

PART 3: BUILDING A HEALTHY HOME

Microbial Growth. Chemistry. Microbiome. It may feel a bit overwhelming, or even sound alarmist at first, but Root Down Designs is here to help you make better choices when maintaining a healthy happy and well-designed home!

To start, here are four simple steps you can do now to refresh the air in your home.

1. **BE MINDFUL** of any product you bring into your home. Read the warnings and do your own research on its ingredients before you introduce them to your space. Don't just trust the "green" "eco-friendly" labels.
2. **PROPER VENTILATION** and air filtration. Always use your exhaust hood when cooking, and change your air filters regularly. Check with your local HVAC experts for upkeep.
3. **KEEP IT DRY**. Use or install a bath exhaust fan over the shower. Clean up and remove water-damaged materials. And if you live in a hot and damp environment like the coastal South, run a dehumidifier to help maintain the ideal 40% to 50% indoor humidity.
4. **BRING THE OUTDOORS, IN**. Consider earthy mineral or clay-based paints and plasters to neutralize certain types of VOCs. Open the windows occasionally, and add more potted plants that are known for their air-purifying abilities.

When an architect becomes licensed, we accept the responsibility to "safeguard the public health, safety, and welfare." At Root Down Designs, we feel that healthy indoor air quality leads to a healthy society, and it is our duty to ensure that we are designing in such a way that does just that.

Our building plans stand apart from others because we see the home as a complex system -- a living, breathing environment that requires a holistic approach to its efficiency and design. First and foremost, homes need to have a "tight envelope," and the envelope needs to be detailed for your climate-specific location to ensure vapor drive and drying out can occur. Alternately, a breathable, mold-resistant wall system such as rammed earth or hempcrete can be designed.

Either way, we cannot forget about the importance of the HVAC and ventilation system. This is often forgotten! This should be designed with a holistic understanding of what the interior humidity levels will be and how to control it. A home that is "too tight," without properly controlled ventilation, can also lead to issues such as a buildup of carbon dioxide, especially in places where occupancy loads are high. So, the moral of the story here is: Tight buildings are good, but only if we ventilate properly **and** use materials that will not give off harmful VOCs into our environment, especially if subjected to moisture.

A local consultant I reach out to often is Josh Cavanagh of High Performance Homes, LLC. He is a building expert who understands thermal dynamics, building science, mechanical systems and best building practices in the Charleston climate. Cavanagh inspects homes with moisture and mold issues and uncovers the source of the problem.

He told me that most of the homes with problems he sees in his business are less than six years old, many are brand new and most are high-end custom homes. (Yes, you read that correctly.) According to his observations, careful detail is often put into the interior finishes but not so much into the exterior house wrap details, flashing details and insulation installs.

Here's Josh's list of the big problem areas he encounters the most:

- unconditioned crawl spaces (they harbor moist air, termites, rodents and mold);
- fiberglass batt insulation in floor joists (hot moist air gets trapped between the subfloor and batts, creating extensive mold under the subfloor);
- Improper flashing around roof penetrations and fenestration;
- subpar house wrap and careless installation (Sorry Tyvek, but he gave you two thumbs down!); and
- small holes, such as exterior electrical outlets, that have not been properly sealed.



(crawl space nightmare)

Gross, huh? Unfortunately, due to our hot and humid climate, many homes in the Lowcountry of SC have crawl spaces that look like this, plus mold hidden in the walls and old chemical-laden building materials. And so, Root Down Designs would like to introduce our Interior Design for Healthy Homes package.

Now, you may be thinking, sustainability has not always been synonymous with fashionable. But times are changing, and there are so many attractive and chemical-free options available. For the past year, we've been thoroughly researching interior finishes and equipment that we can stand by. Here are our promises:

1. **BREATHE EASY:** All recommended products are free of harmful benzenes, formaldehydes, VOCs and other chemicals and particles known to cause inflammation

and illness in humans and animals. (We love our pets too!) And to help combat the rest, we've sourced clay and mineral-based products to aid in neutralizing them.

2. **ETHICALLY SOURCED:** We strive to find quality products manufactured in North America and are certified in the high health and sustainability practices. No humans or animals are harmed or overworked in the production of the items we recommend.

3. **ENDURING QUALITY:** Solid, durable materials and finishes in a classic aesthetic. We only specify items that are proven to last, can be refinished or come with extended warranties. Less waste is one of the best sustainable practices.