



Conserving Energy with Plants

The demand and the cost for energy have never been as high as it is now. Homeowners have also become increasingly aware of energy savings provided by good landscaping. It is impossible to control temperature and wind; good landscaping helps modify the climate in and around the home.

Homeowners can reduce the energy necessary to heat and cool their homes by placing trees, shrubs, landscape structures and vines properly.

Landscaping has been used to save energy for centuries, but we are now realizing the enormous savings that are possible. According to a government survey winter heating bills may be reduced by as much as 15 percent and summer cooling costs can be cut by as much as 50 percent.

Houses gain or lose heat in 3 basic ways:

- **air infiltration** - passage of air through cracks and around doors or through open windows and doors. The average home loses 20-30% of heat in winter by air infiltration;
- **heat conduction** - conduction of heat through materials of which the house is built. Controlling the temperature difference and air movement between inner and outer surfaces of walls, floors and ceilings is the best opportunity for reducing heat conduction. Heat conduction represents up to 50% or more of the total heat exchange between a home and the outside environment;
- **solar radiation** - heat is transmitted into homes by penetration of the sun's rays. Up to 90% will be transmitted into the living area if rays are received perpendicular to a single pane. Sunlight will be increasingly reflected by the glass as the sunlight departs from the perpendicular.

Trees.

By shading the roof of a house from the afternoon sun, large trees can reduce summer temperatures dramatically, cooling the inside of the house by 8 to 10 degrees Fahrenheit.

Deciduous trees (ones that lose their leaves) provide shade in summer and allow the warmth of the sun filter through their bare branches in the winter. Trees should be situated on the southeast and western exposures. Choose trees that grow at a moderate rate instead of the fastest growing ones. These trees live longer, are less likely to break in wind and ice storms, and are usually more resistant to insect and disease damage.

For shading walls and window areas, smaller trees such as Crape Myrtles, Dogwoods and Red Buds can be used, as these too are deciduous providing shade in summer and allowing sunlight to penetrate during winter months.

Ask us at Good Earth about proportions. How fast? and How large? a certain tree will grow.

A good way to reduce energy consumption is to provide shade for your air conditioning unit. A study by the American Refrigeration Institute shows that shading of this type can reduce the temperature inside the home by as much as 3 degrees Fahrenheit. Be careful not to obstruct the air flow. Shrubs planted enhance the aesthetic value of a home by screening unsightly air conditioning units.

Overhead Structures, Espaliers and Vines.

Plants and structures can be used to protect walls from heat, cold and wind. Vines, shrubs and trees can be used as espaliers (plants trained to grow flat against walls). Slatted wooden overhead structures, arbors and pergolas are effective either attached or adjacent to the house. They provide a cool, restful sitting area.

Protection from the Wind.

Hedges can be used to save up to 23 percent on energy bills as compared to a completely exposed home. They minimize air infiltration windbreaks obstruct and redirect the flow of wind. Impenetrable windbreaks like walls create a strong vacuum on the downwind side. Windbreaks made of living plants allow some of the wind to penetrate which makes them more effective.

Shrubs used close to the home provide winter protection and summer shade. Combinations of groundcover and dense evergreen shrubs are most appropriate. They should be planted close enough to eventually form a wall but far enough away to create dead air space. The still air decreases heat loss, but still provides shade.

Appropriate evergreens which should be considered for foundations are Dwarf Hollies, Boxwoods, Cherry Laurels and Junipers.

Good landscaping practices offer one of the most practical methods of reducing energy consumption in homes. When the homeowner considers the added benefits of the increased real estate value and more attractive homes and communities, the investment becomes an even greater bargain.

Thanks to NC Extension Services.