PART 1 GENERAL

1.1 RELATED SECTIONS

.1 Division 1.

.2 Section 08 71 00 – Door Hardware.

.3 Section 08 80 50 - Glazing

1.2 REFERENCES

.1 American Society for Testing and Materials (ASTM International)
- .1 ASTM A 653/A 653M-05a, 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 CSA W59-2003), Welded Steel Construction (Metal Arc Welding) (Metric Version).

.3 Canadian Steel Door Manufacturers' Association, (CSDMA)
- .1 CSDMA, Specifications for Commercial Steel Doors and Frames, 2009.
- .2 CSDMA, Recommended Selection and Usage Guide for Commercial Steel Doors, 2009.

.4 National Fire Protection Association (NFPA)
- .1 NFPA 80-99, Standard for Fire Doors and Fire Windows.

.5 Underwriters' Laboratories of Canada (ULC).
- .1 CAN4-S104-80(R1985), Fire Tests of Door Assemblies.
- .2 CAN4-S106-M80, Standard Method for Fire Tests of Window and Glass Block Assemblies.

1.3 CODE REQUIREMENTS

.1 Steel fire rated doors and frames: labeled and listed by an organization accredited by Standards Council of Canada in conformance with CAN4-S104M for ratings specified or indicated.

.2 Test products in strict conformance with CAN4-S104, ASTM E 152 or NFPA 252 and list by nationally recognized agency having factory inspection service and construct as detailed in Follow-Up Service Procedures/Factory Inspection Manuals issued by listing agency to individual manufacturers.

1.4 SUBMITTALS

.1 Submit in accordance with Division 1.

.2 Submit Shop Drawings:
- .1 Indicate each type of door, material, steel core thicknesses, mortises, reinforcements, location of exposed fasteners and finishes.
- .2 Indicate each type of frame material, core thickness, reinforcements and finishes.
- .3 Include schedule identifying each unit, with door marks and numbers related to numbering on drawings and door schedule.

PART 2 PRODUCTS

2.1 MATERIALS

.1 Hot dipped galvanized steel sheet: to ASTM A 653M, ZF75, minimum base steel thickness in accordance with CSDMA Table 1 – Thickness for Component Parts, minimum 25% recycled content.

.2 Reinforcement: to CSA G40.20/G40.21, Type 44W, coating designation to ASTM A 653M, ZF75.

2.2 DOOR CORE MATERIALS

.1 Interior and Exterior Doors: Polystyrene, fire retardant rigid extruded closed cell board. RSI 1.0 (R6.0) minimum.

.2 Fire Rated Interior Doors: Fibreglass, loose batt type, 24kg/m³density minimum, to ASTM C553 or ASTM C592

2.3 FINISHES

.1 Touch-up prime CAN/CGSB-1.181.

.2 Paint steel doors and frames to be painted by Division 9. Provide final finish free of scratches or other blemishes.

2.4 ACCESSORIES

.1 Door silencers: Single stud rubber/neoprene type.

.2 Metallic paste filler: to manufacturer's standard.

.3 Fire labels: metal riveted or embossed.

.4 Exterior Top Caps: Rigid PVC insulation to CGSB 41-GP-19MA.

.5 Frame Thermal Breaks: Rigid PVC extrusion to CGSB 41-GP-19MA.

.6 Glazing Kit: Type to accept specified glazing.

2.5 FRAME FABRICATION AND CONSTRUCTION

.1 Fabricate frames in accordance with CSDMA specifications.

.2 Fabricate frames to profiles and maximum face sizes as indicated.

.3 Interior Frames: 1.6mm welded type construction.

.4 Exterior Frames: 1.6mm welded type construction complete with PVC thermal break.

.5 Blank, reinforce, drill and tap frames for mortised, templated hardware, using templates provided by finish hardware supplier. Reinforce frames for surface mounted hardware.

.6 Prepare frame for door silencers, 3 for single door, 2 at head for double door.

.7 Conceal fastenings except where exposed fastenings are indicated.

.8 Fabricate glazing stops as formed channel, minimum 16 mm height, accurately fitted, butted at corners and fastened to frame sections with counter-sunk oval head sheet metal screws.

.9 Make provisions for glazing as indicated and provide necessary glazing stops.

.1 Provide removable glazing beads for use with glazing tapes and compounds and secured with countersunk screws.

.2 Design glazing stops to be tamperproof.

.10 Provide appropriate anchorage to suit 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 Securely attach floor anchors to inside of each jamb profile.

.11 Do welding in accordance with CSA W59.

.12 Accurately mitre or mechanically joint frame product and securely weld on inside of profile.

.13 Grind welded joints and corners to a flat plane, fill with metallic paste and sand to uniform smooth finish.

.14 Weld in 2 temporary jamb spreaders per frame to maintain proper alignment during shipment.

2.6 DOOR FABRICATION AND CONSTRUCTION

.1 Doors: Swing type, flush.

.2 Interior Doors: CSDMA Medium Duty Laminated Classification, honeycomb core. Form each face sheet for interior doors from 1.2mm sheet steel. Supply heavier gauge face sheets for fire rated doors if required to meet fire rating.

.3 Exterior Doors: CSDMA Heavy Duty Laminated Classification, of 1.6mm (16 gauge) sheet steel. Provide with PVC top cap.

.4 Fire Rated Doors: CSDMA Heavy Duty Classification, fibreglass insulation core, face sheets formed of 1.6mm (16 gauge) sheet steel.

.5 Fabricate doors with longitudinal edges locked seamed, adhesive assisted. Seams: visible.

.6 Blank, reinforce, drill doors and tap for mortised, templated hardware.

.7 Reinforce doors where required, for surface mounted hardware.

.8 Provide fire labeled doors for those openings requiring fire protection ratings, as scheduled. Test such products in strict conformance with CAN4-S104, ASTM E 152 or NFPA 252 and list by nationally recognized agency having factory inspection service and construct as detailed in Follow-Up Service Procedures/Factory Inspection Manuals issued by listing agency to individual manufacturers.

.9 Manufacturer's nameplates on doors are not permitted.

PART 3 EXECUTION

3.1 GENERAL INSTALLATION

.1 Install doors and frames to CSDFMA Installation Guide.

.2 Install labeled steel fire rated doors and frames to NFPA 80 except where specified otherwise.

3.2 FRAME INSTALLATION

.1 Set frames plumb, square, level and at correct elevation.

.2 Secure anchorages and connections to adjacent construction.

.3 Brace frames rigidly in position while building-in. Install temporary horizontal wood spreader at third points of door opening to maintain frame width. Provide vertical support at centre of head for openings over 1200 mm wide. Remove temporary spreaders after frames are built-in.

.4 Make allowances for deflection of structure to ensure structural loads are not transmitted to frames.

.5 Caulk perimeter of frames between frame and adjacent material.

.6 Install glazing where scheduled.

3.3 DOOR INSTALLATION

.1 Install doors and hardware in accordance with hardware templates and manufacturer's instructions and Section 08 71 00.

.2 Provide even margins between doors and jambs and doors and thresholds as follows.

.1 Hinge side: 1.0mm.

.2 Latchside and head: 1.5mm

.3 Thresholds: 6mm

.3 Adjust operable parts for correct function.

.4 Install glazing where scheduled.

3.4 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.

END OF SECTION

PART 1 - GENERAL

1.1 NOTICE

.1 This section is for replacement sash frames and infill panels to be retrofitted to existing Marvin windows that exist in the building. Products supplied by other manufacturers shall be compatible with the existing Marvin window system.

1.2 RELATED SECTIONS

.1 Division 1

.2 Section 06 10 00 - Rough Carpentry

.3 Section 06 20 00 - Finish Carpentry

.4 Section 07 92 00 – Joint Sealing

1.3 REFERENCE

.1 American Society for Testing and Materials (ASTM):

.2 E 283: Standard Test Method for Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors.
.3 E 330: Standard Test Method for Structural Performance of Exterior Windows, Curtains Walls, and Doors by Uniform Static Air Pressure Difference.
.4 E 547: Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Cyclic Static Air Pressure Differential.
.5 E 774: Specification for Sealed Insulated Glass Units.
.6 C 1036: Standard Specification for Flat Glass.

.2 WDMA I.S.4: Industry Standard for Water Repellent Preservative Treatment for Millwork.

.3 AAMA/WDMA/CSA 101/I.S.2/A440-05, Standard /Specification for Windows, Doors and Unit Skylights.

.4 Window and Door Manufacturers Association (WMDA): 101 / I.S.2 WDMA Hallmark Certification Program.

.5 Sealed Insulating Glass Manufacturers Association / Insulating Glass Certification Council (SIGMA / IGCC).

.6 American Architectural Manufacturers Association (AAMA): 2605: Voluntary Specification for High Performance Organic Coatings on Architectural Extrusions and Panels.

.7 National Fenestration Rating Council (NFRC): 101: Procedure for Determining Fenestration Product Thermal Properties.

1.5 SUBMITTALS

.1 Shop Drawings: Submit shop drawings under provisions of Division 1.

.2 Product Data: Submit catalog data under provisions of Division 1.

.3 Samples:
- .1 Submit corner section under provisions of Section Division 1.
- .2 Include glazing system, quality of construction, and specified finish.

.4 Quality Control Submittals: Certificates: Submit manufacture's certifications indicating compliance with specified performance and design requirements under provisions of Division 1.

1.6 DELIVERY

.1 Comply with provisions of Division 1.

.2 Deliver in original packaging and protect from weather.

1.7 STORAGE AND HANDLING

.1 Prime or seal wood surfaces, including surface to be concealed by wall construction, if more than thirty (30) days will expire between delivery and installation.

.2 Store window units in an upright position in a clean and dry storage area above ground and protect from weather under provisions of Division 1.

1.8 WARRANTY

.1 Units shall be warranted to be free from defects in manufacturing, materials, and workmanship for a period of ten (10) years from purchase date.

PART 2 - PRODUCTS

2.1 SASH FRAME

.1 Finger jointed pine. Kiln dried to a moisture content no greater than twelve (12) percent at the time of fabrication. Water repellent preservative treated in accordance with WDMA I.S.4.

.2 Composite sash thickness: 48 mm for stationary units. Corners slot and tenoned.

.3 Sash exterior: extruded aluminum clad 0.045 inch (1.1 mm) material thickness to match existing frame profile.

.4 Infill panel shall be factory sealed into sash frame.

.5 Sash frame and infill panel shall be factory painted.

2.2 INFILL PANEL

.1 Purpose made paint grade exterior grade manufactured solid composite sheet composed of wood, phenolic resins, zinc borate, wax, and other ingredients. 19mm thickness, 10 year warranty, Class C fire rated.

2.3 FINISH

.1 Interior wood: factory applied water based acrylic paint over compatible primer.
1. Color : White.

.2 Exterior: Fluoropolymer modified acrylic topcoat applied over fluoropolymer primer. Meets or exceeds AAMA 2605 requirements.
1. Color: Match existing Marvin "Gunmetal" gray.

2.4 WEATHER STRIPPING

1. Continuous, bulb weather strip at perimeter of sash, concealed slotted bulb weather strip on exterior of sash, pile weather strip on interior of blind stop, dual durometer bulb weather strip at bottom rail.

2.5 ACCESSORIES

.1 Installation Accessories: Installation brackets to be factory supplied for wood applications. Galvanized finish.

.2 Low Expansion Foam Insulation: Low flame spread, single component polyurethane foam sealant.

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Verification of Conditions: Verify opening sizes prior to shop drawing preparation. Remove and reinstall trims on 4 windows as required to check rough opening conditions. Rough opening sizes indicated on drawings are for pricing only. Allow in tender price for increases or decreases in frame sizes by 50mm in each dimension at no additional charge.

.1 Acceptance of Conditions: Beginning of installation confirms acceptance of existing conditions.

3.2 INSTALLATION

.1 Carefully remove existing sash frames. Assemble and install new sash frames and infill panels according to manufacturer's instructions and reviewed shop drawings.

.2 Cut factory applied sill, jamb, and head trims to suit site conditions.

.3 Install sealant and related backing materials at perimeter of unit or assembly in accordance with Division 7.

.4 Install accessory items as required.

.5 Fill gaps with low expansion foam.

3.3 CLEANING

.1 Remove visible labels and adhesive residue from glass according to manufacturer's instructions.

.2 Leave windows and glass in a clean condition. Perform final cleaning prior to substantial completion review.

3.4 PROTECTING INSTALLED CONSTRUCTION

.1 Comply with Division 1.

.2 Protect windows from damage by chemicals, solvents, paint, or other construction operations that may cause damage.

END OF SECTION

Part 1 General

1.1 GENERAL REQUIREMENTS

.1 Comply with requirements of Division 1.

.2 Furnish and delivery of all finish hardware necessary for all doors. Also hardware as specified herein and as enumerated in "Set Numbers" and as indicated and requested by actual conditions of the building. The hardware shall include the furnishing of all necessary screws, special screws, bolts, special bolts, expansion shields, drop plates and all other devices necessary for the proper installation of the hardware.

.3 The Engineer-Architect approval of the schedule will not be construed as certifying that the list is complete. Acceptance of the Hardware Schedule does not relieve the supplier of responsibility of errors or omissions.

.4 Hardware should not be ordered unless a corrected copy of the shop drawings is reviewed and returned from the specification writer and bearing the approval of the Engineer-Architect.

.5 Aluminum Door hardware is to be ordered immediately after approval of shop drawings and shipped directly to the Aluminum Door supplier.

.6 Furnish, deliver and install all finish hardware necessary for all doors, also hardware as specified herein and as enumerated in hardware group indicated by actual conditions at the project site.

1.2 RELATED SECTIONS

.1 08 11 13 – Steel Doors and Frames

1.3 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 A156.6-2005, Architectural Door Trim.
- .7 ANSI/BHMA A156.8-2005, Door Controls - Overhead Holders.
- .8 ANSI/BHMA A156.18-2006, Materials and Finishes.

.2 Canadian Standards Association (CSA)

- .1 CAN/CSA-B651-04.Accessible Design for the Built Environment.

.3 Canadian Steel Door Manufacturer's Association (CSDMA).

.1 Standard Hardware Locations in Accordance with the Canadian Steel Door and Frame Association Guidelines.

.4 National Fire Protection Agency (NFPA)

.1 NBC - National Building Code – Latest Edition
.2 NFPA-80 - Standard for Fire Doors and Windows – Latest Edition
.3 NFPA101 - Life Safety Code – Latest Edition
.4 NFPA-105 - Smoke and Draft Control – Latest Edition

1.4 ABBREVIATIONS

.1 The following abbreviations are applicable to this section:

.1	AHC	Architectural Hardware Consultant
.2	ALD ALF	Aluminum Door and Frame
.3	ATMS/STMS	Arm/Strike to Template with Machine Screws
.4	BB or FBB	Ball Bearing Hinges
.5	BC	Back Check
.6	BTB	Back to Back
.7	B3E or B4E	Bevel 3 or 4 sides
.8	C to C, C/L	Centerline to Centerline
.9	CDC	Certified Door Consultant
.10	CMK	Construction Masterkeyed
.11	CSC	Construction Specifications Canada
.12	CSK	Countersunk Screw Holes.
.13	Cyl.	Cylinder of a lock
.14	Deg.	Degree of opening
.15	DEL	Delay Action
.16	DHI	Door and Hardware Institute
.17	DR	Door
.18	FC	Full Cover
.19	FS	Fail Safe
.20	FSE	Fail Secure
.21	FTMS	Full template machine screws
.22	½ TMS	Half template machine screws
.23	GMK	Grand Masterkeyed
.24	KA/KD	Keyed Alike, Keyed Different
.25	HMD/PSF	Hollow Metal Door, Pressed Steel Frame
.26	LH/RH	Left Hand, Right Hand
.27	LHR/RHR	Left Hand Reverse, Right Hand Reverse
.28	MK or MKD	Master Keyed
.29	NBC	National Building Code
.30	NRP	Non removable pin
.31	TB/SB	Thru Bolts, Sex Bolts

.32	TJ	Top Jamb
.33	ULC	Underwriters Laboratories Canada
.34	WD	Wood Door

1.5 SUBMITTALS

.1 Product Data:

.1 Submit manufacturer's printed product literature, specifications and data sheets in accordance with Division 1.

.2 Samples:

.1 Upon Engineer-Architect 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 Engineer-Architect.

.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.

.5 Wiring Diagrams will only be supplied after the final approval of the Hardware Schedule. Submit wiring diagrams as requested for proper installation of electrical, electrical-mechanical and electrical-magnetic products.

.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.

.6 Provide guarantee.

.1	Closers	10 year
.2	Mortise Locks	10 year mechanical / 2 year electrical
.3	Electronic Closer	2 year
.4	Exit Device	3 years
.5	Hinges	Lifetime of Building
.6	All other Hardware	1 year

1.6 QUALITY ASSURANCE

.1 Regulatory Requirements: hardware for doors in fire separations and exit doors certified by a Canadian Certification Organization accredited by Standards Council of Canada.

.2 Meet requirements of National Building Code of Canada and other applicable regulations.

.3 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.

.4 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

.5 Pre-installation Meetings: conduct pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements.

.6 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.

1.7 PRODUCT DELIVERY, HANDLING & STORAGE

.1 Packing, Shipping, Handling and Unloading:

- .1 Deliver, store, handle and protect materials in accordance with Division 1.
- .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 Hardware for Aluminum Doors to be shipped directly to the Aluminum Door supplier. Hardware for Aluminum Doors will be ordered immediately after approval of shop drawings. Delays in ordering the Aluminum Door hardware will not be accepted.
- .5 Shortages will not delay installation.
- .6 Items damaged in shipment will be replaced properly with proper material.
- .7 All Hardware shall be handled in a manner to avoid damage, marking and scratching.
- .8 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.

1.8 WASTE DISPOSAL AND MANAGEMENT

.1 Separate and recycle waste materials in accordance with Division 1.

.2 Collect and separate metal, plastic, paper packing and corrugated cardboard and deposit in appropriate on site recycling bins.

.3 Dispose of corrugated cardboard, plastic packaging material in appropriate on-site bin for recycling in accordance with site waste management program.

1.9 MAINTENANCE

.1 Provide maintenance materials in accordance with Division 1.

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

.3 After the building is occupied, arrange for an appointment with the owner to instruct them of proper use, service, adjusting and maintenance of the hardware furnished in this section.

.4 Extra Material if required.

1.10 INSPECTION

.1 The hardware supplier shall arrange at least four visits to the job site.

.1 Visit project at time of delivery of hardware and inspect the personnel who will be looking after the installation and issuing of hardware at the job site. Delivered hardware to be received, sorted and itemized at the jobsite with contractor.

.2 Second visit will be required for key meeting with the owner/representative at a location at their request.

.3 Third visit will take place when about sixty percent of hardware is installed.

.4 Check all hardware on site and correct any errors or shortages. Co-ordinate with contractor to determine proper time for visit.

.5 Fourth visit shall take place just prior to building turnover. All hardware shall be checked for proper installation and adjustment. Any errors shall be corrected and adjustments made. Check the key system and furnish a report along with maintenance manuals detailing any errors found.

.6 Cost of this service will be included as part of this Section and is not covered by any allowance amount.

Part 2 Products

2.1 HARDWARE ITEMS

.1 Use one manufacturer’s products only for all similar items.

2.2 DOOR HARDWARE

.1 All fasteners to come complete with the hardware as described. 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.

.3 Hinges Butts and hinges: to ANSI/BMHA A156.1, as listed in Hardware Schedule.

.1 Non removable pins (NRP) for all exterior and out swinging secure doors.

.2 Exterior hinges and hinges in wet areas of stainless steel, brass or bronze.

.3 Interior hinges of plated steel, unless otherwise noted.

.4 Size and quantity to be as the manufacturers hinge selection guide.

.5 Unless otherwise scheduled, supply (1) hinge for every 762mm of door height.

.6 The width of hinges shall be sufficient to clear all trim.

.7 All hinges to be five-knuckle design and ball bearing.

.8 Finish to Dull Chrome 26D.

.4 Bored locks and Preassembled Locks and Latches:

.1 Locks must be certified ANSI/BHMA A156.2 -2003, Series 4000, Grade 2 and shall meet or exceed 2-1/2 times the cycle requirements of ANSI/BHMA A156.2 Series 4000, Grade 2 with all standard trims.

.2 Locks shall be non-handed with bi-directional lever operation, except the "G" and "Y" lever designs.

.3 Lock levers shall be made of solid material.

.4 Lock shall be available in a minimum of five lever designs.

.5 Locks shall comply with UL10C and UBC.

.6 Locks required for fire doors shall be listed by Underwriters Laboratories for ratings of 3 hour (A label) and less.

.7 Locks shall mount in a standard 161 door prep (2-1/8 inch dia.) without additional through-bolt preps.

.8 Locks shall have a 2-3/4 inch (70mm) backset standard, with 2-3/8 inch (60mm) offered as an option.

.9 Strikes shall be non-handed with a curved lip. Provide wrought boxes with strikes.

.10 Locks shall have brass 6-pin cylinder, standard.

.11 Provide two, nickel silver keys with each lock.

.12 Finished to 26D.

.5 Exit Devices: to ANSI/BMHA A156.3, Grade 1.

.1 Modern touch pad type, fabricated of brass, bronze, stainless steel or aluminum.

.2 UL listed for Accident Hazard or Fire Exit Hardware as required.

.3 Hex key dogging standard on non fire-rated exit devices. Cylinder dogging where specified.

.4 Exit devices shall be UL listed panic exit hardware. All exit devices for fire rated openings shall be ULC labeled fire exit hardware.

.5 Include all electrified functions as specified.

.6 Device Length as per manufacturer's guidelines.

.7 The design of the exit device shall eliminate the necessity of removing the device from the door for standard maintenance or keying changes.

.8 Trim as specified shall be through-bolted.

.9 All vertical rod in pairs to be less bottom rod where noted.

.10 Extension rods are required as per manufacturer's requirements.

.11 Electronic exit devices to have Linx quick connectors (QC).

.12 Exit devices to suite doors over 45mm where required.

.6 Door controls - closers: to ANSI/BMHA A156.4 as listed in Hardware Schedule.

.1 Modern type, surface applied.

.2 All closers for both interior and exterior doors shall be the product of one manufacturer and be matched in style.

.3 Surface closers shall be adjustable to provide sizes 1 through 6 and comply with ADA.

.4 Full rack and pinion construction.

.5 Closing speed, latching speed and backcheck shall be controlled by key operated valves.

.6 Captivated valves.

.7 Delayed action feature shall be available and controlled by a separate valve.

.8 Delayed action shall be available in addition to, not in lieu of, backcheck.

.9 The one piece closer body shall be of die cast aluminum alloy with 14% silicon minimum content. An increase of 15% in closing power shall be provided by means of adjustment of the arm leverage at the foot connection. (Standard Arm).

.10 All arms shall be finely finished with heavy duty forged steel main arm.

.11 Two mounting positions of the closer shall meet all requirements. Standard mountings shall provide 120° door opening and alternate mounting 180° door opening.

.12 All closers shall be suitable for standard, top jamb, parallel arm and track type applications when provided with proper brackets and arms.

.13 Closer covers shall be of high impact plastic material of flame retardant grade.

.14 Secured by machine screws.

.15 Spring power shall be continuously adjustable over the full range of closer sizes and allow for reduced opening force for the physically handicapped. Hydraulic regulation shall be tamper proof, non-critical valves. Closers shall have separate adjustment for latch speed, general speed and backcheck.

.16 All closer to have a forged steel main arm and forged forearm for parallel arm closers.

.17 Finish to Aluminum 689.

.7 Door controls - overhead stop: to ANSI/BMHA A156.8, heavy duty construction, BHMA Grade 1 Certified, heavy duty architectural bronze construction.

.1 UL Classified: The 590 and 690 stops are UL 10B and UL 10C classified as miscellaneous fire door accessories.

.2 Corrosion resistance: Brass construction provides corrosion resistance in a variety of conditions.

.3 Holder Selector: 590 and 690 series holders are equipped with a turn knob to activate and deactivate the hold open function

.4 Thru bolts capture channel and end caps.

.5 Heavy duty shock spring absorbs load and gradually stops door.

.6 Blade shim required for all Aluminum Doors.

.7 Sized as per manufacturer's guidelines. Take into account other hardware mounted on doors.

.8 Finishes

.1 Exterior to stainless steel, 26D.

.2 Interior to steel sprayed finish, EN.

.8 Door Stops and Holders and Auxiliary hardware: to ANSI/BMHA A156.16 designated by letter L and numeral identifiers as listed in Hardware Schedule finished to 26D.

.1 Floor stops dome style classification. Low dome or High dome. Die cast brass. Stops to be sized according to door clearances, thresholds or undercuts as noted in the Door Schedule. Fasteners to suite floor conditions.

.2 Wall stops classification, convex or concave, cast brass or bronze. Fasteners to suite wall conditions.

.9 Thresholds and Weatherstripping Thresholds: to ANSI/BMHA A156.21.

.1 Saddle threshold 125mm wide x full width of door opening, 12mm height, barrier free type, extruded aluminum mill finish, serrated surface, with thermal break of rigid PVC.

.10 Door Gasketing and Edge Seal Systems: to ANSI/BMHA A156.22.

.1 Head and Jamb seal:

.1 Extruded aluminum frame and neoprene insert, clear anodized finish.

.2 Surface overhead stops and exit device strikes to mount on top of weatherstrip to provide continuous seal.

.3 Adhesive backed black to provide smoke, light and sound control. Fire labeled 1 1/2hrs.

.2 Door 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.

.3 Astragal:

.1 Flat overlapping extruded aluminum by door height with pile insert.

.2 Meeting astragal extruded aluminum frame with brush insert by each door by door height, 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 FINISHES

.1

Description	Material	BMHA
.2 Exterior Hinges	Stainless Steel Metal, Satin	630
.3 Interior Hinges	Satin Chromium Plated	626
.4 Locks	Stainless Steel Metal, Satin	630
.5 Exit Devices	Satin Chromium Plated	626
.6 Closers	Aluminum Powder Coated	689
.7 Flatware	Stainless Steel Metal, Satin	630
.8 All other items	Satin Chromium Plated	626

2.5 KEYING

.1 All locks to be master keyed to the existing Primus Master Key System by Capital Safe and Lock, Fredericton. All locks to be master keyed as per the owners instructions.

.2 Consult with the Departmental Representative and secure written approval of the complete keying layout prior to placing lock order with the factory.

.3 Grand masterkeys and masterkeys shall be sent directly to the Departmental Representative by registered mail, return receipt if requested.

.4 Supply:

1.	Masterkeys	2 per group
2.	Change Keys/Lock	2

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.

.4 Wiring Diagrams: Provide any special information, voltage requirements and wiring diagrams to other trades requiring such information.

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 Contractor; 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 manufacture'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 DEMONSTRATION

.1 Keying System Setup and Cabinet:

.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 Place file keys and duplicate keys in key cabinet on their respective hooks.

.2 Maintenance Staff Briefing:

.1 Brief maintenance staff regarding:

.2 Proper care, cleaning, and general maintenance of projects complete hardware.

.3 Description, use, handling, and storage of keys.

.4 Use, application and storage of wrenches for door closers, locksets and fire exit hardware.

.5 Demonstrate operation, operating components, adjustment features, and lubrication requirements.

3.6 FIELD QUALITY CONTROL

.1 An inspection report will be required 6 months after substantial completion by a qualified Architectural Hardware Consultant 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.

3.7 PROTECTION

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

3.8 CERTIFICATION

.1 After installation, Hardware Supplier is to have a regular member of the Architectural Hardware Consultants'' (AHC) Association inspect and certify in writing that all items and their installations are in accordance with specified requirements.

3.9 DOOR HARDWARE SETS

.1 The door hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.

.2 The supplier is responsible for handing and sizing all products as listed in the door hardware sets. Quantities listed are for each pair of doors, or for each single door.

.3 Products listed in the Door Hardware Sets must meet the requirements described in the specification sections noted.

3.10 HARDWARE SCHEDULE

Set: 1.0

Single 106 Exterior, 914 x 2134 x 45, Hollow Metal x Hollow Metal,

3	Hinge	114mm x 101mm NRP	US32D
1	Rim Exit Device, Exit Only		US32D
1	Door Closer		EN
1	Mounting Plate		EN
1	Threshold		
1	Gasketing	3 Sides	
1	Z Mounting Bracket	BKT050SP	
1	Sweep		

NOTES:
WEATHERSEAL NOT TO BE BROKEN. MOUNT HARDWARE TO THE SURFACE OF THE WEATHERSEAL. MOUNTING BRACKET TO BE USED TO SUPPORT CLOSER FOOT IF REQUIRED.

Set: 2.0

Single 103, 914 x 2134 x 45, Hollow Metal x Hollow Metal,
Single 104, 914 x 2134 x 45, Hollow Metal x Hollow Metal,
Single 105, 914 x 2134 x 45, Hollow Metal x Hollow Metal,
Single 112, 914 x 2134 x 45, Hollow Metal x Hollow Metal,

3	Hinge	114mm x 101mm	US26D
1	Cylindrical Classroom Lock	MLX87 SB (Capital Safe and Lock)	US26D
1	Primus Cylinder	40-500 CP1315 x Keyed x 2 Keys (Capital Safe and Lock)	626

1 Wall Stop US32D

1 Concealed Overhead Stop (Door 112 Only)

Set: 3.0

Single 111, 914 x 2134 x 45, Hollow Metal x Hollow Metal,

3	Hinge	114mm x 101mm	US26D
1	Cylindrical Passage Set	MLX01 SB (Capital Safe and Lock)	US26D
1	Concealed Overhead Stop		652

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

.1 Glazing for steel doors.

1.2 RELATED SECTIONS

.1 Division 1.

.2 08 11 13 – Steel Doors and Frames.

1.3 REFERENCES

.1 American National Standards Institute (ANSI).
- .1 ANSI/ASTM E330, Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.

.2 American Society for Testing and Materials (ASTM).
- .1 ASTM C542, Specification for Lock-Strip Gaskets.
- .2 ASTM D2240, Test Method for Rubber Property – Durometer Hardness.

.3 Canadian General Standards Board (CGSB).
- .1 CAN/CGSB-12.1, Tempered or Laminated Safety Glass.
- .2 CAN/CGSB-12.3, Clear Float Glass.
- .3 CAN/CGSB-12.8, Insulating Glass Units.

.4 Canadian Standards Association (CSA).
- .1 CSA A440.2, Energy Performance Evaluation of Windows and Sliding Glass Doors.
- .2 CSA Certification Program for Windows and Doors.

.5 Flat Glass Manufacturers Association (FGMA).
- .1 FGMA Glazing Manual.

.6 Laminators Safety Glass Association (LSGA).
- .1 LSGA Laminated Glass Design Guide.

.7 2010 National Building Code of Canada, latest edition and supplements.

1.4 SUBMITTALS

.1 Product Data:
- .1 Submit manufacturer's printed product literature, specifications, and data sheet for all glazing materials and glazing units. Provide continuous ventilation for seven days after completion of application of paint.
- .2 Submit glazing sealant product data.

.2 Glazing Schedule:
- .1 Submit glazing schedule to confirm locations of the various glazing unit types.

.3 Manufacturer’s Instructions:
- .1 Submit manufacturer’s installation instructions.

.4 Closeout Submittals:
- .1 Provide product data, warranty information, and maintenance data including cleaning instructions for incorporation into project manual.

1.5 QUALITY ASSURANCE

.1 Perform work in accordance with FGMA Glazing Manual, IGMAC, and Laminators Safety Glass Association – Standards Manual for glazing installation methods.

.2 Work under this section shall be performed by a qualified glazing contracting company with a minimum of 10 years of similar experience and with sufficient manpower to complete the work on schedule.

.3 All glazing units to be provided from one manufacturer.

1.6 ENVIRONMENTAL REQUIREMENTS

.1 Install glazing when ambient temperature is 10°C minimum or above.

.2 Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds. Protect sealants and tapes from water for same duration to allow proper bonding and curing.

PART 2 PRODUCTS

2.1 NON-RATED INTERIOR DOORS AND BORROWED LITES

.1 6 mm clear tempered safety glass to CAN/CGSB-12.1

2.2 ACCESSORIES

.1 Sealant: Low odor, low VOC, type recommended by manufacturer for glazing installations. Ensure compatibility with adjacent materials.

.2 Setting blocks: Neoprene, 80-90 Shore A durometer hardness to ASTM D2240, minimum 100 mm x width of glazing rabbet space minus 1.5 mm x height.

.3 Spacer shims: Neoprene, 50-60 Shore A durometer hardness to ASTM D2240, 75 mm long x one half height of glazing stop x thickness to suit application. Self-adhesive on one face.

.4 Glazing tape: Preformed butyl compound with integral resilient tube spacing device, 10-15 Shore A durometer hardness to ASTM D2240; coiled on release paper; black colour.

.5 Glazing splines: resilient polyvinyl chloride, extruded shape to suit glazing channel retaining slot, colour as selected.

.6 Glazing clips: manufacturer’s standard type.

.7 Lock-strip gaskets: to ASTM C542.

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 correct locations and sizes for the various glass units.

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

.3 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 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.

3.4 INSTALLATION

.1 Perform work in accordance with FGMA Glazing Manual and Laminators Safety Glass Association - Standards Manual for glazing installation methods.

.2 Cut glazing tape to length and set against permanent stops, 6 mm below sight line. Seal corners by butting tape and dabbing with sealant.

.3 Place setting blocks at 1/4 points, with edge block maximum 150 mm from corners.

.4 Rest glazing on setting blocks and push against tape and heel of sealant with sufficient pressure to attain full contact at perimeter of light or glass unit.

.5 Install removable stops with spacer strips inserted between glazing and applied stops 6 mm below sight line.

.6 Fill gap between glazing and stop with sealant to depth equal to bite of frame on glazing, maximum 9 mm below sight line.

.7 Apply cap head of sealant along void between stop and glazing, to uniform line, flush with sight line. Tool or wipe sealant surface smooth.

3.5 CLEANING

.1 Perform cleaning after installation to remove construction and accumulated environmental dirt

.2 Remove traces of primer and caulking.

.3 Remove glazing materials from finish surfaces.

.4 Remove labels after work is complete.

.5 Clean glass and using approved non-abrasive cleaner in accordance with manufacturer's instructions.

.6 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION