

One of the great myths in building an energy efficient, green, or durable building is that it is much more expensive than a conventionally built home. While better materials can cost more, there is always a “payback” that should be calculated into the ownership period of the home. And of course, it is difficult to put a value on comfort, safety and peace of mind. As we often see, there is nothing more expensive to own than a cheaply built home. The biggest factor in a well-built home is smart and thoughtful planning before you start to build. If you consider your options carefully and work closely with an experienced builder and/or architect, you will be amazed at how much value you can build into the home without paying a penny more. The following are low- and no-cost tips that can make all the difference between a cheaply built, expensive-to-own home, and a high quality building that will serve its occupants well into the future.

Free Strategies

Explore Your Building Options

Action – Do your research, ask questions, and become involved in the every step of the process.

Benefit – Being informed will allow you to confidently discuss details with your contractor along the way and make sure things are being done the way you want them.

Orient Your Home to the South

Action – Place home on an east/west axis if possible.

Benefit – You’ll decrease how much you spend on energy by taking advantage of the sun in the winter and allowing plenty of natural daylight to enter the home, while blocking it in the summer.

Passive Solar

Action – Orienting your home to the south lets you take advantage of Passive Solar design principles. These include ample southern facing windows, proper shading techniques, operable windows, and using thermal mass (such as concrete, brick, and tile) to store the heat from the sun.

Benefit – Following these principles takes advantage of free sources of energy that reduce heating, cooling, and lighting costs.

Low-Cost Strategies

Resilience

Action – Select durable materials. Anchor roof to walls using hurricane straps. Anchor home to foundation.

Benefit – Increases strength of the home as a whole and prevents loss of roof in high-wind event. Increases longevity of the home.

Recycle Construction Waste

Action – Ask your contractor to recycle as much construction waste as possible. Try to recycle at least 50% of the wood, cardboard, and concrete from new home projects.

Benefit – Divert material from unnecessarily ending up in the landfill.

Contractor Selection

Action – Choose a contractor with experience in sustainable home construction, who is willing to learn and try new things, and who values quality construction.

Benefit – Your goals will be met faster and more easily.

Reduce Square Footage

Action – Write down the names of all the spaces that need to be included. Include the approximate square footage of each room and consider combining functions into one space.

Benefit – Eliminate wasted space, save money on materials, and reduce overall costs for heating and cooling.

Use an Open Floor Plan

Action – Seek out, or ask your architect to design, open floor plans with the majority of common-use spaces contained in one open room.

Benefit – This strategy reduces material consumption, allows light to reach more spaces, saves costs in construction, and allows you to easily heat and cool the space.

Select Alternative Wall System

Action – Typical homes are constructed using 2x4 wood studs. Use 2x6 wood studs instead, or another system such as structural insulated panels (SIPs) or insulated concrete forms (ICF).

Benefit – Increases resilience and allows for more insulation, improving energy performance.

Programmable Thermostat

Action – Install a thermostat that automatically turns itself down when you’re at work and at night to save energy.

Benefit – Easily control the temperature of your home, reduce using your heating and cooling system when unnecessary, and cut down your energy bills.

Insulation

Action – Increase levels of insulation and make sure problem areas are insulated (i.e., difficult to reach or overlooked cavities, sometimes called “cold corners”). Pay attention to the R-value: the higher the number, the greater the material’s ability to insulate. Adequate insulation should be used in the walls, roof, foundation, floor slab, and basement walls.

Benefit – Improves comfort, decreases demand for air conditioning and heating, saves money, and makes the home quieter.

Energy-Efficient Windows and Doors

Action – Look for windows and doors with an ENERGY STAR rating at a minimum. Consider installing double-paned windows with a “low-e” glazing. Usually, the lower the U-value, the better the performance.

Benefit – Reduce energy consumption by holding in heat during the winter and keeping heat out during the summer.

Energy-Efficient Heating and Cooling System

Action – Choose a high efficiency system with a cooling efficiency rating of SEER 13 (seasonal energy efficiency ratio) or higher. ENERGY STAR SEER is 14.

Benefit – Save money by reducing energy consumption.

Energy-Efficient Water Heating

Action – Choose the most energy efficient water heating system you can, such as a tankless water heater, or consider installing solar water heating.

Benefit – Save money by reducing energy consumption.

Nontoxic Products

Action – Use products that don’t contain toxic chemicals, such as paints and adhesives with low volatile organic compounds (VOCs) and formaldehyde-free insulation.

Benefit – Fewer chemicals will be released into the home providing for a healthier breathing environment for your family. This is especially important in more airtight homes.

Seal Openings and Cracks

Action – Ask your contractor to reduce air leakage by using non-toxic sealants, tapes, or other products to close all openings and cracks in the exterior walls. Minimize the number of penetrations through exterior walls and the roof. Properly seal all penetrations. Perform an energy audit during construction using a blower-door test to find missed leaks.

Result – Reduce energy consumption by preventing warm air from entering the home during the summer months and losing warm air to the outside during the winter months.

Water Efficient Fixtures and Appliances

Action – Install low-flow toilets and sink and shower fixtures, and water-efficient dishwashers and washing machines.

Benefit – Low-flow toilets can save up to 22,000 gallons of water per year for a family of four. Flow reducers can cut water usage of faucets and showers by as much as 40% with little noticeable effect in water pressure. Reduce overall water and energy consumption; using less hot water also means lower utility bills.

Appliances

Action – Install ENERGY STAR appliances, including refrigerators, freezer chests, water heaters, washing machines, dishwashers, dehumidifiers, televisions, and more.

Benefit – Energy Star appliances typically use 10-15% less energy and water than standard models, reducing overall energy consumption and water use.

Maximize Air Circulation

Action – Install whole-house fan and ceiling fans, which can improve interior comfort by circulating cold and warm air. They can be adjusted to either draw warm air upward during summer months or push it downward during the winter.

Result – Whole-house and ceiling fans can reduce the need for air conditioning and heating, and on average they use one-tenth the electricity of an air conditioning unit.

For more information, please visit www.associationforsustainability.org/



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