

**SECTION 12 36 00
COUNTERTOPS**

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section specifies casework countertops with integral accessories.
- B. Integral accessories include:
 - 1. Sinks with traps and drains.
 - 2. Electrical Receptacles.

1.2 RELATED WORK

- B. DIVISION 22, PLUMBING.
- C. DIVISION 26, ELECTRICAL.

1.3 SUBMITTALS

- A. Submit in accordance with SECTION 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Shop Drawings
 - 1. Show dimensions of section and method of assembly.
 - 2. Show details of construction at 1/2 scale.
- C. Samples:
 - 1. 150 mm (6 inch) square samples each top.
 - 2. Front edge, back splash, end splash and core with surface material and booking.

1.4 APPLICABLE PUBLICATIONS

- A. Publications listed below form a part of this specification to the extent referenced. Publications are referenced in the text by the basic designation only.
- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents, unless otherwise indicated.
- C. American Society of Mechanical Engineers (ASME):
 - A112.18.1.....Plumbing Fixture Fittings
 - A112.1.2.....Air Gaps in Plumbing System
 - A112.19.3.....Stainless Steel Plumbing Fixtures (Designed for Residential Use)

- D. American Society for Testing and Materials (ASTM):
 - D256.....Pendulum Impact Resistance of Plastic
 - D570.....Water Absorption of Plastics
 - D638.....Tensile Properties of Plastics
 - D785.....Rockwell Hardness of Plastics and Electrical Insulating
Materials
 - G21.....Determining Resistance of Synthetic Polymeric Materials
to Fungi
- F. Federal Specifications (FS):
 - A-A-1936Adhesive, Contact, Neoprene Rubber
- G. U.S. Department of Commerce, Product Standards (PS):
 - PS 1Construction and Industrial Plywood
- H. National Electrical Manufacturers Association (NEMA):
 - LD 3-05High Pressure Decorative Laminates
 - LD 3.1Performance, Application, Fabrication, and Installation of
High Pressure Decorative Laminates

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Plastic Laminate: NEMA LD 3.
 - 1. Concealed backing sheet Type BKL.
 - 2. Decorative surfaces:
 - a. Flat components: Type GP-HGL.
 - b. Post forming: Type PF-HGP.
 - 3. Chemical Resistant Surfaces
 - a. Flat components: Type GP-HGL.
 - b. Post forming: Type PF-HGP.
 - c. Resistance to reagents:
 - 1) Test with five 0.25 mil drops remaining on surface for 16 hours followed by washing off with tap water, then cleaned with liquid soap and water, dried with soft cotton cloth and then cleaned with naphtha.

- 2) No change in color, surface texture, and original protectability remaining from test results of following reagents:

98% Acetic Acid	Butyl Alcohol	Acetone
90% Formic Acid--	Benzine	Chloroform
28% Ammonium Hydroxide	Xylene	Carbon Tetrachloride
Zinc Chloride (Sat.)	Toluene	Cresol
Sodium Carbonate (Sat.)	Gasoline	Ether
Calcium Hypochlorite (Sat.)	Kerosene	Cottonseed Oil
Sodium Chloride (Sat.)	Mineral Oil	40% Formaldehyde
Methyl Alcohol	Ethyl Acetate	Trichlorethylene
Ethyl Alcohol	Amyl Acetate	Monochlorobenzine

- 3) Superficial effects only: Slight color change, spot, or residue only with original protectability remaining from test results of following reagents:

77% Sulfuric Acid	37% Hydrochloric Acid	85% Phenol
33% Sulfuric Acid	20% Nitric Acid	Furfural
85% Phosphoric Acid	30% Nitric Acid	Dioxane

- 4) Minimum height of impact resistance: 300 mm (12 inches).

B. Particleboard: CPA A208.1, Grade 2-M-2.

C. Plywood: PS 1, Exterior type, veneer grade AC not less than five ply construction.

D. Adhesive

1. For plastic laminate FS A-A-1936.
2. For wood products: ASTM D4690, un-extended urea resin or un-extended melamine resin, phenol resin, or resorcinol resin.
3. For Field Joints:
 - a. Epoxy type, resistant to chemicals as specified for plastic laminate laboratory surfaces.
 - b. Fungi resistant: ASTM G-21, rating of 0.

E. Fasteners:

1. Metals used for welding same metal as materials joined.

2. Use studs, bolts, spaces, threaded rods with nuts or screws suitable for materials being joined with metal splice plates, channels or other supporting shape.

F. Solid Polymer Material:

1. Filled Methyl Methacrylic Polymer.
2. Performance properties required:

Property	Result	Test
Elongation	0.3% min.	ASTM D638
Hardness	90 Rockwell M	ASTM D785
Gloss (60° Gordon)	5-20	NEMA LD3.1
Color stability	No change	NEMA LD3 except 200 hour
Abrasion resistance	No loss of pattern Max wear depth 0.0762 mm (0.003 in) - 10000 cycles	NEMA LD3
Water absorption weight (5 max)	24 hours 0.9	ASTM D-570
Izod impact	14 N·m/m (0.25 ft-lb/in)	ASTM D256 (Method A)
Impact resistance	No fracture	NEMA LD-3 900 mm (36") drop 1 kg (2 lb.) ball
Boiling water surface resistance	No visible change	NEMA LD3
High temperature resistance	Slight surface dulling	NEMA LD3

3. Cast into sheet form and bowl form.
4. Color throughout with subtle veining through thickness.
5. Dupont "Corian" is acceptable if meeting the above properties.
6. Joint adhesive and sealer: Manufacturers silicone adhesive and sealant for joining methyl methacrylic polymer sheet.

2.2 SINKS

A. Stainless Steel:

1. ANSI/ASME A112.19.3, Type 304.
2. Self rim for plastic laminate or similar tops with concealed fasteners.
3. Flat rim for welded into stainless steel tops.
4. Ledge back or ledge sides with holes to receive required fixtures when mounted on countertop.
5. Apply fire resistant sound deadening material to underside.

2.3 TRAPS AND FITTINGS

A. For Stainless Steel Sinks:

1. Either cast or wrought brass or stainless steel P-traps and drain fittings; ASME A112.18.1
2. Flat strainer, except where cup strainer or overflow standpipe specified.
 - a. Provide cup strainer in cabinet type 1B.
 - b. Provide stainless steel overflow stand pipe to within 38 mm (1-1/2 inches) of sink rim.
3. Exposed surface chromium plated finish.

B. Air Gap Fittings: ASME A112.1.2.

2.4 COUNTERTOPS

- A. Fabricate in largest sections practicable.
- B. Fabricate with joints flush on top surface.
- C. Fabricate countertops to overhang front of cabinets and end of assemblies 25 mm (one inch) except where against walls or cabinets.
- D. Provide 1 mm (0.039 inch) thick metal plate connectors or fastening devices (except epoxy resin tops).
- E. Fabricate with end splashes where against walls or cabinets.
- F. Splash Backs and End Splashes:
 1. Not less than 19 mm (3/4 inch) thick.
 2. Height 100 mm (4 inches) unless noted otherwise.

- G. Drill or cutout for sinks, and penetrations.
 - 1. Accurately cut for size of penetration.
- H. Plastic Laminate Countertops:
 - 1. Fabricate plastic laminate on five-ply plywood core 19 mm (3/4 inch) thick with plastic laminate backing sheet.
 - 2. Front edge over cabinets not less than 38 mm (1-1/2 inches) thick except where plastic "T" insert is used, not less than 19 mm (3/4 inch) thick.
 - 3. Exposed Surface and edges of decorative laminated plastic.
 - a. Use decorative surface tops when noted plastic laminate, for tops 10A, 10B and 10C.
- I. Solid Polymer Countertops:
 - 1. Fabricate tops in one piece with shop-applied backsplashes and edges, unless otherwise indicated. Comply with solid-surfacing-material manufacturer's written recommendations for adhesives, sealers, fabrication, and finishing.
 - 2. Form joints between components using manufacturer's standard joint adhesive without conspicuous joints.
 - 3. Provide factory cutouts for plumbing fittings and bath accessories as indicated on the drawings.
 - 4. Rout and finish component edges with clean, sharp returns.
 - a. Rout cutouts, radii and contours to template.
 - b. Smooth edges.
 - c. Repair or reject defective and inaccurate work.
 - 5. Sink: Install integral sink bowls in countertops in shop.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Before installing countertops verify that wall surfaces have been finished as specified and that mechanical and electrical service locations are as required.

- B. Secure countertops to supporting rails of cabinets with metal fastening devices, or screws through pierced slots in rails.
 - 1. Where type, size or spacing of fastenings is not shown or specified, submit shop drawings showing proposed fastenings and method of installation.
 - 2. Use round head bolts or screws.
 - 3. Use wood or sheet metal screws for plastic laminate tops; minimum penetration into top 16 mm (5/8 inch), screw size No 8, or 10.
- C. Sinks
 - 1. Install stainless steel sink in plastic laminate tops with epoxy compound to form watertight seal under shelf rim.
 - a. Install faucets and fittings on sink ledges with watertight seals where shown.
- D. Faucets, Fixtures, and Outlets:
 - 1. Seal opening between fixture and top.
 - 2. Secure to top with manufacturers standard fittings.
- E. Electrical Outlets:
 - 1. Set in cutouts with manufacturers gasket sealing joint with top to prevent water leakage.
 - 2. Install control unit and electric outlets where shown. Seal escutcheon plate at lap if on counter or top to prevent water leakage.

3.2 PROTECTION AND CLEANING

- A. Tightly cover and protect against dirt, water, and chemical or mechanical injury.
- B. Clean at completion of work.

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