

JBLM DESIGN STANDARDS  
DIVISION 06  
WOOD, PLASTICS, AND COMPOSITES  
SECTION 06 61 16  
SOLID SURFACING FABRICATIONS  
**07/20**

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 D570** (1998; E 2010; R 2010) Standard Test Method for Water Absorption of Plastics
- ASTM D638** (2014) Standard Test Method for Tensile Properties of Plastics
- ASTM D696** (2016) 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 D2583** (2013a) Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor
- ASTM E84** (2018a) Standard Test Method for Surface Burning Characteristics of Building Materials
- ASTM G21** (2015) Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi

CALIFORNIA DEPARTMENT OF PUBLIC HEALTH (CDPH)

- CDPH SECTION 01350** (2010; Version 1.1) Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources using Environmental Chambers

CSA GROUP (CSA)

- CSA B45.5-11/IAPMO Z124** (2011; Update 1 2012) Plastic Plumbing Fixtures - First Edition

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

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

NSF INTERNATIONAL (NSF)

NSF/ANSI 51 (2012) Food Equipment Materials

SCIENTIFIC CERTIFICATION SYSTEMS (SCS)

SCS SCS Global Services (SCS) Indoor Advantage

TILE COUNCIL OF NORTH AMERICA (TCNA)

TCNA Hdbk (2017) Handbook for Ceramic, Glass, and Stone Tile Installation

UNDERWRITERS LABORATORIES (UL)

UL 2818 (2013) GREENGUARD Certification Program For Chemical Emissions For Building Materials, Finishes And Furnishings

## 1.2 SYSTEM DESCRIPTION

- a. Work under this section includes [\_\_\_\_\_] 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.
- b. 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 ensure 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.
- c. Appropriate staging areas for solid polymer fabrications. Allow variation in component size and location of openings of plus or minus 3 mm (1/8 inch).

## 1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for [Contractor Quality Control approval.] [information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government.] Submittals with an "S" are for inclusion in the [Sustainability eNotebook, in conformance to Section 01 33 29 SUSTAINABILITY REPORTING][Environmental Records Binder, in conformance with Section 01 57 19.01 20 SUPPLEMENTAL TEMPORARY ENVIRONMENTAL CONTROLS]. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

VOC Content for Seam and Sealant Emissions; S

SD-02 Shop Drawings

Detail Drawings; G[, [\_\_\_\_\_]]

Installation; G[, [\_\_\_\_\_]]

SD-03 Product Data

Solid Polymer Material

Qualifications

Fabrications

Indoor air quality for solid surface seam and sealant products; S

SD-04 Samples

Material; G[, [\_\_\_\_\_]]

Counter and Vanity Tops; G[, [\_\_\_\_\_]]

SD-06 Test Reports

Solid Polymer Material

SD-07 Certificates

Fabrications

Qualifications

Indoor Air Quality for solid surface fabrication products; S

SD-10 Operation and Maintenance Data

Clean-up

SD-11 Closeout Submittals

VOC Content for Seam and Sealant Emissions; S

1.4 CERTIFICATIONS

1.4.1 Indoor Air Quality

Submit required indoor air quality certifications and validations in one submittal package.

1.4.1.1 Indoor Air Quality for Solid Surface Fabricated Products

Provide products certified to meet indoor air quality requirements by [UL 2818](#) (Greenguard) Gold, [SCS Global Services Indoor Advantage Gold](#) or provide certification by other third-party program that products meet the requirements of this Section. Provide current product certification documentation from certification body. When product does not have certification, provide validation that product meets the indoor air quality product requirements cited herein.

## 1.5 QUALITY ASSURANCE

### 1.5.1 Qualifications

To ensure warranty coverage, solid polymer fabricators must be certified to fabricate by the solid polymer material manufacturer being utilized. Mark all fabrications with the fabricator's certification label affixed in an inconspicuous location. Fabricators must have a minimum of 5 years of experience working with solid polymer materials. Submit solid polymer manufacturer's certification attesting to fabricator qualification approval.

### 1.5.2 Mock-ups

Submit [Detail Drawings](#) indicating locations, dimensions, component sizes, fabrication and joint details, attachment provisions, installation details, and coordination requirements with adjacent work. Prior to final approval of shop drawings, provide a full-size mock-up of a typical [vanity top] [countertop] [[shelving](#)] [\_\_\_\_\_] where multiple units are required. The mock-up must include all solid polymer components required to provide a completed unit, and utilize finishes in patterns and colors indicated on the drawings. Should the mock-up not be approved, re-work or remake it until approval is secured. Remove rejected units from the jobsite. Approved mock-up may remain as part of the finished work.

## 1.6 DELIVERY, STORAGE, AND HANDLING

Do not deliver materials to project site until areas are ready for installation. Deliver components and materials to the site undamaged, in containers clearly marked and labeled with manufacturer's name. Store materials indoors with adequate precautions taken to prevent damage to finished surfaces. Provide protective coverings to prevent physical damage or staining following installation, for duration of project.

## 1.7 WARRANTY

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

## PART 2 PRODUCTS

### 2.1 MATERIAL

Provide [solid polymer material](#) that is a homogeneous filled solid polymer; not coated, laminated or of a composite construction; meeting [CSA B45.5-11/IAPMO Z124](#) requirements. Provide materials with the minimum physical and performance properties specified. Superficial damage to a depth of [0.25 mm \(0.01 inch\)](#) must be repairable by sanding or polishing. Provide amterial

thickness as indicated on the drawings. Provide material not less than 6 mm (1/4 inch) in thickness. Submit a minimum 100 by 100 mm (4 by 4 inch) sample of each color and pattern for approval. Provide samples that indicate the full range of color and pattern variation. Retain approved samples as the standard for this work throughout the construction duration. Submit test report results from an independent testing laboratory attesting that the submitted solid polymer material meets or exceeds each of the specified performance requirements. Provide materials that meet the emissions requirements of CDPH SECTION 01350 (limit requirements for either office or classroom spaces regardless of space type).

Provide certification or validation of indoor air quality for solid surface fabrication products.

2.1.1.1 Cast, 100 Percent Acrylic Polymer Solid Surfacing Material

Provide cast, 100 percent acrylic solid polymer material composed of acrylic polymer, mineral fillers, and pigments and meeting the following minimum performance requirements:

PROPERTY	REQUIREMENT (min. or max.)	TEST PROCEDURE
Tensile Strength	291 kg/cm <sup>2</sup> 4000 psi (max.)	ASTM D638
Hardness	55-Barcol Impressor (min.)	ASTM D2583
Thermal Expansion	.0000386cm/cm/deg C .000023 in/in/F (max.)	ASTM D696
Boiling Water Surface Resistance	No Change	ANSI/NEMA LD 3-3.05
High Temperature Resistance	No Change	ANSI/NEMA LD 3-3.06
Impact Resistance (Ball drop)		ANSI/NEMA LD 3-303
6.4 mm 1/4 inch sheet	910 mm, 227 g 36 inches, 1/2 lb ball, no failure	
12.7 mm 1/2 inch sheet	3550 mm, 227 g 140 inches, 1/2 lb ball, no failure	
19 mm 3/4 inch sheet	5070 mm, 227 g 200 inches, 1/2 lb ball, no failure	
Mold & Mildew Growth	No growth	ASTM G21
Bacteria Growth	No growth	ASTM G21
Liquid Absorption (Weight in 24 hrs.)	0.1 percent max.	ASTM D570
Flammability		ASTM E84

PROPERTY	REQUIREMENT (min. or max.)	TEST PROCEDURE
Flame Spread	25 max.	
Smoke Developed	30 max.	
Sanitation	"Food Contact" approval	NSF/ANSI 51

### 2.1.2 Acrylic-modified Polymer Solid Surfacing Material

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

PROPERTY	REQUIREMENT (min. or max.)	TEST PROCEDURE
Tensile Strength	288 kg/cm <sup>2</sup> 4100 psi (max.)	ASTM D638
Hardness	50-Barcol Impressor (min.)	ASTM D2583
Thermal Expansion	.0000386cm/cm/deg C .000023 in/in/F (max.)	ASTM D696
Boiling Water Surface Resistance	No Change	ANSI/NEMA LD 3-3.05
High Temperature Resistance	No Change	ANSI/NEMA LD 3-3.06
Impact Resistance (Ball drop)		ANSI/NEMA LD 3-303
6.4 mm 1/4 inch sheet	910 mm, 227 g 36 inches, 1/2 lb ball, no failure	
12.7 mm 1/2 inch sheet	3550 mm, 227 g 140 inches, 1/2 lb ball, no failure	
19 mm 3/4 inch sheet	5070 mm, 227 g 200 inches, 1/2 lb ball, no failure	
Mold & Mildew Growth	No growth	ASTM G21
Bacteria Growth	No growth	ASTM G21
Liquid Absorption (Weight in 24 hrs.)	0.6 percent max.	ASTM D570
Flammability		ASTM E84

PROPERTY	REQUIREMENT (min. or max.)	TEST PROCEDURE
Flame Spread	25 max.	
Smoke Developed	100 max.	
Sanitation	"Food Contact" approval	NSF/ANSI 51

### 2.1.3 Material Patterns and Colors

Provide patterns and colors for all solid polymer components and fabrications indicated on the project [drawings] [color schedule] [\_\_\_\_\_]. Pattern and color must be consistent in appearance, throughout the entire depth (thickness) of the solid polymer material.

### 2.1.4 Surface Finish

Provide exposed finished surfaces and edges with a uniform appearance. Exposed surface finish must be [matte; gloss rating of 5-20] [semigloss; gloss rating of 25-50] [polished; gloss rating of 55-80] [as indicated on the drawings].

## 2.2 ACCESSORY PRODUCTS

Provide accessory products, as specified below, manufactured by the solid polymer manufacturer or products approved by the solid polymer manufacturer for use with the solid polymer materials being specified.

### 2.2.1 Seam Adhesive

Provide 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 must be approved by the solid polymer manufacturer and color-matched to the surfaces being bonded where solid-colored, solid polymer materials are being bonded together. Provide clear or color matched seam adhesive where particulate patterned, solid polymer materials are being bonded together.

### 2.2.2 Panel Adhesive

Provide neoprene based panel adhesive meeting **TCNA Hdbk**, Underwriter's Laboratories (UL) listed. Use this adhesive to bond solid polymer components to adjacent and underlying substrates.

### 2.2.3 Silicone Sealant

Provide a mildew-resistant, FDA and OSHA Nationally Recognized Testing Laboratory (NRTL) listed silicone sealant or caulk in a clear formulation. The silicone sealant must be approved for use by the solid polymer

manufacturer. Use sealant 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 Seam and Sealant Emissions

Adhesives and Sealants must be in conformance with [paragraph REDUCE VOLATILE ORGANIC COMPOUNDS \(VOC\) \(LOW EMITTING MATERIALS\) in Section \[01 33 29 SUSTAINABILITY REPORTING\]\[01 57 19.01 20 SUPPLEMENTAL TEMPORARY ENVIRONMENTAL CONTROLS\].](#)

Provide seam and other accessory materials that meet the emissions requirements of [CDPH SECTION 01350](#) (limit requirements for either office or classroom spaces regardless of space type).

Provide validation of [indoor air quality for solid surface seam and sealant products](#).

#### 2.2.5 Conductive Tape

Provide manufacturer's standard conductive foil tape, [0.1 mm \(4 mils\)](#) thick, applied around the edges of cut outs containing hot or cold appliances.

#### 2.2.6 Insulating Felt Tape

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

#### 2.2.7 Heat Reflective Tape

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

#### 2.2.8 Mounting Hardware

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

### 2.3 FABRICATIONS

Provide factory or shop fabricated components to sizes and shapes indicated, to the greatest extent practical, in accordance with approved Shop Drawings and manufacturer's requirements. Provide factory cutouts for sinks, lavatories, and plumbing fixtures where indicated on the drawings. Contours and radii must be routed to template, with edges smooth. Defective and inaccurate work will be rejected. Submit product data indicating product description, fabrication information, and compliance with specified performance requirements for solid polymer, joint adhesive, sealants, and heat reflective tape.

#### 2.3.1 Joints and Seams

Form joints and seams between solid polymer components using manufacturer's approved seam adhesive. Provide inconspicuous joints 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. Provide edge shapes and treatments, including any inserts, 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

Fabricate backsplashes and end splashes from [13 mm (1/2 inch)] [\_\_\_\_\_] thick solid surfacing material to be [[100 mm (4 inches)] [\_\_\_\_\_] high] [in conformance with dimensions and shapes as indicated on the drawings]. Provide backsplashes and end splashes [for all counter tops and vanity tops] [at locations indicated on the drawings]. Provide shop fabricated [permanently attached] [loose, to be field attached] backsplashes.

#### 2.3.3.1 Permanently Attached Backsplash

Fasten permanently attached backsplashes [straight with seam adhesive to form a 90 degree transition] [with seam adhesive and to form a radiused coved transition from countertop to backsplash].

#### 2.3.3.2 End Splashes

Provide end splashes as loose for installation at the jobsite after horizontal surfaces to which they are to be attached have been installed.

### 2.3.4 Shelving

Provide shelving [and wall support brackets] fabricated from [13 mm (1/2 inch)] [\_\_\_\_\_] thick solid surfacing, solid polymer material, including dimensions, edge shape, and other details as indicated on the drawings.

### 2.3.5 Window Stools

Fabricate window stools from [13 mm (1/2 inch)] [\_\_\_\_\_] thick solid surfacing, solid polymer material, including dimensions, edge shape, and other details [as indicated on the drawings] [selected from manufacturer's available pre-fabricated standards].

### 2.3.6 Counter and Vanity Tops

Fabricate all solid surfacing, solid polymer counter top and vanity top components from [13 mm (1/2 inch)] [\_\_\_\_\_] thick material including details, dimensions, locations, and quantities as indicated on the Drawings. Provide complete counter tops with [100 mm (4 inch)] [\_\_\_\_\_] high [loose] [permanently attached, 90 degree transition] [permanently attached with coved transition backsplash and loose endsplashes] [at all locations] [where indicated on the drawings]. Attach 50 mm (2 inch) wide reinforcing strip of polymer material under each horizontal counter top seam. Submit a minimum 300 mm (1 foot) wide by 150 mm (6 inch) deep, full size sample for each type of counter top shown on the project drawings. The sample must include the edge profile and backsplash as detailed on the project drawings. Provide solid polymer material of a pattern and color as indicated on the drawings. Provide sample that includes at least one seam and retain approved sample as standard for this work.

#### 2.3.6.1 Counter Top With Sink

- a. Stainless Steel or Vitreous China Sink. Provide countertops with sinks that include cutouts to template as furnished by the sink manufacturer. Provide manufacturer's standard sink mounting hardware for [stainless steel] [vitreous china] [rimless] [\_\_\_\_\_] installation. Seal seam between sink and counter top shall be sealed with silicone sealant. Install sink, faucet, and plumbing requirements in accordance with Section 22 00 00 PLUMBING,GENERAL PURPOSE.
- b. Provide solid polymer sinks that are a manufacturer's standard, pre-molded product specifically designed for attachment to solid polymer countertops.

#### 2.3.6.2 Vanity Tops With Bowls

- a. Provide countertops with vitreous china bowls including cutouts to template as furnished by the sink manufacturer. Provide manufacturer's standard sink mounting hardware for vitreous china [rimless] [\_\_\_\_\_] installation. Seal seam between sink and countertop with silicone sealant. Install sink, faucet, and plumbing requirements in accordance with Section 22 00 00 PLUMBING,GENERAL PURPOSE.
- b. Provide solid polymer bowls as manufacturer's standard, pre-molded product specifically designed for attachment to solid polymer counter tops.
- c. Provide one-piece vanity top and bowl fabrications that are a standard pre-fabricated product provided by the solid polymer manufacturer. Each unit must include a vanity top with integral backsplash and sink bowl.

#### 2.3.6.3 Cafeteria Counter Tops

Provide cutouts for cold or hot appliances made to templates furnished by the equipment manufacturers. Fabricate and reinforced joints and cutouts as recommended by the solid polymer manufacturer. Provide insulation between the solid polymer surface and all appliances, hot or cold. Thermally isolate hot applications from cold applications in accordance with the solid polymer manufacturer's recommendations. Provide expansion joints as necessary to accommodate hot appliances. Where cabinets exist beneath counter tops, provide adequate ventilation to prevent heat build-up.

#### 2.3.7 Solid Polymer Sinks

Provide polymer sinks that are a standard product of the solid polymer manufacturer, designed specifically to be installed in solid polymer countertops. Provide sinks with the same polymer composition as the adjoining counter top. Provide sink design that supports a [seam adhesive undermount] [seam adhesive flush] installation method. Provide sink with a [single bowl] [double bowl] [double bowl with molded drainboard] configuration. Provide sink dimension [of [ ] ] [as indicated on the drawings].

### 2.3.8 Solid Polymer Vanity Bowls

Provide solid polymer vanity bowls that are a standard product of the solid polymer manufacturer, designed specifically to be installed in solid polymer vanity tops. Provide bowls of the same polymer composition as the adjoining counter top. Provide a bowl design that supports a [seam adhesive undermount] [seam adhesive flush] installation method. Provide bowl dimension [of [ ] ] [as indicated on the drawings].

### 2.3.9 [Tub][Shower] Wall Panel System

Provide [tub][shower] wall enclosures in a system of solid polymer components to include: [panels] [corner trim] [soap dish] [shampoo shelf] [panel edge trim] [\_\_\_\_\_]. Provide dimensions of all components [as indicated on the drawings] [standard manufacturer's dimensions to be field cut to fit]. Panels must be formed from manufacturer's standard [6 mm (1/4 inch)] [\_\_\_\_\_] thick sheet product. Provide full width and height panels with seams occurring only at the inside corners of the enclosure. Soap dish and shampoo shelf must be of a configuration, shape, and location [as indicated on the drawings] [as standard with the manufacturer's system].

### 2.3.10 Wall Cladding/Wainscoting

Provide solid polymer wall cladding or wainscoting to dimensions and in locations as shown on the drawings. Panels must be fabricated from manufacturer's standard [6 mm (1/4 inch)] [\_\_\_\_\_] thick sheet product. Provide panels to heights shown on the drawings with no horizontal seaming. Utilize the maximum panel dimension available in panel configurations to minimize vertical seams.

## PART 3 EXECUTION

### 3.1 INSTALLATION

#### 3.1.1 Components

Do not install items that show visual evidence of biological growth. Install all components and fabricated units plumb, level, and rigid. Make field joints between solid polymer components using solid polymer manufacturer's approved seam adhesives, to provide a monolithic appearance with joints inconspicuous in the finished work. Attach metal or vitreous china sinks and lavatory bowls to counter tops using solid polymer manufacturer's recommended clear silicone sealant and mounting hardware. Install all solid polymer sinks and bowls using a color-matched seam adhesive. Install all plumbing connections to sinks and lavatories in accordance with [Section 22 00 00 PLUMBING, GENERAL PURPOSE] [\_\_\_\_\_].

##### 3.1.1.1 Loose Counter Top Splashes

Mount loose splashes in the locations noted on the drawings. Adhere loose splashes to the counter top with a color matched silicone sealant when the solid polymer components are solid colors. Use a clear silicone sealant to provide adhesion of particulate patterned solid polymer splashes to counter tops.

##### 3.1.1.2 Wall Panels & Panel Systems

Use a neoprene-based panel adhesive for installation of wall panels and system components to substrates. Use seam adhesive to adhere all solid polymer components to each other with the exception of expansion joints and inside corners. Use a silicone sealant to join all inside corners and expansion joints between solid polymer components. Seal all joints between solid polymer components and non-solid polymer surfaces with a clear silicone sealant.

### 3.1.2 Silicone Sealant

Use a clear, silicone sealant or caulk 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 must be smooth and uniform in appearance and use the minimum size necessary to bridge any gaps between the solid surfacing material and the adjacent surface. Install continuous bead that runs the entire length of the joint being sealed.

### 3.1.3 Plumbing

Make plumbing connections to sinks and lavatories in accordance with Section [22 00 00 PLUMBING, GENERAL PURPOSE] [\_\_\_\_\_].

## 3.2 CLEAN-UP

Clean all components after installation and cover 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 must approve estimate before repairs are made. Submit a minimum of [six] [\_\_\_\_\_] copies of maintenance data indicating manufacturer's care, repair and cleaning instructions. Provide maintenance video if available. Submit maintenance kit for matte finishes.

-- End of Section --