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This MANU-SPEC® utilizes the Construction Specifications Institute (CSI) *Project Resource Manual* (PRM), including *MasterFormat*™, *SectionFormat*™ and *PageFormat*™. A MANU-SPEC is a manufacturer-specific proprietary product specification using the proprietary method of specifying applicable to project specifications and master guide specifications. Optional text is indicated by brackets [ ]; delete optional text in final copy of specification. Specifier Notes precede specification text; delete notes in final copy of specification. Trade/brand names with appropriate product model numbers, styles and types are used in Specifier Notes and in the specification text Article titled “Acceptable Material.” Metric conversion, where used, is soft metric conversion.

This MANU-SPEC specifies plastic glazing as manufactured by Sheffield Plastics Inc. Revise MANU-SPEC section number and title below to suit project requirements, specification practices and section content. Refer to CSI *MasterFormat* for other section numbers and titles.

SECTION 08 84 00

PLASTIC GLAZING

PART 1 GENERAL

Specifier Note: This Section includes 3 different types of polycarbonate glazing: solid sheets, extruded multiwall sheets and laminated sheets.

1.01 SUMMARY

A. Section Includes: This Section specifies plastic glazing for general-purpose and security applications.

Specifier Note: Briefly list other documents or Sections in the Project Manual that are directly related to or are dependent upon the work of this Section. The list should be limited to documents or Sections with specific information that the reader might expect to find in this Section but which is not included.

1.02 RELATED REQUIREMENTS

A. Section [07 92 00 - Joint Sealants] [_____]: Glazing and frame sealants.

B. Section [08 34 53 - Security Doors and Frames] [_____]: Frames for Security Glazing.

C. Section [08 85 00 - Glazing Accessories] [_____]: Glazing Compound, Setting Blocks, Shims and Clips.

D. Section [_____].

Specifier Note: Article below may be omitted when specifying manufacturer’s proprietary products and recommended installation. Retain Reference Article when specifying products and installation by an industry reference standard. Indicate issuing authority name, acronym, standard designation and title. Establish policy for indicating edition date of standard referenced. Contract Conditions or Section 01 42 19 - Reference Standards may establish the edition date of standards. This Article does not require compliance with standards, but is merely a listing of references used. Article below should list only those industry standards referenced in this section. Retain only those reference standards to be used within the text of this Section. Add and delete as required for specific project.

1.03 REFERENCES

A. American National Standards Institute (ANSI):

1. ANSI Z97.1 Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test.

B. ASTM International (ASTM):

1. ASTM D256 Standard Test Methods for Determining the Izod Pendulum Impact Resistance of Plastics.

2. ASTM D638 Standard Test Method for Tensile Properties of Plastics.
3. ASTM D790 Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
4. ASTM D792 Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement.
5. ASTM D1003 Standard Test Method for Haze and Luminous Transmittance of Transparent Plastics.
6. ASTM D1929 Standard Test Method for Determining Ignition Temperature of Plastics.
7. ASTM F1233 Standard Test Method for Security Glazing Materials And Systems.

C. P. White Laboratory, Inc.:

1. Forced Entry and Ballistic Testing, TP-0500.02.

D. International Code Council (ICC):

1. International Building Code (IBC).

E. International Organization for Standardization (ISO):

1. ISO 9002 Quality Management System.

F. Underwriters Laboratories, Inc. (UL):

1. UL 752 Standard for Bullet-Resisting Equipment.

G. Uniform Building Code (UBC).

1.04 ACTION SUBMITTALS

A. General: Submit listed action submittals in accordance with Contract Conditions and Section [01 33 00 - Submittal Procedures] [_____].

B. Product Data: Submit product data, including manufacturer's technical product data sheet, for specified products.

1. Material Safety Data Sheets (MSDS).

1.05 INFORMATION SUBMITTALS

A. Quality Assurance:

1. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
2. Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
3. Manufacturer's Instructions: Manufacturer's installation instructions.

1.06 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: Submit operation and maintenance data for products in accordance with Section [01 78 00 - Closeout Submittals] [_____]. Include:

1. Manufacturer's instructions covering maintenance requirements.
2. Parts catalog that includes complete list of repair and replacement parts with cuts and identifying numbers.

1.07 QUALITY ASSURANCE

A. Qualifications:

1. Worker experienced in performing work of this section who has specialized in work similar to that required of this project.

B. Regulatory Requirements.

Specifier Note: Plastic glazing must meet the requirements of building codes and zoning bylaws issued by federal, state and local government authorities having jurisdiction (AHJ). Ensure that project specification section reflects the need to meet these requirements. Edit Article below as applicable.

1. Comply with [Uniform Building Code (UBC)] [International Building Code (IBC)] [Building Code for [State] [City] of [_____].

C. Preinstallation Meetings: Conduct preinstallation meeting to verify project requirements, manufacturer's instructions. Comply with [Section 01 31 19 - Project Meetings] [_____].

D. Mock-Ups: Construct mock-up in accordance with Section [01 43 39 – Mock-Ups] as directed by [Owner] [Architect] [Consultant] [_____] using products and work practices recommended by manufacturer.

1. Obtain [Owner's] [Architect's] [Consultant's] acceptance of finish color, texture and pattern, and quality of work.

Specifier Note: Edit paragraph below to specify mock-up size.

2. Mock-Up Size: [_____×_____] inches (mm).

3. Maintain mock-up during construction for comparison.

4. Mock-up may [not] be incorporated into final construction. [Remove and dispose of mock-up when no longer required.]

1.08 DELIVERY, STORAGE & HANDLING

A. Deliver materials in manufacturer's original, unopened, undamaged containers and packaging with identification labels intact.

1. Deliver polycarbonate sheets on enclosed pallets.

B. Storage and Protection:

1. Store plastic glazing protected from exposure to harmful weather conditions in dry, ventilated conditions at temperature less than [80 degrees F (27 degrees C)] [_____].

C. Handling: Handle plastic glazing materials to prevent damage.

1. Do not drop, slide or drag plastic glazing materials.

1.09 PROJECT AMBIENT CONDITIONS

A. Project Location: Carry out plastic glazing work only when temperatures are above [40 degrees F (4 degrees C)] [_____].

1.10 SEQUENCING

B. Sequence With Other Work: Comply with plastic glazing manufacturer's written recommendations for sequencing construction operations.

Specifier Note: Coordinate Article below with Conditions of the Contract and with [01 78 36 - Warranties] [_____].

1.11 WARRANTY

C. Project Warranty: Refer to Contract Conditions for project warranty provisions.

Specifier Note: Manufacturer may offer extended warranties of up to 15 years on some products. Makrolon 15 is available with a 15 year warranty. Check with manufacturer for specific warranty details.

D. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard [15 year] [_____] warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and does not limit, other rights Owner may have under Contract Documents.

Specifier Note: Coordinate Article below with manufacturer's warranty requirements.

E. Warranty: Commencing on date of acceptance by [Owner] [Architect] [Consultant] [_____].

1.12 MAINTENANCE MATERIALS

F. Use only standard parts of manufacturer's plastic glazing product line.

G. Maintain locally adequate stock of parts for replacement or emergency purposes.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Ensure manufacturer has minimum [5] [_____] years experience in manufacturing components similar to or exceeding requirements of project.

B. Ensure manufacturer has management processes that follow ISO 9002.

Specifier Note: Retain Article below for proprietary method specification. Add product attributes, performance characteristics, material standards and descriptions as applicable. Use of such phrases as “or equal,” “or approved equal” or similar phrases may cause ambiguity in specifications. Such phrases require verification (procedural, legal and regulatory) and assignment of responsibility for determining “or equal” products.

2.02 PROPRIETARY PRODUCTS/SYSTEMS

A. Manufacturer: Sheffield Plastics Inc.

1. Contact: 119 Salisbury Rd., Sheffield, MA 01257; Telephone: (877) 413-7957; (413) 229-8711; Fax: (413) 229-4066; E-mail: info@sheffieldplastics.com; website: www.sheffieldplastics.com.

2.03 PERFORMANCE CRITERIA

Specifier Note: Use the following paragraph when laminated security polycarbonate glazing is not required for project conditions.

A. Polycarbonate Sheet: To ANSI Z97.1 and with properties as follows:

1. Specific Gravity: To ASTM D792, [1.2] [_____].
2. Tensile Strength: To ASTM D638, yield [9000 psi (62 MPa)] [_____].
3. Tensile Strength: To ASTM D638, ultimate [9500 psi (65 MPa)] [_____].
4. Tensile Modulus: To ASTM D638, [345,000 psi (2378 MPa)] [_____].
5. Flexural Strength at 5% Strain: To ASTM D790, [13,500 psi (93 MPa)] [_____].
6. Flexural Modulus: To ASTM D256, [345,000 psi (2378 MPa)] [_____].
7. Izod Impact Strength (0.125 inches (3.2 mm) Notched): To ASTM D256, [12 - 16 ft lb/in (641 - 854 J/m)] [_____].
8. Self-Ignition Temperature: To ASTM D1929, [1070 degrees F (577 degrees C)] [_____].
9. Flash Ignition Temperature: To ASTM D1929, [870 degrees F (466 degrees C)] [_____].

Specifier Note: Use the following paragraph when laminated security polycarbonate glazing is required for project conditions.

B. Polycarbonate Laminated Sheet: To ANSI Z97.1 and with properties as follows:

1. Specific Gravity: To ASTM D792, [1.2] [_____].
2. Tensile Strength: To ASTM D638, Yield [9000 psi (62 MPa)] [_____].
3. Tensile Strength: To ASTM D638, Ultimate [9500 psi (65 MPa)] [_____].
4. Tensile Modulus: To ASTM D638, [340,000 psi (2343 MPa)] [_____].
5. Flexural Strength at 5% Strain: To ASTM D790, [13,500 psi (93 MPa)] [_____].
6. Flexural Modulus: To ASTM D256, [345,000 psi (2378 MPa)] [_____].
7. Izod Impact Strength (0.125 inches (3.2 mm) Notched): To ASTM D256, [12 - 16 ft lb/in (641 - 854 J/m)] [_____].
8. Self-Ignition Temperature: To ASTM D1929, [1077 degrees F (581 degrees C)] [_____].
9. Flash Ignition Temperature: To ASTM D1929, [872 degrees F (467 degrees C)] [_____].

Specifier Note: Polycarbonate glazing is generally used in security applications. The effectiveness of the glazing system to stop projectiles is dependent upon the composition, thickness and number of laminates in the glazing system, as well as the structure supporting it. In general terms, the materials are divided into 4 categories as follows: 1) Forced Entry - Commonly referred to as “smash and grab”; 2) Ballistic Level 1 - Medium power small arms, 1175 ft/sec (358 m/sec); 3) Ballistic Level 2 - High power small arms, 1250 ft/sec (381 m/sec); and 4) Ballistic Level 3 - Super power small arms, 1350 ft/sec (411 m/sec).

Various combinations of thickness, materials and number of laminations can be used to meet different levels of glazing security. Check with the product manufacturer to determine the most economical and effective way of meeting project security requirements.

2.04 PLASTIC GLAZING MATERIALS

A. General-Purpose Plastic Glazing: Solid polycarbonate sheet, [0.118 inches (3.0 mm)] [0.177 inches (4.5 mm)] [0.236 inches (6.0 mm)] [0.375 inches (9.6 mm)] [0.5 inches (12.7 mm)] thick with [[interior] [and] [exterior] side], [matte] [polished] [prismatic] [pebble] [textured] [_____] finish.

Specifier Note: Figures in parentheses indicate exact shades of color. Clear color is generally recommended if prismatic finish is specified.

1. Color: [Clear (A00)] [Gray (I30)] [Dark gray (I35)] [Bronze (K09)] [Custom color to match sample approved by [Owner] [Architect] [Consultant]] [_____].

Specifier Note: Light transmittance varies with color, thickness and texture. Light transmission for clear sheet varies from 77 - 89%, depending on thickness. Check with manufacturer to ensure light transmittance is adequate for project requirements and insert value to suit.

2. Light Transmittance: To ASTM D1003, [_____] %.

Specifier Note: Choose Makrolon SL for enhanced UV protection. Choose Makrolon FD for project conditions requiring plastic glazing that is FDA approved. Choose Makrolon LF for applications in which project requirements demand both UV stability and flame inhibiting qualities. Choose Makrolon Prismatic for project conditions requiring a clear prismatic finish. Makrolon Prismatic is available only in a clear color. Makrolon SL, Makrolon FD and Makrolon LF are available only in a polished finish.

3. Acceptable Material: Sheffield Plastics Inc. [Makrolon GP] [Makrolon SL] [Makrolon Prismatic] [Makrolon FD] [_____].

B. Flame Inhibiting Plastic Glazing: Solid polycarbonate sheet, [0.08 inches (2.0 mm)] [0.093 inches (2.4 mm)] [0.118 inches (3.0 mm)] [0.125 inches (3.2 mm)] [0.187 inches (4.7 mm)] [_____] thick with [[interior] [and] [exterior] side], [matte] [polished] [pebble] [textured] [_____] finish.

Specifier Note: Figures in parentheses indicate exact shades of color.

1. Color: [Clear (A00)] [Gray (I30)] [Dark gray (I35)] [Bronze (K09)] [Custom color to match sample approved by [Owner] [Architect] [Consultant]] [_____].

Specifier Note: Light transmittance varies with color, thickness and texture. Light transmission for clear sheet varies from 77 - 89%, depending on thickness. Check with manufacturer to ensure light transmittance is adequate for project requirements and insert value to suit.

2. Light Transmittance: To ASTM D1003, [_____] %.

Specifier Note: Choose Makrolon LF when project requirements demand both UV stability and flame inhibiting qualities.

3. Acceptable Material: Sheffield Plastics Inc., Makrolon LF.

C. Abrasion Resistant Plastic Glazing: Solid polycarbonate sheet, [abrasion resistance coated [interior] [and] [exterior] side], [0.118 inches (3.0 mm)] [0.177 inches (4.5 mm)] [0.236 inches (6.0 mm)] [0.375 inches (9.6 mm)] [0.5 inches (12.7 mm)] [_____] thick with polished finish on both sides.

Specifier Note: Figures in parentheses indicate exact shades of color.

1. Color: [Clear (A00)] [Gray (I30)] [Dark gray (I35)] [Bronze (K09)] [Green (H35)] [Custom color to match sample approved by [Owner] [Architect] [Consultant]] [_____].

Specifier Note: Light transmittance varies with color, thickness, texture and coatings. Light transmission for clear sheet varies from 77 - 89%, depending on thickness. Check with manufacturer to ensure light transmittance is adequate for project requirements and insert value to suit.

2. Light Transmittance: To ASTM D1003, [_____] %.

Specifier Note: For project conditions requiring the highest levels of UV resistance and abrasion resistance, choose Makrolon 15. Makrolon 15 is specially treated to resist yellowing and haze caused by UV radiation, and comes with a 15 year manufacturer's warranty. Also edit Article 1.11 - Warranties to suit project requirements.

3. Acceptable Material: Sheffield Plastics Inc. [Makrolon AR] [Makrolon 15] [_____].

Specifier Note: Use the following Article when a laminated glazing system will best meet project requirements related to: 1) security against forced entry through the glazing system; and 2) protection against low velocity projectiles, such as objects that may be thrown.

D. Laminated 2-Ply Plastic Glazing: Polycarbonate sheets with polyurethane bonding interlayer and polished finish on both sides.

1. Overall Thickness: [0.39 inches (9.9 mm)] [_____].
2. Forced Entry Rating: To ASTM F1233, Class III, Sequence 12.
3. Ballistic Rating: To H.P. White, TP-0500.02, Level A.
4. Weight: [2.5 psf (12.2 kg/m^2)] [_____].

Specifier Note: Shading coefficiency varies with color, thickness and texture. Check with manufacturer for shading coefficient required for project.

5. Shading Coefficient: [0.92] [_____] minimum.

Specifier Note: Light transmittance varies with color, thickness, number of laminates and texture. Check with manufacturer to ensure light transmittance is adequate for project requirements.

6. Light Transmittance: To ASTM D1003, [86] [_____] % minimum.

Specifier Note: Figure in parenthesis indicates exact shades of color. Clear color is generally recommended if prismatic finish is specified.

7. Color: [Clear (A00)] [Custom color to match sample approved by [Owner] [Architect] [Consultant]] [_____].
8. Acceptable Material: Sheffield Plastics Inc., Makrolon Hygard CG375.

E. Laminated 3-Ply Plastic Glazing: Polycarbonate sheets [with acrylic interlayer] with polyurethane bonding interlayers and polished finish on both sides.

1. Overall Thickness: [0.5 inches (12.7 mm)] [0.75 inches (19 mm)] [_____].
2. Forced Entry Rating: To ASTM F1233, [Class III, Sequence 15] [Class IV, Sequence 26] [_____].

Specifier Note: Specify UL 752 for bullet resistant grade glazing.

3. Ballistic Rating: To [H.P. White, TP-0500.02, Level [A] [B] [_____]] [UL 752 Level 1] [_____].

Specifier Note: Specify 5.1 psf (24.9 kg/m^2) for bullet resistant glazing.

4. Weight: [3.3 psf (16.1 kg/m^2)] [4.9 psf (23.9 kg/m^2)] [5.1 psf (24.9 kg/m^2)] [_____].

Specifier Note: Shading coefficiency varies with color, thickness, number of laminates and texture. Check with manufacturer for shading coefficient required for project. Specify 0.89 shading coefficient for bullet resistant glazing.

5. Shading Coefficient: [0.90] [0.89] [0.87] [_____] minimum.

Specifier Note: Light transmittance varies with color, thickness, number of laminates and texture. Check with manufacturer to ensure light transmittance is adequate for project requirements. Specify 88% light transmittance for bullet resistant glazing.

6. Light Transmittance: To ASTM D1003, [88] [84] [77] [_____] % minimum.

Specifier Note: Figure in parenthesis indicates exact shades of color. Clear color is generally recommended if prismatic finish is specified.

7. Color: [Clear (A00)] [Custom color to match sample approved by [Owner] [Architect] [Consultant]] [_____].

Specifier Note: Choose Makrolon Hygard CG500 for Class III Forced Entry and Level A ballistic ratings. This material will weigh less and have higher shading coefficient and light transmission levels. For heavier duty 3-ply containment grade applications, choose Makrolon Hygard CG750. Choose Makrolon Hygard BR750 with acrylic interlayer for bullet resistant glazing requiring certification to UL 752.

8. Acceptable Material: Sheffield Plastics Inc. [Makrolon Hygard CG500] [Makrolon Hygard CG750] [Makrolon Hygard

BR750] [_____].

Specifier Note: Use the following Article when project requirements call for protection against higher velocity projectiles.

F. Laminated 4-Ply Plastic Glazing for Bullet Resisting Security Glazing: Polycarbonate sheets with polyurethane interlayers and polished finish on both sides.

1. Overall Thickness: [1.06 inches (27 mm)] [1.3 inches (33 mm)] [_____].
2. Forced Entry Rating: To ASTM F1233, Class V.

Specifier Note: Specify UL 752 for bullet resistant grade glazing.

3. Ballistic Rating: To [H.P. White, TP-0500.02, Level [B] [C] [_____]] [UL 752, Level [2] [3]] [_____].

Specifier Note: Specify 8.1 psf (39.5 kg/m^2) for stronger bullet-resistant glazing.

4. Weight: [6.5 psf (31.7 kg/m^2)] [8.1 psf (39.5 kg/m^2)] [_____].

Specifier Note: Shading coefficiency varies with color, thickness, number of laminates and texture. Check with manufacturer for shading coefficient required for project. Specify 0.81 shading coefficient for stronger bullet-resistant glazing.

5. Shading Coefficient: [0.78] [0.81] [_____] minimum.

Specifier Note: Light transmittance varies with color, thickness, number of laminates and texture. Check with manufacturer to ensure light transmittance is adequate for project requirements. Specify 67% light transmittance for stronger bullet-resistant glazing.

6. Light Transmittance: To ASTM D1003, [72] [67] [_____] % minimum.

Specifier Note: Figures in parentheses indicate exact shades of color. Clear color is generally recommended if prismatic finish is specified.

7. Color: [Clear (A00)] [Gray (I30)] [Dark gray (I35)] [Bronze (K09)] [Custom color to match sample approved by [Owner] [Architect] [Consultant]] [_____].

Specifier Note: Choose Makrolon Hygard BR1000 for glazing that is resistant to projectiles from 9 mm and smaller caliber weapons. Choose Makrolon Hygard BR1250 for glazing that is resistant to projectiles equivalent to that fired from a 0.44 Magnum weapon. Makrolon Hygard BR1250 is available only as a clear material - no colored variety is available.

8. Acceptable Material: Sheffield Plastics Inc. [Makrolon Hygard BR1000] [Makrolon Hygard BR1250] [_____].

G. Laminated 4-Ply Plastic Glazing for High Impact Bullet Resisting Security Glazing: Polycarbonate sheets with acrylic interlayer, polyurethane bonding interlayers and abrasion resistant sheet on each side.

1. Overall Thickness: [1.25 inches (31.8 mm)] [_____].
2. Forced Entry Rating: To ASTM F1233, Class V.
3. Ballistic Rating: To [UL 752 Level 6] [_____].
4. Weight: [8.1 psf (39.5 kg/m^2)] [_____].
5. Shading Coefficient: [0.98] [_____] minimum.
6. Light Transmittance: To ASTM D1003, [75] [_____] % minimum.

Specifier Note: Figure in parenthesis indicates exact shades of color.

7. Color: [Clear (A00)] [_____].

Specifier Note: Choose Makrolon Hygard MS1250 for glazing that requires the highest ballistic rating.

8. Acceptable Material: Sheffield Plastics Inc., Makrolon Hygard MS1250.

Specifier Note: Use the following Article when an extruded polycarbonate multiwall system best meets project requirements.

H. Multiwall Plastic Glazing: Extruded polycarbonate resin sheet, UV protection on exterior side, [heat reflecting coating,] [flame retardant,] [hail resistant coating,] [no drop coating on one side].

Specifier Note: The 3 wall sheets are available fabricated with the standard structure or an internal “X” styled structure. The 5 wall sheets are only available with the internal “X” styled structure. The “X” styled structure uses a more rugged material.

1. Number of Walls: [2] [3] [4] [5] [6] [with X-Structure].

Specifier Note: Multiwall extruded polycarbonate resin sheet is available in a variety of thicknesses that are dependent upon the number of walls and the application. Choose the thickness that best meets project requirements and insert text in the paragraph below: 0.16, 0.24, 0.32, 0.63, 0.71, 0.79, 1.0, 1.26 inches (4.06, 6.10, 8.13, 16.0, 18.0, 20.1, 25.4, 32.0 mm). Check with manufacturer’s data sheets to ensure that thicknesses match product required.

2. Thickness: [_____].

Specifier Note: Multiwall extruded polycarbonate resin sheet is available with a variety of rib spacing distances that are dependent upon the number of walls and the application. Choose the thickness that best meets project requirements and insert text in the paragraph below: 0.24, 0.41, 0.63, 0.79, 1.0 inches (6.10, 10.4, 16.0, 20.1, 25.4 mm). Check with manufacturer’s data sheets to ensure that rib distances match product required.

3. Rib Distance: [_____].

Specifier Note: Multiwall extruded polycarbonate resin sheet is available in a variety of weights that are dependent upon the number of walls and the application. Choose the thickness that best meets project requirements and insert text in the paragraph below: 0.164, 0.266, 0.307, 0.348, 0.358, 0.512, 0.573, 0.635, 0.717, 0.758 psf (0.8, 1.3, 1.5, 1.7, 1.75, 2.5, 2.8, 3.1, 3.5, 3.7 kg/m^2). Check with manufacturer’s data sheets to ensure that weights match product required.

4. Weight: [_____].
5. Color: [Clear] [White] [Blue] [Green] [Bronze].

Specifier Note: Light transmittance varies with color, thickness and coatings. Check with manufacturer to ensure light transmittance is adequate for project requirements.

6. Light Transmittance: To ASTM D1003, [_____] %.

Specifier Note: Specify the number of walls and the panel thickness in mm as part of the acceptable material’s name. Example: A twin wall panel 10 mm thick would be called Makrolon multi 2/10. If heat reflecting coating is required, add “IQ-Relax” to the model number. If flame retardant is required, add “FR” to the model number. If hail resistant coating is required, add “HR” to the model number. If no drop coating on one side of the sheet is required, add “no drop” to the model number.

7. Acceptable Material: Sheffield Plastics Inc. [Makrolon multiUV 2/4] [Makrolon multiUV 2/6] [Makrolon multiUV 2/8] [Makrolon multiUV 2/10] [Makrolon multiUV 4/10] [Makrolon multiUV 3/16] [Makrolon multiUV 3X/16] [Makrolon multiUV 6/16] [Makrolon multiUV 6/20] [Makrolon multiUV 5X/25] [Makrolon multiUV 5X/32] with [IQ-Relax] [FR] [HR] [no drop] coating.

2.05 ACCESSORIES

Specifier Note: Plastic glazing accessories include solvent, glazing tape, gaskets, glazing compound, setting blocks, shims and clips.

A. Plastic Glazing Accessories: In accordance with Section [08 85 00 - Glazing Accessories].

Specifier Note: Glazing sealants can be specified in either the sealant section or the glazing accessories section, depending on project requirements.

B. Glazing Sealants: In accordance with Section [07 92 00 - Joint Sealants] [08 85 00 - Glazing Accessories] [_____].

Specifier Note: Edit Article below to suit project requirements. If substitutions are permitted, edit text below. Add text to refer to Section 01 25 13 - Product Substitution Procedures.

2.06 PRODUCT SUBSTITUTIONS

A. Substitutions: [In accordance with Section 01 25 13 - Product Substitution Procedures] [_____]] [No substitutions permitted].

PART 3 EXECUTION

3.01 INSTALLERS

A. Provide experienced and qualified technicians to carry out plastic glazing system installation.

3.02 MANUFACTURERS INSTRUCTIONS

Specifier Note: Article below is an addition to the CSI *SectionFormat* and a supplement to this section. Revise Article below to suit project requirements and specifier's practice.

A. Compliance: Comply with manufacturer's written data, including product technical bulletins, product catalog installation instructions, product carton installation instructions and Sheffield Plastics Inc. technical data sheets.

3.03 EXAMINATION

A. Site Verification of Conditions:

Specifier Note: Security glazing is only effective if installed in frames tested to the same criteria as the glazing sheets. Use only structural security framing with forced entry or ballistic ratings equal to the glazing specified.

1. Verify that glazing frames have been installed to ASTM F1233 and in accordance with Section [08 34 53 - Security Doors and Frames] [_____].
2. Verify that substrate conditions, for substrates previously installed under other sections or contracts, are acceptable for use for plastic glazing installation.
3. Inform [Owner] [Architect] [Consultant] [_____] of unacceptable conditions immediately upon discovery.
4. Proceed with installation only after unacceptable conditions have been remedied.

3.04 PREPARATION

A. Surface Preparation:

1. Clean frame contact surfaces with compatible solvent and wipe dry.
2. Do not allow solvent to pool in glazing channels.
3. Immediately prior to installation, expose glazing edges of plastic sheet by peeling back factory applied protective masking to allow edge engagement.

B. Plastic Glazing Installation:

1. Sawing:
   a. Cut using triple chip design saw blades at steady feed rate. Do not force material through saw.
   b. [Sand] [Scrape cut] edges smooth after sawing.

Specifier Note: Use the following paragraph if mechanical attachment is part of project requirements. Delete if project requires non-mechanical installation.

2. Mechanical Attachment:
   a. Drill slightly oversized holes through plastic glazing and frames.
   b. Install nuts, bolts and washers according to manufacturer's recommendations.
   c. Use material backer strips with same strength and ballistic characteristics as glazing material.
   d. Ensure bolts are not overtightened.

Specifier Note: Delete the following paragraph if mechanical attachment is part of project requirements.

3. Nonmechanical Installation:
   a. Use [wet] [dry] gaskets compatible with plastic glazing material.
   b. Insert [glazing tape] [gasket] between metal frame and plastic glazing and ensure there is no contact between

frame and glazing material.

4. Remove protective masking tape from glazing material after glazing work is complete.

3.05 FIELD QUALITY CONTROL

Specifier Note: Use the following Articles when manufacturer's field services are desired to verify the quality of the installed components. Establish the number and duration of periodic site visits required by the Manufacturer and specify below. Consult with the Manufacturer for services required. Delete if field services are not required.

A. Manufacturer's Field Services: Have manufacturer's technical representative schedule site visits to review work as follows:
   1. After delivery and storage of products.
   2. When preparatory work for which work of this Section depends is complete, but before installation begins.
   3. [Weekly] [2 times] [_____] during progress of work [at [25%] and [60%]] [_____] of completion.
   4. Upon completion of work, after cleaning is carried out.

B. Inspection and Testing: Inspection and testing of plastic glazing installation will be carried out by testing laboratory designated by [Owner] [Architect] [Consultant] [_____].
   1. [Owner] [Architect] [Consultant] [_____] will pay for tests as specified in Section [01 29 83 - Payment Procedures for Testing Laboratory Services] [_____].
   2. Inspection and testing of plastic glazing installation will be carried out by testing laboratory designated by [Owner] [Architect] [Consultant] [_____].
   3. Costs of tests will be paid [under cash allowance] [by Owner].

3.06 FINAL CLEANING

Specifier Note: If installed properly, plastic glazing should not require cleaning. If cleaning becomes necessary, comply with manufacturer's instructions and use only cleaning agents and techniques that have been approved by manufacturer.

A. Wash plastic glazing sheets when directed by [Owner] [Architect] [Consultant] [_____].
   1. Use soft cloth or sponge and mild soap and water solution.
   2. Dry using chamois or sponge.
   3. Do not use abrasive cleaners or sharp instruments such as razor blades or scrapers that may gouge plastic glazing sheet surfaces.

B. Perform cleanup in accordance with Section [01 74 00 - Cleaning and Waste Management] [_____].

C. Upon completion, remove surplus and excess materials, rubbish, tools and equipment.

3.07 PROTECTION

Specifier Note: Coordinate the following Article with Section 01 76 00 - Protecting Installed Construction.

A. Protect plastic glazing from damage during construction in accordance with Section [01 76 00 - Protecting Installed Construction] [_____].

B. Repair any damage to adjacent materials caused by plastic glazing work.

3.08 MAINTENANCE

A. Wash plastic glazing sheets regularly using soft cloth or sponge and mild soap and water solution.
   1. Dry using chamois or sponge.
   2. Do not use abrasive cleaners or sharp instruments such as razor blades or scrapers that may gouge plastic glazing sheet surfaces.

B. Perform work during regular trade working hours satisfactory to [Owner] [Architect] [Consultant] [_____].

END OF SECTION