1. GENERAL

1.1 General Requirements

.1 This Section includes glazing Work not specified in other Sections. Refer to other Sections for other glazing.

1.2 Submittals

.1 Provide samples of materials as requested. Label samples with manufacturer's name, with registered name of product, weight, and quality of glazing material.

.2 Provide maintenance data of glass and glazing system used in this Project including cleaning instructions for incorporation into manual.

1.3 Quality Assurance

.1 Perform Work in accordance with recommendations of Glazing Association of North America (GANA). Size glass to Code requirements and verify that openings for glazing are correctly sized and within tolerance.

.2 Glass Lites: Float, tempered, laminated or heat strengthened and in thicknesses in accordance with requirements of glass manufacturer as substantiated by the glass manufacturer's stress analysis for each location required, unless otherwise indicated.

.3 Design Conditions: Conforming to requirements of Division 8 Sections Curtain Wall and Entrances.

.4 Use a safety factor of 2.5:1 minimum for glass design.

1.4 Environmental 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.

1.5 Warranty

.1 Submit a 10 year warranty from Total Performance, against defects in the insulating glass units and warrant them to be free from material obstruction of vision as a result of dust or film formation on the internal glass surfaces by any cause, under design conditions, other than extrinsic glass breakage, but including breakage due to thermal shock and temperature differential due to inherent glass faults.

.1 The glass coatings will not discolour, oxidize, delaminate, or have scratches and pinholes and shall be uniform in thickness and uniform in colour throughout each glass unit and from glass unit to glass unit.

.2 Insulating glass units will be free from condensation, fogging material obstruction of vision as a result of dust or film formation on the internal glass surfaces by any cause under normal conditions.

.3 The insulating glass units will not change their mechanical design properties and shall not in any way deteriorate, degrade, delaminate or change their visual appearance.

2. PRODUCTS

2.1 Materials

.1 Float Glass: CAN/CGSB-12.3, clear, glazing quality, minimum 6 mm (1/4") thick.

.2 Tempered Safety Glass: CAN/CGSB-12.1 Type 2, Class B, minimum 6 mm(1/4”) thick, heat treated using the horizontal tong free method, with roll-wave distortion parallel to bottom edge of glass as installed.

.3 Heat Strengthened Glass: ASTM C1048 Type HS, minimum 6 mm (1/4”) thick, heat treated using the horizontal tong free method, with roll-wave distortion parallel to bottom edge of glass as installed.

.4 Laminated Safety Glass: CAN/CGSB-12.1, Type 1, Class B, fabricated with minimum 1.6 mm clear polyvinylbutyral interlayer between 2 lites of minimum 3 mm (1/8”) thick glass, minimum overall 7.6 mm (5/16”) thick. Treat exposed edges of laminated glass susceptible to degradation by organic solvents and glazing compounds.

.5 Wired Glass: Clear, 6 mm (1/4") thick, polished Georgian 12 mm (1/2") square wire-reinforced, float glass, having the required fire resistance rating based on ULC testing.

.6 Tinted Glass: Heat absorbing glass, Solargray by PPG.

.7 Low Emissivity Coating: Solarban 60 by PPG.

.8 Ceramic Frit Coated Glass: Solid black Ceramic enamel applied by silk-screened process on No. 2 surface.

.9 Spandrel Glass: CAN2-12.9-M, minimum 6 mm (1/4") thickness or as indicated on Drawings, heat strengthened glass.

.10 Safety Scrim Backing: Self adhering polyester or polyethylene film 0.05 mm to 0.125 mm (2 mils to 5 mils) thick.

2.2 Accessories

.1 Glazing materials, primers and cleaning solvents: Mutually compatible, standard colours.

.2 Insulated Glass Unit Spacer Core: Extruded, thermoset polymer structural silicone foam tape with integrally incorporated desiccants, resistant to ozone, sunlight, oxidation, black, Super Spacer Premium Plus by Edgetech.

.3 Glazing Compound: CAN2-19.13, one component silicone base.

.4 Glazing Tape, Preshimed: Extruded, ribbon shaped, non-drying, non-skinning, non-oxidizing polyisobutylene tape with continuous synthetic rubber spacer rod, sufficiently wide and thick as to completely cover bite area of glazing unit when unit is pushed into place.

.5 Glazing Tape: Extruded, ribbon-shaped, non-drying, non-skinning, non-oxidizing, reinforced, polyisobutylene tape of sufficient width and thickness, 6 mm (1/4") minimum, to permit a continuous seal.

.6 Shims, Spacers and Setting Blocks: 45, 50 and 90 Durometer A hardness plus/minus 5 respectively, neoprene rubber. Resistance to sunlight, weathering, oxidation and permanent deformation under load shall be prime essentials of shims, spacers and setting blocks.

.7 Glazing Gaskets: Neoprene, EPDM, thermoplastic or other approved material, of sufficient thickness to be 25% compressed when installed. Gaskets shall have a 13.8 MPa (2000 psi) tensile strength, Durometer A hardness of 50, plus/minus 5, resistance to permanent set 30% maximum, minimum elongation at break of 300% and resistance to ozone showing no cracks.

.8 Safety Decals: 50 mm (2") diameter round, self-adhesive, pressure-sensitive, black, non-facing, decals with clear, colourless, non-yellowing adhesive.

2.3 Fabrication

.1 Accurately size glass to fit openings allowing clearances recommended by Glass Association of North America. Cut glass clean and free of nicks and damaged edges. Grind smooth and polish exposed glass edges. Do not cut or abrade tempered, heat treated, or coated glass.

2.4 Fabrication – Insulating Glass Units

.1 Insulating glass units: CAN2-12.8, double and triple glazed, composed of lites of minimum 6 mm thick glass separated by a 13 mm wide dehydrated air space, double sealed and atmospheric pressure equalized to prevent bowing of the glass lites in the vertical position. Edges of glass shall be straight cut, free of nicks and other imperfections conducive to breakage. Coatings used in structural glazing shall be edge deleted 10 mm.

.1 Sealing System: At Contractor's option, dual seal with polyisobutylene primary and polysulfide secondary sealants, or dual seal with polyisobutylene primary and silicone secondary sealants.

.2 Set spacer core straight and even into glass units with a maximum variation in line of spacer core of plus or minus 2 mm (0.080") and the primary seal not extend past the inside edge of spacer core by more than 1.6 mm (0.060"). Weld or vulcanize spacer core corners and joints.

2.5 Glass And Glazing Types

.1 Exterior Vision Units: Double glazed Insulating glass units, tinted glass outer lite, clear glass inner lite with low emissivity coating on No. 3 surface.

.2 Exterior Spandrel Glass: Single glazed clear glass, ceramic frit coating and scrim backing on No.2 surface.

3. EXECUTION

3.1 Inspection

.1 Verify dimensions at the Site before proceeding with fabrication or glazing units.

.2 Ensure that openings are free from distortion, and that surfaces are free from protrusions that will obstruct face and edge clearances.

.3 Ensure that ferrous metals are painted or zinc coated; and that surfaces are suitable for adhesion of the glazing materials.

.4 Ensure that operable units to be glazed are adjusted for proper operation.

.5 Ensure that ambient and surface temperatures are above 5°C.

3.2 Preparation

.1 Free rabbets, stops and glass edges of dust, dirt, moisture, oil and other foreign matter detrimental to or obstructing the glazing material.

3.3 Installation - General

.1 Handle and install glass in accordance with manufacturer's directions. Prevent nicks, abrasions and other damage likely to develop stress on edges.

.2 Without limitations, cracked or scratched glass, shrinking, cracking, staining, hardening, sagging of glazing materials; loosening or rattling of glass; leaking of glazed joints will be rejected.

.3 Remove and replace glazing stops in original locations, using original fasteners, securely set and undamaged.

.4 Use setting blocks and spacers as required to properly support the glass, centred in place in the glazing space independent of the materials and to uniformly distribute its load.

.5 Use a minimum of 2 setting blocks, located at the quarter points. Locate spacers at jamb edges of glass, uniformly spaced at 600 mm (24") o.c. maximum, and 300 mm (12") maximum from top and bottom.

.6 Assess coloured glass units for colour uniformity and arrange to avoid abrupt variation in appearance.

.7 Set glass properly centred with uniform bite and face and edge clearance, free from twist, warp or other distortion likely to develop stress.

.8 Leave labels on glass until it has been set and inspected and approved. Leave glass whole and without cracks, scratches or other defects and with setting in perfect condition at completion, to the approval of the Contract Administrator.

.9 Remove rejected, broken or damaged glass due to defective materials or improper setting and replace with perfect materials. Units producing distorted vision will be rejected and replaced at the reasonable discretion of the Contract Administrator.

3.4 Cleaning

.1 Clean and make good to the approval of the Contract Administrator, surfaces soiled or otherwise damaged in connection with the Work of this Section. Pay the cost of replacing finishes or materials that cannot be satisfactorily cleaned.

.2 Upon completion of the Work, remove all debris, equipment and excess material resulting from the Work of this Section from the Site.

END OF SECTION