

# Making a healthier home

□ BY RICK BAYLESS □

Many homeowners have adverse healthiness symptoms: odors, congestion, coughing, fever, shortness of breath, fatigue, headache, fogginess of thought. Some occupants have confirmed healthiness challenges like allergies, asthma, mold sensitivity, multiple chemical sensitivity, emphysema, chronic fatigue syndrome, fibromyalgia, multiple sclerosis, may be on a cancer-fighting regimen, or have an otherwise stressed immune system.

Examination of a home often identifies pollutants that are working against the healthiness of those who live in even the greenest home. What pollutants? Human dander, pet dander, dust mites, sprays, fragrances, cooking odors, bathroom odors, material and product chemical off-gassing (VOC), bacterial and fun-

■ Mold – Understand the ecologies of mold, virus, and bacteria. Make the house less friendly to microbes.

■ Dust – Improve air filtering especially of respirable dusts. Simplify bulk dust clean-up needs.

■ Air cleaning – Allow for air cleaning abilities (not the same as air filtering).

■ Pests – Understand insect, mouse, and other intruder behaviors. Make the house unfriendly to them.

■ Use – Anticipate occupant use patterns of the house and its systems. Occupants have to understand and do their part too.

■ Maintenance – Simplify and arrange for maintenance needs of the house and its systems. Occupants and service groups have to understand and do their part too.

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gal off-gassing (MVOC), pest deposits, micro fibers, construction dust, wood smoke, candle soot. Green Homes are not immune from this accumulation of pollutants and irritants.

The next phase in the evolution of green home construction is to design specifically for healthiness of conditions inside the home. Opportunities for improvements are in the following areas:

■ Healthiness – Understand the environmental conditions that those with healthiness challenges need more control over.

■ Airflow – Be aware of air movement into, out of, and within the house.

■ Ventilation – Improve “Fresh” air ventilation methods. Reduce raw air dump to inside. Circulate it better.

■ Humidity – Improve humidity-lowering: Remove dampness, add warmth, “soften” hot-cold interfaces.

All contractors have a part to play in this: plumbers, electricians, framers, material suppliers, finish contractors, site-prep contractors, landscapers, clean-up specialists. Yet the most critical guides are the architect, HVAC contractor, and the environmental health specialist. It is this team that green builders can rely on to keep the “healthy” in green home construction.

PS: “Fresh air ventilation” is a misnomer. I am careful to call it “outdoor air ventilation”. Outdoor air is “fresh” only on limited weather moments within the season. Unhealthiness from outdoor air includes: too hot, too cold, too humid, too dry, pollen, mold, dusts from farms and gravel roads, pollutants from highways, worksites, industrial plants, smaller places of businesses, and burn piles.

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## Mold control “how-to”

Wetness and dampness are primary drivers of mold activity. In the southeast mountain region, outdoor rainfall and humidity are high. Opening windows and outdoor air ventilating can cause the building interior and all of your possessions to be as damp. This is what allows mold to be active and more thoroughly colonize your indoor living space. Mold can ruin your health, your stuff, the value of your home, and your peace of mind. The following measures are helpful in reducing mold activity inside your home:

- Inspection – Inspection will identify mold conditions in your home. Mold testing is not the place to start.
- Rainwater – Monitor roof, gutters, downspouts, rain barrels, drains, surface grade, and groundwater.
- Plumbing leaks – Water supply lines, sinks, tubs, toilets, drains, septic lines, irrigation, fire sprinklers.
- Water devices – Dishwashers, icemakers, dehumidifiers, humidifiers, fish tanks, AC cooling coils, pools.
- Wetness target – 20 percent moisture content of wood, drywall, flooring, and other building components.
- Dampness target – 52 percent air humidity air in rooms, closets, basement, crawl space, storage rooms, garage.
- Air – Manage the air circulation, temperature, cleanliness, and dampness.
- Dust – Clean up accumulations of dust. Molds are in dust. Molds can feed on the organics in dust.
- HVAC – Maintain your HVAC system. It is central to mold control. Sometimes it is the mold source.
- Duct system – Inspect, secure, seal, insulate, and possibly clean this respiratory system of your house.
- Items – Molds are “item-specific.” They prefer certain materials over others as a food source. Manage items and materials that mold favors. Discard items heavily colonized by mold (old suitcase, old shoes, old papers). How and where you store these items can make all the difference (warm spot, cold spot, in a sealed container).
- Layers – Avoid layers that trap dusts and moisture (ex: drywall, plus wallpaper, plus paneling on a wall).
- Simplify – Smoother surfaces with less detail and trim reduce mold-harboring dust build up.
- Clutter – Reduced clutter limits mold-harboring dust levels, simplifies clean-up, improves air circulation.
- Preventives – Certain paints, oils, and finishes discourage mold. Certain air cleaners reduce mold growth.

You can see that there many work projects that have an impact on mold. No doubt there are many questions that this list leaves you grappling with: Where do you start? Which projects are most needed at your place at this time? Which items can you afford to do? Which ones can you do yourself? Where do you learn how to do some of these projects? Which ones will you need help with? Who is best suited to getting this or that project done? What should it cost? What are the consequences of not doing some of these at this time?

The first item on the list is the place to start. If done well by a guide with well-rounded experience, a good mold inspection will be the basis on which you define your house's mold control work list.

A mold test can be sometimes helpful and sometimes useless. It may lead you to a misleading conclusion and on to unnecessary expenses. It will totally miss the presence of some other indoor pollutant such as flue gas, formaldehyde, sewage gas, carbon monoxide, and many others. You may be putting efforts toward the wrong issue. It is a mold inspection that confirms where mold is, how heavy is it, what trouble is it causing, how to clean it up, what allowed it to be active, what corrective measures are needed, how to stay out of mold trouble in the future.

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