

SECTION 08840

PLASTIC GLAZING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Polycarbonate plastic glazing.
- B. Abrasion-resistant polycarbonate plastic glazing.
- C. Enhanced UV-resistant polycarbonate plastic glazing.
- D. Laminated polycarbonate plastic glazing for security applications.
- E. Laminated polycarbonate plastic glazing for bullet-resisting security glazing.

1.2 RELATED SECTIONS

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

1.3 REFERENCES

- A. ANSI Z 97.1 - American National Standard for Glazing Materials Used in Buildings -- Safety Performance Specifications and Methods of Test.
- B. ASTM D 256 - Standard Test Method for Determining the Pendulum Impact Resistance of Notched Specimens of Plastics.
- C. ASTM D 638 - Standard Test Method for Tensile Properties of Plastics.
- D. ASTM D 790 - Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.

- E. ASTM D 792 - Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement.
- F. ASTM D 1929 - Standard Test Method for Ignition Properties of Plastics.
- G. ASTM F 1233 - Standard Test Method for Security Glazing Materials and Systems.

#### 1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Submit manufacturer's printed product information that includes physical properties and recommended installation and glazing procedures, including edge engagement guidelines.
  - 1. Include data on material weight, windload capacity, light transmission, shading coefficient, and thermal expansion.
- C. 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.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver polycarbonate sheets on enclosed pallets.
- B. Store in dry, well-ventilated and covered areas at temperatures below 80 degrees F.
- C. Handle polycarbonate sheets carefully to prevent damage; do not drop, slide, or drag.

#### 1.6 WARRANTY

- A. Comply with provisions of Section 01700.
- B. Provide manufacturer's 7-year written warranty covering breakage.
- C. Provide manufacturer's 7-year written warranty covering breakage, loss of light transmission, and yellowing.

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

## PART 2 PRODUCTS

### 2.1 MANUFACTURER

- A. 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.
- B. Substitutions: Not permitted.

### 2.2 MATERIALS

- A. Polycarbonate Sheet: Comply with ANSI Z 97.1 and with properties as follows:
  - 1. Specific gravity: 1.2, per ASTM D 792.
  - 2. Tensile strength, yield: 9,000 psi, per ASTM D 638.
  - 3. Tensile strength, ultimate: 9,500 psi, per ASTM D 638.
  - 4. Tensile modulus: 340,000 psi, per ASTM D 638.
  - 5. Flexural strength at 5 percent strain: 13,500 psi, per ASTM D 790.
  - 6. Flexural modulus: 345,000 psi, per ASTM D 790.
  - 7. Izod impact strength (0.125 inch notched): 12-16 ft lb/in/in of notch, per ASTM D 256.
  - 8. Self ignition temperature: 1040 degrees F, per ASTM D 1929.
  - 9. Flash ignition temperature: 800 degrees F, per ASTM D 1929.
- B. General Purpose Type: Provide HYZOD GP, UV inhibiting plastic glazing sheet.
  - 1. Thickness: 0.062 inch nominal.
  - 2. Thickness: 0.093 inch nominal.
  - 3. Thickness: 0.118 inch nominal.
  - 4. Thickness: 0.177 inch nominal.
  - 5. Thickness: 0.236 inch nominal.
  - 6. Thickness: 0.375 inch nominal.
  - 7. Thickness: 0.500 inch nominal.
  - 8. Color: Clear.
  - 9. Color: Gray 7130.
  - 10. Color: Dark Gray 7135.
  - 11. Color: Bronze 5109.

12. Color: Custom color to match Architect's sample.
- C. Enhanced UV Resistant Type: Provide HYZOD SL plastic glazing sheet.
  1. Thickness: 0.118 inch nominal.
  2. Thickness: 0.177 inch nominal.
  3. Thickness: 0.236 inch nominal.
  4. Thickness: 0.375 inch nominal.
  5. Thickness: 0.500 inch nominal.
  6. Color: Clear.
  7. Color: Gray 7130.
  8. Color: Dark Gray 7135.
  9. Color: Bronze 5109.
  10. Color: Custom color to match Architect's sample.
- D. UV and Abrasion Resistant Type: Provide HYZOD AR hard-coated plastic glazing sheet.
  1. Thickness: 0.118 inch nominal.
  2. Thickness: 0.177 inch nominal.
  3. Thickness: 0.236 inch nominal.
  4. Thickness: 0.375 inch nominal.
  5. Thickness: 0.500 inch nominal.
  6. Color: Clear.
  7. Color: Gray 7130.
  8. Color: Dark Gray 7135.
  9. Color: Bronze 5109.
  10. Color: Custom color to match Architect's sample.
- E. Glazing Accessories: As recommended by manufacturer of plastic glazing sheet for wet or dry glazing installations.

### 2.3 LAMINATED GLAZING

- A. Provide plastic glazing material comprised of face layers of HYZOD AR polycarbonate sheet factory-laminated into high-impact security glazing assemblies.
- B. Containment Glazing:
  1. Provide HYGARD CG375 two-ply polycarbonate laminate with the following properties:
    - a. Forced entry ratings: H.P. White TP0500.02 Level II Step 10; ASTM F 1233 Class III Step 12.
    - b. Gage: 0.380 inch, plus/minus 5 percent tolerance.
    - c. Weight: 2.5 pounds per sq ft.
    - d. Shading coefficient: 0.92.
    - e. Light transmittance (clear): 84 percent.
  2. Provide HYGARD CG500 three-ply polycarbonate laminate with the following properties:

- a. Forced entry ratings: H.P. White TP0500.02 Level II Step 12; ASTM 1233 Class III, Step 15.
  - b. Gage: 0.525 inch, plus/minus 5 percent tolerance.
  - c. Weight: 3.3 pounds per sq ft.
  - d. Shading coefficient: 0.90.
  - e. Light transmittance (clear): 84 percent.
3. Provide HYGARD CG750 three-ply polycarbonate laminate with the following properties:
- a. Forced entry ratings: H.P. White TP0500.02 Level IV Step 31; ASTM F 1233 Class IV Step 26.
  - b. Gage: 0.775 inch, plus/minus 5 percent tolerance.
  - c. Weight: 4.9 pounds per sq ft.
  - d. Shading coefficient: 0.87.
  - e. Light transmittance (clear): 80 percent.
- C. Bullet Resistant Glazing:
1. Provide HYGARD BR750 three-ply polycarbonate and acrylic laminate with the following properties:
- a. Ballistics rating: UL 752 Level I MPSA .38 Super Automatic.
  - b. Gage: 0.800 inch, plus/minus 5 percent tolerance.
  - c. Weight: 5.1 pounds per sq ft.
  - d. Shading coefficient: 0.89.
  - e. Light transmittance (clear): 88 percent.
2. Provide HYGARD BR1000 four-ply polycarbonate laminate with the following properties:
- a. Ballistics rating: UL 752 Level II MPSA .357.
  - b. Forced entry ratings: H.P. White TPO500.01 Level V; ASTM F 1233, Class V, Sequence 38.
  - c. Gage: 1.00 inch, plus/minus 5 percent tolerance.
  - d. Weight: 6.6 pounds per sq ft.
  - e. Shading coefficient: 0.78.
  - f. Light transmittance (clear): 72 percent.
3. Provide HYGARD BR1250 four-ply polycarbonate laminate with the following properties:
- a. Ballistics ratings: UL 752 Level III SPSA .44 magnum.
  - b. Forced entry ratings: H.P. White TPO500.02 Level V; ASTM F 1233, Class V, Sequence 38.
  - c. Gage: 1.32 inch, plus/minus 5 percent tolerance.
  - d. Weight: 8.1 pounds per sq ft.
  - e. Shading coefficient: 0.81.
  - f. Light transmittance (clear): 73 percent.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Inspect pallets upon delivery for evidence of damage.
- B. Inspect and verify that frame openings are correct size and conform to recommendations of the plastic glazing sheet manufacturer.

### 3.2 PREPARATION

- A. Clean frame contact surfaces with compatible solvent and wipe dry. Do not allow solvent to pool in glazing channels.
- B. Immediately prior to installation, expose glazing edges of plastic sheet by peeling back factory-applied protective masking to a dimension sufficient for edge engagement.

### 3.3 INSTALLATION

- A. Install plastic glazing in accordance with manufacturer's recommendations for edge engagement and expansion allowance.
- B. Employ only sealants and glazing accessories that have been approved by manufacturer of plastic glazing sheet.
- C. Remove protective masking immediately after all glazing operations are completed.

### 3.4 ADJUSTING AND CLEANING

- A. 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.

### 3.5 PROTECTION

- A. Comply with provisions of Section 01700 for protecting installed work.

- B. 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.

### 3.6 SCHEDULE

END OF SECTION