

conserving energy in your home

The topic of 'being green' in the home has been featured in recent publications ranging from Vanity Fair and W to Harvard Business Review and Fortune. Far from being simply trendy, greening your home reduces your energy bills, conserves resources, and improves indoor air and water quality to ensure a more sustainable existence for generations to come.

Because about 40% of our energy use is consumed in buildings, energy conservation is an integral part of green building. Homes have come a long way from the indigenous building practices that utilized local materials and were compatible with the local environment. Before the era of cheap oil, homes were sustainable by necessity. Now, especially in an environment like Cayman, we rely on air conditioning. This results in expensive energy bills for electricity that is produced from nonrenewable resources. Consider the alternatives.

What can you do in your home to lower your energy consumption? Work with nature to respond to the effects of sun, wind, and water. Start simple and look at orientation, shading, ventilation, color, lighting, and landscaping. Protecting your home from the high midday sun is the most important strategy in this climate.

The orientation of your home and windows in relation to the sun and prevailing winds can affect your energy consumption significantly. If nothing else, start with shading on the southern side by planting palms or other high-canopied trees or installing an awning or a vine-covered trellis. The next priority should be to shade the western façade from hot late afternoon sun, which can be achieved with blinds, curtains, awnings, trellises, or landscaping. Shading to the east has a lesser impact and to the north is not necessary.



A house in California used 40% less cooling energy the summer after its roof was painted white

Maximizing cross-ventilation is also an important strategy. Breezes vary, but, in general in Cayman, the prevailing winds are from the east to the south between May and October. From November to April, the coolest season of the year, prevailing winds are from the northeast to the northwest. If possible, use landscaping to channel cool breezes into your living space. Because humidity tends to be a concern, minimize the number of interior houseplants because they tend to increase humidity indoors. If you have plants indoors, locate them out of direct sunlight to reduce excess evaporation. If you have the luxury of a budget for a new home or for structural changes to your existing home, an efficient design strategy is to draw in cooler, heavier air through the ground floor and release warmer, lighter air via roof vents such as a stack ventilator.

Color affects the temperature of your home. Light colors reflect light and reduce an object's heat gain; dark colors absorb light and get hot – increasing your energy bill. Pay closest attention to the portions of the house that receive the most direct sunlight such as the roof and the exterior walls on the southern exposure, and, ideally, paint these areas white. A house in California used 40% less cooling energy the summer after its roof was painted white, according to

a study by the Center for Building Sciences at Lawrence Berkeley Laboratories. Similarly, air temperatures above paved blacktop can be more than 20°F higher. Color affects the degree of heat absorption as well as the mass of materials such as stone, concrete, and brick. If you have the option, place paved areas on the north side of a house or building and avoid the south side.

Artificial lighting increases interior



temperature. Taking advantage of natural daylighting is ideal if it is balanced against potential heat gains from direct sunlight. Allowing diffused daylight or indirect daylight from the north is a practical approach.

An energy-efficient landscape design can reduce air temperatures by 7°F in a hot, humid climate. Cayman humidity tends to be around 75% so the challenge is to use plants to provide shade while avoiding the undesirable effects of extra humidity produced by heaving plantings. Overly dense plantings block cooling breezes and trap humidity in a pocket of dead air. A palm grove is ideal. And, if you are considering installing solar-energy panels, first weigh the benefits of simply shading the roof. A good solution may be to shade most of the roof and place the solar collectors on the remaining un-shaded area or on the ground.

It may still be necessary to run ceiling fans or air conditioning to maintain a comfortable interior environment. If so, be efficient about how you use these systems. Ceiling fans only benefit when an occupant is in the room, so avoid running all day if no one is there. And, your air conditioner will run more efficiently if the unit is shaded and if your home is well-insulated.

The less energy we consume in our homes, the more we save on our energy bills and the more we contribute to a sustainable future for generations to come. ☺

Sharon Patterson founded Om Your Home™, which focuses on creating healthy, sustainable, energy-efficient, comfortable and beautifully designed environments for homes, offices, schools and communities.

