

(Note to Specifier: This specification has additional instructions included as Hidden Text. To view this information, select "Tools", "Options", and check "Hidden Text" in the Formatting Marks section of the View Tab.)

SECTION 08840

Plastic Glazing

Lumicor Translucent High Performance Resin Panel System

PART 1 – GENERAL

1.1 SUMMARY

Section Includes: Polycarbonate Sheets

- A. Laminated polycarbonate plastic glazing.
- B. Double sided enhanced UV-resistant polycarbonate plastic glazing.

1.2 RELATED SECTIONS

- A. Section 07900 – Joint Sealers
- B. Section 08520 – Aluminum Windows
- C. Section 08630 – Metal-Framed Skylights
- D. Section 08800 - Glazing
- E. Section 08850 – Glazing Accessories
- F. Section 08910 – Metal-Framed Curtain Wall

1.3 REFERENCES

A. ASTM International:

1. ASTM D 256 - Standard Test Method for Determining the Pendulum Impact Resistance of Notched Specimens of Plastics.
2. ASTM D 635 – Standard Test Method for Rate of Building and/or Extent and Time of Burning of Plastics in a Horizontal Position.
3. ASTM D 638 - Standard Test Method for Tensile Properties of Plastics.
4. ASTM D 790 - Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
5. ASTM D 1929 - Standard Test Method for Ignition Properties of Plastics.
6. ASTM E 84 – Standard Test Method for Surface Burning Characteristics of Building Materials

B. ANSI Safety Performance Specification and Methods of Test:

1. ANSI Z 97.1 - American National Standard for Glazing Materials Used in Buildings

1.4 SUBMITTALS

- A. General: Submit the following in accordance with conditions of contract and Division 1 Submittal Procedures Section.
- B. Product Data: Submit manufacturer's product data, product description, fabrication information, and installation instructions in compliance with specified performance requirements.
- C. Submit product test reports from a qualified independent third party testing agency indicating each type and class of panel system complies with the project performance requirements, based on the testing of current products.
 - a. Test reports required are:
 - i. Rate of Burning (ASTM D 635)
 - ii. Self-Ignition Temperature (ASTM D 1929)
 - iii. Flame Spread and Smoke Developed (ASTM E 84)
 - iv. Impact Strength (ASTM D 3763)
 - v. Safety Glazing and Impact Strength (ANSI Z97.1-2004)
- D. Samples for Initial Selection:
 - a. Submit minimum 3.5-inch by 3.5-inch samples. Indicate Décor (Color), Resin and Gauge
- E. Samples for Verification:
 - a. Submit minimum 3.5-inch by 3.5-inch sample for each type and color of solid plastic fabrication.
- G. Mockups:
 - a. Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and/or fit form and function.
 - b. Build mockup of [each type of] Plastic Fabrication.
 - a. Approved mockups may become part of the completed work if undistributed at time of Substantial Completion.
- I. Maintenance Data: Submit manufacturer's care and maintenance data, including care, repair and cleaning instructions. Include in Project closeout documents.

1.5 QUALITY ASSURANCE

- A. Manufacturer's Qualifications
 1. Materials and systems shall be manufactured by a company continuously and regularly employed in the manufacture of architectural resin panels for a period of at least five (5) consecutive years and which can show evidence of those materials being satisfactory used on at least six (6) projects of similar size, scope and location.
 2. Manufactured panels must be produced from a minimum of 40% post-industrial recycle content.

3. Manufacturer must have documented training for fabrication and installation of plastic fabrications.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver Plastic Sheets, fabrications, systems and specified items in manufacturer's standard protective masking.
- B. Store materials in a flat orientation in a dry place that is not exposed to exterior elements in original packaging.
- C. Handle materials to prevent damage to finished surfaces.
- D. Before installing Plastic Sheets, fabrications, systems and specified items permit them to reach room temperature.
- E. Do not deliver Plastic Sheets, fabrications, systems, components and accessories to project site until areas are ready for installation.

1.7 WARRANTY

- A. Information regarding warrantable applications of EX products can be obtained from our Technical Sales Team. For the warranty to be valid, it must be obtained in writing prior to the production use of either Lumishield EX, Lumiclear EX or Lumiform EX.

Part 2 – PRODUCTS

2.1 MANUFACTURER

- A. Manufacturer: Lumicor, Inc., Renton, WA, USA / 425-495-1400

2.2 MATERIALS

- A. Lumishield EX™ produced from polycarbonate sheet
 2. Engineered polycarbonate resin
 3. Sheet Size: 4' x 8'
 4. Thickness: Minimum ¼" or ½" gauge
 5. Basis of Design Product: The design of Plastic Fabrications is based on Lumishield EX as provided by Lumicor, Inc. Products from other manufacturers must be approved by the Architect and Designer prior to bidding in accordance with the Instructions to Bidders and Section 10 60 00 "Product Requirements".
- B. Sheet Minimum Performance Attributes:
 1. Rate of Burning (ASTM D 635). Material must attain CC1 Rating for a nominal thickness of 1.5 mm (0.060 in.) and greater.
 2. Self-Ignition Temperature (ASTM D 1929). Material must have a Self-Ignition Temperature greater than 650°F.
 3. Flame Spread and Smoke developed testing (ASTM E 84). Material must be able to meet a level of Class B (Flame spread less than 25 and smoke less than 450) at thickness of 1/2".
 4. Impact Strength. Minimum impact strength test as measured by ASTM D 3763 of 46 ft. lbs. at thickness of 1/8".

5. Safety Glazing. Material must attain a Class A impact rating in accordance with ANSI Z97.1-2004.
- C. Interlayer Materials: Compatible with polycarbonates and proprietary bonding process to create a monolithic sheet of material when complete.

2.3 FABRICATION

- B. General: Fabricate Plastic Fabrications to designs, sizes and thicknesses indicated and to comply with indicated standards. Sizes, profiles and other characteristics are indicated on the drawings.
- C. Comply with manufacturer's written fabrication guide recommendations.
- D. Machining: Acceptable means of machining are listed below. Ensure that material is not chipped or warped by machining operations.
1. Sawing: Select equipment and blades suitable for type of cut required.
 2. Drilling: Drills specifically designed for use with plastic products.
 3. Milling: Climb cut where possible.
 4. Routing: Select equipment and bits suitable for type of cut required.
 5. Tapping
- E. Forming: Form products to shapes indicated using the appropriate method listed below. Comply with manufacturer's written instructions.
1. Cold Bending
 2. Hot Bending
- F. Laminating: Laminate to substrates indicated using adhesives and techniques recommended by manufacturer.

2.4 ACCESSORIES

- A. Gaskets shall be as per manufacturer's standards to meet performance criteria.
- B. Fasteners shall be per manufacturer's standards to meet performance requirements.

2.5 MISCELLANEOUS MATERIALS

- A. General: Provide products of material, size, and shape required for application indicated, and with a proven record of compatibility with surfaces contacted in installation.
- B. Cleaner: Type recommended by manufacturer.
- C. Fasteners: Use screws designed specifically for plastics.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions where installation of Plastic Fabrications will occur, with Installer present, for compliance with manufacturer's requirements. Verify that substrates and conditions are satisfactory for installation and comply with requirements specified.

3.2 INSTALLATION

- A. General: Comply with manufacturer's written instructions for the installation of Plastic Fabrications.
- B. Manufacturer's shop to fabricate items to the greatest degree possible.
- C. Utilize all fasteners recommended by manufacturer for type of installation indicated. Material that is chipped, warped, hazed or discolored as a result of installation or fabrication methods will be rejected.
- D. Install components plumb, level and rigid, scribed to adjacent finishes, in accordance with approved shop drawings and product data.

3.3 CLEANING AND PROTECTION

- A. Protect surfaces from damage until date of substantial completion. Repair work or replace damaged work, which cannot be repaired to Architect's satisfaction.

End of Section 08840