
PART 1 GENERAL**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the Plastic Fabrication as shown and specified in the described system(s):
1. Ceiling Panels
 2. Elevator cabs
 3. Wall Cladding
 4. Wall Cladding-back-lit
 5. Wall Panels-back-lit
- B. Related Sections include the following:
1. Division 1 Section "Sustainable Design Requirements".

1.3 QUALITY ASSURANCE

- A. The work of this section shall be performed by a company which specializes in the type of specialty resin panels work required for this Project, with a minimum of 5 years of documented successful experience and shall be performed by skilled workmen thoroughly experienced in the necessary crafts.
1. Work shall be performed in compliance with Owner's insurance underwriters' requirements and UL approvals and testing for materials, assemblies and procedures.
- B. Manufacturer shall specialize in manufacturing the type of specialty resin panels specified in this section, with a minimum of 5 years of documented successful experience, and have the facilities capable of meeting all requirements of Contract Documents as a single-source responsibility and warranty.
- C. Manufacturers Qualifications
1. Materials and systems shall be manufactured by a company continuously and regularly employed in the manufacture of specified materials for a period of at least five (5) consecutive years and which can show evidence of those materials being satisfactorily used on at least six (6) projects of similar size, scope and location. At least three (3) of the projects shall have been successful for use five (5) years or longer.
- D. Manufacturer's identification tags or marks are not acceptable on surfaces which will remain exposed to view after installation.
1. Evidence of "patching" after removal of tags or marks is not acceptable.

1.4 ACTION SUBMITTALS

- A. Submit the following according to Conditions of the Construction Contract and Division 1 Specification Sections.
- B. Product Data: Submit manufacturer's product data; include product description, fabrication information, and compliance with specified performance requirements.
- C. LEED Submittals:
1. LEED Submittal: EQc4.1 for adhesive and sealants used inside the waterproofing system, include printed statement of VOC content.
- D. Submit product test reports from a qualified independent 3rd party testing agency indicating each type and class of panel system complies with the project performance requirements, based on comprehensive testing of current products. Previously completed test reports will be acceptable if for current manufacturer and indicative of products used on this project.
1. Test reports required are:
 - a. Rate of Burning (ASTM D 635).
 - b. Self-Ignition Temperature (ASTM D 1929).
 - c. Density of Smoke (ASTM D 2843).
 - d. Flame spread and Smoke developed testing (ASTM E 84).
 - e. Room Corner Burn Test (NFPA 286).
 - f. Extent of Burning (UL 94).

- g. Impact strength (ASTM D 3763).
 - h. Safety glazing impact resistance (ANSI Z97.1-2004).
 - i. UPIIT Test for Combustion Product Toxicity.
 - j. Dynamic environmental testing (ASTM standards D 5116 and D 6670).
- E. Building Approvals: Plastic Fabrications are to have been evaluated and must be registered with and comply to requirements of the following jurisdictions:
- 1. California Building Code.
- F. Shop Drawings: Include plans, elevations, sections, panel dimensions, details, and attachments to other work.
- G. Samples for Initial Selection:
- 1. Submit minimum 2-inch by 2-inch samples. Indicate full color, texture and pattern variation.
- H. Samples for Verification:
- 1. Submit minimum 4-inch by 4-inch sample for each type, texture, pattern and color of solid plastic fabrication.
- I. Mockups:
- 1. Build mockups to verify selections made under sample Submittals and to demonstrate aesthetic effects.
 - 2. Build mockup of each type of Plastic Fabrication.
 - 3. Refer to Division 9 Section "Mockup Rooms and Assemblies" for additional requirements.
- J. Maintenance Data: Submit manufacturer's care and maintenance data, including care, repair and cleaning instructions. Include in Project closeout documents.
- K. Hazardous Materials Notification: In the event no product or material is available that does not contain asbestos, PCB or other hazardous materials as determined by the Owner, a "Material Safety Data Sheet" (MSDS) equivalent to OSHA Form 20 shall be submitted for that proposed product or material prior to installation.
- L. Asbestos and PCB Certification: After completion of installation, but prior to Substantial Completion, Contractor shall certify in writing that products and materials installed, and processes used, do not contain asbestos or polychlorinated biphenyls (PCB), using format in Article 3 of General Conditions.
- 1.5 DELIVERY, STORAGE, AND HANDLING**
- A. Comply with General Conditions and Division 1 Section "Product Requirements".
 - B. Deliver Plastic Fabrications, systems and specified items in manufacturer's standard protective packaging.
 - C. Do not deliver Plastic Fabrications, system, components and accessories to Project site until areas are ready for installation.
 - D. Store materials in a flat orientation in a dry place that is not exposed to exterior elements.
 - E. Handle materials to prevent damage to finished surfaces. Provide protective coverings to prevent damage or staining following installation for duration of project.
 - F. Before installing Plastic Fabrications, permit them to reach room temperature.
- 1.6 WARRANTY**
- A. Comply with General Conditions and Division 1 Section "Product Requirements".
 - B. Manufacturer's Special Warranty on Plastic Fabrications: Manufacturer's standard form agreeing to repair or replace units that fail in material or workmanship within the specified warranty period.
 - C. Warranty Period: 1 year after the date of substantial completion.
 - D. The warranty shall not deprive the owner of other rights or remedies the Owner may have under other provisions of the Contract Documents, and is in addition to and runs concurrent with other warranties made by the Contractor under the requirements of the Contract Documents.

1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install Solid Polymer Fabrications until spaces are enclosed and weatherproof, and ambient temperatures and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

PART 2 PRODUCTS**2.1 UNAUTHORIZED MATERIALS**

- A. Materials and products required for work of this section shall not contain asbestos, polychlorinated biphenyls (PCB) or other hazardous materials identified by the Owner.

2.2 ACCEPTABLE MANUFACTURERS

- A. Products of the manufacturers specified in this section establish the minimum functional, aesthetic and quality standards required for work of this section.
- B. Manufacturer: 3form, Inc., Salt Lake City, Utah, USA / telephone 801-649-2500
- C. Substitutions: Comply with General Conditions using form in Division 1 Section "Substitution Request Form".

2.3 MATERIALS

- A. Varia™ produced from ecoresin™ Sheet.
1. Engineered polyester resin.
 2. Sheet Size: Maximum 4' x 10'.
 3. Thickness: Minimum 1/16".
 4. Basis of Design Product: The design of Plastic Fabrications is based on Varia™ produced with ecoresin™ as provided by 3form, Inc. Products from other manufacturers must be approved by the Architect or Designer prior to bidding in accordance with the Instructions to Bidders and Division 1 Section "Product Requirements".
- B. Interlayer Materials: Compatible with polyesters and bonding process to create a monolithic sheet of material when complete.
- C. 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. Density of Smoke (ASTM D 2843). Material must have a smoke density less than 75%.
 4. Flame spread and Smoke developed testing (ASTM E 84). Material must be able to meet a level of Class A (Flame spread less than 25 and smoke less than 450) at thickness of 1".
 5. Room Corner Burn Test (NFPA 286). Material must meet Class A criteria at 1/4" thickness as described by the 2003 International Building Code.
 6. Extent of Burning (UL 94). Must submit UL card.
 7. Impact strength. Minimum impact strength test as measured by ASTM D 3763 of 20 ft. lbs. (for durability, shipping, installation, and use).
 8. Safety Glazing. Material must attain a Class A impact rating in accordance with ANSI Z97.1-2004 at 1/8" thickness.
 9. UPITT Test for Combustion Product Toxicity: Product must be recorded as "not more toxic than wood".
 10. Dynamic environmental testing (ASTM standards D 5116 and D 6670). Panels must not have detectable VOC off-gassing agents and must be have Greenguard™ Indoor Air Quality certified.
 11. Panels must be produced from a minimum of 40% post-industrial recycle content. This recycle content must be certified by a recognized 3rd party certification group, such as Scientific Certification Systems (SCS).

2.4 FABRICATION

- A. 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.
- B. Comply with manufacturer's written recommendations for fabrication.

- C. 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.
 - 5. Tapping.
- D. Forming: Form products to shapes indicated using the appropriate method listed below. Comply with manufacturer's written instructions.
 - 1. Cold Bending.
 - 2. Hot Bending.
 - 3. Thermoforming: Acceptable only on uncoated material.
 - 4. Drape Forming.
 - 5. Matched Mold Forming.
 - 6. Mechanical Forming.
- E. Laminating: Laminate to substrates indicated using adhesives and techniques recommended by manufacturer.

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. Self-threading screws are acceptable for permanent installations. Provide threaded metal inserts for applications requiring frequent disassembly such as light fixtures.
- D. Bonding Cements: May be achieved with solvents or adhesives, suitable for use with product and application.
- E. VOC Content: Adhesive and sealants used inside the waterproofing system and applied on site shall have VOC content equal to or less than the applicable VOC limits. Refer to Division 1 Section "Sustainable Design Requirements" for additional information.

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 fasteners, adhesives and bonding agents 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.
- E. Form field joints using manufacturer's recommended procedures. Locate seams in panels so that they are not directly in line with seams in substrates.

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.

3.4 SCHEDULE OF PANEL TYPES

- A. Panel Type **SP-1**:
 - 1. Product: Varia 3-color.
 - 2. Color: Translucent color to be selected by Architect; backlit.
 - 3. Gauge: As indicated on drawings and as required to meet deflection requirements.
 - 4. Surface Finish: Supermatte.
 - 5. Locations:
 - a. Ground floor elevator lobby walls and ceilings;
 - b. Elevator cab ceilings.

- B. Panel Type **SP-2**:
 - 1. Product: Varia 3-color.
 - 2. Color: Opaque color to be selected by Architect; mirror back.
 - 3. Gauge: As indicated on drawings and as required to meet deflection requirements.
 - 4. Surface Finish: Supermatte.
 - 5. Locations: Ground floor elevator lobby walls.

- C. Panel Type **SP-3**:
 - 1. Product: Varia 3-color.
 - 2. Color: Translucent color to be selected by Architect.
 - 3. Gauge: As indicated on drawings and as required to meet deflection requirements.
 - 4. Surface Finish: Supermatte.
 - 5. Locations: Ground floor elevator lobby walls.

END OF SECTION