

Part 1 General

1.1 RELATED DOCUMENTS

- .1 Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY OF WORK

- .1 Work Included: The work of this Section includes the provision of all labour, materials, equipment and services required to install glazing, as indicated on the drawings, as specified herein and as required for a complete project. Refer to Section 081113, 081116, and 084413. IGUs must meet the requirements of SB-10 of the OBC and must be tested to meet those requirements together with doors, window, and curtain wall.
- .2 Related Sections:
 - .1 Section 08 11 13 - Steel Doors and Frames.
 - .2 Section 08 11 16 - Aluminum Doors and Frames.
 - .3 Section 08 14 16 - Flush Wood Doors.
 - .4 Section 08 44 13 - Glazed Aluminum Curtain Wall.

1.3 REFERENCE STANDARDS

- .1 American Society for Testing and Materials (ASTM):
 - .1 ASTM C1503-08(2013), Standard Specification for Silvered Flat Glass Mirror.
- .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-M97, Insulating Glass Units.
 - .4 CAN/CGSB-19.13-M87, Sealing Compound, One Component, Elastomeric, Chemical Curing.
- .3 Flat Glass Marketing Association (FGMA).

1.4 DESIGN CRITERIA

- .1 Laminated Safety Glass and Tempered Glass required for the project to be designed to withstand factored loads in accordance with the OBC (latest edition).
- .2 Glass acting as a guard shall be designed in accordance with OBC Part 4 (latest edition), CAN/CGSB 12.1 and CAN/CGSB 12.20. This includes all (but not limited to) windows, curtain wall, pressed metal screens and any opening containing glass and adjacent to storey below.

1.5 SUBMITTALS

- .1 General: Submit each item in this Article according to the Conditions of the Contract and the applicable Division 01 Specification Sections.

- .2 Submit all required shop drawings stamped by an Engineer licensed in the Province of Ontario confirming the design criteria.
- .3 Samples: Submit sample of each glass type specified.

1.6 CERTIFICATION

- .1 Once the all the glass has been installed on the project, provide a certificate that shall state that the work has been performed in accordance with requirements of the Ontario Building Code (OBC) and any other Regulation by Authorities Having Jurisdiction. The certificate shall be stamped and sealed by an Engineer registered in the Province of Ontario.

1.7 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials, including packaging materials, in accordance with Section 01 74 21 Waste Management and Disposal.

1.8 WARRANTY

- .1 For the work of this Section, the 12-months warranty period prescribed in the General Conditions of the Contract, is extended to 10 years.
- .2 Warrant insulating glass units against defects and malfunction under normal usage, including failure of seal of enclosed air space and deposits on inner faces of glass detrimental to vision.

Part 2 Products

2.1 GLASS

- .1 Insulating glass units for exterior doors and curtain walls: Sealed double-glazing units to CAN/CGSB-12.8. For skylights, install tempered glass on the outer layer and laminated safety glass on the interior layer of the IGU. For glass types and detail descriptions, refer to Appendix A "Building Materials". Provide glass type for skylight as per OBC requirements.
- .2 Spandrel glass to CAN/CGSB-12.9, Type 2, heat strengthened, Class A. For glass types and detail descriptions, refer to Appendix A "Building Materials"
- .3 Single pane glass:
 - .1 Comply with the following standards:
 - .1 Tempered or laminated safety glass: CAN/CGSB-12.1
 - .2 Clear float glass: CAN/CGSB-12.3
 - .3 Mirrors: ASTM C1503.
 - .2 For glass and detail descriptions, refer to Appendix A "Building Materials"

- .4 Fire Rated Glass:
 - .1 FireLite NT, fire-rated, safety-rated ceramic glass, as manufactured by TGP (Technical Glass Products)
 - .1 Impact safety-rated - meets ANSI Z97.1 and CPSC 16 CFR1201 (Cat. I and II)
 - .2 Surface grade: Premium
 - .3 ULc Rated: KCMZ7.R13377 - fire-protection-rated glazing materials certified for Canada
 - .4 ULc seal to be etched into glazing. Stickers are not acceptable.
 - .2 Glass to be fire rated for 60min or 90min. Refer to drawings "Fire Resistance Ratings and OBC Data Matrix" for required rating of the specific partition and/or frame.
- .5 For fire rated glass in exterior walls: FireLite IGU, 60min fire rated, fire/impact safety rated insulated ceramic glass unit. To be used in conjunction with FireFrames Curtainwall Series, 60min fire rated aluminium frames. Manufactured by Technical Glass Products (or approved equivalent).
- .6 Display Cases: provide 6mm tempered glass. Refer to Millwork elevations for size. Coordinate with hardware.

2.2 GLAZING AND SEALING COMPOUND MATERIALS

- .1 Glazing tape: preformed butyl tape, 10-15 durometer hardness, paper release, white colour, thickness and width as recommended by steel door and screen frame manufacturer.
- .2 Setting blocks: Neoprene, Shore "A" durometer hardness 70 - 80, 100 mm long x 6 mm high x width to suit glass thickness.
- .3 Spacer shims: Neoprene, Shore "A" durometer hardness 70-80, 75 mm long x 2.4 mm thick x 9 mm high.
- .4 Primers, sealers, and cleaners: to glass manufacturer's standard.

2.3 DECORATIVE FILM FOR GLAZING

- .1 At all interior and exterior full height, clear glazed, aluminum frames and pressed metal frames (excluding doors), provide:
 - .1 Opaque polyester, white film strips, with abrasion resistant coating and release liner, adhered to glazing surface on room side.
 - .2 Provide dashed pattern with 32mm x 75mm blocks separated by 25mm gaps.
 - .3 Install at 1350mm AFF.

2.4 BIRD FRIENDLY PATTERN

- .1 Provide Bird Friendly Pattern on glass on windows W3a, and W3b, AND where indicated on the drawings. Pattern to be acid etched on the outer side of the outer glass layer of the IGU. Pattern to be 4" offset pattern with 1/4" dots.

Part 3 Execution

3.1 EXAMINATION

- .1 Examine areas and conditions under which work is to be performed and notify the Consultant in writing of conditions detrimental to the proper and timely completion of the work.
- .2 Do not proceed with the work until unsatisfactory conditions have been corrected to the satisfaction of the installer.
- .3 Take field measurements to verify or supplement dimensions. Make necessary allowances for thermal movement as specified in Section 08 44 13 "Glazed Aluminum Curtain Wall".
- .4 Commencement of the installation will be construed as acceptance of the site conditions and, thereafter, the Contractor shall be fully responsible for satisfactory work as specified herein.

3.2 WORKMANSHIP

- .1 Remove protective coatings and clean contact surfaces with solvent and wipe dry.
- .2 Apply primer-sealer to contact surfaces.
- .3 Place setting blocks as per manufacturer's instructions.
- .4 Install glass, rest on setting blocks, ensure full contact and adhesion at perimeter.
- .5 Install removable stops, without displacing tape or sealant.
- .6 Provide edge clearance of 3 mm minimum.
- .7 Insert spacer shims to centre glass in space. Place shims at 600 mm (24") oc and keep 6 mm (1/4") below sight line.
- .8 Do not cut or abrade tempered, heat treated, or coated glass.

3.3 INSTALLATION: CURTAIN WALL - EXTERIOR AND INTERIOR GASKET SYSTEM

- .1 Install glass in accordance with the glazing manufacturer and curtain wall system manufacturer's instructions and in accordance with the relevant FGMA Glazing Manual.
- .2 Verify that openings for glazing are correctly sized and within required tolerances and that surfaces of glazing cavities are clean, free of obstructions and ready to receive glazing.
- .3 For gaskets, cut, fit and install frame gaskets for proper seal. Seal corners by butting gaskets and dabbing with sealant.
- .4 Place setting blocks at 1/4 points. Ensure support of both panes of glass in insulating glass units. Do not block drainage cavities.

- .5 Centre glass units in their openings, resting glass unit on setting blocks and pressing against gaskets for full contact.
- .6 Install pressure plates with gaskets or glazing tape as required. Ensure proper alignment of weep holes for drainage at base of glass unit. Ensure proper compression of gaskets or glazing tape. Seal ends of abutting pressure plates.
- .7 Install snap caps. Ensure proper alignment of weep holes for drainage from the underside of the cap.

3.4 INSTALLATION: INTERIOR WET/DRY METHOD (TAPE AND SEALANT)

- .1 Perform work in accordance with FGMA Glazing Manual.
- .2 Cut glazing tape to length and install against permanent stops, projecting 1.5 mm above the sight line.
- .3 Place setting blocks at 1/3 points, with the edge block maximum 150 mm from corners.
- .4 Rest the glazing on the setting blocks and push against the tape to ensure full contact at the perimeter of the light or unit.
- .5 Install removable stops, with spacer shims inserted between the glazing and applied stops at 600 mm intervals, 6 mm below the sight line.
- .6 Fill gaps between the light and the applied stop with sealant to a depth equal to the bite on the glazing, to a uniform and level line.
- .7 Trim the protruding tape edge.

3.5 GLAZING OF HOLLOW STEEL DOORS AND FRAMES AND WOOD DOORS

- .1 Hollow steel doors and frames and wood doors: Dry method - tape/tape as follows:
 - .1 Coordinate with Sections 08 11 13 and 08 14 16 as applicable.
 - .2 Cut glazing tape to length and install against permanent stop, project 1.5 mm above sightline.
 - .3 Place glazing tape on free perimeter of glass in same manner described above.
 - .4 Screw-fasten steel glazing stops in accordance with the manufacturer's instructions and nail, set, fill, and sand wood glazing stops.

3.6 FINISHING

- .1 Immediately remove sealant and compound droppings from finished surfaces. Remove labels after work is completed.
- .2 Make good damage to adjacent finished surfaces.

3.7 CLEANING

- .1 Upon completion of the work of this Section remove from the premises all surplus material, dirt and debris caused by the work.
- .2 Remove traces of primer and caulking.
- .3 Remove glazing materials from finish surfaces.

END OF SECTION