

# Designing a Bathroom for Wellness

## Fact Sheet



*In a time of drastic change it is the learners who inherit the future. The learned usually find themselves equipped to live in a world that no longer exists. – Eric Hoffer*



**Building Biology Institute**  
The science of healthy building

## Designing a Bathroom for Wellness

The bathroom is a room that is jam-packed with materials and so there are lots of decisions that need to be made when selecting healthy materials. This is also generally the room most likely to have mold, as mold is very common behind showers and bathtubs, especially behind tile work. On top of this, because of the moisture and mold issues, it's also the room most likely to have biocides in the materials which we should be aware of, and in my opinion, try to minimize. Lastly, it's also the part of the house where you will find the biggest lead risk since lead is common in old tiles being demolished and is still fairly common in brand-new tiles. Lead is also found in fixtures, knobs, and decor, though to a lesser degree.

This course will go over:

1. Selecting healthy materials for all areas of the bathroom, we will look at volatile organic compounds, semi-volatile organic compounds, and lead content:
  - a. We will go into detail on selecting vanities, countertops, sinks, wallboards suitable for bathrooms, flooring choices including grout, thin-set, and stone sealers, paint for high humidity, as well as plasters and wallpaper, shower and bathtub materials, including tile backer boards, toilets, baseboards, and accessories like shower curtains, plus caulking.
2. How to test and mitigate for lead:
  - a. We will look at which tile types are most likely to contain lead, how to test for lead in tiles, and how to mitigate the dust. We will also look at faucets that contain lead, and which brands are free of lead, as well as a few other more minor areas where lead is found in the bathroom.
3. Preventing mold in the bathroom:
  - a. Drywall, tile backer board, paint, and plaster all need to be suited for the humid environment of a bathroom to prevent mold. When designing a shower and bath we also need to choose mold-preventative systems for proper long-lasting waterproofing there, since this area is so prone to mold. In terms of mold prevention, we also need to caulk properly (with some areas needing weep holes), install adequate ventilation, and monitor for leaks.
4. Choosing water filters for showers and baths:
  - a. Water filters can be added to the shower head and even to the bath spout to help filter out chlorine as well as other contaminants of concern.
5. Choosing safe and effective cleaning products for bathrooms:
  - a. We will look at healthier disinfectants, stone-safe disinfectants, safe scouring products, and all-purpose cleaners.

The course also looks at:

**VOCs** - Volatile organic compounds will emit from most cabinets (made of fiberboard or particleboard as well as some paints or stains), some grouts (like urethane, epoxy, and acrylic), some conventional paints and primers, Medium Density Fiberboard baseboards, all caulking

compounds, countertop adhesives, some stone sealers, shower panel adhesives, flooring materials like vinyl sheet, vinyl shower curtains, and some bath mats.

**SVOCs** - Semi-VOCs include biocides, plasticizers, and many Per- and polyfluoroalkyl substances.

**Biocides** can be found in mold-resistant drywall, caulking labeled bathroom and kitchen, bath mats, some grout, some tile sealers, they can be integrated into tile glaze and toilet ceramic, integrated into some countertops, and in acrylic-latex paints labeled for the bathroom.

**Phthalates** can be found in vinyl shower curtains, polyether caulking, some plastic bath mats, and vinyl sheet flooring. Alternative plasticizers like Bis(2-ethylhexyl) terephthalate (DOTP) can be found in luxury vinyl plank (LVP) flooring.

**PFAS** can be found in most conventional stone sealers and in some fabric-based bath mats.

**Lead** - Lead is still fairly common in tile glaze. Lead is also almost always a component of brass fixtures or decor items. It's found in most faucets that contain brass, it is often found in lighting fixtures, and is sometimes found in bathtub glaze and porcelain sinks (especially older ones).

**Mold** - Mold is extremely common behind tiled showers and bath areas. Mold could also be found under flooring, under the sink from leaks, and on or in drywall.

**Water Quality** - Tap water can contain microorganisms, (e.g., E. coli, Giardia, and noroviruses), inorganic chemicals (e.g., lead, arsenic, nitrates, and nitrites), organic chemicals (e.g., atrazine, glyphosate, trichloroethylene, and tetrachloroethylene), and disinfection products/byproducts (e.g., chlorine, chloroform). ([EPA](#))