

From the Agent

Did you know that home designs with aim to reduce heat gain as the first priority are on the rise in Florida? Did you know that planting deciduous trees near the home helps reduce energy use for both cooling and heating? Did you also know that carefully positioned trees can save up to 25% of the energy a typical household uses for cooling? This month's WET will talk about how landscaping helps reduce energy use at home. As always, you can also find more updated information on water and energy from the WET Facebook page (www.facebook.com/marionwet). I hope you find the information helpful. Thanks for reading WET.

Yilin Zhuang



Department of Energy studies conducted by Lawrence Berkeley National Laboratory found summer daytime air temperatures to be 3–6 degrees cooler in tree-shaded neighborhoods than in treeless areas



In This Issue

- ◆ Energy Efficient Homes and Landscaping 2
- ◆ Plan Before You Plant 3-4
- ◆ Shade Trees in Central Florida 5

Energy Efficient Homes and Landscaping

Landscaping has always played an important role in modifying the home environment. To survive, Native Americans and early settlers designed shelters that offered protection from the most severe conditions imaginable. Today, more and more people are searching for cost-effective yet curb-appealing ways to lower their energy bills and reduce their impact on the environment. From the hilly regions in the North to the tropical Keys, Florida provides many unique opportunities for using landscape materials to control the home environment. We all know that we cannot actually control the weather, but with design planning, we can cast shade, channel winds, and reduce moisture near our homes. Learning to control the effects of weather through landscaping can create a more comfortable home environment and actually reduce monthly utility bills, sometimes substantially. For example, the Department of Energy estimates that the proper placement of as few as three trees can save the average household between \$100 and \$250 annually in energy costs.

Landscaping with a focus on energy efficiency has many benefits, including (a) reducing energy costs by protecting the home from winter wind and summer sun, (b) reducing consumption of water, pesticides, and fuel for landscaping and lawn maintenance, (c) helping control noise and air pollution, and (d) reducing the surface temperature of the pavement with shade from adjacent trees. The key tips for cultivating an energy-efficient landscape is to shade your house and AC unit, as well as to select and place plants carefully for greatest energy efficiency and least maintenance.

University of Florida geography researchers found the tree canopy in the city of Gainesville, which has a strict tree ordinance, is more than twice as dense as that of Ocala. They concluded that Gainesville's added shade is the main reason residential utility bills average \$126 lower per year than in the city of Ocala.

Plan Before You Plant

The energy efficiency of your home can be enhanced greatly through careful planning, design, and maintenance of your landscape. Begin by making a list of specific problems you would like to correct.

- Does the home have particular windows that need to be shaded?
- Is humidity/moisture a problem on any particular side of the home?
- Would the back yard be more usable if you encouraged wind movement?
- Does the home rely on passive cooling instead of air conditioning? (Note that homes that rely on passive cooling will require different landscape techniques than homes that use air conditioning.)
- And so on...

You need to ask yourself these questions so that the landscape design can be tailored to meet your specific needs. The area around the home should be sufficiently ventilated to allow periodic drying by the sun and wind. An over-shaded home may actually have higher energy and maintenance bills, since lights will have to be on more and an air conditioner may be needed to control humidity.

In order for shade trees and other plants to be effective in reducing your energy bills, they must be planted in the right places. East- and west-facing walls receive the greatest amount of heat because they receive the direct morning and afternoon sun. Some of that heat is transferred into the home, which means your air conditioner has to operate longer and harder. Plants that cast shadows over east- and west-facing walls during the summer can greatly reduce the heat load on the home. It is much more energy efficient to stop the heat from entering your home in the first place, rather than trying to cool down

Research has shown that the shadow of a tree planted 10 feet from the home moves across the “target surface” four times slower than one planted 20 feet from the home, which means the shading benefit will be greater from the closer tree. When planting trees, however, be sure to plan for the mature size of the tree and avoid planting too close to the building or too near any aboveground or underground utility lines.

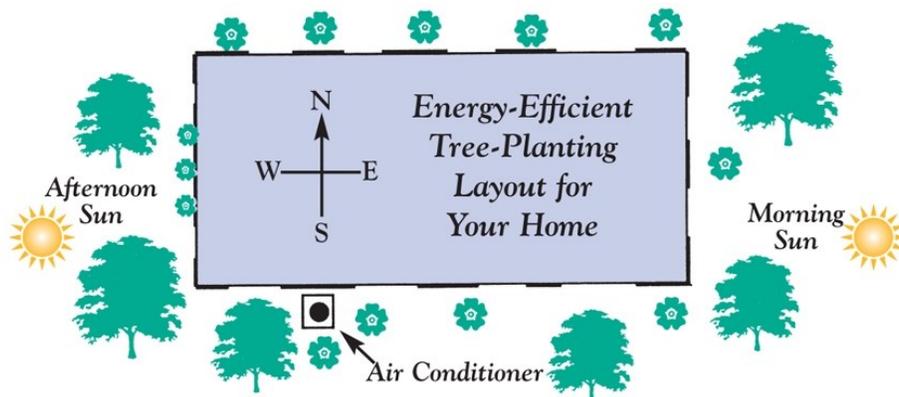
a too-hot interior. Keep in mind that the sun warms your home in three ways:

- by direct radiation (solar radiation that reaches the earth surface from the sun);
- by reflected radiation that "bounces off" a surface such as patios, driveways, or other buildings; and,
- by re-emitted radiation (which is stored and released, usually later on in the day) from concrete, asphalt, and brick.

Therefore, when looking at the areas that need to be shaded, consider all three of these sources of heat. The first target area for shading should be the windows and glass doors in the walls facing west, east, and south. Trees, shrubs, and vines are all useful materials to shade walls and windows while maintaining curb-appeal, and properly placed tall trees will help shade the roof of a typical single family home.

In general, the best location for deciduous plants (those that shed all or most of their leaves each year) is on the southernmost and southeastern sides of your home. This is especially important in northern Florida, which typically has winters with temperatures below freezing. To decrease energy needs during the heating season, plant appropriate low maintenance deciduous vines, shrubs, and trees.

Keep in mind that plant selection is the most important part of landscaping your yard. Your plant selection determines the wildlife value of your yard, the level of maintenance that will be required, how much fertilizer or pesticide may be required, etc.



Source: <http://keysenergy.com/images/tree-planting-layout.jpg>

Shade Trees in Central Florida

We love trees for a multitude of reasons. The fact that they provide oxygen for us to be able to breathe is a pretty amazing reason by itself. Here in Florida, we also like trees because they provide us with shade from the sun during the hot summer months. If you ever find a great parking spot under a shade tree while you're out and about it sometimes seems like you have hit the lottery. These types of trees usually consist of live oaks for their sprawling branches and long life span. Shade trees can not only be a great place to park under during the hot weather but they can also shade our houses as well. We can actually cut energy costs by keeping our houses shaded so they do not heat up so easily. Of course, all trees are not created equal. Some trees have a more spreading, broad habit to their shape while other have a more compact rounded habit. These are things to keep in mind when thinking about planting a tree to help shade your home. Lifespan of the tree is another detail to keep in mind. Will the trees loose its leaves in the winter months? If so, that tree is considered deciduous. An evergreen tree is one that keeps its leaves all year long. This is important because during the winter you want the sun to help heat up your home. Planting deciduous trees on the south and east sides of your home will help in maximizing the heat from the sun which will help heat up your home. Trees can also provide a formal windbreak that can be advantageous as well. Trees have a variety of different uses from aesthetic, providing oxygen, and can also help save money on our energy costs if planted correctly. Please visit the link for Florida Friendly Landscape trees that will do well in your area: <http://www.floridayards.org/fyplants/index>.

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