

DOOR						FRAME			FIRE RATING	HARDWARE SET	HARDWARE NOTES
NO.	NOMINAL SIZE	STC	MATERIAL	FINISH	GLASS	MATERIAL	FINISH	SIDE LIGHT			
D101	EX, TO BE RECONFIGURED	-	ALUM	CLANOD	YES	ALUM	CLANOD	YES		1	CA, POWER OPERATOR, INTEGRATED PUSH BUTTON IN MULLION, SMOKE SEALS
D102A	915 x 2134	-	HM	PT	NO	PS	PT	-		2	PANIC, SMOKE SEPARATION SEALS, CLOSER, NO HARDWARE REQ'D ON OUTSIDE
D103	SITE CONFIRM	-	WD (TOP HUNG TWO-PANEL SLIDING)	PT	NO	ALUM	CLANOD	NO		3	SLIDING DOOR
D104A	915 x 2134	-	HM	PT	NO	PS	PT	-		4	LOCKABLE, NO STOP, NO CLOSER
D104B	915 x 2134	-	HM	PT	NO	PS	PT	-		4	LOCKABLE, NO STOP, NO CLOSER
D105	SITE CONFIRM	-	WD (TOP HUNG THREE-PANEL SLIDING)	PT	NO	ALUM	CLANOD	NO		3	SLIDING DOOR
D106	915 x 2134	-	WD SLAB	CLEAR	NO	PS	PT	YES		5	NO LOCK REQ'D, FLOOR STOP
D107A	915 x 2134	45	WD SLAB	CLEAR	NO	PS	PT	YES		6	FLOOR STOP, ACOUSTIC SEALS, CLOSER/HOLDER, NO LOCK REQUIRED
D107B	915 x 2134	45	WD SLAB	CLEAR	NO	PS	PT	YES		6	FLOOR STOP, ACOUSTIC SEALS, CLOSER/HOLDER, NO LOCK REQUIRED
D107C	915 x 2134	45	WD SLAB	CLEAR	NO	PS	PT	YES		7	FLOOR STOP, ACOUSTIC SEALS, CLOSER/HOLDER, NO LOCK REQUIRED
D109	915 x 2134	45	WD SLAB	CLEAR	NO	PS	PT	YES		5	CLOSER, FLOOR STOP, NO LOCK REQUIRED
D110	915 x 2134	-	WD SLAB	CLEAR	NO	PS	PT	NO		9	CLOSER, FLOOR STOP, NO LOCK REQUIRED
D112	915 x 2134	-	WD SLAB	CLEAR	NO	PS	PT	YES		5	NO LOCK REQ'D, FLOOR STOP
D113	915 x 2134	45	WD SLAB	CLEAR	NO	PS	PT	NO		10	NO LOCK REQ'D, WALL STOP, ACOUSTIC SEALS
D114	915 x 2134	45	WD SLAB	CLEAR	NO	PS	PT	YES		11	NO LOCK REQ'D, FLOOR STOP, ACOUSTIC SEALS
D01	EX, FROM DS06	-	EX							8	TO BE LOCKABLE (NO DEADBOLT REQ'D)
DS20	EX, FROM DS18B	-	EX							8	TO BE LOCKABLE (NO DEADBOLT REQ'D)

LEGEND

ALUM	Aluminum	G	Glass
ADO	Automatic Door Operator	HM	Hollow metal, welded
CA	Card Access	PT	Paint
CLANOD	Clear anodizing	PS	Pressed Steel
CLEAR	Clear stain	SC	Solid Core
EX	Existing	WD	Wood

Part I General**I.1 REFERENCES**

- .1 ASTM International
 - .1 ASTM A653/A653M-13, Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB 1.181-99, Ready-Mixed Organic Zinc-Rich Coating.
- .3 Canadian Standards Association (CSA)
 - .1 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 252-2012, 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 CAN4-S104.

I.2 DESIGN REQUIREMENTS

- .1 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.
- .2 Provide fire labelled frames for openings requiring fire protection ratings. Test products in conformance with CAN4-S104 or NFPA 252 and listed by nationally recognized agency having factory inspection services.
- .3 Installed Door and Frame Assembly: Conform to NFPA 80 for fire rated class as scheduled.

I.3 SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data: Indicate door and frame configurations and finishes, location of cut-outs for hardware reinforcement.
- .3 Shop drawings:

- .1 Indicate each type of door, material, steel core thicknesses, mortises, reinforcements, location of exposed fasteners, openings, arrangement of hardware, fire rating, and finishes.
- .2 Indicate each type frame material, core thickness, reinforcements, glazing stops, location of anchors and exposed fastenings fire rating, and finishes.
- .3 Include schedule identifying each unit, with door marks and numbers relating to numbering on drawings and door schedule.
- .4 Samples:
 - .1 Submit one 300 x 300 mm corner sample of each type of frame.
 - .2 Show glazing stops.
- .5 Manufacturer's Installation Instructions: Indicate special 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.

1.4 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver, store, and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Remove doors and frames from wrappings or coverings upon receipt on site and inspect for damage.
- .3 Store in vertical position, spaced with blocking to permit air circulation between components.
- .4 Store materials on planks or dunnage, out of water, and covered to protect from damage.
- .5 Clean and touch up scratches or disfigurement caused by shipping or handling with zinc-rich primer.

1.5 WASTE MANAGEMENT AND DISPOSAL

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

Part 2 Products

2.1 MATERIALS

- .1 Hot dipped galvanized steel sheet: To ASTM A653/A653M, ZF75, minimum base steel thickness in accordance with CSDMA Table I - Thickness for Component Parts.

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/m³ minimum, sanded to required thickness.
- .2 Temperature rise rated (TRR): Core composition to limit temperature rise on unexposed side of door to 250°C for time period indicated in drawings. Core to be tested as part of a complete door assembly, in accordance with CAN4-S104 or NFPA 252.

2.3 ADHESIVES

- .1 Heat resistant, spray grade, resin reinforced neoprene/rubber (polychloroprene) based, low viscosity, contact cement.

2.4 PRIMER

- .1 Zinc-rich 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: Specified in Section 08 71 00.
- .2 Door silencers: Single stud rubber/neoprene type.
- .3 Fabricate glazing stops as formed galvanized steel channel, minimum 16 mm height, accurately fitted, butted at corners and fastened to frame sections with counter-sunk tamper-proof sheet metal screws.
- .4 Metallic paste filler: To manufacturer's standard.
- .5 Fire labels: Metal riveted.
- .6 Sealant: Refer to Section 07 92 00 – Joint Sealing.
- .7 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.
- .8 Glazing: 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.

- .6 Manufacturer's nameplates on frames and screens are not permitted, except as required for fire rating data.
- .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 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 on centre maximum.

2.9 FRAMES

- .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 construction.
- .3 Fabricate doors with longitudinal edges welded.
 - .1 Seams: Grind welded joints to a flat plane, and sand flush.
- .4 Blank, reinforce, drill doors and tap for mortised, templated hardware and electronic hardware as required.
- .5 Reinforce doors where required, for surface mounted hardware. Provide inverted, recessed, spot welded channels to top and bottom of interior doors.
- .6 Provide factory-applied touch-up primer at areas where zinc coating has been removed during fabrication.

- .7 Provide fire labelled doors for those openings requiring fire protection ratings, as scheduled. Test such products in conformance with CAN4-S104 or NFPA 252 and list by nationally recognized agency.
- .8 Manufacturer's nameplates on doors are not permitted except as required for fire rating data.

2.11 DOORS: HONEYCOMB CORE CONSTRUCTION

- .1 Form face sheets for interior doors from 1.3 mm sheet steel with honeycomb or temperature rise rated 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, top of carpet and thresholds: 13 mm.
- .3 Adjust operable parts for correct function.

3.5 GLAZING

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

3.6 FINISH REPAIRS

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

3.7 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.

END OF SECTION

Part I General**I.1 REFERENCES**

- .1 Architectural Woodwork Manufacturers Association of Canada (AWMAC).
 - .1 Architectural Woodwork Standards, 2nd edition (2014).
- .2 ASTM International
 - .1 ASTM E413-04 – Classification for Rating Sound Insulation.
- .3 Canadian Standards Association (CSA)
 - .1 CAN/CSA O132.2 Series-90 (R1998) - Wood Flush Doors.
- .4 National Fire Protection Association (NFPA)
 - .1 NFPA (Fire) 80-2007 - Standard for Fire Doors and Other Opening Protectives.
 - .2 NFPA (Fire) 252-2012 - Fire Tests of Door Assemblies.
- .5 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 CAN4-S104.
- .6 Wood Door Manufacturers Association (WDMA)
 - .1 ANSI/WDMA I.S. IA-13 – Interior Architectural Wood Flush Doors.

I.2 ADMINISTRATIVE REQUIREMENTS

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

I.3 SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications, and data sheets.
 - .2 Submit two copies of WHMIS MSDS - Material Safety Data Sheets. Indicate VOCs:
 - .1 For caulking materials during application and curing.
 - .2 For door materials and adhesives.
- .3 Shop Drawings:
 - .1 Indicate door types and cut-outs for lights, sizes, and core construction.
- .4 Samples:
 - .1 Submit one 200 x 200 mm corner sample of each type of door.
- .5 Manufacturer's Instructions:

- .1 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.

I.4 QUALITY ASSURANCE

- .1 Regulatory Requirements:
 - .1 Wood fire rated doors: Labelled and listed by an organization accredited by Standards Council of Canada.

I.5 DELIVERY, STORAGE, AND HANDLING

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

I.6 WASTE MANAGEMENT AND DISPOSAL

- .1 Remove from site and dispose of packaging materials.
- .2 Dispose of packaging material in appropriate on-site bin for recycling in accordance with site waste management program.
- .3 Divert unused adhesive material from landfill to official hazardous material collections site approved by Departmental Representative.

Part 2 Products

2.1 WOOD FLUSH DOORS

- .1 Solid core: To CAN/CSA O132.2.
 - .1 Construction:
 - .1 Stile and rail frame bonded to specified core.
 - .2 Thickness: 44 mm.
 - .3 Conform to AWMAC Woodwork Standards, custom grade.
 - .2 Stiles: Structural composite lumber, width 30 mm.
 - .3 Rails: Structural composite lumber, width 84 mm.
 - .4 Faces of wood veneered doors intended for transparent finish: AA – premium, rotary cut birch.
 - .5 Core:
 - .1 Non-rated doors: Sound dampening core to ASTM E413, rated to STC 46, no added urea formaldehyde.

- .2 Fire rated doors: Manufacturer's standard solid core, to AWMAC Section 9, no added urea formaldehyde, and to meet scheduled fire ratings.

- .6 Adhesive: Type I PVA crosslink, no added urea formaldehyde.

2.2 FIRE RATED WOOD DOORS

- .1 Tested in accordance with CAN4-S104 or NFPA 252 to achieve rating as scheduled.

2.3 ACCESSORIES

- .1 Accessories: Refer to Door Schedule and Section 08 71 00 - Door Hardware.

2.4 FINISHES

- .1 Clear stain as specified in Section 09 91 00.

2.5 FABRICATION

- .1 Fabricate doors in accordance with AWMAC Quality Standards and ULC requirements.
- .2 Doors: Meet the requirements of ANSI/WDMA I.S. IA Heavy Duty performance level.
- .3 Stiles and rails fully bonded to core and assembled unit to be abrasive planed prior to lamination of faces. Size stiles to fit intended door hardware.
- .4 Doors assembled using Type I adhesive, with no urea-formaldehyde resins.
- .5 Fire-rated doors: Construction standard of manufacturer and conforming to requirements of all applicable labelling agencies.
- .6 Provide blocking as required for surface mounted hardware to prevent the need for through-bolting.
- .7 Factory drill pilot holes for hinges.
- .8 Bevel lock and hinge stile to AWMAC Woodwork Standards, 3° bevel.
- .9 Affix permanent metal nameplates to door on hinge edge, indicating manufacturer's name and fire rating.

Part 3 Execution

3.1 INSTALLATION

- .1 Unwrap and protect doors in accordance with CAN/CSA O132.2 Series, Appendix A.
- .2 Install doors and hardware in accordance with manufacturer's printed instructions and CAN/CSA O132.2 Series, Appendix A.
- .3 Comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.
- .4 Install labelled fire rated doors to NFPA 80.
- .5 Allow fitting clearance of 3 mm.

- .6 Install stops.
- .7 Trim non-rated door widths as required by cutting equally on both edges. Reseal and refinish all cut or planed surfaces immediately to match factory finish.
- .8 Trim door height by cutting bottom edges maximum 19 mm.
- .9 Trim fire door heights at bottom edge only in accordance with fire rating requirements.
- .10 Do not trim fire rated door widths.
- .11 Pilot holes to be factory drilled.
- .12 Coordinate installation of doors with installation of frames and hardware.
- .13 Adjust doors for smooth and balanced door movement and operation.

3.2 ADJUSTMENT

- .1 Re-adjust doors and hardware just prior to completion of building to function freely and properly.

3.3 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 I General

I.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 CAN/ULC S104-10, Fire Tests of Door Assemblies.

I.2 ADMINISTRATIVE REQUIREMENTS

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

I.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 unit.
 - .2 Samples will be returned for inclusion into work.

I.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.

I.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 cold-rolled sheet steel.
- .2 Components:
 - .1 Frame: Steel sheet, minimum 1.5 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 1.9 mm thick, reinforced to maintain flat surface.
 - .3 Hinge: Continuous steel with pin hinge or concealed springed 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 CAN/ULC 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.
- .4 Sizes: As follows, unless indicated:
 - .1 For body entry: 600 x 600 mm minimum.
 - .2 For hand entry: 300 x 300 mm minimum.

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 Consultant 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 I General**I.1 REFERENCES**

- .1 American National Standards Institute (ANSI)
 - .1 ANSI A117.1-2009, Standard for Accessible and Usable Buildings and Facilities.
- .2 Builders Hardware Manufacturers Association (BHMA)
 - .1 BHMA A156.1-2013, Butts and Hinges.
 - .2 BHMA A156.2-2011, Bored and Preassembled Locks and Latches.
 - .3 BHMA A156.3-2014, Exit Devices.
 - .4 BHMA A156.4-2013, Door Controls - Closers.
 - .5 BHMA A156.5-2010, Cylinder and Input Devices for Locks.
 - .6 BHMA A156.6-2010, Architectural Door Trim.
 - .7 BHMA A156.13-2012, Mortise Locks and Latches Series 1000.
 - .8 BHMA A156.16-2013, Auxiliary Hardware.
 - .9 BHMA A156.19-2013, Power Assist and Low Energy Power - Operated Doors.
 - .10 BHMA A156.22-2012, Door Gasketing and Edge Seal Systems.
- .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) 80-2007 - Standard for Fire Doors and Other Opening Protectives.
 - .2 NFPA (Fire) 252-2012 - Fire Tests of Door Assemblies.

I.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 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 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.

I.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.

I.4 QUALITY ASSURANCE

- .1 Regulatory Requirements:
 - .1 Hardware for doors in fire separations and exit doors certified by a Canadian Certification Organization accredited by Standards Council of Canada.
 - .2 Door hardware to comply to CSA B651 for accessibility requirements.

I.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.
 - .1 Case: Wrought steel, zinc dichromate plated, 3 mm thick.
 - .2 Cylinder: Brass.
- .2 Lever handles: Special design flat face with handicap return 50 mm round nose.
- .3 Normal strikes: Box type, lip projection not beyond jamb.
- .2 Hinges: To BHMA A156.1, five-knuckle, standard weight, 0.134 gauge steel.
- .3 Cylinders:
 - .1 To BHMA A156.5, solid brass, 6 pin, to suit mortise lock. Finish: Satin chromium plated.
- .4 Exit devices: Narrow stile aluminum door application, to BHMA A156.3, Grade 1.
- .5 Door Closers: To BHMA A156.4, Grade 1, and ANSI A117.1, rack and pinion operation, cast aluminum alloy housing, surface mounted, adjustable backcheck intensity.
- .6 Door Operators:
 - .1 Power assist and low energy power operated doors: To BHMA A156.19 and ANSI A117.1, rack and pinion design contained within cast aluminum housing, 170° swing.
 - .1 Door switch: SPDT, UL listed, 15 amp at 120 VAC, to fit 44 mm (1-3/4 inch) frame, stainless steel plate.
- .7 Door bottom: Aluminum case with movable drop bar seal. Seal actuated by plunger contacting jamb. Aluminum with sponge neoprene insert.
- .8 Overhead stop: Surface mounted, single acting, slide track design, with shock end cap.
- .9 Door Stops: To BHMA A156.16, solid cast brass, heavy duty casting with solid pin, complete with rubber bumper.
- .10 Wall stops: Brass, bronze, and stainless steel with rubber convex bumper, 63 mm diameter, 19 mm projection, concealed mounting.
- .11 Sliding door hardware:
 - .1 Bottom channel: Extruded aluminum, mill finish.
 - .2 Roller guide: Steel plate with brass roller.
- .12 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 Coordinate with 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 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 door stop 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.

CSPS FIT-UP**DOOR HARDWARE**

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- .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 HARDWARE SCHEDULE**Set: 1.0**

1 Cylinder	41 101	US26D	SA
1 Automatic Operator	5730	689	NO
2 Door Switch	503		NO
1 Card Reader	By Others		00
1 Balance of Hardware is Existing			00

Notes: Remove existing closer on active leaf. Install auto operator and new keyed cylinder.

All aluminum framing and door to be re-configured as per plan.

Set: 2.0

3 Hinge	TA2714 NRP 4-1/2" x 4"	US26D	MK
1 Mortise Exit Device	8400 Exit Only	628	AD
1 Surface Closer	J8501	689	NO
1 Drop Plate	8146	689	NO
1 Door Stop	441H	US26D	RO
1 Weatherstrip and Sweep	By Door Supplier		00

Set: 3.0

1 Sliding Door Hdwe	HBP200A Series		PE
4 Roller	106R/94		PE
1 Guide Channel	2802BT		PE
4 Flush Pull	872	US26D	RO

Set: 4.0

3 Hinge	TA2714 NRP 4-1/2" x 4"	US26D	MK
1 Storeroom Lock	7904 OBJ	US26D	SA
1 Surface Overhead Stop	55-X36	652	RF

Set: 5.0

3 Hinge	TA2714 4-1/2" x 4"	US26D	MK
1 Passage Set	7915 OBJ	US26D	SA
1 Door Stop	441H	US26D	RO

Set: 6.0

3 Hinge	TA2714 4-1/2" x 4"	US26D	MK
1 Passage Set	7915 OBJ	US26D	SA
1 Door Closer	351 PSH	EN	SA
1 Kick Plate	K1050 10"	US32D	RO
2 Gasketing	290AS		PE
1 Gasketing	289IAS		PE
1 Gasketing	S88BL		PE
1 Door Bottom	4131CRL		PE

Notes: Install 289IAS gasket to head of frame. Mount closer to gasketing.

Set: 7.0

3 Hinge	TA2714 4-1/2" x 4"	US26D	MK
1 Passage Set	7915 OBJ	US26D	SA
1 Door Closer	351 H	EN	SA
1 Kick Plate	K1050 10"	US32D	RO
1 Door Stop	441H	US26D	RO
3 Gasketing	290AS		PE
1 Gasketing	S88BL		PE
1 Door Bottom	4131CRL		PE

Set: 8.0

1 New Sargent cylinder to suit existing lock			00
1 Re-Use Existing			00

Set: 9.0

3 Hinge	TA2714 4-1/2" x 4"	US26D	MK
1 Passage Set	7915 OBJ	US26D	SA
1 Surface Overhead Stop	10-X36	652	RF

Set: 10.0

3 Hinge	TA2714 4-1/2" x 4"	US26D	MK
1 Passage Set	7915 OBJ	US26D	SA
1 Wall Stop	406	US32D	RO
3 Gasketing	290AS		PE
1 Gasketing	S88BL		PE
1 Door Bottom	4131CRL		PE

Set: 11.0

3 Hinge	TA2714 4-1/2" x 4"	US26D	MK
1 Passage Set	7915 OBJ	US26D	SA
1 Door Stop	441H	US26D	RO
3 Gasketing	290AS		PE
1 Gasketing	S88BL		PE
1 Door Bottom	4131CRL		PE

END OF SECTION

Part I General**I.1 REFERENCES**

- .1 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 ASTM E84-14, Standard Test Method for Surface Burning Characteristics of Building Materials.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB 12.1-M90, Tempered or Laminated Safety Glass.
 - .2 CAN/CGSB 12.3-M91, Flat, Clear Float Glass.
 - .3 CAN/CGSB 12.8-97, Insulating Glass Units.
- .3 Glass Association of North American (GANA)
 - .1 GANA Glazing Manual – current edition.
 - .2 GANA Laminated Glazing Reference Manual - 2009.

I.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 As required, submit drawings stamped and signed by professional engineer registered or licensed in Province of Manitoba, Canada.
- .4 Samples:
 - .1 Submit duplicate 200 x 200 mm size samples of each type of glass to be installed.
- .5 Certificates: Submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .6 Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.

I.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 glazing for incorporation into manual.

I.4 QUALITY ASSURANCE

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

I.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 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.

I.6 AMBIENT CONDITIONS

- .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 Flat Glass:
 - .1 Float glass: To CAN/CGSB 12.3, glazing quality, 6 mm thick.
 - .2 Safety glass: To CAN/CGSB 12.1, transparent, 6 mm thick.
 - .1 Type 2 - tempered.
 - .2 Class B-float.
 - .3 Category 11.
 - .4 Edge treatment.
- .2 Insulated Glass Units: CAN/CGSB 12.8, double pane, outer and inner pane of clear tempered glass; interpane space filled with air; total unit thickness of 25 mm (1 inch).
- .3 Sealant: In accordance with Section 07 92 00 - Joint Sealants.

2.2 ACCESSORIES

- .1 Setting blocks: Neoprene, 80-90 Shore A durometer hardness to ASTM D2240, to suit glazing method, glass light weight and area.

- .2 Spacer shims: Neoprene, 50-60 Shore A durometer hardness to ASTM D2240, 75 mm long x one half height of glazing stop x thickness to suit application. Self adhesive on one face.
- .3 Glazing tape: 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.
- .4 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.
 - .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" using removable plastic tape or paste.
- .3 Repair damage to adjacent materials caused by glazing installation.

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

Part 2 Products**2.1 MATERIALS**

- .1 Decorative film products, applied to interior glass surfaces.
- .2 Signage Window Film:
 - .1 Removable release liner.
 - .2 Pressure sensitive adhesive.
 - .3 Pattern: As selected by Departmental Representative.
 - .4 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 security 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 Fit tight to glass perimeter with razor cut edge.
- .5 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