PART 1 – GENERAL

1.01 WORK DESCRIPTION

A. Work Included:

1. The work required under this Section includes glass and glazing as indicated or implied by the Contract Documents.

B. Related Work Specified Elsewhere:

1. Section 07 92 00: Sealants.
2. Section 08 11 00: Metal Doors
3. Section 08 41 30: Single Hung Windows
3. Section 08 42 00: Fixed Aluminum Window Framing & Entrances.

1.02 QUALITY ASSURANCE

A. Reference Standard:

1. PPG.

B. Acceptable Fabricators:

1. Visteon.
2. Guardian Industries.
3. Pilkington.
4. Globe Amerada.
5. Viracon.

C. Acceptable Manufacturers:

1. Viracon.
2. Oldcastle.
3. Arch Aluminum & Glass Co.
4. POC.

D. Codes and Standards:

1. Publications of the following institutes, associations, societies, and agencies by reference are included as part of this Section.
   a. FGMA – Flat Glass Marketing Association, Glazing and Sealant manuals.
   b. UL – Underwriters Laboratories.
   c. ANSI – American National Standards Institute.
   d. ASTM C1036-85, ASTM C1048-85, FlatGlass.
   e. SIGMA – Sealed Insulated Glass Manufacturers Association.
2. Tempered glass shall comply with the following standards:
   a. ASTM C1048.
   b. ANSI 297.1.

E. Consumer Product Safety Commission:

1. Installation shall comply with state and local codes, as well as the Federal Consumer Standard for Architectural Glazing Materials (16 CFR Part 1201), as amended by court rulings.

F. Warranty:

1. Insulating glass for ten (10) years.
2. Warranty shall cover seals, insulating value, and bear a CBA rating (or equivalent).

G. Fabricator:

1. Fabricator shall provide insulating glass units permanently marked either on spacers or at least one component lite of units with appropriate certification label of inspecting and testing agency indicated below.
2. Insulating Glass Certification Council (IGCC) or equivalent.

1.03 SUBMITTALS

A. Description:

1. Product data on glass and glazing compounds.
2. Full range of glazing sealant colors.

B. Samples:

1. Submit 12” x 12” sample of each glass type, color, tint.
2. Submit samples of glazing sealants, glazing tape and wedge gaskets.
3. Samples shall be labeled to identify.

C. Warranty:

1. Submit warranties in conformance with this specification.
2. Submit manufacturer’s installation instructions.

1.04 SPECIAL REQUIREMENTS

A. Labels:

1. All glass installed in the Work except float glass shall, during and after the installation, bear manufacturer’s labels signifying the type, quality, and thickness of the glass. Glass not bearing such labels will be rejected. Keep such labels intact until the glass has been inspected.
2. In addition to providing and maintaining labels, the Contractor shall submit a notarized certificate attesting that the glass installed in the Work conforms to the drawings and specifications.

1.05 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Deliver glass with manufacturer's labels intact.

B. Do not remove labels until glass has been installed.

C. Protect glass from breakage or contamination when transporting and installing.

D. Deliver glazing compounds and sealants in manufacturer's unopened, labeled containers.

1.06 ENVIRONMENTAL REQUIREMENTS

A. Perform glazing when ambient temperature is above 40°F.

B. Maintain this temperature during and after installation of sealants.

C. Perform glazing on dry surfaces only.

1.07 COORDINATION

A. Coordinate the work with glazing frames, wall openings and perimeter air and vapor seal of adjacent work.

1.08 FIELD MEASUREMENTS

A. Verify that field measurements are as indicated on the shop drawings.

B. Verify existing rough openings prior to start of fabrication.

PART 2 – PRODUCTS

2.01 ANNEALED FLOAT GLASS

A. **(Type 'A') Standard Glass**: 1/4" clear float glass, quality Q3 glazing select.

B. **(Type 'A1') 7/8" Insulated Glass:** 1/8" clear float glass, Class I (clear), 5/8" air space, 1/8" clear float glass. Low-E. Quality Q3 glazing select.

C. **(Type 'A2') 1" Insulated Glass:** ¼" clear float glass, Class I (clear) ½" air space, ¼" clear float glass. Quality: Q3 glazing select. Low E.

D. **(Type 'B1'):** Tempered glass, ¼" tempered glass, Herculite PPG.

E. **(Type 'B2') 1" Tempered Insulated Glass:** ¼" tempered glass, Herculite PPG Industries, ½" air space, ¼" tempered glass, PPG Industries, clear glazing. Low E.

F. **(Type 'C') ¼" Laminated Glass:**

1. General: Refer to clear glass products requirements relating to properties of uncoated glasses making up laminated glass.

2. Plastic Interlayer:
   a. Provide glass fabricator's standard polyvinyl butyral interlayer for laminating sheets of glass, with a proven record of showing no tendency to bubble, discolor or lose physical or mechanical properties after laminating and installation, in clear or colors and of thicknesses indicated.
   b. Acceptable Manufacturer's Products:
      1. Monsanto Company "Salflex".
      2. E.I. Dupont DeNemours & Company, Inc., "Butacite".

3. Laminating Process: Fabricate laminated glass using laminator's standard heat-plus-pressure process to produce glass free from foreign substances and air/glass pockets.

4. Laminated Safety Glass: Two sheets of glass of equal thickness, laminated together with not less than 0.030" thick plastic interlayer and complying with requirements indicated below.
   a. Glass Characteristics: Annealed float glass, Class 1 (clear for both sheets), or Class 2 (tinted for both sheets), per schedule, with each sheet (ply) 1/8" thick, with clear plastic interlayer.

5. Acceptable Manufacturers:
   a. Falconer Glass Industries.
   b. Ford Glass Division.
   c. Globe-Amerada Glass Company.
   d. PPG Industires, Inc.
   e. Viracon, Inc.

G. **(Type 'D') Spandrel:** 1" insulated spandrel glass.

H. Edges – where indicated on documents for interior applications.

1. Seamed edge finish for butt glazing with sealant filled joints.
2. Polished edge finish for butt glazing without sealant filled joints.
3. Use 45° mitered edge at corners with finish as described above.

2.02 (TYPE 'E') WIRE GLASS

A. Standard:
1. Pilkington.
2. Aisha.

B. Description:

1. Wired glass shall be ¼" thick clear, glazing quality plate glass with square grid pattern wire mesh embedded therein.
2. Wire mesh shall be 24 B & S gauge with welded joints.
3. Wire glass shall be UL labeled.
4. Use wired glass in labeled doors and frames only. Do not install in non-labeled doors and frames unless specifically required by the Consumer Standard for Architectural Glazing Materials, or otherwise noted on the Drawings.

C. Pattern and Surface:
1. Cross wired (baroque) obscure.

2.03 (TYPE 'F') Fire Rated Glazing

A. Standard:
1. Firelite

B. Description: UL rated glazing conforming to up to 60 minute rating.

1. Glazing shall be a min. ¼" plate glass
2. Glazing shall be UL labeled.
3. Glazing to be used in labeled doors and frames only. Do not install in non-labeled doors and frames

2.03 SETTING BLOCKS

A. Neoprene or EDPM Blocks:

1. Hardness: Shore A Durometer of 80-90 (D395 & C864).
2. Length: Manufacturer's recommendation but not less than 4".
3. Butter with sealant and then place.

2.46 EDGE CUSHIONS AND CENTERING SHIMS

A. Characteristics:

1. Hardness: Shore A 50 + 5 Durometer.
2. Length: Manufacturer's recommendation, minimum 3".

2.05 SPACER BLOCKS

A. Characteristics:

1. Hardness: Shore A 35 + 5 Durometer.
2. Length: Manufacturer's recommendation.

2.06 SEALANTS

A. Description:

1. Gun grade sealant conforming to ASTMC C920, Type S, Grade NS, Class 25.
2. Silicone sealant, one part; Dow Corning as approved by Aluminum Framing Systems manufacturer.

2.07 GLAZING TAPE

A. Description:

1. Preformed sealant: Butyl tape, aluminum, black/bronze.
2. Preformed sealant: Butyl tape with built in spacer of synthetic rubber.

2.08 WEDGE GASKETS

A. Description:

1. Neoprene or EPDM, extruded wedge, ASTM C-864.

PART 3 – EXECUTION

3.01 GLAZING

A. Installation:

1. Follow the recommendations of FGMA, SIGMA and the manufacturer of the glass.
2. Set all glass and glazing panels in a true plane, tight and straight with proper and adequate clearance, firmly anchored to prevent rattling and looseness.
3. Use rolling blocks as required to protect edges.
4. Install each glass unit with two setting blocks located at the quarter points of the bottom edge of the glass.
5. Trademarks shall be horizontal on lower edge.
6. Silicone applications should be in strict conformance with manufacturer's procedure manuals.
7. Clean all joints and glazing pockets by mechanical or solvent procedures. Detergent or soap and water treatments are not acceptable.
8. Clean sash surface and edge with xylol or MEK. Do not allow to air dry.
9. Make adjacent surfaces to assure neat sealant lines.
10. Sealant shall not be acceptable if joint is not smooth, uniform in width and free from sags.
11. Protect glass with plywood or plastic whenever there is welding, cutting, sandblasting or other potentially damaging work in progress.
12. Provide minimum of three (3) weep holes in the sill.
13. Never stretch glazing tape. Do not lap at corners. Set sill and head glazing tape and then jamb.
14. Install one way vision glazing with reflective face toward areas to be observed.

3.02 CLEAN UP

A. Description:

1. Upon completion of glazing, thoroughly clean all glass surfaces, correct all imperfections, replace all damaged glass, and leave all labels on the glass until they have been inspected and accepted.
2. Remove all labels immediately after approval.
3. Knife trim glazing tape if required.
4. Remove debris from jobsite.

3.03 PROTECTION OF COMPLETED WORK

A. Description:

1. Attach crossed streamers away from glass face.
2. Do not apply markers to glass surface.

END OF SECTION