SECTION 08 80 00
GLAZING

PART 1 GENERAL

1.1 STIPULATIONS

A. The specifications sections "General Conditions to the Construction Contract", "Special Conditions" and "Division 01 - General Requirements" form a part of this Section by this reference thereto, and shall have the same force and effect as if printed herewith in full.

1.2 SECTION INCLUDES

A. Glazing units.

B. Glazing compounds and accessories.

1.3 RELATED REQUIREMENTS

A. Section 07 92 00 - Joint Sealants: Sealants for other than glazing purposes.

B. Section 08 51 13 - Aluminum Windows: Glazing furnished by window manufacturer.

C. Section 10 28 00 - Toilet, Bath, and Laundry Accessories: Mirrors.

1.4 REFERENCE STANDARDS

A. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials Current Edition.

B. ANSI Z97.1 - American National Standard for Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test 2015 (Reaffirmed 2020).

C. ASTM C864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers 2005 (Reapproved 2019).

D. ASTM C920 - Standard Specification for Elastomeric Joint Sealants 2018.

E. ASTM C1036 - Standard Specification for Flat Glass 2021.

F. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass 2018.

G. ASTM C1172 - Standard Specification for Laminated Architectural Flat Glass 2019.

H. ASTM C1193 - Standard Guide for Use of Joint Sealants 2016.

I. GANA (GM) - GANA Glazing Manual 2008.

J. GANA (SM) - GANA Sealant Manual 2008.

K. GANA (LGRM) - Laminated Glazing Reference Manual 2019.

L. IGMA TM-3000 - North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial & Residential Use 1990 (2016).

M. ITS (DIR) - Directory of Listed Products Current Edition.

N. UL (DIR) - Online Certifications Directory Current Edition.

1.5 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data on Glazing Unit Glazing Types: Provide structural, physical and environmental characteristics, size limitations, special handling and installation requirements.

C. Product Data on Glazing Compounds and Accessories: Provide chemical, functional, and environmental characteristics, limitations, special application requirements, and identify available colors.

D. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Client Agency's name and registered with manufacturer.

1.6 QUALITY ASSURANCE

A. Perform Work in accordance with GANA (GM), GANA (SM), GANA (LGRM), and IGMA TM-3000 for glazing installation methods. Maintain one copy on site.

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum 5 - five years of documented experience.

C. Installer Qualifications: Company specializing in performing work of the type specified and with at least 5 - five years documented experience.

1.7 FIELD CONDITIONS

A. Do not install glazing when ambient temperature is less than 40 degrees F.

B. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

C. Environmental Conditions: Do not proceed with glazing when ambient and substrate temperature conditions are outside the limits permitted by glazing material manufacturer or when joint substrates are wet due to rain, frost, condensation or other causes.

1.8 WARRANTY

A. Laminated Glass: Provide a five (5) year manufacturer warranty to include coverage for delamination, including providing products to replace failed units.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Glass Fabricators:

1. GGI - General Glass International: www.generalglass.com/#sle.

2. Standard Bent Glass Corp: www.standardbent.com/#sle.

3. Viracon, Inc: www.viracon.com/#sle.

B. Float Glass Manufacturers:

1. AGC Glass North America, Inc: www.agcglass.com/#sle.
2. Cardinal Glass Industries: www.cardinalcorp.com/#sle.
3. Vitro Architectural Glass (formerly PPG Glass): www.vitroglazings.com/#sle.

C. Laminated Glass Manufacturers:

1. Cardinal Glass Industries: www.cardinalcorp.com/#sle.
2. Viracon, Architectural Glass segment of Apogee Enterprises, Inc: www.viracon.com/#sle.

D. Fire-Resistance-Rated Glass: Provide products as required to achieve indicated fire-rating period.

1. Manufacturers:
2. SAFTIFIRST, a division of O'Keeffe's Inc; SuperLite II-XL: www.safti.com/#sle.

2.2 GLASS MATERIALS

A. Float Glass: Provide float glass based glazing unless otherwise indicated.

1. Annealed Type: ASTM C1036, Type I - Transparent Flat, Class 1 - Clear, Quality - Q3.
2. Kind FT - Fully Tempered Type: Complies with ASTM C1048.

B. Laminated Glass: Float glass laminated in accordance with ASTM C1172.

1. Laminated Safety Glass: Complies with ANSI Z97.1 - Class B or 16 CFR 1201 - Category I impact test requirements.

2.3 GLAZING UNITS

A. Monolithic Exterior Vision Glazing:

1. Applications: Exterior glazing unless otherwise indicated.
2. Glass Type: Annealed float glass.
3. Tint: Clear.
4. Thickness: 1/4 inch, nominal.

B. Monolithic Interior Vision Glazing:

1. Applications: Interior glazing unless otherwise indicated.
2. Glass Type: Annealed float glass.
3. Tint: Clear.
4. Thickness: 1/4 inch, nominal.

C. Fire-Protection-Rated Glazing: Type, thickness, and configuration of glazing that contains flame, smoke, and does not block radiant heat, as required to achieve fire-doors indicated fire-

rating period of 90 minutes or less.

1. Applications:

    a. Glazing in fire-rated door assembly.

    b. Glazing in fire-rated window assembly.

    c. Other locations as indicated on drawings.

2. Glass Type: Specialty tempered float glass.

3. Provide products listed by ITS (DIR) or UL (DIR) and approved by authorities having jurisdiction.

4. Safety Glazing Certification: 16 CFR 1201 Category II.

5. Fire-Rating Period: As indicated on drawings.

2.4 GLAZING COMPOUNDS

A. Butyl Sealant: Single component; ASTM C920 Grade NS, Class 12-1/2, Uses M and A, Shore A hardness of 10 to 20; black color.

B. Polyurethane Sealant: Single component, chemical curing, non-staining, non-bleeding; ASTM C920 Type S, Grade NS, Class 25, Uses M, A, and G; with cured Shore A hardness range of 20 to 35; color as selected.

C. Silicone Sealant: Single component; neutral curing; capable of water immersion without loss of properties; non-bleeding, non-staining; ASTM C920 Type S, Grade NS, Class 25, Uses M, A, and G; with cured Shore A hardness range of 15 to 25; color as selected.

2.5 ACCESSORIES

A. Setting Blocks: Neoprene, with 80 to 90 Shore A durometer hardness; ASTM C864 Option II. Length of 0.1 inch for each square foot of glazing or minimum 4 inch by width of glazing rabbet space minus 1/16 inch by height to suit glazing method and pane weight and area.

B. Spacer Shims: Neoprene, 50 to 60 Shore A durometer hardness; ASTM C864 Option II. Minimum 3 inch long by one half the height of the glazing stop by thickness to suit application, self adhesive on one face.

PART 3 EXECUTION

3.1 VERIFICATION OF CONDITIONS

A. Verify that openings for glazing are correctly sized and within tolerances, including those for size, squareness, and offsets at corners.

B. Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement, weeps are clear, and support framing is ready to receive glazing system.

3.2 PREPARATION

A. Clean contact surfaces with appropriate solvent and wipe dry within maximum of 24 hours before glazing. Remove coatings that are not tightly bonded to substrates.

B. Seal porous glazing channels or recesses with substrate compatible primer or sealer.

C. Prime surfaces scheduled to receive sealant where required for proper sealant adhesion.

3.3 INSTALLATION, GENERAL

A. Install glazing in compliance with written instructions of glass, gaskets, and other glazing material manufacturers, unless more stringent requirements are indicated, including those in glazing referenced standards.

B. Install glazing sealants in accordance with ASTM C1193, GANA (SM), and manufacturer's instructions.

3.4 CLEANING

A. Remove excess glazing materials from finish surfaces immediately after application using solvents or cleaners recommended by manufacturers.

B. Remove non-permanent labels immediately after glazing installation is complete.

C. Clean glass and adjacent surfaces after sealants are fully cured.

D. Clean glass on both exposed surfaces not more than 4 days prior to Date of Substantial Completion in accordance with glass manufacturer's written recommendations.

3.5 PROTECTION

A. After installation, mark pane with an 'X' by using removable plastic tape or paste; do not mark heat absorbing or reflective glass units.

B. Remove and replace glass that is damaged during construction period prior to Date of Substantial Completion.

END OF SECTION