

**SECTION 08 80 00
GLAZING**

PART 1 GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 specification sections, apply to work in this section.

1.2 DESCRIPTION OF WORK

- A. Furnish all labor, materials, and equipment necessary to complete all glass and glazing work as indicated on the drawings and specified herein.

1.3 REFERENCES

- A. ASCE-7– Minimum Design Loads for Buildings and other Structures
- B. ANSI Z97.1 - Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test
- C. ASTM C162 – Standard Terminology of Glass and Glass Products
- D. ASTM C864 – Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers
- E. ASTM C920 – Standard Specification for Elastomeric Joint Sealants
- F. ASTM C1036 – Standard Specification for Flat Glass
- G. ASTM C1048 – Standard Specification for Heat Strengthened and Fully Tempered Flat Glass
- H. ASTM C1172 – Standard Specification for Laminated Architectural Flat Glass
- I. ASTM C1349 - Standard Specification for Architectural Flat Glass Clad Polycarbonate
- J. ASTM C1503 - Standard Specification for Silvered Flat Glass Mirror
- K. ASTM E84 – Standard Test Method for Surface Burning Characteristics of Building Materials
- L. ASTM E283 – Standard Test Method For Determining Rate of Air leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences Across the Specimen
- M. ASTM E330 – Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference
- N. ASTM E1996 - Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Windborne Debris in Hurricanes
- O. ASTM E2025 - Standard Test Method for Evaluating Fenestration Components and Assemblies for Resistance to Impact Energies
- P. CPSC 16 CFR 1201 Safety Standards for Architectural Glazing Materials
- Q. FBC - Florida Building Code
- R. GANA - Glazing Manual
- S. GANA - Laminated Glazing Reference Manual
- T. GANA - Sealant Manual
- U. NFPA 80 – Standard for Fire Doors and Other Opening Protectives
- V. NFPA 252 – Standard Methods of Fire Test of Doors Assemblies
- W. NFPA 257 – Standards on Fire Test of Window and Glass Block Assemblies

1.4 LABELS

- A. Glass shall bear labels indicating the manufacturer, type and thickness, and a note "Do Not Remove Label".
- B. All safety glass shall bear a permanent label indicating manufacturer, type, thickness, and compliance with CPSC 16 CFR 1201.

- C. If temporary label, label is to remain on glass until District Building Inspection is complete, then removed and turned into the District Building Department.

1.5 GLASS BREAKAGE

- A. The glazing subcontractor shall be responsible for all glass broken, scratched, damaged, or defective and shall replace same at his expense.

1.6 SUBMITTALS

A. Manufacturer's Data:

1. Submit two-copies of manufacturer's specifications, and installation instruction for each type of glass, glazing sealant and compound, gasket and associated miscellaneous material required.
2. Include manufacturer's published data, or letter of certification, or certified test laboratory report indicating that each material complies with the requirements and is intended generally for the applications shown.
3. Show by transmittal that the Glazer distributed one copy of each recommendation and instruction.
4. If Safety glass, provide two copies of manufacturer certification of the glass meeting the requirements of CPSC 16 CFR 1201.

- B. Samples: Submit two-samples 12" x 12" in size illustrating glass coloration.

1.7 QUALITY ASSURANCE

- A. Perform Work in accordance with GANA Glazing Manual and GANA Sealant Manual.
- B. Installer Qualifications: Company specializing in performing the work of this section with minimum 5-years documented experience.

1.8 WARRANTY

- A. Provide a 5-year warranty to include coverage for sealed glass units from seal failure.
- B. Provide a 5-year warranty to include coverage for delamination of laminated glass and replacement.

PART 2 PRODUCTS

2.1 GENERAL

- A. Tempered Glass: Glass to be heat-strengthened by Manufacturer's standard process (after cutting to final size), to achieve a flexural strength of four times normal glass strength; provide tempered glass where required by code, generally 4' horizontally from doors and within 18" of floor.

2.2 GLASS TYPES

A. Interior Window Glazing: Hollow Metal frames

1. Tempered Glass: ASTM C1048, Kind FT fully tempered, Condition A uncoated, Type 1 transparent flat, Class 1 clear, Quality q3 glazing select conforming to ANSI Z97.1.
2. Wired Glass:
 - a. Can be used only in fire rated assemblies,
 - b. Shall meet the safety glazing requirements of CPSC 16 CFR 1201, and
 - c. Have the proper fire rating for the assembly (see plans for assembly fire ratings).
 - i) SAFTI – Superlite 1-W acceptable for Cat II location per CPSC
 - ii) Pilkington – Pyroshield Plus acceptable for Cat I location per CPSC
 - iii) Cat I location is glass area less than or equal to 9 SF, and Cat II is glass area greater than 9 SF.
 - iv) Or approved equal

- d. All glass shall have label indicating fire rating and safety glazing rating.
 - B. Exterior Window Glazing: Aluminum Frames
 - 1. Impact rated as required by FBC Product Approval System with colored tint as selected by the Architect with a minimum 0.44 shading coefficient at building exterior.
 - C. Exterior Door Glazing: Hollow Metal Doors and Frames
 - 1. Impact rated as required by FBC Product Approval System.
 - D. Miscellaneous Glazing in Interior Doors:
 - 1. ¼" clear, tempered glass.
 - 2. Safety rated and fire rated glass where label door is required by schedule or code.
 - E. One-way Reflective Glass: Laminated from 2 pieces of Type I, Class 1, Quality q3, laminated together with a clear 0.030" thick polyvinyl butyl interlayer, total ⅝" thick, coated on the No. 2 face with a hard, adherent film of chromium or other approved coating of equal durability.
 - 1. Glass shall transmit not more than 14% of total incident visible light and shall reflect from the front surface of the coating not less than 33% of the total incident visible light.
 - F. Glazing in Millwork: ¼" clear, tempered glass.
 - G. Provide and install glass mirrors as indicated on plans, minimum thickness of ¼" tempered or laminated safety glass and labeled as such.
- 2.3 GLAZING SEALANTS/COMPOUNDS
- A. General:
 - 1. Provide materials as recommended by the manufacturer for the required application and condition of installation in each case.
 - 2. Provide only fully proven compounds that are compatible with surfaces contacted.
- 2.4 MISCELLANEOUS GLAZING MATERIALS
- A. Setting Blocks: Neoprene, 70-90 Durometer hardness, with proven compatibility of sealants used.
 - B. Spacers: Provide neoprene, 40-50 Durometer hardness, with proven compatibility of sealants used.
 - C. Cleaners, Primers and Sealers: Type recommended by sealant or gasket manufacturer.
- 2.5 OTHER MATERIALS
- A. Provide other materials not specifically described but required for a complete and proper installation.

PART 3 EXECUTION

3.1 INSTALLATION OF GLASS

- A. General Requirements:
 - 1. Follow recommendations of the glass manufacturer and the sealant, gaskets and glazing materials manufacturer, except if the codes or listed references are more restrictive.
 - 2. Where a combination of sealing materials is required for glazing in the same frame, the manufacturer must certify that all glazing materials furnished are compatible with each other.
 - 3. Where setting blocks and spacer shims require setting into a glazing compound or sealant, contractor may butter them with the compound or sealant, then place them in position and allow to firmly setting prior to installation of glass.
- B. Sash and Frame Preparation and Acceptance

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1. Inspect all window sash, frames, and surrounds glazed under this section and notify the Contractor of any defects, improper materials, or workmanship of other conditions that will affect the satisfactory installation of glass.
 - a. Do not proceed with glazing until such conditions are acceptable.
 - b. Absence of notification, or the beginning of glazing, will indicate acceptance of all previously placed related work executed by other trades.
 2. Other trades will execute the following work; but before starting glazing work, the glazier shall verify compliance with the requirements listed.
 - a. That the sash and frames are firmly anchored in proper position, plumb and square within 1/8" nominal dimensions on approved shop drawings.
 - b. That the rivet, screw, bolt or nail heads, welding fillets and other projections are removed from glazing rabbets to provide the specified clearances.
 - c. That all corners and fabrication intersections are sealed and sash and frames are weather-tight.
 - d. That rabbets at seals weep to outside and all rabbets are of sufficient depth and width to receive the glass and provide the required overlap of the glass.
 - e. That all sealing surfaces of steel sash and frames are primer painted.
- C. Preparation of Glass and Rabbets:
1. Clean the sealing surfaces of glass and the sealing surfaces of rabbets and stop beads before applying any glazing compound or gaskets.
 2. Use only the approved solvents and cleaning agents recommended by the compound manufacturer.
- D. Positioning Glass:
1. Center in glazing in the frame and rabbet to maintain specified clearances at perimeter on all four sides.
 2. Maintain centered position of glass in rabbet and provide the required sealer thickness (1/8" maximum) on both sides of glass.
 3. Whenever glass dimensions are larger than 50 united inches, provide setting blocks at the sill and spacer shims on all four sides; locate setting blocks one-quarter way in from each end of glass.
- E. Stop Bead Glazing; Use Putty or Elastic Glazing Compound for bedding glass in hollow metal frames, except if otherwise specified in this document.
1. Apply ample back putty or compound to rabbet so that it will ooze out when pressing glass into position and completely cover glass in rabbet.
 - a. Place setting blocks and spacer shims as required, and press glass into position.
 2. Secure glass in place by the application of stop beads.
 - a. Bed stop beads against glass and bottom of rabbet with compound and/or putty, leaving proper thickness between glass and stop beads.
 - b. Secure stop beads in place with suitable fastenings.
 - c. Strip surplus compound or putty from both sides of glass and tool to provide clean sight lines.
- F. Glazing - Using Glazing Gaskets
1. Use glass stops with glazing gaskets for securing glass in frames of all storefront type entrance-doors and in such other locations as indicated on the drawings.
 2. Use glazing gaskets without stops for glazing glass in all storefront type sash and frames, except where as indicated on the drawings.

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- a. Install glazing of storefront type sash and frames using glazing gaskets without stops in strict accordance with the manufacturer's directions.
- b. Provide and place setting blocks as required.
- c. Gaskets shall be of the proper size for the thickness of installed glass.
- d. After glazing, seal gaskets to glass continuously with a clear elastic and watertight sealant similar to G.E. Silicon Sealant.
- e. Seal gaskets to glass on exterior face only.

3.2 REPLACEMENT AND CLEANING:

- A. Upon completion of work, all glass shall be free from cracks and other defects.
- B. Remove and replace any defective or broken glass that may appear before acceptance or within the 1-year warranty period with new glass without additional cost to the Owner, except glass broken by a specific cause relating to building occupancy not relating to this contract.
- C. Thoroughly wash and clean all glass upon completion of the work and just prior to occupancy of the building.

END OF SECTION