

SECTION 08810—FIRE-RATED GLASS—PYROBEL™

PART 1 -GENERAL

1.1 SUMMARY

- A. Section Includes:
1. Fire-rated glazing materials installed as vision lights in fire-rated doors.
  2. Fire-rated glazing materials installed as [sidelites] [transoms] [borrowed lites] in fire-rated frames and [wall applications].
- B. Related Sections include the following:
1. Section 08110 “Steel Doors and Frames” for vision panels in interior doors and interior vision panel (borrowed lites) frames.
  2. Section 08210 “Flush Wood Doors” for vision panels in interior doors.
  3. Section 09260 “Gypsum Board Assemblies” for gypsum board and metal stud framed area separation partition walls.

1.2 REFERENCES

- A. American Society for Testing and Materials (ASTM):
1. ASTM E 119: Fire Tests of Building Construction and Materials.
  2. ASTM E2074-00: Standard Test Method for Fire Tests of Door Assemblies, Including Positive Pressure Testing of Side-Hinged and Pivoted Swinging Door Assemblies.
  3. ASTM E2010-01: Standard Test Method for Positive Pressure Fire Tests of Window Assemblies.
- B. American National Standards Institute (ANSI):
1. ANSI Z97.1: Standard for Safety Glazing Materials Used in Buildings
- C. Consumer Product Safety Commission (CPSC):
1. CPSC 16 CFR 1201: Safety Standard for Architectural Glazing Materials
- D. Glass Association of North America (GANA):
1. GANA – Glazing Manual.
  2. FGMA – Sealant Manual.
- E. National Fire Protection Association (NFPA):
1. NFPA 80: Standard for Fire Doors and Other Opening Protectives
  2. NFPA 252: Standard of Fire Tests of Door Assemblies
  3. NFPA 257: Standard of Fire Test for Window and Glass Block Assemblies
  4. NFPA 251: Standard Methods of Tests of Fire Endurance of Building Construction and Materials
- F. Underwriters Laboratories, Inc. (UL):
1. UL 263: Fire tests of Building Construction and Materials
  2. UL 10C: Standard for Fire Doors Under Positive Pressure
  3. UL 9: Standard for Fire Windows
- G. Standard Council of Canada:
1. ULC Standard CAN4-S104: Fire Tests of Door Assemblies.
  2. ULC Standard CAN4-S106: Fire Tests of Window Assemblies.
  3. CAN/ULC-S101M: Standard Methods of Fire Endurance Tests.

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### 1.3 PERFORMANCE REQUIREMENTS

- A. Fire-rated, clear and wireless glazing material for use in locations such as doors, sidelites, transoms, borrowed lites, and “Transparent Wall” applications with fire rating requirements ranging from 45 minutes to 2 hours with hose stream test; for use in interior and exterior applications.
- B. Provides protection by reducing the radiant and conductive heat transfer.

### 1.4 SUBMITTALS

- A. Product data: Submit manufacturer’s technical data for each glazing material required, including installation and maintenance instructions.
- B. Certificates of compliance from glass and glazing materials manufacturers attesting that glass and glazing materials furnished for project comply with requirements. Separate certification will not be required for glazing materials bearing manufacturer’s permanent label designating type and thickness of glass, provided labels represent a quality control program involving a recognized certification agency or independent testing laboratory acceptable to authority having jurisdiction.
- C. Product Test Listings: From Intertek Testing Services-Warnock Hersey Certification indicating fire-rated glass complies with requirements, based on comprehensive testing of current product.
- D. Samples: Submit, for verification purposes, approx. 8-inch by 10-inch sample for each type of glass indicated.

### 1.5 QUALITY ASSURANCE

- A. Glazing Standards: FGMA Glazing Manual and Sealant Manual.
- B. Fire Resistance Rated Glass: Each lite shall bear permanent, nonremovable label of Warnock-Hersey certifying it for use in tested and rated fire resistive assemblies.

### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to specified destination in manufacturer’s or distributor’s packaging, undamaged, complete with installation instructions.
- B. Do not expose Pyrobel to temperatures greater than 120 degrees or less than minimum -20 degrees F during storage and transportation.
- C. Store off ground, under cover, protected from weather and construction activities.
- D. Do not expose the non-PVB side of glass to UV light.
- E. Store sheets of glass vertically. DO NOT lean.

### 1.7 WARRANTY

- A. Provide manufacturer's limited warranty.
- B. Warranty period: Five years from date of shipment by manufacturer.

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## PART 2 -PRODUCTS

### 2.1 FIRE-RATED GLAZING MATERIALS

- A. Manufacturer: Pyrobel™ as manufactured by AGC Flat Glass Europe and distributed by AGC InterEdge Technologies LLC, Sausalito, CA, Telephone: 877-376-3343, Fax: 415-289-0326, e-mail: sales@firesafe-glass.com, web site: www.firesafe-glass.com.
- B. Composition: Composed of multiple sheets of glass laminated with an intumescent interlayer.
- C. Properties:
  - 1. Thickness: For Interior Use: [5/8", #45-16], [1", #60-25], [1-3/8", #90-35], [2-3/16", #120-53].
    - a. For Exterior Use, Single Exterior Glazing: [3/4", #45-20], [1 1/4", #60-29], [1-1/2", #90-37], [2-5/16", #120-57].
    - b. For Exterior Use, Insulated Exterior Glazing: [1 3/8", #45-34], [1 7/8", #60-47], [2-1/8", #90-55],
  - 2. Weight: Interior glazing varies with thickness (approximate range 8 to 25 lbs./sq. ft.).
  - 3. Approximate Visible Transmission: Interior glazing varies with thickness (approximate range 85 to 71 percent).
  - 4. Fire-rating: Up to 2 hours.
  - 5. Impact Safety Resistance: ANSI Z97.1 and CPSC 16CFR1201 (Cat. I and II).
  - 6. STC Rating: Up to 46 dB.
  - 7. Exterior Grade: PVB layer on exterior surface for UV protection,
- D. Permanently label each piece of Pyrobel with the appropriate marking.
- E. Fire Rating – 20 Minutes and Greater: Fire rating listed and labeled by Intertek Testing Services-Warnock Hersey Certification for fire rating scheduled at opening locations on drawings, when tested in accordance with ASTM E 119 and UL 263.
- F. Substitutions: No substitutions allowed.

### 2.2 GLAZING COMPOUND FOR FIRE-RATED GLAZING MATERIALS

- A. Glazing Tape: Closed cell foam, coiled on release paper over adhesive on one side, maximum water absorption by volume of 2 percent, designed for compression of 25 percent to effect an air and vapor seal.
- B. Silicone Sealant: One-part neutral curing silicone, medium modulus sealant, Type S; Grade NS; Class 25 with additional movement capability of 50 percent in both extension and compression (total 100 percent); Use (Exposure) NT; Uses (Substrates) G, A, and O as applicable. Available Products:
  - 1. Dow Corning 795 - Dow Corning Corp.
  - 2. Silglaze-II 2800 - General Electric Co.
  - 3. Spectrem 2 - Tremco Inc.
- C. Setting Blocks: Calcium silicate; glass width by 3 inches by 1/4 inch thick.
- D. Cleaners, Primers, and Sealers: Type recommended by manufacturer of glass and gaskets.

### 2.3 FABRICATION

- A. Fabricate glass and other glazing products in sizes required to glaze openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with recommendations of

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product manufacturer and referenced glazing standard as required to comply with system performance requirements.

### PART 3 -EXECUTION

#### 3.1 EXAMINATION

- A. Examine glass framing, with glazier present, for compliance with the following:
  - 1. Manufacturing and installation tolerances, including those for size, squareness, offsets at corners.
  - 2. Minimum required face or edge clearances.
  - 3. Observable edge damage or face imperfections.
  - 4. Damage to edge tape.
- B. Do not proceed with glazing until unsatisfactory conditions have been corrected.
- C. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings that are not firmly bonded to substrates.

#### 3.2 INSTALLATION (GLAZING)

- A. Comply with referenced GANA standards and instructions of manufacturers of glass, glazing sealants, and glazing compounds.
- B. Protect glass from edge damage during handling and installation. Inspect glass during installation and discard pieces with edge damage that could affect glass performance.
- C. Cut glazing tape to length and set against permanent stops, flush with sight lines to fit openings exactly, with stretch allowance during installation.
- D. Place setting blocks located at quarter points of glass with edge block no more than 6-inches from corners.
- E. Glaze vertically into labeled fire-rated metal frames or partition walls with same fire rating as glass and push against tape for full contact at perimeter of pane or unit.
- F. Place glazing tape on free perimeter of glazing in same manner described above.
- G. Do not remove protective edge tape.
- H. Install removable stop and secure without displacement of tape.
- I. Do not pressure glaze.
- J. Glaze exterior openings with PVB layer toward the exterior of the building.
- K. Knife trim protruding tape.
- L. Apply cap bead of silicone sealant along void between the stop and the glazing, to uniform line, with bevel to form watershed away from glass. Tool or wipe sealant surface smooth.
- M. Provide minimum 1/4 inch edge clearance.
- N. Install in vision panels in fire-rated doors to requirements of NFPA 80.

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- O. Install so that appropriate Warnock Hersey & Pyrobel markings remain permanently visible.

### 3.3 PROTECTION AND CLEANING

- A. Protect glass from contact with contaminating substances resulting from construction operations. Remove any such substances by method approved by glass manufacturer.
- B. Wash glass on both faces not more than four days prior to date scheduled for inspections intended to establish date of substantial completion. Wash glass by method recommended by glass manufacturer.