

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

- .1 Section 08 11 00 – Metal Doors and Frames
- .2 Section 08 11 16 – Aluminum Doors and Frames
- .3 Section 08 14 16 – Flush Wood Doors
- .4 Section 08 50 00 - Windows

1.2 REFERENCE STANDARDS

- .1 ASTM International
 - .1 ASTM C 542-2011, 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-12.1-2017, Safety Glazing.
 - .2 CAN/CGSB-12.3-M91(R2017), Flat, Clear Float Glass.
 - .3 CAN/CGSB-12.8-2017, Insulating Glass Units.
- .3 Glass Association of North American (GANA)
 - .1 GANA Glazing Manual.
 - .2 GANA Laminated Glazing Reference Manual.

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.
- .3 Samples:
 - .1 Submit for review and acceptance of each unit.
 - .2 Samples will be returned for inclusion into work.
 - .3 Submit duplicate mm size samples of 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.

1.4 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.

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 off ground in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect glazing and frames from nicks, scratches, and blemishes.
 - .3 Protect prefinished aluminum surfaces with wrapping.
 - .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 SUSTAINABLE REQUIREMENTS

- .1 Materials and products in accordance with Section 01 47 15 – Sustainable Requirements

2.2 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 to ASTM E330 and NBC 2015.
 - .3 Limit glass deflection to 1/200 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 1-laminated.
 - .2 Class B-float.
 - .3 Category 11.
- .3 Insulating Glass Units:
- .1 Insulating glass units: to CAN/CGSB-12.8, double unit, 25 mm overall thickness.
 - .1 Glass: Safety glass to CAN/CGSB-12.1.
 - .2 Glass thickness:
 - .1 Exterior lite: 6 mm tempered safety glass.
 - .2 Interior lite: 8 mm laminated safety glass, 4 mm clear glass/0.030 PVC interlayer/4 mm clear glass
 - .3 Inter-cavity space thickness: with low conductivity spacers.
 - .4 Glass coating: surface number 3 low "E".
 - .5 Inert gas fill: argon.
- .4 Fire Rated Glazing:
- .1 Properties:
 - .1 Thickness: 5 mm
 - .2 Film: fire-rated surface film as approved by manufacturer.
 - .3 Weight: 11.72 Kg/m².
 - .4 Approximate visible transmission: 88 percent.
 - .5 Approximate visible reflection: 9 percent.
 - .6 Hardness (Vicker's Scale): 700.
 - .7 Fire-rating: as indicated on Door/Frame Schedule.
 - .8 Impact safety resistance: ANSI Z97.1 and CPSC 16 CFR1201 (Cat. I and II).
 - .9 Positive pressure test: UL 10C, UBC 7-2 and 7-4; passes.
 - .10 Surface finish:
 - .1 Premium grade-ground and polished on both sides.
 - .2 Obscure-pattern surface where fire-rated translucent glass is indicated on drawings and schedules.
 - .11 Labeling: permanently label each piece of fire rated glazing with UL logo and fire rating.
 - .12 Fire rating: fire rating listed and labeled by UL for fire rating scheduled at opening locations on drawings, when tested in accordance with ULC Standards CAN4 S-104 and CAN4 S-106.

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

2.3 ACCESSORIES

- .1 Setting blocks: neoprene 80-90 Shore A durometer hardness to ASTM D 2240, minimum 100 mm x width of glazing rabbet space minus 1.5 mm x height.
- .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, colour as selected.
- .5 Glazing clips: manufacturer's standard type.
- .6 Lock-strip gaskets: to ASTM C 542.

2.4 ACCESSORIES: FIRE RATED GLAZING

- .1 Glazing tape: closed cell polyvinyl chloride (PVC) foam, coiled on release paper over adhesive on two sides, maximum water absorption by volume of 2 percent. Glass panels that exceed 0.9 m² for 90-minute ratings must be glazed with fire rated glazing tape supplied by manufacturer.
- .2 Glazing compound: as recommended by manufacturer.
- .3 Silicone sealant: one part neutral curing silicone, medium modulus sealant, Type S; Grade NS; class 25 with additional movement capability of 50 percent in both extension and compression (total 100 percent); use (exposure) NT; uses (substrates) G, A and O as applicable.
- .4 Setting blocks: neoprene, EPDM, or silicone; tested for compatibility with glazing compound; of 70 to 90 Shore A hardness.
- .5 Cleaners, primers and sealers: type recommended by manufacturer of glass and gaskets.

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 in presence of Departmental Representative.
- .4 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
- .5 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, 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 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 INSTALLATION: FIRE RATED GLAZING

- .1 Comply with referenced FGMA standards and instructions of manufacturers of glass, glazing sealants, and glazing compounds.
- .2 Protect glass from edge damage during handling and installation. Inspect glass during installation and discard pieces with edge damage that could affect glass performance.
- .3 Set units of glass in each series with uniformity of pattern, draw, bow, and similar characteristics.
- .4 Cut glazing tape to length and set against permanent stops, flush with sight lines to fit openings exactly, with stretch allowance during installation.
- .5 Place setting blocks located at quarter points of glass with edge block no more than 150 mm from corners.
- .6 Glaze vertically into labeled fire rated metal frames or partition walls with same fire rating as glass and push against tape for full contact at perimeter of pane or unit.
- .7 Place glazing tape on free perimeter of glazing in same manner described above.
- .8 Install removable stop and secure without displacement of tape.
- .9 Use specified glazing compound, without adulteration; bed glazing material in glazing compound' entirely fill all recess and spaces. Provide visible glazing compound with smooth and straight edges.
- .10 Install in vision panels in fire rated doors to requirements of NFPA 80.
- .11 Install so that UL markings remain permanently visible.

3.6 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each day.
 - .1 Remove traces of primer, caulking.

- .2 Remove glazing materials from finish surfaces.
 - .3 Remove labels.
 - .4 Clean glass using approved non-abrasive cleaner in accordance with manufacturer's instructions.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

3.7 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.

END OF SECTION