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PART 1 - GENERAL1.1 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 91 23 - Interior Painting.

1.2 References

- .1 American Society for Testing and Materials (ASTM International)
  - .1 ASTM A 653/A653M-01a, Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
  - .2 ASTM B 29-92(1997), Specification for Refined Lead.
  - .3 ASTM B 749-97, Specification for Lead and Lead Alloy Strip, Sheet and Plate Products.
- .2 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-1.181-99, Ready-Mixed Organic Zinc-Rich Coating.
  - .2 CGSB 41-GP-19Ma-84, Rigid Vinyl Extrusions for Windows and Doors.
- .3 Canadian Standards Association (CSA International)
  - .1 G40.20/G40.21-98, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
  - .2 CSA W59-M1989 (R2001), Welded Steel Construction (Metal Arc Welding) (Metric Version).
- .4 Canadian Steel Door Manufacturers' Association, (CSDMA).
  - .1 CSDMA, Specifications for Commercial Steel Doors and Frames, 1990.
  - .2 CSDMA, Recommended Selection and Usage Guide for Commercial Steel Doors, 1990.
- .5 National Fire Protection Association (NFPA)
  - .1 NFPA 80-99, Standard for Fire Doors and Fire Windows.
  - .2 NFPA 252-99, Standard Methods of Fire Tests of Door Assemblies.
- .6 Underwriters' Laboratories of Canada (ULC)
  - .1 CAN4-S104-80 (R1985), Fire Tests of Door Assemblies.
  - .2 CAN4-S105-85 (R1992), Fire Door Frames Meeting the Performance Required by CAN4-S104.

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- .7 CAN/ULC-S701-01, Thermal Insulation, Polystyrene, Boards and Pipe Covering.
  - .8 CAN/ULC-S702-97, Thermal Insulation, Mineral Fibre, for Buildings.
  - .9 CAN/ULC-S704-01, Thermal Insulation, Polyurethane and Polyisocyanurate Boards, Faced.

### 1.3 Shop Drawings

- .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Indicate each type of door, material, steel core thicknesses, mortises, reinforcements, location of exposed fasteners, openings, glazed, arrangement of hardware and fire rating and finishes.
- .3 Indicate each type frame material, core thickness, reinforcements, glazing stops, location of anchors and exposed fastenings and reinforcing firerating finishes.
- .4 Include schedule identifying each unit, with door marks and numbers relating to numbering on drawings and door schedule.
- .5 Submit test and engineering data, and installation instructions.

### 1.4 Samples

- .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit one 300 x 300 mm top butt corner sample of each type door.
- .3 Submit one 300 x 300 mm corner sample of each type of frame.
  - .1 Show butt cutout and glazing stops.

### 1.5 Requirements

- .1 Steel fire rated doors and frames: labelled and listed by an organization accredited by Standards Council of Canada in conformance with CAN4-S104M NFPA 252 for ratings specified or indicated.
- .2 Provide fire labelled frame products for those openings requiring fire protection ratings, as scheduled. Test products in strict conformance with CAN4-S104, ASTM E 152 or NFPA 252 and list by nationally recognized agency having factory inspection service and construct as detailed in Follow-Up Service Procedures/Factory Inspection Manuals issued by listing agency to individual manufacturers.

### 1.6 Waste Management and

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

Disposal

- .2 Collect and separate for disposal paper plastic, polystyrene, corrugated cardboard packaging material in appropriate on-site for recycling in accordance with Waste Management Plan.
- .3 Divert unused paint and sealant materials from landfill to official hazardous material collections site approved by Departmental Representative.
- .4 Do not dispose of unused paint and sealant materials into sewer systems, into lakes, streams, onto ground or in other locations where it will pose health or environmental hazard.
- .5 Divert unused metal materials from landfill to metal recycling facility approved by Departmental Representative.
- .6 Divert unused wood materials from landfill to recycling, reuse, or composting facility approved by Departmental Representative.
- .7 Damaged or broken glazing materials are not recyclable. These materials must not be disposed of with materials destined for recycling.

PART 2 - PRODUCTS2.1 Materials

- .1 Hot dipped galvanized steel sheet: to ASTM A 653M, ZF75, minimum base steel thickness in accordance with CSDMA Table 1 - Thickness for Component Parts.
- .2 Reinforcement channel: to CSA G40.20/G40.21, Type 44W, coating designation to ASTM A 653M, ZF75.

2.2 Door Core Materials

- .1 Honeycomb construction:
  - .1 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.

2.4 Primer

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

2.5 Paint

- .1 Field paint steel doors and frames in accordance with Sections 09 91 23 - Interior Painting. Protect weatherstrips from paint. Provide final finish shall

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be 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: rigid polyvinylchloride extrusion conforming to CGSB 41-GP-19Ma steel.
- .3 Fabricate glazing stops as formed channel, minimum 16 mm height, accurately fitted, butted at corners and fastened to frame sections with counter-sunk oval head sheet metal screws.
- .4 Metallic paste filler: to manufacturer's standard.
- .5 Fire labels: metal rivited.
- .6 Glazing: as specified.
- .7 Make provisions for glazing as indicated and provide necessary glazing stops.
  - .1 Provide removable stainless steel glazing beads for dry glazing of snap-on type.
  - .2 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 Interior frames: 1.6 mm welded slip-on 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 Protect mortised cutouts with steel guard boxes.
- .6 Prepare frame for door silencers, 3 for single door, 2 at head for double door.
- .7 Manufacturer's nameplates on frames and screens are not permitted.
- .8 Conceal fastenings except where exposed fastenings are indicated.
- .9 Provide factory-applied touch up primer at areas where zinc coating has been removed during fabrication.
- .10 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 1520 mm and 1 additional anchor for each additional 760 mm of height or fraction thereof.
- .4 Locate anchors for frames in existing openings not more than 150 mm from top and bottom of each jambs and intermediate at 660 mm o.c. 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.

PART 3 - EXECUTION3.1 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.

3.2 Frame Installation

- .1 Set frames plumb, square, level and at correct elevation.
- .2 Secure anchorages and connections to adjacent construction.
- .3 Brace frames rigidly in position while building-in. Install temporary horizontal wood spreader at third points of door opening to maintain frame width. Provide vertical support at centre of head for openings over 1200 mm wide. Remove temporary spreaders after frames are built-in.
- .4 Make allowances for deflection of structure to ensure structural loads are not transmitted to frames.

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

3.3 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.

3.4 Glazing

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

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PART 1 - GENERAL1.1 RELATED  
SECTIONS

- .1 Section 06 47 00 - Plastic Laminate Finishing.
- .2 Section 08 11 14 - Metal Doors and Frames.
- .3 Section 08 71 00 - Door Hardware.

1.2 REFERENCES

- .1 Architectural Woodwork Manufacturers Association of Canada (AWMAC).
  - .1 Quality Standards for Architectural Woodwork 1998.
- .2 Canadian General Standards Board (CGSB).
  - .1 CAN/CGSB-71.19-M88, Adhesive, Contact, Sprayable.
  - .2 CAN/CGSB-71.20-M88, Adhesive, Contact, Brushable.
- .3 Canadian Standards Association (CSA International).
  - .1 CSA A440.2-98, Energy Performance of Windows and Other Fenestration Systems.
  - .2 CSA O115-M1982(R2001), Hardwood and Decorative Plywood.
  - .3 CAN/CSA O132.2 Series-90(R1998), Wood Flush Doors.
  - .4 CAN/CSA-O132.5-M1992(R1998), Stile and Rail Wood Doors.
  - .5 CAN/CSA-Z808-96, A Sustainable Forest Management System: Guidance Document.
  - .6 CSA Certification Program for Windows and Doors 00.
- .4 Environmental Choice Program (ECP).
  - .1 CCD-045-92, Sealants and Caulking Compounds.
  - .2 CCD-046-92, Adhesives.

1.3 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 caulking materials during application and curing.
    - .2 For door materials and adhesives.
- .2 Shop Drawings:
  - .1 Submit shop drawings in accordance with Section

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01 33 00 - Submittal Procedures.

.2 Indicate door types, sizes, core construction and cutouts.

#### 1.4 SAMPLES

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

.2 Submit one 300 x 300 mm corner sample of each type wood door.

.3 Show door construction, core, glazing detail and faces.

.4 Manufacturer's Instructions:

.1 Submit manufacturer's installation instructions.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

.1 Storage and Protection:

.1 Protect doors from dampness. Arrange for delivery after work causing abnormal humidity has been completed.

.2 Store doors in well ventilated room, in accordance with manufacturer's recommendations.

.3 Protect doors from scratches, handling marks and other damage. Wrap doors.

.4 Store doors away from direct sunlight.

#### 1.6 WASTE MANAGEMENT AND DISPOSAL

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

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

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

.4 Divert unused adhesive material from landfill to official hazardous material collections site approved by Engineer.

.5 Do not dispose of unused paint materials into sewer systems, into lakes, streams, onto ground or in locations where it will pose health or environmental hazard.

### PART 2 - PRODUCTS

#### 2.1 WOOD FLUSH DOORS

.1 Solid core: to CAN/CSA-O132.2.1.

.1 Construction:

.1 Solid particleboard core: stile and rail frame bonded to particleboard core, 5-ply

- construction.
- .2 Face Panels:
    - .1 Hardboard: composition face
  - .3 Adhesive: Type II (water resistant) for interior doors.

## 2.2 FABRICATION

- .1 Vertical edge strips to match face veneer.
- .2 Bevel vertical edges of single acting doors 3 mm in 50 mm on lock side and 1.5 mm in 50 mm on hinge side.

## 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 Unwrap and protect doors in accordance with CAN/CSA-0132.2 Series-90.
- .2 Install doors and hardware in accordance with manufacturer's printed instructions and CAN/CSA-0132.2 Series-90.
- .3 Adjust hardware for correct function.

### 3.3 ADJUSTMENT

- .1 Re-adjust doors and hardware just prior to completion of building 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, caulking; clean doors and frames.
- .3 On completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

PART 1 - GENERAL

- 1.1 RELATED REQUIREMENTS
- .1 Section 06 20 00 - Finish Carpentry.
  - .2 Section 06 40 00 - Architectural Woodwork.
  - .3 Section 06 47 00 - Plastic Laminate Finishing.
- 1.2 REFERENCES
- .1 American National Standards Institute (ANSI) / Builders Hardware Manufacturers Association (BHMA)
    - .1 ANSI/BHMA A156.9-2003, Cabinet Hardware.
    - .2 ANSI/BHMA A156.16-2008, Auxiliary Hardware.
    - .3 ANSI/BHMA A156.18-2006, Materials and Finishes.
    - .4 ANSI/BHMA A156.20-2006, Strap and Tee Hinges and Hasps.
- 1.3 ACTION AND INFORMATIONAL 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 cabinet 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, finish and other pertinent information.
  - .4 Manufacturer's Instructions: submit manufacturer's installation instructions.
- 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 cabinet hardware for incorporation into manual.
- 1.5 QUALITY ASSURANCE
- .1 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- 1.6 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 Delivery and Acceptance Requirements: 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 off ground indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect cabinet 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 product for all similar items.

### 2.2 CABINET HARDWARE

- .1 Cabinet hardware: to ANSI/BHMA A156.9, designated by letter B and numeral identifiers listed below.
  - .1 Hinges: concealed self closing, finish to brushed nickel.
  - .2 Pulls: design as shown, finished to brushed nickel.
  - .3 Drawer slides: side mounted drawer slides, soft self-closing style.

### 2.3 MISCELLANEOUS HARDWARE

- .1 Closet hanger bar and supports:
  - .1 Metal pole sockets for metal poles, size as indicated, finished to polished chrome.

### 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.

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

- .3 Install key control cabinet and establish key control set-up.
- 3.2 ADJUSTING
- .1 Adjust cabinet hardware for optimum, smooth operating condition.
- .2 Lubricate hardware and other moving parts.
- .3 Adjust cabinet door hardware to ensure tight fit at contact points with frames.
- 3.3 CLEANING
- .1 Progress 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.
- 3.4 PROTECTION
- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by cabinet and miscellaneous hardware installation.
- 3.5 SCHEDULE
- .1 As indicated on drawings

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PART 1 - GENERAL1.1 RELATED SECTIONS

- .1 Section 08 11 14 - Metal Doors and Frames.
- .2 Section 08 14 16 - Flush Wood Doors.

1.2 REFERENCES

- .1 American National Standards Institute (ANSI) / Builders Hardware Manufacturers Association (BHMA)
  - .1 ANSI/BHMA A156.1-2000, American National Standard for Butts and Hinges.
  - .2 ANSI/BHMA A156.6-2005, Architectural Door Trim.
  - .3 ANSI/BHMA A156.14-2002, Sliding and Folding Door Hardware.
  - .4 ANSI/BHMA A156.16-2002, Auxiliary Hardware.
  - .5 ANSI/BHMA A156.17-2004, Self-closing Hinges and Pivots.
  - .6 ANSI/BHMA A156.18-2006, Materials and Finishes.
  - .7 ANSI/BHMA A156.20-2006, Strap and Tee Hinges and Hasps.
- .2 Canadian Steel Door and Frame Manufacturers' Association (CSDMA)
  - .1 CSDMA Recommended Dimensional Standards for Commercial Steel Doors and Frames - 2009.

1.3 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 Samples:
  - .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
  - .2 Identify each sample by label indicating applicable specification paragraph number, brand name and number, finish and hardware package number.
  - .3 After approval samples will be returned for incorporation in the Work.
- .3 Hardware List:
  - .1 Submit contract hardware list in accordance with Section 01 33 00 - Submittal Procedures.
  - .2 Indicate specified hardware, including make, model, material, function, size, finish and other pertinent information.
- .4 Manufacturer's Instructions:
  - .1 Submit manufacturer's installation instructions.

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 all door hardware for incorporation into manual.

1.5 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.

1.6 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:
  - .1 Store finishing hardware in locked, clean and dry area.

1.7 WASTE DISPOSAL  
AND MANAGEMENT

- .1 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .2 Dispose of corrugated cardboard, polystyrene, plastic packaging material in appropriate on-site bin for recycling in accordance with site waste management program.

1.8 DESIGNATED  
CONTRACTOR

- .1 Hire the services of Future Security Controls Inc. (FSC) to perform connections of new door security devices into existing security system infrastructure.

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PART 2 - PRODUCTS

- 2.1 HARDWARE ITEMS .1 Use one manufacturer's products only for similar items.
- 2.2 DOOR HARDWARE .1 Push Plates and Pulls:  
.1 Push plate: size 100mm x 406mm, 1.27 mm thick stainless steel, finish to be brushed.  
.2 D-Pull: size 25mm diameter with 63.5mm clearance. Plate size 100mm x 406mm, 1.27 mm thick stainless steel, finish to be brushed.
- .2 Butts and hinges:  
.1 Butts and hinges: to ANSI/BHMA A156.1, designated by letter A and numeral identifiers, followed by size and finish, listed in Hardware Schedule. Provide hinges with non removable pins (NRP) where indicated.  
.2 Strap and tee hinges and hasps: to ANSI/BHMA A156.20, designated by letter A and numeral identifiers listed in Hardware Schedule, finished to 626, Satin Chrome.  
.3 Power transfer hinges: to UL 10B, finished to 626, Satin Chrome.
- .3 Architectural door trim: to ANSI/BHMA A156.6, designated by letter J and numeral identifiers as listed below, finished to 626. Satin Chrome, unless specified otherwise.  
.1 Door protection plates: kick plate, size as indicated, 1.27 mm thick stainless steel, finish to be brushed.  
.2 Door transfer grill: size as indicated, stainless steel, finish to be brushed.
- .4 Auxiliary hardware: to ANSI/BHMA A156.16, designated by letter L and numeral identifiers as listed below, finished to 626, Satin Chrome.  
.1 Door silencer: type clear silicone.  
.3 Latch guard: type to suit application and coordinate with accompanying hardware, stainless steel, brushed finish.  
.4 Floor stops: type to suit flooring application, dome style, finished to 626, Satin Chrome.  
.5 Flush bolts:  
.1 type: concealed top and bottom  
.2 type: automatic concealed top and bottom
- .5 Door bottom seal: heavy duty, door seal of extruded aluminum frame and solid closed cell neoprene weather seal, surface mounted, closed ends, automatic retract mechanism when door is open,

clear anodized finish.

.6 Thresholds: interlocking, aluminum full width of door. Hook strip installed on door.

.7 Astragal: overlapping, extruded aluminum

### 2.3 MISCELLANEOUS HARDWARE

.1 Indexed key control system: by Departmental Representative

.2 Coat hooks, style double coat hook, concealed mount, finished to 626, satin chrome.

### 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 Keying by Departmental Representative

## PART 3 - EXECUTION

### 3.1 MANUFACTURER'S INSTRUCTIONS

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

.2 Furnish metal door and frame manufacturers with complete instructions and templates for preparation of their work to receive hardware.

.3 Furnish manufacturers' instructions for proper installation of each hardware component.

### 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 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.

### 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 PROTECTION

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

### 3.5 CLEANING

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

### 3.6 SCHEDULE

- .1 Refer to drawings for hardware schedule.

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PART 1 - GENERAL1.1 RELATED  
SECTIONS

- .1 Section 08 11 14 - Metal Doors and Frames.
- .2 Section 08 14 16 - Flush Wood Doors.
  - .1 American Society for Testing and Materials International, (ASTM).
    - .1 ASTM C 542-05, Specification for Lock-Strip Gaskets.
    - .2 ASTM D 790-07e1, Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
    - .3 ASMM D-882, Standard Test Method for Tensile Properties of Think Plastic Sheeting.
    - .4 ASTM D 1003-07e1, Standard Test Method for Haze and Luminous Transmittance of Plastics.
    - .5 ASTM D 1929-96(R2001)e1, Test Method for Determining Ignition Temperature of Plastics.
    - .6 ASTM D 2240-05, Standard Test Method for Rubber Property - Durometer Hardness.
    - .7 ASTM E 84-10, Standard Test Method for Surface Burning Characteristics of Building Materials.
    - .8 ASTM F 1233-08, Standard Test Method for Security Glazing Materials and Systems.
  - .2 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-12.11-M90, Wired Safety Glass.
  - .3 Environmental Choice Program (ECP).
    - .1 CCD-045-95 (R2005), Sealants and Caulking Compounds.
  - .4 Glass Association of North America (GANA).
    - .1 GANA Glazing Manual - 2008.
    - .2 GANA Laminated Glazing Reference Manual - 2009.

1.3 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.

.4 Manufacturer's Instructions:

.1 Submit manufacturer's installation instructions.

#### 1.4 WASTE MANAGEMENT AND DISPOSAL

.1 Divert metal cut-offs from landfill by disposal into on-site Metal recycling bin at nearest metal recycling facility.

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

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

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

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

.6 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-12.1, transparent.  
.1 Type 2-tempered, thickness as indicated.

.2 Wired glass: to CAN/CGSB-12.11, thickness as indicated.  
.1 Type 1 - Polished both sides (transparent).  
.2 Wire mesh style: square.

.3 Low Iron Glass: to CAN/CGSB-12.1, transparent.  
.1 Type 2-tempered, thickness as indicated  
.2 Back painted: White

##### 2.2 MATERIALS: GLAZING\_ FILM

.1 Plastic Film: translucent, polyester re-inforced vinyl materials.

.1 Patterns selected by Departmental Representative to provide either a frosted glass appearance where final application looks like etched glass or application of film creates a sand-blasted glass effect. Refer to drawings for film design.

- .2 Security Window Film: optically clear, .36mm thick film to ASTM D882.

### 2.3 ACCESSORIES

- .1 Setting blocks: Neoprene, 80-90 Shore A durometer hardness to ASTM D 2240, 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 Glazing tape:
  - .1 Preformed butyl compound with integral resilient tube spacing device, 10-15 Shore A durometer hardness to ASTM D 2240; coiled on release paper; 3 x 9 mm size; black colour.
- .3 Glazing clips: manufacturer's standard type.
- .4 Lock-strip gaskets: to ASTM C 542.
- .5 Sealant: Multicomponent, chemical curing to CAN/CGSB-19.24, Type 2, Class A.

## 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: INTERIOR - DRY METHOD (TAPE AND TAPE)

- .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, projecting 1.6 mm above sight line.
- .3 Place setting blocks at 1/4 points, with edge block maximum 150 mm from corners.

- .4 Rest glazing on setting blocks and push against tape for full contact at perimeter of light or unit.
- .5 Place glazing tape on free perimeter of glazing in same manner described.
- .6 Install removable stop without displacement of tape. Exert pressure on tape for full continuous contact.
- .7 Knife trim protruding tape.

3.5 INSTALLATION:  
PLASTIC FILM

- .1 Install plastic film with adhesive, applied in accordance with film manufacturer's instructions.
- .2 Place without air bubbles, creases or visible distortion.
- .3 Fit tight to glass perimeter with razor cut edge.

3.6 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.

3.7 PROTECTION OF  
FINISHED WORK

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