R.W. Tomlinson – New Head Office

TAL-CO Building Innovations
1341-2 Coker Street
Greely, Ontario K4P 1A1
Tel: 613-821-3959
Fax: 613-821-2938

Issue date: 20-Sep-16
Revision date: N/A
Revision #: N/A

Clarification #8

The following modifications and clarifications are to be accounted for when tendering on this potential contract. As well, when entering into the Form of Agreement to do the work, they shall become a part thereof.

Instruction/Clarifications:

1. Revised Glass Glazing Specifications (REV03, Section 08 81 00) have been issued.

Receipt of this Clarification shall be acknowledged on your tender submission. Failure to do so may result in the rejection of your tender submission.

For questions or further information, please contact the office by e-mail at, info@tal-co.com.

End of Clarification #8

Part 1 General

1.01 RELATED SECTIONS

.1 Section 07 92 10 - Joint Sealants.

.2 Section 05 73 10 - Glazed Guardrail System.

.3 Section 08 11 00 - Metal Doors and Frames.

.4 Section 08 11 16 - Aluminum Doors and Frames.

.5 Section 08 14 16 - Flush Wood Doors.

.6 Section 08 44 13 - Glazed Aluminum Curtain Walls.

1.02 REFERENCES

.1 American National Standards Institute (ANSI).

.1 ANSI Z97.1-2015. Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test.

.2 American Society for Testing and Materials International (ASTM).

.1 ASTM C542-05(2011). Standard Specification for Lock-Strip Gaskets.

.2 ASTM C1048-12e1. Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass.

.3 ASTM C1503-08(2013). Standard Specification for Silvered Flat Glass Mirror.

.4 ASTM D638-14. Standard Test Method for Tensile Properties of Plastics.

.5 ASTM D648-16.Standard Test Method for Deflection Temperature of Plastics Under Flexural Load in the Edgewise Position.

.6 ASTM D790-15e2. Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.

.7 ASTM D792-13. Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement.

.8 ASTM D2240-15. Standard Test Method for Rubber Property-Durometer Hardness.

.9 ASTM D5026-15. Standard Test Method for Plastics: Dynamic Mechanical Properties: In Tension.

.10 ASTM E1300-12ae1. Standard Practice for Determining Load Resistance of Glass in Buildings.

.3 Underwriters' Laboratories of Canada (ULC).

.1 CAN/ULC-S101-14. Standard Methods of Fire Endurance Tests of Building Construction and Materials.

.2 CAN/ULC-S104-15. Standard Method for Fire Tests of Door Assemblies.

.4 Glass Association of North American (GANA).

.1 GANA Glazing Manual - 50th Anniversary edition 2008.

.2 GANA Laminated Glazing Reference Manual - 2009.

.3 GANA Sealant Manual - 2008.

.5 Insulating Glass Manufacturers Alliance (IGMA).

.1 IGCC-IGMA Certification Program Manual.

1.03 PERFORMANCE REQUIREMENTS

.1 Provide glass and glazing materials to maintain the continuity of building vapour and air barrier:

.1 Utilize the inner pane of multiple pane sealed units for the continuity of the air barrier and vapour barrier seal. Maintain a continuous air barrier and vapour barrier throughout the glazed assembly from glass pane to heel bead of glazing sealant.

.2 Size glass thicknesses to withstand dead loads and positive and negative live loads acting normal to plane of glass as calculated in accordance with NBC.

.3 Provide glass components and systems capable of withstanding normal thermal movements, wind loads and impact loads, without failure, including loss due to ineffective manufacture, fabrication and installation, deterioration of glazing materials and other defects in construction.

.4 Provide glass thickness and strengths (laminated or tempered) required to meet or exceed the following criteria based on project loads and in-service conditions per ASTM E1300.

.1 Minimum thickness of tempered or laminated products is selected, so that worst-case probability of failure does not exceed 85 breaks per thousand for any glass installed vertically or within 15 degrees of vertical under normal interior loads.

.5 Design glass thickness and glass unit dimensions to limits established in ASTM E1300. Limit glass deflection to 1/200 or flexural limit of glass with full recovery of glazing materials, whichever is less.

.6 Utilize design software as endorsed by GANA to perform design calculations in accordance with ASTM E1300.

.7 Provide fire rated glass and glazing materials to meet the specified fire protection rating. Test products in strict conformance with CAN/ULC-S104 and list by nationally recognized agency having factory inspection service. Construct as detailed in Follow-Up Service Procedures/Factory Inspection Manuals issued by listing agency to individual manufacturers.

1.04 SUBMITTALS

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

.2 Submit product data sheets for each Glass Type, gasket, accessory and sealant.

.1 For each Glass Type: provide structural, physical and environmental characteristics, size limitations, special handling or installation requirements.

.2 For each glazing compound: provide chemical, functional, and environmental characteristics, limitations, special application requirements. Identify available colours.

.3 Include product characteristics, performance criteria, physical size, finish and limitations.

.3 Submit manufacturer's installation / application instructions for each product.

.4 Submit list of adhesives and sealants showing compliance with VOC and chemical component limits or restrictions requirements.

.5 Submit 2 copies of WHMIS MSDS - Material Safety Data Sheets. Indicate VOC for each product. Indicate VOC's during application and curing.

.6 Submit shop drawings:

.1 Indicate each Glass Type including locations. Provide scaled elevations for each location. Indicate glass thicknesses, sizes and profiles. Indicate stops, trim and junctions with adjacent construction.

.2 Indicate method of installation and glazing, support details and number of anchors, supports, reinforcement and accessories. Indicate location of caulking.

.3 Indicate dimensions, opening requirements and tolerances, clearance to adjacent construction, anticipated flex and deflection under load, affected related Work, expansion and contraction joint location and details.

.4 Indicate design requirements for glazing including: thickness, attachment, deflection, seismic, wind, and thermal movement. Provide glass design stamped by Professional Engineer licensed to practice in the Province of Ontario.

.5 Indicate assembly details and dimensions of fabrication.

.6 Indicate installation details and sequencing. Indicate method of glass installation. Indicate location and method of sealing glass to frame components.

.7 Submit duplicate 300 x 300 mm sample panels of each Glass Type. Submit for review and acceptance of each Glass Type.

.1 Indicate finish for each Glass Type. Describe coatings and special finishes.

.2 Where Glass Types are required in multiple thicknesses, submit samples of each Type in each specified thickness.

.3 Submit 300 x 300 samples of sealed unit assemblies.

.4 Coloured Glass Types:

.1 Submit samples including full range of available colours.

.2 Indicate each paint coating including colour range, paint type and appearance.

.5 Interlayer: Submit duplicate 300 x 300 mm sample of each type of interlayer. Submit one sample of each type and style of film specified. Submit test reports from approved independent testing laboratory, certifying film's compliance with specified requirements.

.6 Submit 300 mm long samples of each glazing gasket, glazing tape, backer rod, bond breaker, and cured sample of sealant material.

.8 Submit compatibility and adhesion test reports from sealant manufacturer, indicating materials were tested for compatibility and adhesion with glazing sealant, as well as other glazing materials including insulating units.

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

.10 Test Reports: submit certified test reports showing compliance with specified performance characteristics and physical properties. Submit testing and analysis of each glass Type. Submit shop inspection and testing criteria for each glass type.

.11 Fire Rated Glass: Submit test and engineering data. Submit statement of conformance that the glass comply with specified requirements.

.1 Submit independent test data from an accredited testing laboratory approved by the Consultant indicating compliance with the specified Fire Rating requirements. Include a summary sheet outlining the following:

.1 Description of the test performed.

.2 Table of test results by glass type.

1.05 CLOSEOUT SUBMITTALS

.1 Submit operation and maintenance data for glazing for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.06 QUALITY ASSURANCE

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

.2 Perform Work in accordance with GANA Glazing Manual, GANA Sealant Manual, GANA Laminated Glazing Reference Manual and IGMA for glazing installation methods. Maintain one 1 copy on site.

.3 Provide sealed units certified to IGMA Certification Program Manual.

.4 Installer Qualifications: Company specializing in performing the work of this section with minimum three years documented experience. Provide written documentation to Consultant listing projects and degree of involvement.

.5 Convene pre-installation meeting one month prior to beginning work of this Section or any on-site preparation or application. Glass and Glazing contractor, Consultant and General Contractor will review the following:

- .1 Verify project requirements.
- .2 Submission of samples and product data.
- .3 Review installation and substrate conditions.
- .4 Co-ordination with other building sub-trades.
- .5 Review manufacturer's installation instructions and warranty requirements.
- .6 Preparation of Mock-Ups.

.6 Arrange for site visit with Consultant prior to start of Work to examine existing site conditions.

1.07 MOCK-UPS

.1 Construct Mock-Ups in accordance with Section 01 45 00 - Quality Control.

.2 Provide Glass and Glazing materials for Mock-Ups as specified in other sections where Glass materials are included as part of a Mock-Up.

1.08 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 glazing and frames from nicks, scratches, and blemishes.
- .3 Replace defective or damaged materials with new.

.4 Develop Construction Waste Management Plan in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal. Remove for reuse and return to manufacturer all pallets, crates, padding, packaging materials as specified in Construction Waste Management Plan in accordance with Section 01 74 21.

1.09 AMBIENT CONDITIONS

.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

2.01 GLASS TYPES

.1 **Type TG:** Tempered glass. Clear float glass. Single pane. Thickness: 6 mm or 12 mm and as indicated in the drawings and schedules. Provide other thicknesses as required to meet glass design loads in accordance with ASTM E1300.

.1 Tempered. Comply with ASTM C1048 and ANSI Z97.1. Category II impact test. Process in horizontal position so that inherent roller distortion will run parallel to building floor lines after installation.

.2 **Type FG:** 1 Hour fire rated, impact safety rated glazing. Colourless, wireless, optically clear and free from distortion. Laminated, fire rated, safety glass: composed of multiple layers of colourless, wireless, low-iron, float glass and clear intumescent interlayers to achieve a 1 hour fire rating when tested in accordance with CAN/ULC-S104 and CAN/ULC-S101. Glazing to provide smoke and flame barrier and protection against radiant and conductive heat transfer with limited temperature rise on the unexposed face. Test glass to meet specified fire rating. Properties as follows:

.1 Impact Safety rated: tempered glass to ASTM C1048 and ANSI Z97.1. Category I and II impact rating.

.2 Thickness: 23 mm.

.3 Weight: 55.2 kg per square meter.

.4 U Value: 0.83.

.5 Daylight transmission: 87%.

.6 STC Rating: 41 dB.

.7 Labeling: each pane of Fire Rated Glass to bear a permanent, non-removable label of Underwriters Laboratories and/or Intertek Testing Services (Warnock-Hersey) certifying it for use in tested and rated fire protective assemblies.

.8 Bite: minimum allowable bite 12.7 mm.

.9 Provide fire rated glazing accessories for installation of fire rated glass.

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

.2 Setting Blocks: calcium silicate; match the glass thickness by 100 mm long x 5 mm thick.

.3 Spacers: neoprene or other resilient blocks of 40 to 50 Shore A durometer hardness, adhesive-backed on one face only, tested for compatibility with specified glazing compound.

.4 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.

.3 **Type TL:** 17.52 mm clear Tempered, laminated safety glass. 2 layers of 8.0 mm clear float glass with interlayer. Fully tempered to ASTM C1048 and ANSI Z97.1. Category II impact test. Kind: FT. Quality Q3. Process in horizontal position so that inherent roller distortion will run parallel to building floor lines after installation.

.1 Edge treatment: all edges bevelled and polished on both sides prior to tempering where they will be exposed in the final assembly. 2 mm bevel unless otherwise indicated.

.2 Laminate glass by manufacturer's standard heat and pressure process.

.3 Interlayer: stiff, advanced polymer. Architectural safety glass interlayer. Properties as follows:

.1 Thickness: 1.52 mm.

.2 Color: clear.

.3 Young's modulus: to ASTM D5026: 43kspi.

.4 Tensile strength: to ASTM D638: 5 kpsi.

.5 Elongation: to ASTM D638: 400 %.

.6 Density: to ASTM D792: 0.95 g per cubic cm.

.7 Flex modulus: to ASTM D790: 50 kpsi at 23 degrees C.

.8 Heat deflection temperature to ASTM D648: 0.46 MPa at 110 degrees F.

.9 Melting point: 94 degrees C.

.10 Weathering durability: excellent weathering characteristics. No delamination, edge cloud or undesired changes in haze or YID when subjected to weathering conditions including the following:

.1 Outdoor natural weathering in Florida: hot and humid 180 month exposure.

.2 Outdoor accelerated weathering in Arizona: harsh, dry, very high level of solar irradiance. 96 month equivalent exposure (960 kilolangleys) to EMMA test method.

.3 Laboratory accelerated weathering: high radiation, light and dark cycles. 60 month equivalent exposure.

.11 Standard of Acceptance: DuPont SentryGlas Ionoplast.

.4 **Type GV Option 1:** Double Glazed, hermetically sealed unit. 25 mm overall thickness. Tempered exterior pane. Composed as follows:

.1 Exterior pane: 6 mm thick, solar control, Low E glass. Neutral reflective. Properties as follows when installed in a sealed panel:

.1 UV light transmittance: 12 %.

.2 Visible light transmittance: 42 %.

.3 Visible light reflectance: 32 % exterior. 14 % interior.

.4 U value: 1.6.

.5 Shading coefficient: 0.27.

.6 Solar Heat Gain Co-efficient: 0.23.

.7 Light to Solar Gain: 1.83.

.8 Low E coating: surface 2.

.9 Acceptable Material: PPG Solarban R100.

.10 Tempered. Comply with ASTM C1048 and ANSI Z97.1. Category II impact test. Process in horizontal position so that inherent roller distortion will run parallel to building floor lines after installation.

.2 Inter-cavity space thickness: 12.5 mm between panes. Argon filled.

.3 Spacer: edge tech, low conductive spacer. Thickness as required to create specified cavity.

.4 Interior: 6 mm thick, clear float glass.

.5 **Type GV Option 2:** Double Glazed, hermetically sealed unit. 25 mm overall thickness. Tempered both panes. Composed as follows:

.1 Exterior pane: 6 mm thick, solar control, Low E glass. Neutral reflective. Properties as follows when installed in a sealed panel:

.1 UV light transmittance: 12 %.

.2 Visible light transmittance: 42 %.

.3 Visible light reflectance: 32 % exterior. 14 % interior.

.4 U value: 1.6.

.5 Shading coefficient: 0.27.

.6 Solar Heat Gain Co-efficient: 0.23.

.7 Light to Solar Gain: 1.83.

.8 Low E coating: surface 2.

.9 Acceptable Material: PPG Solarban R100.

.10 Tempered. Comply with ASTM C1048 and ANSI Z97.1. Category II impact test. Process in horizontal position so that inherent roller distortion will run parallel to building floor lines after installation.

.2 Inter-cavity space thickness: 12.5 mm between panes. Argon filled.

.3 Spacer: edge tech, low conductive spacer. Thickness as required to create specified cavity.

.4 Interior: 6 mm thick, clear float glass. Tempered. Comply with ASTM C1048 and ANSI Z97.1. Category II impact test. Process in horizontal position so that inherent roller distortion will run parallel to building floor lines after installation.

.6 **Type GV Option 3:** Double Glazed, hermetically sealed unit. 25 mm overall thickness. Tempered interior pane. Composed as follows:

.1 Exterior pane: 6 mm thick, solar control, Low E glass. Neutral reflective. Properties as follows when installed in a sealed panel:

.1 UV light transmittance: 12 %.

.2 Visible light transmittance: 42 %.

.3 Visible light reflectance: 32 % exterior. 14 % interior.

.4 U value: 1.6.

.5 Shading coefficient: 0.27.

.6 Solar Heat Gain Co-efficient: 0.23.

.7 Light to Solar Gain: 1.83.

.8 Low E coating: surface 2.

.9 Acceptable Material: PPG Solarban R100.

.2 Inter-cavity space thickness: 12.5 mm between panes. Argon filled.

.3 Spacer: edge tech, low conductive spacer. Thickness as required to create specified cavity.

.4 Interior: 6 mm thick, clear float glass. Tempered. Comply with ASTM C1048 and ANSI Z97.1. Category II impact test. Process in horizontal position so that inherent roller distortion will run parallel to building floor lines after installation.

.7 **Type GS:** Double Glazed, hermetically sealed unit. 25 mm overall thickness. Composed as follows:

.1 Exterior pane: 6 mm thick, solar control, Low E glass. Neutral reflective. Properties as follows when installed in a sealed panel:

.1 UV light transmittance: 12 %.

.2 Visible light transmittance: 42 %.

.3 Visible light reflectance: 32 % exterior. 14 % interior.

.4 U value: 1.6.

.5 Shading coefficient: 0.27.

.6 Solar Heat Gain Co-efficient: 0.23.

.7 Light to Solar Gain: 1.83.

.8 Low E coating: surface 2.

.9 Acceptable Material: PPG Solarban R100.

.2 Inter-cavity space thickness: 12.5 mm between panes. Argon filled.

.3 Spacer: edge tech, low conductive spacer. Thickness as required to create specified cavity.

.4 Interior: 6 mm thick, spandrel glass. Heat strengthened float glass to ASTM C1048. Kind: HS, (Heat strengthened). Type I, Condition A - uncoated, Class 1 - Clear. Quality Q3. Back painted with opaque or slightly translucent coloured, ceramic coating, fired on the rear face. Color selected by Consultant from full and extended range of RAL colours.

.8 **Type MI:** Silvered mirror glass to ASTM C1503. 6 mm thick. Mirror Glazing quality. Polished float glass. Mirror backing resistant to sulphur and hydrogen sulphide fumes.

.1 Apply layer of mirror backing film to back face.

2.02 GLAZING FILMS

.1 Mirror backing film. Composite of tough, specialty polyolefin film laminated to a bi-directional, woven, polyolefin material. Designed to provide superior impact resistance and dimensional stability. Meet Category II mirror shatter-proofing requirements when tested to ASNI Z-97.1 for both vision and tape sides. High performance acrylic adhesive designed for excellent adhesion to mirror backing paints. Excellent performance, durability, and safety when applied as a backing on silvered float glass mirrors or back painted float glass. Excellent temperature performance and humidity resistance.

.1 Technical properties:

.1 Total Thickness: 7.5 mils.

.2 Carrier membrane thickness: 6.5 mils.

.3 Adhesive thickness: 1.0 mils.

.4 Peel adhesion: 18.2 N/25 mm. Shear Strength: greater than 168 hours.

2.03 ACCESSORIES

.1 Setting blocks: neoprene or EPDM or silicone, 80-90 Shore A durometer hardness to ASTM D2240. To suit glazing method, glass light weight and area. Length of 25 mm for each square meter of glazing. Minimum 100 mm x width of glazing rabbet space minus 1.5 mm x height.

.2 Spacer shims: neoprene or silicone, 50-60 Shore A durometer hardness to ASTM D2240. 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 D2240. Coiled on release paper. Black colour.

.2 Closed cell polyvinyl chloride foam, coiled on release paper over adhesive on two sides, maximum water absorption by volume 2 %, designed for compression of 25 %.

.4 Glazing splines: resilient polyvinyl chloride or silicone, extruded shape to suit glazing channel retaining slot, colour as selected.

.5 Lock-strip gaskets: to ASTM C542.

.6 Mirror attachment accessories:

.1 Stainless steel clips.

.2 Mirror adhesive, chemically compatible with mirror coating and wall substrate.

2.04 FABRICATION

.1 Fabricate glass and other glazing products in sizes required to glaze openings indicated, with edge and face clearances, edge and surface conditions, and bite complying with recommendations of product manufacturer and referenced glazing standard as required to comply with system performance requirements.

.2 Glass Identification. Apply manufacturer's label indicating type and thickness to each light of glass. Show position of exterior face when installed, where applicable.

.1 Etch manufacturer's label on each light of tempered or laminated glass.

Part 3 Execution

3.01 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 Consultant.

.4 Inform Consultant 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 Consultant.

3.02 PREPARATION

.1 Clean contact surfaces with solvent and wipe dry.

.2 Seal porous glazing channels or recesses with substrate compatible primer or sealer. Prime surfaces scheduled to receive sealant.

3.03 INSTALLATION: EXTERIOR - DRY METHOD (PREFORMED GLAZING)

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

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

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

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

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

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

.7 Trim protruding tape edge.

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

.1 Perform work in accordance with [GANA Glazing Manual, 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 or 1/3 points, with edge block maximum 150 mm from corners.

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

.6 Install removable stops with spacer strips inserted between glazing and applied stops 6 mm below sight line. Place glazing tape on glazing light or unit with tape flush with 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.

3.05 INSTALLATION: EXTERIOR - WET METHOD (SEALANT AND SEALANT)

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

.2 Place setting blocks at 1/4 or 1/3 points and install glazing light or unit.

.3 Install removable stops with glazing centred in space by inserting spacer shims both sides at 600 mm intervals, 6 mm below sight line.

.4 Fill gaps between glazing and stops with sealant to depth of bite on glazing, maximum 9 mm below sight line to ensure full contact with glazing and continue air and vapour seal.

.5 Apply sealant to uniform line, flush with sight line. Tool or wipe sealant surface smooth.

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

.1 Perform work in accordance with GANA Glazing Manual, 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.

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

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

.2 Cut glazing tape to length and install 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 to ensure full contact at perimeter of light or unit.

.5 Install removable stops, with spacer shims inserted between glazing and applied stops at 600 mm intervals, 6 mm below sight line.

.6 Fill gaps between light and applied stop with sealant to depth equal to bite on glazing, to uniform and level line.

.7 Trim protruding tape edge.

3.08 CLEANING

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

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

.1 Remove traces of primer, caulking. Remove glazing materials from finish surfaces.

.2 Remove labels.

.3 Clean glass and mirrors using approved non-abrasive cleaner in accordance with manufacturer's instructions.

.3 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment.

3.09 PROTECTION

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

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

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

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

3.010 SCHEDULE

.1 Provide Glass types for installation as follows

.1 Glazed openings in Fire Rated metal or Fire Rated wood doors: **Type FG.**

.2 Glazed openings in Non Fire Rated metal or Non Fire Rated wood doors: **Type TG.**

.3 Glazed openings in Fire Rated or Non Fire Rated wood frames including sidelights and transom panels: **Type TG.**

.4 Curtain Wall system Ground floor:

.1 Where glass panels are located within 850 mm of the floor level at the interior: **Type GV Option 2:** Tempered both interior and exterior panes.

.2 Remainder of glass panels at ground floor: **Type GV Option1:** Tempered exterior pane.

.5 Curtain Wall system Second floor:

.1 **Type GV Option 1:** Tempered exterior pane.

.6 Curtain Wall system Third and Fourth floor: **Type GV Option 3.** Tempered interior pane.

.7 Curtain Wall system Spandrel panels: **Type GS.**

.8 Interior Glazed Guardrails: **Type TL.**

.9 Aluminum Doors and Frames:

.1 Exterior (installed in Curtain Wall system): **Type GV Option 2.** Tempered both interior and exterior panes.

.2 Interior: **Type TG.**

.10 Non Framed mirrors: **Type MI.**

END OF SECTION