

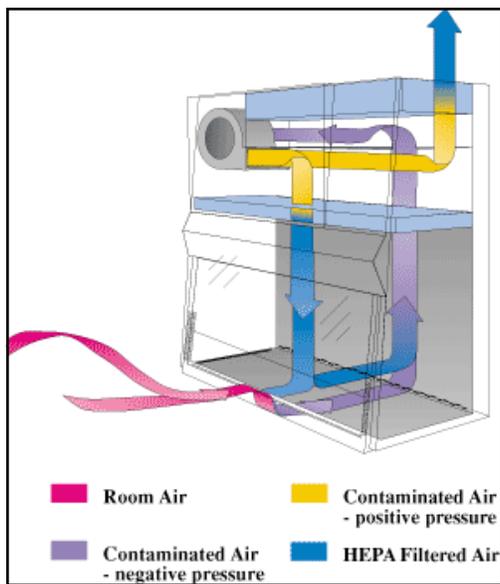


ENVIRONMENTAL HEALTH & SAFETY FACT SHEET: BIOLOGICAL SAFETY CABINETS VS. LAMINAR FLOW HOODS

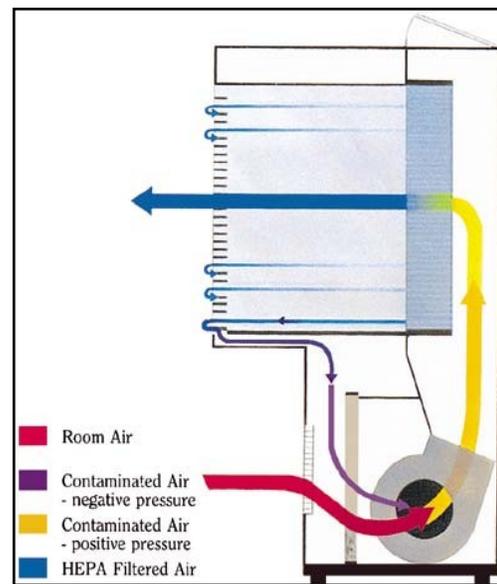


It's all about airflow and where it does and does not go. A lot of the cabinets that you are using currently are BSC's (aka: biological safety cabinets). Yes, they still get called laminar flow hoods (LFH'S), but that's like calling a pizza oven a microwave. At UMass Amherst we are steadily converting from the LFH's to the BSC's as the old equipment is replaced. Why are we doing this? The BSC is a better and more versatile piece of lab protection/equipment. A LFH protects only the product in the hood, such as sterile media. A BSC will protect the user and the product in the cabinet from bacterial contamination.

BSC



LFH (aka: Clean Bench)



- The most essential piece of containment equipment is the biological safety cabinet in which manipulations of microorganisms are performed.
- BSC's incorporate the use of HEPA filters in the exhaust or supply air system to trap airborne particulate material. Depending on the configuration of these filters and the direction of airflow, varying degrees of personnel, environmental and product protection can be achieved.
- BSC's will protect you from biological agents in the cabinet, with proper use. LFH's don't.
- BSC's have a sash in the front and the air is drawn away from you through the grill-work along the edges. BSC's should be used when working with potentially infectious agents such as human-source material and pathogenic microorganisms. BSC's can be used for non-infectious work too.
- 70% of the air in most BSC's is recycled through its HEPA filter. This purifies the air of particles but does not reduce chemicals or gases. Fumes can actually *concentrate* in a BSC!
- Heat build up in a BSC will damage your HEPA filter.
- LFH's have an open face and air is blown towards you through the grill-work on the back wall and should only be used for work with non-infectious materials such as media preparation. LFH's (clean benches) should never be used when handling cell culture materials or drug formulations, or when manipulating potentially infectious materials. The worker can be exposed to materials (including proteinaceous antigens) being manipulated on the clean bench, which may cause hypersensitivity.

Biological Safety Services
117 Draper Hall
40 Campus Center Way
Amherst, MA 01003-9244

Phone: 413-545-7293
Fax: 413-545-2600
E-mail: jladuc@ehs.umass.edu