LEGEND

Door Materials	**Frame Materials**	**General Notes:**
HM Hollow Metal(I) Insulated WD Wood (Solid Core) **Door Types** D1,D2,etc. Solid Wood Doors with or without lites **Finishes** P Painted ST Clear coat on maple veneer	PS Pressed Steel **Frame Types** F1,F2,etc. HM doors frame SA1, etc. Screen Aluminum **Jamb Details** J1,J2,etc. Jamb installation types	1. Door sizes in HM frames are rebate dimension. 2. See sheet A-13 for doors, frames, and jamb details. 3. See section 08 71 00 for Hardware sets.

No.	Size	DOOR			FRAME					Fire Rating	Hrdware Set#	Remarks
		Type	Mat'l	Fin	Type	Mat'l	Fin	Throat	Jamb Detail			
100.1	914X2134(2)	CW1	AL		CW1	AL					H-1	
100.2	914X2134(2)	SA1	AL		SA1	AL					H-2	
101.1	914X2134	CW2	AL		CW2	AL					H-3	
101.2	914x2134	SA-2	AL		SA-2	AL					H-4	
104.1	914X2134	D3	HM	P	F1	PS	P	124	J1		H-5	
105.1	914X2134	D1	WD	ST	F1	PS	P	124	J1		H-6	
106.1	closet	D1*	WD	ST	F1	PS	P	124	J1		H-7	*SITE VERIFY DIMENSIONS
107.1	914X2134	D1	WD	ST	F1	PS	P	124	J1		H-6	
108.1	closet	D1*	WD	ST	F1	PS	P	124	J1		H-8	*SITE VERIFY DIMENSIONS
109.1	914X2134	D1	WD	ST	S1	PS	P	124	J1		H-9	
109.2	914x2134	D4	HM	P	F1	PS	P	124	J1	45	H-10	
110.1	914X2134	D1	WD	ST	S1	PS	P				H-11	
111.1	914X2134	D4	HM	P	F1	PS	P				H-12	
112.1	914X2134	D4	HM	P	F1	PS	P			45	H-13	
113.1	EX	EX	HM		EX	PS	P				EX	
115.1	914X2134	D4	HM	P	F1	PS	P				H-15	
116.1	914X2134	D4	HM	P	F1	PS	P				H-15	
117.1	TO SUIT	D5*	WD	EX	F2	PS	P				H-16	*USE SALVAGED DOOR W/3 LITES
117.2	½ WIDTH TO SUIT	D6	WD	ST	F2	PS					H-16A	
118.1	EX	EX*	WD	EX	S2	PS	P				H-17	*USE SALVAGED SLAB DOOR AND HARDWARE
119.1	EX	EX*	WD	EX	S2	PS	P				H-17	*USE SALVAGED SLAB DOOR AND HARDWARE
122.1	EX	EX	HM	PT	EX	PS	P				EX	EXISTING DOOR AND FRAME
123.1	EX	EX	WD	EX	EX	EX					EX	EXISTING DOOR AND FRAME
123.2	EX	EX	WD	EX	EX	EX					EX	EXISTING DOOR AND FRAME
124.1	EX	EX*	WD	EX	S1	PS	P				H-18	*USE SALVAGED SLAB DOOR AND HARDWARE
125.1	EXISTING	D7	HM	P	EX	PS	P				H-19	NEW DOORS AND

No.	Size	DOOR			FRAME					Fire Rating	Hrdware Set#	Remarks
		Type	Mat'l	Fin	Type	Mat'l	Fin	Throat	Jamb Detail			
												EXISTING FRAME
126B.1	EX	EX			EX						EX	EXISTING DOOR AND FRAME
127.1	914X2134	D1	WD	ST	S1	PS	P				H-17	
129.1	TO SUIT	EX*	WD	EX	F1	PS	P				H-20	*USE SALVAGED SLAB DOOR AND HARDWARE

END

PART 1 - GENERAL

1.2 REFERENCES

.1 American Society for Testing and Materials International (ASTM)
.1 ASTM A 653/A 653M-11, Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvanealed) by the Hot-Dip Process.
.2 ASTM B 29-03(R2009), Standard Specification for Refined Lead.
.3 ASTM B 749-03(R2009), Standard Specification for Lead and Lead Alloy Strip, Sheet and Plate Products.

.2 Canadian General Standards Board (CGSB)
.1 CAN/CGSB-1.181-99, Ready-Mixed Organic Zinc-Rich Coating.

.3 Canadian Standards Association (CSA International)
.1 CSA-G40.20-13/G40.21-13, 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, Recommended Specifications for Commercial Steel Doors and Frames, 2000.
.2 CSDMA, Selection and Usage Guide for Commercial Steel Doors, 1990.

.5 National Fire Protection Association (NFPA)
.1 NFPA 80-2013, Standard for Fire Doors and Other Protective Openings.
.2 NFPA 252-12, Standard Methods of Fire Tests of Door Assemblies.

.6 Underwriters' Laboratories of Canada (ULC)
.1 CAN/ULC-S701-11, Standard for Thermal Insulation, Polystyrene, Boards and Pipe Covering.
.2 CAN/ULC-S702-09-AM1, Standard for Thermal Insulation, Mineral Fibre, for Buildings.
.3 CAN/ULC-S704-11, Standard for Thermal Insulation, Polyurethane and Polyisocyanurate Boards, Faced.
.4 CAN4-S104-M80, Standard Method for Fire Tests of Door Assemblies.
.5 CAN4-S105-09, Standard Specification for Fire Door Frames Meeting the Performance Required by CAN4-S104.

1.3 SYSTEM DESCRIPTION

.1 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 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, ASTM E 152 or NFPA 252 and listed by nationally recognized agency having factory inspection services.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Provide product data: in accordance with Section 01 33 00 - Submittal Procedures.

.3 Indicate each type of door, material, steel core thicknesses, mortises, reinforcements, location of exposed fasteners, openings, glazed, louvred, arrangement of hardware and fire rating and finishes.

.1 Indicate each type frame material, core thickness, reinforcements, glazing stops, location of anchors and exposed fastenings and reinforcing fire rating finishes.

.2 Include schedule identifying each unit, with door marks and numbers relating to numbering on drawings and door schedule.

.3 Submit test and engineering data, and installation instructions.

.4 Provide samples in accordance with Section 01 33 00 - Submittal Procedures.

.5 Submit one 300 x 300 mm corner sample of each type of frame.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Hot dipped galvanized steel sheet: to ASTM A 653M, ZF75, minimum base steel thickness in accordance with CSDMA Table 1 - Thickness for Component Parts.

.2 Reinforcement channel: to CSA G40.20/G40.21, Type 44W, coating designation to ASTM A 653M, ZF75.

2.2 DOOR CORE MATERIALS

.1 Honeycomb construction:
.1 Structural small cell, 24.5 mm maximum kraft paper 'honeycomb', weight: 36.3 kg per ream minimum, density: 16.5 kg/m³ minimum sanded to required thickness.

.2 Stiffened: face sheets laminated and welded, honeycomb or insulated core.
.1 Fibreglass: to CAN/ULC-S702, semi-rigid Type, density 24 kg/m³.
.1 Expanded polystyrene: CAN/ULC-S701, density 16 to 32 kg/m³.

2.3 ADHESIVES

.1 Honeycomb cores and steel components: heat resistant, spray grade, resin reinforced neoprene/rubber (polychloroprene) based, low viscosity, contact cement.

.2 Polystyrene and polyurethane cores: heat resistant, epoxy resin based, low viscosity, contact cement.

2.4 PRIMER

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

2.5 PAINT

.1 Field paint steel doors and frames in accordance with Sections 09 91 23 - Interior Painting. Protect weatherstrips from paint. Provide final finish free of scratches or other blemishes.

2.6 ACCESSORIES

.1 Door silencers: single stud rubber/neoprene type.

.2 Exterior and interior top and bottom caps: steel.

.3 Metallic paste filler: to manufacturer's standard.

.4 Fire labels: metal rivited.

.5 Sealant: as per Section 07 92 00.

.6 Glazing: as per Section 08 80 50.

.7 Make provisions for glazing as indicated and provide necessary glazing stops.
.1 Provide removable stainless steel glazing beads for use with glazing tapes and compounds and secured with countersunk stainless steel screws.
.2 Design exterior glazing stops to be tamperproof.

2.7 FRAMES FABRICATION GENERAL

.1 Fabricate frames in accordance with CSDMA specifications.

.2 Fabricate frames to profiles and maximum face sizes as indicated.

.3 Interior frames: 1.6 mm welded type construction.

.4 Blank, reinforce, drill and tap frames for mortised, templated hardware, and electronic hardware using templates provided by finish hardware supplier. Reinforce frames for surface mounted hardware.

.5 Protect mortised cutouts with steel guard boxes.

.6 Prepare frame for door silencers, 3 for single door, 2 at head for double door.

.7 Manufacturer's nameplates on frames and screens are not permitted.

.8 Conceal fastenings except where exposed fastenings are indicated.

.9 Provide factory-applied touch up primer at areas where zinc coating has been removed during fabrication.

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 (60") and 1 additional anchor for each additional 760 mm (30") of height or fraction thereof.

.4 Locate anchors for frames in existing openings not more than 150 mm (6") from top and bottom of each jambs and intermediate at 660 mm (26") on centre maximum.

2.9 FRAMES: WELDED TYPE

.1 Welding in accordance with CSA W59.

.2 Accurately mitre or mechanically joint frame product and securely weld on inside of profile.

.3 Cope accurately and securely weld butt joints of mullions, transom bars, centre rails and sills.

.4 Grind welded joints and corners to a flat plane, fill with metallic paste and sand to uniform smooth finish.

.5 Securely attach floor anchors to inside of each jamb profile.

.6 Weld in 2 temporary jamb spreaders per frame to maintain proper alignment during shipment.

.7 Fabricate frame products for openings in sections, splice joints for field assembly.

2.10 DOOR FABRICATION GENERAL

.1 Doors: swing type, flush, with provision for glass and/or louvre openings as indicated.

.2 Fabricate doors with longitudinal edges welded. Seams: grind welded joints to a flat plane, fill with metallic paste filler and sand to a uniform smooth finish.

.3 Blank, reinforce, drill doors and tap for mortised, templated hardware.

.4 Factory prepare holes 12.7 mm diameter and larger except mounting and through-bolt holes, on site, at time of hardware installation.

.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 having factory inspection service and construct as detailed in Follow-Up Service Procedures/Factory Inspection Manuals issued by listing agency to individual manufacturers.

.8 Manufacturer's nameplates on doors are not permitted.

2.11 DOORS:

.1 Form face sheets for interior doors from 1.6 mm sheet

HONEYCOMB CORE CONSTRUCTION

steel with honeycomb core laminated under pressure to face sheets.

2.12 HOLLOW STEEL CONSTRUCTION

.1 Form face sheets for interior doors from 1.6 mm sheet steel.

PART 3 - EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

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

3.2 INSTALLATION GENERAL

.1 Install labelled steel fire rated doors and frames to NFPA 80 except where specified otherwise and to the requirements of all authorities having jurisdiction.

.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 (47") 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, provide noncombustible sill and thresholds: 13 mm (1/2").

.3 Adjust operable parts for correct function.

3.5 FINISH REPAIRS

.1 Touch up with primer finishes damaged during installation.

.2 Fill exposed frame anchors and surfaces with imperfections with metallic paste filler and sand to a uniform smooth finish.

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

.1 Section 07 21 19 - Foamed-in-Place Insulation.

.2 Section 07 92 00 - Joint Sealing.

.3 Section 08 44 13 - Glazed Aluminum Curtain Wall.

.4 Section 08 71 10 - Door Hardware.

.5 Section 08 80 50 - Glazing: Glazing.

.6 Electrical - Wiring and conduit for electrical hardware.

1.2 REFERENCES

.1 American Architectural Manufacturers Association (AAMA)
.1 AAMA 609/610-09, Cleaning and Maintenance Guide for Architecturally Finished Aluminum.

.2 ASTM International
.1 ASTM E 330-02, Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.

.3 Canadian General Standards Board (CGSB)
.1 CGSB 1.40-97, Anticorrosive Structural Steel Alkyd Primer.
.2 CAN/CGSB-12.1-M90, Tempered or Laminated Safety Glass.
.3 CAN/CGSB-12.20-M89, Structural Design of Glass for Buildings.

.4 CSA International
.1 CSA G40.20/G40.21-04(R2009), General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
.2 CAN/CSA G164-M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for doors and frames and include product characteristics, performance criteria, physical size, finish and limitations.

.2 Submit two copies of Workplace Hazardous Materials Information System (WHMIS) - Material Safety Data Sheets (MSDS) in accordance with Section 01 33 00 - Submittal Procedures.

.3 Shop Drawings:

.1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Nova Scotia, Canada.

.2 Indicate materials and profiles and provide full-size, scaled details of components for each type of door and frame. Indicate:

.1 Interior trim and exterior junctions with adjacent construction.

.2 Junctions between combination units.

.3 Elevations of units.

.4 Core thicknesses of components.

.5 Type and location of exposed finishes, method of anchorage, number of anchors, supports, reinforcement, and accessories.

.6 Location of caulking.

.7 Each type of door system including location.

.8 Arrangement of reinforcing for hardware and joints.

.9 Arrangement of hardware and required clearances.

.4 Samples:

.1 Submit for review and acceptance of each unit.

.2 Samples will be returned for inclusion into work.

.3 Submit one 300 x 300 mm corner sample of each type door and frame.

.4 Submit sample showing glazing detail, reinforcement, finish and location of manufacturer's nameplates.

.5 Frame sample to show glazing stop, door stop, jointing detail, finish, wall trim.

.5 Manufacturers Reports:

.1 Manufacturer's Field Reports: submit manufacturer's written reports within 3 days of review, verifying compliance of Work, as described in Part 3 - FIELD QUALITY CONTROL.

1.4 CLOSEOUT SUBMITTALS

.1 Submit in accordance with Section 01 78 00 - Closeout Submittals.

.2 Operation and Maintenance Data: submit operation and maintenance data for cleaning and maintenance of aluminum finishes for incorporation into manual.

1.5 QUALITY ASSURANCE

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

1.6 DELIVERY, STORAGE AND HANDLING

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

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
.1 Apply temporary protective coating to finished surfaces. Remove coating after erection. Use coatings that are easy to remove and residue free.
.2 Leave protective covering in place until final cleaning of building.

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

PART 2 - PRODUCTS

2.1 DESIGN CRITERIA

.1 Design frames and doors in exterior walls to:
.1 Accommodate expansion and contraction within service temperature range of -35 to 35 degrees C.

.2 Limit deflection of mullions to maximum 1/175th of clear span when tested to ASTM E 330 under wind load of 2.0 kPa submit certificate of tests performed.
.3 Movement within system.
.4 Movement between system and perimeter framing components or substrate.

.2 Size glass thickness and glass unit dimensions to limits in accordance with CAN/CGSB-12.20.

.3 Include continuous air barrier and vapour retarder through door system. Primarily in line with inside pane of glass and heel bead of glazing compound.

2.2 MATERIALS

.1 Aluminum extrusions: to Aluminum Association alloy AA 6063-T5 or T6 anodizing quality.

.2 Sheet aluminum: to Aluminum Association alloy anodizing quality.

.3 Steel reinforcement: to CSA G40.20/G40.21, grade 300 W.

.4 Fasteners: stainless steel.

.5 Weatherstrip: replaceable mohair.

.6 Door bumpers: black polychloroprene ("neoprene").

.7 Isolation coating: alkali resistant bituminous paint.

.8 Vertical glass units:
.1 Glass in interior lights: Type VGT by Section 08 80 50 - Glazing.

.9 Sealants: colour to match frame, in accordance with Section 07 92 00 - Joint Sealants.
.1 Maximum VOC limit: 250 g/L 5% by weight to SCAQMD Rule 1168 CCD-045.

2.3 EXTERIOR DOORS

.1 Thermally broken hollow metal doors, by Section 08 11 14.

2.4 ALUMINUM DOORS

.1 Construct doors of porthole extrusions with minimum wall thickness of 3 mm.

.2 Door stiles nominal 125 mm wide plus or minus 6 mm.

.3 Top rail nominal 125 mm wide plus or minus 6 mm.

.4 Bottom rail nominal 260 mm wide plus or minus 6 mm.

.5 Reinforce mechanically-joined corners of doors to produce sturdy door unit.

.6 Glazing stops: interlocking snap-in type for dry glazing. Exterior stops: tamperproof type.

.7 Hardware: supplied by 08 71 10.

.8 Acceptable material:
- .1 Kawneer 500 Series.
- .2 Alumicor Canadiana HD.
- .3 Oldcastle Performax Series 500.

2.5 ALUMINUM FRAMES

.1 Construct frames of aluminum extrusions with minimum wall thickness of 2 mm.

.2 Frame members, exterior frames: as per 08 44 13 with flush, low-profile door adapters for curtain wall installation.

.3 Frame members, interior frames and "A" series screens as shown on drawings: 44 x 114 mm nominal size.

.4 Acceptable material, by same manufacturer as Section 08 44 13:
- .1 Kawneer Trifab 450 Series.
- .2 Alumicor 800 Series.
- .3 Oldcastle Vistawall FG-2000.

2.6 ALUMINUM FINISHES

.1 Electrolytically deposited colour anodic finish: clear anodized, to designation AA-M12 C22 A44, Class I, 2-stage electrolytic colour, 10 mil minimum thickness.

.2 Appearance and properties of anodized finishes designated by Aluminum Association as Architectural Class 1, Architectural Class 2, and Protective and Decorative.

2.7 STEEL FINISHES

.1 Finish steel clips and reinforcing steel with zinc coating to CAN/CSA-G164.

2.8 FABRICATION

.1 Doors and framing to be by same manufacturer.

.2 Fabricate doors and frames to profiles and maximum face sizes as indicated. Provide minimum 22 mm bite for insulating glazed units.

.3 Provide structural steel reinforcement as required.

.4 Fit joints tightly and secure mechanically.

.5 Conceal fastenings.

.6 Mortise, reinforce, drill and tap doors, frames and reinforcements to receive hardware using templates provided under Section 08 71 10 - Door Hardware.

.7 Isolate aluminum from direct contact with dissimilar metals, concrete and masonry.

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for aluminum doors and frames installation in accordance with manufacturer's written instructions.
.1 Visually inspect substrate.
.2 Inform DCC Representative of unacceptable conditions immediately upon discovery.
.3 Proceed with installation only after unacceptable conditions have been remedied.

3.2 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 Set frames plumb, square, level at correct elevation in alignment with adjacent work.

.3 Anchor securely.

.4 Install doors and hardware in accordance with hardware templates and manufacturer's instructions.

.5 Adjust door components to ensure smooth operation.

.6 Make allowances for deflection of structure to ensure that structural loads are not transmitted to frames.

.7 Glaze aluminum doors and frames in accordance with Section 08 80 50 - Glazing.

.8 Seal joints to provide weathertight seal at outside and air, vapour seal at inside.

.9 Apply sealant in accordance with Section 07 92 00 - Joint Sealants. Conceal sealant within the aluminum work except where exposed use is permitted by DCC Representative.

3.3 FIELD QUALITY CONTROL

.1 Have manufacturer of products supplied under this Section review Work involved in handling, installation/application, protection and cleaning of its products, and submit written reports in acceptable format to verify compliance of Work with Contract.

.2 Manufacturer's Field Services: provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

.3 Schedule site visits:
.1 After delivery and storage of products, and when preparatory Work on which Work of this Section depends is complete, but before installation begins.
.2 Twice during progress of Work at 25% and 60%complete.
.3 Upon completion of Work, after cleaning is carried out.

.4 Obtain reports within 3 days of review and submit.

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.
.2 Perform cleaning of aluminum components in accordance with AAMA 609.1 - Voluntary Guide Specification for Cleaning and Maintenance of

Architectural Anodized Aluminum.

.3 Perform cleaning as soon as possible after installation to remove construction and accumulated environmental dirt.

.4 Clean aluminum with damp rag and approved non-abrasive cleaner.

.5 Remove traces of primer, caulking, epoxy and filler materials; clean doors and frames.

.6 Clean glass and glazing materials with approved non-abrasive cleaner.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

3.5 PROTECTION

.1 Protect installed products and components from damage during construction.

.2 Repair damage to adjacent materials caused by aluminum door and frame installation.

PART 1 - GENERAL

1.1 REFERENCES

.1 Canadian Standards Association (CSA).
.1 CAN/CSA O132.2 Series-90(R1998), Wood Flush Doors.
.2 CAN/CSA-O132.5-M1992(R1998), Stile and Rail Wood Doors.

.2 Architectural Woodwork Manufacturers Association of Canada (AWMAC).
.1 Quality Standards for Architectural Woodwork 1991.

1.2 SHOP DRAWINGS

.1 Submit shop drawings in accordance with Supplementary General Conditions.

.2 Indicate door types and cutouts for lights and louvres, sizes, core construction, transom panel construction and cutouts.

1.3 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.

PART 2 - PRODUCTS

2.1 WOOD FLUSH DOOR

.1 Solid core: to CAN/CSA-O132.2.1.
.1 Construction: Solid particleboard core: stile and rail frame bonded to particleboard core with wood lock blocks 7-ply construction, 1-3/4" overall thickness.
.2 Face Panels: Hardboard, for paint finish.
.3 Adhesive: Type II (water resistant) for interior doors.
.4 Acceptable materials:
.1 Baillageon 8500.
.2 Lambton 7-8300-ME.
.3 Boccam B-8300.

2.2 GLAZING

.1 Glass: Refer to Section 08 00 00 - Door Schedule.

2.3 FABRICATION

.1 Vertical edge strips.

.2 Prepare doors for louvres and glazing. Provide hardwood glazing stops with mitred corners.

.3 Bevel vertical edges of single acting doors 1/8" to 2" on lock side and1/16" to 2" on hinge side.

.4 Radius vertical edges of double acting doors to 65mm radius.

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 Adjust hardware for correct function.

.4 Install glazing in accordance with Section 08 80 50 - Glazing.

3.2 ADJUSTMENT

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

PART 1 - GENERAL

1.1 REFERENCES

.1 Aluminum Association (AA)
.1 AA DAF 45-03(R2009), Designation System for Aluminum Finishes.

.2 American Architectural Manufacturers Association (AAMA)
.1 AAMA CW-10-04, Care and Handling of Architectural Aluminum From Shop to Site.
.2 AAMA CW-11-85, Design Wind Loads and Boundary Layer Wind Tunnel Testing.
.3 AAMA T1R-A1-04, Sound Control for Fenestration Products.
.4 AAMA 501-05, Methods of Test for Exterior Walls.
.5 AAMA 611-98, Voluntary Specifications for Anodized Finishes Architectural Aluminum.

.3 ASTM International
.1 ASTM A 36/A 36M-08, Specification for Carbon Structural Steel.
.2 ASTM A 123/A 123M-09, Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
.3 ASTM A 167-99(2009), Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
.4 ASTM B 209-07, Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
.5 ASTM B 221-08, Specification for Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
.6 ASTM E 283-04, Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
.7 ASTM E 330-02, Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights, and Curtain Walls, by Uniform Static Air Pressure Difference.
.8 ASTM E 331-00(2009), Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform Static Air Pressure Difference.
.9 ASTM E 413-04, Classification for Rating Sound Insulation.
.10 ASTM E 1105-00(2008), Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls,

by Uniform or Cyclic Static Air Pressure Difference.

.4 Canadian General Standards Board (CGSB)
.1 CAN/CGSB 1.108-M89, Bituminous Solvent Type Paint.
.2 CAN/CGSB-12.20-M89, Structural Design of Glass for Buildings.

.5 CSA International
.1 CSA G40.20/G40.21-04(R2009), General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
.2 CSA S136-07, North American Specification for the Design of Cold Formed Steel Structural Members.
.3 CAN/CSA-S157/S157.1-05, Strength Design in Aluminum/Commentary on CAN/CSA-S157, Strength Design in Aluminum.
.4 CSA W59.2-M1991(R2008), Welded Aluminum Construction.

.7 Society for Protective Coatings (SSPC)
.1 SSPC - Paint 20-02(R2004), Zinc Rich Coating, Type I - Inorganic and Type II - Organic.
.2 SSPC - Paint 25 - 97(R2004) BCS, Zinc Oxide, Alkyd, Linseed Oil and Primer for Use Over Hand Cleaned Steel Type 1 and Type 2.

1.2 ADMINISTRATIVE REQUIREMENTS

.1 Co-ordination: co-ordinate work of this Section with installation of vapour retarder placement, flashing placement, and components or materials.

.2 Pre-Installation Meetings:
.1 Convene pre-installation meeting 1 week prior to beginning work of this Section and on-site installation, with Contractor's Representative and Departmental Representative DCC Representative Consultant in accordance with Section 01 31 19 - Project Meetings to:
.1 Verify project requirements.
.2 Review installation and substrate conditions.
.3 Co-ordination with other building subtrades.
.4 Review manufacturer's written installation instructions and warranty requirements.

.3 Arrange for site visit with DCC Representative prior to start of Work to examine existing site conditions adjacent to demolition Work.

.4 Hold project meetings every week.

.5 Ensure key personnel attend.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:
.1 Submit manufacturer's instructions, printed product literature and data sheets for curtain wall components, anchorage and fasteners, glass and infill, and internal drainage details and include product characteristics, performance criteria, physical size, finish and limitations and water flow diagrams.
.2 Submit two copies of Workplace Hazardous Materials Information System (WHMIS) - Material Safety Data Sheets (MSDS) in accordance with Section 01 33 00 - Submittal Procedures.

.3 Shop Drawings:
.1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of New Brunswick, Canada.
.2 Indicate system dimensions, framed opening requirements and tolerances, adjacent construction, anchor details anticipated deflection under load, affected related Work, weep drainage network, expansion and contraction joint location and details, and field welding required.

.4 Samples:
.1 Submit for review and acceptance of each unit.
.2 Samples will be returned for inclusion into work.
.3 Submit 2 samples illustrating prefinished aluminum surface, finish, colour, texture, specified glass units, insulated infill panels, glazing materials illustrating edge and corner.

.5 Delegated Design Submittals:
.1 Include framing member structural and physical characteristics, calculations, dimensional limitations, special installation requirements.

.6 Test Reports:
.1 Submit substantiating engineering data, test results of previous tests by independent laboratory which purport to meet performance criteria, and supportive data.

1.4 CLOSEOUT SUBMITTALS

.1 Submit in accordance with Section 01 78 00 - Closeout Submittals.

.2 Operation and Maintenance Data: submit operation and maintenance data for glazed aluminum curtain wall for incorporation into manual.

1.5 QUALITY ASSURANCE

.1 Regulatory Requirements:
.1 Conform to applicable code for acoustic attenuation, sound transmission, requirements.

.2 Mock-ups:
.1 Construct mock-ups in accordance with Section 01 45 00 - Quality Control.
.2 Supply mock-up including intermediate mullion, corner mullion, sill muntin, vision glass light, and insulated infill panel.
.1 Assemble to illustrate component assembly including glazing materials, weep drainage system, attachments, anchors, perimeter sealant, and perimeter vapour barrier seal.
.3 Locate mock-up where directed by DCC Representative.
.4 Allow 72 hours for inspection of mock-up by DCC Representative before proceeding with work.
.5 When accepted, mock-up will demonstrate minimum standard of quality and materialsfor work of this Section.
.6 Mock-up may remain as part of finished work.

1.6 DELIVERY, STORAGE AND HANDLING

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

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.3 Storage and Handling Requirements:
.1 Handle work of this Section in accordance with AAMA CW-10.
.2 Store materials in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
.3 Store and protect aluminum glazed curtain wall components from nicks, scratches, and blemishes.
.4 Protect prefinished aluminum surfaces with wrapping strippable coating. Do not use adhesive papers or sprayed coatings which bond when exposed to sunlight or weather.
.5 Replace defective or damaged materials with new.

1.7 AMBIENT CONDITIONS

.1 Install sealants when ambient and surface temperature is above 5 degrees C minimum.

.2 Maintain this minimum temperature during and for 48 hours minimum after installation of sealants.

1.8 WARRANTY

.1 Provide a written warranty, signed and issued in the name of owner, stating that the total aluminum window, curtain wall and panel systems are warranted against leakage, defects and malfunction under normal usage for a period fo five (5) years from date of Certificate of Substantial Performance. Total system includes related caulking. Defective materials and workmanship include, but are not limited to, abnormal deterioration, aging and weathering of the work; leakage of water and air exceeding specified limits; structural failure of components resulting from forces and movements up to specified limits; condensation; deterioration, peeling and discoloration of finishes in excess of normal usage.

.2 Provide a separate written warranty stating that factory sealed double glazed insulating units are warranted against leakage, malfunction and other defects, under normal usage for a period of five (5) years from date of Certificate of Substantial Performance. Without restricting the generality of the warranty, defects to the insulating units shall include warping of spacer bars by greater than 3mm; dust or film formation on internal glass surfaces; glass breakage except that caused by thermal shock and impact of solid objects; deterioration of glass coatings, including thermal properties.

.3 Provide also the standard warranty included in this manual.

PART 2 - PRODUCTS

2.1 SYSTEMS

.1 Description:
.1 Vertical glazed aluminum curtain wall system includes thermally broken tubular aluminum sections

with self-supporting and supplementary support framing, shop fabricated, factory prefinished, vision glass, insulated metal panel spandrel infill; related flashings, anchorage and attachment devices.

.2 Performance Requirements:

.1 Design and size components to withstand dead and live loads caused by pressure and suction of wind, acting normal to plane of system to a design pressure of 1.7 kPa as measured to AAMA CW 11 and ASTM E 330.

.2 Design and size components to withstand seismic loads and sway displacement as calculated in accordance with applicable codes.

.3 Limit mullion deflection to the lesser of the flexure limit of glass and L/175 with full recovery of glazing materials.

.4 Size glass units and glass dimensions to limits established in CAN/CGSB-12.20.

.5 Ensure system is designed to accommodate the following without damage to components or deterioration of seals:

.1 Movement within system.

.2 Movement between system and perimeter framing components.

.3 Dynamic loading and release of loads.

.4 Deflection of structural support framing.

.6 Thermal Conductivity:

.1 System U-value (including vision areas): 0.35 maximum, to AAMA 1503.

.7 Limit air infiltration through assembly to 0.0003 $m^3/s/m^2$ of wall area, measured at a reference differential pressure across assembly of 75 Pa as measured in accordance with ASTM E 283.

.8 Vapour seal with interior atmospheric pressure of 25 mm sp, 22 degrees C, 40% RH: no failure.

.9 Water leakage: none, when measured to ASTM E 331 and ASTM E 1105.

.10 Ensure system allows for expansion and contraction within system components when temperature range is 95 degrees C over 12 hour period without causing detrimental effect to system components.

.11 Drain water entering joints, condensation occurring in glazing channels, or migrating moisture occurring within system, to exterior by weep drainage network.

.12 Maintain continuous air barrier and vapour retarder throughout assembly, primarily in line with inside pane of glass and heel bead of glazing compound.

.1 Position thermal insulation on exterior surface of air barrier and vapour retarder.

.13 Ensure no vibration harmonics, wind whistles, noises caused by thermal movement transmitted to other building elements, loosening, weakening, or fracturing of attachments or components of system occur.

2.2 MATERIALS

.1 Extruded aluminum: to ASTM B 221.

.2 Sheet aluminum: to ASTM B 209.

.3 Sheet steel: to CSA S136; galvanized in accordance with CSA Z275 (G90).

.4 Steel sections: to CSA G40.20/G40.21 and ASTM A 36/A 36M; shaped to suit mullion sections.

.5 Fasteners: stainless steel.

.6 Bituminous paint: CAN/CGSB 1.108, Type 1, without thinner.

.7 Vertical glass units:
- .1 Glass in exterior lights: Type VGI.
- .2 Glass in entrance lights: Type VGIT.

.8 Fire Safety Materials: see Section 07 84 00 - Fire Stopping.

.9 Sealant:
- .1 Perimeter sealant: Type 1.
  - .1 VOC limit 250 g/L maximum to SCAQMD Rule 1168.
    - .1 VOC limit: 5% maximum by weight to CCD-045.
    - .2 Ensure sealant does not contain chemical restrictions to CCD-045.

2.3 COMPONENTS

.1 Mullion profile:
- .1 Vertical members: 64 mm wide x 98 mm deep nominal dimension of back section.
- .2 Horizontal members: 64 mm wide x 98 mm deep nominal dimension of back section.
- .3 Thermally broken, with full frame separation; interior tubular section insulated from exterior pressure plate.
- .4 Matching stops and pressure plate of sufficient size and strength to ensure adequate bite on glass and infill panels.
- .5 Drainage holes, deflector plates and internal flashings to accommodate internal weep drainage system.
- .6 Internal mullion baffles to eliminate "stack effect" air movement within internal spaces.
- .7 Acceptable material, by same manufacturer as Section 08 11 16:
  - .1 Kawneer 1600UT System 1.

.2 Alumicor Thermawall 2600.
.3 Oldcastle Reliance TC.

.2 Mullion reinforcing: internal reinforcement by shaped steel structural section.

.3 Insulated spandrels (at composite panels):
.1 0.91mm galvanized sheet steel back pans, fabricated from single sheets without splices.
.2 Insulation: by Section 07 21 29.

.4 Exterior trims:
.1 Extruded aluminum snap on trim secured to pressure plate with concealed fastening method.
.2 19 mm deep as indicated x width of back members

.5 Vapour retarder: refer to Section 07 26 00 for materials and installation procedures.

.6 Foamed-in-place insulation at perimeter of all frames: refer to Section 07 21 19 - Foamed-in-Place Insulation for materials and installation procedures.

.7 Flashings: 2.0 mm thick aluminum, anodized finish to match curtain wall mullion sections where exposed, secured with concealed fastening method.

.8 Sills: 3.0 mm thick aluminum, anodized finish to match curtain wall mullion sections where exposed, secured with concealed fastening method.

2.4 FABRICATION

.1 Fabricate system components with minimum clearances and shim spacing around perimeter of assembly, yet enabling installation and dynamic movement of perimeter seal.

.2 Accurately fit and secure joints and corners. Make joints flush, hairline, and weatherproof

.3 Prepare components to receive anchor devices. Install anchors.

.4 Arrange fasteners and attachments to ensure concealment from view.

.5 Prepare system components to receive exterior doors, and hardware specified in Section 08 11 16 and Section 08 71 10.

.6 Infill Panels:
.1 Fabricate infill panels with metal covered edge seals around perimeter of panel assembly, enabling

installation and minor movement of perimeter seal.
.2 Reinforce interior surface of exterior panel sheet from deflection caused by wind and suction loads.
.3 Accurately fit and secure joints and corners. Make joints flush, hairline, and weatherproof.
.4 Place sprayed foam insulation within panel, adhered to exterior face of interior panel sheet over entire area of sheet, by Section 07 21 29.
.5 Ventilate and pressure equalize the air space outside the exterior surface of the insulation, to the exterior.
.6 Arrange fasteners and attachments to ensure concealment from view.

.7 Finishes:
.1 Finish coatings: conform to AA designations.
.2 Exterior and interior exposed aluminum surfaces: to A41: Electrolytically deposited colour anodic finish: clear anodized, to designation AA-M10C22A41, Class I, 2-stage electrolytic colour, 0.7 mil minimum thickness.
.3 Concealed steel items: galvanized in accordance with ASTM A 123 to 600 gm/m².
.4 Apply 1 coat of bituminous paint to concealed aluminum and steel surfaces in contact with cementitious or dissimilar materials.
.1 VOC limit: 200 g/L maximum to GS-11 SCAQMD Rule 1113.

2.5 SOURCE QUALITY CONTROL

.1 Perform work in accordance with CSA A-440. Maintain 1 copy on site.

.2 Manufacturer qualifications: company specializing in manufacturing the products specified in this section.

.3 Installer qualifications: company specializing in performing the work of this section approved by manufacturer.

.4 Design structural support framing components to CAN/CSA-S157 under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed in the Province of Nova Scotia.

.5 Perform welding Work in accordance with CSA W59.2.

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for aluminum curtain wall installation in accordance with manufacturer's written instructions.

.1 Visually inspect substrate.

.2 Verify dimensions, tolerances, and method of attachment with other work.

.3 Verify wall openings and adjoining air barrier and vapour retarder materials are ready to receive work of this Section.

.4 Inform DCC Representative of unacceptable conditions immediately upon discovery.

.5 Proceed with installation only after unacceptable conditions have been remedied.

3.2 INSTALLATION

.1 Install curtain wall system in accordance with manufacturer's instructions.

.2 Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.

.3 Use alignment attachments and shims to permanently fasten system to building structure. Clean weld surfaces; apply protective primer to field welds and adjacent surfaces.

.4 Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances and align with adjacent work.

.5 Use thermal isolation where components penetrate or disrupt building insulation.

.6 Install sill flashings.

.7 Co-ordinate attachment and seal of perimeter vapour retarder materials.

.8 Insulate shim spaces at perimeter of assembly with foamed-in-place insulation to maintain continuity of thermal barrier.

.9 Install glass and infill panels in accordance with Section 08 80 50 - Glazing. Cover caps to conceal

screws and ensure continuous sightline.

.10 Install perimeter sealant to method required to achieve performance criteria. Type 1, backing materials, and installation criteria in accordance with Section 07 92 00 - Joint Sealants.

3.3 SITE TOLERANCES

.1 Maximum variation from plumb: 1.5 mm/m non-cumulative or 12 mm/30 m, whichever is less.

.2 Maximum misalignment of two adjoining members abutting in plane: 0.8 mm.

.3 Maximum sealant space between curtain wall and adjacent construction: 13 mm.

3.4 FIELD QUALITY CONTROL

.1 Manufacturer's Field Services:

.1 Obtain written report from manufacturer of curtain wall and or glass verifying compliance of Work, in handling, installing, applying, protecting and cleaning of products, and submit written reports in acceptable format to verify compliance of Work with Contract within 3 days of review.

.2 Submit manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

.3 Ensure manufacturer's representative of curtain wall is present before and during critical periods of installation.

.4 Schedule site visits to review Work at stages listed:

.1 After delivery and storage of products, and when preparatory Work on which Work of this Section depends is complete, but before installation begins.

.2 Twice during progress of Work at 25% and 60% complete.

.3 Upon completion of Work, after cleaning is carried out.

3.5 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.

.1 Leave Work area clean at end of each day.

.2 Remove protective material from prefinished aluminum surfaces.

.3 Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths. Take care to remove dirt from corners. Wipe surfaces clean.

.4 Remove excess sealant by moderate use of mineral spirits or other solvent acceptable to sealant manufacturer.

.5 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

3.6 PROTECTION

.1 Protect installed products and components from damage during construction.

.2 Repair damage to adjacent materials caused by glazed aluminum curtain wall installation.

PART 1 - GENERAL

1.1 REFERENCES

.1 CSA International
.1 CSA B111-1974(R2003), Wire Nails, Spikes and Staples.

.2 North American Fenestration (NAFS)
.1 AAMA/WDMA/CSA 101/I.S.2/A440-08 - NAFS - North American Fenestration Standard / Specification for Windows, Doors, and Skylights

.3 South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards
.1 SCAQMD Rule 1168-A2005, Adhesives and Sealants Applications.

1.2 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 skylight, frame, fasteners, and caulking and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Shop Drawings:
.1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Nova Scotia, Canada.
.2 Indicate size and description of components, materials, attachment devices, description of frame and finish, and construction details.

.4 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.

.5 Manufacturers Reports:
.1 Manufacturer's Field Reports: submit manufacturer's written reports within 3 days of review, verifying compliance of Work, as described in Part 3 - FIELD QUALITY CONTROL.

.6 Manufacturer's Instructions: submit manufacturer's installation instructions.

1.3 CLOSEOUT SUBMITTALS

.1 Submit in accordance with Section 01 78 00 - Closeout Submittals.

.2 Operation and Maintenance Data: submit operation and maintenance data for skylights for incorporation into manual.

1.4 QUALITY ASSURANCE

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

1.5 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials 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 Storage and Handling Requirements:
.1 Store materials off ground and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
.2 Store and protect skylights and frames from nicks, scratches, and blemishes.
.3 Replace defective or damaged materials with new.

PART 2 - PRODUCTS

2.1 SKYLIGHT

.1 Plastic skylights: to NAFS, Class CW - PG4080: Size Tested 1 220 x 2 440 mm - Roof Window.
.1 Positive design pressure: 4 080 Pa.
.2 Negative design pressure:
.3 Water resistance test pressure: 620 Pa
.4 Air infiltration/exfiltration: less than or equal to 0.25 L/s-m^2

2.2 FRAME FINISH

.1 Aluminum frame: mill or clear anodized finish

2.3 SKYLIGHT GLAZING

.1 Plastic: two layer glazing, minimum 68% light transmission value.

.2 Flame spread rating, to CAN/ULC S102.2: maxiumum 65.

.3 Dome shape: convex or pyramidal.

.4 Outer layer: prismatic transparent acrylic.

.5 Inner layer: translucent, white colour polycarbonate.

2.4 ACCESSORIES

.1 Fasteners: screws, stainless steel.

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for plastic skylights installation in accordance with manufacturer's written instructions.
.1 Visually inspect substrate.
.2 Inform PWGSC Representative of unacceptable conditions immediately upon discovery.
.3 Proceed with installation only after unacceptable conditions have been remedied.
.4 Starting work indicates acceptance of conditions.

3.2 INSTALLATION

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

.2 Install skylights in accordance with CAN/CGSB-63.14 and supplement as follows:
.1 Erect components plumb, level and in proper alignment.
.2 Ensure continuity of envelope air barrier and vapour retarder systems.
.3 Secure extruded aluminum curb flashing to structure.
.4 Adjust and seal assembly with provision for expansion and contraction of components.
.5 Secure and seal frame to curb.

3.3 FIELD QUALITY CONTROL

.1 Have manufacturer of products supplied under this Section review Work involved in handling, installation, protection and cleaning of its products, and submit written reports in acceptable format to verify compliance of Work with Contract within 3 days of review.

.2 Manufacturer's Field Services:
.1 Submit manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.
.2 Ensure manufacturer's representative is present before and during critical periods of installation.
.3 Schedule site visits:
.1 After delivery and storage of products, and when preparatory Work, or other Work, on which the Work of this Section depends, is complete but before installation begins.
.2 Twice during progress of Work at 25% and 60% complete.
.3 Upon completion of the Work, after cleaning is carried out.

3.4 CLEANING

.1
.1 Leave Work area clean at end of each day.
.2 Remove protective film from plastic surfaces.
.3 Clean interior and exterior plastic surfaces in accordance with manufacturers' instructions.
.4 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment.

3.5 PROTECTION

.1 Protect installed products and components from damage

during construction.

.2 Repair damage to adjacent materials caused by plastic skylight installation.

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Submittal Procedures: Section 01 33 00

.2 Contract Closeout: Section 01 78 00

.3 Common Product Requirements: Section 01 61 00

.4 Gypsum Board Assemblies: Section 09 21 16

.5 Duct Accessories: Section 23 33 00

.6 Plumbing Specialties and Accessories: Section 22 42 01

1.2 SHOP DRAWINGS

.1 Submit shop drawings in accordance with Section 01 33 00.

.2 Submit catalogue details for each type of door illustrating profiles, dimensions and methods of assembly.

1.3 SAMPLES

.1 Submit samples in accordance with Section 01 33 00.

.2 Submit one (1) sample of each type of hand entry access door.

.3 Submit one 300 x 300 mm corner sample of each type of body entry door.

1.4 CLOSEOUT SUBMITTALS

.1 Provide maintenance data for cleaning and maintenance of stainless steel finishes for incorporation into manual specified in Section 01 78 00.

1.5 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00.

.2 Apply temporary protective coating to finished surfaces. Remove coating after erection. Do not use coatings that will become hard to remove or leave residue.

.3 Leave protective covering in place until final cleaning of building.

PART 2 - PRODUCTS

2.1 ACCESS DOORS

.1 Sizes: Except as indicated otherwise, to be minimum sizes as follows:
.1 For body entry: 600 x 600 mm. (except 900x900 for special location noted below)
.2 For hand entry: 300 x 300 mm.
.3 Access doors to be sized large enough to serve intended purpose.

.2 Construction:
.1 Galvanized steel. Rounded safety corners, concealed hinges, screwdriver latch, anchor straps, able to open 180. Provide fire-rated access doors where penetrating fire-rated construction.

.3 Materials
.1 Tiled or marble surfaces and other special areas: Stainless steel with brushed satin or polished finish as directed by the Departmental Representative.
.2 Other areas: galvanized steel.
.3 Acceptable Manufacturers: Acudor; Buensod; Lettage; Zurn.

2.2 EXCLUSIONS

.1 Lay in tile ceilings: use unobtrusive identification locators.

PART 3 - EXECUTION

3.1 INSTALLATION

.1 Installation:
.1 Drywall surfaces: to Section 09 21 16.
.2 Where installed in fire separations, maintain fire rating integrity.

3.2 LOCATION

.1 Location: verify equipment is within view and accessible for operating, inspecting, adjusting, servicing without using special tools.

.2 Provide adequately sized galvanized steel access doors for all devices requiring inspection, maintenance or cleaning.

.3 Install access doors or panels wherever valves, water hammer arresters, plumbing cleanouts, trap primers, drain points, automatic and manual air vents, controllers, controlled devices, volume dampers, duct access doors and panels and where any equipment and system components requiring servicing, inspection or adjusting etc. are not accessible. Where equipment may be required to be removed for repair or servicing, adequate access must be provided.

.4 Special Location: none.

.5 Locate access doors before and after coils, filters, fans, automatic dampers, at fire dampers, fresh air and exhaust air plenums, bottoms of risers, and where required elsewhere.

.6 Remove lay-in tiles to obtain access to space above lay-in tile ceilings.

.7 Doors to open greater than 90 degrees, have concealed hangers, anchor straps and screwdriver cam locks.

.8 Doors in block walls or in tile shall be sized to suit masonry unit module.

.9 In fire rated walls and ceilings, access doors and panels must be fire rated.

3.2 LOCATION (Cont'd)

.10 Provide stainless steel access doors for tile, marble or terrazzo surfaces.

.11 Access doors to be tight fitting with sealing gaskets and suitable quick fastening locking devices. Insulate access doors where they are installed in insulated ductwork or plenums.

.12 Gasketted panels (patches) minimum size 300mm x 300mm and fabricated from the same material as the duct and fastened with sheet metal screws are permitted if the access is for cleaning only; otherwise access doors shall be provided.

.13 Interrupt duct coverings at all duct access doors to allow for easy opening.

END

1 GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 – Submittal Procedures.

.2 Section 08 14 10 – Flush Wood Doors.

.3 Section 08 11 14 – Metal Doors and Frames.

.4 Section 08 14 16 - Aluminum Doors and Frames.

.5 Section 08 33 13 – Coiling Counter Doors.

.6 Section 26: Electrical wiring for electric strike releases, automatic door operators, and all other electronic hardware components.

1.2 REFERENCE STANDARDS

.1 Canadian Steel Door and Frame Manufacturers' Association (CSDFMA).
- .1 CSDFMA Canadian Metric Guide for Steel Doors and Frames (Modular Construction): standard hardware location dimensions.

.2 NFPA – National Fire Protection Agency.
- .1 NBC
- .2 NFPA-80
- .3 NFPA101 – Life Safety
- .4 NFPA-105 – Smoke and Draft Control

.3 American National Standards Institute, ANSI A117.1 Specification
- .1 ANSI/BHMA A156.1-2006, Butts and Hinges.
- .2 ANSI/BHMA A156.2-2011, Bored and Preassembled Locks and Latches.
- .3 ANSI/BHMA A156.3-2008, Exit Devices.
- .4 ANSI/BHMA A156.4-2008, Door Controls (Closers).
- .5 ANSI/BHMA A156.5-2010, Auxiliary Locks and Associated Products.
- .6 ANSI/BHMA A156.6-2010, Architectural Door Trim.
- .7 ANSI/BHMA A156.8-2010, Door Controls - Overhead Holders.
- .8 ANSI/BHMA A156.7-2009, Template Hinge Dimensions.
- .9 ANSI/BHMA A156.12-2005, Interconnected Locks and Latches.
- .10 ANSI/BHMA A156.13-2005, Mortise Locks and Latches.
- .11 ANSI/BHMA A156.14-2002, Sliding and Folding Door Hardware.
- .12 ANSI/BHMA A156.15-2006, Closer/Holder Release Device.
- .13 ANSI/BHMA A156.16-2008, Auxiliary Hardware.
- .14 ANSI/BHMA A156.17-2006, Self-closing Hinges and Pivots.
- .15 ANSI/BHMA A156.18-2006, Materials and Finishes.
- .16 ANSI/BHMA A156.19-2007, Power Assist/Low Energy Power Operated Doors.
- .17 ANSI/BHMA A156.22-2012, Door Gasketing and Edge Seal Systems.

1.3 SUBMITTALS

.1 Product Data:
.1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.

.2 Samples:
.1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
.2 Identify each sample by label indicating applicable specification paragraph number, brand name and number, finish and hardware package number.
.3 After approval samples will be returned for incorporation in the Work.

.3 Hardware List:
.1 Submit contract hardware list in accordance with Section 01 33 00 - Submittal Procedures.
.2 Indicate specified hardware, including make, model, material, function, size, finish and other pertinent information.

.4 Manufacturer's Instructions and Electrical Wiring and Riser Diagrams:
.1 Submit manufacturer's installation instructions, wiring and riser diagrams for all electrical hardware components listed in the schedule.

.5 Closeout Submittals
.1 Provide operation and maintenance data for door closers, locksets, door holders, electrified hardware, and fire exit hardware for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.4 QUALITY ASSURANCE

.1 Regulatory Requirements:
.1 Hardware for doors in fire separations and exit doors certified by a Canadian Certification Organization accredited by Standards Council of Canada.

.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 Pre-installation Meetings: conduct pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements. Comply with Section 08 71 10.

1.5 DELIVERY, STORAGE, AND HANDLING

.1 Packing, Shipping, Handling and Unloading:
.1 Deliver, store, handle and protect materials in accordance with Section 01 61 00 - Common Product Requirements.
.2 Package each item of hardware including fastenings, separately or in like groups of hardware, label each package as to item definition and location.

.2 Storage and Protection:
.1 Store finishing hardware in locked, clean and dry area.

1.6 WASTE DISPOSAL AND MANAGEMENT

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

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

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

1.7 MAINTENANCE

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

2 PRODUCTS

2.1 HARDWARE ITEMS

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

2.2 DOOR HARDWARE

.1 Locks and latches - Mortise:
.1 Mortise locks and latches: to CAN/CGSB-69.29, series 1000 mortise lock, grade 1, designed for function and keyed as directed by consultant, and as listed in Hardware Schedule.
.2 Lever handles: solid cast flat design, with full return to door.
.3 Roses: 54 mm diameter, round.
.4 Normal strikes: box type, lip projection not beyond jamb.
.5 Cylinders: Existing Schlage Everest "D" Restricted Keyway for keying system as directed.
.6 Latchbolts: to be two-piece anti-friction, ¾" throw.
.7 Lock functions: to be supplied as listed in hardware schedule.
.8 Finished to 626, Satin Chromium Plated.
.9 Specified products: Schlage L9000Series-06
Approved products: Sargent 8200 Series-LNP, Corbin ML2000 Series-NSA

.2 Butts and hinges:
.1 Butts and hinges: to CAN/CGSB-69.18, designated by letter A and numeral identifiers, followed by size and finish, listed in Hardware Schedule.
.2 Specified products: Butt Hinges - Ives 5BB1/5BB1HW Series – 26D / 32D
Approved products: Hinges - Hager Hinge BB1279/BB1068/BB1191 Series – 26D / 32D; Stanley FBB179/FBB168/FBB191 Series – 26D / 32D

.3 Door Closers and Accessories:
- .1 Door controls (closers): to CAN/CGSB-69.20, designated by letter C and numeral identifiers listed in Hardware Schedule, non-sized, finished to 689.
- .2 Door controls - overhead holders: to CAN/CGSB-69.24, designated by letter C and numeral identifiers listed in Hardware Schedule, finished to 630.
- .3 Door closers to have heavy duty forged steel arms, brackets and mounting plates, backcheck selector valves, and spring power adjustment.
- .4 Specified products: Door closers - LCN 4011 / 4111 / 4040 Series
  Approved alternates: Norton PR7501-EBC / 7501 Series; Dorma 8916-AF89J / 8916-SPA-8 / 8916-AF89 Series.
- .5 Specified products: Overhead holders – Glynn-Johnson 104S Series - 630
  Approved products: Rixson 1-336 - 630 Series; ABH 1023S - 630 Series.

.4 Door Operators:
- .1 Power assist and low energy power-operated pedestrian doors: to CAN/CGSB-69.35.; to meet ANSI A156.19 Grade 1, ADA , and UL10C requirements; to be heavy duty with power boost, adjustable spring size, multi-function, with valve adjustable sweep and latch closing speeds, and back-check cushioning.
- .2 Power operator to include digital control suite, and programming mode with adjustable delay time, opening time/opening force, safety slow/stop, auto reverse/closing, and electric lock delay, and be finished in Satin Aluminum 628.
- .3 Specified products: LCN 9540 Series
  Approved alternates: Norton 6900 Series; Besam 2000I Series

.5 Auxiliary locks and associated products:
- .1 to CAN/CGSB-69.21, designated by letter E and numeral identifiers listed in Hardware Schedule, finished to 626.
- .2 Cylinders: FSIC single rim or mortise, thumb turn inside, keyed outside, finished to 626, for installation in deadbolt on doors as listed in Hardware Schedule. Key into keying system as directed.

.6 Architectural door trim:
- .1 to CAN/CGSB-69.22, designated by letter J and numeral identifiers listed in Hardware Schedule, finished to 630.
- .2 Door protection plates: kick plate type J01, 1.27 mm thick stainless steel, finished to 630.
- .3 Push plates: type J01, 1.27 mm thick stainless steel, edge beveled, size as listed in Hardware Schedule, finished to 630.
- .4 Specified products: Ives Hardware
  Approved products: Gallery Specialty Hardware; Canadian Builders Hardware

.7 Auxiliary hardware: to CAN/CGSB-69.32, designated by letter L and numeral identifiers listed in Hardware Schedule, finished to 626.
- .1 Door stop, floor mounted: universal type, rubber bumper, finish to 626.
- .2 Door stop, wall mounted: universal type, convex rubber bumper, finish to 626.
- .3 Lever extension flush bolt, type UL, finish to 626.
- .4 Automatic flush bolts: type UL, finish to 626.
- .5 Specified products: Door stops - Ives Hardware;
  Flush bolts – Ives.

Approved products: Door stops - Hager Hinge; Canadian Builders Hardware; Flush bolts – Trimco; Gallery Specialty Hardware.

.8 Door bottom seal: heavy duty, door seal of extruded aluminum frame and solid closed cell neoprene seal, surface mounted, closed ends, adjustable automatic retract mechanism when door is open, clear anodized finish.

.1 Specified products: DraftSeal
Approved products: Zero; Pemko

.9 Thresholds: 127 mm wide x full width of door opening, extruded aluminum mill finish, serrated surface, with thermal break of rigid PVC.
.1 Specified products: DraftSeal
Approved products: Zero; Pemko

.10 Weatherstripping:
.1 Head and jamb seal:
.1 Extruded aluminum frame and solid closed cell neoprene insert, clear anodized finish.
.2 Door bottom seal:
.1 Extruded aluminum frame and closed cell neoprene or nylon brush sweep, clear anodized finish.
.3 Specified products: DraftSeal
Approved products: Zero; Pemko

.11 Astragal: adjustable compensating extruded aluminum frame with pile insert, clear anodized finished.
.1 Specified products: DraftSeal
Approved products: Zero; Pemko

.12 Electric Strikes, Power Supplies, Power Transfers:
.1 Electric strikes: to meet or exceed UL Listed Burglary Resistant CVXY, ANSI E59311 & E59321, Grade 1 requirements; to be heavy duty with all Stainless Steel construction; to accept ¾" throw latchbolts and be horizontally adjustable.
.2 Power Supplies: to be sized to suit door hardware requirements and with options included for fire alarm and access control functions.
.3 Power Transfers: to be UL Listed heavy-duty, concealed when door is closed, with wiring connections as required.
.4 Specified products: Von Duprin.
Approved products: Folger-Adam; Rixson; Schlage

2.1 MISCELLANEOUS HARDWARE

.1 Indexed key control system: to CAN/CGSB-69.21, designated by letter E and numeral identifiers, to be wall mounted multiple drawer system, type double tag, color enamel paint finish, with capacity for 150 keys.

2.2 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.

2.3 KEYING

.1 Door locks, and exit device trims to be keyed differently and master keyed under Existing Schlage Everest "D" Restricted Keyway keying system as directed. Prepare keying schedule in conjunction with Project Manager and Department / Project Representative.
.2 Provide keys in triplicate (3) for every lock in this Contract.
.3 Provide three (3) masterkeys for each MK group.
.4 Stamp all change keys with keyset number and keyway.

3 EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.
.2 Furnish metal door and frame manufacturers with complete instructions and templates for preparation of their work to receive hardware.
.3 Furnish manufacturers' instructions for proper installation of each hardware component.

3.2 INSTALLATION

.1 Install hardware to standard hardware location dimensions in accordance with Canadian Metric Guide for Steel Doors and Frames (Modular Construction) prepared by Canadian Steel Door and Frame Manufacturers' Association.
.2 Where door stop contacts door pulls, mount stop to strike bottom of pull.
.3 Install key control cabinet.
.4 Use only manufacturer's supplied fasteners. Failure to comply may void manufacturer's warranties and applicable licensed labels. Use of "quick" type fasteners, unless specifically supplied by manufacturer, is unacceptable.
.5 Remove construction cores when directed by Departmental Representative or Consultant; install permanent cores and check operation of locks.

3.3 ADJUSTING

.1 Adjust door hardware, operators, closures and controls for optimum, smooth operating condition, safety and for weather tight closure.
.2 Lubricate hardware, operating equipment and other moving parts.
.3 Adjust door hardware to provide tight fit at contact points with frames.

3.4 CLEANING

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

3.5 DEMONSTRATION

.1 Keying System Setup and Cabinet:
  .1 Set up key control system with file key tags, duplicate key tags, numerical index, alphabetical index and key change index, label shields, control book and key receipt cards. Capacity to be 50 Keys.
  .2 Place file keys and duplicate keys in key cabinet on their respective hooks.
  .3 Lock key cabinet and turn over key to Departmental Representative.

.2 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 fire exit hardware].

.3 Demonstrate operation, operating components, adjustment features, and lubrication requirements.

3.6 SCHEDULE

Hardware Set # H-1 - Pair Doors No. 100.1; Each to have:

2 Continuous Hinges Ives 112HD x 2108 mm x 1/EPT prep - 628
1 Concealed Exit Device Von Duprin HD-EL-RX3547A-NL-OP x 388 (LHR Dr.) - 626
1 Concealed Exit Device Von Duprin HD-3547A-EO (RHR Dr.) - 626
1 Rim Cylinder Schlage 20-057 x FSIC Core Everest "D" x MK'd - 626
2 Door Pulls Ives 8190HD-18 x 457 mm c. to c. x "N" Conc. Mtg. - 630
1 Door Closer LCN 4040XP TJ x TB/SN (RHR Dr.) - 689
1 Mounting Plate LCN 4040-18G - 689
1 Automatic Door Operator LCN 9542 x HL/B-36 (LHR Dr.) - 689
1 Actuator Switch LCN 8310-853 x 867S/801 - O/S - 630
1 Actuator Switch LCN 8310-853 x 867S - I/S - 630
2 Conc. O/H Door Stops G-J 104S x FTMS - 630
1 Electric Power Transfer Von Duprin EPT-10 (LHR Dr.) - SP28
1 Power Supply Schlage PS914 x 900-2RS x 900-BBK
1 Threshold DraftSeal DS5000 x 1828 mm - AL
Weatherstrip, Door Sweep, and Astragals – supplied by door supplier
Card Reader & Controller – Supplied by others
Wire, Conduit & Connection by Electrical – Division 26

Hardware Set # H-2 - Pair Doors No. 100.2; Each to have:

2 Continuous Hinges Ives 112HD x 2108 mm - 628
2 Dummy Push Bars Von Duprin 350 x 914 mm door width - 626
2 Door Pulls Ives 8190HD-2 x 305 mm c. to c. x "N" Conc. Mtg. - 630
1 Door Closer LCN 4021 TJ x TB/SN (RHR Dr.) - 689
1 Mounting Plate LCN 4020-18G - 689
1 Automatic Door Operator LCN 9542 x HL/B-36 (LHR Dr.) - 689
2 Actuator Switches LCN 8310-853 x 867S - 630
2 Floor Door Stops Ives FS439 - 626
Weatherstrip, Door Sweep, and Astragals – supplied by door supplier
Wire, Conduit & Connection by Electrical – Division 26

Hardware Set # H-3 - Single Door No. 101.1; Each to have:

1 Continuous Hinge Ives 112HD x 2108 mm (CTS) x 1/EPT prep - 628
1 Exit Device Von Duprin HD-RX35A-NL-OP x 388 (LHR Dr.) - 626
1 Rim Cylinder Schlage 20-057 x FSIC Core Everest "D" x MK'd - 626
1 Door Pull Ives 8190HD-18 x 457 mm c. to c. x "N" Conc. Mtg. - 630
1 Automatic Door Operator LCN 9542 x HL/B-36 (LHR Dr.) - 689
1 Actuator Switch LCN 8310-853 x 867S/801 - O/S - 630
1 Actuator Switch LCN 8310-853 x 867S - I/S - 630
1 Conc. O/H Door Stop G-J 104S x FTMS - 630
1 Electric Power Transfer Von Duprin EPT-10 (LHR Dr.) - SP28
1 Electric Strike Von Duprin 6300 FSE x 12V - 630
1 Power Supply Schlage PS902 x 900-8F x 900-BBK
1 Threshold DraftSeal DS5000 x 914 mm - AL
Weatherstrip, Door Sweep, and Astragals – supplied by door supplier
Card Reader & Controller – Supplied by others
Wire, Conduit & Connection by Electrical – Division 26

Hardware Set # H-4 - Single Door No. 101.2; Each to have:

1 Continuous Hinge Ives 112HD x 2108 mm - 628
1 Dummy Push Bar Von Duprin 350 x 914 mm door width - 626
1 Door Pull Ives 8190HD-2 x 305 mm c. to c. x "N" Conc. Mtg. - 630
1 Automatic Door Operator LCN 9542 x HL/B-36 (LHR Dr.) - 689
2 Actuator Switches LCN 8310-853 x 867S - 630
1 Floor Door Stop Ives FS439 - 626
Weatherstrip, Door Sweep, and Astragals – supplied by door supplier
Wire, Conduit & Connection by Electrical – Division 26

Hardware Set # H-5 - Single Door No. 104.1; Each to have:

3 Hinges Ives 5BB1 114 x 101 - 652
1 Mortise Lockset F07 Schlage L9080R-06/A x FSIC Core Everest "D" x MK'd - 626
1 Door Closer LCN 4111 SCUSH x TB/SN - 689

1 Kickplate Ives 8400 - 254 x 864 mm - 630
1 Set Door Seal DraftSeal DS44D x 5182 mm - AL
1 Door Louver Crowder CDL - 150 x 400 mm - AL

Hardware Set # H-6 - Single Doors No. 105.1, 107.1; Each to have:

3 Hinges Ives 5BB1 114 x 101 - 630
1 Push Plate Ives 8200-152 mm x 406 mm - 630
1 Door Pull Ives 8302 x 254 mm - 152 x 406 x T/B Mtg - 630
1 Door Closer LCN 4011 REG x TB/SN - 689
1 Kickplate Ives 8400 - 254 x 864 mm - 630
1 Wall Door Stop Ives 406CVX - 626

Hardware Set # H-7 - Pair By-Pass Doors No. 106.1; Each to have:

1 Set Dual Track By-Pass Hardware Crowder C-500 Kit x 1524 mm (2 Doors)
2 Flush Pulls Ives 227 - 626

Hardware Set # H-8 - Set By-Pass Doors (3) No. 108.1; Each to have:

1 Set Dual Track By-Pass Hardware Crowder C-500 Kit x 3048 mm (3 Doors)
4 Flush Pulls Ives 227 - 626

Hardware Set # H-9 - Single Door No. 109.1; Each to have:

4 Hinges Ives 5BB1 114 x 101 NRP - 652
1 Mortise Lockset Schlage L9480R-06/A x FSIC Core Everest "D" x MK'd - 626
1 Door Closer LCN 4011 REG x TB/SN – 689
1 Kickplate Ives 8400 - 254 x 864 mm - 630
1 Wall Door Stop Ives 406CVX - 626
1 Set Door Seal DraftSeal DS44D x 5182 mm - AN
1 Door Sweep DraftSeal DS149C x 914 mm - AN

Hardware Set # H-10 - Single Door No. 109.2; Each to have:

3 Hinges Ives 5BB1 114 x 101 - 652
1 Mortise Lockset F07 Schlage L9080R-06/A x FSIC Core Everest "D" x MK'd - 626
1 Door Closer LCN 4031 SCUSH x TB/SN - 689
1 Set Door Seal DraftSeal DS44D x 5182 mm - AL
1 Door Sweep DraftSeal DS138C x 914 mm - AL

Hardware Set # H-11 - Single Door No. 110.1; Each to have:

3 Hinges Ives 5BB1 114 x 101 - 652

1 Mortise Lockset F07 Schlage L9080R-06/A x FSIC Core Everest "D" x MK'd - 626
1 Wall Door Stop Ives 406CVX - 626
1 Set Door Seal DraftSeal DS55D x 5182 mm - AL
1 Door Sweep DraftSeal DS138C x 914 mm - AL

Hardware Set # H-12 - Single Door No. 111.1; Each to have:

3 Hinges Ives 5BB1 114 x 101 - 652
1 Mortise Lockset Schlage L9056R-06/A x FSIC Core Everest "D" x MK'd - 626
1 Door Closer LCN 4111 SCUSH x TB/SN – 689
1 Kickplate Ives 8400 - 254 x 864 mm TAPE - 630
1 Set Door Seal DraftSeal DS44D x 5182 mm - AN
1 Door Sweep DraftSeal DS149C x 914 mm - AN

Hardware Set # H-13 - Single Door No. 112.1; Each to have:

4 Hinges Ives 5BB1 114 x 101 - 652
1 Mortise Lockset Schlage L9080R-06/A x FSIC Core Everest "D" x MK'd - 626
1 Door Closer LCN 4011 REG x TB/SN – 689
1 Kickplate Ives 8400 - 254 x 864 mm TAPE - 630
1 Wall Door Stop Ives 406CVX - 626
1 Set Door Seal DraftSeal DS44D x 5182 mm - AN
1 Door Sweep DraftSeal DS149C x 914 mm - AN

Hardware Set # H-14 - Single Existing Door No. 113; Each to have:

1 Exit Device Von Duprin 98EO - 626
Balance of hardware - Existing

Hardware Set # H-15 - Single Doors No. 115.1, 116.1; Each to have:

3 Hinges Ives 5BB1 114 x 101 - 652
1 Mortise Lockset F07 Schlage L9480R-06/A x FSIC Core Everest "D" x MK'd - 626
1 Wall Door Stop Ives 406CVX - 626
1 Set Door Seal DraftSeal DS44D x 5182 mm - AL
1 Door Sweep DraftSeal DS138C x 914 mm - AL

Hardware Set # H-16 - Single Door No. 117.1; Each to have:

Hinges – Re-use Existing
1 Lever Passage Set Schlage ND10S-RHO - 626
1 Door Closer LCN 4111 EDA x TB/SN – 689
1 Kickplate Ives 8400 - 254 x 864 mm - 630
1 Wall Door Stop Ives 406CVX - 626
1 Set Door Seal DraftSeal DS55D x 5792 mm - AN

1 Door Sweep DraftSeal DS138C x 914 mm - AN

Hardware Set # H-16A - Single Door No. 117.2; Each to have:

3 Hinges Ives 5BB1 114 x 101 - 652
1 Set Flush Bolts Ives FB358 - 626
1 Door Sweep DraftSeal DS138C x 610 mm - AN
1 Set Astragals DraftSeal DS163 x 2134 mm - AN

Hardware Set # H-17 - Single Doors No. 118.1, 119.1, 127.1; Each to have:

Hinges – Re-use Existing
1 Cyl. Lockset Schlage ND53RD-RHO x FSIC Core Everest "D" x MK'd - 626
1 Wall Door Stop Ives 406CVX - 626
1 Set Door Seal DraftSeal DS55D x 5182 mm - AN
1 Door Sweep DraftSeal DS138C x 914 mm - AN

Hardware Set # H-18 - Single Door No. 124.1; Each to have:

Hinges – Re-use Existing
1 Lever Passage Set Schlage ND10S-RHO - 626
1 Wall Door Stop Ives 406CVX - 626
1 Set Door Seal DraftSeal DS132CS x 5182 - AL
1 Door Sweep DraftSeal DS138C x 914 mm - AN

Hardware Set # H-19 - Pair Doors No. 125.1; Each to have:

6 Hinges Ives 5BB1 4 ½ x 4 NRP - C32D
1 Set C/L Flush Bolts Ives FB51 x UL (LHR Dr.) - 630
1 Lockset Schlage ND80RD-RHO x FSIC Core Everest "D" x MK'd - 626
1 Door Closer LCN 4111 SCUSH x TB/SN (RHR Dr.) - 689
1 O/H Door Stop G-J 903S (LHR Dr.) - 630
1 Threshold DraftSeal DS177N x 72" - AL
1 Set Door Seal DraftSeal DS132C x 20 ft - AN
2 Door Sweeps DraftSeal DS138C x 36" - AN
1 Set Astragals DraftSeal DS151 / 151P x 84" - AN

Hardware Set # H-20 - Single Door No. 129.1; Each to have:

Hinges – Re-use Existing
1 Lever Privacy Set Schlage ND40S-RHO x E/K - 626
1 Door Closer LCN 4031 REG x TB/SN - 689
1 Kickplate Ives 8400 - 254 x 864 mm - 630

1 Wall Door Stop Ives 406CCV - 626

1 Set Door Seal DraftSeal DS55D x 5182 mm - AN
1 Door Sweep DraftSeal DS138C x 914 mm - AN

END OF SECTION 08 71 00

PART 1 - GENERAL

1.1 REFERENCES

.1 ASTM International
.1 ASTM C 542-05, Standard Specification for Lock-Strip Gaskets.
.2 ASTM D 790-07e1, Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
.3 ASTM D 1003-07e1, Standard Test Method for Haze and Luminous Transmittance of Plastics.
.4 ASTM D 1929-96(R2001)e1, Standard Test Method for Determining Ignition Temperature of Plastics.
.5 ASTM D 2240-05, Standard Test Method for Rubber Property - Durometer Hardness.
.6 ASTM E 84-10, Standard Test Method for Surface Burning Characteristics of Building Materials.
.7 ASTM E 330-02, Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
.8 ASTM F 1233-08, Standard Test Method for Security Glazing Materials and Systems.

.2 Canadian General Standards Board (CGSB)
.1 CAN/CGSB-12.1-M90, Tempered or Laminated Safety Glass.
.2 CAN/CGSB-12.3-M91, Flat, Clear Float Glass.
.3 CAN/CGSB-12.6-M91, Transparent (One-Way) Mirrors.
.4 CAN/CGSB-12.8-97, Insulating Glass Units.
.5 CAN/CGSB-12.8-97 (Amendment), Insulating Glass Units.
.6 CAN/CGSB-12.10-M76, Glass, Light and Heat Reflecting.
.7 CAN/CGSB-12.11-M90, Wired Safety Glass.

.3 Environmental Choice Program (ECP)
.1 CCD-045-95(R2005), Sealants and Caulking Compounds.

.4 Glass Association of North American (GANA)
.1 GANA Glazing Manual - 2008.

.5 South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards
.1 SCAQMD Rule 1168-A2005, Adhesives and Sealants Applications.

1.2 ADMINISTRATIVE REQUIREMENTS

.1 Pre-Installation Meetings:
.1 Convene pre-installation meeting 1 week prior to beginning work of this Section and on-site installation, with Contractor's Representative and DCC Representative in accordance with Section 01 31 19 - Project Meetings to:
.1 Verify project requirements.
.2 Review installation and substrate conditions.
.3 Co-ordination with other building subtrades.
.4 Review manufacturer's written installation instructions and warranty requirements.

.2 Hold project meetings every week.

.3 Ensure key personnel attend.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:
.1 Submit manufacturer's instructions, printed product literature and data sheets for glass, sealants, and glazing accessories and include product characteristics, performance criteria, physical size, finish and limitations.
.2 Submit two copies of Workplace Hazardous Materials Information System (WHMIS) - Material Safety Data Sheets (MSDS) in accordance with Section 01 33 00 - Submittal Procedures.

.3 Samples:
.1 Submit for review and acceptance of each unit.
.2 Samples will be returned for inclusion into work.
.3 Submit 300 x 300 mm size samples of insulated units and sealant material.

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

.5 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
.1 Submit testing and analysis of glass under provisions of Section 01 45 00 - Quality Control.
.2 Submit shop inspection and testing for glass.

1.4 CLOSEOUT SUBMITTALS

.1 Submit in accordance with Section 01 78 00 - Closeout Submittals.

.2 Operation and Maintenance Data: submit operation and maintenance data for glazing for incorporation into manual.

1.5 QUALITY ASSURANCE

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

.2 Mock-ups:
.1 Construct mock-ups in accordance with Section 01 45 00 - Quality Control and Section 08 44 13 - Glazed Aluminum Curtain Walls.

1.6 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 Storage and Handling Requirements:
.1 Store materials off ground 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 wrapping strippable coating.
.4 Replace defective or damaged materials with new.

1.7 AMBIENT CONDITIONS

.1 Ambient Requirements:
.1 Install glazing when ambient temperature is 10 degrees 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 Design Criteria:

.1 Ensure continuity of building enclosure vapour and air barrier using glass and glazing materials as follow:

.1 Utilize inner light of multiple light sealed units for continuity of air and vapour seal.

.2 Size glass to withstand wind loads, dead loads and positive and negative live loads acting normal to plane of glass to design pressure of 1.7 kPa to ASTM E330.

.3 Limit glass deflection to the lesser of 1/200 and flexural limit of glass with full recovery of glazing materials.

.2 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 II.
.4 Edge treatment: arrised.

.3 Silvered mirror glass: 6 mm thick.

.1 Type 1B-float glass for high humidity use.

.4 Wired glass: to CAN/CGSB-12.11, mm thick.

.1 Type 1-polished both sides (transparent).
.2 Wire mesh style 3-square.

.3 Insulating Glass Units:

.1 Insulating glass units: to CAN/CGSB-12.8, double unit, 25 mm overall thickness.

.1 Glass: to CAN/CGSB-12.10.
.2 Glass thickness: 6 mm each light.
.3 Inter-cavity space thickness: 13 mm with low conductivity spacers.
.4 Glass coating: surface number 2, low "E", MSVD.
.5 Inert gas fill: argon.
.6 Visible light transmittance: 64% average daylight, minimum.
.7 Solar heat gain coefficient: 0.28, maximum.
.8 Shading coefficient: 0.32.

.9 U-Value:
.1 Winter: 0.25 to 0.28.
.2 Summer: 0.22 to 0.26.
.10 Acceptable material:
.1 PPG Solarban 70XL on Starphire.
.2 Cardinal LoE³ 366.
.3 Guardian Sunguard SuperNeutral on UltraWhite.

.4 Insulating Glass Units, Heat Strengthened:
.1 Insulating glass units: to CAN/CGSB-12.8, double unit, 25 mm overall thickness.
.1 Glass: to CAN/CGSB-12.10.
.2 Glass thickness: 6 mm each light.
.3 Inter-cavity space thickness: 13 mm with low conductivity spacers.
.4 Glass coating: surface number 2, low "E", MSVD.
.5 Inert gas fill: argon.
.6 Visible light transmittance: 64% average daylight, minimum.
.7 Solar heat gain coefficient: 0.28, maximum.
.8 Shading coefficient: 0.32.
.9 U-Value:
.1 Winter: 0.25 to 0.28.
.2 Summer: 0.22 to 0.26.
.10 Acceptable material:
.1 PPG Solarban 70XL on Starphire.
.2 Cardinal LoE³ 366.
.3 Guardian Sunguard SuperNeutral on UltraWhite.

.5 Sealant: in accordance with Section 07 92 00 - Joint Sealants.

2.2 ACCESSORIES

.1 Setting blocks: polychloroprene ("neoprene"), 80-90 Shore A durometer hardness to ASTM D 2240, to suit glazing method, glass light weight and area.

.2 Spacer shims:polychloroprene ("neoprene"), 50-60 Shore A durometer hardness to ASTM D 2240, 75 mm long x one half height of glazing stop x thickness to suit application. Self-adhesive on one face.

.3 Glazing tape:
.1 Closed cell polyvinyl chloride foam, coiled on release paper over adhesive on two sides, maximum water absorption by volume 2 %, designed for compression of 25 %, to effect an air and vapour seal.

.4 Glazing splines: resilient silicone, extruded shape to suit glazing channel retaining slot, black colour.

.5 Mirror attachment accessories:
.1 Mirror adhesive, chemically compatible with mirror coating and wall substrate.

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for glazing installation in accordance with manufacturer's written instructions.
.1 Verify that openings for glazing are correctly sized and within tolerance.
.2 Verify that surfaces of glazing channels or recesses are clean, free of obstructions, and ready to receive glazing.
.3 Visually inspect substrate.
.4 Inform DCC Representative of unacceptable conditions immediately upon discovery.
.5 Proceed with installation only after unacceptable conditions have been remedied.

3.2 PREPARATION

.1 Clean contact surfaces with solvent and wipe dry.

.2 Seal porous glazing channels or recesses with substrate compatible primer or sealer.

.3 Prime surfaces scheduled to receive sealant.

3.3 INSTALLATION: EXTERIOR - DRY METHOD (PREFORMED GLAZING)

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

.2 Perform work in accordance with GANA Glazing Manual for glazing installation methods.

.3 Cut glazing spline to length; install on glazing light. Seal corners by butting spline and sealing junctions with sealant.

.4 Place setting blocks at 1/4 points, with edge block

maximum 150 mm from corners.

.5 Rest glazing on setting blocks and push against fixed stop with sufficient pressure to attain full contact.

.6 Install removable stops without displacing glazing spline. Exert pressure for full continuous contact.

3.4 INSTALLATION: EXTERIOR WET/DRY METHOD (PREFORMED TAPE AND SEALANT

.1 Perform work in accordance with GANA Glazing Manual for glazing installation methods.

.2 Cut glazing tape to length and set against permanent stops, 6 mm below sight line. Seal corners by butting tape and dabbing with sealant.

.3 Apply heel bead of sealant along intersection of permanent stop with frame ensuring full perimeter seal between glass and frame to complete continuity of air and vapour seal.

.4 Place setting blocks at 1/4 points, with edge block maximum 150 mm from corners.

.5 Rest glazing on setting blocks and push against tape and heel head of sealant with sufficient pressure to attain full contact at perimeter of light or glass unit.

.6 Install removable stops with spacer strips inserted between glazing and applied stops 6 mm below sight line.

.7 Fill gap between glazing and stop with sealant to depth equal to bite of frame on glazing, maximum 9 mm below sight line.

.8 Apply cap head of sealant along void between stop and glazing, to uniform line, flush with sight line. Tool or wipe sealant surface smooth.

3.5 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.

.3 Place setting blocks at 1/4 points, with edge block maximum 150 mm from corners.

.4 Rest glazing on setting blocks and push against tape for full contact at perimeter of light or unit.

.5 Place glazing tape on free perimeter of glazing in same manner described.

.6 Install removable stop without displacement of tape. Exert pressure on tape for full continuous contact.

.7 Knife trim protruding tape.

3.6 INSTALLATION: MIRRORS

.1 Set mirrors with adhesive, applied in accordance with adhesive manufacturer's instructions.

.2 Place plumb and level.

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.

.1 Remove traces of primer, caulking.

.2 Remove glazing materials from finish surfaces.

.3 Remove labels.

.4 Clean glass and mirrors 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.

3.8 PROTECTION

.1 Protect installed products and components from damage during construction.

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

.1 Do not mark heat absorbing or reflective glass units.

.3 Repair damage to adjacent materials caused by glazing installation.

3.9 SCHEDULE

.1 Type VG: Clear float glass.

.2 Type VGI: Insulating glass units.

.3 Type VGIF: Insulating glass units, acid etched on #3 surface.

.4 Type VGIT: Insulating glass units, heat-strengthened (tempered).

.5 Type VGT: Clear heat-strengthened (tempered) glass.

.6 Type WG: Clear wired glass.