# PART 1 GENERAL

# **1.01 SECTION INCLUDES**

- A. Glass.
- B. Plastic films.
- C. Glazing compounds and accessories.

# 1.02 REFERENCE STANDARDS

- A. ASTM C864 Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers; 2005 (Reapproved 2011).
- B. ASTM C1036 Standard Specification for Flat Glass; 2011.
- C. ASTM C1048 Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass; 2012.
- D. ASTM C1193 Standard Guide for Use of Joint Sealants; 2013.
- E. ASTM E1300 Standard Practice for Determining Load Resistance of Glass in Buildings; 2016.
- F. ASTM E 2188 Standard Test Method for Insulating Glass Performance
- G. ASTM E 2189 Standard Test Method for Testing Resistance to Fogging in Insulated Glass
- H. ASTM E2190 Standard Specification for Insulating Glass Unit Performance and Evaluation; 2010.
- I. GANA (SM) GANA Sealant Manual; 2008.

# 1.03 SUBMITTALS

- A. See Section 01 3000 Administrative Requirements, for submittal procedures.
- B. Samples: Submit two 12" samples of glazing film.

# 1.04 QUALITY ASSURANCE

A. Perform Work in accordance with GANA Glazing Manual and FGMA Sealant Manual for glazing installation methods.

# 1.05 WARRANTY

- A. See Section 01 7800 Closeout Submittals, for additional warranty requirements.
- B. Sealed Insulating Glass Units: Provide a ten (10) year warranty to include coverage for seal failure, interpane dusting or misting, including replacement of failed units.
- C. Laminated Glass: Provide a five (5) year warranty to include coverage for delamination, including replacement of failed units.

# PART 2 PRODUCTS

# 2.01 GLAZING TYPES

# 2.02 BASIS OF DESIGN - INSULATING GLASS UNITS

- A. Type IG-1 Sealed Insulating Glass Units: Vision glazing, low-E.
  - 1. Application(s): All exterior glazing unless otherwise indicated.
  - 2. Total Thickness: 1inch
  - 3. Total Assembly U-Value:.28, maximum.
  - 4. Total Solar Heat Gain Coefficient:.27, maximum.
  - 5. Total Visible Light Transmittance: 62 percent, minimum.
  - 6. Basis of Design: Guardian Industries Corp.: www.guardian.com.
  - 7. Outboard Lite: Annealed float glass, 1/4 inch thick, minimum.
    - a. Coating: Guardian SNX 62/27 on # 2 surface, no coating on #3 surface.
  - 8. Inboard Lite: Annealed float glass, 1/4 inch thick.
  - 9. Total Thickness: 1 inch.

### 2.03 GLAZING UNITS

- A. Type IG-2 Sealed Insulating Glass Units: Spandrel glazing.
  - 1. Outboard Lite: Annealed float glass, 1/4 inch thick, minimum.
  - 2. Inboard Lite: Heat-strengthened float glass, 1/4 inch thick.
  - 3. Total Thickness: 1 inch.
  - 4. #2-743 Solex
- B. Type S-3 Single Safety Glazing: Non-fire-rated.
  - 1. Applications: Provide this type of glazing in the following locations:
    - a. Contractor shall be responsible for compliance with all requirements of IBC, including requirements to provide safety glazing in hazardous locations. Contractor shall be responsible to review contract documents to determine locations where IBC requirements apply.
    - b. Glazed lites in doors, except fire doors.
    - c. Glazed sidelights to doors, except in fire-rated walls and partitions.
    - d. Other locations required by applicable federal, state, and local codes and regulations.e. Other locations indicated on the drawings.
  - 2. Type: Fully tempered float glass as specified.
  - 3. Tint: Clear.
  - 4. Thickness: 1/4 inch.

#### 2.04 EXTERIOR GLAZING ASSEMBLIES

- A. Main Building, within 8 feet of building corners: 21 PSF
- B. Main Building, more than 8 feet from building corners: 18 psf
- C. Structural Design Criteria: Select type and thickness to withstand dead loads and wind loads acting normal to plane of glass at design pressures 21 PSF within 8 feet of building corners and 18 psf more than 8 feet from building corners.
  - 1. Use the procedure specified in ASTM E1300 to determine glass type and thickness.
  - 2. Limit glass deflection to 1/200 or flexure limit of glass, whichever is less, with full recovery of glazing materials.
  - 3. Thicknesses listed are minimum.
- D. Differential Shading: Design glass to resist thermal stresses induced by differential shading within individual glass lites.

#### 2.05 GLASS MATERIALS

- A. Float Glass Manufacturers:
  - 1. Guardian Industries Corp: www.sunguardglass.com/#sle.
  - 2. PPG Industries, Inc: www.ppgglazing.com/#sle.
  - 3. Substitutions: Refer to Section 01 6000 Product Requirements.
- B. Float Glass: All glazing is to be float glass unless otherwise indicated.
  - 1. Annealed Type: ASTM C1036, Type I, transparent flat, Class 1 clear, Quality Q3 (glazing select).
  - 2. Heat-Strengthened and Fully Tempered Types: ASTM C1048.
  - 3. Tinted Types: Color and performance characteristics as indicated.
  - 4. Thicknesses: As indicated; for exterior glazing comply with specified requirements for wind load design regardless of specified thickness.
- C. Clear Float Glass : Clear, fully tempered.
  - 1. Comply with ASTM C 1036, Type I, transparent flat, Class 1 clear, Quality Q3 (glazing select).
- D. Insulating Glass Fabricators:
  - 1. Hartung Glass: www.hartung-glass.com
  - 2. Oldcastle Building Envelope: www.oldcastlebe.com
  - 3. Northwestern Industries: www.nwiglass.com

- 4. Substitutions: Refer to Section 01 6000
- 5. Manufacturer Qualifications for Insulating-Glass Units with Sputter-Coated, Low-E Coatings: A qualified insulating-glass manufacturer whose equipment, process, and production location is certified by coated-glass manufacturer.

#### 2.06 SEALED INSULATING GLASS UNITS

- A. Sealed Insulating Glass Units: Types as indicated.
  - 1. Durability: Certified by an independent testing agency to comply with ASTM E2190.
  - 2. Edge Spacers: Aluminum, bent and soldered corners.
  - 3. Edge Seal: Glass to elastomer with supplementary silicone sealant.
  - 4. Purge interpane space with dry hermetic air.

### 2.07 PLASTIC FILMS

- A. Manufacturers:
  - 1. Decorative Films, LLC: www.decorativefilm.com.
    - a. SOLYX Decorative Privacy glass films
    - b. Pattern: Clear Sand Blast
    - c. Number: SX-1002
  - 2. Substitutions: Refer to Section 01 6000 Product Requirements.

#### 2.08 GLAZING ACCESSORIES

- A. Setting Blocks: Neoprene, 80 to 90 Shore A durometer hardness, ASTM C 864 Option I. Length of 0.1 inch for each square foot of glazing or minimum 4 inch x width of glazing rabbet space minus 1/16 inch x height to suit glazing method and pane weight and area.
- B. Glazing Tape: Preformed butyl compound ; 10 to 15 Shore A durometer hardness; coiled on release paper; 1/8" inch size; black color.
- C. Glazing Gaskets: Resilient silicone extruded shape to suit glazing channel retaining slot; ASTM C 864 Option I; \_\_\_\_\_ color.

# PART 3 EXECUTION

# 3.01 EXAMINATION

- A. Verify that openings for glazing are correctly sized and within tolerance.
- B. Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement, weeps are clear, and ready to receive glazing.

#### 3.02 PREPARATION

- A. Clean contact surfaces with solvent and wipe dry.
- B. Seal porous glazing channels or recesses with substrate compatible primer or sealer.
- C. Prime surfaces scheduled to receive sealant.
- D. Install sealants in accordance with ASTM C1193 and FGMA Sealant Manual.
- E. Install sealant in accordance with manufacturer's instructions.

# 3.03 INSTALLATION - EXTERIOR WET/DRY METHOD (PREFORMED TAPE AND SEALANT)

- A. Cut glazing tape to length and set against permanent stops, 3/16 inch below sight line. Seal corners by butting tape and dabbing with butyl sealant.
- B. Apply heel bead of butyl sealant along intersection of permanent stop with frame ensuring full perimeter seal between glass and frame to complete the continuity of the air and vapor seal.
- C. Place setting blocks at 1/4 points with edge block no more than 6 inches from corners.
- D. Rest glazing on setting blocks and push against tape and heel bead of sealant with sufficient pressure to attain full contact at perimeter of pane or glass unit.
- E. Install removable stops, with spacer strips inserted between glazing and applied stops, \_\_\_\_\_ inch below sight line. Place glazing tape on glazing pane or unit with tape flush with sight line.

- F. Fill gap between glazing and stop with \_\_\_\_\_ type sealant to depth equal to bite of frame on glazing, but not more than 3/8 inch below sight line.
- G. Apply cap bead of \_\_\_\_\_ type sealant along void between the stop and the glazing, to uniform line, flush with sight line. Tool or wipe sealant surface smooth.

# 3.04 INSTALLATION - INTERIOR DRY METHOD (TAPE AND TAPE)

- A. Cut glazing tape to length and set against permanent stops, projecting 1/16 inch (1.6 mm) above sight line.
- B. Place setting blocks at 1/4 points with edge block no more than 6 inches from corners.
- C. Rest glazing on setting blocks and push against tape for full contact at perimeter of pane or unit.
- D. Place glazing tape on free perimeter of glazing in same manner described above.
- E. Install removable stop without displacement of tape. Exert pressure on tape for full continuous contact.
- F. Knife trim protruding tape.

# 3.05 MANUFACTURER'S FIELD SERVICES

- A. Glass and Glazing product manufacturers to provide field surveillance of the installation of their products.
- B. Monitor and report installation procedures and unacceptable conditions.

# 3.06 CLEANING

- A. Remove glazing materials from finish surfaces.
- B. Remove labels after Work is complete.
- C. Clean glass and adjacent surfaces.

# 3.07 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.

# END OF SECTION