
PART 1 GENERAL

1.1 REFERENCE

- .1 Comply with the General Conditions of the Contract, Supplementary General Conditions and the requirements of Division 1.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- .1 Metal Doors and Frames Section 08100
- .2 Plastic Faced Wood Doors Section 08213
- .3 Aluminium Doors and Screens Section 08410
- .4 Glazed Curtain Wall - Glass Units Section 08900
- .5 Toilet and Bath Accessories Section 10800
- .6 Final Cleaning Section 01710

1.3 SCOPE OF WORK INCLUDED

- .1 The following description represents in general, the extent of work with the final determination of exact limits of such work shown on drawings.
- .2 Supply only of miscellaneous glass to Sections 08100, 08213 and 08410.
- .3 Supply and installation of mirrors to all washrooms

1.4 SUBMITTALS

- .1 Submit shop drawings and samples in accordance with Section 01340.
- .2 **Samples** : submit samples of all glass types. Provide samples of glass for mock up of curtainwall showing different types of glass. Include wet seals.
- .3 **Shop Drawings** : submit full size details showing each different glazing condition, show dimensions and all materials with complete notations.

1.5 WARRANTY

- .1 Provide a Warranty as stipulated in the General Conditions, but for an extended period of five [5] years from the date of final completion and acceptance of the Work. Warranty shall be signed by both manufacturer and installer.
- .2 This warranty shall cover sealed insulating glass units which shall remain free of fogging, dust or film formation on internal glass surfaces caused by seal failure. Replace at no extra cost to owner, sealed insulating glass units which have not met the above requirements.

1.6 MAINTENANCE MANUAL

- .1 **Data Manual** : Provide maintenance and cleaning instructions for glass and glazing. Advise of proper materials and methods of cleaning glass.
- .2 Provide triplicate set of printed maintenance instructions for inclusion in Data Manual as specified in Division 1.

1.7 QUALITY ASSURANCE

1. **Qualifications of Installers** : Provide at least one trade specialist who shall be thoroughly trained and experienced in skills required, be completely familiar with referenced standards and requirements of this work, and personally direct installation performed under this Section.
2. **Quality Control** : Glass Distortion and Colour
Glass shall be as distortion free as possible. Accepted glass units from the mock - up on site shall be the control for the maximum permissible distortion and colour range. Units showing unacceptable distortion and colour shall be rejected. Units considered as border line distortion and colour will be permitted but shall be installed as directed by consultant.

1.8 JOB CONDITIONS

1. **Environmental Requirements** : No glazing shall be done when temperature is less than 7 degrees C or sash of frames are wet, damp or frosted.
2. **Glazing Compounds** : shall be delivered to the job in the original sealed containers. The contents shall be thoroughly mixed in an approved manner recommended by the manufacturer, without the use of thinners. Glazing shall be done at temperatures exceeding 4 degrees C.
3. **Protection** : Protect work of other trades from damage resulting from work under this section. Identify glazed openings immediately following glass installation. Use coloured tapes or flags suspended near, but not in contact with glass. Attach to frames or surround with suitable non staining stripable adhesives or tapes.

1.9 DESIGN

1. Design glass and glazing to meet requirements listed in Aluminum Entrances and Screens, Curtainwall as applicable.

2. **Performance Criteria for Thermal Insulating Units**
Type 1 :

Heat Absorbing Green and Clear Low ' E ' Thermal insulating Glass

1. Winter night time U value of sealed unit; in accordance with ASHRAE manual testing criteria, 0.32 W/m²/deg.C maximum; summer daytime (sun), 0.36 W/m²/deg. C.
2. Shading Coefficient maximum 0.43.
3. Daylight Transmittance of sealed unit; 61 % minimum.
4. Visible light reflectance; outdoor 12 %, Indoor 15 %.

PART 2 PRODUCTS

2.1 MATERIALS: GLAZING

General : all glass shall bear manufacturer's labels, indicating quality. Labels shall be left in place until final cleaning. In other locations where glass is shown, provide sheet glass of weights or thicknesses up to a maximum perimeter dimensions or area as shown in the OBI and conforming to CAN2-12.2-M76. Temper glass as indicated on drawings.

1. **Tempered Float Glass :** (PPG), Clear, 6 mm min. (½") thick and conforming to CAN2-12.3-M76, Glazing Quality. Note Overhead Sectional Garage Doors have clear float glass and top panel tinted green to match type 2 thermal glass specified below.
2. **Tempered Glass :** 6 mm min. clear plate or float glass Herculite by Canadian Pittsburgh Industries Ltd. or equal conforming to CAN2-12.1-M76.
3. **Polished Georgian Wired Glass (GW-P) :** 6 mm min. thick polished Georgian wired glass 2 sides, type 1, Style 3, to CAN2-12.11-M76 with 1/2" square mesh.
Cast Georgian Wired Glass (GW-C) : Cast Georgian wired glass to CAN2-12.11-M76 with 1/2" square mesh.
4. **Mirrors :** Silvering quality, 5 mm min. polished, plate glass with ground and polished edges conforming to CAN2-12.5-M76 Type 1B. To dimensions indicated. Polished U clips screwed to wall.
5. **Typical Thermal Insulating Glass Units Type GL1A:**
(Upper North and East Exposure)
Factory sealed glazing units as shown. 6mm Evergreen heat strengthened (ext), Krypton Gas between the spacer, film TC88, Krypton Gas between the spacer, 6mm clear heat strengthened

(int) overall thickness 1.25". Acceptable product Eco Insulating Glass Inc. Contact Sharon Bogart 905-564-8235.

6. **Typical Thermal Insulating Glass Units Type GL2A**
(Lower North and East Exposure)
Factory sealed glazing units as shown. 6mm Solex green heat strengthened (ext), Krypton gas between spacer, film TC88, Krypton gas between spacer, 6mm clear heat strengthened (int) overall thickness 1.25". Acceptable product Eco Insulating Glass Inc. Contact Sharon Bogart 905-564-8235.
7. **Typical Thermal Insulating Glass Units Type GL1B**
(Upper West and South Exposure)
Note tint applies to garage door top panels.
Factory sealed glazing units as shown. 6mm evergreen heat strengthened (ext), Krypton gas between spacer, film SC75, Krypton gas between spacer, 6mm clear heat strengthened (int) overall thickness 1.25". Acceptable product Eco Insulating Glass Inc. Contact Sharon Bogart 905-564-8235.
8. **Typical Thermal Insulating Glass Units Type GL2B**
(Lower West and South Exposure)
Factory sealed glazing units as shown. 6mm solex heat strengthened (ext), Krypton gas between spacer, film SC75, Krypton gas between spacer, 6mm clear heat strengthened (int) overall thickness 1.25". Acceptable product Eco Insulating Glass Inc. Contact Sharon Bogart 905-564-8235.
9. **Spandrel Dark Green Single Glazed Units Type 3:** 6 mm min. thick heat strengthened spandrel glass with "Opaci-Coat"; colour to be "Harmony Solex 2-743". Locations as shown on drawing. All units to be safety glass.
10. **FRP Panels :** for bottom panels of all overhead sectional aluminum doors. Bottom sections to have solid panels that consist of textured fiberglass reinforced panels laminated on the inside and outside of waterproof sheets to create a maximum thickness of 13 mm (½"). Contact Auralite Panel Products at 416-259-9625 for FRP Panels. Sample of product to be approved by Architect.
11. **Window Film :**
Madico Type MT200W window film to be supplied and installed to interior side of doors indicated on the door schedule.

2.2 GLAZING ACCESSORIES

- .1 **Spacer Shims for Glazing :** 40-50 durometer neoprene, cured silicon or EPDM, channel shaped, 3" or 4" long.
- .2 **Setting Blocks :** 5/16" x 4" soft lead or extruded 70-90 durometer neoprene. At fire rated glazed doors and partitions, use similar sized asbestos cement blocks.

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- .3 **Pressure Sensitive Foamed Plastic Tape** : Tesamoll supplied by Casselman Co. Ltd. Toronto.
 - .4 **Glazing Splines** : EPDM with Shore A dual durometer of 60, + - 5 and 40, by Tremco or equal.
 - .5 **Preshim Glazing Tape** : Preformed, 100 % solids polyisobutylenebutyl, paper release, EPDM shim pad. Acceptable product shall be Polyshim by Tremco PTI 606.
 - .6 **Glazing Tapes** : Preformed, 100 % solids polyisobutylene butyl, paper release. Acceptable product shall be 440 Tape (interior only) by Tremco or equal.
 - .7 **Glazing Compound** : Tremglaze for internal steel frames, mastic glazing compound, grey knife grade consistency manufactured by Tremco. Ensure that aluminum frames do not come in direct contact with steel frame.
 - .8 **Structural Silicone Compound** : Proglaze, moisture curing, one part silicone elastomeric sealant by Tremco or equal.

PART 3 EXECUTION

3.1 EXAMINATION

- .1 Prior to installation, examine openings and frames by other trades into which glass is to be installed. Notify consultant of conditions which prevent proper installation of work of this section. Job check dimensions prior to cutting of glass.

3.2 LOCATION

- ____.1 Refer to Door Schedule and Drawings for location of glass and glazing of this Section, unless specifically noted.
- .2 Where fire rated doors occur with glazing, glass to be 6 mm Georgian wired, polished or cast as noted.
- .3 Interior Screens : where noted, Polished/cast/clear tempered plate as located by door / frame / screen schedule and drawings.

3.3 PREPARATION

- ____.1 Ensure that all openings and stops to be painted are primed before commencing work. Prepare surrounds in accordance with requirements of Part II of Glazing and Sealing Systems Manual - 1970 by Flat Glass Marketing Association.

3.4 FABRICATION

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- _____.1 **General** : Label each light of glass with registered name of product, weight and quality of glass.
- .2 **Factory Sealed Double Glass Units**
- .1 Fabricate units to requirements of CAN2-12.8-M76. Maintain separation of panes with non corrosive desiccant filled metal spacer core having welded corners. Dehydrate air space and hermetically seal inner and outer panes at periphery with flexible sealer. Glass substrate to secondary seal shall be prepared as specified and as required by silicone sealant manufacturer.
- .2 Metal spacer core shall be straight and evenly set into glass units, a maximum variation in line of spacer core of plus or minus 3/32" shall be maintained and the primary sealant shall not exceed past the inside edge of the spacer core by more than 1/16".
- .3 Insulating Glass Units shall be manufactured to conform to IGMAC recommendations and the manufacturer shall be a member of IGMAC.

3.5 INSTALLATION

- _____.1 Install lights using sealing tapes, setting blocks beneath spacer shims between face of glass and stops, at interior and exterior face of glass in accordance with part V, Glazing and Sealing Systems Manual.
- .2 Set glass in accordance with Glazing and Sealing Manual for reference to setting methods for single glass conditions.
- .3 Cut individual lights of glass less than measured opening into which glass will fit, within clearances, cover dimensions and tolerances given under Glazing Details of Glazing Manual - 1980 by Flat Glass Marketing Association.
- .4 Glaze insulated glass panels in accordance with requirements of The Insulating Glass Manufacturer's Association of Canada.
- .5 Perform all glazing required in Building - supply glass to other sections as required (except 08900).
- .6 Set wired glass so that horizontal wires are level and vertical wires are perpendicular.
- .7 Responsibility for broken glass due to improper setting shall be under this section, except where noted otherwise.
- .8 Damage to work of this section attributable to work under separate sections shall be corrected by this section. Cost

shall be borne by Contractor and / or section to whom damage is attributable.

- .9 All work to be glazed shall be permanently fixed in position under separate section.
- .10 Perform glazing at temperatures recommended by manufacturer of glazing materials.
- .11 Locate and install setting blocks and spacers according to glass manufacturer's directions. Center and space piece of glass on premoulded neoprene rubber setting blocks. Use spacers of size to accurately fit each thickness of glass.
- .12 Mark each lite of glass to indicate presence of glass.
- .13 Clean glass and metal surfaces to present clean, dry, grease and oil free surfaces to receive glazing tapes, gaskets, seals and continuous heel or toe beads.

3.6 INSTALLATION: INTERIOR GLAZING

- _____.1 Remove metal stops from frames, clean and place setting blocks and spacers into position.
- .2 Install glass in aluminum screens using glazing gaskets held in place with stops.
- .3 Precut glazing gaskets in 4 sections for each side of glazed opening. Butt corners of glazing gasket.
- .4 Securely replace metal stops.
- .5 At butt glazing clean edges of glass with solvent saturated cloth and then dry with lint free towel. Apply silicone sealant in continuous bead and dry tool both faces of joint. Joint depth to maintain an equal joint to depth ratio, but is not to exceed 3/8".
- .6 Set glass in silicone sealant.

3.7 INSTALLATION: MIRRORS

- _____.1 Provide and install mirrors over full length of vanities and to a height as shown on drawings in all washrooms - one or two equal pieces maximum.
- .2 Provide two sided mastic tape at 12" o.c. both ways to back of mirrors and around perimeter of mirror edge of each mirror. Allow air circulation between mirror backing and concrete block.

.3 Secure mirror using concealed metal clips in positions as located on drawings. Clips shall support all four sides of mirror.

.4 Cut all holes in mirrors necessary for installation of washroom equipment.

3.8 INSTALLATION: MISCELLANEOUS ITEMS

.1 Glaze interior aluminum doors and entrances screens using Setting No. 40, consisting of prethreaded gaskets both sides. At exterior doors, use similar system but with wet air/vapour seal.

.2 Glaze fixed interior glass panels in wood doors using Setting No. 4, consisting of PVC or rubber surround.

.3 Glaze steel, aluminum doors, frames and screens using Setting No. 31, consisting of glazing compound both sides.

3.3 CLEANING

.1 Final cleaning in accordance with Division 1

.2 As work progresses, clean all glass, including mirrors and fittings. Remove all setting compounds from adjacent surfaces. Remove all finger and hand prints. Perform window washing as necessary to maintain glass and frames free from dust and contaminates.

END OF SECTION