

**Part 1 General**

**1.1 REFERENCES**

- .1 ASTM International (ASTM)
  - .1 ASTM A653/A653M-08, 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.
  - .2 CAN/CGSB 12.1-2017, Safety Glazing.
- .3 Canadian Standards Association (CSA)
  - .1 CAN/CSA A440.4-07, Window, Door, and Skylight Installation.
  - .2 CSA G40.20-04/G40.21-04, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
  - .3 CSA W59-13, Welded Steel Construction (Metal Arc Welding).
- .4 Canadian Steel Door Manufacturers' Association (CSDMA)
  - .1 CSDMA, Recommended Specifications for Commercial Steel Doors and Frame Products, 2006.
  - .2 CSDMA, Recommended Selection and Usage Guide for Commercial Steel Door and Frame Products, 2009.
- .5 National Fire Protection Association (NFPA)
  - .1 NFPA 80-2007, Standard for Fire Doors and Other Opening Protectives.
  - .2 NFPA 252-12, Fire Tests of Door Assemblies.
- .6 Underwriters' Laboratories of Canada (ULC)
  - .1 CAN4-S104-M80, Standard Method for Fire Tests of Door Assemblies.
  - .2 CAN4-S105-M85, Standard Specification for Fire Door Frames Meeting the Performance Required by CAN/ULC S104.
  - .3 CAN4-S106-M80, Fire Tests of Window and Glass Block Assemblies.

**1.2 SYSTEM DESCRIPTION**

- .1 Design Requirements:
  - .1 Provide fire labelled frames for openings requiring fire protection ratings.
  - .2 Steel fire rated doors and frames: labelled and listed by an organization accredited by Standards Council of Canada in conformance with CAN4-S104 or NFPA 252 for ratings specified or indicated.
  - .3 Steel fire rated borrowed light and window assemblies: Conform to CAN4-S106.

**1.3 SUBMITTALS**

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

- .2 Shop drawings:
  - .1 Indicate each type of door, material, steel core thicknesses, mortises, reinforcements, location of exposed fasteners, openings, glazing, arrangement of hardware, fire ratings, and finishes.
  - .2 Indicate each type of frame material, core thickness, reinforcements, glazing stops, location of anchors and exposed fastenings, reinforcing, fire rating, and finishes.
  - .3 Include schedule identifying each unit, with door marks and numbers relating to numbering on drawings and door schedule.

#### **1.4 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Deliver, handle, and store doors and frames at the job site in such manner as to prevent damage.
- .3 Store doors and frames under cover with doors stored in a vertical position on blocking, clear of floor, and with blocking between doors to permit air circulation.
- .4 Waste Management and Disposal: Remove waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

### **Part 2 Products**

#### **2.1 MATERIALS**

- .1 Hot dipped galvanized steel sheet: To ASTM A653/A653M, CS Type B.
  - .1 Galvanizing thickness: Z120 (G40).

#### **2.2 DOOR CORE MATERIALS**

- .1 Honeycomb construction: Structural small cell, 24.5 mm maximum kraft paper 'honeycomb', weight: 36.3 kg per ream minimum, density: 16.5 kg/m<sup>3</sup> minimum, sanded to required thickness.

#### **2.3 ADHESIVES**

- .1 Honeycomb cores and steel components: Heat resistant, spray grade, resin reinforced neoprene/rubber (polychloroprene) based, low viscosity, contact cement.
- .2 Lock-seam doors: Fire resistant, resin reinforced polychloroprene, high viscosity, sealant/adhesive.

#### **2.4 PRIMER**

- .1 Touch-up primer to CAN/CGSB 1.181.

**2.5 PAINT**

- .1 Field paint steel doors and frames in accordance with Section 09 91 00 – Painting. Protect gasketing from paint. Provide final finish free of scratches and other blemishes.

**2.6 ACCESSORIES**

- .1 Door Hardware: Specified in Section 08 71 00.
- .2 Metallic paste filler: To manufacturer's standard.
- .3 Fire labels: Metal riveted.
- .4 Sealant: Refer to Section 07 92 00 – Joint Sealing.
- .5 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.
- .6 Glazing: Fire-rated laminated wired glass - refer to Section 08 80 50 – Glazing.

**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 Interior frames: 1.6 mm welded type construction.
- .4 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.
- .5 Prepare frame for door silencers, 3 for single door, 2 at head for double door.
- .6 Manufacturer's nameplates on frames and screens are not permitted.
- .7 Conceal fastenings except where exposed fastenings are indicated.
- .8 Provide fire labelled frames for those openings requiring fire protection ratings, as scheduled. Test such products in conformance with CAN/ULC S104 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 Provide factory-applied touch up primer at areas where zinc coating has been removed during fabrication.

**2.8 FRAME ANCHORAGE**

- .1 Shim and anchor new doors in accordance with CAN/CSA A440.4.
- .2 Provide appropriate anchorage to floor and wall construction.
- .3 Locate each wall anchor immediately above or below each hinge reinforcement on hinge jamb and directly opposite on strike jamb.
- .4 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.

- .5 Locate anchors for frames in existing openings not more than 150 mm from top and bottom of each jambs and intermediate at 660 mm on centre maximum.

## **2.9 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 DOOR FABRICATION GENERAL**

- .1 Doors: Swing type, flush, with provision for glass openings as indicated.
- .2 Interior doors: Honeycomb hollow steel construction.
- .3 Fabricate doors with longitudinal edges locked seamed, adhesive assisted.
  - .1 Seams: Visible.
- .4 Blank, reinforce, drill doors and tap for mortised, templated hardware and electronic hardware.
- .5 Factory prepare holes 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 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 CAN/ULC S104 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.

## **2.11 DOORS: HONEYCOMB CORE CONSTRUCTION**

- .1 Form face sheets for interior doors from 1.3 mm sheet steel with honeycomb core laminated under pressure to face sheets.

**Part 3            Execution**

**3.1                MANUFACTURER'S INSTRUCTIONS**

- .1        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 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.

**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: 1.0 mm.
  - .2            Latchside and head: 1.5 mm.
  - .3            Finished floor: 13 mm.
- .3        Adjust operable parts for correct function.

**3.5                FINISH 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.

**3.6                GLAZING**

- .1        Install glazing for doors and frames in accordance with Section 08 80 50 - Glazing.

**END OF SECTION**

**Part 1 General**

**1.1 REFERENCES**

- .1 Architectural Woodwork Manufacturers Association of Canada (AWMAC)
  - .1 Architectural Woodwork Standards, Edition 2, 2014.
- .2 ASTM International
  - .1 ASTM A276-10, Standard Specification for Stainless Steel Bars and Shapes.
- .3 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB 71.19-M88, Adhesive, Contact, Sprayable.
  - .2 CAN/CGSB 71.20-M88, Adhesive, Contact, Brushable.
- .4 Canadian Standards Association (CSA)
  - CAN/CSA O132.2 Series-90 (R1998), Wood Flush Doors.
  - .1 CAN/CSA O132.5-M1992 (R1998), Stile and Rail Wood Doors.

**1.2 SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's printed product literature, specifications, data sheets and installation instructions. Include door core materials, thickness, construction, and veneer species.
  - .2 Submit WHMIS Material Safety Data Sheets. Indicate VOC content for door materials and adhesives.
- .3 Shop Drawings:
  - .1 Indicate door types and cut-outs for lights, sizes, core construction, locations, swings, undercuts, hardware locations and preparation requirements, finishes, glass, and other pertinent data.
- .4 Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

**1.3 QUALITY ASSURANCE**

- .1 Perform work to custom grade in accordance with requirements of AWMAC Architectural Woodwork Standards.

**1.4 DELIVERY, STORAGE, AND HANDLING**

- .1 Deliver, store, protect, and handle products in compliance with AWMAC Architectural Woodwork Standards, and with manufacturer's recommendations.
- .2 Arrange for delivery after work causing abnormal humidity has been completed.

- .3 Accept doors on site in manufacturer's packaging. Inspect for damage.
- .4 Storage and Protection:
  - .1 Protect doors from dampness.
  - .2 Store doors in well ventilated room, off floor, in accordance with manufacturer's recommendations.
  - .3 Protect doors from scratches, handling marks, and other damage.
  - .4 Store doors away from direct sunlight.

## **1.5 WASTE MANAGEMENT AND DISPOSAL**

- .1 Waste Management: Remove waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

## **Part 2 Products**

### **2.1 MATERIALS**

- .1 Ensure products contain no added urea formaldehyde resins and adhesives.

### **2.2 NON-RATED WOOD FLUSH DOORS**

- .1 Manufacture doors to ANSI/WDMA I.S. 1a-11 Heavy Duty performance level.
- .2 Solid core: To CAN/CSA O132.2, stile and rail frame, 5-ply construction.
  - .1 Particleboard to ANSI A208.2.
  - .2 Acoustic rated doors: Manufacturer's proprietary acoustical material.
- .3 Stiles: Softwood, AWMAC Type A solid wood, minimum 32 mm wide.
- .4 Rails: Structural composite lumber or softwood, minimum 51 mm wide.
- .5 Blocking for hardware: Softwood.
- .6 Face Panels:
  - .1 Face veneer: Maple.
- .7 Glazing stops: Same as door face veneer.
- .8 Glass: Refer to Section 08 80 50 – Glazing.
- .9 Adhesive: Type I waterproof PVA cross-link for interior doors.
- .10 Edges: Square.
- .11 Finish: Clear stain, refer to Section 09 91 00 – Painting.

### **2.3 ACCESSORIES**

- .1 Glass: Refer to Section 08 80 50 – Glazing.
- .2 Reveals: Stainless steel extruded profile to ASTM A276, Type 304, satin finish.



**2.4 FABRICATION**

- .1 Vertical edge strips to match face veneer.
- .2 Prepare doors for glazing. Provide glazing stops with mitred corners.
- .3 Fabricate doors with recessed U-channel reveals inset to doors as indicated.

**Part 3 Execution**

**3.1 MANUFACTURER'S INSTRUCTIONS**

- .1 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 Unwrap and protect doors in accordance with CAN/CSA O132.2 Series.
- .2 Install doors and hardware in accordance with manufacturer's printed instructions and CAN/CSA O132.2 Series.
- .3 Adjust hardware for correct function.
- .4 Install glazing in accordance with Section 08 80 50 - Glazing.
- .5 Install stops.

**3.3 ADJUSTMENT**

- .1 Re-adjust doors and hardware, just prior to substantial completion, to function freely and properly.

**3.4 CLEANING**

- .1 Perform cleaning as soon as possible after installation to remove construction and accumulated environmental dirt.
- .2 Remove traces of primer and caulking; clean doors and frames.
- .3 Clean glass and glazing materials with approved non-abrasive cleaner.
- .4 On completion of installation, remove surplus materials, rubbish, tools, and equipment barriers.

**END OF SECTION**

**Part 1 General**

**1.1 REFERENCES**

- .1 National Fire Protection Association (NFPA)
  - .1 NFPA 80-2007, Fire Doors and Other Opening Protectives.
- .2 Underwriters Laboratory of Canada (ULC)
  - .1 CAN4-S104-M80, Fire Tests of Door Assemblies.

**1.2 ADMINISTRATIVE REQUIREMENTS**

- .1 Coordinate placement of access panels with mechanical, electrical, and plumbing trades.
- .2 Confirm placement of access panels with Departmental Representative.

**1.3 SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for access door components. Include product characteristics, performance criteria, physical size, finish, and limitations.
- .3 Shop Drawings:
  - .1 Submit catalogue details for each type of door illustrating profiles, dimensions, and methods of assembly. Indicate location and details of installation.
- .4 Samples:
  - .1 Submit for review and acceptance of each type of access panel.
  - .2 Samples will be returned for inclusion into work.

**1.4 CLOSEOUT SUBMITTALS**

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

**1.5 DELIVERY, STORAGE, AND HANDLING**

- .1 Deliver, store, and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:

- .1 Store materials indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
- .2 Store and protect access doors from nicks, scratches, and blemishes.
- .3 Replace defective or damaged materials with new.

## **Part 2 Products**

### **2.1 ACCESS PANELS**

- .1 Materials:
  - .1 Galvanized or galvanized cold-rolled sheet steel.
- .2 Components:
  - .1 Frame: Steel sheet, minimum 1.6 mm thick, with flange for installation to gypsum board substrate and rounded safety corners.
    - .1 Weld exposed joints in flange and grind smooth.
  - .2 Door: Steel sheet, minimum 1.6 mm thick, reinforced to maintain flat surface.
  - .3 Hinge: Continuous steel with pin hinge or concealed hinge, with 175° swing.
  - .4 Lock: Flush, screwdriver operated cam lock.
  - .5 Finish: Powder coat prime paint.
  - .6 Rated access panels: For fire rated wall assemblies, provide access panels complying NFPA 80 or CAN4-S104, with insulated sandwich-type construction.
- .3 Fabrication:
  - .1 Fabricate components straight, square, flat, with slightly rounded exposed edges.
  - .2 Ensure products are without burrs, snags, and sharp edges.
  - .3 Exposed welds continuous and ground smooth.
  - .4 Provide anchors or make provisions in frame for anchorage to adjacent construction. Provide size, number, and location of anchors on all sides to secure access panel in opening.
  - .5 Provide access panel with louvered face in Kitchen for access to hot water tank.
- .4 Sizes: As follows, unless indicated otherwise in Drawings:
  - .1 For body entry: 600 x 600 mm.
  - .2 For hand entry: 300 x 300 mm.
  - .3 For louvered access panel: As indicated on drawings.

**Part 3          Execution**

**3.1              EXAMINATION**

- .1      Verify conditions of substrates are acceptable for access panel installation in accordance with manufacturer's written instructions.
  - .1      Visually inspect substrate.
  - .2      Inform Departmental Representative of unacceptable conditions.
  - .3      Proceed with installation only after unacceptable conditions have been remedied.

**3.2              INSTALLATION**

- .1      Follow manufacturer's instructions for installation of access panels.
- .2      Locate access doors within view of equipment and ensure equipment is accessible for operating, inspecting, adjusting, servicing without using special tools.
- .3      Install panels level, plumb, and straight.

**3.3              CLEANING**

- .1      Progress Cleaning: Clean in accordance with Section 01 74 11 - Cleaning.
- .2      Final Cleaning: Upon completion, remove surplus materials, rubbish, tools, and equipment in accordance with Section 01 74 11 - Cleaning.
- .3      Waste Management: Remove waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

**3.4              PROTECTION**

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

**END OF SECTION**

**Part 1 General**

**1.1 REFERENCES**

- .1 ASTM International
  - .1 ASTM A653/A653M-11, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
  - .2 ASTM A666-10, Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
  - .3 ASTM B221/B221M-12, Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

**1.2 SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for coiling counter doors and hardware; include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop Drawings:
  - .1 Indicate coiling counter door, arrangement of hardware, operating mechanism, and required clearances.

**1.3 CLOSEOUT SUBMITTALS**

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

**1.4 DELIVERY, STORAGE, AND HANDLING**

- .1 Deliver, store, and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
  - .1 Store materials off ground indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect coiling counter doors from nicks, scratches, and blemishes.
  - .3 Replace defective or damaged materials with new.

**Part 2 Products**

**2.1 MATERIALS**

- .1 Galvanized steel sheet: To ASTM A653/A653M.
- .2 Stainless steel: To ASTM A666, with No. 4 finish.
- .3 Aluminum to ASTM B221/B221M.

**2.2 COILING COUNTER DOORS**

- .1 Assemble coiling counter door curtain of 0.79 mm (22 gauge) thick, formed stainless steel interlocking slat sections.
  - .1 Attach alternate end locks to slat ends.
- .2 Mounting condition: Face of wall.
- .3 Bottom bar: Stainless steel angle.
- .4 Form guides of extruded aluminum.
- .5 Construct counterbalance assembly consisting of helical torsion spring enclosed in steel tube. Provide spring tension adjusting wheel, accessible for setting.
- .6 Support counterbalance assembly on steel plate brackets, forming end enclosures.
- .7 Enclose counter balance assembly with stainless steel sheet formed hood.
- .8 Equip coiling door for locking from inside with cylinder lock.
  - .1 Coordinate with Departmental Representative for keying strategy.

**2.3 OPERATION**

- .1 Crank operator with removable hand crank.

**Part 3 Execution**

**3.1 EXAMINATION**

- .1 Verify conditions of substrates are acceptable for coiling counter doors installation in accordance with manufacturer's written instructions.
  - .1 Visually inspect substrate.
  - .2 Inform Departmental Representative of unacceptable conditions.
  - .3 Proceed with installation only after unacceptable conditions have been remedied.

**3.2 INSTALLATION**

- .1 Install coiling counter door in accordance with manufacturer's printed instructions.
- .2 Use anchorage devices to securely fasten assembly to wall construction and building framing without distortion or stress.

- .3 Securely and rigidly brace components suspended from structure. Secure guides to structural members only.
- .4 Fit and align assembly including hardware; level and plumb, to provide smooth operation.
- .5 Install cylinder lock.
- .6 Test for proper operation and adjust as necessary to provide proper operation without binding or distortion.
- .7 Adjust hardware and operating assemblies for smooth and noiseless operation.

### **3.3 CLEANING**

- .1 Progress Cleaning: Clean in accordance with Section 01 74 11 - Cleaning.
- .2 Leave Work area clean at end of each day.
- .3 Remove traces of primer, caulking; clean doors and frames.
- .4 Final Cleaning: Upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .5 Waste Management: Remove waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

### **3.4 PROTECTION**

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

**END OF SECTION**

**Part 1 General**

**1.1 REFERENCES**

- .1 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB 1.40-97, Anticorrosive Structural Steel Alkyd Primer.
- .2 Canadian Standards Association (CSA)
  - .1 AAMA/WDMA/CSA 101/I.S.2/A440-11, NAFS – North American Fenestration Standard/Specification for Windows, Doors, and Skylights.

**1.2 SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for windows; include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop Drawings:
  - .1 Submit drawings stamped and signed by professional engineer registered or licensed in the Northwest Territories.
  - .2 Indicate materials and details in full size scale for head, jamb and sill, profiles of components, trim, junction between combination units, elevations of unit, anchorage details, location of isolation coating, description of related components and exposed finishes, fasteners, and caulking. Indicate location of manufacturer's nameplates.

**1.3 CLOSEOUT SUBMITTALS**

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

**1.4 QUALITY ASSURANCE**

- .1 Certifications: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

**1.5 DELIVERY, STORAGE, AND HANDLING**

- .1 Deliver, store, and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:



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

## **Part 2 Products**

### **2.1 MATERIALS**

- .1 Materials: To CSA A440.
- .2 Provide windows by same manufacturer.
- .3 Main frame: Steel.
- .4 Glass: In accordance with Section 08 80 50 - Glazing.
- .5 Isolation coating: Alkali resistant bituminous paint.
- .6 Sealants: Refer to Section 07 92 00.

### **2.2 WINDOW TYPE AND CLASSIFICATION**

- .1 Types:
  - .1 Fixed.
  - .2 Awning.

### **2.3 FABRICATION**

- .1 Fabricate in accordance with CSA A440 supplemented as follows:
- .2 Fabricate units square and true with maximum tolerance of plus or minus 1.5 mm for units with a diagonal measurement of 1800 mm or less and plus or minus 3 mm for units with a diagonal measurement over 1800 mm.
- .3 Face dimensions detailed are maximum permissible sizes.
- .4 Brace frames to maintain squareness and rigidity during shipment and installation.
- .5 Finish steel clips and reinforcement with shop coat primer to CAN/CGSB 1.40 g/m<sup>2</sup>, or galvanize.

### **2.4 ENAMEL COATING**

- .1 Enamel coating: In accordance with CSA A440, including appendices, supplemented as follows:
  - .1 To match adjacent doors and frames and as confirmed by Departmental Representative.

### **2.5 ISOLATION COATING**

- .1 Isolate aluminum from following components, by means of isolation coating:

- .1 Dissimilar metals except stainless steel, zinc, or white bronze of small area.
- .2 Concrete, mortar and masonry.
- .3 Wood.

## **2.6 GLAZING**

- .1 Glaze windows in accordance with Section 08 80 50.

## **2.7 HARDWARE**

- .1 Hardware: stainless steel or white bronze sash locks and aluminum handles to provide security and permit easy operation of units.
- .2 Locks: provide operating sash with spring loading locking device, to provide automatic locking in closed position.
- .3 Include special keyed opening device for windows normally locked.

## **Part 3 Execution**

### **3.1 EXAMINATION**

- .1 Verify conditions of substrates are acceptable for product installation in accordance with manufacturer's written instructions.
  - .1 Visually inspect substrate.
  - .2 Inform Departmental Representative of unacceptable conditions.
  - .3 Proceed with installation only after unacceptable conditions have been remedied.

### **3.2 INSTALLATION**

- .1 Window installation:
  - .1 Install in accordance with CSA A440.
  - .2 Arrange components to prevent abrupt variation in colour.
- .2 Caulking:
  - .1 Seal joints between windows and windowsills 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 Departmental Representative.

### **3.3 CLEANING**

- .1 Progress Cleaning: Clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Leave Work area clean at end of each day.

- .2 Final Cleaning: Upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .3 Waste Management: Remove waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

**3.4 PROTECTION**

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

**END OF SECTION**

**Part 1 General**

**1.1 REFERENCES**

- .1 ASTM International
  - .1 ASTM B221/B221M-12, Aluminum and Aluminum Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
- .2 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB 12.1-M90, Tempered or Laminated Safety Glass.
  - .2 CAN/CGSB 19.13-M87, Sealing Compound, One-Component, Elastomeric, Chemical Curing.
- .3 National Electrical Manufacturers Association (NEMA)
  - .1 ANSI/NEMA LD3-2005, Performance, Application, Fabrication, and Installation of High Pressure Decorative Laminates.
- .4 Underwriters Laboratories (UL)
  - .1 UL 752, Standard for Bullet-Resisting Equipment.

**1.2 SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for windows; include product characteristics, performance criteria, physical size, finishes, and limitations.
- .3 Shop Drawings:
  - .1 Indicate materials and details in full size scale for framing, profiles of components, trim, elevations of unit, anchorage details, description of related components and exposed finishes, fasteners, and caulking.
- .4 Test and Evaluation Reports:
  - .1 Submit test reports from approved independent testing laboratories, certifying compliance with specifications, for glass.

**1.3 DELIVERY, STORAGE, AND HANDLING**

- .1 Deliver, store, and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
  - .1 Store materials off ground indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

- .2 Store and protect materials from nicks, scratches, and blemishes.
- .3 Replace defective or damaged materials with new.

## **Part 2 Products**

### **2.1 SECURITY WINDOW**

- .1 Assembly consisting of window panels complete with aluminum framing; heavy duty construction.
- .2 Acceptable product: C.R. Laurence SW Series.

### **2.2 MATERIALS**

- .1 Frame: Extruded aluminum to ASTM B221/B221M, 6063-T5 alloy; clear anodised finish.
- .2 Sliding window: Top-hung, anti-lift, heavy duty ball bearing slides; sliding operation at lower 300 mm portion.
- .3 Access panel: Removable header.
- .4 Handle: Self-latching.
- .5 Counter: HPDL to NEMA LD3, on manufacturer's choice of core.
- .6 Window assembly STC rating: Minimum 45.
- .7 Glass: To CAN/CGSB 12.1, laminated, bullet resistant to UL752 Level 1; 2 layers of 6 mm laminated glass with 1.5 mm (0.060 inch) bonded interlayer.
  - .1 Apply 1 layer of security film to exterior side of glass. Refer to Section 08 87 33 – Glazing Films.

### **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 Face dimensions detailed are maximum permissible sizes.
- .3 Brace frames to maintain squareness and rigidity during shipment and installation.
- .4 Fabricate with fixed upper pane and transom.
- .5 Fabricate with lower horizontal sliding window; include one fixed panel and one sliding panel, complete with locking latch.
- .6 Sliding panel: Hang with two roller brackets. Provide extruded aluminum door glides with retainer clips along bottom for positively guided no-sway operation of sliding panel.

**Part 3            Execution**

**3.1                EXAMINATION**

- .1        Verify conditions of substrates are acceptable for security window installation in accordance with manufacturer's written instructions.
  - .1        Visually inspect substrate.
  - .2        Inform Departmental Representative of unacceptable conditions.
  - .3        Proceed with installation only after unacceptable conditions have been remedied.

**3.2                INSTALLATION**

- .1        Install windows in accordance with manufacturer's instructions.
- .2        Set frames plumb, square, level, and at correct elevation in alignment with adjacent work.
- .3        Anchor window unit securely.
- .4        Adjust operable parts for smooth, friction-free operation.
- .5        Caulking:
  - .1        Seal joints between window frame and other building components.

**3.3                CLEANING**

- .1        Progress Cleaning: Clean in accordance with Section 01 74 11 - Cleaning.
  - .1        Leave Work area clean at end of each day.
- .2        Final Cleaning: Upon completion remove surplus materials, rubbish, tools, and equipment in accordance with Section 01 74 11 - Cleaning.
- .3        Waste Management: Remove waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

**3.4                PROTECTION**

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

**END OF SECTION**

**Part 1        General**

**1.1        REFERENCES**

- .1 American National Standards Institute (ANSI) / Builders Hardware Manufacturers Association (BHMA)
  - .1 ANSI A117.1-2009, Standard for Accessible and Usable Buildings.
  - .2 ANSI/BHMA A156.1-2013, American National Standard for Butts and Hinges.
  - .3 ANSI/BHMA A156.2-2011, Bored and Preamsembled Locks and Latches.
  - .4 ANSI/BHMA A156.3-2014, Exit Devices.
  - .5 ANSI/BHMA A156.4-2013, Door Controls - Closers.
  - .6 ANSI/BHMA A156.5-2014, Auxiliary Locks and Associated Products.
  - .7 ANSI/BHMA A156.6-2010, Architectural Door Trim.
  - .8 ANSI/BHMA A156.8-2010, Door Controls – Overhead Stops and Holders.
  - .9 ANSI/BHMA A156.9-2010, Cabinet Hardware.
  - .10 ANSI/BHMA A156.13-2012, Mortise Locks.
  - .11 ANSI/BHMA A156.16-
  - .12 ANSI/BHMA A156.19-2013, Power Assist and Low Energy Power - Operated Doors.
  - .13 ANSI/BHMA A156.21-2014, Thresholds.
  - .14 ANSI/BHMA A156.22-2012, Door Gasketing and Edge Seal Systems.
  - .15 ANSI/BHMA A156.31-2013, Electric Strikes and Frame Mounted Actuators.
  - .16 ANSI/BHMA A156.115W-2006 – Hardware Preparations in Wood Doors.
- .2 ASTM International
  - .1 ASTM E283-04 (2012), Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen
- .3 Canadian Standards Association (CSA)
  - .1 CSA B651-12 – Accessible Design for the Built Environment.
- .4 Canadian Steel Door and Frame Manufacturers' Association (CSDMA)
  - .1 CSDMA Recommended Dimensional Standards for Commercial Steel Doors and Frames - 2009.
- .5 National Fire Protection Association (NFPA)
  - .1 NFPA (Fire) 80 - Standard for Fire Doors and Other Opening Protectives, 2007 edition.
  - .2 NFPA (Fire) 252 - Fire Tests of Door Assemblies, 2012 edition.
- .6 Underwriter's Laboratories of Canada (ULC)

- .1 CAN/ULC S104-M80, Fire Tests of Door Assemblies.

## **1.2 SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for door hardware and include product characteristics, performance criteria, physical size, finish, and limitations.
- .3 Samples:
  - .1 Submit for review and acceptance of each unit.
  - .2 Samples will be returned for inclusion into work.
  - .3 Identify each sample by label indicating applicable specification paragraph number, brand name and number, finish and hardware package number.
  - .4 After approval samples will be returned for incorporation in Work.
- .4 Hardware List:
  - .1 Submit contract hardware list.
  - .2 Indicate specified hardware, including make, model, material, function, size, finish and other pertinent information.
- .5 Manufacturer's Instructions: Submit manufacturer's installation instructions.
- .6 Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
- .7 Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

## **1.3 CLOSEOUT SUBMITTALS**

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

## **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.

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

- .1 Deliver, store, and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.



- .2 Deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Package items of hardware including fastenings, separately or in like groups of hardware, label each package as to item definition and location.
- .4 Storage and Handling Requirements:
  - .1 Store materials indoors in dry location and in accordance with manufacturer's recommendations in clean, well-ventilated area.
  - .2 Store and protect door hardware from nicks, scratches, and blemishes.
  - .3 Protect prefinished surfaces with wrapping or strippable coating.
  - .4 Replace defective or damaged materials with new.

## **Part 2 Products**

### **2.1 HARDWARE ITEMS**

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

### **2.2 DOOR HARDWARE**

- .1 Locks and latches:
  - .1 Mortise locks and latches: To BHMA A156.13, series 1000 mortise lock, Grade 1 and Security Grade 1. Meets impact requirements of ASTM F1577.
    - .1 Case: Wrought steel, zinc dichromate plated, 3 mm thick.
    - .2 Latchbolt: Stainless steel, minimum 19 mm throw.
    - .3 Strikes: To ANSI A115.1.
    - .4 Lever: L-shaped, forged or cast.
    - .5 Rose: Round, heavy wrought.
    - .6 Function: As scheduled.
  - .2 Cylindrical lock: To ANSI/BHMA A156.2, Series 4000, Grade 2 and ANSI A117.1; through-bolt style.
    - .1 Latchbolt: Minimum 13 mm throw.
    - .2 Levers: Solid cast.
    - .3 Roses: Heavy wrought.
    - .4 Strikes: Curved lip.
    - .5 Function: As scheduled.
- .2 Electric strikes: To ANSI/BHMA A156.31, Grade 1; heavy duty stainless steel.
  - .1 Conforms to CAN4-S104 for fire doors.
  - .2 Static strength: 1390 kg (3070 lbs).
  - .3 Dynamic strength: 475 N-m (350 ft-lbs).
  - .4 UL 1034 – burglary resistant.

- .3 Remote push button: UL listed, momentary action, 3 amp DPST switch, surface mounted, with protective black plastic cowl.
- .4 Hinges: To BHMA A156.1, five-knuckle.
  - .1 Standard weight: 0.134 gauge steel.
  - .2 Heavy weight: 0.180 gauge steel.
  - .3 Provide hinges with non-removable pins where scheduled.
  - .4 Provide pre-wired hinges where scheduled.
- .5 Flush bolt: To ANSI/BHMA A156.16, lever extension, brass, for fire-rated hollow metal doors, 19 mm (3/4 inch) rod throw.
  - .1 Strike: Brass, dust-proof, adjustable height.
- .6 Exit devices: To ANSI/BHMA A156.3, Grade 1, rim exit devices listed and labelled by UL.
- .7 Cylinders:
  - .1 To ANSI/BHMA A156.5, solid brass, 6 pin, to suit lock. Finish: To match existing.
- .8 Door closers: To BHMA A156.4, Grade 1, and ANSI A117.1, rack and pinion operation, aluminum case, adjustable backcheck intensity.
  - .1 Arms: Heavy duty forged steel; standard and parallel, as scheduled.
- .9 Door operators:
  - .1 Power assist and low energy power operated doors: To ANSI/BHMA A156.19, and ANSI/BHMA A156.4, rack and pinion design contained within cast aluminum housing.
    - .1 Door switch: Low-profile push plate, SPDT, cUL listed, 15 amp at 120 VAC, stainless steel plate, 900 x 150 mm (36 x 6 inch) exposed face, 25 mm (1 inch) depth.
- .10 Door bottom: Aluminum case with movable drop bar seal. Seal actuated by plunger contacting jamb. Aluminum with sponge neoprene insert.
- .11 Overhead stop: To ANSI/BHMA A156.8, Grade 1 and 2; slide track design.
- .12 Wall stops: Brass, bronze, and stainless steel with rubber bumper, 63 mm diameter, 19 mm projection, concealed mounting.
  - .1 Bumper: Convex or concave as scheduled.
- .13 Gasketing: To ANSI/BHMA A156.22, clear anodized aluminum extrusion with silicone insert, screw attachment.
- .14 Architectural door trim: To BHMA A156.6.
  - .1 Door protection plates: Kick plate type 1.27 mm thick stainless steel, No. 4 finish.

## **2.3 FASTENINGS**

- .1 Use only fasteners provided by manufacturer. Failure to comply may void warranties and applicable licensed labels.

- .2 Supply screws, bolts, expansion shields and other fastening devices required for satisfactory installation and operation of hardware.
- .3 Exposed fastening devices to match finish of hardware.
- .4 Where pull is scheduled on one side of door and push plate on other side, supply fastening devices, and install so pull can be secured through door from reverse side. Install push plate to cover fasteners.
- .5 Use fasteners compatible with material through which they pass.

## **2.4 KEYING**

- .1 Refer to Door Hardware Schedule.
- .2 Contact Departmental Representative for Keying Strategy.
  - .1 Secure keyway (Medico) is to be provided by Departmental Representative.
- .3 Provide keys in duplicate for every lock.
- .4 Provide three keys for non-secure keyway.
- .5 Provide four master keys for each master key group.
- .6 Stamp keying code numbers on keys and cylinders.

## **Part 3 Execution**

### **3.1 INSTALLATION**

- .1 Manufacturer's Instructions: Comply with manufacturer's written recommendations, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.
- .2 Supply door and frame manufacturers with complete instructions and templates for preparation of their work to receive hardware.
- .3 Supply manufacturers' instructions for proper installation of each hardware component.
- .4 Install hardware to standard hardware location dimensions in accordance with CSDFMA Canadian Metric Guide for Steel Doors and Frames (Modular Construction) and CSA B651.
- .5 Where doorstop contacts door pulls, mount stop to strike bottom of pull.
- .6 Use only manufacturer's supplied fasteners.
  - .1 Use of "quick" type fasteners, unless specifically supplied by manufacturer, is unacceptable.
- .7 Remove construction cores when directed by Departmental Representative.

### **3.2 ADJUSTING**

- .1 Adjust door hardware, operators, closures and controls for optimum, smooth operating condition, safety and for weather tight closure.

- .2 Lubricate hardware, operating equipment and other moving parts.
- .3 Adjust door hardware to ensure tight fit at contact points with frames.

### **3.3 CLEANING**

- .1 Progress Cleaning: in accordance with Section 01 74 11 - Cleaning.
  - .1 Clean hardware with damp rag and approved non-abrasive cleaner, and polish hardware in accordance with manufacturer's instructions.
  - .2 Remove protective material from hardware items where present.
  - .3 Final Cleaning: Upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .2 Waste Management: Remove waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

### **3.4 PROTECTION**

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

### **3.5 SCHEDULE**

#### **Hardware Sets**

##### **Set: 1.0**

3 Hinge (heavy weight)	T4A3786 NRP 4-1/2" x 4-1/2"	US26D	MK
1 Storeroom Lock	8204 LNL	US26D	SA
1 Electric Strike	1006CLB-LBM	630	HS
1 Door Closer	351 O	EN	SA
1 Automatic Operator	5710	689	NO
1 Kick Plate	K1050 10"	US32D	RO
1 Wall Stop	406	US32D	RO
1 Door Bottom	4131CRL		PE
1 Gasketing	303CS		PE
2 Actuator	639		NO
1 Card Reader	By Others		00
1 Position Switch	DPS-M/W-GY		SU
1 Power Supply	By Others		00

Notes: Outside actuator normally disabled. Swiping valid card will release the electric strike and enable the outside actuator. Inside actuator will always release the electric strike and power open the door. Confirm hardware shown is suitable for use with salvaged door.

**Set: 2.0**

3 Hinge	TA2714 NRP 4-1/2" x 4"	US26D	MK
1 Storeroom Lock	8204 LNL	US26D	SA
1 Electric Strike	1006CLB-LBM	630	HS
1 Door Closer	1431 O	EN	SA
1 Kick Plate	K1050 10"	US32D	RO
1 Wall Stop	406	US32D	RO
1 Door Bottom	420APKL		PE
1 Gasketing	303CS		PE
1 Card Reader	By Others		00
1 Power Supply	By Others		00

Notes: Swiping valid card will release the electric strike.

**Set: 3.0**

3 Hinge	TA2714 NRP 4-1/2" x 4"	US26D	MK
1 Storeroom Lock	8204 LNL	US26D	SA
1 Electric Strike	1006CLB-LBM	630	HS
1 Concealed Overhead Stop	2-X36	652	RF
1 Door Closer	1431 O	EN	SA
1 Kick Plate	K1050 10"	US32D	RO
1 Door Bottom	420APKL		PE
1 Gasketing	303CS		PE
1 Card Reader	By Others		00
1 Power Supply	By Others		00

Notes: Swiping valid card will release the electric strike.

**Set: 4.0**

3 Hinge	TA2714 4-1/2" x 4"	US26D	MK
1 Passage Set	28 7U15 LL	US26D	SA
1 Wall Stop	406	US32D	RO
1 Door Bottom	4131CRL		PE
1 Gasketing	303CS		PE

**Set: 5.0**

3 Hinge (heavy weight)	T4A3786 NRP 4-1/2" x 4-1/2"	US26D	MK
1 Storeroom Lock	8204 LNL	US26D	SA
1 Electric Strike	1006CLB-LBM	630	HS
1 Door Closer	351 O	EN	SA
1 Kick Plate	K1050 10"	US32D	RO
1 Wall Stop	406	US32D	RO
1 Door Bottom	420APKL		PE
1 Gasketing	303CS		PE
1 Remote Push Button	PB3ER		SU
1 Card Reader	By Others		00
1 Power Supply	By Others		00

Notes: Swiping valid card or pressing remote push button will release the electric strike.

**Set: 6.0**

3 Hinge	TA2714 NRP 4-1/2" x 4"	US26D	MK
1 Storeroom Lock	8204 LNL	US26D	SA
1 Electric Strike	1006CLB-LBM	630	HS
1 Door Closer	1431 O	EN	SA
1 Kick Plate	K1050 10"	US32D	RO
1 Wall Stop	406	US32D	RO
1 Door Bottom	420APKL		PE
1 Gasketing	303CS		PE
1 Card Reader	By Others		00
1 Position Switch	DPS-M/W-GY		SU
1 Power Supply	By Others		00

Notes: Swiping valid card will release the electric strike.

**Set: 7.0**

3 Hinge	TA2714 4-1/2" x 4"	US26D	MK
1 Office Lock	8205 LNL	US26D	SA
1 Wall Stop	406	US32D	RO
1 Door Bottom	4131CRL		PE
1 Gasketing	303CS		PE

**Set: 8.0**

1 Cylinder	41	US32D	SA
Balance of Hardware	By Glass Door Supplier		

Notes: Confirm cylinder type with door supplier prior to ordering.

**Set: 9.0**

3 Hinge (heavy weight)	T4A3786 NRP 4-1/2" x 4-1/2"	US26D	MK
1 Exit Device	12 8804 ETL	US32D	SA
1 Door Closer	351 P9	EN	SA
1 Kick Plate	K1050 10"	US32D	RO
1 Wall Stop	406	US32D	RO
1 Door Bottom	420APKL		PE
1 Gasketing	303CS		PE
1 Card Reader	By Others		00
1 Position Switch	DPS-M/W-GY		SU
1 Power Supply	By Others		00

**Set: 10.0**

3 Hinge	TA2714 4-1/2" x 4"	US26D	MK
1 Office Lock	8205 LNL	US26D	SA
1 Wall Stop	406	US32D	RO
1 Door Bottom	4131CRL		PE
1 Gasketing	303CS		PE

Notes: Co-ordinate hardware requirements with demountable partition supplier. Hardware above is shown for reference.

**Set: 11.0**

6 Hinge	TA2714 NRP 4-1/2" x 4"	US26D	MK
2 Flush Bolt	555	US26D	RO
1 Dust Proof Strike	570	US26D	RO
1 Storeroom Lock	8204 LNL	US26D	SA
2 Surface Overhead Stop	55-X36	652	RF

**Set: 12.0**

3 Hinge (heavy weight)	T4A3786 NRP 4-1/2" x 4-1/2"	US26D	MK
1 Storeroom Lock	8204 LNL	US26D	SA
1 Electric Strike	1006CLB-LBM	630	HS
1 Concealed Overhead Stop	6-X36	630	RF
1 Door Closer	351 O	EN	SA
1 Kick Plate	K1050 10"	US32D	RO
1 Door Bottom	420APKL		PE
1 Gasketing	303CS		PE
1 Card Reader	By Others		00
1 Power Supply	By Others		00

Notes: Swiping valid card will release the electric strike.

**Set: 13.0**

3 Hinge	TA2714 NRP 4-1/2" x 4"	US26D	MK
1 Storeroom Lock	8204 LNL	US26D	SA
1 Electric Strike	1006CLB-LBM	630	HS
1 Door Closer	1431 O	EN	SA
1 Kick Plate	K1050 10"	US32D	RO
1 Wall Stop	406	US32D	RO
1 Door Bottom	4131CRL		PE
1 Gasketing	303CS		PE
1 Card Reader	By Others		00
1 Power Supply	By Others		00

Notes: Swiping valid card will release the electric strike.

**Set: 14.0**

1 Exit Device	12 8810	US32D	SA
Balance of Hardware is Existing			

Notes: Confirm exit device shown is suitable for existing door prior to ordering.

**END OF SECTION**



**Part 1        General**

**1.1        REFERENCES**

- .1 American National Standards Institute (ANSI)
  - .1 ANSI Z97.1-2015, Safety Glazing Materials Used in Buildings – Safety Performance Specifications and Methods of Test.
- .2 ASTM International
  - .1 ASTM C542-05 (2011), Standard Specification for Lock-Strip Gaskets.
  - .2 ASTM D2240-05 (2010), Standard Test Method for Rubber Property - Durometer Hardness.
- .3 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB 12.1-2017, Safety Glazing.
- .4 Glass Association of North American (GANA)
  - .1 GANA Glazing Manual – current edition.
  - .2 GANA Laminated Glazing Reference Manual - 2009.
- .5 United States Consumer Product Safety Commission (CPSC)
  - .1 CPSC 16CFR1201 – Safety Standard for Architectural Glazing Materials.

**1.2        SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for glass, sealants, and glazing accessories; include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop Drawings:
  - .1 Show layout, profiles, and product components, including anchorage, accessories, finishes, colours, patterns.
  - .2 Include detailed plans, elevations, details of framing members, sealants, fasteners, anchors, thicknesses.
- .4 Certificates: Submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

**1.3        DELIVERY, STORAGE, AND HANDLING**

- .1 Deliver, store, and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

- .3 Storage and Handling Requirements:
  - .1 Store materials off ground in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect glazing and frames from nicks, scratches, and blemishes.
  - .3 Protect prefinished aluminum surfaces with strippable coating.
  - .4 Replace defective or damaged materials with new.

#### **1.4 AMBIENT CONDITIONS**

- .1 Ambient Requirements:
  - .1 Install glazing when ambient temperature is 10°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.

### **Part 2 Products**

#### **2.1 MATERIALS**

- .1 Glass for sidelights and transoms: Dual panes with PVB interlayer.
  - .1 Safety glass panes: To CAN/CGSB 12.1, transparent, 6 mm thick.
    - .1 Type 2-tempered.
    - .2 Edge treatment.
- .2 Glass for fire-rated metal door:
  - .1 Fire-rated glass: To CAN/CGSB 12.1, laminated wired glass, 6 mm thick.
    - .1 Fire rating: UL classified and labelled.
    - .2 Impact safety rating: ANSI Z97.1 and CPSC 16CFR1201 CAT I and II.
    - .3 Provide glazing tapes recommended by wired glass manufacturer for fire-rated installation.
- .3 Sealant: In accordance with Section 07 92 00 - Joint Sealing.

#### **2.2 ACCESSORIES**

- .1 Glazing films: Refer to Section 08 87 33 – Glazing Films.
- .2 Setting blocks: Neoprene, 80-90 Shore A durometer hardness to ASTM D2240, to suit glazing method, glass light weight and area.
- .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 spacer, 10-15 Shore A durometer hardness to ASTM D2240; coiled on release paper; widths as required for application, black colour.

- .5 Glazing splines: Resilient polyvinyl chloride or silicone, extruded shape to suit glazing channel retaining slot.
- .6 Lock-strip gaskets: To ASTM C542.

### **Part 3 Execution**

#### **3.1 EXAMINATION**

- .1 Verify conditions of substrates are acceptable for glazing installation in accordance with manufacturer's written instructions.
  - .1 Verify openings for glazing are correctly sized and within tolerance.
  - .2 Verify surfaces of glazing channels or recesses are clean, free of obstructions, and ready to receive glazing.
  - .3 Visually inspect substrate.
  - .4 Inform Departmental Representative of unacceptable conditions upon discovery.
  - .5 Proceed with installation only after unacceptable conditions have been remedied.

#### **3.2 PREPARATION**

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

#### **3.3 INSTALLATION: INTERIOR - DRY METHOD (TAPE AND TAPE)**

- .1 Perform work in accordance with GANA Glazing Manual for glazing installation methods.
- .2 Cut glazing tape to length and set against permanent stops, projecting 1.6 mm above sight line. Butt-joint tape edges, seal joints with butyl sealant.
- .3 Place setting blocks at 1/4 points, with edge block maximum 150 mm from corners.
- .4 Set glass unit on setting blocks; apply pressure against fixed stop for full contact.
- .5 Place glazing tape on free perimeter of glazing in same manner described.
- .6 Install removable stop without displacement of tape. Apply pressure on tape for full continuous contact.
- .7 Knife trim protruding tape.

#### **3.4 CLEANING**

- .1 Progress Cleaning: Clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Leave Work area clean at end of each day.
  - .1 Remove traces of primer, caulking.

- .2 Remove glazing materials from finish surfaces.
- .3 Remove labels.
- .4 Clean glass using approved non-abrasive cleaner in accordance with manufacturer's instructions.
- .2 Final Cleaning: Upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .2 Waste Management: Remove waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

### **3.5 PROTECTION**

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

**END OF SECTION**

**Part 1            General**

**1.1            REFERENCES**

- .1    ANSI Z97.1-2009, Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test.
- .2    CPSC 16 CFR 1201-2012, Safety Standard for Architectural Glazing Materials.

**1.2            SUBMITTALS**

- .1    Submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2    Product data: Manufacturer's current technical literature on each product proposed.
  - .1    Manufacturer's data sheets.
  - .2    Preparation instructions and recommendations.
  - .3    Storage and handling requirements and recommendations.
  - .4    Installation methods.
- .3    Samples:
  - .1    Duplicate samples, minimum 150 x 150 mm, of each film proposed for installation on the project.
- .4    Closeout Submittals: Section 01 78 00.
  - .1    Provide operation and maintenance data for window film for incorporation into manual.
  - .2    Follow manufacturer's written instructions for care and maintenance of glazing film.
  - .3    Use only cleaning solution recommended by manufacturer for regularly scheduled cleaning of glazing film.

**1.3            DELIVERY, STORAGE AND HANDLING**

- .1    Deliver, store, and handle materials in accordance with section 01 61 00 - Common Product Requirements.
- .2    Provide and maintain dry, off-ground weatherproof storage.
- .3    Waste Management and Disposal:
  - .1    Remove waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
  - .2    Place materials defined as hazardous or toxic waste in designated containers.
  - .3    Ensure emptied containers are sealed and stored safely.

## **Part 2 Products**

### **2.1 MATERIALS**

- .1 Security window film: Optically clear, polyester film, with abrasion-resistant coating on one face and pressure-sensitive adhesive on other face; microlayered for tear resistance.
  - .1 Thickness: Nominal 0.15 mm (0.006 inch).
  - .2 Tested in accordance with ANSI Z97.1 and CPSC 16 CFR 1201 CAT II.
- .2 Frosted window film: Optically clear, polyester film, with abrasion-resistant coating on one face and pressure-sensitive adhesive on other face.
  - .1 Thickness: Nominal 0.05 mm (0.002 inch).
  - .2 Colour: White.
  - .3 Pattern and degree of opacity: As selected by Departmental Representative.
- .3 One-way mirror window film: Polyester film with silver reflective front and black non-reflective back; pressure sensitive adhesive on back.

## **Part 3 Execution**

### **3.1 PREPARATION**

- .1 Clean glass before beginning installation using neutral cleaning solution.
- .2 Ensure no deleterious material adheres to glass by scraping surface of glass using industrial razors.
- .3 Ensure dust, grease, and chemical residue are removed from surface of glass before installation of film.
- .4 Examine glass under natural daylight and identify cracks, blisters, bubbles, discolouration, edge defects, or other anomalies that may cause film to delaminate or cause vision transparency or distortion problems. Report findings to Departmental Representative.

### **3.2 INSTALLATION**

- .1 Install film to glass, ensuring no blisters, bubbles, scratches or distortions.
- .2 Cut film edges straight and square.
- .3 Apply and attach film to glass in accordance with manufacturer's written instructions.
- .4 Splicing:
  - .1 Splice film only when glass is greater in width than film.
  - .2 Splice film only after approval from Departmental Representative.
  - .3 Use butt factory edges only.
  - .4 Ensure maximum overlap of 3 mm.

**3.3 INSTALLER'S INSPECTION**

- .1 Remove and replace film that continues to show blisters, bubbles, tears, scratches, edge defects or vision distortion in film when viewed under natural daylight from 2 metres minimum after 30-day period.

**3.4 FINAL CLEANING**

- .1 Wash interior and exterior of each window and film, using cleaning solution recommended by film manufacturer.

**END OF SECTION**