

SECTION 12 3653 - Epoxy Work Surfaces and Sinks

PART 1- GENERAL

I.I SUMMARY

- A. This Section includes the following:
 - 1. Epoxy resin countertops and backsplash.
 - 2. Lipped Drop-In epoxy sinks.
 - 3. Under counter mounted epoxy sinks with supports.

1.2 SUBMITTALS

- A. Product Data: For epoxy resin counter top materials and accessories.
- B. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
- C. Samples:
Supply 2" x 2" Epoxy resin samples for each type, color, pattern, and surface finish.
- D. Woodwork Quality Standard Compliance Certificates: WI-certified compliance certificates.

2.1 EPOXY RESIN WORK SURFACE

- A. Supplier: Duratop Epoxy - by Total Laboratory Solutions
Basis of supply or fabrication: Total Laboratory Solutions, Scottsdale, AZ 85266
www.Duratop-Epoxy.com
Ph: 480.488.6421
Email: David@DuratopEpoxy.Com
- B. Materials and Fabrication:
 - 1. General: Material shall be a monolithic, cast epoxy resin product and shall consist of a polymerized cast resin material and asbestos free inert materials shall be oven-cured in molds to obtain maximum chemical resistance, then removed from the molds and oven tempered to achieve maximum physical strength and stability. Surfaces shall have a uniform low-sheen surface and the finished material shall be extremely hard and resistant to scratches and abrasion.
 - a. Thickness: 1 inch thick (25mm). Other thickness available or as indicated on drawings.
 - b. Edges and Corners: 1/8" (3mm) bevel machine top edge with blended radius corners. Chamfer underside exposed edges.
 - c. Surface: Work surfaces shall be furnished flat.

- d. Backsplashes: Supplied loose for field application in the same material and thickness as countertops. Curbs as installed shall be 4" high (100mm) typical, unless otherwise indicated on drawings. Curbs will be bonded to the tops at the jobsite. Include top mounted end curb where work surfaces abut walls, fume hoods, and locations detailed on drawings.
- e. Color: Black Onyx or other color selected from supplier's full range.
- f. Warpage: Check work surface for warpage before fabrication or installation. Measure in unrestrained conditions. Work surface will be accepted for use if there is no gap exceeding 1/16" in a 36" span.
- g. Fabrication: Provide in longest practical lengths, 96" being max available. All joints shall be bonded with a highly chemical and corrosion resistant epoxy adhesive. Provide 1/8" drip groove on underside of exposed edges set back 1/2" from edge at all sink areas and where shown on drawings. All exposed edges to be molded or finished.
- h. Thickness Tolerances: Each top corner shall not deviate more than plus/minus 1/16" from nominal.
- i. Size Tolerances: Length, plus/minus 1/8" width, plus/minus 1/16".
- j. Squareness: Compare the diagonal corner-to-corner measurements across the width of each work surface. The diagonal measurements must be within 1/16".
- k. Penetrations: Location of cutouts and drillings: Plus/minus 1/8".
Cutout sizes and drillings: Plus/minus 1/16".

C. Chemical Resistance

I. Test Methods:

- a. Volatile chemicals (organic solvents): A cotton ball, saturated with the test chemical reagent is placed in a one-ounce bottle with a reservoir of liquid above the ball. The container is inverted on the test material for a period of 24 hours at a standard temperature of 23 degrees plus/minus 2 degree C.
- b. Non-Volatile Chemicals: Five drops of the test chemical are placed on the test material surface. The chemical is covered with a 1" watch glass for a period of no less than 24 hours at a standard temperature of 23F degrees plus/minus 2 degree C.

D. Evaluation Ratings

- 1. After exposure for 24 hours, all surfaces are washed with clear clean water, then a detergent solution, finally with naphtha, rinsed with distilled water and dried with a cloth. Change in surface finish and function shall be described by the 5 following (a. - e.) ratings:
 - a. No Effect: No detectable change in the material surface.
 - b. Excellent: Slight detectable change in color or gloss, but no change to the function or life of the work surface material.

- c. Good: Clearly discernible change in color or gloss, but no significant impairment of surface life or function.
- d. Fair: Objectionable change in appearance due to surface discoloration or etch, possibly resulting in deterioration of function over an extended period.
- e. Failure: Pitting, cratering or erosion of work surface material; obvious and significant deterioration.

2.2 PHYSICAL TESTING Specifications:

- f. Heat deflection@ 264 psi (ASTM 648). Minimum acceptable test results: 193 degrees C.
- g. Falling Ball Impact Resistance (ERF 23-69): Test Method: Careful attention to details of test procedure should be followed. A wooden supporting frame must be used with the test. Size of samples: 12" x 12" by the thickness of the material. Steel balls of 2 lbs should be used. Three or more samples should be tested from a maximum height of 8'. Minimum Acceptable Test Result: No fracture to a height of 7'.
- h. Thermal Shock Resistance (Non-Standard Test): Test Method: Two cubes 2" x 2" by thickness of material are immersed in a dry ice/acetone bath maintained at minus 78 degree C. The cubes are allowed to remain in the bath for 15 minutes. Each cube is removed and immediately placed in a container of boiling water at 100 degree C. The procedure is repeated until failure occurs (i.e., cracking, warpage, distortion) for a series of five repetitions. Minimum Acceptable Test Results: No visible changes should be observed.
- i. Flexural Strength and Modulus of Rupture (ASTM D790): Test Method: Test specimens should be prepared from 1" thick production material with a support span 16 times the depth (thickness) of the beam. The original surface of the sample should be unaltered. Recommended sample size is 19.5" x 1.0" x 1.0" (length x width x depth). A minimum of five samples are to be tested. Testing should be carried out to failure of the test sample. Modulus of Rupture should be measured as described in the ASTM method. Minimum Acceptable Test Result: Flexural Strength: 10,000 psi / Modulus of Rupture: 1,000,000 psi.

2.3 SINKS AND ACCESSORIES SECTION

A. Drop-in DuraTop Epoxy sinks:

- 1. Description: Integrally molded from modified thermosetting epoxy resin, and oven cured. Nominal wall thickness of 1/2" with all interior corners coved to 1 to 1 1/2" radius and bottoms pitched to the outlet opening.
 - a. Provide model number or size, as shown on architectural drawings.
 - b. Lipped drop-in epoxy sinks to be installed into a factory routed groove in countertop to receive sink rim. Set sink in adhesive and fill remainder

of groove with silicone sealant or epoxy resin adhesive to create a chemical liquid seal.

c. Remove excess adhesive or sealant while still wet and finish joint for neat appearance.

d. Sink Color: Black Onyx or other color selected from supplier's full range to match or contrast to counter top material.

B. Under Counter Mount DuraTop Epoxy Sinks:

2. Description: Integrally molded from modified thermosetting epoxy resin, and oven cured. Nominal wall thickness of 1/2" with all interior corners coved to 1" to 1 1/2" radius and bottoms pitched to the outlet opening.
 - a. Under mount: Provide model number or size, as shown on architectural drawings.
 - b. Under counter mounted sink shall be installed from underside of countertop.
 - (1) Join work surface and sink with a 2-part epoxy grout adhesive or with a lab grade silicone.
 - (2) Sink supports, hanging systems or other rod supports, to be provided with epoxy sinks or by others.
 - c. Sink Color: Black Onyx or other color selected from supplier's full range to match or contrast to counter top material.

C. Sink Outlet / Waste:

1. Molded Polypropylene Model #EF-PPSW-85
2. Sink outlets shall accommodate a plastic disc strainer. Provide outlet with 1.93" outlet opening and 1.5" NPSM threads.
3. Outlet Color: Black.

D. Sink Overflows:

1. Molded polypropylene Model #EF-PPWT-158.
2. Sink outlets shall accommodate a plastic disc strainer. Provide outlet with 1.93" outlet opening and 1.5" NPSM threads.
3. Overflow Color: Black.

E. Stoppers:

1. Molded polypropylene Model #EF-PPPG-150.
2. Stopper color: Black

F. Bottle Traps:

1. Molded Polypropylene Model #EF-PPBT-190
2. Size 1.57" to 4.00" adjustable inlet bottle trap, with integrated 1.5" NPSM threads.
3. Bottle Trap Color: Black

- G. Polypropylene Cup sinks:
 - 1. Molded Polypropylene Cup sinks (industry standard) Size: Nominal 3" x 6"; Oval Model #EF-PPC-176
 - 2. Flush mounted cup sinks shall be Polypropylene. Cove inside comers and pitch bottom to integral 1 1/2" NPSM threaded outlet.
 - 3. Cup sink color: Black.

- H. Duratop Epoxy Resin Pegboards / Drying racks:
 - 1. Molded of same material as counter tops and sinks from modified thermosetting epoxy resin, and oven cured. Nominal thickness of 1" (25mm).
 - 2. Pre-Drilled 2 Prong holes to hold 5"; 6.5"; or 8" Polyethylene pegs.
 - 3. Peg colors black or White, as specified in plans.
 - 4. Pegboard color: Black Onyx or other color selected from supplier's full range to match or contrast to counter top material.

PART 3 - EXECUTION

3.1 STORAGE

- 1. Store products in enclosed area protected from ultraviolet.
- 2. Store products in supplier's unopened packaging until ready for installation.
- 3. Store panels using protective dividers to avoid damage or scratching of surfaces.
- 4. Do NOT store sheets or fabricated panels vertically.

3.2 INSTALLATION

- A. Before installation, condition woodwork to average prevailing humidity conditions in installation areas. Examine shop-fabricated work for completion and complete work as required, including removal of packing and back priming.
- B. Do not drag or slide counter tops across the exposed faced of another counter to prevent scratching. Lift edges and sheets with proper mechanical lifting equipment.
- C. Install counter tops in accordance with supplier's instructions and approved shop drawings.
- D. Install tops plumb and level. Shim where necessary.
- E. Scribe to adjacent surfaces in accordance with supplier's recommendations.

END OF SECTION 12 3653 - Epoxy Work Surfaces