

Choosing Phenolic versus Epoxy Surfaces

Both epoxy and phenolic work surfaces are solid, non-porous, and homogeneous materials designed for rigorous lab use. In numerous settings, facility managers can substitute one for the other without issue. However, each composition possesses distinct advantages regarding thermal thresholds, chemical vulnerability, moisture absorption, bacterial/fungal growth, and mechanical performance, thus making material choice highly dependent on your specific project requirements. The matrix below contrasts these two compounds directly to help you select which fits your project.

	Phenolic	Epoxy
Construction:	Paper/Resin thermoset composite	Solid molded epoxy resin.
Chemical Resistance:	Excellent for most labs	Superior for harsh chemicals
Heat Resistance:	Good (up to ~350°F / 177°C)	Excellent (up to ~600°F / 315°C).
Moisture Resistance:	Excellent	Excellent
Impact Resistance:	Very good, may bent/scratch	Good, brittle may chip/crack
Weight:	Heavy, 6.3-7.1 pounds/SF	Heavier, 9.2-10.5 pounds/SF
Cost:	Lower	15-20% Higher
Field Modifications:	Easily cut in the field	Difficult, not recommended
Best Applications:	Teaching laboratories University science buildings Wet and Dry labs Healthcare Biology labs General chemistry labs Furniture/Casework surfaces	Analytical chemistry labs Pharmaceutical research Biotechnology facilities Industrial laboratories Acid digestion stations Fume hood work surfaces Casework surfaces
Advantages:	Lower cost, good durability 30-40% Lighter weight Easy transport/install/adjust Less dimensional variations	Highest chemical resistance Outstanding heat resistance Better in continuously wet use Longer life in harsh conditions
Limitations:	Less strong-acid resistance Lower heat resistance Less bacterial/fungal resistance No continuous surface seams Few color options (special order)	Higher cost, longer lead time Difficult to modify in the field Less scratch/impact resistance Requires robust support structure No suspended weight underneath

Specification Guidance:

For general education, biology, and multi-purpose laboratories, phenolic stands out as a highly budget-friendly option that delivers excellent durability and easy cleaning. Conversely, severe laboratory environments require epoxy, which is uniquely built to withstand intense heat, open flames, and highly corrosive chemicals. Facility designers can optimize their construction budgets using a hybrid “mixed” strategy: they can deploy epoxy surfaces strictly at workstations that require higher performance, and utilize cost-effective phenolic surfaces everywhere else.