint Sealers: to Section 07 92 00, colour to match adjacent wall finish.
- .4 Glazing Stops: Formed galvanized steel channel, minimum 16 mm high, accurately fitted, butted at corners and fastened to frame sections with counter-sunk tamper proof sheet metal screws.
- .5 Glass: In accordance with Section 08 80 50; Types as indicated.

2.4 DOOR FABRICATION

- .1 Fabricate frames in accordance with CSDMA specifications and as follows:
 - .1 Exterior Doors: Stiffened construction.
 - .2 Maximum Duty doors: Level 4 and Physical Performance Level A in accordance with ANSI A250.8-2014
 - .3 Face sheet thickness: 1.7 mm
 - .4 Reinforce doors with vertical stiffeners, securely welded to face sheets at 150 mm on centre maximum.
 - .5 Fill voids between stiffeners of doors with polystyrene core.
 - .6 Longitudinal Edges: Mechanically interlocked, continuously welded.
 - .7 Mortised, blanked, reinforced, drilled and tapped for templated hardware, in accordance with templates provided by hardware supplier.
 - .8 Reinforce for surface mounted hardware, anchor hinges, thrust pivots, pivot reinforced hinges, or non-templated hardware.
 - .9 Top and Bottom Channels:
 - .1 Recessed, welded steel channels. (legs facing inward); Continuously welded.
 - .10 Provide factory-applied touch-up primer at areas where zinc coating has been removed during fabrication.
- .2 Manufacturer's nameplates on doors are not permitted.

2.1 FRAMES FABRICATION

- .1 Interior Frames: Face sheet thickness: 1.7 mm
 - .1 Welded type construction.
 - .2 Welding in accordance with CSA W59.
 - .3 Accurately mitre or mechanically joint frame product and securely weld on inside of profile.
 - .4 Weld in 2 temporary jamb spreaders per frame to maintain proper alignment during shipment.
- .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 with roll formed steel channels fitted tightly into frame head, flush with top.
- .4 Prepare frames for three (3) silencers.

- .5 Provide appropriate anchorage to floor and wall construction.
 - .1 Locate each wall anchor immediately above or below each hinge reinforcement on hinge jamb and directly opposite on strike jamb.
 - .2 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.
 - .3 Locate anchors for frames in existing openings not more than 150 mm from top and bottom of each jambs and intermediate at 660 mm on centre maximum.

2.2 FINISH

- .1 Finish: Field painted in accordance with Section 09 91 00

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 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.

3.3 INSTALLATION GENERAL

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

3.4 INSTALLATION

- .1 Install doors and frames to CSDMA.
- .2 Frames:
 - .1 Coordinate with wall construction for anchor placement.
 - .2 Set frames plumb, square, level and at correct elevation.
 - .3 Secure anchorages and connections to adjacent construction.
 - .4 Brace frames rigidly in position while building-in.
 - .5 Install wood spreaders at third points of frame rebate height to maintain frame width.

- .6 Provide vertical support at centre of head for openings exceeding 1200 mm in width.
- .7 Remove wood spreaders after frames have been built-in.
- .8 Make allowance for deflection to ensure structural loads are not transmitted to frame product.
- .9 Foam fill shim space at perimeter of frame and open back sections
- .10 Caulk perimeter of door frame to Section 07 92 00.
- .3 Doors:
 - .1 Install doors, and hardware specified in Section 08 71 00 in accordance with hardware templates and manufacturer's instructions.
 - .1 Adjust operable parts for correct clearances and function.
 - .2 Install door silencers and coordinate installation of glazing.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 04 04 99 –Masonry for Minor Works
- .2 Section 07 92 00 – Joint Sealants
- .3 Section 09 21 16 – Gypsum Board Assemblies
- .4 Section 09 91 00 - Painting.
- .5 Mechanical Sections
- .6 Electrical Sections

1.2 SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data: Provide data indicating material characteristics, performance criteria, and limitations.
- .3 Manufacturer's Installation Instructions: Indicate preparation and installation requirements, techniques.

1.3 DELIVERY, STORAGE, AND HANDLING

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

Part 2 Products

2.1 ACCESS DOORS

- .1 Sizes: as follows [unless indicated]:
 - .1 For body entry: [600 x 600] mm minimum.
 - .2 For hand entry: [300 x 300] mm minimum.

2.2 MATERIALS

- .1 Access Doors: Stainless Steel, un- insulated flush access door designed for flush installation in drywall.
 - .1 Drywall taping flange.
 - .2 Screwdriver operated cam latches.
 - .3 Concealed hinge.
 - .4 Sizes & Quantity: Provided by Mechanical and Electrical contractors as required for access to mechanical and electrical items.

- .2 Access Doors: Stainless Steel, un- insulated flush access door designed for flush installation in masonry.
 - .1 Surface flange.
 - .2 Screwdriver operated cam latches.
 - .3 Concealed hinge.
 - .4 Sizes & Quantity: Provided by Mechanical and Electrical contractors as required for access to mechanical and electrical items.

Part 3 Execution

3.1 INSTALLATION

- .1 Coordinate installation with erection and finishing of ceiling assembly, in accordance with manufacturer's printed instructions.
- .2 Adjust door operating components to ensure smooth opening and closing of doors.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 07 92 00 – Joint Sealants
- .2 Section 08 80 50 - Glazing

1.2 REFERENCES

- .1 CSA Group
 - .1 AAMA/WDMA/CSA 101/I.S.2/A440-11, NAFS - North American Fenestration Standard for Windows, Doors, and Skylights.
 - .2 CSA A440S1-09, Canadian Supplement to AAMA/WDMA/CSA 101/I.S.2/A440, NAFS - North American Fenestration Standard for Windows, Doors, and Skylights.
 - .3 CAN/CSA-A440.4-07(R2012), Window, Door, and Skylight Installation
- .2 Screen Manufacturers Association (SMA)
 - .1 SMA 1201R-2002 Specification for Insect Screens for Windows, Sliding Doors and Swinging Doors.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .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 windows and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop Drawings:
 - .1 Indicate materials and details in full size scale for head, jamb and sill, profiles of components, interior and exterior trim junction between combination units, elevations of unit, anchorage details, description of related components and exposed finishes fasteners, and caulking.

1.4 CLOSEOUT SUBMITTALS

- .1 Submit in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Operation and Maintenance Data: submit operation and maintenance data for windows for incorporation into manual.

1.5 QUALITY ASSURANCE

- .1 Certifications: 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 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 Storage and Handling Requirements:
 - .1 Store materials off ground indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect windows from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.

Part 2 Products

2.1 MATERIALS

- .1 Materials: to AAMA/WDMA/CSA 101/I.S.2/A440 supplemented as follows:
 - .1 All windows by same manufacturer.
 - .2 Sash: Fiberglass
 - .3 Main frame: Fibreglass
 - .4 Glass: in accordance with Section 08 80 50 - Glazing.
 - .5 Nailing Flange:
 - .1 With for windows installed in wood construction.
 - .2 Without for windows installed in masonry construction.
 - .6 Screens: to SMA 1201R on the ventilating portion of the windows.
 - .1 Type: Heavy Duty
 - .2 Insect screening mesh: fiberglass manufacturer's standard
 - .3 Screen frames: aluminum fixed with tamper proof fasteners
 - .4 Mount screen frames for interior replacement.
 - .7 Sealants: to Section 07 92 00.
 - .8 Expanding Foam Insulation: Low density foam.
 - .9 Glaze windows in accordance with AAMA/WDMA/CSA 101/I.S.2/A440.
 - .10 Hardware:
 - .1 Hardware: stainless steel
 - .2 Locks: provide locking device(s), to provide locking in closed position.

2.2 WINDOW TYPE AND CLASSIFICATION

- .1 Operable windows as per window schedule, manufacturer's standard operating hardware.
 - .1 Awning
 - .2 Single Hung
 - .3 Surface condensation control: compliant with standard CAN/CSA-A440.2/A440.3.
 - .4 Forced Entry: F2.
 - .5 All metal components: 316 Stainless steel

2.3 FABRICATION

- .1 Fabricate in accordance with AAMA/WDMA/CSA 101/I.S.2/A440 supplemented as follows:
- .2 Fabricate units square and true with maximum tolerance of plus or minus 1.5 mm for units with a diagonal measurement of 1800 mm or less and plus or minus 3 mm for units with a diagonal measurement over 1800 mm.
- .3 Face dimensions detailed are maximum permissible sizes.
- .4 Brace frames to maintain squareness and rigidity during shipment and installation.
- .5 Provide 316 stainless steel clips and reinforcement.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for product installation in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate in presence of Departmental Representative.
 - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.2 INSTALLATION

- .1 Install in accordance with AAMA/WDMA/CSA 101/I.S.2/A440.
- .2 Foam fill perimeter of window framing to seal air/vapour barrier.
- .3 Caulking:
 - .1 Seal joints between windows opening with sealant over foam backer rod.
 - .2 Apply sealant in accordance with Section 07 92 00.
 - .3 Seal interior joints around window using colour matching silicone sealant.
 - .4 Conceal sealant within window units except where exposed use is permitted by Departmental Representative.

3.3 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 08 11 00 Metal Doors and Frames

1.2 REFERENCES

- .1 American National Standards Institute (ANSI) / Builders Hardware Manufacturers Association (BHMA)
 - .1 ANSI/BHMA A156.1-2000, American National Standard for Butts and Hinges.
 - .2 ANSI/BHMA A156.2-2003, Bored and Preamsembled Locks and Latches.
 - .3 ANSI/BHMA A156.4-2000, Door Controls - Closers.
 - .4 ANSI/BHMA A156.5-2001, Auxiliary Locks and Associated Products.
 - .5 ANSI/BHMA A156.6-2005, Architectural Door Trim.
 - .6 ANSI/BHMA A156.8-2005, Door Controls - Overhead Stops and Holders.
 - .7 ANSI/BHMA A156.10-1999, Power Operated Pedestrian Doors.
 - .8 ANSI/BHMA A156.12-2005, Interconnected Locks and Latches.
 - .9 ANSI/BHMA A156.13-2002, Mortise Locks and Latches Series 1000.
 - .10 ANSI/BHMA A156.14-2002, Sliding and Folding Door Hardware.
 - .11 ANSI/BHMA A156.15-2006, Release Devices - Closer Holder, Electromagnetic and Electromechanical.
 - .12 ANSI/BHMA A156.16-2002, Auxiliary Hardware.
 - .13 ANSI/BHMA A156.18-2006, Materials and Finishes.
 - .14 ANSI/BHMA A156.19-2002, Power Assist and Low Energy Power - Operated Doors.
- .2 Canadian Steel Door and Frame Manufacturers' Association (CSDMA)
 - .1 CSDMA Recommended Dimensional Standards for Commercial Steel Doors and Frames

1.3 SUBMITTALS

- .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 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.
 - .1 Issue templates when requested so as not to cause any delays but not before hardware list has received final review by Engineer-Architect.
 - .4 Keying Schedule to be in accordance with DHI manual "Keying Systems Names and Nomenclature".
 - .1 Key schedule is not to hold up the processing of the hardware list.
 - .5 Wiring Diagrams will only be supplied after the final approval of the Hardware Schedule.
 - .1 Submit wiring diagrams as requested for proper installation of electrical, electrical-mechanical and electrical-magnetic products.
- .4 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
- .5 Manufacturer's Instructions: submit manufacturer's installation instructions.

1.4 CLOSEOUT SUBMITTALS

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

1.5 QUALITY ASSURANCE

- .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 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 strippable coating.
 - .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 All fasteners to come complete with the hardware as described.
 - .1 Hardware supplier must be advised immediately if required fasteners are not enclosed with hardware.
- .2 Hardware must be installed with fasteners supplied by the manufacturer.
 - .1 All non-conforming fasteners will be removed and replaced with conforming type at the contractor's expense.
- .3 Hinges Butts and hinges: to ANSI/BMHA A156.1.
 - .1 Non removable pins (NRP) for all doors.
 - .2 Material: Stainless steel
 - .3 All hinges to be five-knuckle design and ball bearing.
 - .4 All electric hinges to be supplied with plug in connectors as specified.
 - .5 Finish Stain Stainless Steel.
- .4 Mortise locks and latches: to ANSI/BMHA A156.13, Series 1000, Operational Grade 1 with all standard trim
 - .1 Locks shall be easily re-handed.
 - .2 Multi-functional lock body to make it easy to change functions in the field.
 - .3 Construction: Lock functions shall be manufactured in a single-sized case formed from 2.6mm steel minimum.
 - .4 Locks shall have field adjustable, beveled, armored front, with a 3mm thickness minimum.
 - .5 Locks shall have a one piece, 19mm throw anti-friction stainless steel latch.

- .6 Backset: 70mm.
- .7 Strikes shall be non-handed with a curved lip. To ensure proper alignment, trim, knobs or levers, shall be through-bolted and fully interchangeable between rose and escutcheon.
- .8 Lever handles: "LNL" design.
- .9 Roses: round.
- .10 Finished to stainless steel
- .11 Cylinders: key into keying system as noted as directed.
- .5 Deadbolt: to ANSI/BHMA A156.5, as listed in Hardware Schedule.
 - .1 Cylinders: Rim and Mortise, length to suite, cam to suite.
 - .2 Small Case Mortise Deadbolt, Keyed both sides
 - .3 Finished Stainless steel
 - .4 Full 25mm throw and made of one-piece hardened stainless steel.
 - .5 Cylinders: key into keying system as noted as directed.
- .6 Door Closers: to ANSI/BMHA A156.4 as listed in Hardware Schedule.
 - .1 Modern type, surface applied.
 - .2 Adjustable to provide sizes 1 through 6 and comply with ADA.
 - .3 Full rack and pinion construction.
 - .4 Closing speed, latching speed and backcheck shall be controlled by key operated valves.
 - .5 Spring power shall be continuously adjustable over the full range of closer sizes and allow for reduced opening force for the physically handicapped.
 - .6 Hydraulic regulation shall be tamper proof, non-critical valves.
 - .7 Closers shall have separate adjustments for latch speed, general speed and backcheck.
 - .8 Captivated valves.
 - .9 Delayed action controlled by a separate valve.
 - .10 Backcheck - shall be available in addition to, not in lieu of delayed action.
 - .11 One piece closer body of die cast aluminum.
 - .12 An increase of 15% in closing power shall be provided by means of adjustment of the arm leverage at the foot connection. (Standard Arm).
 - .13 All closer to have a forged steel main arm and forged forearm for parallel arm closers.
 - .14 Two mounting positions of the closer shall meet all requirements. Standard mountings shall provide 120° door opening and alternate mounting 180° door opening.

- .15 All closers shall be suitable for standard, top jamb, parallel arm and track type applications when provided with proper brackets and arms.
- .16 Closer covers shall be of high impact plastic material of flame retardant grade.
- .17 Secured by machine screws.
- .18 Finish : Stainless steel
- .7 Architectural door trim: to ANSI/BHMA A156.6, finished to stainless steel 630.
 - .1 Door Kickplate: 1.3 mm thick stainless steel, 203mm high, unbevelled edges, width less 40mm push side, width less 25mm on pull side for single doors. Width less 25mm for pairs. Stainless steel 630
 - .2 Door Push plates: 1.3 mm thick stainless steel, size 89mm x 381mm, finished to stainless steel 630.
 - .3 Door Pulls: 19mm round pull, 228.6mm centre to centre pulls, with 76mm x 305mm protection plate, mount type 1, stainless steel 630.
- .8 Overhead stop: to ANSI/BMHA A156.8, heavy duty construction, BHMA Grade 1 Certified, stainless steel construction.
 - .1 Holder Selector: Turn knob to activate and deactivate the hold open function
 - .2 Thru bolts capture channel and end caps.
 - .3 Heavy duty shock spring absorbs load and gradually stops door.
 - .4 Sized as per manufacturer's guidelines. Take into account other hardware mounted on doors.
 - .5 Finishes stainless steel, 630.
- .9 Door Stops: to ANSI/BMHA A156.16 Finished to 26D.
 - .1 Wall stops classification, convex or concave, cast brass or bronze. Fasteners to suite wall conditions.
- .10 Power Assist and Low Energy Power Operated Doors: to ANSI/BMHA A156.19.
 - .1 Automatic operators shall be complete with all components including Operator Housing, Power Operator, Electronic Control, Soft Start, Switching Networks and all Connecting Hardware.
 - .2 Size full width of door.
 - .3 Operator Housing shall be complete with finished end caps prepared for mounting to door frame.
 - .4 Operator shall be factory assembled with all necessary components for proper operation and switching.
 - .5 Relays, wiring harness and other components shall be plug-in type.
 - .6 Controls shall include adjustable time delay, safe-swing circuit as well as provision for accessories.
 - .7 All wiring shall be of the shielded type with proper number of conductor wires to install all components specified.

- .8 Operator shall include sufficient power supplies to operate all hardware and accessory items as detailed in Hardware Sets.
- .9 In the event additional power supplies are required it shall be added at no increase in contract price.
- .10 Complete unit shall be mounted with provisions for easy servicing or replacement without removing the door or frame.
- .11 Confirm frame detail and if necessary provide a suitable mounting plate to install operator properly.
- .12 Electrical box and actuator: Hardwired low voltage actuator with stainless steel 114 mm round plate, engraved blue filled with handicap symbol. Box 51 mm wide x 102 mm high x 50 mm deep single gang electrical box, flush mounted in wall, locations indicated.
- .13 Power Supplies: ULc Listed, Class 2, linear regulated power supply
 - .1 Dual output, field selectable 12 or 24 VDC via clearly marked toggle switch.
 - .2 Continuous current output: 1 full AMP.
 - .3 LED indication (AC & DC) showing power supply status ULc listed low current.
- .11 Thresholds: to ANSI/BMHA A156.21.
 - .1 Saddle threshold 152.4 mm wide x full width of door opening, extruded aluminum mill finish, serrated surface.
- .12 Door Gasketing and Edge Seal Systems: to ANSI/BMHA A156.22.
 - .1 Head and Jambs Seal:
 - .1 Extruded aluminum frame and neoprene insert, clear anodized finish.
 - .2 Surface overhead stops and exit device strikes to mount below weatherstrip to provide continuous seal.
 - .2 Bottom Seal
 - .1 Extruded Aluminum frame and nylon brush sweep, clear anodized finish.
 - .2 Heavy duty, door seal of extruded aluminum frame and solid closed cell neoprene weather seal, recessed in door bottom, closed ends, automatic retract mechanism when door is open, clear anodized finish.

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 Doors, to be keyed differently in groups master keyed as directed.
- .2 Prepare detailed keying schedule in conjunction with Departmental Representative.
- .3 Supply keys in duplicate for every lock in this Contract.
- .4 Supply 3 master keys for each master key or grand master key group.

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 Where door stop contacts door pulls, mount stop to strike bottom of pull.
- .6 Use only manufacturer's supplied fasteners.
 - .1 Use of "quick" type fasteners, unless specifically supplied by manufacturer, is unacceptable.

3.2 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 ensure tight fit at contact points with frames.

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 DEMONSTRATION

- .1 Keying System Setup:
 - .1 Set up key control system with file key tags, duplicate key tags, numerical index, alphabetical index and key change index, label shields, control book and key receipt cards.
 - .2 Lock key cabinet and turn over key to Departmental Representative.
- .2 Maintenance Staff Briefing:
 - .1 Brief maintenance staff regarding:
 - .1 Proper care, cleaning, and general maintenance of projects complete hardware.
 - .2 Description, use, handling, and storage of keys.
 - .3 Use, application and storage of wrenches for door closers locksets and fire exit hardware.
 - .3 Demonstrate operation, operating components, adjustment features, and lubrication requirements.

3.5 PROTECTION

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

3.6 SCHEDULE & SETS

- .1 See Drawings for Schedule
- .2 Set 1
 - 3 Hinges A5111, NRP, 114 x 101 mm 630.
 - 1 Mortise deadlocks E06061, MK and KA 630.
 - 1 Pull with plate J405, size as specified 630
 - 1 Push plates J301, size as specified 630
 - 1 Kick Plate pull side 630
 - 1 Closer
 - 1 Overhead stop
 - 1 Thresholds width of door
 - 1 Door bottom seals

- 1 Head and Jambs seal
- .3 Set 2
 - 1 Hinges A5111, NRP, 114 x 101 mm 630.
 - 1 Storeroom Lockset F44 301D, MK and KD 630
 - 1 Closer
 - 1 Overhead stop
 - 1 Thresholds width of door
 - 1 Door bottom seals
 - 1 Head and Jambs seal
- .4 Set 3
 - 3 Hinges A5111, NRP, 114 x 101 mm 630.
 - 1 Mortise deadlocks E06061, MK and KA 630.
 - 1 Pull with plate J405, size as specified 630
 - 1 Push plates J301, size as specified 630
 - 1 Kick Plate pull side 630
 - 1 Automatic Door Operator
 - 1 Backing Plate
 - 1 Mounting Plate
 - 2 Wall Mounted Actuators 10BR451
 - 1 Thresholds width of door
 - 1 Door bottom seals
 - 1 Head and Jambs seal

Requires 120VAC power to door operator by electrical contractor
Requires low voltage from door operator to actuator buttons
Supply riser and point to point electrical drawings

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 08 11 00 - Metal Doors and Frames.
- .2 Section 08 50 00 –Windows

1.2 REFERENCES

- .1 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB 12.1-M90 - Tempered or Laminated Safety Glass.
 - .2 CAN/CGSB 12.8-97 - Insulating Glass Units.
- .2 Glass Association of North American (GANA)
 - .1 GANA Glazing Manual - 2008.
- .3 IGMAC (Insulated Glass Manufacturers Association of Canada)
 - .1 Quality Standard Specification.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .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 glass, sealants, and glazing accessories and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Samples:
 - .1 Submit for review duplicate 300 mm X 300 mm size samples of each type of glazing unit.
 - .2 Samples will not be returned.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements 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 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 glazing from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.

Part 2 Products

2.1 MATERIALS

- .1 Design Criteria:
 - .1 Size glass to withstand wind loads, dead loads and positive and negative live loads to ASTM E330
 - .2 Limit glass deflection to flexural limit of glass with full recovery of glazing materials.
- .2 Tempered Glass: CAN/CGSB 12.1-M90; Clear; 6 mm thick,
- .3 Insulating Glass Units:
 - .1 Insulating glass units: to CAN/CGSB-12.8, double unit, 25 mm overall thickness.
 - .1 Glass: to CAN/CGSB-12.1-M90
 - .2 Glass thickness: 6mm each light
 - .3 Inter-cavity space thickness: 12.7mm
- .4 Sealant: Manufacturer's standard.

2.2 ACCESSORIES

- .1 Setting Blocks: Neoprene, EPDM or Silicone, 80 to 90 Shore A durometer hardness.
- .2 Spacer Shims: Neoprene, Silicone, 50 to 60 - Shore A durometer hardness.
- .3 Glazing Tape: Preformed butyl compound with integral resilient tube spacing device.
- .4 Glazing Splines: Resilient silicone extruded shape.

Part 3 Execution

3.1 EXAMINATION

- .1 Verify that openings for glazing are correctly sized and within tolerance.

3.2 PREPARATION

- .1 Clean contact surfaces with solvent and wipe dry.
- .2 Seal porous glazing channels or recesses with substrate compatible primer or sealer.
- .3 Prime surfaces scheduled to receive sealant.

3.3 GLAZING METHODS

- .1 Verify that selected sealants and glazing tapes are compatible.
- .2 Perform glazing as required by frame manufacturer to achieve specified performance criteria.
- .3 Completed exterior glazed assemblies to provide full perimeter air and vapour seal to the glazed frames and be pressure equalized.

3.4 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.

3.5 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 After installation, mark each light with an "X" by using removable plastic tape or paste.
- .3 Repair damage to adjacent materials caused by glazing installation.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 06 08 99 – Rough Carpentry for Minor Works
- .2 Section 07 27 00 – Air Barrier
- .3 Section 07 27 10 - Modified Bituminous Sheet Air Barrier.
- .4 Section 07 62 00 - Sheet Metal Flashing and Trim.
- .5 Section 07 92 00 - Joint Sealing.

1.2 REFERENCES

- .1 The Aluminum Association Inc. (AAI)
 - .1 AAI DAF-45-2003, Designation System for Aluminum Finishes - 9th Edition.
- .2 American National Standards Institute (ANSI)
 - .1 ANSI H35.1/H35.1M-06, Alloy and Temper Designation Systems for Aluminum.
- .3 American Society for Testing and Materials International (ASTM)
 - .1 ASTM B209-04, Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
 - .2 ASTM B221-05a, Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
 - .3 ASTM D523-89(1999), Standard Test Method for Specular Gloss.
- .4 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-1.213-2004, Etch Primer (Pre-treatment Coating of Tie Coat) for Steel and Aluminum.
 - .2 CAN2-93.1-M85, Sheet Aluminum Alloy, Prefinished, Residential.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop Drawings:
 - .1 Indicate fabrication and erection details, including anchorage, accessories, and finishes.
 - .2 Show frame detail, screening and finish.

- .4 Samples:
 - .1 Submit duplicate metal samples of manufacturer's standard colours and finish for selection by Departmental Representative

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Packing, shipping, handling and unloading:
 - .1 Deliver, store and handle in accordance with Section 01 61 00 - Common Product Requirements.
 - .2 Deliver, store and handle materials in accordance with manufacturer's written instructions.
 - .3 Deliver materials to the site in undamaged condition.
- .2 Storage and Protection:
 - .1 Store materials off ground and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Protect louvres from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.

Part 2 Products

2.1 GENERAL

- .1 Stationary stormproof and drainable extruded aluminum louvre, fully welded, continuous horizontal blade using concealed blade braces.
- .2 Weather resistant louvres, with insect screens made to withstand a wind load of not less than 1.44 kilopascals.
- .3 AMCA Performance: A 1220 mm x 1220 mm unit shall conform to the following: 57.0% free area.
- .4 Wind Driven Rain Performance: AMCA certified ratings program seal for air performance and water penetration in accordance with AMCA 500-L
- .5 Ratings to indicate water penetration of 0.06 kilograms or less per square meter of free area at free velocity of 244 meters per minute.

2.2 MATERIALS

- .1 Aluminum extrusions: ASTM B221, Alloy 6063- T5
- .2 Aluminum sheet: to ASTM B209 alloy 1100, 3003 or 5005 with temper as required for forming.
- .3 Primer: to CAN/CGSB-1.213 aluminum surfaces.
- .4 Blade and Frame: Minimum 2.06 mm wall thickness.
- .5 Frame depth 100 mm.

- .6 Prefinished aluminum sheet:
 - .1 Finish aluminum sheet metal with factory applied coating to CAN2-93.1 amended as follows:
 - .1 Class F2S.
 - .2 Colour selected by the Departmental Representative from manufacturer's standard range.
 - .3 Specular gloss: 30 units +/-5 to ASTM D523.
 - .4 Coating thickness: not less than 200micrometres.
 - .5 Outdoor exposure period 20 years.
 - .6 Resistance to accelerated weathering for chalk rating of 8, colour fade 5 units or less and erosion rate less than 20 % to ASTM D822 as follows:
 - .1 Outdoor exposure period 5000 hours minimum.
 - .2 Humidity resistance exposure period 5000 hours minimum.
- .7 Screens:
 - .1 Bird and Insect Screens: Removable, extruded aluminum frame; 12.7 mm square; 1.60 mm aluminum.

2.2 FABRICATION

- .1 Material: Heads, sills, jambs and mullions to be one-piece structural aluminum members with integral caulking slot and retaining beads.
- .2 Construct louvres from aluminum extrusions of minimum 3 mm thickness to sizes and shapes indicated.
- .3 Blades to be one-piece aluminum extrusions with front lip gutter designed to catch and direct water to sill.
- .4 Louvers to be supplied with sill flashings formed from minimum 26 gauge aluminum to profiles indicated.
 - .1 Sill flashings to have welded side panels.
 - .2 Louvers and sill flashings to be installed in accordance with the manufacturer's recommended procedures to ensure complete water integrity performance of the louver system.
- .5 Louvers to be mechanically assembled using stainless steel or aluminum fasteners.
- .6 Include supports, anchorage, and accessories required for complete assembly.
- .7 Louvres shall be supplied with a continuous fully air and water sealed flanged frame including at corners.

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

- .1 Install louvres where indicated.
- .2 Attach screen to inside face of louver or vent.
- .3 Repair damage to louvres to match original finish.
- .4 Install wall louvers using stops, mouldings, flanges, strap anchors, jamb fasteners as appropriate for wall construction and in accordance with manufacturer's recommendations.

3.3 CLEANING

- .1 Proceed in accordance with Section 01 74 11 - Cleaning.
- .2 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

3.4 PROTECTION

- .1 Where aluminum contacts metal other than zinc, paint dissimilar metal with primer and two coats of aluminum paint.
- .2 Paint metal in contact with mortar, concrete, or other masonry materials with alkali-resistant coatings such as heavy-bodied bituminous paint.

END OF SECTION