Part 1 General

1.1 RELATED SECTIONS

.1 Section 07 92 00 – Joint Sealants.

.2 Section 08 71 00 – Door Hardware.

.3 Section 08 80 50 – Glazing.

.4 Section 09 90 00 – Painting.

1.2 REFERENCES

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

.1 ASTM A653/A653M-11, Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

.2 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-1.181-99, Ready-Mixed Organic Zinc-Rich Coating.

.3 Canadian Standards Association (CSA International)

.1 CSA-G40.20-04/G40.21-04(R2009), General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.

.2 CSA W59-03(R008), Welded Steel Construction (Metal Arc Welding).

.4 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, 2009.

.5 National Fire Protection Association (NFPA)

.1 NFPA 80-07, Standard for Fire Doors and Fire Windows.

.2 NFPA 252-03, Standard Methods of Fire Tests of Door Assemblies.

.6 Underwriters' Laboratories of Canada (ULC)

.1 CAN/ULC-S704-11, Standard for Thermal Insulation, Polyurethane and Polyisocyanurate Boards, Faced.

.2 CAN4-S104-M80(R1985), Standard Method for Fire Tests of Door Assemblies.

.3 CAN4-S105-M85(R1992), Standard Specification for Fire Door Frames Meeting the Performance Required by CAN4-S104.

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 -40 degrees C to 35 degrees C.

.2 Maximum deflection for exterior steel entrance screens under wind load of 1.2 kPa not to exceed 1/175th of span.

.3 Steel fire rated doors and frames: labelled and listed by an organization accredited by Standards Council of Canada in conformance with CAN4-S104, NFPA 252 for ratings specified or indicated.

.4 Provide fire labelled frames for openings requiring fire protection ratings. Test products in conformance with CAN4-S104, ASTM E152 or NFPA 252 and listed by nationally recognized agency having factory inspection services.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Manitoba, Canada.

.1 Indicate each type of door, material, steel core thicknesses, mortises, reinforcements, location of exposed fasteners, openings, glazed, louvered, arrangement of hardware and fire rating and finishes.

.2 Indicate each type frame material, core thickness, reinforcements, glazing stops, location of anchors and exposed fastenings and reinforcing fire rating finishes.

.3 Include schedule identifying each unit, with door marks and numbers relating to numbering on drawings and door schedule.

.4 Submit test and engineering data, and installation instructions.

.3 Submit one 1’-0” x 1’-0” (300 x 300 mm) corner sample of each type of frame.

1.5 DELIVERY, STORAGE AND HANDLING

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

.1 Waste Management and Disposal:

.1 Separate waste materials for reuse and recycling in accordance with requirements of Contract Administrator.

Part 2 Products

2.1 MATERIALS

.1 Hot dipped galvanized steel sheet: to ASTM A653M, ZF75, minimum base steel thickness in accordance with CSDMA Table 1 - Thickness for Component Parts.

.2 Reinforcement channel: to CSA G40.20/G40.21, Type 44W, coating designation to ASTM A653M, ZF75.

2.2 DOOR CORE MATERIALS

.1 Honeycomb construction:

.1 Structural small cell, 1 inch maximum kraft paper 'honeycomb', weight: 80 lbs per ream minimum, density: 1.03 lb/ft³ minimum sanded to required thickness, bonded under pressure to door skins.

.2 Insulated core:

.1 Door core filled with insulating material, bonded to inside face of door skins. Minimal thermal resistance value RSI 2.3.

.2 Expanded polystyrene: CAN/ULC-S701, CAN/CGSB 51-20, density 1 to 2 lb/ft³ or Polyurethane: to CAN/CGSB 51-GP-21M rigid, modified poly/isocyanurate, closed cell board. Density 2 lb/ft³.

2.3 ADHESIVES

.1 Honeycomb cores and steel components: heat resistant, spray grade, resin reinforced neoprene/rubber (polychloroprene) based, low viscosity, contact cement.

.2 Polystyrene and polyurethane cores: heat resistant, epoxy resin based, low viscosity, contact cement.

.3 Lock-seam doors: fire resistant, resin reinforced polychloroprene, high viscosity, sealant/adhesive.

2.4 PRIMER

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

2.5 PAINT

.1 Field paint steel doors and frames in accordance with Section 09 90 00 Painting. Protect weatherstrips from paint. Provide final finish free of scratches or other blemishes.

2.6 ACCESSORIES

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

.2 Exterior and interior top and bottom caps: steel.

.3 Fabricate glazing stops as formed channel, minimum 5/8” (16 mm) height, accurately fitted, butted at corners and fastened to frame sections with counter-sunk oval head sheet metal screws.

.4 Make provisions for glazing s indicated and provide necessary glazing stops.

.1 Design exterior glazing stops to be tamperproof.

2.7 FRAMES FABRICATION GENERAL

.1 Fabricate frames in accordance with CSDMA specifications.

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

.3 Exterior frames: 16 ga (1.6 mm) welded, thermally broken type construction.

.4 Interior frames: 18 ga (1.2 mm) welded, knocked-down type construction as indicated.

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

.6 Protect mortised cutouts with steel guard boxes.

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

.8 Manufacturer's nameplates on frames and screens are not permitted.

.9 Conceal fastenings except where exposed fastenings are indicated.

.10 Provide factory-applied touch up primer at areas where zinc coating has been removed during fabrication.

.11 Insulate exterior frame components with polyurethane insulation.

2.8 FRAME ANCHORAGE

.1 Provide appropriate anchorage to floor and wall construction.

.2 Locate each wall anchor immediately above or below each hinge reinforcement on hinge jamb and directly opposite on strike jamb.

.3 Provide 2 anchors for rebate opening heights up to 60” (1520 mm) and 1 additional anchor for each additional 30” (760 mm) of height or fraction thereof.

.4 Locate anchors for frames in existing openings not more than 6” (150 mm) from top and bottom of each jambs and intermediate at 24” (600 mm) on centre maximum.

2.9 FRAMES: WELDED TYPE

.1 Welding in accordance with CSA W59.

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

.3 Cope accurately and securely weld butt joints of mullions, transom bars, centre rails and sills.

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

.5 Securely attach floor anchors to inside of each jamb profile.

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

2.10 FRAMES: KNOCKED-DOWN TYPE

.1 Ship knocked-down type frames unassembled.

.2 Provide frames with mechanical joints which inter-lock securely and provide functionally satisfactory performance when assembled and installed in accordance with CSDMA Recommended Installation Guide for Steel Doors and Frames.

.3 Securely attach floor anchors to inside of each jamb profile.

2.11 DOOR FABRICATION GENERAL

.1 Doors: swing type, flush, with provision for glass and/or louvre openings as indicated.

.2 Exterior doors: insulated bonded core construction. Interior doors: hollow steel construction.

.3 Fabricate doors with longitudinal edges welded. Seams: grind welded joints to a flat plane, fill with metallic paste filler and sand to a uniform smooth finish.

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

.5 Factory prepare holes ½" (12.7 mm) diameter and larger except mounting and through-bolt holes, on Site, at time of hardware installation.

.6 Reinforce doors where required, for surface mounted hardware. Provide flush steel top caps to exterior doors. Provide inverted, recessed, spot welded channels to top and bottom of interior doors.

.7 Provide factory-applied touch-up primer at areas where zinc coating has been removed during fabrication.

.8 Provide fire labelled doors for those openings requiring fire protection ratings, as scheduled. Test such products in conformance with CAN4-S104, ASTM E152 or FPA 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 permitted. Location of nameplates to be on hinge side of door concealed from view.

2.12 HOLLOW STEEL CONSTRUCTION

.1 Form face sheets for exterior doors from 18 ga (1.6mm) sheet steel.

.2 Form face sheets for interior doors from 18 ga (1.6 mm) sheet steel.

.3 Reinforce doors with vertical stiffeners, securely welded to face sheets at 6” (150 mm) on centre maximum.

.4 Fill voids between stiffeners of exterior doors with polyurethane core.

.5 Fill voids between stiffeners of interior doors with temperature rise rated core.

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 GENERAL

.1 Install labelled steel fire rated doors and frames to NFPA 80 except where specified otherwise.

.2 Install doors and frames to CSDMA Installation Guide.

3.3 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 48” (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. Maintain continuity of air barrier and vapour retarder.

3.4 DOOR INSTALLATION

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

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

.1 Hinge side: 1/32” (1.0 mm).

.2 Latchside and head: 1/16” (1.5 mm).

.3 Finished floor, top of noncombustible sill and thresholds: 13 mm.

.3 Adjust operable parts for correct function.

3.5 FINISH REPAIRS

.1 Touch up with primer finishes damaged during installation. Fill exposed frame anchors and surfaces with imperfections with metallic paste filler and sand to a uniform smooth finish.

3.6 GLAZING

.1 Install glazing for doors in accordance with Section 08 80 50 – Glazing.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 04 05 12 – Masonry Mortar and Grout

.2 Section 07 92 00 – Joint Sealants.

.3 Section 08 71 00 – Door Hardware.

.4 Section 08 80 50 – Glazing.

1.2 REFERENCES

.1 ASTM A240/A240M-07e1 - Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.

.2 Canadian Steel Door Manufacturers Association (CSDMA), Selection and Usage Guide for Steel Doors and Frames, 1990.

.3 HMMA 802-92 - Manufacturing of Hollow Metal Doors and Frames.

.4 HMMA 840-99 - Installation and Storage of Hollow Metal Doors and Frames.

.5 HMMA 841-07 - Tolerances and Clearance for Commercial Hollow Metal Doors and Frames.

.6 NFPA 80-07 - Standard for Fire Doors and Other Opening Protectives.

1.3 REGULATORY REQUIREMENTS

.1 Installed Door and Frame Assembly: Conform to NFPA 80-2007 for fire rated class as scheduled.

.2 Installed Door and Frame Assembly: Conform to handicap code [ANSI/ICC A117.1]

1.4 SUBMITTALS

.1 Product Data: Provide product data on standard door construction.

.2 Shop Drawings: Indicate door and frame elevations, internal reinforcement, anchor types and spacing, closure methods, finishes, location of cut-outs for hardware, and cut outs for glazing.

.3 Samples: Submit manufacturer's stainless steel finish samples showing range of material variation as well as polishing details.

1.5 QUALITY ASSURANCE

.1 Perform Work to requirements of CSDMA (Canadian Steel Door Manufacturers Association) AND HMMA (Hollow Metal Manufacturers Association) standards.

.2 Manufacturer: Minimum 5 years documented experience manufacturing hollow metal door and frame assemblies.

1.6 DELIVERY, STORAGE AND PROTECTION

.1 Section 01 61 00 – Common Product Requirements.

.2 Comply with HMMA 840.

.3 Weld minimum two temporary jamb spreaders per frame prior to shipment.

.4 Remove doors and frames from wrappings or coverings upon receipt on Site and inspect for damage.

.5 Store in vertical position, spaced with blocking to permit air circulation between components.

.6 Store materials out of water and covered to protect from damage.

.7 Waste Management and Disposal:

.1 Separate waste materials for reuse and recycling in accordance with requirements of Contract Administrator.

1.7 WARRANTY

.1 Manufacturer's Limited Warranty: Five (5) years from date of supply, covering material and workmanship.

Part 2 Products

2.1 MATERIALS

.1 Stainless Steel: ASTM A240, type 316.

.2 Door Core:

.1 Honeycomb: paper hexagonal cells

.3 Acceptable materials: AMBICO Limited

2.2 ACCESSORIES

.1 Exterior Top Caps: Stainless steel flush channel.

.2 Frame Thermal Breaks: Rigid polyvinylchloride extrusion.

.3 Glazing Stops: Formed stainless steel channel, minimum 16 mm (0.625 inch) high, mitred corners; prepared for countersink style tamperproof screws.

.4 Glass: In accordance with Section 08 80 50 - Glazing. Glazing to be supplied by others.

2.3 FABRICATION

.1 Stainless Steel Doors: 16 gauge stainless steel, door faces.

.1 Flush Design: Non-fire rated.

.1 Flush Design: butt seam door construction, longitudinal edges fully welded with no visible edge seam.

.2 Top and Bottom Channels: Inverted, recessed, welded steel channels.

.3 Fabricate with stainless steel hardware reinforcement plates welded in place

.4 Core: honeycomb.

.2 Stainless Steel Frames:

.1 Stainless Steel Frames: 16 gauge stainless steel, welded type construction, mitred corners.

.2 Factory assemble and weld stainless steel frames.

.3 Fabricate with stainless steel hardware reinforcement plates welded in place.

.4 Reinforce frames wider than 1200 mm (48 inches) with roll formed stainless steel channels fitted tightly into frame head, flush with top.

.3 Knocked-Down Frame Type:

.1 Ship knocked-down type frames unassembled.

.2 Provide frames with mechanical joints which interlock securely and provide functionally satisfactory performance when assembled and installed in accordance with CSDMA Recommended Installation Guide for Steel Doors and Frames.

.3 Securely attach floor anchors to inside of each jamb profile.

2.4 FINISHES

.1 Standard Stainless Steel Finish: #6 Matte.

Part 3 Execution

3.1 INSTALLATION

.1 Install components to manufacturer’s written instructions.

.2 Install doors and frames to CSDMA and HMMA 840 standards and in accordance with NFPA 80, and local authority having jurisdiction.

.3 Coordinate with masonry wall construction for anchor placement.

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

.5 Allow for deflection to ensure that structural loads are not transmitted to frame.

.6 Adjust operable parts for correct clearances and function.

.7 Install louvers, glazing and door silencers.

3.2 ERECTION TOLERANCES

.1 Section 01 73 00 – Execution.

.2 Installation tolerances of installed frame for squareness, alignment, twist and plumbness are to be no more then ± 1/16in (1.5mm) in compliance with HMMA 841.

3.3 FIELD QUALITY CONTROL

.1 Provide qualified manufacturer's representative to instruct installers on the proper installation and adjustment of door assemblies.

.2 Provide manufacturer's representative to inspect door installation, and test minimum ten (10) cycles of operation. Correct any deficient doors.

3.4 SCHEDULE

.1 Refer to Door Schedule.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 07 26 00 – Sheet Vapour Retarders

.2 07 62 00 – Sheet Metal Flashing and Trim

.3 07 92 00 – Joint Sealants

1.2 REFERENCES

.1 Aluminum Association (AA), Designation System for Aluminum Finishes (2000)

.2 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-1.40-[97], Anticorrosive Structural Steel Alkyd Primer.

.3 Canadian Standards Association (CSA) International

.1 CSA-A440-[00]/A440.1-[00], A440-[00], Windows / Special Publication A440.1-[00], User Selection Guide to CSA Standard A440-[00], Windows.

1.3 SHOP DRAWINGS

.1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.

.2 Indicate materials and details in full size scale for head, jamb and sill, profiles of components, interior and exterior trim, elevations of unit, anchorage details, description of related components and exposed finishes fasteners, and caulking. Indicate location of manufacturer's nameplates.

1.4 SAMPLES

.1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit one representative model of each type window.

.3 Include frame, sash, sill, glazing and weatherproofing method, insect screens, surface finish and hardware. Show location of manufacturer's nameplates.

.4 Include 6” (150 mm) long samples of head, jamb, sill, and mullions to indicate profile.

1.5 TEST REPORTS

.1 Submit test reports from approved independent testing laboratories, certifying compliance with specifications, for:

.1 Windows classification: Fixed.

.2 Air tightness.

.3 Water tightness.

.4 Wind load resistance.

.5 Condensation resistance.

.6 Forced entry resistance.

1.6 CLOSEOUT SUBMITTALS

.1 Provide operation and maintenance data for windows for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.7 WASTE MANAGEMENT AND DISPOSAL

.1 Separate and recycle waste materials in accordance with requirements of Contract Administrator.

.2 Remove from site and dispose of packaging materials at appropriate recycling facilities.

.3 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard packaging material for recycling in accordance with Waste Management Plan.

.4 Unused or damaged glazing materials are not recyclable and must not be diverted to municipal recycling programs.

.5 Divert unused or damaged wood materials from landfill to recycling facility approved by Contract Administrator

.6 Divert unused metal materials from landfill to metal recycling facility approved by Contract Administrator.

.7 Divert unused caulking material from landfill to official hazardous material collections site approved by Contract Administrator.

.8 Plastic caulking tubes are not recyclable and must not be diverted for recycling with other plastic materials.

Part 2 Products

2.1 MATERIALS

.1 Materials: to CSA-A440/A440.1 supplemented as follows:

.2 All windows by same manufacturer.

.3 Sash: aluminum.

.4 Main frame: aluminum.

2.2 WINDOW TYPE AND CLASSIFICATION

.1 Type:

.1 Exterior Aluminum fixed windows:

.1 Acceptable material: Alumicor 970 Series window units with thermal break. Classification Fixed, B7, C5, lg = 70, lf = 69 manufactured by Alumicor Limited.

.2 Frame members – 970 Series, 4 ½" extruded aluminum alloy 6063-T6 minimum .062" (1.6 mm) wall thickness.

.3 Thermal Break – Extruded foamed polyvinylchloride.

.4 Glass and glazing materials – Factory sealed double glazed unit 1" (25 mm) overall thickness, glaxed in accordance with manufacturer's instructions.

.5 Weatherstripping – Extruded flexible EPDM to ASTM D-2000.

.6 Fasteners Non-magnetic, stain and corrosion resistant stainless steel to ASTM E-149.

.2 Classification rating: to CSA-A440/A440.1.

.1 Air tightness: Fixed.

.2 Water tightness: B7.

.3 Wind load resistance: C5.

.4 Thermal Break Condensation Resistance: lg = 70, lf = 69.

.5 Forced Entry: [F1] [F2].

.6 Glazing: [G1] [G2].

.3 Type:

.1 Interior Aluminum fixed window:

.1 Acceptable material: Alumicor FlushGlaze TL 1800 Series.

2.3 FABRICATION

.1 Fabricate in accordance with CSA-A440/A440.1 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 Fabricate window frames using two extruded components joined by means of a thermal break. Assemble all frame joints neatly, in weather-tight manner and secure by means of screws anchored into integral screw ports. Deburr and make smooth all sharp edges and corners. Fabricate entire window in a manner that will allow easy replacement of any defective or damaged components.

.6 Thermal break: Provide metal to metal separation between the two frame components. Do not use connecting screws, clips or other devices which would bridge the thermal break.

.7 Fabricate so that RSI Value of finished panel is not less than: 0.70 (R4 for 1" (25.4 mm) thick panel.

2.4 ALUMINUM FINISHES

.1 Finish exposed surfaces of aluminum components in accordance with Aluminum Association Designation System for Aluminum Finishes.

.1 Clear anodic finish: designation AA- A41 class I .0007" (18 um).

2.5 GLAZING

.1 Glaze windows in accordance with CSA-A440/A440.1.

.2 Provide frames which will permit glass replacement without the use of special tools.

2.6 AIR BARRIER AND VAPOUR RETARDER

.1 Equip window frames with site installed vapour retarder material for sealing to building vapour retarder as follows:

.1 Material: identical to, or compatible with, building air barrier and vapour retarder materials to provide required air tightness and vapour diffusion control throughout exterior envelope assembly.

.2 Material width: adequate to provide required air tightness and vapour diffusion control to building vapour retarder from interior.

Part 3 Execution

3.1 WINDOW INSTALLATION

.1 Install in accordance with CSA-A440/A440.1.

.2 Arrange components to prevent abrupt variation in colour.

3.2 SILL INSTALLATION

.1 Install metal sills with uniform wash to exterior, level in length, straight in alignment with plumb upstands and faces. Use one piece lengths at each location.

.2 Cut sills to fit longer than window opening.

.3 Secure sills in place with anchoring devices located at ends joints of continuous sills and evenly spaced 600 mm on centre in between.

.4 Fasten expansion joint cover plates and drip deflectors with self tapping stainless steel screws.

.5 Maintain 6 mm space between butt ends of continuous sills. For sills over 1200 mm in length, maintain 3 to 6 mm space at each end.

3.3 CAULKING

.1 Seal joints between windows and window sills with sealant. Bed sill expansion joint cover plates and drip deflectors in bedding compound. Caulk between sill upstand and window-frame. Caulk butt joints in continuous sills.

.2 Apply sealant in accordance with Section 07 92 00 - Joint Sealants. Conceal sealant within window units except where exposed use is permitted by Contract Administrator.

3.4 PROTECTION AND CLEANING

.1 Aluminum shall be isolated from concrete, mortar, plaster and dissimilar metals with bituminous paint or epoxy solution.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 06 20 00 – Finish Carpentry

.2 Section 06 40 00 – Architectural Woodwork

.3 Section 08 71 00 – Door Hardware

1.2 REFERENCES

.1 ANSI/BHMA A156.9-10, Cabinet Hardware.

.2 ANSI/BHMA A156.11-10, Cabinet Locks.

.3 ANSI/BHMA A156.16-08, Auxiliary Hardware.

.4 ANSI/BHMA A156.18-06, Materials and Finishes.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data: Submit manufacturer's printed product literature, specifications and data sheets.

.3 Samples: Submit samples.

.4 Hardware List:

.1 Submit Contract hardware list.

.2 Indicate specified hardware, including make, model, material, function, finish and other pertinent information.

.5 Manufacturer's Instructions: Submit manufacturer's installation instructions.

.6 Closeout Submittals: Provide maintenance data, parts list, and manufacturer's instructions for incorporation into maintenance manual specified in Section 01 78 00 – Closeout submittals.

1.4 QUALITY ASSURANCE

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

1.5 DELIVERY, STORAGE, AND HANDLING

.1 Packing, Shipping, Handling and Unloading:

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

.2 Package items of hardware including fastenings, separately or in like groups of hardware, label each package as to item definition and location.

.2 Storage and Protection: Store cabinet hardware in locked, clean and dry area.

1.6 WASTE MANAGEMENT AND DISPOSAL

.1 Separate and recycle waste materials in accordance with requirements of Contract Administrator.

.2 Remove from Site and dispose of packaging materials at appropriate recycling facilities.

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

Part 2 Products

2.1 HARDWARE ITEMS

.1 Use one manufacturer's product for all similar items.

2.2 CABINET HARDWARE AND MISCELLANEOUS HARDWARE

.1 Hinges: concealed, self-closing, adjustable European design all steel nickel plated, Hettich 170 degree for base cabinets, Hettich 125 degree for upper cabinets installed in a row and Hettich Intermat 9936 95 degree for upper cabinets installed in a corner where door swings against adjacent side wall. For millwork with flush overlay doors.

.2 Drawer slides full extension: Accuride, heavy duty ball bearing with built in stops.

.3 Metal pilaster: recessed, nickel

.4 Pilaster clip: Richelieu CP25626 – finish zinc

.5 Typical drawer and door pulls: Brushed nickel finish. Hettich Chalcis 1 170 118.

.6 Shelf Supports: flush mount recessed, bright zinc finish slotted for 13 mm vertical shelf adjustment complete with clips. KV256.

.7 Shelf Supports and shelf rests: installed in 3/16” (5 mm) Ø drilled holes, closed shelf rests, type Hafele metal supports #282.24.711, finish Zinc die cast. Support 5/8” (14 mm) long with mounting recessed 7.5 mm.

.8 Grommets: 60mm, stainless steel, Richelieu D032030.

.9 Cabinet locks: to CAN/CGSB-69.27, designated by letter E and numeral identifiers as listed below.

.1 Door or drawer locks: 5 pin “S” keyway, cylinder type, mortised strike length to suit door or drawer thickness. Bar strike or slot strike to suit.

.2 Cylinders: key into keying system as directed.

.3 Schlage 46-002 x 36-031 x 10-051 x 626.

.11 Reception desk, vanity and bench brace: SpeedBrace Countertop Brace, black, 12 gauge, steel, 15” (381mm) high, 18” (457mm) long, Richelieu 918151890.

.12 Staff room and office adjustable legs: table legs with gable brackets. Adjustable by means of a retractable telescoping front crank that mounts in line with leg. Clear anodized finish, top and bottom plates power-coated black. Richelieu 500707100.

.13 Closet Rod: 6’-0” long, stainless steel, closed, Richelieu EP66072.

.14 CPU Holder: CompX Ergonomx, 7301D.

.15 Kitchen Sliding Waste Unit: 2 bin capacity with sliding door, full extension, Euro Cargo recycling center 50 cm, Richelieu 361450100.

2.4 FASTENINGS

.1 Supply screws, bolts, expansion shields and other fastening devices required for satisfactory installation and operation of hardware.

.2 Exposed fastening devices to match finish of hardware.

.3 Use fasteners compatible with material through which they pass.

2.5 KEYING

.1 Cabinet locks to be keyed as directed. Submit keying schedule for approval.

.2 Provide keys in duplicate for every lock in this Contract.

.3 Stamp keying code numbers on keys and cylinders.

.4 Install key cabinet, location as indicated.

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 INSTALLATION

.1 Install hardware to standard hardware location dimensions in accordance with manufacturer's recommendations and to project design requirements.

.2 Build up floor to install come-along system with quick release hanger.

.3 Keying to Section 08 71 00 – Door Hardware.

3.3 ADJUSTING

.1 Adjust cabinet hardware for optimum, smooth operating condition.

.2 Lubricate hardware and other moving parts.

.3 Adjust cabinet door hardware to provide tight fit at contact points with frames.

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 Maintenance Staff Briefing.

.1 Brief maintenance staff regarding:

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

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

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 08 11 00 – Metal Doors and Frames

.2 Section 08 11 30 –Stainless Steel Doors and Frames

.3 Section 08 70 05 – Cabinet and Miscellaneous Hardware

1.2 REFERENCES

.1 Canadian Steel Door and Frame Manufacturers' Association (CSDFMA).

.1 CSDFMA Canadian Metric Guide for Steel Doors and Frames (Modular Construction): standard hardware location dimensions.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data: Submit manufacturer's printed product literature, specifications and data sheets.

.3 Samples:

.1 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 Submit contract hardware list.

.4 Indicate specified hardware, including make, model, material, function, size, finish and other pertinent information.

.4 Manufacturer's Instructions: Submit manufacturer's installation instructions.

.5 Closeout Submittals: Provide operation and maintenance data for door closers, locksets, door holders for incorporation into manual specified in Section 01 78 00 - Closeout Submittals .

1.4 QUALITY ASSURANCE

.1 Regulatory Requirements:

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

.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 characteristics 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.

1.5 DELIVERY, STORAGE, AND HANDLING

.1 Packing, Shipping, Handling and Unloading:

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

.2 Package each item of hardware including fastenings, separately or in like groups of hardware, label each package as to item definition and location.

.2 Storage and Protection: Store finishing hardware in locked, clean and dry area.

1.6 WASTE DISPOSAL AND MANAGEMENT

.1 Separate and recycle waste materials in accordance with requirements of Contract Administrator.

.2 Remove from Site and dispose of packaging materials at appropriate recycling facilities.

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

1.7 MAINTENANCE

.1 Extra Materials:

.1 Provide maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.

.2 Supply two sets of wrenches for door closers, locksets and fire exit hardware.

Part 2 Products

2.1 HARDWARE ITEMS

.1 Use one manufacturer's products only for similar items.

2.2 DOOR HARDWARE AND SCHEDULE

.1 As indicated in Schedule.

2.3 MISCELLANEOUS HARDWARE

.1 Indexed key control system: to CAN/CGSB-69.21, designated by letter E and numeral identifiers, portable system type.

2.4 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.

2.5 KEYING

.1 Doors, to be keyed as noted in Hardware Schedule and as directed. Prepare detailed keying schedule in conjunction with Contract Administrator.

.2 Key to master key system.

.3 Provide three keys for every lock in this Contract.

.4 Stamp keying code numbers on keys and cylinders.

.5 Provide construction cores.

.6 Provide all permanent cores and keys to Contract Administrator.

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 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.

3.2 INSTALLATION

.1 Install hardware to standard hardware location dimensions in accordance with Canadian Metric Guide for Steel Doors and Frames (Modular Construction) prepared by Canadian Steel Door and Frame Manufacturers' Association.

.2 Where door stop contacts door pulls, mount stop to strike bottom of pull.

.3 Provide key control cabinet to Contract Administrator.

.4 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.

.5 Remove construction cores, locks when directed by Contract Administrator; install permanent cores and check operation of locks.

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.

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.

.3 Lock key cabinet and turn over key to Contract Administrator.

.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.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 05 50 00 – Metal Fabrications.

.2 Section 06 10 00 – Rough Carpentry

.3 Section 07 62 00 – Sheet Metal Flashing and Trim

.4 Section 07 92 00 – Joint Sealants.

.5 Section 08 11 00 – Metal Doors and Frames.

.6 Section 08 11 30 – Stainless Steel Doors and Frames

1.2 REFERENCES

.1 American National Standards Institute (ANSI).

.1 ANSI/ASTM E330-[02], 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 International, (ASTM).

.1 ASTM C542-[94(1999)], Specification for Lock-Strip Gaskets.

.2 ASTM D790-[02], Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.

.3 ASTM D1003-[00], Test Method for Haze and Luminous Transmittance of Plastics.

.4 ASTM D1929-[96(R2001)e1], Test Method for Determining Ignition Temperature of Plastics.

.5 ASTM D2240-[02b], Test Method for Rubber Property - Durometer Hardness.

.6 ASTM E84-[01], Test Method for Surface Burning Characteristics of Building Materials.

.7 ASTM F1233-[98], Test Method for Security Glazing Materials and Systems.

.3 Canadian General Standards Board (CGSB).

.1 CAN/CGSB-12.1-[M90], Tempered or Laminated Safety Glass.

.2 CAN/CGSB-12.2-[M91], Flat, Clear Sheet Glass.

.3 CAN/CGSB-12.3-[M91], Flat, Clear Float Glass.

.4 CAN/CGSB-12.4-[M91], Heat Absorbing Glass.

.5 CAN/CGSB-12.5-[M86], Mirrors, Silvered.

.6 CAN/CGSB-12.8-[97], Insulating Glass Units.

.7 CAN/CGSB-12.10-[M76], Glass, Light and Heat Reflecting.

.8 CAN/CGSB-12.11-[M90], Wired Safety Glass.

.4 Canadian Standards Association (CSA International).

.1 CSA A440.2-[98], Energy Performance Evaluation of Windows and Sliding Glass Doors.

.2 CSA Certification Program for Windows and Doors [2000].

.5 Environmental Choice Program (ECP).

.1 CCD-045-[95], Sealants and Caulking.

.6 Flat Glass Manufacturers Association (FGMA).

.1 FGMA Glazing Manual - [1997].

.7 Laminators Safety Glass Association (LSGA).

.1 LSGA Laminated Glass Design Guide [2000].

1.3 SYSTEM DESCRIPTION

.1 Performance Requirements:

.1 Provide continuity of building enclosure vapour and air barrier using glass and glazing materials as follow:

.1 Utilize inner light of multiple light sealed units for continuity of air and vapour seal.

.2 Size glass to withstand wind loads, dead loads and positive and negative live loads as measured in accordance with ANSI/ASTM E330.

.3 Limit glass deflection to 1/200 flexural limit of glass with full recovery of glazing materials.

1.4 SUBMITTALS

.1 Product Data:

.1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit two copies of WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 33 00 - Submittal Procedures. Indicate VOC's:

.1 For glazing materials during application and curing.

.2 Shop Drawings:

.1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.

.3 Samples:

.1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit duplicate 300mm size samples of glazing and sealant material.

.4 Manufacturer's Instructions:

.1 Submit manufacturer's installation instructions.

.5 Closeout Submittals:

.1 Provide maintenance data including cleaning instructions for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.5 QUALITY ASSURANCE

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

.1 Provide testing and analysis of glass under provisions of Section 01 45 00 - Quality Control.

.2 Provide shop inspection and testing for glass.

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

.3 Mock-ups:

.1 Construct mock-ups in accordance with Section 01 45 00 - Quality Control.

.2 Construct mock-up to including glass glazing, and perimeter air barrier and vapour retarder seal.

.3 Mock-up will be used:

.1 To judge workmanship, substrate preparation, operation of equipment and material application.

.4 Locate where indicated.

.5 Allow 24 hours for inspection of mock-up before proceeding with Work.

.6 When accepted, mock-up will demonstrate minimum standard of quality required for this work. Approved mock-up may remain as part of finished work.

.4 Pre-installation Meetings: conduct pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements. Comply with Section 01 31 19 - Project Meetings.

1.6 SITE CONDITIONS

.1 Environmental Requirements:

.1 Install glazing when ambient temperature is 10 degrees C minimum. Maintain ventilated environment for 24 hours after application.

.2 Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

1.7 WASTE MANAGEMENT AND DISPOSAL

.1 Separate and recycle waste materials in accordance with requirements of Contract Administrator.

.2 Divert metal cut-offs from landfill by disposal into on-site Metal recycling bin.

.3 Divert uninstalled materials for reuse at nearest used building materials facility or similar type facility.

.4 Divert unused caulking and sealant materials from landfill through disposal at special wastes depot.

.5 Unused or damaged glazing materials are not recyclable and must not be diverted to municipal recycling programs.

.6 Remove form site and dispose of packaging materials at appropriate recycling facilities.

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

Part 2 Products

2.1 MATERIALS: FLAT GLASS

.1 Safety glass: to CAN/CGSB-12.1M, transparent, thickness as indicated ¼" thick for clerestory glazing. ½" thick for transparent doors and panels.

.1 Type 2: tempered.
.2 Class B-float glass.
.3 Category 1.
.4 Edge treatment: clean cut with ground edges where exposed.

.2 Float glass: to CAN/CGSB-12.3, Glazing quality, ¼" thick.

.3 Sheet glass: to CAN/CGSB-12.2, ¼" thick.

.4 Low emissivity (LOW E) glass, ¼" thick.

.1 Metallic coating: soft, sputtered metallic coating.
.2 Light transmittance: UV 6%, visible 64%, solar 25%.
.3 U-Value: winter .24 maximum, summer .22 maximum.

.5 Silvered mirror glass: to CAN/CGSB-12.5, ¼" thick.

.1 Type 1B-Float glass for high humidity use.
.2 Edge treatment: exposed polished edge.

.6 Frosted Glass: ¼" thick, PPG, Matelux.

.7 Coated Spandrel glass: to CAN/CGSB-12.9, colour, ¼" thick.

.1 Type Tempered.
.2 Class A-Float.
.3 Style: Water-based silicone glass coating, OPACI-COAT High Performance Glass Coating by ICD High Performance Coatings.
.1 Form M-Monolithic.

2.2 MATERIALS: SEALED INSULATING GLASS

.1 Insulating glass units: to CAN/CGSB-12.8, double unit, 1” (25.4 mm) overall thickness.

.1 Glass: to CAN/CGSB-12.3.

.2 Glass thickness: 6 mm each light.

.3 Inter-cavity space thickness: 13mm air space with dual seal metal spacer.

.4 Glass coating: surface number 2, low "E".

.5 Frosted glass: surface number 3.

.6 Inert gasfill: argon.

2.3 MATERIALS

.1 Sealant: as required by window system: one component compound, to CAN/CGSB-19.13, Class 2-40, neutral cure silicone gun grade, colour to match adjacent surfaces.

2.4 ACCESSORIES

.1 Setting blocks: Neoprene, 80-90 Shore A durometer hardness to ASTM D2240, length of 25 mm for each square meter of glazing, minimum 100 mm x width of glazing rabbet space minus 1.5 mm x height, to suit glazing method, glass light weight and area.

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

.3 Glazing tape:

.1 Preformed butyl compound 10-15 Shore A durometer hardness to ASTM D2240; coiled on release paper; size to suit application; black colour.

.2 Closed cell polyvinyl chloride foam, coiled on release paper over adhesive on two sides, maximum water absorption by volume 2%, designed for compression of 25%, to effect an air and vapour seal.

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

.5 Glazing clips: manufacturer's standard type.

.6 Lock-strip gaskets: to ASTM C542.

.7 Mirror attachment accessories:

.1 Mirror adhesive, chemically compatible with mirror coating and wall substrate. Silicone and glazing tape.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: Comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

3.2 EXAMINATION

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

.2 Verify that surfaces of glazing channels or recesses are clean, free of obstructions, and ready to receive glazing.

3.3 PREPARATION

.1 Clean contact surfaces 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: EXTERIOR WET/DRY METHOD (PREFORMED TAPE AND SEALANT)

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

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

.3 Apply heel bead of sealant along intersection of permanent stop with frame ensuring full perimeter seal between glass and frame to complete continuity of air and vapour seal.

.4 Place setting blocks at 1/4 points, with edge block maximum 6” (150mm) from corners.

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

.6 Install removable stops with spacer strips inserted between glazing and applied stops 6mm below sight line. Place glazing tape on glazing light or unit with tape flush with 16mm below sight line.

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

.8 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 INSTALLATION: INTERIOR WET/DRY METHOD (TAPE AND SEALANT)

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

.2 Cut glazing tape to length and install against permanent stops, projecting 1.6 mm above sight line.

.3 Place setting blocks at ¼ points, with edge block maximum 6” (150 mm) from corners.

.4 Rest glazing on setting blocks and push against tape to ensure full contact at perimeter of light or unit.

.5 Install removable stops, with spacer shims inserted between glazing and applied stops at 24” (600 mm) intervals, 6 mm below sight line.

.6 Fill gaps between light and applied stop with sealant to depth equal to bite on glazing, to uniform and level line.

.7 Trim protruding tape edge.

3.6 INSTALLATION: MIRRORS

.1 Set mirrors with adhesive, applied in accordance with adhesive manufacturer's instructions.

.2 Set in frame.

.3 Place plumb and level.

3.7 CLEANING

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

.2 Remove traces of primer, caulking.

.3 Remove glazing materials from finish surfaces.

.4 Remove labels after Work is complete.

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

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

3.8 PROTECTION OF FINISHED WORK

.1 After installation, mark light with an "X" by using removable plastic tape or paste.

END OF SECTION