

## **PART 1 - GENERAL**

### **1.1 RELATED SECTIONS**

- .1 Section 07 21 13 – Board Insulation.
- .2 Section 07 92 00 - Joint Sealants.
- .3 Section 08 71 00 - Door Hardware
- .4 Section 09 91 23 – Interior Painting.

### **1.2 REFERENCES**

- .1 ASTM A 653/A 653M-04a, Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- .2 CAN/ULC-S701-05 - Thermal Insulation, Polystyrene, Boards and Pipe Covering.
- .3 CGSB 41-GP-19Ma-84, Rigid Vinyl Extrusions for Windows and Doors.
- .4 CSA G40.20-04/G40.21-04, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
- .5 CSA 0151-04 - Canadian Softwood Plywood. (CSDMA)
- .6 Canadian Steel Door Manufacturers Association (CSDMA), Recommended Dimensional Standards for Commercial Steel Doors and Frames, 2000.
- .7 Canadian Steel Door Manufacturers Association (CSDMA), Selection and Usage Guide for Steel Doors and Frames, 1990.

### **1.3 QUALITY ASSURANCE**

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

### **1.4 SUBMITTAL FOR REVIEW**

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
  - .2 Product Data: Indicate door and frame configuration and finishes, location of cut-outs for hardware reinforcement.
  - .3 Shop Drawings:
    - .1 Indicate frame elevations, frame section, reinforcement, anchor types and
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- spacing location of cut-outs for hardware and finish.
- .2 Indicate door elevations, internal reinforcement, closure method, and cut-outs for glazing and finishes.

### **1.5 DELIVERY, STORAGE AND HANDLING**

- .1 Perform in accordance with Section 01 61 00 - Deliver, store, protect and handle products to site.
- .2 Remove doors and frames from wrappings or covering upon receipt on site and inspect for damage.
- .3 Store in vertical position spaced with blocking to permit air circulation between components.
- .4 Store material under waterproof cover on pallets or plank platforms held off ground.
- .5 Clean and touch up scratches or disfigurement caused by shipping or handling with zinc rich primer.
- .6 Material not protected as noted will be subject to removal from site.
- .7 Material not protected as noted and installed will be subject to removal from site.

### **1.6 COORDINATION**

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

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURERS**

- .1 Acceptable Manufacturers:
  - .1 Fleming Door products
  - .2 Metal Door Limited
  - .3 Metallic Steel Doors and Frames
  - .4 Apex

### **2.2 MATERIALS**

- .1 Sheet Steel: Galvanized steel to ASTM A653/A653M, commercial grade (CS), Type B.
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- .1 Coating designation Z275 for exterior doors and frames.
- .2 Coating designation ZF001 for interior doors and frames.
- .2 Reinforcement Channel: To CAS G40.20/G40.21, Type 44W, coating designation to ASTM A653M, ZF75.

### **2.3 DOOR CORE MATERIALS**

- .1 Honeycomb Core: Structural small cell 25.4 mm maximum kraft paper honeycomb, sanded to required thickness.
- .2 Polystyrene Core: Rigid extruded fire retardant, closed cell board, density 16 to 32 kg/m<sup>3</sup>, thermal values RSI 1.0 minimum, Type 1, in accordance with CAN/ULC-S701.

### **2.4 ADHESIVES**

- .1 Cores and Steel Components: Manufacturer's standard VOC compliant adhesive. Total VOC content of adhesive less than or equal to 250 g/L, less water, when tested to ASTM D2369.
- .2 Lock SEam: Manufacturer's standard VOC compliant sealant. Total VOC content of sealant less than or equal to 250 g/L, less water, when tested to ASTM D2369.
- .3 Construction Adhesive: Low VOC polyurethane construction adhesive, resistant to freezing; VOC Limit: 70 g/l (0.58 lb/gal) when tested in accordance with USEPA Method 24 and ASTM D2369.

### **2.5 ACCESSORIES**

- .1 Expanding Foam Sealant: to Section 07 21 13, VOC complaint.
- .2 Joint Sealers: to Section 07 92 00, colour to match adjacent wall finish.
- .3 Door Silencers: Single stud rubber/neoprene.
- .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 85 00; Types as indicated.

### **2.6 FABRICATION DOORS**

- .1 Interior Doors: Laminated honeycomb core construction.
  - .1 Face sheet thickness: 18 gauge.
  - .2 Honeycomb Core: laminated under pressure to face sheets.

- .2 Exterior Doors; Polystyrene insulated and stiffened construction.
  - .1 Face sheet thickness: 16 gauge.
- .3 Longitudinal Edges: Mechanically interlocked, tack welded.
- .4 Mortised, blanked, reinforced, drilled and tapped for templates hardware, in accordance with templates provided by hardware supplier.
- .5 Reinforce for surface mounted hardware, anchor hinges, thrust pivots, pivot reinforced hinges, or non-templates hardware.
- .6 Top and Bottom Channels: All doors; Inverted channels (legs down), continuously welded, weathertight.
- .7 Provide factory-applied touch-up primer at areas where zinc coating has been removed during fabrication.

## **2.7 FABRICATION FRAMES**

- .1 Interior Frames; Face sheet thickness: w18 gauge
  - .1 Welded type construction.
- .2 Exterior Frames: Face sheet thickness 14 gauge.
  - .1 Welded type construction
  - .2 Thermally broken
- .3 Mortised, blanked, reinforced, drilled and tapped for templates hardware, in accordance with templates provided by hardware supplier.
- .4 Reinforce frames wider than 1200 mm with roll formed steel channels fitted tightly into frame head flush with top.
- .5 Prepare frames for silencers.
  - .1 Provide three single silencer for single doors and mullions of double doors on strike side.
  - .2 Provide two silencers on frame head at double doors without mullions.

## **2.8 FINISH**

- .1 Finish: Field painted in accordance with Section 09 91 23 – Interior Painting.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- .1 Verify that opening sizes and tolerance are acceptable; check floor area within path of door swing for flatness.
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- .2 Verify doors and frames are correct size, swing and opening number.
- .3 Remove temporary shipping spreaders.

### **3.2 INSTALLATION**

- .1 Install doors and frames to CSDMA.
  - .2 Coordinate with wall construction for anchor placement.
  - .3 Coordinate installation of glass and glazing.
  - .4 Coordinate installation of doors and frames with installation of hardware specified in Section 08 71 00.
  - .5 Set frames plumb, square, level and at correct elevation.
  - .6 Secure anchorages and connections to adjacent construction.
  - .7 Foam fill shim space at perimeter of frame and open back sections to maintain continuity of thermal envelope.
  - .8 Brace frames rigidly in position while building-in.
  - .9 Install wood spreaders at third points of frame rebate height to maintain frame width.
  - .10 Provide vertical support at centre of head for openings exceeding 120 mm in width.
  - .11 Remove wood spreaders after frames have been built-in.
  - .12 Make allowance for deflection to ensure structural loads are not transmitted to frame product.
  - .13 Install doors, and hardware in accordance with hardware templates and manufacturer's's instructions.
  - .14 Adjust operable parts for correct clearance and function.
  - .15 Install door silencers and glazing.
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- .16 Install roll formed steel reinforcement channels between two abutting frames.  
Anchor to structure and floor

### **3.3 GLAZING**

- .1 Maximum Diagonal Distortion: 3 mm measured with straight edges, crossed corner to corner.

## **PART 1 - GENERAL**

### **1.1 REFERENCES**

- .1 CAN/CSA-A440
- .2 CAN/CGSB-79-1-M91 Insect Screens.
- .3 CGSB 41-GP-19MA Standard for Rigid Vinyl Extrusions for Windows and Doors.

### **1.2 LABEL**

- .1 Windows to be labelled showing:
  - .1 Manufacturers name and window series.
- .2 CSA label
- .3 Lo E and argon gs content

### **1.3 WARRANTY**

- .1 The manufacturer shall warrant and guarantee the window and its assembled parts in accordance with the terms and conditions set out below.
    - .1 The insulated glass component of the window shall remain free from material obstruction of vision as a result of dust or film formation on the interior glass surface due to failure of the seal for a period of ten years from the date of purchase.
    - .2 All component mechanical parts/hardware of the window shall be free of manufacturing defects which result in failure of the part to operate properly for a period of five years from the date of purchase.
    - .3 All glazing shall remain free of stress cracks resulting from manufacturing defects for a period of one year from the date of purchase.
  - .2 In the event that the defects become evident within one year of the date of purchase, the manufacturer shall supply all labor and material necessary to effect the complete repair or replacement to the satisfaction and at no cost to the Owner. Where applicable, subsequent to the one year period, the manufacturer shall supply, at no cost to the Owner, the necessary replacement parts required to repair the window as a complete unit.
  - .3 This warranty is void under the following circumstances.
    - .1 Faulty installation of the window because of failure to follow the manufacturers installation instructions.
    - .2 Abuse or misuse including painting or using volvents that would damage vinyl members.
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- .3 Damage caused by the impact of external objects.

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS**

- .1 Rigid vinyl frame extrusion: to 41-GP-19Ma
  - .1 Width of frame extrusion excluding snap-in accessories or integrated return to be a minimum of 70mm.
  - .2 Accessories:
    - .1 Snap-in or integrated brick mould with nailing flange large profile.
    - .2 18mm return.
  - .3 Balances: Balances to be adjusted at factory.
  - .4 Glazing: LoE, argon gas minimum 15mm insulated glass unit, with warm edge spacer. Glazing unit to be IGMAC certified, labelled to verify LoE glass and argon gas content.
  - .5 Sealant: to be silicone for exterior use.

### **2.2 WINDOW TYPE**

- .1 Type of windows:
  - .1 Solid Vinyl with uniweld construction.
  - .2 Minimum classification rating:
    - .1 Air tightness: A3
    - .2 Water tightness: B3
    - .3 Wind load resistance: C3
  - .3 Windows to be equalivant to or better than:
    - .1 Peter Kohler Supreme
    - .2 Atlantic Signature High Performance
    - .3 Acan 450 or 495 Series

### **2.3 FABRICATION**

- .1 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.
  - .2 Brace frames to maintain squareness and rigidity during shipment and installation.
  - .3 Reinforcement:
    - .1 Reinforce hardware screw channel
    - .2 Reinforce centre meeting rail with metal for dry glazing.
    - .3 Reinforce combination windows mulled together.
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## **PART 3 - EXECUTION**

### **3.1 WINDOW INSTALLATION**

- .1 Install in accordance with window manufacturer's instructions, CAN/CSC-A440, as:
  - .1 Install windows plumb, level and square. Shim sill to level as follows:
    - .1 At vertical elevation, shim jamb at top, bottom and at meeting mullion of window, on both sides.
    - .2 Shim sill directly under the vertical jambs and at centre.
    - .3 Do not shim top of window.
  - .2 Attach window to building as instructed by engineer or as shown on drawings.
    - .1 With nailing flange
    - .2 If using screws do not over torque.
    - .3 Do not use staples.
  - .3 Loosely insulate with batt type insulation.
  - .4 Supply and install all necessary trim, sills, fittings and flashings.

### **3.2 CAULKING**

- .1 Ensure joint surface are clean, dry and frost free.
- .2 Apply caulking to back of brick moulding where it will make contact with building. Use sufficient pressure to fill voids and joints.
- .3 Apply caulking in continuous beads.
- .4 Apply caulking using gun with proper size nozzle.
- .5 Form surface of caulking with full bead, smooth, free from rides, wrinkles, sags, air pockets or embedded impurities. Neatly tool joint surfaces slightly concave.
- .6 Clean adjacent surfaces immediately and leave work neat and clean. Remove excess caulking and droppings using recommended methods and materials.

### **3.3 REINSTATEMENT AND CLEANING**

- .1 After installation of windows, reinstate or install trim.
- .2 Leave site clean and dispose of rubbish off site daily.
- .3 Remove all labels from windows and clean interior and exterior surfaces including glass by washing with water and detergent, followed by clean water rinse.

## **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 Departmental Representative 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 Departmental Representative.
- .5 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 REFERENCES**

- .1 American National Standards Institute (ANSI) A117-1 Specification.
  - .1 ANSI/BHMA A156.1-2006, Butts and Hinges.
  - .2 ANSI/BHMA A156.26-2006, Continuous Hinges.
  - .3 ANSI/BHMA A156.13-2005, Mortise Locks and Latches Series 1000.
  - .4 ANSI/BHMA A156.3-2001, Exit Devices.
  - .5 ANSI/BHMA A156.4-2000, Door Controls (Closers).
  - .6 ANSI/BHMA A156.5-2001, Auxiliary Locks and Associated Products.
  - .7 ANSI/BHMA A156.6-2005, Departmental Representative Door Trim.
  - .8 ANSI/BHMA A156.7-2003, Template Hinge Dimensions.
  - .9 ANSI/BHMA A156.8-2005, Door Controls - Overhead Holders.
  - .10 ANSI/BHMA A156.15-2006, Closer/Holder Release Device.
  - .11 ANSI/BHMA A1456-16-2002, Auxiliary Hardware.
  - .12 ANSI/BHMA A156-18-2006, Materials and Finishes.
  - .13 ANSI/BHMA A156.21-2006, American National Standards for Thresholds.
  - .14 ANSI/BHMA A156.22-2005, Door Gasketting and Edge Seal Systems.
  - .15 ANSI/BHMA A156-24-2003, Delayed Egress Locks.
  - .16 ANSI/BHMA A156.29-2001, American National Standards for Exit

- Locks, Exit Locks with Alarms, Exit Alarms, Alarms for Exits.
- .17 ANSI/BHMA A156.30-2003, American National Standards for High Security Cylinders. Standards Canadian STandards Association (CSA).
- .18 CAN/CSA-B651-04. Accessible Design for the Built Environment.
- .2 Canadian Steel Door and Frame Manufacturers' Association (CSDMA)
  - .1 Standard Hardware Locations in Accordance with the Canadian Steel Door and Frame Association Guidelines.
  - .2 Recommended locations for Departmental Representative Hardware for Wood Flush Doors.

### **1.3 ABBREVIATIONS**

- .1 The following abbreviations are applicable to this section.: AHC: Departmental Representative Hardware Consultant. ALD ALF: Aluminum Door and frame ATMS/STMS: Arm/Strike to Template with Machine Screws. BB or FBB: Ball Bearing Hinges BC: Back Check BTB: Back to Back B3E or B4E: Bevel 3 or 4 sides C to C, C/L: Centerline to Centerline CDC: Certified Door Consultant CMK: Construction Masterkeyed CSC: Construction Specifications Canada CSK: Countersunk Screw Holes. Cyl.: Cylinder of a lock Deg.: Degree of opening DEL; Delay Action DHI: Door and Hardware Institute DR: Door FC: Full Cover FS: Fail Safe FSE: Fail Secure FTMS: Full template machine screws 1/2 TMS: Half template machine screws GMK: Grand Masterkeyed KA/KD: Keyed Alike, Keyed Different HMD/PSF: Hollow Metal Door, Pressed Steel Frame LH/RH: Left Hand, Right Hand LHR/RHR: Left Hand Reverse, Right Hand Reverse MK or MKD: Masterkeyed NBC: National Building Code NRP: Non removable pine TB/SB: Thru Bolts, Sex Bolts TJ: Top Jamb ULC: Underwriters Laboratories Canada WD: Wood Door

### **1.4 SUBMITTALS**

- .1 Product Data: Submit manufacturer's printed product literature, specifications and data sheets in accordance with Section 01 30 00
- .2 Samples:
  - .1 Upon Departmental Representative request submit samples of door hardware in accordance with Section 01 30 00
  - .2 Identify each sample by label indicating applicable specification paragraph number, brand name and number, finish and hardware package number.
  - .3 After approval samples will be returned for incorporation in the Work.
- .3 Hardware List:
  - .1 Submit detailed hardware list and keying schedule in accordance with Section 01 30 00.
  - .2 Finish Hardware Schedule is to be submitted as per DHI vertical format which is in the "Sequence and Format for Hardware Schedules".

- .3 Indicate specified hardware including make, model, material, function, size, finish and other pertinent information.
- .4 Furnish other SEctions with templates required for hardware preparation and installation. Issue templates when requested so as not to cause any delays but not before hardware list has received final review by Departmental Representatives.
- .5 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.
- .6 Wiring Diagrams will only be supplied after the final approval of the Finish 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, electrical hardware and fire exit hardware for incorporation into Operations and Maintenance Manuals specified.

## **1.5 WARRANTY**

- .1 Provide guarantee.
  - .1 Closers: 10 years
  - .2 Mortise Locks: 10 years Mechanical 1/2 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 Meet requirements of latest National Building Code of Canada and other applicable regulations.
  - .2 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
  - .3 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristic and criteria and physical requirements.
  - .4 Pre-installation Meetings: conduct pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements.
  - .5 Upon completion of finish hardware installation, hardware supplier shall inspect
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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, STORAGE AND HANDLING**

- .1 Packaging, Shipping, Handling and Unloading:
  - .1 Deliver, store, handle and protect materials in accordance with Section 01 60 00.
  - .2 Package each item of hardware including fastenings, separately or in like groups of hardware, with necessary screws, keys, instructions and installation templates.
  - .3 All items of hardware should be itemized and tagged as per the approved Finish Hardware Schedule.
  - .4 Shortages will not delay installation.
  - .5 Items damaged in shipment will be replaced properly with proper material.
  - .6 All Hardware shall be handled in a manner to avoid damage, marking and scratching.
  - .7 Hardware is to be inventories 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 MAINTENANCE**

- .1 Provide three sets of maintenance tools for closers, locks and exit devices as well as a complete set of installation instructions.
- .2 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.
- .3 Extra Material if required.

## **PART 2 - PRODUCTS**

### **2.1 HARDWARE ITEMS**

- .1 Manufacturer's Listed:
  - .1 Hinges: McKinney - ASSA ABLOY Door Security Solutions Canada.
  - .2 Locks: Sargent - ASSA ABLOY Door Security Solutions Canada.
  - .3 Exit Devices: Sargent - ASSA ABLOY Door Security Solutions Canada
  - .4 Closers: Sargent - ASSA ABLOY Door Security Solutions Canada
  - .5 Flush Bolts: Standard Metal Manufacturing.
  - .6 Overhead Stops: Sargent - ASSA ABLOY Door security Solutions Canada.
  - .7 Flatware: Standard Metal Manufacturing.

- .8 Floor/Wall Stops: Standard Metal Manufacturing.
- .9 Weatherstrip/Thresholds: K.N. Crowder Mfg. Inc., 1220 Burloak.

## **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 (2) 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
      - Standard Acceptance:
      - Specified Alternates

<u>McKinney</u>	<u>Hanger</u>	<u>Stanley</u>
TA2271	BB1279	FBB179
TA2314	BB1191	FBB191
TA3786	BB1168	FBB168
TA3386	BB11699	FBB199
- .4 Mortise locks and latches: to ANSI/BMHA A156.13, Series 1000 mortise lock, grade 1, designed for function as stated in Hardware Schedule.
  - .1 Locks shall meet or exceed the requirements of ANSI/BHMA A156.13 Series 1000, Operational Grade 1, and Security Grade 1 with all standard trims.
  - .2 Meets or exceeds impacted requirements of ASTM F1577-95b Detention Locks for Swinging Doors.
  - .3 Locks shall be easily re-handed without opening the lock body.
  - .4 Multi-functional lock body to make it easy to change functions in the field.
  - .5 Locks shall comply with UL10C and UBC.
  - .6 Construction: Lock functions shall be manufactured in a single-sized case formed from 2.6mm steel minimum.
  - .7 Locks shall have field adjustable, bevelled, armoured front, with a 3mm thickness minimum.
  - .8 Locks shall have a one piece, 19mm throw anti-friction stainless steel latch.

- .9 Deadbolts, where specified, shall be full one inch 25mm throw made of one-piece hardened stainless steel.
- .10 Locks shall have a 70mm backset, standard.
- .11 Strikes shall be non-handed with a curved lip. Strikes for pairs of doors to be supplied with short lip strike (82-0229). Not to extend beyond the face of the door.
- .12 To ensure proper alignment, trim, knobs or levers, shall be through-bolted and fully interchangeable between rose and escutcheon.
- .13 Lever handles: "LNJ" design.
- .14 Roses: round
- .15 Finished to 32D.

Standard of Acceptance:

Specified	Alternates	
<u>Sargent</u>	<u>Corbin</u>	<u>Yale</u>
8200-Series	ML2200	8800

- .5 Exit Devices: 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.
  - .5 Device Length as per manufacturer's guidelines.
  - .6 The design of the exit device shall eliminate the necessity of removing the device from the door for standard maintenance or keying changes.
  - .7 Trim as specified shall be through-bolted.
  - .8 All vertical rod in pairs to be less bottom rod where noted.
  - .9 Extension rods are required s per manufacturer's requirements.
  - .10 Exit devices to suite doors over 45mm where required.

Standard	Alternates	
<u>Sargent</u>	<u>Corbin</u>	<u>Yale</u>
8800-Series	ED5200	7100
8700-Series	ED5400	7110
8600-Series	ED5800	7120
8500-Series	ED4200	7200
8400-Series	ED4800	7220

- .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 Closures 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. Delayed action shall be available in addition to, not in lieu of, backcheck.
- .8 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).
- .9 All arms shall be finely finished with heavy duty forged steel main arm.
- .10 Two mounting positions of the closer shall meet all requirements. Standard mountings shall provide 120 degrees door opening and alternate mounting 180 degrees door opening.
- .11 All closers shall be suitable for standard, top jamb, parallel arm and track type applications when provided with proper brackets and arms.
- .12 Closer covers shall be of high impact plastic material of flame retardant grade. Secured by machine screws.
- .13 Spring power shall be continuously adjustable over the full range of closer sizes and allow for reduced openings force for the physically handicapped. Hydraulic regulation shall be tamper proof, non-critical valves. Closures shall have separate adjustment for latch speed, general speed and backcheck.
- .14 All closer to have a forged steel main arm and forearm for parallel arm closures.
- .15 Finish to Aluminum 689
- | Standard of Acceptance: |            |        |
|-------------------------|------------|--------|
| Specified               | Alternates |        |
| Sargent                 | Norton     | Corbin |
| 1431                    | 8500       | DC6200 |
| 351                     | 7500       | DC3000 |
| 421                     | 2800ST     |        |
- .7 Auxiliary locks and associated products: 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, classroom function.
- .3 Finished to Dull Chrome 626.
- | Standard of Acceptance: |            |      |
|-------------------------|------------|------|
| Specified               | Alternates |      |
| Sargent                 | Corbin     | Yard |
| 4800                    | DL4000     | 300  |
- .8 Door trim: to ANSI/BHMA A156.6, as listed in Hardware Schedule, finished to stainless steel 32D.



- .1 Door protection plates: kickplates type, 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. Finished to stainless steel 630.
- Standard of Acceptance:
- | Specified                    | Alternates  |
|------------------------------|-------------|
| <u>Standard Metal Hanger</u> | <u>CDH</u>  |
| K10A                         | 190S CDH92A |
- .2 Push plates: 1.3mm thick stainless steel, size 89mm x 381mm, finished to stainless steel 630.
- Standard of Acceptance:
- | Specified                    | Alternates |
|------------------------------|------------|
| <u>Standard Metal Hanger</u> | <u>CDH</u> |
| K11A-3                       | 30S CDH93A |
- .3 Door Pulls: 19mm round pull, 228.6mm center to center pulls, with 76mm x 305mm protection plate, mount type 1, finished to stainless steel 630.
- Standard of Acceptance:
- | Specified                    | Alternates    |
|------------------------------|---------------|
| <u>Standard Metal Hanger</u> | <u>CDH</u>    |
| 2409-1                       | 33H CDH5909-1 |
- .4 Door Pulls: 32mm Round Offset Pull, mount type 1, 1220mm center to center mounting to be with a security bolt (#4B) for single application and (#5) for back to back, finished to stainless steel 630.
- Standard of acceptance: Standard Metal  
D-32 x Mnt.
- | Specified                    | Alternates |
|------------------------------|------------|
| <u>Standard Metal Hanger</u> | <u>CDH</u> |
| D352                         |            |
- .9 Door controls - overhead stop: to ANSI/BMHA A156.8, heavy duty construction BHMA Grade 1 Certified, heavy duty Departmental Representative bronze construction.
- .1 UL Classified: The 590 and 690 stops are UL 10B and UL 10C classified as a 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 Exterior to stainless steel, 26D. Interior to steel sprayed finish, EN.

Standard of Acceptance:		
Specified	Alternates	
<u>Sargent</u>	<u>Rixson</u>	
690S (Concealed)	#1	
590S (Surface)	#9	

- .10 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 clearance, thresholds or undercuts as noted in the Door Schedule. Fasteners to suite floor conditions.

Standard of acceptance:		
Specified	Alternates	
<u>Standard Metal Hanger</u>	<u>CDH</u>	
S101	241F	CDH212B
S103	243F	CDH230B

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

Standard of acceptance:		
Specified	Alternates	
<u>Standard Metal Hanger</u>	<u>CDH</u>	
S121	232W	CDH253
S123	236W	CDH255

- .3 Flush bolts Classification. Meets ANSI/BMHA A156.16. Bolt tip is 13mm Diameter with 19mm throw and bolt backset of 19mm. To be supplied with F68 Dust Proof Strike.

Wood doors Standard of Acceptance: DCI 790.

Metal Doors Standards of acceptance: Standard Metal F65.

Standard of acceptance:		
Specified	Alternates	
<u>Standard Metal DCI</u>	<u>Hanger</u>	
F65	780	282D
F68	80	280X

- .11 Thresholds and Weatherstripping 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, with thermal break of rigid PVC.

- .2 Panic threshold 93.7 mm wide x full width of door opening, extruded aluminum mill finish, serrated surface, with lip and vinyl door seal insert.

Standard of acceptance:  
Specified Alternates

<u>KN Crowder</u>	<u>PEMKO</u>	<u>Hanger</u>
CT45A	252 x 3AFG	421S
CT49A	252 x 226AFGV	515S

.12 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. Surface overhead stops and exit device strikes to mount on top of weatherstrip to provide continuous seal.
- .2 Adhesive backed black "Santoprene" to provide smoke, light and sound control.

Standard of Acceptance:

Specified Alternates

<u>KN-Crowder</u>	<u>PEMKO</u>	<u>Hanger</u>
W20N	290APK	881SV
W21	S88D	726S

.2 Door bottom seal:

- .1 Extruded aluminum frame and nylon brush sweep, clear anodized finish.
- .2 Weather seal, recessed in door bottom, closed ends, automatic retract mechanism when door is open, clear anodized finish.

Standard of acceptance:

Specified Alternates

<u>KN-Crowder</u>	<u>PEMKO</u>	<u>Hanger</u>
W35-1	345AP	770SB
CT52	4301	747S

.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.

Standard of acceptance:

Specified Alternates

<u>KN Crowder</u>	<u>PEMKO</u>	<u>Hanger</u>
W8P	3672A84	835
W-25	18061CNB	802SB

## **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 DESCRIPTION, EXTERIOR HINGES, INTERIOR HINGES, LOCKS, EXIT DEVICES, CLOSERS, FLATWARE, ALL OTHER ITEMS**

- |    |                               |                     |
|----|-------------------------------|---------------------|
| .1 | Material BMHA Stainless Steel | 630 Stainless Steel |
|    | 630 Stainless Steel           | 630 Stainless Steel |
|    | 630 Stainless Steel           | 630 Stainless Steel |
|    | 630 Stainless Steel           |                     |

## **2.5 KEYING**

- .1 All locks to be master keyed to the existing master key system.
- .2 Cylinders type, length and cam to be supplied as required to work in locks specified.
- .3 All cylinders to be construction master keyed.
- .4 All locks and cylinders to be visually keyed.
- .5 Consult with Departmental Representative and the owner and secure written approval of the complete keying layout prior to placing lock order with the factory.
- .6 Grand masterkeys and masterkeys shall be sent directly to the owner by registered mail, return receipt if requested.
- .7 Supply:
  - .1 Grand Masterkeys 3
  - .2 Masterkeys 3 per group
  - .3 Change keys/lock 4

## **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 instruction and templates for preparation of their work to receive hardware.
-

- .3 Furnish manufacturer's instructions for proper installation of each hardware component.

### **3.2 INSTALLATION**

- .1 Install door hardware in accordance with manufacturer's instructions, using special tools and jigs. Fit accurately and apply securely. Ensure that hardware is installed correctly. Issue instructions if required to Sections concerned.
- .2 Install hardware to standard hardware location dimensions in accordance with Canadian Metric Guide for Steel Doors and Frames (Modular Construction) prepared by Canadian Steel Door Manufacturer's 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 threshold to be set in minimum 2 continuous rows of exterior sealants.

### **3.3 ADJUSTING**

- .1 Adjust door hardware, operators, closures and controls for optimum, smooth operating condition, safety and for weather tight closure.
- .2 Lubricate hardware, operating equipment and other moving parts.
- .3 Adjust door hardware to provide tight fit at contact points with frames.
- .4 All defective or damaged hardware will have to be repaired or replaced at the contractors expense.

### **3.4 CLEANING**

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

- .2 Clean hardware with damp rag and approved non-abrasive cleaner, and polish hardware in accordance with manufacturer's instructions.
- .3 Remove protective material from hardware items where present.
- .4 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

### **3.5 SCHEDULE**

- .1 Heading #01  
1 Single door 01  
1900 x 2150 x 45 - HM INS DR x PSF FR  
1 Continuous Hinge McKinney MCK-12HD x Height Clear  
1 Service Lockset Sargent 8206 LNL LC US26D  
1 Mortise Cylinder Schlage 20-013 x Length x Cam x 1367KWY  
1 Cylinder Pull Standard Metal H407 US26D  
1 Closer Stop Arm Sargent 351 CPSH EN  
1 Mounting Plate Sargent 351B EN  
1 Threshold K.N. Crowder Ct-916 x Width M.F.  
1 Weatherstripping K.N. Crowder W-20S x 3 Sides C.A.  
1 Door Sweep K.N. Crowder W-35-1 x Width C.A.  
WEATHERSEAL NOT TO BE BROKEN. MOUNT HARDWARE TO THE SURFACE OF THE WEATHERSEAL. THRESHOLD MODEL TO SUITE SITE CONDITIONS.
- .2 Heading #02  
Pair of doors 02  
900, 900 x 2150 x 45 - HM INS DR x PSF FR  
2 Continuous Hinge McKinney MCK-12HD x Height Clear  
2 Flush Bolt Standard Metal F65UL US26D  
1 Dust Proof Standard Metal F68 US26D  
1 Astragal K.N. Crowder W-8P x Height M.F.  
1 Service Sargent 8206 LNL x Lip Strike (82-0229) US26D  
1 Cylinder Pull Standard Metal H407 US26D  
2 Closer Stop Arm Sargent 351 CPS EN  
2 Mounting Plate Sargent 351B EN  
1 Threshold K.N. Crowder CT-916 x Width M.F.  
1 Weatherstripping K.N. Crowder W-20S x 1/1828mm, 2/2134mm C.A.  
2 Door Sweep K.N. Crowder W-35-1 x Width C.A.  
WEATHERSEAL NOT BE BROKEN. MOUNT HARDWARE TO THE SURFACE OF THE WEATHERSEAL. THRESHOLD MODEL TO SUITE SITE CONDITIONS.