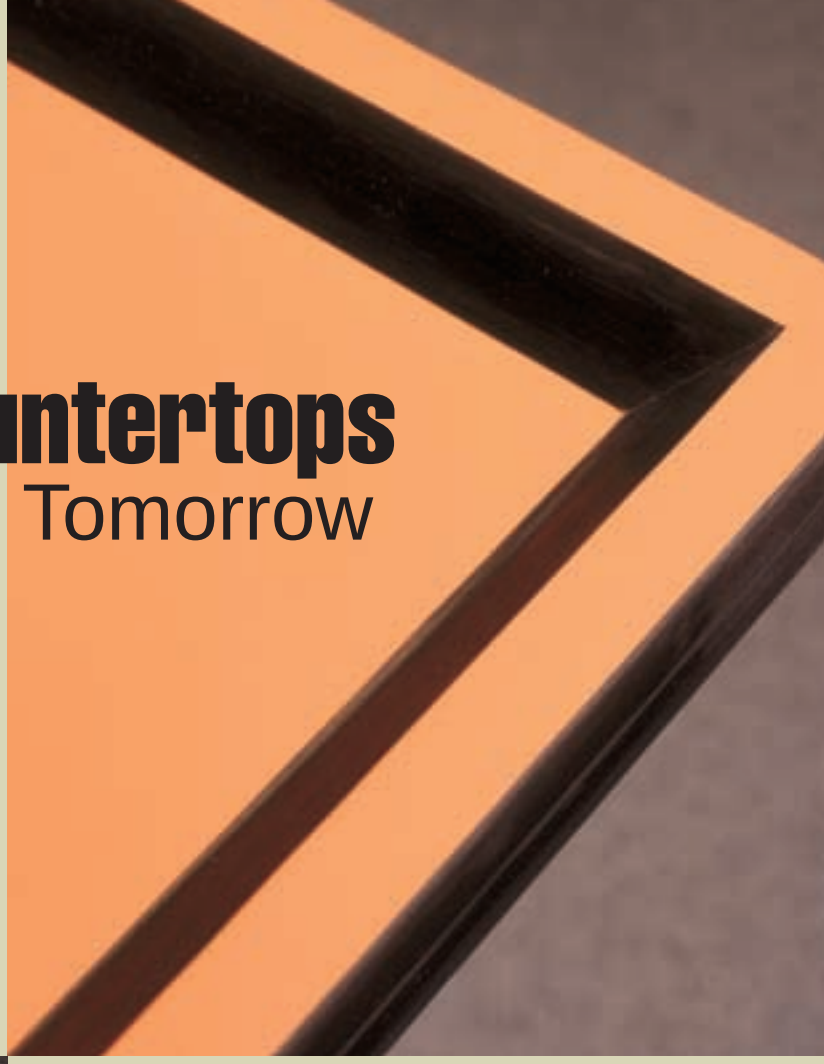
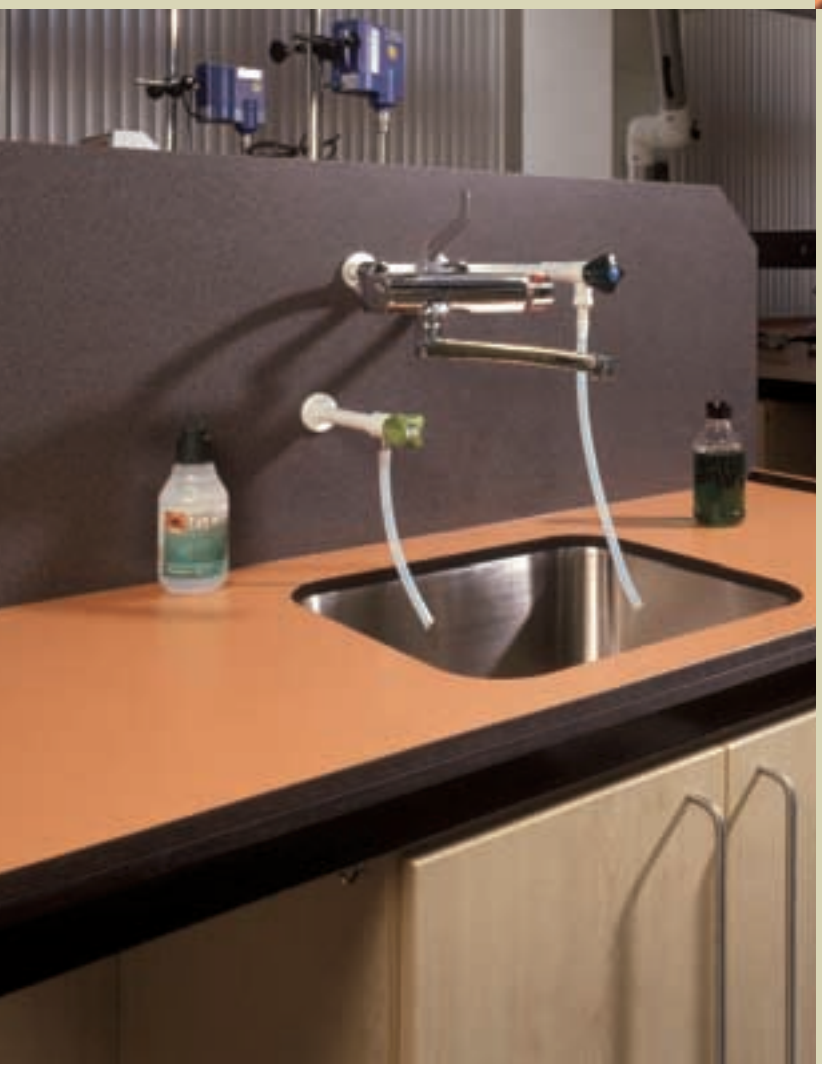
Laboratory Countertops
for Today…and Tomorrow





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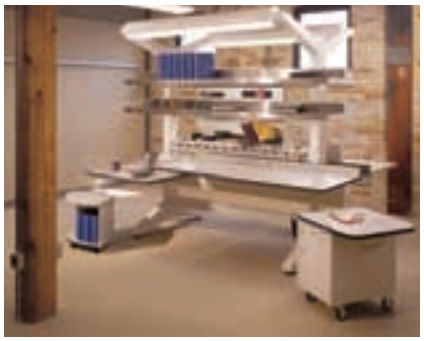


Take a look into any research/industrial laboratory or college-level science classroom and you'll most likely find countertops made from highly durable, chemical resistant materials. Due to the diverse procedures and activities taking place in laboratories, countertop materials must be stain and chemical resistant and easy to clean.

Science classrooms haven't changed much, but the evolution of research laboratory sciences now demands materials that are easily reconfigurable. The newest trend is laboratories filled with mobile equipment carts replacing conventional laboratory furniture. Mobile workbenches can move from one end of the lab to the other and from one end of the building to the other. The countertops and shelving on these equipment carts must be strong and relatively light, yet still exhibit similar traits of conventional laboratory work surfaces.

The Scientific Equipment and Furniture Association (SEFA) is an industry organization that has documented the many products available to laboratories for use as countertops and defined performance criteria and characteristics that might be important in diverse laboratory environments. The Woodwork Institute of California recognizes SEFA and utilizes their work surface specification. The Scientific Equipment and Furniture Association recently approved the SEFA 3.2002 document on Work Surfaces for Laboratories. It states that architects, specifiers, owners, and users need to evaluate the performance characteristics they deem appropriate for their specific laboratory situations. Those performance characteristics include but are not limited to the following:

Chemical/Stain Resistance
Abrasion and Scratch Resistance
Ease of Cleaning
Appearance
Heat/Cold Resistance & Thermal Shock
Flammability/Flame Spread
Impact Resistance
Load Bearing Capability
Bacteria Resistance
Water Absorption

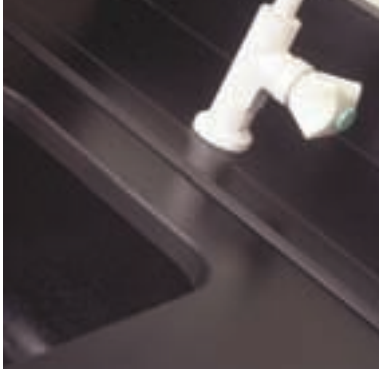
Two of the most common materials used for laboratory countertops are:

Epoxy resin

Phenolic resin with an electron beam cured (EBC) acrylic resin surface

Both materials have very high stain and chemical resistance and are easy to clean. Their durability is better than any other material available for laboratory countertops. They resist physical abuse such as chipping and splintering and neither material will delaminate or swell when subjected to high levels of moisture. Load bearing capability is relatively equal, as is resistance to growth of bacteria, fungi, and mold.

Both epoxy and phenolic resin excel at extreme temperatures, but at opposite ends of the spectrum. They both have a relatively high resistance to heat, but epoxy resin can resist an open flame without scorching or blistering, such as a Bunsen burner overturned on the surface. Both materials also can resist relatively cold temperatures, but phenolic resin performs exceptionally well in extreme cold situations, such as exposure to dry ice, without cracking.



Above, A phenolic resin sinktop with drip groove.

Appearance is one area that sets these materials apart. Phenolic resin with EBC acrylic resin is available in nine colors, three patterns, and four thicknesses, whereas epoxy resin is mostly available in black, gray, and white in two thicknesses.

If saving money is a major concern, there are several items to consider including material cost, installation cost, freight and handling, and long-term maintenance. Material costs are relatively equal, but phenolic resin is lighter weight than epoxy resin (which results in lower freight costs) and can be fabricated by local millwork shops with standard wood-working tooling (lowering fabrication costs). This also allows the end user to make minor adaptations with standard drills and power saws.

Savings can also be accomplished by utilizing thinner materials. Both materials are available in the traditional 1" thickness and 3/4" thickness. Phenolic resin is also available in thicknesses as low as 1/2" and 5/8", which are suitable for countertops and can save money in material, fabrication, freight, and installation costs.

Older traditions such as integral backsplashes and marine edges on laboratory countertops have faded from popularity in recent years. Marine edges provide a raised-lip edge to prevent minor spills from escaping the work surface and are available in both phenolic resin and epoxy resin, but the cost can be as much as 50% greater. Marine edges are still appropriate in fume hoods but have lost popularity in the general laboratory as wet labs decrease in number and evolve to analytical labs with significantly lower amounts of chemicals and solutions. Integral backsplashes are only available in epoxy resin, but they can easily double the cost of countertops on a project.

One last consideration in material criteria is environmental characteristics. Manufacturers should be able to provide a Life Cycle Analysis (LCA) of their products and may have specific literature pertaining to their environmental characteristics. Inquire with the United States Green Building Council (USGBC) to see if the manufacturer is a member.

In summary, there are many performance criteria that should be considered before choosing a laboratory countertop. Although performance is still of paramount importance, the laboratory of today is evolving to a point where flexibility and adaptability, appearance, environmental benefits, and budget are primary concerns in the consideration game.

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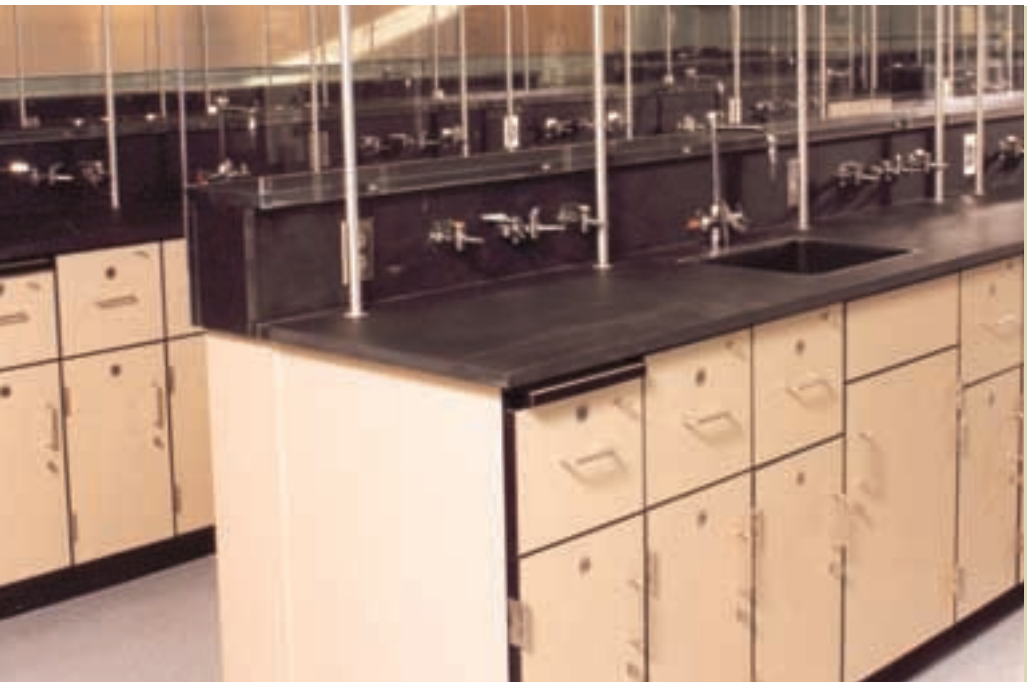

More information on the United States Green Building Council is available on the Internet at http://www.usgbc.org. To learn about phenolic resin with EBC surfaces, contact Trespa North America, Ltd. at (800) 487-3772 or go to www.trespanorthamerica.com. For information on epoxy resin, contact Prime Industries, Inc. at (630) 833-6821 or visit www.primeindustriesinc.com.