PART 1 – GENERAL

1.1 REFERENCES

.1 American Society for Testing and Materials International (ASTM)
.1 ASTM A 653/A 653M-15e1, Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

.2 Canadian General Standards Board (CGSB)
.1 CAN/CGSB-1.181-99, Ready-Mixed Organic Zinc-Rich Coating.
.2 CGSB 41-GP-19Ma-84, Rigid Vinyl Extrusions for Windows and Doors.

.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 W59-13, 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 Fire Windows.
.2 NFPA 252-2012, Standard Methods of Fire Tests of Door Assemblies.

.6 Underwriters' Laboratories of Canada (ULC)
.1 CAN/ULC-S704-11, Standard for Thermal Insulation, Polyurethane and Polyisocyanurate Boards, Faced.
.2 CAN4-S104-15, Standard Method for Fire Tests of Door Assemblies.
.3 CAN4-S105-09, Standard Specification for Fire Door Frames Meeting the Performance Required by CAN4-S104.

1.2 SYSTEM DESCRIPTION

.1 Design Requirements:
.1 Steel fire rated doors and frames labeled and listed by an organization accredited by Standards Council of Canada in conformance with CAN4-S104 and 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 a nationally recognized agency having factory inspection services.

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

1.4 DELIVERY, STORAGE AND HANDLING

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

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.

2.3 ADHESIVES

.1 Honeycomb cores and steel components: heat resistant, spray grade, resin reinforced neoprene/rubber (polychloroprene) based, low viscosity, contact cement.
.1 Adhesive: maximum VOC content 50 g/L.

2.4 PRIMER

.1 Touch-up prime CAN/CGSB-1.181.
.1 Maximum VOC limit 50 g/L.

2.5 PAINT

.1 Field paint steel doors and frames in accordance with Sections 09 91 99 – Painting for Minor Works. Provide final finish free of scratches or other blemishes.
.1 Maximum VOC emission level 50 g/L.

2.6 ACCESSORIES

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

.2 Fabricate glazing stops as formed channel, minimum 16 mm height, accurately fitted, butted at corners and fastened to frame sections with counter-sunk oval head sheet metal screws.

.3 Door bottom seal: See Section 08 71 00 – Door Hardware.

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

.5 Fire labels: metal revited.

.6 Sealant: See Section 07 92 00 – Joint Sealant.

.7 Make provisions for glazing as indicated and provide necessary glazing stops.
.1 Provide removable stainless steel glazing beads for dry glazing of snap-on type.
.2 Design exterior glazing stops to be tamperproof.

2.7 FRAMES FABRICATION GENERAL

.1 Fabricate frames in accordance with CSDMA specifications.

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

.3 Door and window frames: 1.6 mm welded 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 and 1 additional anchor for each additional 760 mm of height or fraction thereof.

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

2.9 FRAMES: WELDED TYPE

.1 Welding in accordance with CSA W59.

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

.3 Cope accurately and securely weld butt joints of mullions, transom

bars, centre rails and sills.

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

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

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

2.10 FRAMES: KNOCKED DOWN TYPE

.1 Ship knocked-down type frames unassembled.

.2 Provide frames with mechanical joints which inter lock securely and provide functionally satisfactory performance when assembles and installed in accordance with CSDMA Recommended Installation Guide for Steel Doors and Frames.

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

2.11 DOOR FABRICATION GENERAL

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

.2 Interior doors: honeycomb construction.

.3 Fabricate doors with longitudinal edges locked seam. Mechanically interlocked, adhesive assisted with edge seams tack welded.

.4 Doors: manufacturers' proprietary construction tested and/or engineered as part of a fully operable assembly, including door, frame, gasketting and hardware in accordance with ASTM E 330.

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

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

.7 Reinforce doors where required, for surface mounted hardware. Provide flush steel top caps to exterior doors. Provide inverted, recessed, spot welded channels to top and bottom of interior doors.

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

.9 Provide fire labelled doors for those openings requiring fire protection ratings, as scheduled. Test such products in accordance with CAN4-S104, ASTM E 152, NFPA 252 and list by nationally recognized agency having factory inspection service and construct as detailed in Follow-up Service Procedures/Factory Inspection Manuals issued by listing agency to individual manufacturers.

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

2.12 DOORS: HONEYCOMB CORE CONSTRUCTION

.1 Form face sheets for interior doors from 1.6 mm sheet steel with core laminated under pressure to face sheets.

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

.2 Install doors and frames to CSDMA Installation Guide.

3.3 FRAME INSTALLATION

.1 Set frames plumb, square, level and at correct elevation.

.2 Secure anchorages and connections to adjacent construction.

.3 Brace frames rigidly in position while building-in. Install temporary horizontal wood spreader at third points of door opening to maintain frame width. Provide vertical support at centre of head for openings over 1200 mm wide. Remove temporary spreaders after frames are built-in.

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

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

.6 Maintain continuity of air barrier and vapour retarder.

3.4 DOOR INSTALLATION

.1 Install doors and hardware in accordance with hardware templates and manufacturer's instructions and Section 08 71 00 - Door Hardware.

.2 Provide even margins between doors and jambs and doors and finished floor and thresholds as follows.
- .1 Hinge side: 1.0 mm.
- .2 Latchside and head: 1.5 mm.
- .3 Finished floor, and thresholds: 13 mm.

.3 Adjust operable parts for correct function.

.4 Install louvres.

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.

END OF SECTION

PART 1 – GENERAL

1.1 RELATED REQUIREMENTS

.1 Section 04 05 00 - Common Work Results for Masonry.

.2 Section 09 21 99 - Partitions for Minor Works.

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 access door components and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Shop Drawings:
.1 Submit catalogue details for each type of door illustrating profiles, dimensions and methods of assembly.

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 cleaning and maintenance of stainless steel finishes for incorporation into manual.

1.4 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 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 access doors from nicks, scratches, and blemishes.
.3 Apply temporary protective coating to finished surfaces. Remove

coating after installation.
.1 Use coatings in accordance with manufacturer's written instructions that are easily removable.
.2 Leave protective coating in place until final cleaning of building.
.4 Replace defective or damaged materials with new.

PART 2 – PRODUCTS

2.1 ACCESS DOORS

.1 Sizes: as follows unless indicated:
.1 For body entry: 600 x 600 mm minimum.
.2 For hand entry: 300 x 300 mm minimum.

.2 Construction: rounded safety corners, concealed hinges, screwdriver latch, anchor straps, able to open 180 degrees.

.3 Materials:
.1 Tiled or marble surfaces 1.6 mm thick, stainless steel with brushed satin finish.

.4 Access doors in fire rated partitions ULC listed, with spring closer and key operated latch outside and thumbturn inside.

2.2 EXCLUSIONS

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

PART 3 – EXECUTION

3.1 EXAMINATION

.1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for access door installation in accordance with manufacturer's written instructions.
.1 Visually inspect substrate in presence of Departmental Representative.
.2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
.3 Proceed with installation only after unacceptable conditions have been remedied [and after receipt of written approval to proceed from Departmental Representative.

3.2 INSTALLATION

.1 Installation: locate access doors within view of equipment and ensure equipment is accessible for operating, inspecting, adjusting, servicing without using special tools.
.1 Tiled surfaces: in accordance with Section 09 30 13 - Ceramic Tiling.
.2 Install masonry surfaces: in accordance with Section 04 05 00 - Common Work Results for Masonry.
.3 Install gypsum board surfaces: in accordance with Section 09 21 99 - Partition for Minor Works.

3.3 CLEANING

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

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

.3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.4 PROTECTION

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

.2 Repair damage to adjacent materials caused by access door installation.

END OF SECTION

PART 1 – GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.3 Section 01 78 00 - Closeout Submittals.

.4 Section 05 50 00 - Metal Fabrications.

.5 Section 06 10 53 – Miscellaneous Rough Carpentry.

1.2 REFERENCES

.1 ASTM International:
.1 ASTM A653/A653M-15, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

.2 Canadian General Standards Board (CGSB)
.1 CAN/CGSB-1.105-M91, Quick-Drying Primer.

.3 Electrical and Electronic Manufacturers' Association of Canada (EEMAC)

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 door components and include product characteristics, performance criteria, physical size, finish and limitations

.3 Shop Drawings:
.1 Indicate each type of door, arrangement of hardware, required clearances, electrical characteristics including voltage, size of motors, auxiliary controls and wiring diagrams.
.2 Indicate assembly details and dimensions of fabrication, required clearances and electrical connections.

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 overhead coiling doors and hardware 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.

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

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Galvanized steel sheet: lock-forming quality to ASTM A653, Coating Designation Z001 or ZF001 mill phosphatized.

.2 Galvanized steel sheet: commercial quality with Coating Designation Z180 or Z275 mill phosphatized.

.3 Primer: to CAN/CGSB-1.105.

2.2 DOOR FABRICATION

.1 Coiling door curtain interlocking slat sections:
.1 Roll formed steel, 1.2 mm base metal thickness x 75 mm wide x 20 mm thick, prime painted.
.2 Profile: 75mm crowned.

.2 Rivet alternate end locks to slat ends.

.3 Ensure bottom bar of 3 mm thick double equal weight steel angles is equipped with flexible vinyl weatherstrip.

.4 Form guides of metal angles of sections of 4.8 mm minimum thickness for face of wall installation. Equip guides with flexible vinyl weatherstrip.

.5 Construct counterbalance assembly of heat treated torsion spring with 25% overload factor.
.1 Enclose spring in steel pipe to support door curtain and counterbalance mechanism with maximum deflection of 1/360th of opening width.
.2 Include ball bearings at rotating points and spring tension adjusting wheel, accessible for setting.

.6 Support counterbalance assembly on 5 mm minimum thickness steel plate brackets, forming end enclosures.

.7 Enclose counterbalance assembly with galvanized steel sheet formed hood, equipped with weatherstripping.

.8 Equip door for locking from both sides with keyed cylinder locks.

2.3 FINISH

.1 Curtain, bottom bar and hood: baked powder coat finish. Colour selected by Departmental Representative.

2.4 OPERATION

.1 Equip door for operation by:
.1 Electric motor operator.

2.5 ELECTRICAL OPERATOR

.1 Electrical motors, controller units, remote pushbutton stations, relays and other electrical components: to CSA and ULC approval with EEMAC enclosures Class 1.

.2 Power supply: 208 V, 3 Ph, 60 Hz.

.3 Motor: high starting torque, instant reversing, capacity to operate door at 300 mm per second, removable without affecting emergency chain device or setting of limit switches. Equip motor with overload protection, centrifugal clutch and electric brake. Rating: 3/4 Hp.

.4 Motor size matching gear reducer with gears running in oil bath.

.5 Controller units with integral motor reversing starter, 3 heater elements for overload protection, including pushbutton and control relays as applicable.

.6 Operation:
.1 Remote pushbutton stations: surface mounted, in locations as indicated, with “OPEN-STOP-CLOSE” designations on pushbuttons in English and French. "OPEN" and "STOP" functions activated by momentary contact. "CLOSE" function activated by constant pressure function.

.7 Design brake to stop and hold doors in any position.

.8 Include hand chain interlocked auxiliary operator to disconnect motor mechanically and electrically when engaged and allow manual operation of door. Provide bucket mounted to door frame for chain storage.

.9 Safety switch: electro mechanical or electro pneumatic device full length of bottom rail of bottom section of door, to reverse door to open position when coming in contact with object on closing cycle.

.10 Door speed: 300 mm/s.

.11 Mounting brackets: galvanized steel, size and thickness to suit conditions.

.12 Control circuit: 24 VAC.

PART 3 - EXECUTION

3.1 EXAMINATION

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

.1 Visually inspect substrate.
.2 Inform Departmental 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 Install doors in accordance with manufacturer's printed instructions.

.3 Install electrical motors, controller units, pushbutton stations, relays and other electrical equipment required for door operation.

.4 Install electric wiring from power supply located near door.

.5 Install masterkeyed cylinder specified in Section 08 71 00 - Door Hardware.

.6 Adjust door operating components to ensure smooth opening and closing of doors.

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.

.2 Manufacturer's Field Services:
.1 Obtain written reports from manufacturer verifying compliance of Work, in handling, installing, applying, protecting and cleaning of product within 3 days.

.3 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.

.4 Ensure manufacturer's representative is present before and during critical periods of installation.

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

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 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 – Cleaning.
.1 Clean aluminum and stainless steel with damp rag and approved non-abrasive cleaner in accordance with manufacturer's instructions.
.2 Remove traces of primer, caulking; clean doors and frames.
.3 Clean glass and glazing materials with approved non-abrasive cleaner.

.3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.7 PROTECTION

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

.2 Repair damage to adjacent materials caused by overhead coiling door and grille installation.

END OF SECTION

PART 1 – GENERAL

1.1 RELATED REQUIREMENTS

.1 Section 07 92 00 - Joint Sealing.

.2 Section 08 80 50 – Glazing: Insulating glass units.

1.2 REFERENCE STANDARDS

.1 Aluminum Association (AA)
.1 DAF 45 2003, Designation System For Aluminum Finishes.

.2 American Architectural Manufacturers Association (AAMA).
.1 AAMA-501-2015, Methods of Test for Exterior Walls.
.2 AAMA-1600/I.S 7-2000, Voluntary Specification for Skylights.
.3 AAMA CW-10-2015, Care and Handling of Architectural Aluminum From Shop to Site.

.3 ASTM International (ASTM).
.1 ASTM B209-2014, Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
.2 ASTM B221-2014, Specification for Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
.3 ASTM E283-04, Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Skylights, and Doors Under Specified Pressure Differences Across the Specimen.
.4 ASTM E331-00, Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Skylights, by Uniform Static Air Pressure Difference.
.5 ASTM D2240 – 2015, Standard Test Method for Rubber Property—Durometer Hardness.

.4 Canadian General Standards Board (CGSB).
CAN/CGSB-12.8-97, Insulating Glass Units.
CAN/CGSB-12.20-M89, Structural Design of Glass for Buildings.
CAN/CGSB-19.13-M87, Sealing Compound, One-Component, Elastomeric, Chemical Curing.

.5 CSA International (CSA)
.1 CAN/CSA-S157-17, Strength Design in Aluminum.
.2 CAN/CSA-S136–12, North American Specification for the Design of Cold-Formed Steel Structural Members.
.3 CAN/CSA W59.2-M1991(R2013), Welded Aluminum Construction.

.6 Underwriter’s Laboratories of Canada (ULC)

.1 CAN/ULC-S710.1 2011, Standard for Thermal Insulation – Bead-Applied One Component Polyurethane Air Sealant Foam, Part 1: Materials Standard for Thermal Insulation - Bead - Applied One Component Polyurethane Air Sealant Foam, Part 1: Materials.

1.3 ADMINISTRATIVE REQUIREMENTS

.1 Co-ordination: Co-ordinate work of this Section with work of other trades for proper time and sequence to avoid construction delays.

.2 Pre-installation Meeting: Convene pre-installation meeting after Award of Contract and one week prior to commencing work of this Section to verify project requirements, substrate conditions and coordination with other building sub-trades, and to review manufacturer=s written installation instructions.
.1 Comply with Section 01 14 10 – Scheduling and Management of Work, and co-ordinate with other similar pre-installation meetings.
.2 Notify attendees 2 weeks prior to meeting and ensure meeting attendees include as minimum:
.1 Departmental Representative;
.2 Glazing subcontractor;
.3 Manufacturer’s Technical Representative.
.3 Ensure meeting agenda includes review of methods and procedures related to glazed aluminum skylight installation including co-ordination with related work.
.4 Record meeting proceedings including corrective measures and other actions required to ensure successful completion of work and distribute to each attendee within 1 week of meeting.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data: Submit product data including manufacturer’s literature for glazed aluminum skylight extruded members, panels, components and accessories, indicating compliance with specified requirements and material characteristics.
.1 Submit list on skylight manufacturer’s letterhead of materials, components and accessories to be incorporated into Work.
.2 Include product names, types and series numbers.
.3 Include contact information for manufacturer and their representative for this Project.

.3 Shop Drawings: Submit drawings stamped and signed by Professional Engineer registered or licensed in Province of Nova Scotia, Canada. Include on shop drawings:
.1 Indicate size and description of components, materials, attachment devices, description of frame and finish, and construction details.
.2 Show size and location of seismic restraints. Include seismic design calculations

.4 Samples:
.1 Submit duplicate 300 x 300 mm sample sections showing prefinished aluminum surface, finish, colour and texture, and including section of infill panel.
.2 Submit duplicate 300 x 300 mm sample sections of insulating glass unit showing glazing materials and edge and corner details.

.5 Thermal Performance: Submit verification that Insulating Glass Units used in skylight meets RSI values specified.

.6 Test Reports:
.1 Submit test reports showing compliance with specified performance characteristics and physical properties including air infiltration, water infiltration and structural performance.

.7 Field Reports: Submit manufacturer’s field reports within 3 days of manufacturer representative’s site visit and inspection.

1.5 CLOSEOUT SUBMITTALS

.1 Operation and Maintenance Data: Supply maintenance data for skylight for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

.2 Record Documentation: In accordance with Section 01 78 00 - Closeout Submittals.
.1 List materials used in skylight work.
.2 Warranty: Submit warranty documents specified.

1.6 DELIVERY STORAGE AND HANDLING

.1 Delivery and Acceptance Requirements:
.1 Deliver material in accordance with Section 01 61 00 - Common Product Requirements.
.2 Deliver glazed aluminum skylight materials and components in manufacturer=s original packaging with identification labels intact and in sizes to suit project.

.2 Material Handling: To AAMA CW-10.

.3 Storage and Handling Requirements: Store materials off ground and protected from exposure to harmful weather conditions and at temperature conditions recommended by manufacturer.
.1 Material storage: To AAMA CW-10.

.4 Packaging Waste Management:
.1 Remove waste packaging materials from site and dispose of packaging materials at appropriate recycling facilities.

1.7 WARRANTY

.1 Project Warranty: Refer to Contract Conditions for project warranty provisions.

.2 Manufacturer's warranty: Submit, for Departmental Representative acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to and not intended to limit other rights Departmental Representative may have under Contract Conditions.

.3 Warranty period: 5 years commencing on Date of Substantial Performance of Work.
.1 Insulating glass units: 10 years, on Date of Substantial Performance of Work.

PART 2 – PRODUCTS

2.1 DESCRIPTION

.1 Aluminum framed skylights.

2.2 DESIGN CRITERIA

.1 Design skylight to AAMA CW-DG-1 and to AAMA-1600/I.S 7.
.1 Design glazed aluminum skylight following rainscreen principles.
.2 Ensure horizontal members are sealed to vertical members.
.3 Ventilate and pressure equalize air space outside exterior surface of insulation to exterior.

.2 Design aluminum components to CAN/CSA S157 with span deflection to L/200 maximum.
.1 Thermal expansion: Ensure skylight can withstand temperature differential of 85°C and is able to accommodate interior and

exterior system expansion and contraction without damage to components or deterioration of seals.

.2 Ensure system is designed to accommodate:

.1 Movement within skylight assembly.

.2 Movement between skylight and perimeter framing components.

.3 Dynamic loading and release of loads.

.4 Deflection of structural support framing.

.3 Thermal resistance:

.1 Vision glass areas: Insulating Glass Unit RSI 0.49 minimum.

.4 Glass dimensions: Size glass units to CAN/CGSB-12.20.

.5 Air infiltration: 0.3 L/s/m^2 maximum of wall area to ASTM E283 at differential pressure across assembly of 75 Pa.

.6 Water infiltration: None to ASTM E331 at differential pressure across assembly of 480 Pa.

.7 Ensure interior surfaces have no condensation before exposed edges of sealed units reach dew point temperatures during testing to AAMA 501.

.8 Maintain continuous air barrier and vapour retarder throughout building envelope and skylight assembly.

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

2.3 MATERIALS

.1 Skylight Framing: Extruded aluminum: To ASTM B221, 6063 alloy with T6 temper.

.1 Sheet aluminum: To ASTM B209, utility grade for unexposed surfaces.

.2 Fasteners, screws and bolts: Cadmium plated stainless steel 300 or 400 series to meet skylight requirements and as recommended by manufacturer.

.3 Insulating glass units: To CAN/CGSB-12.8, double glazed, hermetically sealed, argon filled insulating glass units with low conductance [black] stainless steel warm edge spacer.

.1 Outer lite: 6 mm clear tempered glass with low-E coating on surface two.

.2 Inner lite: 6 mm clear tempered laminated glass(3 mm clear/0.76 pvb/3 mm clear).

.4 Infill Panels: 25 mm total thickness, 0.81 mm prefinished aluminum sheet on exterior and interior faces bonded to 3.2 mm thick hardboard substrate with expanded polystyrene core.

.5 Thermal Break: Manufacturers standard PVC, sized to conform with extruded aluminum members.

2.4 SKYLIGHT FABRICATION

.1 Do aluminum welding to CAN/CSA W59.2.

.2 Fabricate aluminum assemblies of extruded sections to sizes and profiles indicated.
.1 Ensure vertical and horizontal members are tubular extrusions designed for shear block corner construction. Notch and overlap purlin components into rafters to ensure positive drainage.
.2 Rafter depth sizes as indicated.

.3 Construct skylights square, plumb and free from distortion, waves, twists, buckles or other defects detrimental to performance or appearance.

.4 Fabricate skylight with minimum clearances and shim spacing around perimeter and ensure installation and dynamic movement of perimeter seal is enabled.

.5 Accurately fit and secure joints and corners.
.1 Ensure joints are flush, hairline, and weatherproof.

.6 Prepare skylight to receive anchor devices.

.7 Use only concealed fasteners.
.1 Where fasteners cannot be concealed, countersunk screws finished to match adjacent material may be used upon receipt of written approval from Departmental Representative.

.8 Visible manufacturer’s labels are not permitted.

2.5 FINISHES

.1 Exterior exposed aluminum surfaces: To AA DAF-45-M10C21A41, Architectural Class I, black anodized 18 µm minimum thickness coloured.

.2 Interior exposed aluminum surfaces: To AA DAF-45-M10C21 A44, Architectural Class I, anodized 18 µm minimum thickness coloured black.

2.6 ACCESSORIES

.1 Gasketing: To CCD-45 Silicone compatible rubber or extruded silicone gaskets.

.2 Setting Blocks: To ASTM D2240, neoprene, 80 - 90 Shore A Durometer hardness.

.3 Spacers: To ASTM D2240, neoprene 50 - 60 Shore A Durometer hardness.

.4 Sealant: To CAN/CGSB-19.13, Class 40, one-component, cold-applied, non-sagging silicone.

.5 Sealant Bond Breaker: Open cell foam backer rod sized to suit project requirements.

.6 Flashings: 3 mm thick aluminum flashing to profiles indicated.

.7 Liquid Foam Insulation: Single component, moisture cure, low expansion rate spray-in-place polyurethane liquid foam insulation to ULC-S710.1 and in accordance with manufacturer’s written recommendations.

.8 Miscellaneous Components: To match skylight as indicated.

PART 3 – EXECUTION

3.1 EXAMINATION

.1 Verification of Conditions: Verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for skylight installation in accordance with manufacturer’s written instructions.
.1 Visually inspect substrate in presence of Departmental Representative.
.2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
.3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.2 INSTALLATION

.1 Install skylights in accordance with manufacturer’s written instructions.

.2 Do aluminum welding to CAN/CSA W59.2.

.3 Attach skylight assemblies to structure plumb and level, free from warp, and allow for sufficient adjustment to accommodate construction tolerances and other irregularities.
.1 Maintain dimensional tolerances and align with adjacent work.
.2 Use alignment attachments and shims to permanently fasten skylights to building structure.
.3 Clean welded surfaces and apply protective primer to field welds and adjacent surfaces.

.4 Install thermal isolation where skylight components penetrate or disrupt building insulation.

.5 Install flashings as indicated.

.6 Co-ordinate attachment and seal of perimeter air barrier as detailed.

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

.10 Install liquid foam insulation in shim spaces at perimeter of skylight assembly to maintain continuity of thermal barrier.

.11 Install insulating glass units in accordance with Section 08 80 50 - Glazing and to manufacturer’s written recommendations.

.12 Install perimeter sealant and backing materials to method required to achieve performance criteria in accordance with Section 07 92 00 - Joint Sealing.

3.3 FIELD QUALITY CONTROL

.1 Field Inspection: Coordinate field inspection in accordance with Section 01 45 00 - Quality Control.

.2 Site Installation Tolerances:
.1 Sealant space between skylight and adjacent construction: 13 mm maximum.

.3 Manufacturer’s Services:
.1 Coordinate manufacturer’s services with Section 01 45 00 - Quality Control.
.2 Submit to Departmental Representative a written agreement from the manufacturer to perform the manufacturer’s services.
.3 Schedule manufacturer’s review of work procedures at stages listed:
1. Product Application: 1 off site reviews.
2. Fabrication and Handling: 1 reviews at authorized installers fabrication facilities.

3. Installation: 3 site reviews at commencement of Work 50% completion of Work Upon completion of Work.

.4 Submit manufacturer's written reports to Departmental Representative describing:

.1 The scope of work requested.

.5 Date, time and location.

.6 Procedures performed.

.1 Observed or detected non-compliances or inconsistencies with manufacturers' recommended instructions.

.2 Limitations or disclaimers regarding the procedures performed.

.3 Obtain reports within seven days of review and submit immediately to Departmental Representative.

3.4 CLEANING

.1 Progress Cleaning:

.1 Leave work area clean end of each day.

.2 Final leaning: 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 glazed aluminum skylight installation.

END OF SECTION

PART 1 – GENERAL

1.1 REFERENCES

.1 American National Standards Institute (ANSI)/ Builders Hardware Manufacturers Association (BHMA)
.1 ANSI/BHMA A156.1-2013, American National Standard for Butts and Hinges.
.2 ANSI/BHMA A156.2-2011, Bored and Preassembled Locks and Latches.
.3 ANISI/BHMA A156.4-2013, Door Controls – Closers.
.4 ANSI/BHMA A156.6-2010, Architectural Door Trim.
.5 ANSI/BHMA A156.16-2013, Auxiliary Hardware.
.6 ANSI/BHMA A156.18-2012, Materials and Finishes.

.2 Canadian Steel Door and Frame Manufacturers' Association (CSDMA)
.1 CSDMA Recommended Dimensional Standards for Commercial Steel Doors and Frames - 2009.

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 door hardware and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Samples:
.2 Submit for review and acceptance of each unit.
.3 Samples will be returned for inclusion into work.
.4 Identify each sample by label indicating applicable specification paragraph number, brand name and number, finish and hardware package number.
.5 After approval samples will be returned for incorporation in Work.

.4 Hardware List:
.6 Submit contract hardware list.
.7 Indicate specified hardware, including make, model, material, function, size, finish and other pertinent information.

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

.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 door hardware for incorporation into manual.

1.4 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 locksets and fire exit hardware.

1.5 QUALITY ASSURANCE

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

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

1.6 DELIVERY, STORAGE AND HANDLING

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

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

.3 Package items of hardware including fastenings, separately or in like groups of hardware, label each package as to item definition and location.

.4 Storage and Handling Requirements:
.1 Store materials indoors 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 wrapping.
.4 Replace defective or damaged materials with new.

PART 2 – PRODUCTS

2.1 HARDWARE ITEMS

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

2.2 DOOR HARDWARE

.1 Lock and Latches:
.1 Bored and preassembled locks and latches: to ANSI/BHMA A 156.2, series 4000 bored lock, grade 1, designed for function as stated in Hardware Schedule.
.1 Cycle Test: exceeds 9 times A156.2 Grade 1 requirements.
.2 Locks required for fire doors shall be listed by Underwriters Laboratories for ratings of 3 hours (A label) and less.
.3 Lever handles: Lock levers shall be made of solid material available in a minimum of six different lever designs.
.4 Roses: round.
.5 Normal strikes: box type, lip projection not beyond jamb.
.6 70 mm backset.
.7 Cylinders: key into keying system as directed.
.8 Finished to 626.

.2 Butts and hinges:
.1 Butts and hinges: to ANSIA 156.1, designated by numeral identifiers, followed by size and finish, listed in Hardware Schedule.

.3 Door Closer and Accessories:
.1 Door controls (closers): to ANSI/BHMA A156.4, Grade 1 in accordance with ANSI/BHMA A156.4, table A1, finished to ANSI/BHMS 689.
.2 Closers of narrow slim line design complete with backcheck, rack and pinion hydraulic action.
.3 Closers equipped with full cover, as noted in Hardware Groups, complete with secure and concealed mounting screws.
.4 Adapter plates are used for added reinforcing as well as door and frame conditions. Adapter plates shall be added to any opening if required to suit field conditions or door design.
.5 Closers shall include all necessary arm brackets, Cush arm

supports and blade stop spacers to suit door swing, frame reveals or stop conditions.
.6 Size and hand closers prior to site delivery in accordance with manufacturer's recommendations.
.7 Closers capable of field adjustments of at least fifteen (15)percent.
.8 Degree of openings to be as shown on the plans and indicated on the reviewed hardware schedule.
.9 Finish as stated in Hardware Group.

.4 Auxiliary hardware: to ANSI A156.16, designated by numeral identifiers listed in Hardware Schedule, finished to 626.
.1 Door stop, floor mounted dome type: c/w rubber bumper, finished to 630.
.2 Door silencer: by frame supplier.

.5 Weather stripping:
.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.

.6 Overhead Stops/Holders
.1 Overhead stops to ANSI/BHMA A156.8.
.2 Overhead stops of stainless steel as noted in Hardware Group/List.
.3 Overhead stops to be sized according to manufacturer's recommendation.
.4 Overhead stops to include shock absorber except when used with electronic closers.
.5 Surface Overhead stops to include through bolts for door attachment.
.6 When closers are used on same opening provide any special adapters or modification to ensure a proper installation.

.7 Architectural door trim: to ANSI/BHMA A156.6 as listed below, finished to 630.
.1 Door protection plates: kick plates, 1.27 mm thick, stainless steel, finished to 630.

2.3 FASTENINGS

.1 Use only fasteners provided by manufacturer. Failure to comply may void warranties and applicable licensed labels.

.2 Supply screws, bolts, expansion shields and other fastening devices required for satisfactory installation and operation of

hardware.

.3 Exposed fastening devices to match finish of hardware.

.4 Where pull is scheduled on one side of door and push plate on other side, supply fastening devices, and install so pull can be secured through door from reverse side. Install push plate to cover fasteners.

.5 Use fasteners compatible with material through which they pass.

2.4 KEYING

.1 Doors locksets, deadlocks, and cylinders to be keyed to existing master key system. Prepare detailed keying schedule in conjunction with Departmental Representative.

.2 Supply keys in triplicate for every lock in this Contract.

.3 Supply 3 master keys for each master key or grand master key group.

.4 Stamp keying code numbers on keys and cylinders.

.5 Supply construction cores.

.6 Hand over permanent cores and keys to Departmental Representative.

PART 3 – EXECUTION

3.1 INSTALLATION

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

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

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

.4 Install hardware to standard hardware location dimensions in accordance with CSDFMA Canadian Metric Guide for Steel Doors and Frames (Modular Construction).

.5 Where door stop contacts door pulls, mount stop to strike bottom of pull.

.6 Install key control cabinet.

.7 Use only manufacturer's supplied fasteners.
.1 Use of "quick" type fasteners, unless specifically supplied by manufacturer, is unacceptable.

.8 Remove construction cores locks when directed by Departmental Representative.
.1 Install permanent cores and ensure locks operate correctly.

3.2 ADJUSTING

.1 Adjust door hardware, operators, closures and controls for optimum, smooth operating condition, safety and for weather tight closure.

.2 Lubricate hardware, operating equipment and other moving parts.

.3 Adjust door hardware to ensure tight fit at contact points with frames.

3.3 CLEANING

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

3.4 DEMONSTRATION

.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.

3.5 PROTECTION

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

.2 Repair damage to adjacent materials caused by door hardware installation.

3.6 SCHEDULE

Hardware Set # H-1
3 Hinges x Concealed bearing x standard weight x 114 x 101 mm-652
1 Lockset x Storeroom Function x cyl x strike x 626
1 Door closer x full cover x cush-stop x TB/SN-689
1 Kickplate x 200 mm high x width of door x 1.2 mm thick x 630
1 Floor dome stop x 626

Hardware Set # H-2
3 Hinges x Concealed bearing x standard weight x 114 x 101 mm x 652
1 Lockset x Office Function x cyl x strike x 626
1 Door closer x full cover x reg arm x TB/SN x 689
1 Kickplate x 200 mm high x width of door x 1.2 mm thick x 630
1 Floor dome stop x 626
1 Set Smoke Seals x neoprene bulb x AL

Hardware Set # H-3 (RHR Active Leaf)
6 Hinges x Concealed bearing x standard weight x 114 x 101 mm x 652
1 Lockset x Office function x cyl x strike x 626
1 Set Manual Flush bolts x Dust proof Strike x 626
1 Door closer x full cover x H Cush x TB x SN x 689
2 Kickplates x 200 mm high x width of door x 1.2 mm thick x 630
1 O/H stop x surface mounted x 626(inactive leaf)

Hardware Set # H-4
3 Hinges x Concealed bearing x standard weight x 114 x 101 mm x 652
1 Lockset x Office function x cyl x strike x 626
1 Door closer x full cover x H Cush x TB/SN x 689
1 Kickplate x 200 mm high x width of door x 1.2 mm thick x 630

PART 1 – GENERAL

1.1 REFERENCES

.1 ASTM International
.1 ASTM C 542-05 (2011), Standard Specification for Lock-Strip Gaskets.
.2 ASTM D 2240-15, Standard Test Method for Rubber Property - Durometer Hardness.

.2 Canadian General Standards Board (CGSB)
.1 CAN/CGSB-12.1-M90, Tempered or Laminated Safety Glass.
.2 CAN/CGSB-12.3-M91, Flat, Clear Float Glass.
.3 CAN/CGSB-12.8-97, Insulating Glass Units.
.4 CAN/CGSB-12.8-97 (Amendment), Insulating Glass Units.
.5 CAN/CGSB-12.11-M90, Wired Safety Glass.

.3 Glass Association of North American (GANA)
.1 GANA Glazing Manual - 2008.
.2 GANA Laminated Glazing Reference Manual - 2009.

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 glass, sealants, and glazing accessories and include product characteristics, performance criteria, physical size, finish and limitations.

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 glazing for incorporation into manual.

1.4 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirement 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 Store materials indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
.2 Store and protect glazing and frames from nicks, scratches, and blemishes.
.3 Protect prefinished aluminum surfaces with strippable coating.
.4 Replace defective or damaged materials with new.

1.5 AMBIENT CONDITIONS

.1 Ambient Requirements:
.1 Install glazing when ambient temperature is 10 °C minimum. Maintain ventilated environment for 24 hours after application.
.2 Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

PART 2 – PRODUCTS

2.1 MATERIALS

.1 Flat Glass:
.1 Safety glass: to CAN/CGSB-12.1, transparent, 6 mm thick.
.2 Type 1-laminated.
.3 Class B-float.
.4 Category 11.

.2 Insulating glass units: See Section 08 63 00 – Metal Framed Skylights.

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

2.2 ACCESSORIES

.1 Setting blocks: neoprene, 80-90 Shore A durometer hardness to ASTM D 2240, minimum 100 mm x width of glazing rabbet space minus 1.5 mm x height.

.2 Spacer shims: 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 Preformed butyl compound with integral resilient tube spacing device, 10-15 Shore A durometer hardness to ASTM D 2240; coiled on

release paper; black colour.

.4 Glazing splines: resilient polyvinyl chloride, extruded shape to suit glazing channel retaining slot.

.5 Glazing clips: manufacturer's standard type.

.6 Lock-strip gaskets: to ASTM C 542.

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 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
.4 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

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 WET/DRY METHOD (PREFORMED TAPE AND SEALANT)

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

.2 Cut glazing tape to length and set against permanent stops, 6mm 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 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.

3.4 INSTALLATION: INTERIOR - DRY METHOD (TAPE AND TAPE)

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

.2 Cut glazing tape to length and set against permanent stops, projecting 1.6 mm above sight line.

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

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

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

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

.7 Knife trim protruding tape.

3.5 CLEANING

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

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

.3 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.

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

END OF SECTION