



## SECTION 08841

### POLYCARBONATE SHEET GLAZING

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Multiwall polycarbonate plastic glazing.
- B. Accessories for installation of plastic glazing.
- C. Skylight Glazing.

##### 1.2 RELATED SECTIONS

- A. Section 08800 - Glazing.

##### 1.3 REFERENCES

- A. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials.
- B. ANSI Z97.1 - American National Standard for Glazing Materials Used in Buildings.
- C. ASTM D 635 - Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Self-Supporting Plastics in a Horizontal Position.
- D. ASTM D 648 - Standard Test Method for Deflection Temperature of Plastics Under Flexural Load.
- E. ASTM D 696 - Standard Test Method for Coefficient of Linear Thermal Expansion.
- F. ASTM D 790/ASTM D 790M - Standard Test Method for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
- G. ASTM D 1003 - Standard Test Method for Haze and Luminous Transmittance of Transparent Plastics.
- H. ASTM D 1044 - Standard Test Method for Resistance of Transparent Plastic to Surface Abrasion.
- I. ASTM D 1929 - Standard Test Method for Ignition Properties of Plastics.
- J. ASTM D 2843 - Standard Test Method for Density of Smoke from the Burning and Decomposition of Plastics.
- K. ASTM D 3763 - Standard Test Method for Impact Resistance of Flat, Rigid Plastic

Specimen by Means of A Striker Impacted by A Falling Weight (40 ft-lbs).

- L. ASTM G 53 - Standard Practice for Operating Light and Exposure Apparatus (Fluorescent UV-Condensation Type) for Exposure of Non-Metallic Materials.
- M. QUV 313B - Accelerated Weathering Test of Non-Metallic Materials.
- N. ISO-9002 - International Standards Organization.

#### 1.4 SYSTEM DESCRIPTION

- A. Design requirements for installed plastic glazing systems:
  - 1. Windload resistance:
    - a. Positive pressure: \_\_\_ pounds per square foot (\_\_\_ MPa).
    - b. Negative pressure: \_\_\_ pounds per square foot (\_\_\_ MPa).
- B. Performance requirements for polycarbonate sheet glazing: Conforming to requirements of 16 CFR 1201, ANSI Z97.1, and the following:
  - 1. Coefficient of expansion, when tested in accordance with ASTM D 696: .0000375 inch per inch per degree F (0.0000675 ratio per degree C).
  - 2. Modulus of elasticity, when tested in accordance with ASTM D 4065: 340,000 pounds per square inch (2343.96 MPa).
  - 3. Flexural strength, when tested in accordance with ASTM D 790: 13,500 pounds per square inch (93.06 MPa).
  - 4. Deflection temperature, when tested in accordance with ASTM D 648: 270 degrees F (132.2 degrees C) under 274 pounds per square inch (1.88 MPa) load.
  - 5. Self-ignition temperature, when tested in accordance with ASTM D 1929: Minimum 1000 degrees F (537.7 degrees C).
  - 6. Smoke density rating, when tested in accordance with ASTM D 2843: Maximum 75.
  - 7. Maximum allowable continuous service temperature: 180 degrees F (82.2 degrees C).

#### 1.5 SUBMITTALS

- A. Product Data: Polycarbonate sheet manufacturer's descriptive literature for each glazing type specified, including documentation of code compliance; include Sabic Technical Manual and Product Data Sheets with light transmission, impact resistance, weathering resistance and yellowing intensity, plus descriptive literature for recommended installation accessories.
- B. Selection Samples: Two sets of color chips representing polycarbonate sheet manufacturer's full range of available colors.
- C. Verification Samples: Two samples, minimum size 4 inches (102 mm) square, representing actual color and finish of products to be installed.
- D. Quality Control Submittals:
  - 1. Design Data: Analysis by polycarbonate sheet manufacturer verifying compliance of polycarbonate sheet glazing; include details of glazing edge engagement, and allowance for anticipated thermal movements.
  - 2. Manufacturer's Instructions: Printed installation instructions for polycarbonate

sheet glazing; include storage, requirements, recommended glazing techniques, and installation accessories.

3. Specimen warranty documents.
4. Operation and maintenance data: Printed instructions on recommended cleaning and maintenance materials and methods.
5. Warranty documents.

F. Manufacturer Qualifications:

1. Minimum ten (10) years experience producing plastic glazing products.
2. Minimum five (5) completed projects on which manufacturer has supplied plastic glazing, similar in type and scope to this project; each completed project to be minimum five (5) years old.

G. Regulatory Requirements: Glazing materials to comply with the following building code:

1. ICC Evaluation Report: ES22-21.
2. International Building Code (IBC), 2006 Edition.
3. International Residential Code (IRC), 2006 Edition.

H. Mock-Ups: Supply materials for mock-ups required in affected sections.

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Do not slide, drag, or drop polycarbonate sheet materials.
- B. Do not store polycarbonate sheet materials in areas subject to direct UV exposure.
- C. Store products of this section with polycarbonate sheet manufacturer's protective film intact.
- D. Maintain storage area in accordance with polycarbonate sheet manufacturer's instructions until installation of products.

## 1.7 WARRANTY

- A. At project closeout, provide to Owner or Owners Representative an executed copy of the manufacturer's standard limited warranty against manufacturing defect, outlining its terms, conditions, and exclusions from coverage.
  1. Duration: Ten (10) & Fifteen (15) year warranty against defects in materials.  
- Depending on polycarbonate selected -

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Sundance Supply, LLC PO Box 2066, Ridgway, CO 81432

**Tel:** 888-775-6176 **Email:** [info@sundancesupply.com](mailto:info@sundancesupply.com)

**Website:** <http://www.sundancesupply.com>

## 2.2 SCOPE / APPLICATIONS

- A. Provide polycarbonate glazing panels for use in glazed curtain wall assemblies.
- B. Provide polycarbonate glazing panels for use in field fabricated skylight applications.
- C. Provide polycarbonate glazing panels for use in protective railing applications.

## 2.3 MULTIWALL PANELS

### A. LEXAN Thermoclear:

- 1. Grade/Type: \_\_\_\_\_.
- 2. Sheet Thickness: 0.236 inch (6mm) nominal, plus or minus 5 percent.
- 3. Sheet Thickness: 0.315 inch (8mm) nominal, plus or minus 5 percent.
- 4. Sheet Thickness: 0.395 inch (10mm) nominal, plus or minus 5 percent.
- 6. Sheet Thickness: 0.629 inch (16mm) nominal, plus or minus 5 percent.
- 7. Sheet Thickness: 0.98 inch (25mm) nominal, plus or minus 5 percent.
  
- 8. Color: Clear/Transparent
- 9. Color: Opal White
- 10.. Color: Bronze

### B. LEXAN Thermoclear Plus:

- 1. Grade/Type: \_\_\_\_\_.
- 2. Sheet Thickness: 0.315 inch (8mm) nominal, plus or minus 5 percent.
- 3. Sheet Thickness: 0.629 inch (16mm) nominal, plus or minus 5 percent.
- 4. Sheet Thickness: 0.98 inch (25mm) nominal, plus or minus 5 percent.
  
- 5. Color: Transparent/Clear.
- 6. Color: White - 25mm Only.
- 7. Color: Bronze - 25mm Only.

### LEXAN Thermoclear Plus Soft Lite:

- 1. Grade/Type: \_\_\_\_\_.
- 2. Sheet Thickness: 0.315 inch (8mm) nominal, plus or minus 5 percent.
- 3. Sheet Thickness: 0.629 inch (16mm) nominal, plus or minus 5 percent.

### LEXAN Thermoclear Dripguard:

- 1. Grade/Type: \_\_\_\_\_.
- 2. Sheet Thickness: 0.315 inch (8mm) nominal, plus or minus 5 percent.

### E. LEXAN Thermoclick Sheet:

- 1. Grade/Type: \_\_\_\_\_
- 2. Panel Thickness: 1.58 inch (40mm) nominal, plus or minus 5 percent.
- 3. Color: Opal white
- 4. Color: Transparent/clear
- 5. Color: Green
- 6. Color: Orange
- 7. Color: Purple
- 8. Color: Blue
- 9. Color: Grey
- 10. Color: Red

## 2.4 ACCESSORIES

- A. Supply joint sealers and installation accessories specified in polycarbonate sheet manufacturer's instructions, or approved by polycarbonate sheet manufacturer, for indicated installation conditions.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verification of Conditions:
  - 1. Openings are in accordance with approved shop drawings required in Section <MF SQ 08800 and polycarbonate sheet manufacturer's instructions, and are plumb and level to required tolerances#08 83 13 - Mirrored Glass Glazing>.
  - 2. <MF SQ 08800 and polycarbonate sheet manufacturer's instructions, and are plumb and level to required tolerances#08 83 13 - Mirrored Glass Glazing>.
  - 3. Glazing channels or recesses are sized for correct glazing edge engagement.

### 3.2 PREPARATION

- A. Clean glazing channels or recesses free of obstructions, soil, debris, and other materials.
- B. Seal porous glazing channels or recesses with primer-sealer compatible with substrate and polycarbonate sheet materials.
- C. Cut polycarbonate sheet materials to exact sizes required, with clean edges free of notches; clean contact edges with solvent compatible with polycarbonate sheet materials, as specified or approved by polycarbonate sheet manufacturer.

### 3.3 INSTALLATION

- A. Install plastic glazing in accordance with polycarbonate sheet manufacturer's instructions.
- B. Do not use glazing accessories not specified or approved by polycarbonate sheet manufacturer.

### 3.4 CLEANING

- A. Immediately after completing construction activities relating to installation of polycarbonate sheet materials, remove remainder of strippable masking from surfaces of polycarbonate sheet glazing; do not expose masking to sunlight for an extended period of time.
- B. Immediately after removing masking, clean glazing in accordance with polycarbonate sheet manufacturer's instructions:
  - 1. Rinse surface with lukewarm water.
  - 2. Wash surface with mild soap and lukewarm water.
  - 3. Use soft cloth or sponge gently to loosen dirt and grime; scrubbing glazing surfaces, or using squeegee on glazing surfaces, is not permitted.
  - 4. Repeat rinse as above, and wipe surface dry with soft cloth until surfaces are spotless and dry.

### 3.5 PROTECTION OF INSTALLED PRODUCTS

- A. Immediately after cleaning, cover polycarbonate sheet glazing surfaces with polyethylene sheeting, or other covering material approved by polycarbonate sheet manufacturer; secure covering in place by taping to framing members - do not tape covering to polycarbonate sheet materials.
- B. Protect installed glazing from damage to function or finish by subsequent construction activities.
- C. Repair minor damage to finishes in accordance with polycarbonate sheet manufacturer's recommendations.
- D. Replace glazing having damage to function, and glazing having damage to finishes which cannot be repaired to Architect's acceptance.