



Making Your Home More Energy Efficient – By Planting Trees

“Georgiawe have a problem”

Georgians are blessed with many hours of summer sunshine and inexpensive energy resources. While it's a good bet the sunshine will always be there, cheap energy may not. Our homes are becoming energy hogs, absorbing the sun's rays, converting them to heat, and radiating that heat back into our living spaces. Heat from roofs, walls, sidewalks, driveways, roads and parking lots raises the temperature of our homes and offices to uncomfortable levels. How many of us have windows that pass through so much of the sun's heat during the day that we must close the blinds and “crank up the a/c” to stay comfortable? Our homes and workplaces, while better insulated than in the past, require more and more energy, with more than 18 percent of summer energy use going to cool our homes.

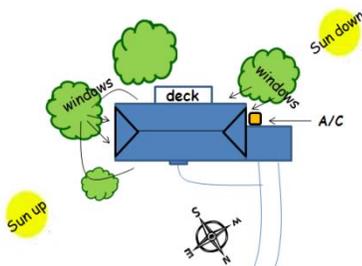
“The solution”

Homeowners and energy utilities are rediscovering tree planting as a time tested method for reducing energy use. Research has shown roofs, windows and air conditioners that are shaded by trees help reduce energy usage by up to 20 percent. Tree's leaves are valuable tools that shade the heat-absorbing surfaces of our homes. As the sun's rays strike the leaves, the rays are blocked and absorbed. This is particularly beneficial between the daylight hours of 11 a.m. and 6 p.m., when the sun's energy has the highest impact on our homes. Placing the proper tree species on the east, south and west sides of our homes can have a significant impact on our cooling bills and quickly pay back the cost of installation and maintenance. Shaded surfaces also need to be painted less frequently, thereby decreasing overall maintenance costs.



“How it's done”

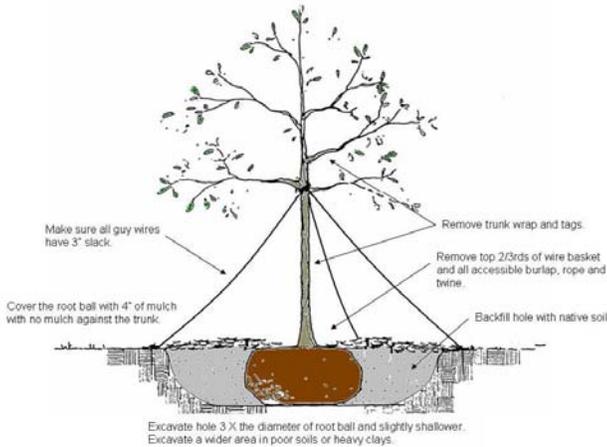
First: Determine where the sun rises and sets with respect to your home's location. Second: Figure out which areas (windows, walls, doors, air conditioning units or decks) receive the most hours of direct sun and indirect sun (reflected sun). Make a drawing and take notes. Third: Given the sun's angle at different parts of the day, determine where the shade needs to be to most effectively block the sun. Does the shade need to be 10 feet above the ground or 30 feet above the ground? Can one tree serve two purposes by shading two windows, walls or multiple heat absorbing surfaces? Fourth: Determine how much space is available for the tree's root system. A large tree requires at least 200 square feet of soil surface area and a small tree needs 100 square feet. Finally, be sure the larger trees aren't planted too close to the house – at least 15 to 20 feet away is needed to allow for future growth. Also, remember to not use evergreen trees on the south and west sides of the house. Planting deciduous trees in these locations allows the warming rays of the sun to reach the house through the trees' branches in winter.



If you are unable to plant trees everywhere you need or want them, the following list can help you prioritize desired locations, based on their energy saving potential:

1. Air conditioning units on south or west side of the home
2. West and southwest facing windows and doorways
3. East and southeast facing windows
4. West and southwest facing wood sided walls
5. Any deck areas that reflect light to the interior of the home

Planting trees properly is critical to the long term success of your energy conservation project and can raise your property value by up to five percent. Start by selecting the location for your planting. This will dictate the mature size of the tree and its needed planting space. Make sure you purchase a quality tree with a healthy root system (10 inches of container width per each inch of trunk diameter at six inches above the soil line). Dig the hole to the depth of the root ball, and no deeper. Use native soil to backfill and woodchips for mulch. Staking should not be needed unless the tree is over three inches in caliper. Tree planting is just one piece of the energy conservation puzzle. For other energy saving ideas, please contact your local energy utility.



Need help selecting a tree? Consider the following shade providing species:

Species Common Name	Canopy Size
Ash, Green	Large
Beech, American	Large
Maple, Sugar	Large
Oak, Chestnut	Large
Oak, Laurel	Large
Oak, Nuttall	Large
Oak, Overcup	Large
Oak, Sawtooth	Large
Oak, Scarlet	Large
Oak, Shumard	Large
Oak, White	Large
Oak, Willow	Large
Pagodatree, Japanese	Large
Planetree, London	Large
Blackgum (Tupelo)	Medium
Cherrylaurel, Carolina	Medium
Elm, Chinese	Medium
Hornbeam, American	Medium

Species Common Name	Canopy Size
Hornbeam, European	Medium
Katsura Tree	Medium
Maple, Red	Medium
Maple, Southern Sugar	Medium
Pistache, Chinese	Medium
Yellowwood, American	Medium
Chinquapin, Allegheny	Medium
Cherry, Yoshino	Small
Cherry, Kwanzan	Small
Crabapple, Japanese	Small
Dogwood, Flowering	Small
Golden Rain Tree	Small
Hawthorn, Washington	Small
Crape Myrtle	Small
Maple, Trident	Small
Redbud, Eastern	Small
Smoketree	Very Small

Pandit, Ram & Laband, D. (2010) "A Hedonic Analysis of the Impact of Tree Shade on Summertime Residential Energy Consumption". *Arboriculture and Urban Forestry* 36(2) 73-80.

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