
USACE / NAVFAC / AFCEA / NASA UFGS-06 61 16 (April 2006)
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Preparing Activity: USACE Replacing without change
UFGS-06650 (April 2005)

UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated July 2008

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SECTION 06 61 16

SOLID POLYMER (SOLID SURFACING) FABRICATIONS 04/06

NOTE: This guide specification covers the requirements for solid polymer fabrications.

Edit this guide specification for project specific requirements by adding, deleting, or revising text. For bracketed items, choose applicable items(s) or insert appropriate information.

Remove information and requirements not required in respective project, whether or not brackets are present.

Comments and suggestions on this guide specification are welcome and should be directed to the technical proponent of the specification. A listing of technical proponents, including their organization designation and telephone number, is on the Internet.

Recommended changes to a UFGS should be submitted as a Criteria Change Request (CCR).

This guide specification includes tailoring options for Counter and Vanity Top Splashes, Permanently Attached Backsplash, End Splashes, Shelving, Window Stools, Counter and Vanity Tops, Vanity Tops with Bowls, Cafeteria Counter Tops, Solid Polymer Sinks, Solid Polymer Vanity Bowls, Tub/Shower Wall Panel Systems, Wall Cladding/Wainscoting, Toilet/Shower Partition System, Loose Counter Top Splashes and Wall Panels & Panel Systems. Selection or deselection of a tailoring option will include or exclude that option in the section, but editing the resulting section to fit the project is still required.

PART 1 GENERAL

NOTE: Designer should require materials, products,

and innovative construction methods and techniques which are environmentally sensitive, take advantage of recycling and conserve natural resources.

E.O. 12873 dated 20 October 1993 requires that Federal Agencies use environmentally preferable products and services and implement cost-effective procurement preference programs favoring purchase of these products and services. "Environmentally preferable" products and services are those that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose. This comparison may consider raw materials acquisition, production, manufacturing, packaging, distribution, reuse, operation, maintenance, or disposal of the product or service.

In the case of solid polymer products, it should be noted that the finished product is non-renewable. However, other factors weigh heavily toward considering this material for sustainable design. These include but are not limited to:

- 1) Ease of repairability and high durability. Material almost never needs to be replaced, thereby reducing landfill and replacement (i.e., need for more natural resources and energy) costs.

- 2) Manufacturer/fabricator programs in place that reduce energy required or re-cycle energy, water, by-products, or waste materials.

Evaluation of the sustainable efforts of a manufacturer is subjective. There are no current measurable aspects of a sustainable program for solid polymer material which easily qualifies or disqualifies a manufacturer or fabricator. The submittal reviewer should use the information provided in the Department of Army ETL 1110-3-491 in conjunction with a common sense approach in making the evaluation.

On the drawings, show:

1. Locations and configurations of solid polymer components.
2. Edge details of components.
3. Attachment methods for substrates.
4. Details of acrylic or other material inlay.
5. Details of sandblasting or back lighting.

1.1 REFERENCES

NOTE: This paragraph is used to list the publications cited in the text of the guide specification. The publications are referred to in the text by basic designation only and listed in this paragraph by organization, designation, date, and title.

Use the Reference Wizard's Check Reference feature when you add a RID outside of the Section's Reference Article to automatically place the reference in the Reference Article. Also use the Reference Wizard's Check Reference feature to update the issue dates.

References not used in the text will automatically be deleted from this section of the project specification when you choose to reconcile references in the publish print process.

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	(2003) Standard Test Method for Tensile Properties of Plastics
ASTM D 696	(2003) 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	(2008a) 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	(1995) 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

NOTE: The term "solid surfacing material" encompasses many formulations, including 100% acrylic, and blends of acrylic/polyester called acrylic-modified, and other formulations which include such materials as fiberglass for strengthening. Performance characteristics and cost will vary depending on the formulation. For the purposes of this specification, only solid polymer materials in 100% acrylic or acrylic-modified polyester formulations will be considered. These two materials provide the best value in terms of performance and life-cycle cost. When specifying solid surfacing products other than solid polymer, care should be taken to fully understand the limitations of these products compared to solid polymer with regard to performance characteristics, fabrication, and installation.

Veneered products consisting of a thin top layer of solid surfacing material with a structural substrate of plywood or particleboard are not considered to be solid polymer with respect to this specification. When specifying a veneered product, care should be taken to fully understand the limitations of this product compared to solid polymer fabrications with regard to performance characteristics and installation.

This specification can be used for countertops, countertops with sinks, sinks or bowls, window stools, tub and shower walls, toilet and shower partitions, wainscotting, shelving, table tops, hot and cold cafeteria surfaces, flooring thresholds, wall panel wainscotting, and other applications where a hard, durable, stain resistant surface is desired. Facility types include, but are not limited to: healthcare, institutional, administrative, hospitality, retail, and laboratories. The use of solid polymer fabrications meets many health, hygiene, and durability requirements due to its non-porous and abrasion resistant properties. Provide specific project uses in the brackets below.

Work in 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. Variation in component size and location of openings to be plus or minus 3 mm 1/8 inch.

1.3 SUBMITTALS

NOTE: Review submittal description (SD) definitions in Section 01 33 00 SUBMITTAL PROCEDURES and edit the following list to reflect only the submittals required for the project. Submittals should be kept to the minimum required for adequate quality control.

A "G" following a submittal item indicates that the submittal requires Government approval. Some submittals are already marked with a "G". Only delete an existing "G" if the submittal item is not complex and can be reviewed through the Contractor's Quality Control system. Only add a "G" if the submittal is sufficiently important or complex in context of the project.

For submittals requiring Government approval on Army projects, a code of up to three characters within the submittal tags may be used following the "G" designation to indicate the approving authority. Codes for Army projects using the Resident Management System (RMS) are: "AE" for Architect-Engineer; "DO" for District Office (Engineering Division or other organization in the District Office); "AO" for Area Office; "RO" for Resident Office; and "PO" for Project Office. Codes following the "G" typically are not used for Navy, Air Force, and NASA projects.

Choose the first bracketed item for Navy, Air Force and NASA projects, or choose the second bracketed item for Army projects.

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.] The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Detail Drawings[; G][; G, [____]]
Installation[; G][; G, [____]]

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
Qualifications
Fabrications

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][; G, [____]]

A minimum 100 by 100 mm 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][; G, [____]]

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 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

NOTE: Although solid polymer materials are fabricated by methods and with tools similar to wood fabrications, familiarity with and expertise in fabricating solid polymer items is essential to achieving high quality results. Cabinet or millwork shops, often associated with cabinet countertops and other millwork fabrications do not necessarily possess this expertise. Proof of qualification is therefore very important.

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

NOTE: The counter top submittal sample, as described here, is intended for submittal review at the COE or AE reviewer's office. Where only field or onsite submittal reviews are provided and multiple units are to be installed, the Contractor can be given the requirement to provide a full size mock-up for inspection. A full size mock-up precludes the need for the counter top sample.

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 [vanity top] [countertop] [

shelving] [_____] 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

NOTE: Standard thicknesses for solid polymer material are 6 mm (1/4 inch), 13 mm (1/2 inch), or 19 mm (3/4 inch). Material 13 mm (1/2 inch) thick is considered standard for most applications and is an adequate thickness for most counter top and horizontal surface use; this material does not ordinarily require any sheet underlayment, such as plywood or particle board, when properly spaced structural support is provided. The 6 mm (1/4 inch) thick material is generally used only for vertical applications.

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 0.25 mm 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 6 mm 1/4 inch in thickness.

2.1.1 Cast, 100 Percent Acrylic Polymer Solid Surfacing Material

NOTE: Although acrylic-modified polyester polymer is specified below, cast, solid 100% acrylic polymer material has superior performance characteristics and is therefore considered a superior choice of materials. Cast, solid 100% acrylic polymer should always be selected unless cost or a particular pattern/color are considered a higher priority.

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	422 kg/cm ²	ASTM D 638
Hardness	55-Barcol Impressor (min.)	ASTM D 2583
Thermal Expansion	.0000386cm/cm/degC	ASTM D 696

PROPERTY	REQUIREMENT (min. or max.)	TEST PROCEDURE
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
6.4 mm sheet	910 mm, 227 g ball, no failure	
12.7 mm sheet	3550 mm, 227 g ball, no failure	
19 mm sheet	5070 mm, 227 m ball, no failure	
Mold & Mildew Growth	No growth	ASTM G 21
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 Smoke Developed	25 max. 30 max	
Sanitation	"Food Contact" approval	NSF 51

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	

PROPERTY	REQUIREMENT (min. or max.)	TEST PROCEDURE
	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 Absorption (Weight in 24 hrs.)	0.1% max.	ASTM D 570
Flammability		ASTM E 84
Flame Spread Smoke Developed	25 max. 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	288 kg/cm ²	ASTM D 638
Hardness	50-Barcol Impressor (min.)	ASTM D 2583
Thermal Expansion	.0000386cm/cm/degC	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
6.4 mm sheet	910 mm, 227 m ball, no failure	
12.7 mm sheet	3550 mm, 227 m ball, no failure	
19 mm sheet	507 mm, 227 m 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.)	0.6% max.	ASTM D 570
Flammability		ASTM E 84
Flame Spread Smoke Developed	25 max. 100 max	
Sanitation	"Food Contact" approval	NSF 51
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 Absorption (Weight in 24 hrs.)	0.6% max.	ASTM D 570
Flammability		ASTM E 84
Flame Spread Smoke Developed	25 max. 100 max	

PROPERTY	REQUIREMENT (min. or max.)	TEST PROCEDURE
Sanitation	"Food Contact" approval	NSF 51

2.1.3 Material Patterns and Colors

NOTE: Availability of material patterns and colors within any particular manufacturer may vary depending on the material thickness. Scratches in some dark colored solids and patterns, while repairable, are highly visible until repair takes place. Color selection should be based on material availability and severity of end use condition.

Patterns and colors for all solid polymer components and fabrications shall be those indicated on the project [drawings] [color schedule] [_____]. 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

NOTE: Matte finish is recommended for most horizontal surfaces such as counter tops. A matte finish is the best for masking surface scratches and is the best finish for facilitating repair of minor scratches, cuts, and abrasions. Semi gloss and polished surface finishes are recommended only for very light-duty end use surfaces. Gloss ratings are based on standard glossometer readings made at a 60 degree angle of incidence.

Where semigloss or gloss finishes are specified, recommend these finishes be factory supplied in order to insure a consistent gloss level of reflectance throughout the entire surface area.

Exposed finished surfaces and edges shall receive a uniform appearance. Exposed surface finish shall 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

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, 0.1 mm 4 mils thick, applied around the edges of cut outs containing hot or cold appliances.

2.2.5 Insulating Felt Tape

NOTE: This tape is not required for cooktops or ranges in family housing or other residential applications. Only commercial food wells create enough heat or cold to require extra insulation. Conductive tape is adequate for residential kitchen cooktop cutouts.

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 [13 mm 1/2 inch] [] thick solid surfacing material and shall be [[100 mm 4 inches] [] high] [provided to dimensions and shapes as indicated on the drawings]. Backsplashes and end splashes shall be provided [for all counter tops and vanity tops] [at locations indicated on the drawings]. Backsplashes shall be shop fabricated and be [permanently attached] [loose, to be field attached].

2.3.3.1 Permanently Attached Backsplash

NOTE: Permanently attached backsplashes eliminate the maintenance associated with silicone caulk attachment. Straight attachment with joint adhesive results in a 90 degree square appearance in the counter top/backsplash transition. It is lower in cost than the coved transition method which involves shaping and adhering a strip of matching solid surfacing material into the transition.

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

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 Shelving

Shelving [and wall support brackets] shall be fabricated from [13 mm 1/2 inch] [] thick solid surfacing, solid polymer material. Dimensions, edge shape, and other details shall be as indicated on the drawings.

2.3.5 Window Stools

NOTE: Many manufacturers of solid polymer material offer a program of pre-fabricated window stools in selected patterns and colors, dimensions, thicknesses, and edge details. Use of these programs can result in considerable cost-savings

over custom fabricated window stools. These programs should be utilized to the greatest extent possible.

Window stools shall be fabricated from [13 mm 1/2 inch] [_____] thick solid surfacing, solid polymer material. Dimensions, edge shape, and other details shall be [as indicated on the drawings] [selected from manufacturer's available pre-fabricated standards].

2.3.6 Counter and Vanity Tops

All solid surfacing, solid polymer counter top and vanity top components shall be fabricated from [13 mm 1/2 inch] [_____] thick material. Edge details, dimensions, locations, and quantities shall be as indicated on the Drawings. Counter tops shall be complete 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.

2.3.6.1 Counter Top With Sink

A. Stainless Steel or Vitreous China Sink.

NOTE: Rimless sink type is recommended with solid surfacing countertops. Rimless installation provides superior counter top cleaning capability.

Countertops with sinks shall include cutouts to template as furnished by the sink manufacturer. Manufacturer's standard sink mounting hardware for [stainless steel] [vitreous china] [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.

B. Solid Polymer Sink

Solid polymer sinks shall be a manufacturer's standard, pre-molded product specifically designed for attachment to solid polymer counter tops.

2.3.6.2 Vanity Tops With Bowls

A. Vitreous China Bowl

NOTE: Rimless sink type is recommended with solid surfacing countertops. Rimless installation provides superior counter top cleaning capability.

Countertops with vitreous china bowls shall include cutouts to template as furnished by the sink manufacturer. Manufacturer's standard sink mounting hardware for vitreous china [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.

B. Solid Polymer Bowl

Solid polymer bowls shall be a solid polymer manufacturer's standard, pre-molded product specifically designed for attachment to solid polymer counter tops.

C. One-Piece Vanity Top and Bowl

NOTE: Many manufacturers of solid polymer offer one-piece, prefabricated vanity tops and bowls in various configurations and sizes. These pre-fabricated units can provide considerable cost savings over field fabricated units. Care should be taken when specifying one-piece units to coordinate the unit size designed with the available manufacturer's standard dimensions.

One-piece vanity top and bowl fabrications shall be a standard pre-fabricated product provided by the solid polymer manufacturer. Each unit shall include a vanity top with integral backsplash and sink bowl.

2.3.6.3 Cafeteria Counter Tops

Cutouts for cold or hot appliances shall be made to templates furnished by the equipment manufacturers. Joints and cutouts shall be reinforced as recommended by the solid polymer manufacturer. Insulation shall be provided between the solid polymer surface and all appliances, hot or cold. Hot applications shall be thermally isolated 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, adequate ventilation shall be provided to prevent heat build-up.

2.3.7 Solid Polymer Sinks

Solid polymer sinks shall be a standard product of the solid polymer manufacturer, designed specifically to be installed in solid polymer countertops. Sinks shall be of the same polymer composition as the adjoining counter top. Sink design shall support a [seam adhesive undermount] [seam adhesive flush] installation method. Sinks shall be a [single bowl] [double bowl] [double bowl with molded drainboard] configuration. Sink dimensions shall be [as indicated on the drawings] [_____].

2.3.8 Solid Polymer Vanity Bowls

Solid polymer vanity bowls shall be a standard product of the solid polymer manufacturer, designed specifically to be installed in solid polymer vanity tops. Bowls shall be of the same polymer composition as the adjoining counter top. Bowl design shall support a [seam adhesive undermount] [seam adhesive flush] installation method. Bowl dimensions shall be [as indicated on the drawings] [_____].

2.3.9 Tub/Shower Wall Panel System

NOTE: Some solid polymer manufacturers offer standardized tub and shower surround kits that can be field cut to fit with minimum material waste. These standardized packages can provide significant cost savings over custom designed tub and shower panel applications.

Tub/shower wall enclosures shall provide a system of solid polymer components to include: [panels] [corner trim] [soap dish] [shampoo shelf] [panel edge trim] [_____]. Dimensions of all components shall be [as indicated on the drawings] [standard manufacturer's dimensions to be field cut to fit]. Panels shall be formed from manufacturer's standard [6 mm 1/4 inch] [_____] thick sheet product. Panels shall be full width and height with seams occurring only at the inside corners of the enclosure. Soap dish and shampoo shelf shall 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

Solid polymer wall cladding or wainscoting shall be provided to dimensions and in locations as shown on the drawings. Panels shall be fabricated from manufacturer's standard [6 mm 1/4 inch] [_____] thick sheet product. Panels shall be provided to heights shown on the drawings with no horizontal seaming. Panels shall utilize the maximum panel dimension available to minimize vertical seams.

2.3.11 Toilet/Shower Partition System

NOTE: Some solid polymer manufacturers offer standardized partition kits that include all solid polymer components and installation hardware. These standardized packages can provide significant cost savings over custom designed partition systems and should be utilized wherever possible.

Floor-mounted, solid polymer [toilet] [shower partition] system shall be [provided to dimensions and] [as standard manufacturer's dimensions] in locations as shown on the drawings. Panels and pilasters shall be fabricated from manufacturer's standard [13 mm 1/2 inch] [_____] thick sheet product. System shall include all necessary hardware for installation and mounting of panels, pilasters, and doors.

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.

3.2.1.2 Wall Panels & Panel Systems

Installation of wall panels and system components to substrates shall include the use of a neoprene-based panel adhesive. Seam adhesive shall be used to adhere all solid polymer components to each other with the exception of expansion joints and inside corners. All inside corners and expansion joints between solid polymer components shall be joined with silicone sealant. All joints between solid polymer components and non-solid polymer surfaces shall be sealed with 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 --