

SECTION 08800 - GLASS AND GLAZING

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Glass and glazing work includes:
 - 1. Insulated storefront.
 - 2. Entrance glazing, not indicated as pre-glazed.
 - 3. Interior laminated glass.
 - 4. Mirrors.
- B. Geographic Alternates: Provide insulating units with the "alternate outer pane" tinted glass in Florida, Southern Arizona, Texas, New Mexico, Las Vegas, Palm Desert, Gulf Coast locations or as directed by Walgreens Project Architect.
- C. Hurricane Resistant Glass: Provide when required by local codes/ordinances and in the states of Texas, Louisiana, Mississippi, Alabama, Florida, Georgia, South Carolina and North Carolina for all store locations ten (10) miles or less from all salt water coastlines, bays, tributaries, etc.
- D. Translucent White Laminated Tower Glass: Provide only when directed by Walgreens Project Architect.
- E. Spandrel Glass: Provide only when directed by Walgreens Project Architect.

1.02 SYSTEM PERFORMANCE

- A. Provide glass and glazing that will withstand normal temperature changes, wind loading, impact loading, etc. without breakage of glass, failure of seals and loss of air-tightness and water-tightness.
- B. See other Division 8 Sections for related performance requirements.

1.03 DEFINITIONS

- A. Sealed insulation glass unit surfaces:
 - Side 1 - Exterior surface of outer pane.
 - Side 2 - Interior surface of outer pane (facing airspace).
 - Side 3 - Interior surface of inner pane (facing airspace).
 - Side 4 - Exterior surface of inner pane.

1.04 QUALITY ASSURANCE

- A. Comply with recommendations of the ~~Float-Flat~~ Glass Marketing Association "Glazing Manual" and "Sealant Manual".
- B. Comply with ~~Sealed Insulating-Insulated~~ Glass Manufacturer's Association (SIGMA) #65-7-2.
- C. Comply with ASTM C 1036 or ASTM C 1048 (tempered), ASTM C 1172 (laminated glass) and CPSC 16 CFR Part 1201 (safety glazing).

- D. Hurricane/Impact Resistant Glazing System: Must pass Dade and Broward County hurricane cycling and impact tests plus, comply with ANSI Z97.1 and CPSC Category II.
- E. Warranty: Provide written warranty covering manufacturing defects, signed by the manufacturer, for the periods stated below after substantial completion
 - 1. Insulated Glass: Manufacturers standard, ten-year minimum period.
 - 2. Float Glass: Manufacturers standard five-year minimum period.
 - 3. Laminated Glass: Manufacturers standard, four-year minimum period.
 - 4. Mirrors: Manufacturers Standard five-year period protecting against silver spoilage.

PART II - PRODUCTS

2.01 MANUFACTURERS

- A. Subject to compliance with requirements, provide products by :

~~Ford Motor Co., Glass Division~~ Zeledyne Glass Products
~~Libbey Owens Ford Co., Pilkington~~ LOF Building Products.
~~Mensante Co.~~ Saflex
 PPG Industries, Glass Group
 Guardian Industries Corp.
 Viracon Inc.

- B. Hurricane/Impact Resistant Glass: Subject to compliance with requirements provide products by:

Arch Aluminum & Glass Co., Inc.
 Glasslam N.G. I., Inc
 Insulgard Corp.
 Interpane
 Saflex
 Viracon

2.02 GLASS PRODUCTS - GENERAL

- A. Provide Primary glass complying with FS DD-G-451 and Heat-Treated glass complying with FS DD-G-1403.
- B. Fabricate to sizes and thickness recommended by glass manufacturers for application indicated.
- C. Heat Strengthening: If climatic, or shading conditions exist which will cause increased thermal stresses in the glass, increasing the possibility of thermal breakage, provide heat strengthened glass complying with ASTM C 1048, Kind HS.

2.03 GLASS PRODUCTS

- A. Clear Uncoated Float Glass: Annealed, Type 1, Class 1 (transparent), quality q3 (glazing select), and nominal thickness 1/4 inch.

- B. Clear Tempered Float Glass: Grade B (fully tempered), style 1 (uncoated surfaces), type I (float), quality q3, class 1.
- C. Tinted Uncoated Float Glass (outer pane): Annealed tinted float glass, Type 1, Class 2, Quality q3, nominal thickness 1/4 inch.
1. Acceptable Products: ~~Ferd-Glass Zeledvne; Sunglas Versalux Blue, Pilkington/LOF; Optifloat Blue-Green Tinted, PPG; Azuria Tinted.~~
 2. Performance Characteristics:
 - a. Visible Light Transmittance: 71 to 75 percent.
 - b. Visible Light Reflectance: 7 percent.
 - c. Total Solar Energy Transmittance: 35 to 49 percent.
 - d. Total Solar Energy Reflectance: 6 to 7 percent.
 - e. UV Transmittance: 28 to 32 percent.
 - f. Summer U-Value: 1.09 to 1.11.
 - g. Winter U-Value: 1.09.
 - h. Solar Heat Gain Coefficient: 0.51 to 0.62.
 - i. Shading Coefficient: 0.60 to 0.72.
- D. Tinted Uncoated Float Glass (Alternate outer pane): Annealed tinted float glass, Type 1, Class 2, Quality q3, nominal thickness 1/4 inch.
1. Acceptable Products: Pilkington/LOF; EverGreen High Performance Tinted, PPG; Atlantica Tinted.
 2. Performance Characteristics:
 - a. Visible Light Transmittance: 65 to 67 percent.
 - b. Visible Light Reflectance: 6 to 7 percent.
 - c. Total Solar Energy Transmittance: 34 to 36 percent.
 - d. Total Solar Energy Reflectance: 5 to 7 percent.
 - e. UV Transmittance: 14 to 16 percent.
 - f. Summer U-Value: 1.11.
 - g. Winter U-Value: 1.09.
 - h. Solar Heat Gain Coefficient: 0.51.
 - i. Shading Coefficient: 0.59 to 0.60.
- E. Low-Emissivity Coated Flat Glass (inner pane): Annealed clear coated float glass, coating on side 3, Type 1, Class 1, Quality q3; with pyrolytic coating, nominal thickness 1/4 inch.
1. Acceptable Products: Guardian Commercial Low-E (LE-75), Pilkington/LOF; Energy Advantage Low-E Glass, PPG; Sungate 500 Low-E Glass, Viracon Solarscreen Low-E VE-185.
 2. Performance Characteristics:
 - a. Visible Light Transmittance: 82 percent.
 - b. Visible Light Reflectance: 10 percent.
 - c. Total Solar Energy Transmittance; 65 percent.
 - d. Total Solar Energy Reflectance: 10 percent.
 - e. UV Transmittance: 49 percent.
 - f. Summer U-Value: 0.63.
 - g. Winter U-Value: 0.73.
 - h. Solar Heat Gain Coefficient: 0.69.
 - i. Shading Coefficient: 0.81.
- F. Hurricane/Impact Resistant Glass: Two panes of equal thickness glass (outer layer to be Evergreen tinted), laminated together with a test compliant interlayer.

1. Acceptable Products: Arch Aluminum Impact Resistant Glass, Glasslam N.G.I., Inc Safety Plus®, Insulgard Corp. Coastgard™, Interpane Glass Securepane®, Saflex Hurricane Resistant Glass, Viracon HRG-2.
 2. Performance Characteristics:
 - a. Visible Light Transmittance: 65 to 67 percent.
 - b. Visible Light Reflectance: 6 to 7 percent.
 - c. Total Solar Energy Transmittance: 34 to 36 percent.
 - d. Total Solar Energy Reflectance: 5 to 7 percent.
 - e. UV Transmittance: 14 to 16 percent.
 - f. Summer U-Value: 1.11.
 - g. Winter U-Value: 1.09.
 - h. Solar Heat Gain Coefficient: 0.51.
 - i. Shading Coefficient: 0.59 to 0.60.
 3. Hurricane/Impact Resistant Glass, when used as part of an insulated glass assembly shall be positioned on the outer surface.
- G. Laminated Safety Glass: Two panes of equal thickness, laminated together with a 0.030" thick plastic interlayer for total thickness of 1/4" complying with the following:
1. Plastic Interlayer: Glass manufacturer's standard clear polyvinyl butyral interlayer which shall not show tendency to bubble, discolor or lose physical or mechanical properties after laminating.
 2. Glass: Clear float glass, both panes (tempered if required by code).
- H. Mirrors: 1/4" polished plate glass panels, silver coated and hermetically sealed with a uniform coating of electrolytic copper plating.
- I. Transparent Mirror: 1/4" thick, with pyrolytic coating applied to gray tint glass. Visible transmittance 12%, visible reflectance 60%.
- J. Translucent White Laminated Glass (65% visible light transmittance): Two panes of equal thickness, laminated together with a minimum .015 thick plastic interlayer for a total thickness of 1/4" complying with the following:
1. Plastic Interlayer: Glass manufacturer's standard translucent white polyvinyl butyral interlayer which shall not show tendency to bubble, discolor or lose physical or mechanical properties after laminating.
 2. Glass: Clear float glass, both panes (tempered if required by code).
- K. Spandrel Glass: 1/4" thick, Lead-free ceramic frit enamel coated ASTM C-1048, Condition B (spandrel glass, one surface coated), Type 1 (transparent glass, flat), Quality q3.
1. Apply coating to #2 side of an insulated assembly.
 2. Provide blue, subdued gray or green opaque finish to compliment color of insulating tinted glass on remainder of store. Submit samples to Walgreens Project Architect for approval.
- L. Wired Glass: 1/4" thick, UL listed, clear polished flat rolled glass complying with ANSI-Z97.1, reinforced with diamond pattern wire mesh.

2.04 GLAZING SEALANTS (Interior Applications)

A. General: Comply with recommendations of sealant and glass manufacturers for selection of glazing sealants with performance and compatibility characteristics suitable for application and conditions indicated.

B. Colors: Match color of frame finish.

2.05 GLAZING GASKETS/TAPE

A. Glazing Gaskets: ASTM C864, resilient polyvinyl chloride, extruded shape to fit glazing channel retaining slot; black color.

B. Glazing Tape: Closed cell polyvinyl chloride foam, maximum water absorption by volume 2 percent, designed for 25 percent compression for air barrier vapor retarder seal, black color, coiled on release paper over adhesive on two sides; widths required for specified installation.

C. Glazing Tape: Butyl compound tape with integral resilient tube spacer, 10 to 15 Shore durometer hardness, black color, coiled on release paper, widths required for specific installation.

2.06 MISCELLANEOUS GLAZING MATERIALS

A. Compatibility: All materials shall be compatible with surfaces contacted in installation.

B. Cleaners, Primers and Sealers: As recommended by sealant/gasket manufacturer.

C. Setting Blocks: ASTM C 864 neoprene, 80 to 90 Shore A durometer hardness; length 4 inches, width of glazing rabbet space less 1/16 inch, height required for glazing method, pane weight and pane area.

D. Spacers: Shims: ASTM C 864: neoprene, 50 to 60 Shore durometer hardness; length 3 inches, one half height of glazing stop, thickness required for application, one face self-adhesive.

E. Glazing Splines: ASTM C 864, resilient polyvinyl chloride, extruded shape to fit glazing channel retaining slot; black color.

2.07 FABRICATION

A. Sealed Insulating Glass Units: Fabricate in accordance with ASTM E 774, Glass CBA.

1. Components:

- a. Outer Pane: Tinted uncoated float glass, blue color (see Part I regarding geographic areas requiring use of alternate outer pane glass). Provide clear glass at entry sidelights and transom.
- b. Air Space: 1/2 inch wide, hermetically sealed, dehydrated air space.
- c. Inner Pane: Low-E glass.
- d. Provide unit edge seals meeting requirement of ASTM E 773, with aluminum spacers having mitered corners and silicone sealant for glass-to-spacer seals.

PART III - EXECUTION

3.01 PREPARATION / INSTALLATION

- A. Clean glazing/framing members immediately before glazing to remove all detrimental substances.
- B. Adjust glazing channel dimensions as required by conditions for proper bite, edge/face clearances, and seal thickness.
- C. Install properly sized setting blocks in sill rabbet at one quarter of glass width from each corner, but not closer than 6" unless noted. Set blocks in thin course of sealant suitable for heel bead use.
- D. Provide spacers and edge blocks, correctly sized for conditions. Provide 1/8" minimum bite of spacers on glass.
- E. Miter cut wedge-shaped gaskets at corners, prevent pull away at corners, seal corner and butt joints as recommended by gasket manufacturer.
- F. Trim sight exposed tape flush with stop and finish sealant flush with sight line.
- G. Install transparent mirror with mirror coating facing "subject" side.

3.02 PROTECTION AND CLEANING

- A. Protect glass from contaminating substances.
- B. Remove and replace broken, chipped, cracked, abraded or damaged glass.
- C. Remove labels and wash glass on both faces prior to final acceptance as directed by Walgreens.
- D. Remove glazing materials from finish surfaces.

END OF SECTION