SECTION 08810: GLASS AND GLAZING

PART 1 GENERAL

1.01 SUMMARY

A. Section includes glass and glazing for the following:

1. Interior and Exterior glazed openings.
2. Hollow metal doors framed glazed openings.
3. Mirrors for general application.

B. Related Sections:

1. Section 05520 – Railings and Handrails
2. Section 07920 – Sealants and Caulking.
3. Section 08110 – Metal Doors and Frames.
4. Section 08410 – Aluminum Entrances and Storefronts.

1.02 SUBMITTALS

A. Product Data: Provide manufacturers specifications with documentation of compliance with applicable fire codes to the Resident for review and acceptance.

B. Samples:

1. Glass: Two 12-inch square samples of each type and color of glass specified.
2. Glazing Accessories: 12-inch long samples of each type.

C. Color Charts: For preformed glazing materials and sealant.

D. Certifications:

1. Certification that tempered glass complies with Consumer Product Safety Commission 16CFR 1201-CII.
2. Manufacturer's certification that each product furnished complies with specifications requirements.

1.03 REFERENCE STANDARDS

A. Except as otherwise specified herein or shown on the Drawings, comply with the latest editions of all applicable codes and regulations including the applicable requirements of

the following Reference Standards and Codes which are hereby made a part of this Section, as they relate to the glass and glazing:

1. BOCA Building Code, latest Edition.
2. The Occupational Health and Safety Administration (OSHA) Code of Federal Regulations(CFR), Volume 29.
3. Flat Glass Marketing Association (FGMA): Glazing Manual, latest edition.
4. Consumer Product Safety Commission (CPSC): Standard 16CFR 1201 Category II.
5. American Society for Testing and Materials (ASTM):

    a. C1036-91 Specification for Flat Glass.
    b. C1048-92 Specification for Heat-Treated Flat Glass- Kind HS, Kind FT Coated and Uncoated Glass.
    c. E119-95a Test Methods for Fire Tests of Building Construction and Materials.
    d. E152-81a Methods of Fire Tests of Door Assemblies.
    e. E163-84 Methods of Fire Tests of Window Assemblies.

6. ANSI Z97.1-1984: Safety Performance and Methods of Test for Safety Glazing Materials Used in Buildings.

1.04 QUALITY ASSURANCE

A. Comply with published recommendations of glass product manufacturers and organizations below, except where more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.

1. GANA Publications
2. AAMA Publications
3. LSGA Publications
4. SIGMA Publications –TM3000—Recommended Practices for Vertical and Basic Field Glazing of Organically Sealed Insulating Glass Units.
5. Glazing Standards: Flat Glass Marketing Association (FGMA) Glazing Manual and Sealant Manual except where more stringent requirements are indicated.

B. Safety glass products are to comply with ANSI Z97.1 and testing requirements of 16 CFR Part 1201 for Category II materials.

1. Subject to compliance with requirements, provide safety glass permanently marked with certification label of Safety Glazing Certification Council (SGCC) or other certification agency acceptable to authorities having jurisdiction.

C. Single-source fabrication responsibility: All glass fabricated for each type shall be processed and supplied by a single fabricator.

D. Glass fabricator to have a minimum of ten (10) years experience and meet ANSI/ISO/ASQC (American Society for Quality Control) 9002-1994.

E. Label each unit of glass with manufacturer's sticker showing quality, grade, thickness and type of glass.

1. Labels shall remain in place until acceptance by the A/E.
2. Each panel of tempered glass shall bear the manufacturer's trademark.

1.05 WARRANTY

A. Provide written 10-year warranty from date of manufacture for all glass and glazing.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Except as otherwise specified, provide glass from one of the following:

1. Guardian Industries Corp.
2. Libby Owens Ford Co. (LOF).
3. PPG Industries.
4. Sully North America (A Saint Gobain Company).
5. Viracon.
6. Visteon.

B. Equivalent products of other manufacturers which meet the requirements of the Drawings and this Section may be provided if approved by the Resident.

2.02 MATERIALS

A. Tempered Glass: Comply with ASTM C1036-85 and further processed in accordance with ASTM C1048-35, Kind FT, which has been fully tempered by the manufacturer's standard horizontal process. Minimum thickness of 1/4".

1. Clear Heat-Treated Float Glass: Condition A (uncoated surfaces), Type I (transparent glass, flat), Class 1 (clear), Quality q3 (glazing select), Kind FT (Fully Tempered) or Kind HS (Heat Strengthened).

B. Specific Requirements:

1. Glass in interior applications unless otherwise noted: 1/4" thick, clear tempered plate.

2. Glass in exterior window system, exterior glass doors and in window units: 1" thick insulating, low-E, tempered glass, with a shading coefficient of 0.50. Color to be selected by Resident.

C. Mirrors: Single pane, sizes to fit the spaces shown on drawings, 1/4" thick clear plate glass free of distortion, ground edges, silvered with two coats of nitrate of silver protected by one coat of solid copper deposited by electrolysis.

1. Back-Up: 1/4" hardboard or equivalent non-reactive rigid board, or galvanized steel sheet.
2. Frames: 1/2" x 1/2" x 1/2" polished stainless steel, mitered, reinforced or welded corners. Protect mirror edges with shock absorbent material. Secure to wall with concealed hangers and lock in place with theft resistant screws.
3. Channel and angle mirror mounts: Garcy Corp., No. 1045 top angle and No. 1044 bottom channel, made with No. 4 finish stainless steel.

C. Glazing Materials:

1. General: Comply with recommendations of sealant and glazing plastic manufacturers for selection of glazing sealants which have performance characteristics suitable for applications indicated and conditions at time of installation.

2. Miscellaneous Glazing Materials:

a. Glazing Sealant: Curing type gunnable elastomeric sealant complying with TT-S-001543A, Type II Class A; Dow Corning 999-A Silicone Building and Glazing Sealant, General Electric Contractors 1000 Sealant. Color selected by A/E. See section 07920.
b. Unshimmed Glazing Tape: Butyl-polyisobutylene with 20 to 30 "Shore A" hardness, self-sticking; clear color.
c. Pre-Shimmed Glazing Tape: Butyl-polyisobutylene with built-in synthetic rubber spacer; 20 to 30 "Shore A" hardness, self-sticking; clear color.
d. Setting Blocks: Solid neoprene, EPDM or silicone blocks as required for compatibility with glazing sealants 80 to 90 Shore A durometer hardness; sizes as required.
e. Edge Blocks: Solid neoprene, EPDM or silicone blocks as required for compatibility with glazing sealant 60-70 Shore A durometer hardness; sizes as required.
f. Shims: Solid neoprene, 40 to 60 Shore A durometer hardness; sizes as required.
g. Backer Rod: Dow Corning Ethafoam SB polyethylene cord or butyl rubber foam cord. See section 07920.

h. Spacers: Neoprene, EPDM or silicone blocks, or continuous extrusions, as required for compatibility with glazing sealant, of size, shape and hardness recommended by glass and sealant manufacturers for application indicated.
i. Glazing Gaskets: Compression gaskets, closed cell, neoprene, EPDM or silicone rubber composition designed to provide a water-resistant seal between glass and frame.
j. Edge Protection Tape for Laminated Glass: "Scotch Brand Cellophane Tape," manufactured by 3M Company
k. Mirror-Setting Mastic: Mirro-Mastic by Palmer Products Corp.
l. Moisture-Resistant Paint for Frameless Mirror Glass: Palmer Products Corp., Mirro-Bac Paint.
m. Primers and Cleaning Agents: Type recommended by the sealant, glass, and glazing accessories manufacturer.

PART 3 EXECUTION

3.01 INSPECTION

A. Verify that glazing frames are acceptable for the correct installation of glass and glazing accessories.

B. Do not proceed with installation until conditions are satisfactory.

3.02 PREPARATION

A. Clean glazing channels and other framing members to receive glass and plastic glazing, immediately before glazing.

B. Remove coatings, which are not firmly bonded to substrates. Remove lacquer from metal surfaces where elastomeric sealants are indicated for use.

3.03 GLAZING

A. Cut glass accurately to fit the openings and set with equal bearing around the entire pane. Install products using the recommendations of manufacturers of glass, sealants, gaskets, and other glazing materials, except where more stringent requirement are indicated, including those in “GANA Glazing Manual” and FGMA Glazing Manual.

B. Apply primers to joint surfaces where required for adhesion of sealants.

C. Protect glass from edge damage during handling and installation.

D. Prevent glass from contact with contaminating substances that result from construction operations, such as weld splatter, fire-safing, or plaster.

E. Install setting blocks of proper size in sill rabbet, located one quarter of glass width from each corner, but with edge nearest corner not closer than 6" from corner, unless otherwise required. Set blocks in thin course of sealant which is acceptable for heel bead use.

F. Provide spacers inside and out, of correct size and spacing to preserve required face clearances, for glass sizes larger than 50 united inches (length plus height), except where gaskets or glazing tapes with continuous spacer rods are used for glazing. Provide 1/8 in. minimum bite of spacers on glass and use thickness equal to sealant width, except with sealant tape use thickness slightly less than final compressed thickness of tape.

G. Provide edge blocking to comply with requirements of referenced glazing standard, except where otherwise required by glass unit manufacturer.

H. Provide compressible filler rods or equivalent back-up material, as recommended by sealant and glass manufacturers, to prevent sealant from extruding into glass channel weep systems and from adhering to joints back surface as well as to control depth of sealant for optimum performance, unless otherwise indicated.

I. Force sealants into glazing channels to eliminate voids and to ensure complete wetting or bond of sealant to glass and channel surfaces.

J. Tool exposed surfaces of sealants to provide a substantial wash away from glass. Install pressurized tapes and gaskets to protrude slightly out of channel, so as to eliminate dirt and moisture pockets.

K. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage to ensure that gasket will not walk out when installation is subjected to movement.

1. Miter cut wedge-shaped gaskets at corners and install gaskets in manner recommended by gasket manufacturer to prevent pull away at corners.
2. Seal corner joints and butt joints with sealant recommended by gasket manufacturer.

L. Remove and replace glass that is broken, chipped, cracked, or damaged in any way.

M. Make all edge cuts “clean”. Do not nip, seam, swipe, stone, or strike edges. Do not knock-off flares. Do not bump, drag, or brush the edges of lites against sash or other hard object. Avoid scratching, particularly near an edge.

N. Manufacturer's label showing compliance with fire code requirements, strength, grade, thickness, type and quality of glass shall remain on each piece of glass until it has been set and inspected.

O. Install all glass by skilled glaziers, under the supervision of a qualified foreman.

P. Unacceptable defects:

1. Impact chips, spalls, nipped edges.
2. Flake chips, or shark teeth deeper than 1/4 of glass thickness.
3. Serration hackle deeper than 1/8 of glass thickness.

Q. Do not attempt to cut, seam, nip or abrade glass which has been tempered or heat strengthened.

3.04 PROTECTION AND CLEANING

A. Protect glass or plastic glazing from breakage immediately upon installation by use of crossed streamers attached to framing and held away from glass.

B. Do not apply markers to surfaces of glass. Remove nonpermanent labels and clean surfaces.

C. Protect glass and plastic glazing from contact with contaminating substances resulting from construction operations. If contaminating substances do come into contact with glass, remove immediately by method recommended by glass manufacturer.

D. After glass has been inspected and approved, remove labels, wash and polish glass on both faces prior to Owner's acceptance of the project.

1. Comply with glass manufacturer's recommendations for cleaning materials and methods.

END OF SECTION