

No.	Door						Frame						Notes		
	From	Matl	Type	Finish	Colour	Size (W x H x T)	Matl	Profile	Elev	Finish	Colour	Hdwe Code		Label	Security
215		WD	A	CLR	CLR	914 x 2134 x 45	HM	1	A	P		10	20 MIN	CR	
217A		WD	A	CLR	CLR	914 x 2134 x 45	HM	1	A	P		2	20 MIN	CR	
217B		WD	A	CLR	CLR	914 x 2134 x 45	HM	1	A	P		1	20 MIN	CR	
218A		WD	B	CLR	CLR	914 x 2134 x 45	HM	1	A	P		2	20 MIN	CR	VIEW WINDOW IN DOOR SECURITY FILM ON GLASS
218B		WD	B	CLR	CLR	914 x 2134 x 45	HM	1	A	P		3	--	CR	VIEW WINDOW IN DOOR SECURITY FILM ON GLASS
219		WD	B	CLR	CLR	914 x 2134 x 45	HM	1	A	P		10	20 MIN	CR	VIEW WINDOW IN DOOR SECURITY FILM ON GLASS
221A		WD	B	CLR	CLR	914 x 2134 x 45	HM	1	A	P		11	--	CR	VIEW WINDOW IN DOOR SECURITY FILM ON GLASS
221B	442	RE WD	A	CLR	CLR	914 x 2134 x 45	HM	1	B	P		5	--	CRX2	PRIVACY FILM ON GLASS SIDELITE
222	445	RE WD	A	CLR	CLR	914 x 2134 x 45	HM	1	B	P		9	--		PRIVACY FILM ON GLASS SIDELITE
223A		WD	B	CLR	CLR	914 x 2134 x 45	HM	1	A	P		2	20 MIN	CR	VIEW WINDOW IN DOOR SECURITY FILM ON GLASS
223B	226	RE WD	A	CLR	CLR	914 x 2134 x 45	HM	1	B	P		4	--	CR	PRIVACY FILM ON GLASS SIDELITE
224A		WD	B	CLR	CLR	914 x 2134 x 45	HM	1	A	P		11	--	CR	VIEW WINDOW IN DOOR SECURITY FILM ON GLASS
224B	229	RE WD	A	CLR	CLR	914 x 2134 x 45	HM	1	B	P		5	--	CRX2	PRIVACY FILM ON GLASS SIDELITE
225	441	RE WD	A	CLR	CLR	914 x 2134 x 45	HM	1	B	P		6	--		PRIVACY FILM ON GLASS SIDELITE
226	230	RE WD	A	CLR	CLR	914 x 2134 x 45	RE HM	N/A	A	P		7	--	CR	
227	228	RE WD	A	CLR	CLR	914 x 2134 x 45	RE HM	N/A	A	P		7	--	CR	
228	232	RE WD	A	CLR	CLR	914 x 2134 x 45	HM	1	B	P		8	--		PRIVACY FILM ON GLASS SIDELITE
229	236	RE WD	A	CLR	CLR	914 x 2134 x 45	RE HM	N/A	A	P		7	--	CR	
234		EX WD	A	CLR	CLR	EX	EX HM	N/A	EX	P		EX	--		NEW FINISH ON RE-USED EXIST DOOR & FRAME
237		EX WD	A	CLR	CLR	EX	EX HM	N/A	EX	P		EX	--		NEW FINISH ON RE-USED EXIST DOOR & FRAME

Project No.
R.055494.001

LEGEND

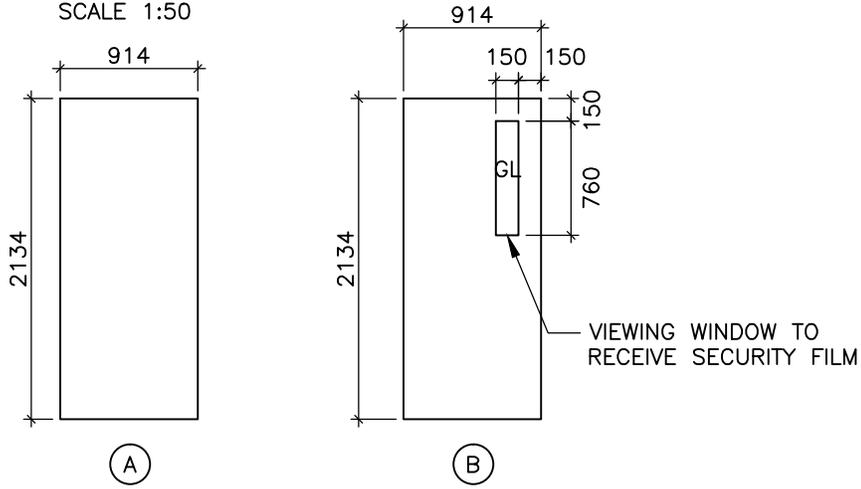
Abbreviations

AL	aluminum
BS	both sides
CLR	clear coat
CR	Card Reader
EG	end guard
EX	existing
EX HM	existing hollow metal
EX WD	existing wood
FROM	from old door number location
HM	hollow metal
N/A	not applicable
PT	paint
PREFIN	prefinished
SS	stainless steel
RE WD	relocated salvaged wood door: repair and refinish existing door to suit re-installation and prepare door for new door hardware; fill unused openings.
RE HM	relocated salvaged hollow metal frame: repair and refinish existing doorframe to suit re-installation and prepare frame for new door hardware.

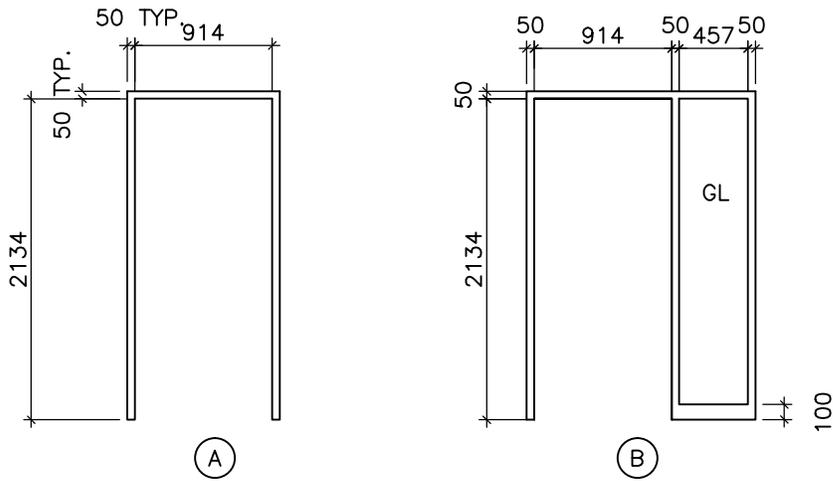
DOOR + FRAME INVENTORY FROM 4TH FLR + 2ND FLR DEMOLITION **FROM / EXIST DOOR NO.**

4th Floor - obtain from BGIS inventory for GOCB	
1 unit inswinging right hinged slab doors	Re-use 441
2 units inswinging left hinged slab doors	Re-use 442, 445
2nd Floor - GC to verify with site conditions:	
1 units inswinging right hinged slab doors	Re-use 228
6 units inswinging left hinged slab doors	Re-use 226, 229, 230, 232, 236, 240
1 unit inswinging left hinged slab doors w/mail slot	Turn over to Owner 231
1 unit inswinging right hinged slab doors w/view window	Turn over to Owner Located between gridlines E and F
1 unit inswinging right hinged slab door w/half view window	Turn over to Owner 235

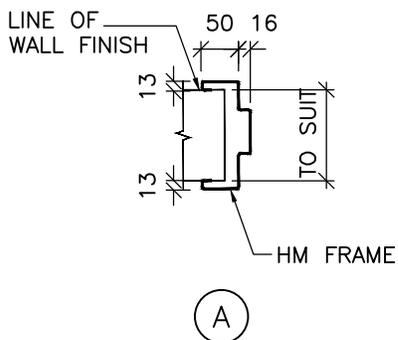
DOOR TYPES
SCALE 1:50



FRAME ELEVATIONS
SCALE 1:50



DOOR FRAME PROFILES
SCALE 1:10



Hardware Sets

Set: 1.0

3 Hinge	TA2714 114 x 101	US26D	MK
1 Storeroom Lock	D80 P D ORB	626	SC
1 Primus High Security Cylinder to Suit			SC
1 Electric Strike	8300C-LBM	630	HS
1 Door Closer	1431 O	EN	SA
1 Kick Plate	K1050 250mm	US32D	RO
1 Floor Stop	441H	US26D	RO
1 Gasketing	S88BL		PE
1 Door Bottom	4131CRL		PE
1 Card Reader	By Electrical/Security Division		
1 Power Supply	By Electrical/Security Division		

Notes: Round knob is an owner requirement for this door. Key cylinder to be high security Schlage Primus supplied by Burnett's Locksmith in Saskatoon. Hardware supplier to include cost of cylinder in their bid price.

Set: 2.0

3 Hinge	TA2714 114 x 101	US26D	MK
1 Storeroom Lock	ND80 P D RHO	626	SC
1 Primus High Security Cylinder to Suit			SC
1 Electric Strike	8300C-LBM	630	HS
1 Door Closer	1431 O	EN	SA
1 Kick Plate	K1050 250mm	US32D	RO
1 Floor Stop	441H	US26D	RO
1 Gasketing	S88BL		PE
1 Door Bottom	4131CRL		PE
1 Card Reader	By Electrical/Security Division		
1 Power Supply	By Electrical/Security Division		

Notes: Key cylinder to be high security Schlage Primus supplied by Burnett's Locksmith in Saskatoon. Hardware supplier to include cost of cylinder in their bid price.

Set: 3.0

3 Hinge	TA2714 NRP 114 x 101	US26D	MK
1 Storeroom Lock	ND80 P D RHO	626	SC
1 SC1 Standard Security Cylinder to Suit			SC
1 Electric Strike	8300C-LBM	630	HS
1 Door Closer	1431 P9	EN	SA
1 Kick Plate	K1050 250mm	US32D	RO
1 Floor Stop	441H	US26D	RO

1 Gasketing	S88BL	PE
1 Door Bottom	4131CRL	PE
1 Card Reader	By Electrical/Security Division	
1 Power Supply	By Electrical/Security Division	

Notes: Key cylinder to be standard security Schlage SC1 supplied by Burnett's Locksmith in Saskatoon. Hardware supplier to include cost of cylinder in their bid price.

Set: 4.0

3 Hinge	TA2714 NRP 114 x 101	US26D	MK
1 Storeroom Lock	ND80 P D RHO	626	SC
1 SC1 Standard Security Cylinder to Suit			SC
1 Electric Strike	8300C-LBM	630	HS
1 Door Closer	1431 PS	EN	SA
1 Kick Plate	K1050 250mm	US32D	RO
1 Gasketing	S88BL		PE
1 Door Bottom	4131CRL		PE
1 Card Reader	By Electrical/Security Division		
1 Power Supply	By Electrical/Security Division		

Notes: Hardware shown above is for a guideline only. If possible re-use any existing hardware including lockset. Key cylinder to be standard security Schlage SC1 supplied by Burnett's Locksmith in Saskatoon. Hardware supplier to include cost of cylinder in their bid price.

Set: 5.0

3 Hinge	TA2714 NRP 114 x 101	US26D	MK
1 Institutional Lock	ND82 P D RHO	626	SC
2 SC1 Standard Security Cylinder to Suit			SC
1 Electric Strike	8300C-LBM	630	HS
1 Door Closer	1431 PS	EN	SA
1 Kick Plate	K1050 250mm	US32D	RO
1 Gasketing	S88BL		PE
1 Door Bottom	4131CRL		PE
2 Card Reader	By Electrical/Security Division		
1 Power Supply	By Electrical/Security Division		

Notes: Hardware shown above is for a guideline only. If possible re-use any existing hardware including lockset. Key cylinder to be standard security Schlage SC1 supplied by Burnett's Locksmith in Saskatoon. Hardware supplier to include cost of cylinder in their bid price.

Set: 6.0

3 Hinge	TA2714 114 x 101	US26D	MK
1 Passage Set	ND10S RHO	626	SC
1 Floor Stop	441H	US26D	RO
1 Gasketing	S88BL		PE
1 Door Bottom	4131CRL		PE

Notes: Hardware shown above is for a guideline only. If possible re-use any existing hardware.

Set: 7.0

3 Hinge	TA2714 114 x 101	US26D	MK
1 Storeroom Lock	ND80 P D RHO	626	SC
1 SC1 Standard Security Cylinder to Suit			SC
1 Electric Strike	8300C-LBM	630	HS
1 Door Closer	1431 O	EN	SA
1 Kick Plate	K1050 250mm	US32D	RO
1 Floor Stop	441H	US26D	RO
1 Card Reader	By Electrical/Security Division		
1 Power Supply	By Electrical/Security Division		

Notes: Hardware shown above is for a guideline only. If possible re-use any existing hardware including lockset. Key cylinder to be standard security Schlage SC1 supplied by Burnett's Locksmith in Saskatoon. Hardware supplier to include cost of cylinder in their bid price.

Set: 8.0

3 Hinge	TA2714 114 x 101	US26D	MK
1 Storeroom Lock	ND80 P D RHO	626	SC
1 SC1 Standard Security Cylinder to Suit			SC
1 Electric Strike	8300C-LBM	630	HS
1 Floor Stop	441H	US26D	RO
1 Gasketing	S88BL		PE
1 Door Bottom	4131CRL		PE
1 Card Reader	By Electrical/Security Division		
1 Power Supply	By Electrical/Security Division		

Notes: Hardware shown above is for a guideline only. If possible re-use any existing hardware including lockset. Key cylinder to be standard security Schlage SC1 supplied by Burnett's Locksmith in Saskatoon. Hardware supplier to include cost of cylinder in their bid price.

Set: 9.0

3 Hinge	TA2714 114 x 101	US26D	MK
1 Storeroom Lock	ND80 P D RHO	626	SC
1 SC1 Standard Security Cylinder to Suit			SC
1 Floor Stop	441H	US26D	RO
1 Gasketing	S88BL		PE
1 Door Bottom	4131CRL		PE

Notes: Hardware shown above is for a guideline only. If possible re-use any existing hardware including lockset. Key cylinder to be standard security Schlage SC1 supplied by Burnett's Locksmith in Saskatoon. Hardware supplier to include cost of cylinder in their bid price.

Set: 10.0

3 Hinge	TA2714 114 x 101	US26D	MK
1 Storeroom Lock	ND80 P D RHO	626	SC
1 Primus High Security Cylinder to Suit			SC
1 Electric Strike	8300C-LBM	630	HS
1 Conc Overhead Stop	6-X36	630	RF
1 Door Closer	1431 O	EN	SA
1 Kick Plate	K1050 250mm	US32D	RO
1 Gasketing	S88BL		PE
1 Door Bottom	4131CRL		PE
1 Card Reader	By Electrical/Security Division		
1 Power Supply	By Electrical/Security Division		

Notes: Key cylinder to be high security Schlage Primus supplied by Burnett's Locksmith in Saskatoon. Hardware supplier to include cost of cylinder in their bid price.

Set: 11.0

3 Hinge	TA2714 114 x 101	US26D	MK
1 Storeroom Lock	ND80 P D RHO	626	SC
1 SC1 Standard Security Cylinder to Suit			SC
1 Electric Strike	8300C-LBM	630	HS
1 Door Closer	1431 O	EN	SA
1 Kick Plate	K1050 250mm	US32D	RO
1 Floor Stop	441H	US26D	RO
1 Gasketing	S88BL		PE
1 Door Bottom	4131CRL		PE
1 Card Reader	By Electrical/Security Division		
1 Power Supply	By Electrical/Security Division		

Notes: Key cylinder to be standard security Schlage SC1 supplied by Burnett's Locksmith in Saskatoon. Hardware supplier to include cost of cylinder in their bid price.

END OF DOCUMENT

1 General

1.01 RELATED REQUIREMENTS

- .1 Section 01 11 00 – Summary of Work: For Owner Supplied Contractor Installed Products.
- .2 Section 02 41 19.16 – Selective Interior Demolition: For existing metal doors and frames removed for reuse.

1.02 REFERENCES

- .1 American Society for Testing and Materials International (ASTM)
 - .1 ASTM A 153/A 153M-16, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
 - .2 ASTM A 591/A 591M, Standard Specification for Steel Sheet, Electrolytic Zinc-Coated, for Light Coating Weight Mass Applications
 - .3 ASTM A653/ A653M-11, Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
 - .4 ASTM A1008/A1008M-15, Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable.
 - .5 ASTM A 1011/A 1011M-15, Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-1.181-99, Ready-Mixed Organic Zinc-Rich Coating
- .3 Canadian Standards Association (CSA International)
 - .1 CSA-G40.20-04/G40.21-04, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel
 - .2 CSA W59-03 (R2008), Welded Steel Construction (Metal Arc Welding)
- .4 Canadian Steel Door Manufacturers' Association (CSDMA)
 - .1 CSDMA, Commercial Steel Doors and Frames, 2009
 - .2 CSDMA, Recommended Selection and Usage Guide for Commercial Steel Doors, 2009
- .5 National Fire Protection Association (NFPA)
 - .1 NFPA 80-2016, Standard for Fire Doors and Other Opening Protectives
 - .2 NFPA 105, Standard for Smoke Door Assemblies and Other Opening Protectives, 2016 Edition
- .6 Underwriters' Laboratories of Canada (ULC)
 - .1 CAN4-S104-M80 (R1985), Standard Method for Fire Tests of Door Assemblies

1.03 COORDINATION

- .1 Coordinate installation of anchorages for hollow metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.
- .2 Coordinate with work of other Sections for insert panels in hollow metal frames. Furnish as-built dimensions of clear openings for panel locations.
- .3 Coordinate with work of Division 28 for access control devices.
- .4 Coordinate with Departmental Representative for Work By Others for installation of security systems.

1.04 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Action Submittals:
 - .1 Product Data: for each type of door specified. Include construction details, material descriptions, core descriptions, fire-resistance rating, and finishes.
 - .2 Shop Drawings:
 - .1 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.
 - .2 Indicate each type frame material, core thickness, reinforcements, glazing stops, panel inserts and trim, location of anchors and exposed fastenings and reinforcing, fire rating, finishes.
 - .3 Include schedule identifying each unit, with door marks and numbers relating to numbering on drawings and door schedule.
 - .4 Identify existing doors and frames removed for reuse in this contract, and Owner Furnished doors and frames to be installed in this contract.

1.05 QUALITY ASSURANCE

- .1 Fabricate and install steel doors and frames in accordance with Canadian Steel Door Manufacturers' Association, "Canadian Manufacturing Specifications for Steel Doors and Frames".

1.06 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Deliver hollow metal work palletized, wrapped, or crated to provide protection during transit and Project-site storage. Do not use non-vented plastic.
- .3 Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.

- .4 Store hollow metal work under cover at Project site. Place in stacks of five units maximum in a vertical position with heads up, spaced by blocking, on minimum 100 mm high wood blocking. Do not store in a manner that traps excess humidity.

2 Products

2.01 DESIGN REQUIREMENTS

- .1 Steel Fire Rated Doors and Frames: Provide doors and frames labelled and listed by an organization accredited by Standards Council of Canada in conformance with CAN/ULC-S104 for ratings specified or indicated.

2.02 OWNER FURNISHED CONTRACTOR INSTALLED PRODUCTS

- .1 Existing hollow metal frames indicated in Section 08 06 00 – Door and Frame Schedule.

2.03 EXISTING MATERIALS FOR REUSE

- .1 Hollow metal frames removed during demolition for reinstallation as part of complete Work. Refer to Section 08 06 00 – Door and Frame Schedule and Section 02 41 19.16 – Selective Interior Demolition

2.04 MATERIALS

- .1 Hot Dipped Galvanized Steel Sheet: tension leveled steel to ASTM A924, galvanized to ASTM A653M, commercial steel (CS) Type B, coating designation ZF120, minimum base steel thickness in accordance with CSDMA Table 1 – Minimum Steel Gauges for Component Parts.
- .2 Hardware Reinforcement: cold or hot rolled steel, galvanneal coated. Minimum base steel thickness in accordance with CSDMA Recommended Specifications for Commercial Steel Door and Frame Products, Table 1 – Minimum Steel Gauges for Component Parts, unless indicated otherwise.
 - .1 Hinge reinforcement: minimum 5 mm thick.
 - .2 Surface mounted hardware reinforcement: minimum 2.5 mm thick.
 - .3 Flush bolt reinforcement: minimum 5 mm thick
- .3 Frame Anchors: ASTM A 591/A 591M, Commercial Steel (CS), 40Z coating designation; mill phosphatized. Minimum base steel thickness in accordance with CSDMA Recommended Specifications for Commercial Steel Door and Frame Products, Table 1 – Minimum Steel Gauges for Component Parts.
 - .1 For anchors built into exterior walls, steel sheet complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.
- .4 Core 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.
- .5 Touch-up Primer: rust-inhibitive to CAN/CGSB 1.181
 - .1 Maximum VOC limit 150 g/L to GC-11.

- .6 Accessories:
 - .1 Door Silencers: Single stud rubber/neoprene type.
 - .2 Interior door caps: Inverted, spot welded channels at top and bottom, same material as door face sheets.
 - .3 Glazing Stops: Fabricate glazing stops as formed channel, minimum 1.2 mm thick galvanized sheet steel with ZF120 finish, 16 mm height, accurately fitted, butted at corners, suitable for screw fastening to frame sections with counter-sunk oval head sheet metal screws. Design exterior glazing stops to be tamperproof.
 - .4 Metallic Paste Filler: To manufacturer's standard.
 - .5 Fire Labels: Metal riveted.
 - .6 Adhesives:
 - .1 Honeycomb cores and steel components: heat resistant, spray grade, resin reinforced neoprene/rubber (polychloroprene) based, low viscosity, contact cement.
- .7 Glazing: Safety glass, as specified in Section 08 80 50 - Glazing.
- .8 Frame Sealant: To Section 07 92 00 – Joint Sealants.

2.05 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 Stud partitions: Provide steel anchors of suitable design, on each jamb as follows:
 - .1 Frames up to 2 250 mm in height: three anchors.
 - .2 Frames 2 250 to 2 400 mm in height: four anchors.
 - .3 Frames over 2 400 mm in height: five anchors, plus one additional anchor for each 600 mm or fraction thereof over 2 400 mm.

2.06 FRAMES: WELDED TYPE

- .1 Welding: In accordance with CSA W59.
- .2 Fabricate frames in accordance with CSDMA specifications.
- .3 Fabricate frames to profiles and maximum face sizes as indicated. Provide drywall frame profile with drywall returns for frames installed in gypsum board partitions.
- .4 Interior Frames: 1.6 mm welded construction.
- .5 Accurately mitre or mechanically joint frame product and securely weld on inside of profile.

- .6 Perimeter Corner Joints: as defined in Appendix 2 of CSDMA, "Recommended Specifications for Commercial Steel Door and Frame Products", except as specified otherwise:
 - .1 Profile welded, punch-mitered: continuously welded on inside of frame along profile faces, rabbets, returns and soffit intersections. Fill exposed faces and grind smooth to uniform seamless surface.
 - .2 Tack welded: not permitted.
- .7 Joints at mullions, sills and centre rails:
 - .1 Accurately coped, butted and tightly fitted.
 - .2 At intersecting flush profile faces: securely welded on inside of frame, filled and ground to smooth, uniform, seamless surface.
 - .3 At intersecting recessed profile faces: securely welded on inside of frame to concealed reinforcements, with exposed hairline face seams.
 - .4 At other intersecting profile elements: exposed hairline face seams.
- .8 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.
 - .1 Provide full height hinge reinforcement where continuous hinges are scheduled.
 - .2 For electronic door hardware and controls provide hinge junction box and outlet junction box at hardware mounting locations as required and cut-outs for hardware items.
- .9 Protect strike and hinge reinforcements, and mortised cutouts with steel guard boxes.
- .10 Provide backbend return on frame throat for gypsum board partitions.
- .11 Prepare non-fire rated frames for door silencers; three for single door, two at head for double door.
- .12 Conceal fastenings except where exposed fastenings are indicated.
- .13 Provide factory-applied touch up primer at areas where zinc coating has been removed during fabrication.
- .14 Securely attach floor anchors to inside of each jamb profile.
- .15 Weld in two temporary jamb spreaders per frame to maintain proper alignment during shipment.

2.07 DOOR FABRICATION GENERAL

- .1 Fabricate doors in accordance with CSDMA specifications.
- .2 Core Construction: Manufacturer's standard kraft-paper honeycomb, polystyrene, polyurethane, polyisocyanurate, mineral-board, or vertical steel-stiffener core:
 - .1 Fire Door Core: As required to provide fire-protection ratings indicated.

- .3 Doors: Laminated Core Construction
 - .1 Interior Doors: Form face sheets from 1.2 mm sheet steel with honeycomb core laminated under pressure to face sheets.
- .4 Door Type: swing type, flush, with provision for glass openings as indicated.
- .5 Edges: Fabricate doors with longitudinal edges mechanically interlocked adhesive assisted, with visible edge seams, except as otherwise indicated. Bevel vertical edge on latch side of single-acting doors 3 mm in 50 mm.
- .6 Blank, reinforce, drill doors and tap for mortised, templated hardware , and electronic hardware.
 - .1 For electronic door hardware and controls provide minimum 13 mm conduit within door as required and cut-outs for hardware items.
- .7 Factory prepare holes 12.7 mm diameter and larger except mounting and through-bolt holes, on site, at time of hardware installation.
- .8 Reinforce doors where required, for surface mounted hardware, and around perimeter of cut-outs for glazing. Provide full height hinge reinforcement where continuous hinges are scheduled.
- .9 Top and Bottom Edges:
 - .1 Interior doors: Inverted, spot welded channels at top and bottom, same material as door face sheets.
- .10 Provide factory-applied touch-up primer at areas where zinc coating has been removed during fabrication.
- .11 Provide fire labelled doors for those openings requiring fire protection ratings, as scheduled. Test such products in conformance with CAN/ULC-S104 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.
- .12 Provide astragals for pairs of doors in accordance with ULC requirements where indicated in Door Hardware Schedule.
- .13 Where pairs of doors are scheduled to receive concealed top and bottom rod exit devices, provide doors that are ULC-approved without the use of an astragal and with only 6 mm clearance from finished floor to bottom of door.

3 Execution

3.01 MANUFACTURER'S INSTRUCTIONS

- .1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.02 OWNER FURNISHED CONTRACTOR INSTALLED PRODUCTS

- .1 Obtain hollow metal frames from storage location as directed by Departmental Representative.
- .2 Prepare and install in accordance with general installation requirements, to accept new door and hardware.

3.03 EXISTING PRODUCTS FOR REUSE

- .1 Retrieve frames from storage location, prepare, and install in accordance with general installation requirements, to accept new door and hardware.

3.04 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.

3.05 FRAME INSTALLATION

- .1 Set frames plumb, square, level and at correct elevation.
 - .1 Maximum diagonal distortion: 1.6 mm.
- .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 1 200 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 in accordance with Section 07 92 00 – Joint Sealants.

3.06 DOOR INSTALLATION

- .1 Install doors and hardware in accordance with hardware templates and manufacturer's instructions and Section 08 71 00 - Door Hardware.
- .2 Hollow Metal Doors: Fit swing hollow metal doors accurately in frames, within clearances specified below. Shim as necessary.
 - .1 Non-Fire-Rated Standard Steel Doors:
 - .1 Jamb and Head: 3 mm plus or minus 1.6 mm.
 - .2 Between Edges of Pairs of Doors: 3 mm plus or minus 1.6 mm.
 - .3 Between Bottom of Door and Top of Finish Floor (No door sweep): Maximum 6 mm.
 - .2 Fire-Rated Doors: Install doors with clearances according to NFPA 80, except maximum 13 mm clearance at bottom of door to top of finished floor.
 - .3 Smoke-Control Doors: Install doors according to NFPA 105.
- .3 Adjust operable parts for correct function.

3.07 GLAZING

- .1 Install glazing for doors and frames in accordance with Section 08 80 50 - Glazing.
 - .1 Provide tempered safety glass except provide wired glass at fire labelled doors.
- .2 Mechanically fasten removable glazing stops to frame sections with removable screw fasteners at 100 mm o.c. and maximum 50 mm from each end

3.08 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.

END OF SECTION

1 General

1.01 RELATED REQUIREMENTS

- .1 Section 01 11 00 – Summary of Work: For Owner Supplied Contractor Installed Products.
- .2 Section 02 41 19.16 – Selective Interior Demolition: For existing wood doors removed for reuse.

1.02 REFERENCES

- .1 Architectural Woodwork Institute/Architectural Woodwork Manufacturers Association of Canada/Woodwork Institute (AWI/AWMAC/WI).
 - .1 Architectural Woodwork Standards, Edition 2
- .2 American National Standard Institute (ANSI)
 - .1 ANSI/NPA A208.1-2009, Particleboard
- .3 Door Hardware Institute
 - .1 DHI Recommended Location for Architectural Hardware for Flush Wood Doors
- .4 National Fire Protection Association (NFPA).
 - .1 NFPA 80-13, Standard for Fire Doors and Fire Windows.
- .5 Underwriters' Laboratories of Canada (ULC).
 - .1 ULC CAN/ULC-S104M-10, Fire Tests of Door Assemblies.

1.03 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Make submittals in accordance with Section 01 33 00 – Submittal Procedures
- .2 Action Submittals:
 - .1 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications and data sheets.
 - .2 Shop Drawings:
 - .1 Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; location and extent of hardware blocking; and other pertinent data.
 - .2 Indicate dimensions and locations of mortises and holes for hardware.
 - .3 Indicate dimensions and locations of cutouts.
 - .4 Indicate requirements for veneer matching.
 - .5 Include Owner Furnished Contractor Installed Products, and existing doors removed for reuse by Section 02 41 19.16 – Selective Interior Demolition.

1.04 COORDINATION

- .1 Coordinate hardware preparation requirements with metal frames.

1.05 QUALITY ASSURANCE

- .1 Regulatory Requirements:
 - .1 Wood fire rated doors: labelled and listed by an organization accredited by Standards Council of Canada.
- .2 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties
- .3 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .4 Quality Standard: In addition to requirements specified, comply with AWI/AWMCA/WI Architectural Woodwork Standard, Section 9.
- .5 Single Source Responsibility: Provide doors from a single source to ensure uniformity in quality of appearance, face veneer, finish and construction.

1.06 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, 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.
 - .5 Mark each door on bottom rail with opening number used on Shop Drawings.

1.07 AMBIENT CONDITIONS

- .1 Do not deliver or install doors until spaces are enclosed and weathertight, wet work in spaces is complete and dry, and HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.

1.08 WASTE MANAGEMENT AND DISPOSAL

- .1 Remove from site and dispose of packaging materials at appropriate recycling facilities in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

2 Products

2.01 OWNER FURNISHED CONTRACTOR INSTALLED PRODUCTS

- .1 Existing wood doors indicated in Section 08 06 00 – Door and Frame Schedule.

2.02 EXISTING MATERIALS FOR REUSE

- .1 Wood doors removed during demolition for reinstallation as part of complete Work. Refer to Section 08 06 00 – Door and Frame Schedule and Section 02 41 19.16 – Selective Interior Demolition

2.03 WOOD FLUSH DOORS FOR TRANSPARENT (STAIN) FINISH

- .1 General: Solid-Core Doors to CAN/CSA-O132.2.1 (WD):
 - .1 Composite wood materials contain no added urea-formaldehyde or resins containing urea-formaldehyde.
 - .2 Aesthetic grade: Custom to AWI/AWMAC/WI Architectural Woodwork Standards.
 - .3 Performance grade: Heavy duty to WDMA I.S.1-A.
 - .4 Core Construction:
 - .1 Particleboard: to ANSI A208.1, Grade LD-2.
 - .2 Five plies. Stiles and rails bonded to core, with wood lock blocks and special wood blocking, then entire unit abrasive planed before veneering.
 - .5 Blocking: Provide hardwood blocking in particleboard-core doors as needed to eliminate through-bolting hardware, and as follows:
 - .1 Minimum blocking requirements:
 - .1 Hinged doors: HB-8, 125 mm blocking at vertical edges for hinges, strike edge, locksets, and latchsets.
 - .2 Additional blocking requirements:
 - .1 HB-1, 125 mm top-rail blocking, in doors indicated to have closers.
 - .2 HB-2, 125 mm bottom-rail blocking, in doors indicated to have kick plates.
 - .3 HB-4, 125 mm midrail blocking at both vertical edges for doors with panic hardware and at strike edge for locksets, latchsets and the like.
 - .6 Face Materials: Rift cut, grade A in accordance with WDMA I.S. 1-A, all sapwood, white, maple veneer.
 - .7 Assembly of leaves on door faces: balance match.
 - .8 Pair and set: Match, provide for doors hung in same opening.
 - .9 Exposed vertical edges: Edge Type D, solid wood same species as faces, veneer face edge shows.
 - .10 Adhesive: Type II water resistant for interior doors.

2.04 FIRE RATED WOOD DOORS

- .1 Wood doors: tested in accordance with CAN4-S104 to achieve rating as scheduled.
 - .1 Face materials: To match general solid core wood doors.

2.05 FABRICATION

- .1 Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI Recommended Location for Architectural Hardware for Flush Wood Doors. Comply with final hardware schedules, door frame Shop Drawings, DHI standards, and hardware templates.
 - .1 Coordinate with hardware mortises in metal frames to verify dimensions and alignment before factory machining.
- .2 Prepare doors for glazing. Provide hardwood glazing stops to match face veneer, with mitred corners
- .3 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.

2.06 SHOP PRIMING

- .1 Doors for Transparent Finish: Shop prime doors with custom stain, other required pretreatments, and first coat of finish as specified in Section 09 91 00 - Painting.
 - .1 Seal all four edges, edges of cutouts, and mortises with first coat of finish.

3 Execution

3.01 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.

3.02 EXAMINATION

- .1 Examine doors and installed door frames before hanging doors.
 - .1 Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.
 - .2 Reject doors with defects.
- .2 Proceed with installation only after unsatisfactory conditions have been corrected.
- .3 Examine Owner Furnished Contractor Installed Products for damage when taking possession of materials.
 - .1 Record damage and deficient conditions and report in writing to Departmental Representative.
 - .2 Departmental Representative will repair damage under separate contract or as change to Work at discretion of Departmental Representative.
- .4 Examine existing materials for reuse when retrieving from storage.
 - .1 Review damage in presence of Departmental Representative.
 - .2 Repair damage from demolition and storage in contract to satisfaction of Departmental Representative.

3.03 INSTALLATION

- .1 Hardware: To Section 08 71 00 - Door Hardware.
- .2 Unwrap and protect doors.
- .3 Install doors and hardware in accordance with manufacturer's printed instructions, and AWI/AWMAC/WI Architectural Woodwork Standards.
- .4 Install labelled fire rated doors to NFPA 80.
- .5 Align and fit doors in frames with uniform clearances and bevels as indicated.
- .6 Machine doors for hardware.
 - .1 Seal edges of doors, edges of cutouts, and mortises after fitting and machining.
- .7 Provide even margins between doors and jambs and doors and finished floor as follows.
 - .1 Hinge side: 1.0 mm.
 - .2 Latchside and head: 1.5 mm.
 - .3 Finished floor, top of carpet, thresholds: 6 mm, except where scheduled otherwise.
 - .4 Allow for floor fluctuations.
- .8 Adjust hardware for correct function.

3.04 FINISHES

- .1 Apply final finish to doors in accordance with Section 09 91 00 – Painting.

3.05 ADJUSTMENT

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

3.06 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.

END OF SECTION

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1 General

1.01 REFERENCES

- .1 American National Standards Institute (ANSI) / Builders Hardware Manufacturers Association (BHMA)
 - .1 ANSI/BHMA A156 Series.
- .2 Door Hardware Institute (DHI)
 - .1 Recommended locations for Architectural Hardware for Standard Steel Doors and Frames
 - .2 Recommended locations for Architectural Hardware for Flush Wood Doors
 - .3 Sequence And Format for The Hardware Schedule – Vertical Format
 - .4 Key Systems and Nomenclature
 - .5 Abbreviations and Symbols used in Architectural Door and Hardware Schedules and Specifications
- .3 National Building Code of Canada 2010 (NBCC)
- .4 NFPA 80 Fire Doors and Windows

1.02 COORDINATION

- .1 Templates: Provide templates as required for coordination with related work of other sections.
- .2 Coordinate with work of Section 08 11 13 – Hollow Metal Doors and Frames, Division 26 for power, Division 27 for rough-in of control wiring, and Departmental Representative for access control wiring by Shared Services Canada.

1.03 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 door hardware and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Hardware Schedule:
 - .1 Submit contract hardware list.
 - .2 Indicate specified hardware, including make, model, material, function, size, finish and other pertinent information.
 - .3 Format: in accordance with DHI reference.
- .4 Manufacturer's Instructions: submit manufacturer's installation instructions as requested.
- .5 Wiring Diagrams: Co-ordinate with related trades, meet with Engineer and security provider and submit written description of functional use (mode of operation) of electrical hardware products specified. Include:

- .1 Operation for ingress, egress, fire alarm, and after hours use where applicable.
- .2 Door and frame elevations showing the location of each item of electrical hardware to be installed, mode of operation including diagram showing number and size of all conductors
- .3 Indicate on elevation drawing items provided by related trades, include for back boxes, and 120V power sources.
- .4 Provide point to point drawings showing all terminal connections necessary for a complete installation.

1.04 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 Include manufacturer name, wiring diagrams.

1.05 MAINTENANCE MATERIALS SUBMITTALS

- .1 Extra Stock Materials:
 - .1 Supply maintenance materials in accordance with Section 01 78 00 - Closeout Submittals.
 - .2 Tools:
 - .1 Supply 2 sets of wrenches for door closers, lockset, and exit hardware.

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

1.07 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance 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 in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect door hardware from nicks, scratches, and blemishes.
 - .3 Protect prefinished surfaces with strippable coating.
 - .4 Replace defective or damaged materials with new.

- .5 Packaging Waste Management: remove for reuse of pallets, and packaging materials

1.08 WARRANTY

- .1 Manufacturer's Warranty: Provide manufacturer's warranties as follows:

Hardware Item	Length of Warranty
Mortise Hinges	Lifetime
Locks	10 years
Exit Devices	5 year
Door closers -mechanical	10 years
Door Operators - Electro mechanical	2 years
Overhead stops/holders	1 year
Floor/Wall stops	1 year
Key Switches/Power Supplies	1 year
Electric Strikes	5 years

2 Products

2.01 HARDWARE ITEMS

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

2.02 DOOR HARDWARE

- .1 Locks and latches:
 - .1 Mortise locks and latches: to ANSI/BHMA A156.13 series 1000 mortise lock, grade 1 designed for function as stated in Hardware Schedule.
 - .2 Lever handles : design as scheduled.
 - .3 Roses: round.
 - .4 Normal strikes: box type, lip projection not beyond jamb.
 - .5 Cylinders: see 2.04 keying below for further information.
- .2 Butts and hinges:
 - .1 Butts and hinges: to ANSI/BHMA A156.1, size and finish, listed in Hardware Schedule.
 - .2 Supply 3 hinges per door. Doors which exceed 914mm wide or 2200mm high to have 4 hinges.
- .3 Exit devices:
 - .1 To ANSI/BHMA A156.3, type Rim, grade 1 in functions as noted in hardware schedule. Exit devices to come complete with manufacturers cylinder to suit.

- .4 Door Closers and Accessories:
 - .1 Door controls (closers): to ANSI/BHMA A156.4, listed in Hardware Schedule, Door controls - overhead holders: to ANSI/BHMA A156.8, listed in Hardware Schedule.
 - .2 Door closers to have full adjustment features including separate valves for backcheck, general speed and latch speed control.
 - .3 All interior closers will have a reduced opening force spring power to meet barrier free codes of 22N (5 lbs.).
 - .4 Provide all brackets and extension arms as required to suit application.
- .5 Door Operators:
 - .1 Power assist and low energy power operated doors: to ANSI/BHMA A156.19.
- .6 Auxiliary locks and associated products: to ANSI/BHMA A156.5 listed in Hardware Schedule.
 - .1 Cylinders: see 2.04 keying below for further information.
- .7 Architectural door trim: to ANSI/BHMA A156.6, listed in Hardware Schedule.
 - .1 Door protection plates: kick plate, 1.27 mm thick stainless steel
- .8 Auxiliary hardware: to ANSI/BHMA A156.16, listed in Hardware Schedule
 - .1 Door silencer: Door bottom seal: door seal of extruded aluminum frame and closed cell neoprene seal, surface mounted
 - .2 Thresholds: full width of door opening, extruded aluminum mill finish
- .9 Weatherstripping:
 - .1 Head and jamb seal:
 - .1 Extruded aluminum frame and closed cell neoprene.
 - .2 Door bottom seal:
 - .1 Extruded aluminum frame and closed cell neoprene.

2.03 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.

2.04 KEYING

- .1 All locks and exit devices to be supplied with manufacturer's standard cylinders for use during construction. Cylinders to be keyed alike. Supply 15 construction keys.
- .2 Supply and installation of final cylinders:
 - .1 Project turn-over/acceptance of space: Install high security Schlage primus cylinders and standard cylinders complete with all associated keyway components to replace standard construction cylinders.
 - .2 Arrange for Burnett's Locksmith to co-ordinate the necessary permission between the secure client security specialist (who controls the building keyway) and Schlage to allow the specific Burnett's Locksmith to order, cut, produce and receive any components associated with the secure client building project Schlage keyway.
 - .3 Cylinders to have restricted keyways and keys are to be supplied in contract by Burnett's Locksmith. Locksmith to provide a list of all keys produced, along with the keys to the secure client security specialist.

2.05 FINISHES

Item	BHMA#Base	Description	Material
Hinges	626	Satin Chrome Plated	Brass/Bronze
Hinges	652	Satin Chrome Plated	Steel
Lock Trim	626	Satin Chrome Plated	Brass/Bronze
Exit Devices	630	Powder Coat Aluminum	Steel
Door Closer	689	Powder Coat Aluminum	Steel
Door Pulls	630	Satin Stainless Steel	Stainless Steel
Protective Plate	630	Satin Stainless Steel	Stainless Steel
Door Stops/holders			
Overhead	630	Satin Stainless Steel	Stainless Steel
Wall/Floor	626	Satin Chrome Plated	Brass/Bronze
Thresholds	628	Anodized Aluminum	Aluminum
Weatherstrip	628	Anodized Aluminum	Aluminum
Miscellaneous			
Electric Strikes	630	Satin Stainless Steel	Stainless Steel

3 Execution

3.01 PREPARATION AND EXAMINATION

- .1 Ensure that doors and frames are properly prepared and reinforced to receive finish hardware prior to installation.
- .2 Ensure that door frames and finished floor are plumb and level to permit proper engagement and operation of hardware.
- .3 Submit in writing a list of deficiencies determined as part of inspection required in 3.01.1 and 3.01.2 to Departmental Representative prior to installation of finished hardware. Correct door frame installation before proceeding with finish hardware installation.

3.02 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 Door Hardware Institute.
- .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.

3.03 FIELD QUALITY CONTROL

- .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.
- .4 Final Inspection: Retain services of hardware supplier to provide final inspection of completed work.
 - .1 Complete inspection after adjusting and balancing of mechanical systems and in advance of Owner demonstration and training.
 - .2 Provide written report confirming proper and functional installation of hardware in accordance with manufactures instructions.

3.04 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 00 10 - General Requirements.
 - .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 00 10 - General Requirements.
- .2 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.05 DEMONSTRATION AND TRAINING

- .1 Maintenance Staff Briefing:

- .1 Brief maintenance staff regarding:
 - .1 Proper care, cleaning, and general maintenance of projects complete hardware.
 - .2 Description, use, handling, and storage of keys.
 - .3 Use, application and storage of wrenches for door closers, locksets and exit hardware.
- .2 Demonstrate operation, operating components, adjustment features, and lubrication requirements.

3.06 PROTECTION

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

3.07 SCHEDULE

- .1 Refer to Section 08 06 71 – Door Hardware Codes.
- .2 Door hardware schedule is furnished for whatever assistance it may afford contractors. Examine drawings and specification, determine extent and hardware quality required. Should any particular door or item be omitted in any schedule hardware group, provide such a door or item with hardware same as required for similar purposes.

END OF SECTION

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1 General

1.01 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Make submittals in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Action Submittals:
 - .1 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications and data sheets for each glass product and glazing material.
 - .2 Samples: Submit duplicate 300 by 300 mm size samples of each type of specified glazing.
 - .3 Informational Submittals:
 - .1 Certificates.
 - .2 Product Test Reports.

1.02 QUALITY ASSURANCE

- .1 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Safety Glazing Labeling: Permanently mark glazing with certification label of the manufacturer. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.

1.03 DELIVERY, STORAGE AND HANDLING

- .1 Protect glazing materials according to manufacturer's written instructions. Prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.
- .2 Comply with insulating-glass manufacturer's written recommendations for venting and sealing units to avoid hermetic seal ruptures.

2 Products

2.01 MATERIALS

- .1 General:
 - .1 Source Limitations for Glass: Obtain glass products from single source from single manufacturer for each glass type.
 - .2 Strength: Where float glass is indicated, provide annealed float glass, heat-strengthened heat-treated float glass, or fully-tempered heat-treated float glass as needed to comply with "Performance Requirements" Article. Where heat-strengthened glass is indicated, provide heat-strengthened float glass or fully tempered float glass as needed to comply with "Performance Requirements" Article. Where fully tempered glass is indicated, provide fully tempered float glass.

- .2 Float glass: to CAN/CGSB 12.3, Glazing quality, not less than 6mm thick, heat strengthened where indicated, and as required.
- .3 Safety glass: to CAN/CGSB-12.1, clear float glass, not less than 6 mm thick.
 - .1 Type 2-tempered.
 - .2 Class B-float.
 - .3 Category II.
 - .4 Horizontal tempering.
- .4 Security Glazing: 6 mm float glass with security film to Section 08 87 00 – Glazing Films.
- .5 Privacy Glazing: 6 mm float glass with decorative privacy film to Section 08 87 00 – Glazing Films

2.02 ACCESSORIES

- .1 General: Provide products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.
- .2 Primer, Sealers, Cleaners: Types recommended by sealant or gasket manufacturer.
- .3 Setting blocks: Elastomeric material with a Shore, Type A durometer hardness of 85, ± 5 , recommended by the manufacturer as being acceptable for use in the intended application, and compatible with glass and glazing materials.
- .4 Spacers: Elastomeric blocks or continuous extrusions of hardness required by glass manufacturer to maintain glass lights in place for installation indicated.
- .5 Edge blocks: Elastomeric material of hardness needed to limit glass lateral movement (side-walking).
- .6 Soft Compression Gaskets: Extruded or molded, closed-cell, integral-skinned EPDM, silicone, or thermoplastic polyolefin rubber gaskets complying with ASTM C 509, Type II, black; of profile and hardness required to maintain watertight seal.
 - .1 Application: Use where soft compression gaskets will be compressed by inserting dense compression gaskets on opposite side of glazing or pressure applied by means of pressure-glazing stops on opposite side of glazing.
- .7 Glazing Sealants - General:
 - .1 Compatibility: Provide glazing sealants that are compatible with one another and with other materials they will contact, including glass products, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
 - .2 Suitability: Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.
 - .3 Colours of exposed glazing sealants: as selected by Departmental Representative from manufacturer's full range.
- .8 Glazing Tape: Preformed butyl compound, paper released backed.

2.03 FABRICATION OF GLAZING UNITS

- .1 Fabricate glazing units in sizes required to fit openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.
- .2 Clean-cut or flat-grind vertical edges of butt-glazed monolithic lights to produce square edges with slight chamfers at junctions of edges and faces.
- .3 Grind smooth and polish exposed glass edges and corners.

3 Execution

3.01 EXAMINATION

- .1 Examine framing, glazing channels and stops, with installer present, for compliance with the following:
 - .1 Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
 - .2 Minimum required face or edge clearances.
- .2 Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 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.

3.03 GLAZING, GENERAL

- .1 Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.
- .2 Adjust glazing channel dimensions as required by Project conditions during installation to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances.

- .3 Protect glass edges from damage during handling and installation. Remove damaged glass from site and legally dispose of off-site. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance.
- .4 Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction sealant-substrate testing.
- .5 Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer.
- .6 Do not exceed edge pressures stipulated by glass manufacturers for installing glass lights.
- .7 Provide spacers for glass lights where length plus width is larger than 1270 mm as follows:
 - .1 Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and to comply with system performance requirements.
 - .2 Provide 3-mm minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.
- .8 Provide edge blocking where indicated or needed to prevent glass lights from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.
- .9 Set glass lights in each series with uniform pattern, draw, bow, and similar characteristics.
- .10 Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage so gasket cannot walk out when installation is subjected to movement.
- .11 Square cut wedge-shaped gaskets at corners and install gaskets in a manner recommended by gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints with sealant recommended by gasket manufacturer.

3.04 TAPE GLAZING

- .1 General:
 - .1 Position tapes on fixed stops so that, when compressed by glass, their exposed edges are flush with or protrude slightly above sightline of stops.
 - .2 Install tapes continuously, but not necessarily in one continuous length. Do not stretch tapes to make them fit opening.
 - .3 Cover vertical framing joints by applying tapes to heads and sills first and then to jambs. Cover horizontal framing joints by applying tapes to jambs and then to heads and sills.

- .4 Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.
- .5 Do not remove release paper from tape until just before each glazing unit is installed.
- .6 Place setting blocks at 1/4 points, with edge block maximum 150 mm from corners.
- .7 Centre glass lights in openings and rest glazing on setting blocks. Push firmly against tape for full contact at perimeter of light or unit.
- .8 Knife trim protruding tape to uniform, level line, flush with sight line, to smooth appearance. Do not cut or abrade tempered, heat treated, or coated glass.
- .2 Interior Wood Doors and Frames – Tape One Side:
 - .1 Install removable stop against free perimeter of glass, and secure in place.
- .3 Interior Hollow Metal Doors and Frames – Tape Two Sides:
 - .1 Place glazing tape on free perimeter of glass in same manner described for fixed stop.
 - .2 Install removable stop without displacement of tape. Exert pressure on tape for full continuous contact.
- .4 Fire-Rated Hollow Metal Doors and Frames: install glazing in accordance with manufacturer's instructions to meet required fire-resistance rating.

3.05 GASKET GLAZING (DRY)

- .1 Cut compression gaskets to lengths recommended by gasket manufacturer to fit openings exactly, with allowance for stretch during installation.
- .2 Insert soft compression gasket between glass and frame or fixed stop so it is securely in place with joints mitre cut and bonded together at corners.
- .3 Installation with Drive-in Wedge Gaskets: Centre glass lights in openings on setting blocks and press firmly against soft compression gasket by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.
- .4 Installation with Pressure-Glazing Stops: Centre glass lights in openings on setting blocks and press firmly against soft compression gasket. Install dense compression gaskets and pressure-glazing stops, applying pressure uniformly to compression gaskets. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.
- .5 Install gaskets so they protrude past face of glazing stops.

3.06 CLEANING AND PROTECTION

- .1 Protect exterior glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove non-permanent labels and clean surfaces.

- .2 Protect glass from contact with contaminating substances resulting from construction operations.
- .3 Remove and replace glass that is broken, chipped, cracked, or abraded or that is damaged from natural causes, accidents, and vandalism, during construction period.
- .4 Wash glass on both exposed surfaces in each area of Project not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended in writing by glass manufacturer.

3.07 SCHEDULE

- .1 Interior Glazing:
 - .1 Non-fire rated interior doors: 6 mm thick clear tempered safety glass.
 - .2 Security and Privacy Glazing: Refer to Glazing Film Schedule

END OF SECTION

1 General

1.01 REFERENCES

- .1 ASTM International (ASTM)
 - .1 ASTM D882, Standard Test Method for Tensile Properties of Thin Plastic Sheeting
 - .2 ASTM E84, Standard Test Method for Surface Burning Characteristics of Building Materials
 - .3 ASTM E903, Test Method for Solar Absorptance, Reflectance, and Transmittance of Materials Using Integrating Spheres
- .2 Consumer Products Safety Commission (CPSC)
 - .1 Safety Standard for Architectural Glazing Materials - at Title 16, Part 1201 of the Code of Federal Regulations: 16 CFR 1201
- .3 International Window Film Association (IWFA)
 - .1 IWFA Visual Quality Standard for Applied Window Film 1999.
- .4 Underwriters Laboratories (UL)
 - .1 UL 972, Burglary-Resisting Glazing Material.

1.02 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Action Submittals
 - .1 Product Data: Provide manufacturer's printed product data on privacy and security glazing film.
- .3 Informational Submittals:
 - .1 Installation Instructions: Submit manufacturer's installation instructions.

1.03 DELIVERY, STORAGE AND HANDLING

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

2 Products

2.01 MATERIALS

- .1 Security Glazing Film: Optically clear polyester film with durable acrylic abrasion resistant coating over one surface and pressure activated adhesive over the other. Adhesive forms physical bond, not chemical bond, to glass.
 - .1 Physical / Mechanical Performance Properties:
 - .1 Film Color: Clear.
 - .2 Thickness: Nominal 0.36 mm

- .3 Tensile Strength: To ASTM D882, 25,000 psi.
- .4 Break Strength: To ASTM D882, (Per Inch Width): 350 lbs.
- .2 Solar Performance Properties:
 - .1 Visible Light Transmission: To ASTM E903, 85 %.
- .3 Impact Resistance for Safety Glazing: Tested on 6 mm annealed glass.
 - .1 Safety Rating: To CPSC 16 CFR, Part 1201, Category II (400 ft.-lbs).
- .4 Forced Entry Protection: Independent lab testing according to UL 972 protocol (Multiple Impact Test).
 - .1 6 mm Annealed Glass: Pass
- .5 Flammability: Surface burning characteristics when tested in accordance ASTM E 84, demonstrating film applied to glass rated Class A for Interior Use:
 - .1 Flame Spread Index: no greater than 25.
 - .2 Smoke Developed Index: no greater than 55.
- .2 Decorative Glazing Films:
 - .1 Privacy Film (Type H). Translucent polymeric vinyl film with factory applied permanent adhesive, and release liner.
 - .1 Thickness: 75 micron (0.076 mm).
 - .2 Adhesive: clear pressure sensitive solvent based acrylic.
 - .3 Appearance: deep etch, white.
 - .4 Visible Light Transmittance: 20%.
 - .5 Diffuse Visible Light Reflectance exterior: 80 %.
 - .2 Privacy Film (Type G): Translucent polyester film with factory applied permanent adhesive, and release liner
 - .1 Thickness: 50 micron (0.051 mm).
 - .2 Adhesive: clear pressure sensitive solvent based acrylic.
 - .3 Appearance: gradient dot pattern transitioning from translucent to transparent over distance indicated on glazing film elevations.

3 Execution

3.01 INSTALLATION

- .1 General:
 - .1 Install film with adhesive, in accordance with film manufacturer's instructions.
 - .2 Place without air bubbles, creases or visible distortion.
 - .3 No splices or seams permitted.
- .2 Apply security and decorative glazing film to glass surfaces indicated in Section 08 87 05 - Glazing Films Schedule, in accordance with Section 08 80 50 - Glazing, and where indicated
- .3 Apply security film to entire glass surface, except as indicated otherwise.
 - .1 Clamp security film under applied frame stops.
- .4 Apply decorative film with neat square corners and edge to within 1.5 mm of window frame, unless indicated otherwise.

3.02 FIELD QUALITY CONTROL

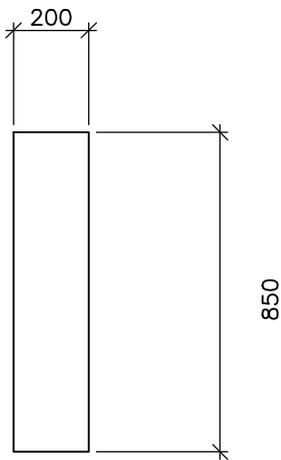
- .1 Visual Inspection: in accordance with IWFA - Visual Quality Standard for Applied Window Film.
 - .1 Conduct inspection in presence of film installer and Departmental Representative.
- .2 Remove and replace without glass replacement, film that shows blisters, bubbles, tears, scratches, edge defects or vision distortion in film when viewed under natural daylight from 1 800 mm minimum after 30 day period.

3.03 CLEANING

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

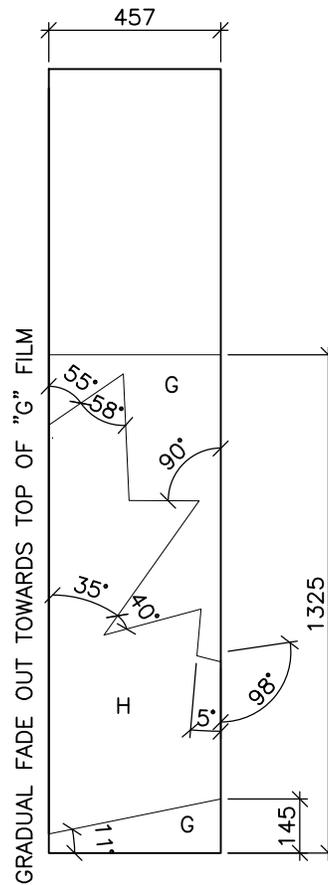
END OF SECTION

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SECURE TYPE FILM

- SECURITY FILM TO COVER ENTIRE SURFACE OF GLAZING.



PRIVACY FILM

- H - HEAVY FILM (LOW VISIBILITY) TO BE PLACED ON SURFACE OUTSIDE OF ROOM
- G - LIGHT GRADIENT FILM (HIGHER VISIBILITY) TO 1371 AFF, NO FILM ABOVE, TO BE PLACED ON SURFACE INSIDE OF ROOM