

THIS SECTION IS INCLUDED FOR REFERENCE ONLY

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.
- .7 United States Consumer Product Safety Commission (CPSC)
 - .1 CPSC 16CFR1201 – Safety Standard for Architectural Glazing Materials.

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.

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/m³ minimum, sanded to required thickness.
- .2 Stiffened: Face sheets laminated, honeycomb core.

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 weatherstrips from paint. Provide final finish free of scratches or other blemishes.

2.6 ACCESSORIES

- .1 Door Hardware and Weatherstripping: Specified in Section 08 71 00.
- .2 Door silencers: Single stud rubber/neoprene type.
- .3 Metallic paste filler: To manufacturer's standard.
- .4 Fire labels: Metal riveted.
- .5 Sealant: Refer to Section 07 92 00 – Joint Sealing.
- .6 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.
- .7 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.
- .8 Finish painting: Refer to Section 09 91 00 – Painting.

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 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 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 [and louvre] openings as indicated.
- .2 Interior doors: Honeycomb hollow steel construction.
- .3 Fabricate doors with longitudinal edges lock-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 flush PVC top caps to exterior doors. Provide inverted, recessed, spot welded channels to top and bottom of interior doors.
- .7 Factory install glazing.
- .8 Provide factory-applied touch-up primer at areas where zinc coating has been removed during fabrication.
- .9 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.

- .10 Manufacturer's nameplates on doors are not permitted.

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.
- .6 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: 1.0 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 in accordance with glass manufacturer's recommendations.

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 A156.4-2013, Door Controls - Closers.
 - .5 ANSI/BHMA A156.5-2014, Auxiliary Locks and Associated Products.
 - .6 ANSI/BHMA A156.6-2010, Architectural Door Trim.
 - .7 ANSI/BHMA A156.13-2012, Mortise Locks.
 - .8 ANSI/BHMA A156.19-2013, Power Assist and Low Energy Power - Operated Doors.
 - .9 ANSI/BHMA A156.31-2013, Electric Strikes and Frame Mounted Actuators.
 - .10 ANSI/BHMA A156.115W-2006 – Hardware Preparations in Wood Doors.
- .2 Canadian Standards Association (CSA)
 - .1 CSA B651-12 – Accessible Design for the Built Environment.
- .3 Canadian Steel Door and Frame Manufacturers' Association (CSDMA)
 - .1 CSDMA Recommended Dimensional Standards for Commercial Steel Doors and Frames - 2009.
- .4 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.
- .5 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 Hardware List:
 - .1 Submit contract hardware list.

- .2 Indicate specified hardware, including make, model, material, function, size, finish and other pertinent information.
- .4 Manufacturer's Instructions: Submit manufacturer's installation instructions.
- .5 Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
- .6 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 Cylindrical lock: To ANSI/BHMA A156.2, Series 4000, Grade 1 and ANSI A117.1; through-bolt style.
 - .1 Cycle test: Exceed 5 times requirements of ANSI/BHMA A156.2, Grade 1.
 - .2 Abusive locked lever torque: Minimum 1.5 times requirements of ANSI/BHMA A156.2, Grade 1.
 - .3 Latchbolt: Minimum 13 mm throw.
 - .4 Levers: Solid cast.
 - .5 Roses: Heavy wrought.
 - .6 Strikes: Curved lip, 124 mm height, complete with wrought boxes.
 - .7 Cylinders: To ANSI/BHMA A156.5, brass, 6-pin.
 - .8 Function: As scheduled.
- .2 Electric strikes: To ANSI/BHMA A156.31, Grade 1; heavy duty stainless steel, with latchbolt monitor.
 - .1 Conforms to CAN4-S104 where used for fire doors.
 - .2 Static strength: 660 kg (1500 lbs).
 - .3 Dynamic strength: 95 N-m (70 ft-lbs).
 - .4 Endurance: 500,000 cycles.
 - .5 UL 1034 – burglar resistant.
- .3 Hinges: To BHMA A156.1, five-knuckle, standard weight, 0.134 gauge steel.
 - .1 Provide hinges with non-removable pins where scheduled.
 - .2 Provide pre-wired hinges where scheduled.
- .4 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.
- .5 Door operators:
 - .1 Power assist and low energy power operated doors: To BHMA A156.19, rack and pinion design contained within cast aluminum housing, 170° swing.
- .6 Wall stops: Brass, bronze, and stainless steel with rubber bumper, 63 mm diameter, 19 mm projection, concealed mounting.
 - .1 Bumper: Convex or concave as indicated in schedule.
- .7 Architectural door trim: To BHMA A156.6.
 - .1 Door protection plates: Kick plate type 1.27 mm thick stainless steel, No. 4 finish.
- .8 Louvre panel for existing door: Extruded aluminum, 6063-T5 alloy, minimum 1.57 mm (0.062 inch) material thickness, with pre-drilled screw slots for mechanical attachment to door; clear anodised finish.
 - .1 Blade angle: 40° to 45°.
 - .2 Dimensions: 559 x 457 mm (22 x 18 inches).

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.
- .3 Provide keys in duplicate for every lock.
- .4 Provide four master keys for each master key group.
- .5 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.
 - .1 Install permanent cores and ensure locks operate correctly.

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 Leave Work area clean at end of each day.
 - .2 Clean hardware with damp rag and approved non-abrasive cleaner, and polish hardware in accordance with manufacturer's instructions.
 - .3 Remove protective material from hardware items where present.
 - .4 Final Cleaning: Upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .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

Set: 1.0

3 Hinge	TA2714 NRP 4-1/2" x 4"	US26D	MK
1 Storeroom Lock	28 10G04 LL	US26D	SA
1 Electric Strike	8300C-LBM	630	HS
1 Auto Operator	Entrematic LP-HA8	689	00
2 Full Height Actuators	639		NO
1 Kick Plate	K1050 10"	US32D	RO
1 Wall Stop	406	US32D	RO
1 Card Reader	By Security/Electrical Division		00
1 Request to Exit Sensor	By Security/Electrical Division		00
1 Door Position Switch	By Security/Electrical Division		00
1 Power Supply	By Security/Electrical Division		00

Notes: Door normally locked and outside actuator disabled. Swiping valid card will release the electric strike and enable the outside actuator, which will power open the door when pressed. Pressing the inside actuator will always release the electric strike and power open the door.

Set: 2.0

1 Storeroom Lock	28 10G04 LL	US26D	SA
1 Electric Strike	8300C-LBM	630	HS
1 Auto Operator	Entrematic LP-HA8	689	00
2 Full Height Actuators	639		NO
1 Card Reader	By Security/Electrical Division		00
1 Request to Exit Sensor	By Security/Electrical Division		00
1 Door Position Switch	By Security/Electrical Division		00
1 Power Supply	By Security/Electrical Division		00

Notes: Balance of hardware is existing to remain. Confirm existing hardware is suitable for re-use. Electric strike is shown for reference only. Provide electric strike to suit existing frame. Re-use existing lockset if suitable.

Door normally locked and outside actuator disabled. Swiping valid card will release the electric strike and enable the outside actuator, which will power open the door when pressed. Pressing the inside actuator will always release the electric strike and power open the door.

Set: 3.0

1 Storeroom Lock	28 7G04 LL	US26D	SA
1 Electric Strike	5200C-LBM	630	HS
1 Door Closer	1431 O	EN	SA
1 Wall Stop	406	US32D	RO
1 Card Reader	By Security/Electrical Division		00
1 Request to Exit Sensor	By Security/Electrical Division		00
1 Door Position Switch	By Security/Electrical Division		00
1 Power Supply	By Security/Electrical Division		00

Notes: Re-use existing hinges and if possible re-use all other hardware that is on the existing IT room door.

Set: 4.0

1 Storeroom Lock	28 7G04 LL	US26D	SA
1 Electric Strike	5200C-LBM	630	HS
1 Auto Operator	Entrematic LP-HA8	689	00

2 Full Height Actuators	639		NO
1 Door Closer	1431 O	EN	SA
1 Card Reader	By Security/Electrical Division		00
1 Request to Exit Sensor	By Security/Electrical Division		00
1 Door Position Switch	By Security/Electrical Division		00
1 Power Supply	By Security/Electrical Division		00

Notes: Balance of hardware is existing to remain. Confirm existing hardware is suitable for re-use. Electric strike is shown for reference only. Provide electric strike to suit existing frame. Re-use existing lockset if suitable. Door is normally locked and outside actuator disabled; swiping valid card to release electric strike and enable outside actuator, which will power open the door when pressed. Pressing inside actuator to always release electric strike and power open door.

Set: 5.0

1 Office Lock	28 7G05 LL	US26D	SA
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Notes: Balance of hardware is existing to remain. Confirm existing hardware is suitable for re-use. Re-use an existing lock if possible.

Set: 6.0

1 Passage Set	28 7U15 LL	US26D	SA
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Notes: Balance of hardware is existing to remain. Confirm existing hardware is suitable for re-use. Re-use an existing passage set if possible.

Set: 7.0

1 Storeroom Lock	28 7G04 LL	US26D	SA
1 Electric Strike	5200C-LBM	630	HS
1 Auto Operator	Entrematic LP-HA8	689	00
2 Full Height Actuators	639		NO
1 Card Reader	By Security/Electrical Division		00
1 Request to Exit Sensor	By Security/Electrical Division		00
1 Door Position Switch	By Security/Electrical Division		00
1 Power Supply	By Security/Electrical Division		00

Notes: Balance of hardware is existing to remain. Confirm existing hardware is suitable for re-

use. Electric strike is shown for reference only. Provide electric strike to suit existing frame. Re-use existing lockset if suitable.

Door normally locked and outside actuator disabled. Swiping valid card will release the electric strike and enable the outside actuator, which will power open the door when pressed. Pressing the inside actuator will always release the electric strike and power open the door.

Set: 8.0

1 Storeroom Lock	28 10G04 LL	US26D	SA
1 Electric Strike	8300C-LBM	630	HS
1 Door Closer	1431 O	EN	SA
1 Card Reader	By Security/Electrical Division		00
1 Request to Exit Sensor	By Security/Electrical Division		00
1 Door Position Switch	By Security/Electrical Division		00
1 Power Supply	By Security/Electrical Division		00

Notes: Balance of hardware is existing to remain. Confirm existing hardware is suitable for re-use. Electric strike is shown for reference only. Provide electric strike to suit existing frame. Re-use existing lockset if suitable.

END OF SECTION

Part 1 General

1.1 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 - Closeout Submittals.
 - .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.

1.2 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 Signage Window Film:
 - .1 Decorative film products, minimum 50 micrometres thick.
 - .1 Removable release liner.
 - .2 Pressure sensitive adhesive.

- .3 Pattern: Manufacturer's proprietary "Falling Maple Leaf" pattern. Confirm with Departmental Representative.
- .4 Acceptable material:
 - .1 Etchmark Film provided by Aztech Architectural Window Films.
- .2 Glazing Film Accessories:
 - .1 General: Provide products complying with requirements of glazing film manufacturer for application indicated, and with a proven record of compatibility with surfaces contacted in installation.
 - .2 Cleaners, Primers, and Sealers: Types recommended by glazing film manufacturer.

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 decorative film to glass windows 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 minimum 2 metres 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