

## SECTION 08840

### PLASTIC GLAZING

#### PART GENERAL

##### SECTION INCLUDES

Polycarbonate plastic glazing.

Abrasion-resistant polycarbonate plastic glazing.

Enhanced UV-resistant polycarbonate plastic glazing.

Laminated polycarbonate plastic glazing for security applications.

Laminated polycarbonate plastic glazing for bullet-resisting security glazing.

##### RELATED SECTIONS

Section 08630 - Metal-Framed Skylights.

Section 07900 - Joint Sealers.

Section 08520 - Aluminum Windows.

Section 08800 - Glazing.

Section 08910 - Metal-Framed Curtain Wall.

##### REFERENCES

ANSI Z 97.1 - American National Standard for Glazing Materials Used in Buildings -- Safety Performance Specifications and Methods of Test.

ASTM D 256 - Standard Test Method for Determining the Pendulum Impact Resistance of Notched Specimens of Plastics.

ASTM D 638 - Standard Test Method for Tensile Properties of Plastics.

ASTM D 790 - Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.

ASTM D 792 - Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement.

ASTM D 1929 - Standard Test Method for Ignition Properties of Plastics.

ASTM F 1233 - Standard Test Method for Security Glazing Materials and Systems.

## SUBMITTALS

Submit under provisions of Section 01300.

Product Data: Submit manufacturer's printed product information that includes physical properties and recommended installation and glazing procedures, including edge engagement guidelines.

Include data on material weight, windload capacity, light transmission, shading coefficient, and thermal expansion.

Verification Samples: Submit samples for each glazing type specified, not less than 12 inches square and framed on two adjacent sides to show glazing system.

## DELIVERY, STORAGE, AND HANDLING

Deliver polycarbonate sheets on enclosed pallets.

Store in dry, well-ventilated and covered areas at temperatures below 80 degrees F.

Handle polycarbonate sheets carefully to prevent damage; do not drop, slide, or drag.

## WARRANTY

Comply with provisions of Section 01700.

Provide manufacturer's 7-year written warranty covering breakage.

Provide manufacturer's 7-year written warranty covering breakage, loss of light transmission, and yellowing.

Provide manufacturer's 7-year written warranty covering breakage, abrasion resistance, coating failure, loss of light transmission, and yellowing.

PART PRODUCTS

MANUFACTURER

Provide products manufactured by DSM Engineering Plastic Products, Inc., Sheffield Plastics, 119 Salisbury Road, Sheffield MA 01257; ASD. Tel. (800) 628-5084, Fax. (413) 229-8717.

Substitutions: Not permitted.

MATERIALS

Polycarbonate Sheet: Comply with ANSI Z 97.1 and with properties as follows:

Specific gravity: 1.2, per ASTM D 792.

Tensile strength, yield: 9,000 psi, per ASTM D 638.

Tensile strength, ultimate: 9,500 psi, per ASTM D 638.

Tensile modulus: 340,000 psi, per ASTM D 638.

Flexural strength at 5 percent strain: 13,500 psi, per ASTM D 790.

Flexural modulus: 345,000 psi, per ASTM D 790.

Izod impact strength (0.125 inch notched): 12-16 ft lb/in/in of notch, per ASTM D 256.

Self ignition temperature: 1040 degrees F, per ASTM D 1929.

Flash ignition temperature: 800 degrees F, per ASTM D 1929.

General Purpose Type: Provide HYZOD GP, UV inhibiting plastic glazing sheet.

Thickness: 0.062 inch nominal.

Thickness: 0.093 inch nominal.

Thickness: 0.118 inch nominal.

Thickness: 0.177 inch nominal.

Thickness: 0.236 inch nominal.

Thickness: 0.375 inch nominal.

Thickness: 0.500 inch nominal.

Color: Clear.

Color: Gray 7130.

Color: Dark Gray 7135.

Color: Bronze 5109.

Color: Custom color to match Architect's sample.

Enhanced UV Resistant Type: Provide HYZOD SL plastic glazing sheet.

Thickness: 0.118 inch nominal.

Thickness: 0.177 inch nominal.  
Thickness: 0.236 inch nominal.  
Thickness: 0.375 inch nominal.  
Thickness: 0.500 inch nominal.  
Color: Clear.  
Color: Gray 7130.  
Color: Dark Gray 7135.  
Color: Bronze 5109.  
Color: Custom color to match Architect's sample.

UV and Abrasion Resistant Type: Provide HYZOD AR hard-coated plastic glazing sheet.

Thickness: 0.118 inch nominal.  
Thickness: 0.177 inch nominal.  
Thickness: 0.236 inch nominal.  
Thickness: 0.375 inch nominal.  
Thickness: 0.500 inch nominal.  
Color: Clear.  
Color: Gray 7130.  
Color: Dark Gray 7135.  
Color: Bronze 5109.  
Color: Custom color to match Architect's sample.

Glazing Accessories: As recommended by manufacturer of plastic glazing sheet for wet or dry glazing installations.

## LAMINATED GLAZING

Provide plastic glazing material comprised of face layers of HYZOD AR polycarbonate sheet factory-laminated into high-impact security glazing assemblies.

### Containment Glazing:

Provide HYGARD CG375 two-ply polycarbonate laminate with the following properties:

Forced entry ratings: H.P. White TP0500.02 Level II Step 10; ASTM F 1233 Class III Step 12.

Gage: 0.380 inch, plus/minus 5 percent tolerance.

Weight: 2.5 pounds per sq ft.

Shading coefficient: 0.92.

Light transmittance (clear): 84 percent.

Provide HYGARD CG500 three-ply polycarbonate laminate with the following properties:

Forced entry ratings: H.P. White TP0500.02 Level II Step 12; ASTM 1233 Class III, Step 15.

Gage: 0.525 inch, plus/minus 5 percent tolerance.

Weight: 3.3 pounds per sq ft.  
Shading coefficient: 0.90.  
Light transmittance (clear): 84 percent.  
Provide HYGARD CG750 three-ply polycarbonate laminate with the following properties:  
Forced entry ratings: H.P. White TP0500.02 Level IV Step 31; ASTM F 1233 Class IV Step 26.  
Gage: 0.775 inch, plus/minus 5 percent tolerance.  
Weight: 4.9 pounds per sq ft.  
Shading coefficient: 0.87.  
Light transmittance (clear): 80 percent.

**Bullet Resistant Glazing:**

Provide HYGARD BR750 three-ply polycarbonate and acrylic laminate with the following properties:

Ballistics rating: UL 752 Level I MPSA .38 Super Automatic.

Gage: 0.800 inch, plus/minus 5 percent tolerance.

Weight: 5.1 pounds per sq ft.

Shading coefficient: 0.89.

Light transmittance (clear): 88 percent.

Provide HYGARD BR1000 four-ply polycarbonate laminate with the following properties:

Ballistics rating: UL 752 Level II MPSA .357.

Forced entry ratings: H.P. White TPO500.01 Level V; ASTM F 1233, Class V, Sequence 38.

Gage: 1.00 inch, plus/minus 5 percent tolerance.

Weight: 6.6 pounds per sq ft.

Shading coefficient: 0.78.

Light transmittance (clear): 72 percent.

Provide HYGARD BR1250 four-ply polycarbonate laminate with the following properties:

Ballistics ratings: UL 752 Level III SPSA .44 magnum.

Forced entry ratings: H.P. White TPO500.02 Level V; ASTM F 1233, Class V, Sequence 38.

Gage: 1.32 inch, plus/minus 5 percent tolerance.

Weight: 8.1 pounds per sq ft.

Shading coefficient: 0.81.

Light transmittance (clear): 73 percent.

**PART EXECUTION**

**EXAMINATION**

Inspect pallets upon delivery for evidence of damage.

Inspect and verify that frame openings are correct size and conform to recommendations of the plastic glazing sheet manufacturer.

## PREPARATION

Clean frame contact surfaces with compatible solvent and wipe dry. Do not allow solvent to pool in glazing channels.

Immediately prior to installation, expose glazing edges of plastic sheet by peeling back factory-applied protective masking to a dimension sufficient for edge engagement.

## INSTALLATION

Install plastic glazing in accordance with manufacturer's recommendations for edge engagement and expansion allowance.

Employ only sealants and glazing accessories that have been approved by manufacturer of plastic glazing sheet.

Remove protective masking immediately after all glazing operations are completed.

## ADJUSTING AND CLEANING

If installed properly, plastic glazing should not require additional cleaning after de-masking. If cleaning becomes necessary, comply with manufacturer's instructions, and use only cleaning agents and techniques that have been approved by the manufacturer.

## PROTECTION

Comply with provisions of Section 01700 for protecting installed work.

Affix polyethylene film or other covering approved by plastic glazing sheet manufacturer to framing members, as required to protect plastic glazing from other construction operations.

## SCHEDULE

END OF SECTION