
USACE / NAVFAC / AFCEA UFGS-06650N (September 1999)

Preparing Activity: NAVFAC Replacing without revision
NFGS of same number and date.

UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated 22 December 2004

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SECTION 06650

SOLID POLYMER FABRICATIONS

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NOTE: This guide specification covers the requirements for cast, mineral filled, nonporous, solid polymer material used for countertops, vanity tops, sinks, bowls, window sills, tub and shower walls, and other applications where a hard, durable, stain resistant surface is desired.

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).

Use of electronic communication is encouraged.

Brackets are used in the text to indicate designer choices or locations where text must be supplied by the designer.

NOTE: 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.

PART 1 GENERAL

1.1 REFERENCES

NOTE: Issue (date) of references included in project specifications need not be more current than provided by the latest guide specification. Use of SpecsIntact automated reference checking is recommended for projects based on older guide specifications.

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	(1995; R 2001e1) Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor
ASTM D 570	(1998) Water Absorption of Plastics
ASTM D 638	(2003) Tensile Properties of Plastics
ASTM D 696	(2003) Coefficient of Linear Thermal Expansion of Plastics Between Minus 30 degrees C and 30 degrees C With a Vitreous Silica Dilatometer
ASTM E 84	(2004) Surface Burning Characteristics of Building Materials
ASTM G 21	(1996; R 2002) Determining Resistance of Synthetic Polymeric Materials to Fungi
ASTM G 22	(1976; R 1996) Determining Resistance of Plastics to Bacteria

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

NEMA LD 3	(2000) High-Pressure Decorative Laminates
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NSF INTERNATIONAL (NSF)

NSF 51	(2002) Food Equipment Materials
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1.2 SUBMITTALS

NOTE: Submittals must be limited to those necessary for adequate quality control. The importance of an item in the project should be one of the primary factors in determining if a submittal for the item should be required.

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 projects.

Submittal items not designated with a "G" are considered as being for information only for Army projects and for Contractor Quality Control approval for Navy projects.

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are [for Contractor Quality Control approval.] [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 01330 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Fabrications; G

Indicate joints, shapes, dimensions, accessories and installation details.

SD-03 Product Data

Solid polymer fabrications; G

Panel Adhesive; G

Joint Adhesive; G

Sealant; G

Heat reflective tape; G

SD-04 Samples

Solid polymer fabrications; G

Where colors and patterns are not indicated, submit at least [_____] different samples of manufacturer's standard colors and

patterns for selection.

SD-06 Test Reports

Tensile strength; G

Hardness; G

Flammability; G

Thermal expansion; G

Boiling water resistance; G

High temperature resistance; G

Liquid absorption; G

Mold and mildew growth; G

Bacteria growth; G

Impact resistance; G

Sanitation; G

SD-10 Operation and Maintenance Data

Solid polymer fabrications; G

Provide manuals indicating manufacturer's care and maintenance data, including repair and cleaning instructions. Provide maintenance kit for [matte][semigloss][gloss] finishes.

1.3 QUALITY ASSURANCE

1.3.1 Appearance

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.

1.4 DELIVERY, STORAGE AND HANDLING

Do not deliver 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 in dry, weathertight enclosure. Protect materials to prevent damage to finished surfaces. Provide protective coverings to prevent physical damage or staining after installation until completion of the project.

1.5 WARRANTY

Provide the solid surface material manufacturer's ten year warranty, from date of acceptance of the work.

PART 2 PRODUCTS

2.1 SOLID POLYMER FABRICATIONS

Provide fabrication of cast, solid polymer material composed of acrylic polymer, mineral fillers and pigments. Material shall not be coated or laminated to substrates. Polymer thickness to be as indicated but not less than 6 mm 1/4 inch. Superficial damage to a depth of 0.25 mm 0.010 inch shall be repairable by sanding or polishing.

NOTE: Availability of finish color selections may vary depending on the material thickness. Scratches in some dark colored solids and patterns are highly visible. Color selection should be based on material availability and severity of end use conditions.

2.1.1 Performance Requirements

- a. Tensile strength, ASTM D 638: 40 MPa 5800 psi minimum
- b. Hardness, ASTM D 2583: Barcol Impressor 55 minimum
- c. Flammability, ASTM E 84: Class I/A, flame spread 25 maximum; smoke developed 30 maximum
- d. Thermal Expansion, ASTM D 696: .000036 mm/mm/K.00002 in/in/F maximum
- e. Boiling water resistance, NEMA LD 3: No effect
- f. High temperature resistance, NEMA LD 3: No effect
- g. Liquid absorption, ASTM D 570 (24 hours): 0.10 percent maximum
- h. Mold and mildew growth, ASTM G 21: No growth, no effect
- i. Bacteria growth, ASTM G 22: No growth, no effect
- j. Sanitation, NSF 51: "Food Contact" approval for food area applications
- k. Impact resistance, NEMA LD 3 (0.227 kg1/2 lb. ball drop): 6 mm 1/4 inch material, 914 mm 36 inch drop, no failure 13 mm 1/2 inch material, 3048 mm 120 inch drop, no failure

2.1.2 Joint Adhesive

Two part acrylic joint adhesive as recommended by the solid polymer manufacturer to form inconspicuous, non-porous joints by chemical bond.

2.1.3 Panel Adhesive

Neoprene based panel adhesive as recommended by the solid polymer manufacturer, UL listed.

2.1.4 Sealant

Mildew resistant, FDA compliant and UL listed, silicone sealant as recommended by the solid polymer manufacturer.

2.1.5 Heat Reflective Tape

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

2.1.6 Mounting Hardware

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

2.2 FABRICATIONS

2.2.1 Fabrication requirements

- a. Factory fabricate components to the greatest extent possible to the sizes and shapes indicated, in accordance with approved shop drawings. Where indicated, factory fabricate side and back splashes with 13 mm 1/2 inch cove at intersections.
- b. Form joints between components using manufacturer's standard acrylic joint adhesive. Joints shall be inconspicuous, non-porous, and reinforced with strips of solid polymer material in accordance with the manufacturer's printed instructions.
- c. Provide factory cutouts for plumbing and accessories as indicated. Reinforce heated or cooled cutouts in accordance with approved shop drawings and the manufacturer's printed instructions. Support all cutouts in accordance with approved shop drawings and the manufacturer's printed instructions.
- d. Cut and finish component edges with clean returns. Round edges of cutouts to 3 mm 1/8 inch radius. Round corners of cutouts with 13 mm 1/2 inch minimum radius. Use router to form all cutouts. Provide thick edges where indicated using strips of solid polymer material and manufacturer's acrylic joint adhesive. All joints to be inconspicuous and non-porous. All exposed surfaces to have uniform finish and gloss.

PART 3 EXECUTION

3.1 INSTALLATION

Deliver fabrications to the locations indicated. Assemble and install complete with accessories and hardware.

3.1.1 Assembly Requirements

- a. Install components plumb and level and scribed to adjacent finishes in accordance with approved shop drawings and data.
- b. Fasten and support fabrications to walls, brackets, and partitions as indicated. Fasteners shall be appropriate for use with adjoining construction.

- c. Form field joints using manufacturer's recommended acrylic adhesive. Joints shall be inconspicuous and non-porous. Keep components and hands clean when forming joints. Seal flexible joints using manufacturer's recommended sealant.
- d. Provide integral backsplashes and sidesplashes as indicated. Attach splashes with silicone or joint adhesive as indicated.
- e. Keep components and hands clean during installation. Remove excessive adhesive and sealants. Clean finished surfaces of all dirt and stains.

3.1.2 Protection

Provide protective coverings to prevent physical damage or staining following installation.

-- End of Section --