

High Performance Homes



Simple Steps Create a New Home Built to Last By Carl Seville

You're having a custom home built to your personal specifications. The kitchen is going to be perfect. Your master bath will rival the finest hotels. It will look like the equivalent of a high performance luxury car. It does, however, take special care to ensure that your home performs as well as it looks. There are many new techniques and materials that will make your house healthier, more comfortable, more efficient and more durable than ever before. Becoming an informed buyer will help you make the right decisions to ensure that your home will be a high performance one.

The keys to a high performance home are careful insulation and air sealing, a high-quality heating and air conditioning (HVAC) system, and excellent moisture control. There is a general misunderstanding that homes should be "leaky," that is, that air should flow in and out of the house through crevices so it stays "healthy." In fact, those leaks contribute to making homes unhealthy as well as inefficient. It's true that homes can become unhealthy if there is no fresh air, but in a tight house, fresh air is introduced through fans, special ventilation systems, or by opening a window. If a house is too leaky, most insulation will not perform properly. The most common insulation, fiberglass, doesn't work well in a leaky house. It also doesn't work if it's compressed or doesn't completely cover the walls and ceilings. There are many ways builders stop leaks, such as caulk, spray foam and gaskets. Once you stop the leaks, you can then insulate. Or you can opt for newer materials, such as spray foam and dense-packed cellulose, that seal and insulate in one step.

New homeowners often find that their new, high-efficiency HVAC doesn't keep them comfortable. This is generally due to a poorly designed or installed duct system and incorrectly sized furnaces and air conditioners. HVAC systems should be sized by a licensed contractor or engineer according to "Manual J," a system that takes into account all the factors that cause a house to gain or lose heat. Most homes have ducts that move hot and cold air to each room in an attempt to keep them comfortable. If ducts often are not installed properly - if they leak air and don't take direct paths to rooms - they waste energy and force furnaces and air conditioners to work harder.

One side benefit of an efficient home is that it can also be a healthy home. A well-sealed house with an efficient HVAC system will keep inside air healthy by maintaining the proper humidity - eliminating mold in warmer months and keeping the air moist in the colder months. Since a tight and efficient house doesn't get as dusty as a regular house, it also reduces allergens.

Moisture control has become increasingly important as building materials have improved. When moisture gets in walls, it saturates the wood and insulation, causing mold, mildew and wood rot. It is a common misunderstanding that a home's exterior finish keeps water out. In fact, it's what lies underneath that finish - the drainage plane - that keeps a house dry. This drainage plane is made up of felt paper or house wrap, properly installed to shed water by placing each layer carefully over the layer below, along with flexible flashing tape around all windows and doors. This flashing must be layered in with the felt or wrap so water sheds over the layer below. When this is done correctly, water stays out of the walls, and your house remains healthy and durable for years to come.

In Atlanta, we are fortunate to have one of the best Green Building programs in the country - EarthCraft House™, which helps assure home buyers that their house meets the program's high standards for healthy and efficient construction. EarthCraft House is also available for renovation projects on existing homes. Alternately, you may consider hiring a building consultant to work with you and your builder to develop specifications to ensure that your home is a high performance one. Consulting options include Southface Energy Institute (www.southface.org), Home Energy Raters - individuals who are trained to analyze homes and recommend energy improvements (www.natresnet.org), or independent green building consultants. When you have your new home built to high performance standards, you will be rewarded with a house that is healthier and cleaner, costs less to heat and cool, and will last longer with less maintenance.



Carl Seville is a green builder, consultant, educator and writer on sustainability to the residential construction industry. He founded and served as Vice President of SawHorse, Inc., an Atlanta design/build firm for 25 years. Through Seville Consulting, his firm helps homeowners and building professionals create healthy, efficient and durable buildings by incorporating sustainable practices into their homes and businesses. For more information, you can visit his website at www.sevilleconsulting.com.

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