

## SECTION 06 61 16

SOLID POLYMER (SOLID SURFACING) FABRICATIONS  
04/06

## PART 1 GENERAL

## 1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

## ASTM INTERNATIONAL (ASTM)

- ASTM D 2583 (2007) Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor
- ASTM D 570 (1998; R 2005) Standard Test Method for Water Absorption of Plastics
- ASTM D 638 (2008) Standard Test Method for Tensile Properties of Plastics
- ASTM D 696 (2008) Standard Test Method for Coefficient of Linear Thermal Expansion of Plastics Between -30 degrees C and 30 degrees C With a Vitreous Silica Dilatometer
- ASTM E 84 (2007b) Standard Test Method for Surface Burning Characteristics of Building Materials
- ASTM G 21 (1996; R 2002) Determining Resistance of Synthetic Polymeric Materials to Fungi

INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS  
(IAPMO)

- IAPMO Z124.3 (2005) Plastic Lavatories
- IAPMO Z124.6 (1997) Plastic Sinks

## NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

- NEMA LD 3 (2005) Standard for High-Pressure Decorative Laminates

## NSF INTERNATIONAL (NSF)

- NSF 51 (2007) Food Equipment Materials

## TILE COUNCIL OF AMERICA (TCA)

- TCA Hdbk (2007) Handbook for Ceramic Tile Installation

## 1.2 GENERAL DESCRIPTION

Work in this section includes vanities, countertops, window sills, and other items utilizing solid polymer (solid surfacing) fabrication as shown on the drawings and as described in this specification. Do not change source of supply for materials after work has started, if the appearance of finished work would be affected. Variation in component size and location of openings to be plus or minus 1/8 inch.

## 1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

### SD-02 Shop Drawings

Detail Drawings; G, AE  
Installation; G, AE

Detail Drawings indicating locations, dimensions, component sizes, fabrication and joint details, attachment provisions, installation details, and coordination requirements with adjacent work.

### SD-03 Product Data

Solid polymer material; G, AE  
Qualifications; G, AE  
Fabrications; G, AE

Product data indicating product description, fabrication information, and compliance with specified performance requirements for solid polymer, joint adhesive, sealants, and heat reflective tape. Both the manufacturer of materials and the fabricator shall submit a detailed description of operations and processes in place that support efficient use of natural resources, energy efficiency, emissions of ozone depleting chemicals, management of water and operational waste, indoor environmental quality, and other production techniques supporting sustainable design and products.

### SD-04 Samples

Material; G, AE

A minimum 4 by 4 inch sample of each color and pattern for approval. Samples shall indicate full range of color and pattern variation. Approved samples shall be retained as a standard for this work.

Counter and Vanity Tops; G, AE  
Window Sills; G, AE

A minimum 1 foot wide by 6 inch deep, full size sample for each type of counter top shown on the project drawings. The sample

shall include the edge profile and backsplash as detailed on the project drawings. Solid polymer material shall be of a pattern and color as indicated on the drawings. Sample shall include at least one seam. Approved sample shall be retained as standard for this work.

#### SD-06 Test Reports

##### Solid polymer material

Test report results from an independent testing laboratory attesting that the submitted solid polymer material meets or exceeds each of the specified performance requirements.

#### SD-07 Certificates

##### Fabrications Qualifications

Solid polymer manufacturer's certification attesting to fabricator qualification approval.

#### SD-10 Operation and Maintenance Data

##### Clean-up

A minimum of six copies of maintenance data indicating manufacturer's care, repair and cleaning instructions. Maintenance video shall be provided, if available. Maintenance kit for matte finishes shall be submitted.

### 1.4 DELIVERY, STORAGE AND HANDLING

Materials shall not be delivered to project site until areas are ready for installation. Components and materials shall be delivered to the site undamaged, in containers clearly marked and labeled with manufacturer's name. Materials shall be stored indoors and adequate precautions taken to prevent damage to finished surfaces. Protective coverings shall be provided to prevent physical damage or staining following installation, for duration of project.

### 1.5 WARRANTY

Manufacturer's warranty of ten years against defects in materials, excluding damages caused by physical or chemical abuse or excessive heat, shall be provided. Warranty shall provide for material and labor for replacement or repair of defective material for a period of ten years after component installation.

### 1.6 QUALIFICATIONS

To insure warranty coverage, solid polymer fabricators shall be certified to fabricate by the solid polymer material manufacturer being utilized. All fabrications shall be marked with the fabricator's certification label affixed in an inconspicuous location. Fabricators shall have a minimum of 5 years of experience working with solid polymer materials.

1.7 MOCK-UP

The Contractor shall submit **Detail Drawings** as specified in the Submittals paragraph, under SD-02. Prior to final approval of shop drawings, a full-size mock-up shall be provided of a typical countertop and window sills where multiple units are required. The mock-up shall include all solid polymer components required to provide a completed unit. The mock-up shall utilize finishes in patterns and colors indicated on the drawings. Should the mock-up not be approved, the Contractor shall re-work or remake it until approval is secured. Rejected units shall be removed from the jobsite. Approved mock-up may remain as part of the finished work.

PART 2 PRODUCTS

2.1 MATERIAL

**Solid polymer material** shall be a homogeneous filled solid polymer; not coated, laminated or of a composite construction; meeting **IAPMO Z124.3** and **IAPMO Z124.6** requirements. Material shall have minimum physical and performance properties specified. Superficial damage to a depth of **0.01 inch** shall be repairable by sanding or polishing. Material thickness shall be as indicated on the drawings. In no case shall material be less than **1/4 inch** in thickness.

2.1.1 Cast, 100 Percent Acrylic Polymer Solid Surfacing Material

Cast, 100 percent acrylic solid polymer material shall be composed of acrylic polymer, mineral fillers, and pigments and shall meet the following minimum performance requirements:

PROPERTY	REQUIREMENT (min. or max.)	TEST PROCEDURE
Tensile Strength	5800 psi (min.)	ASTM D 638
Hardness	55-Barcol Impressor (min.)	ASTM D 2583
Thermal Expansion	.000023 in/in/F (max.)	ASTM D 696
Boiling water Surface Resistance	No Change	NEMA LD 3-3.05
High Temperature Resistance	No Change	NEMA LD 3-3.06
Impact Resistance (Ball drop)		NEMA LD 3-303
1/4" sheet	36", 1/2 lb ball, no failure	
1/2" sheet	140", 1/2 lb ball, no failure	
3/4" sheet	200", 1/2 lb ball, no failure	
Mold & Mildew	No growth	ASTM G 21

PROPERTY	REQUIREMENT (min. or max.)	TEST PROCEDURE
Growth		
Bacteria Growth	No Growth	ASTM G 21
Liquid Absorption (Weight in 24 hrs.)	0.1% max.	ASTM D 570
Flammability		ASTM E 84
Flame Spread	25 max.	
Smoke Developed	30 max	
Sanitation	"Food Contact" approval	NSF 51

### 2.1.2 Acrylic-modified Polymer Solid Surfacing Material

Cast, solid polymer material shall be composed of a formulation containing acrylic and polyester polymers, mineral fillers, and pigments. Acrylic polymer content shall be not less than 5 percent and not more than 10 percent in order to meet the following minimum performance requirements:

PROPERTY	REQUIREMENT (min. or max.)	TEST PROCEDURE
Tensile Strength	4100 psi (min.)	ASTM D 638
Hardness	50-Barcol Impressor (min.)	ASTM D 2583
Thermal Expansion	.000023 in/in/F (max.)	ASTM D 696
Boiling water Surface Resistance	No Change	NEMA LD 3-3.05
High Temperature Resistance	No Change	NEMA LD 3-3.06
Impact Resistance (Ball drop)		NEMA LD 3-303
1/4" sheet	36", 1/2 lb ball, no failure	
1/2" sheet	140", 1/2 lb ball, no failure	
3/4" sheet	200", 1/2 lb ball, no failure	
Mold & Mildew Growth	No growth	ASTM G 21
Bacteria Growth	No Growth	ASTM G 21
Liquid		

PROPERTY	REQUIREMENT (min. or max.)	TEST PROCEDURE
Absorption (Weight in 24 hrs.)	0.6% max.	ASTM D 570
Flammability		ASTM E 84
Flame Spread	25 max.	
Smoke Developed	100 max	
Sanitation	"Food Contact" approval	NSF 51

### 2.1.3 Material Patterns and Colors

Patterns and colors for all solid polymer components and fabrications shall be those indicated on the project color list. Pattern and color shall occur, and shall be consistent in appearance, throughout the entire depth (thickness) of the solid polymer material.

### 2.1.4 Surface Finish

Exposed finished surfaces and edges shall receive a uniform appearance. Exposed surface finish shall be matte; gloss rating of 5-20.

## 2.2 ACCESSORY PRODUCTS

Accessory products, as specified below, shall be manufactured by the solid polymer manufacturer or shall be products approved by the solid polymer manufacturer for use with the solid polymer materials being specified.

### 2.2.1 Seam Adhesive

Seam adhesive shall be a two-part adhesive kit to create permanent, inconspicuous, non-porous, hard seams and joints by chemical bond between solid polymer materials and components to create a monolithic appearance of the fabrication. Adhesive shall be approved by the solid polymer manufacturer. Adhesive shall be color-matched to the surfaces being bonded where solid-colored, solid polymer materials are being bonded together. The seam adhesive shall be clear or color matched where particulate patterned, solid polymer materials are being bonded together.

### 2.2.2 Panel Adhesive

Panel adhesive shall be neoprene based panel adhesive meeting TCA Hdbk, Underwriter's Laboratories (UL) listed. This adhesive shall be used to bond solid polymer components to adjacent and underlying substrates.

### 2.2.3 Silicone Sealant

Sealant shall be a mildew-resistant, FDA and OSHA Nationally Recognized Testing Laboratory (NRTL) listed silicone sealant or caulk in a clear formulation. The silicone sealant shall be approved for use by the solid polymer manufacturer. Sealant shall be used to seal all expansion joints between solid polymer components and all joints between solid polymer components and other adjacent surfaces such as walls, floors, ceiling, and plumbing fixtures.

#### 2.2.4 Conductive Tape

Conductive tape shall be manufacturer's standard foil tape, 4 mils thick, applied around the edges of cut outs containing hot or cold appliances.

#### 2.2.5 Insulating Felt Tape

Insulating tape shall be manufacturer's standard product for use with drop-in food wells used in commercial food service applications to insulate solid polymer surfaces from hot or cold appliances.

#### 2.2.6 Heat Reflective Tape

Heat reflective tape as recommended by the solid polymer manufacturer for use with cutouts for heat sources.

#### 2.2.7 Mounting Hardware

Provide mounting hardware, including sink/bowl clips, inserts and fasteners for attachment of undermount sinks and lavatories.

### 2.3 FABRICATIONS

Components shall be factory or shop fabricated to sizes and shapes indicated, to the greatest extent practical, in accordance with approved Shop Drawings and manufacturer's requirements. Factory cutouts shall be provided for sinks, lavatories, and plumbing fixtures where indicated on the drawings. Contours and radii shall be routed to template, with edges smooth. Defective and inaccurate work will be rejected.

#### 2.3.1 Joints and Seams

Joints and seams shall be formed between solid polymer components using manufacturer's approved seam adhesive. Joints shall be inconspicuous in appearance and without voids to create a monolithic appearance.

#### 2.3.2 Edge Finishing

Rout and finish component edges to a smooth, uniform appearance and finish. Edge shapes and treatments, including any inserts, shall be as detailed on the drawings. Rout all cutouts, then sand all edges smooth. Repair or reject defective or inaccurate work.

#### 2.3.3 Counter and Vanity Top Splashes

Backsplashes and end splashes shall be fabricated from 1/2 inch thick solid surfacing material and shall be 4 inches high. Backsplashes and end splashes shall be provided for all counter tops and vanity tops. Backsplashes shall be shop fabricated and be permanently attached.

##### 2.3.3.1 Permanently Attached Backsplash

Permanently attached backsplashes shall be attached straight with seam adhesive to form a 90 degree transition.

##### 2.3.3.2 End Splashes

End splashes shall be provided loose for installation at the jobsite after horizontal surfaces to which they are to be attached have been installed.

#### 2.3.4 Window Sills

Window sills shall be fabricated from  $3/4$  inch thick solid surfacing, solid polymer material. Dimensions, edge shape, and other details shall be as indicated on the drawings.

#### 2.3.5 Counter and Vanity Tops

All solid surfacing, solid polymer counter top and vanity top components shall be fabricated from  $3/4$  inch thick material. Edge details, dimensions, locations, and quantities shall be as indicated on the Drawings. Counter tops shall be complete with 4 inch high permanently attached, 90 degree transition at all locations. Attach 2 inch wide reinforcing strip of polymer material under each horizontal counter top seam.

##### 2.3.5.1 Counter Top With Sink

Stainless Steel Sink.

Countertops with sinks shall include cutouts to template as furnished by the sink manufacturer. Manufacturer's standard sink mounting hardware for rimless installation shall be provided. Seam between sink and counter top shall be sealed with silicone sealant. Sink, faucet, and plumbing requirements shall be in accordance with Section 22 00 00 PLUMBING, GENERAL PURPOSE.

##### 2.3.5.2 Vanity Tops With Bowls

Stainless Steel Bowl

Countertops with bowls shall include cutouts to template as furnished by the sink manufacturer. Manufacturer's standard sink mounting hardware for stainless steel rimless installation shall be provided. Seam between sink and counter top shall be sealed with silicone sealant. Sink, faucet, and plumbing requirements shall be in accordance with Section 22 00 00 PLUMBING, GENERAL PURPOSE.

### PART 3 EXECUTION

#### 3.1 COORDINATION

In most instances, installation of solid polymer fabricated components and assemblies will require strong, correctly located structural support provided by other trades. To provide a stable, sound, secure installation, close coordination is required between the solid polymer fabricator/installer and other trades to insure that necessary structural wall support, cabinet counter top structural support, proper clearances, and other supporting components are provided for the installation of wall panels, countertops, shelving, and all other solid polymer fabrications to the degree and extent recommended by the solid polymer manufacturer. Contractor shall appropriate staging areas for solid polymer fabrications.

#### 3.2 INSTALLATION

##### 3.2.1 Components

All components and fabricated units shall be installed plumb, level, and

rigid. Field joints between solid polymer components to provide a monolithic appearance shall be made using solid polymer manufacturer's approved seam adhesives, with joints inconspicuous in the finished work. Metal or vitreous china sinks and lavatory bowls shall be attached to counter tops using solid polymer manufacturer's recommended clear silicone sealant and mounting hardware. Solid polymer sinks and bowls shall be installed using a color-matched seam adhesive. Plumbing connections to sinks and lavatories shall be made in accordance with Section 22 00 00 PLUMBING, GENERAL PURPOSE.

#### 3.2.1.1 Loose Counter Top Splashes

Loose splashes shall be mounted in locations as noted on the drawings. Loose splashes shall be adhered to the counter top with a color matched silicone sealant when the solid polymer components are solid colors. Adhesion of particulate patterned solid polymer splashes to counter tops shall utilize a clear silicone sealant.

#### 3.2.2 Silicone Sealant

A clear, silicone sealant or caulk shall be used to seal all expansion joints between solid polymer components and all joints between solid polymer components and other adjacent surfaces such as walls, floors, ceiling, and plumbing fixtures. Sealant bead shall be smooth and uniform in appearance and shall be the minimum size necessary to bridge any gaps between the solid surfacing material and the adjacent surface. Bead shall be continuous and run the entire length of the joint being sealed.

#### 3.2.3 Plumbing

Plumbing connections to sinks and lavatories shall be made in accordance with Section 22 00 00 PLUMBING, GENERAL PURPOSE.

#### 3.3 CLEAN-UP

Components shall be cleaned after installation and covered to protect against damage during completion of the remaining project items. Components damaged after installation by other trades will be repaired or replaced at the General Contractor's cost. Component supplier will provide a repair/replace cost estimate to the General Contractor who shall approve estimate before repairs are made. The Contractor shall submit maintenance data as specified in the Submittals paragraph, under SD-10.

-- End of Section --