

Fact Sheet

Indoor Air Quality (IAQ)

Part 1: Moisture & VOCs



Proper insulation, air circulation, and reduction in the use of toxic materials in your home will improve indoor air quality.


Have you ever peered into a murky aquarium and wondered, “How in the world do those poor creatures survive?” Some studies show that we should be asking the same question about ourselves, based on the poor air quality in our buildings. The US EPA estimates that, on average, indoor air quality is 3 to 5 times worse than the air outside a home and that over 20 million Americans now suffer from asthma - since 1980, the biggest increase has been in children under five. Due to this *sick building syndrome*, many people actually feel better when they leave their houses and work places. The construction industry has excelled at sealing buildings for greater energy efficiency and producing “just the right look” by using a myriad of miracle fibers, finishes and adhesives, but such progress has come at a price - clean indoor air and ultimately, our health.

Fortunately, there are many things builders can do - at minimal or no additional cost - to improve indoor air quality for those residing in the home. Healthier building practices, with predictable costs and beneficial outcomes, should begin at the design stage. Planning in advance for healthy indoor environments can help architects and builders avoid costly repairs, liability and bad publicity, while at the same time minimizing call-backs. Even more, buyers will be reassured knowing that the builder took extra steps to protect their families’ health. Clean indoor air minimizes or eliminates many negative health effects for occupants.



Today’s consumers want safe and healthy living and working environments that include greater energy efficiency, increased durability, reduced maintenance and improved indoor air quality.


The Site:

 The characteristics of a site, including past and future use of the lot and adjacent properties can significantly influence the air quality in the final project.

- Obviously, sites with poor outdoor air quality that contain hazardous materials should be avoided.
- Areas with high water tables or other surface water issues may require some modification of foundation detail and aggressive drainage techniques. Air that enters the home through the foundation can contain more moisture than is generated from all occupant activities. Keeping the crawlspace dry and ventilated goes a long way in reducing the growth of biological contaminants, including pests and mold.
- Thoughtful use of drought and pest resistant landscape materials can improve indoor

air quality. This eliminates the need to apply pesticides and other toxic chemicals which can accumulate in carpets and other soft surfaces, and enter on clothing, shoes, through open windows and even small cracks in the foundation or house. Consider planting non-allergenic, native species.

The Structure:

 Our region has established ventilation standards for new construction and remodeling. In this respect we are ahead of the curve, since mold mitigation and air circulation are, to some degree, part of existing code. Builders can take measures during construction to avoid moisture problems later.

- Protect wood products from moisture damage during transit, delivery, storage and handling.



The Sustainable Development Task Force of Snohomish County is a Washington Non-Profit Corporation.



We provide technical assistance to achieve sustainable development practices in Snohomish County.

Sustainable development follows a set of strategies that starts with low impact site development and continues through the design and construction phases to a final product that is healthy, productive and attractive for its occupants and neighbors.

We offer:

- Professional technical assistance
- Education presentations
- Code/ordinance review
- Guidance through the permitting process

www.sustainablesnohomishcounty.org



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- Use a moisture meter to ensure interior surfaces are sufficiently dry prior to sheathing, sheetrock, and underlayment.
- Install moisture barriers properly on exterior walls.
- Design a whole house air management and filtration plan to ensure adequate air changes and educate buyers on the system.
- Install operable windows for cross-ventilation.
- Consider building attached garages to isolate toxic chemicals, such as automotive combustion by-products and the cleaning and gardening chemicals typically stored in a garage.
- Completely seal attached garages from the living space; weather-strip and use spring-loaded hinges on the interior garage entry door.
- Appropriately flash all building openings to prevent water and moisture penetration.
- Ventilate home with fans after each new wet finish is applied.
- Clean as you go with non-toxic cleaners and remember to mask forced-air floor vents, or better yet, consider installing a more passive, radiant method of heating.
- Seal any duct joints well, insulate duct exteriors where possible, and evacuate ducts prior to occupant move-in.

Interior Finishes and Material Selection:

- The types of furnishings and finishes you choose will impact the quality of a home's indoor environment.
- Materials such as paints, stains, varnishes, carpet, insulation, flooring, kitchen cabinets and countertops, plywood, and particleboard, are made with chemicals that can produce significant off-gassing. Such materials can deteriorate the air quality of a home or building for many years.
- Off-gassing is the release of volatile organic compounds or chemicals (VOCs) at normal atmospheric pressure. These chemical fumes evaporate into the air and can irritate our eyes, lungs, mucus membranes and skin, sometimes severely. Since many products continue to off-gas for years, occupants continue to breathe these chemicals as they work, sleep, and relax at home.
- Use low or non-toxic sealants and caulk throughout the project.
- Use finishes and building components that have low, or no VOCs.
- Minimize, or better yet, eliminate wall-to-wall carpet and petroleum-based flooring products, like vinyl composites.
- Give the structure time to cure and ventilate before moving people in.

Today's consumers want safe and healthy living and working environments that include greater energy efficiency, increased durability, reduced maintenance and improved indoor air quality. By incorporating features that address IAQ at the design stage and throughout construction, builders can set themselves apart in the marketplace and reap the benefits of repeat customers and referrals that leadership in sustainable development earns.

Perfecting the art of sustainable development is a work in progress. Every day new information, techniques and products come on line. Contact the Sustainable Development Task Force of Snohomish County via the web at www.sustainablesnohomishcounty.org for the latest information and ideas on how to make your next project a greener one - inside and out!

For excellent resources on more ways to ensure high-quality indoor air, visit:

Built Green® www.builtgreen.net

US Green Building Council www.usgbc.org

American Lung Association® Health House www.healthhouse.org

Environmental Protection Agency www.epa.gov.iaq2/pubs