



Landscaping for Energy Conservation - Part I

Energy conservation and environmental quality are among the most critically important issues of our time. Global warming and the greenhouse effect are becoming familiar terms used to describe what is considered by many as a significant climatic change largely brought about by fossil fuel emissions. To reverse these trends it is important to identify practical sense solutions to this growing challenge.

The use of basic Earth Kind landscaping principles and practices can significantly modify the micro-climate surrounding homes and communities, making them more energy efficient, while lower utility costs. Although it is not possible to control temperature, wind and other weather elements, properly placing trees, shrubs, vines and structures in the landscape can assist in keeping homes and surrounding areas warm in the winter and cool in the summer. If the landscape is well planned, installed and maintained, the increased aesthetic value and decreased maintenance costs can result in increased real estate values. A well planned Earth Kind landscape is one of the best investments a home or business owner can make.



Protection from the Sun:

Trees can reduce summer temperatures significantly. Shading the roof of a house from the afternoon sun by large trees can reduce temperatures inside the home by as much as 8 to 10 degrees F. Deciduous trees (those that lose their leaves in winter) provide summer shade, then drop their leaves in fall, which allows the warmth of the sun to filter through their bare branches in winter to help warm the home. If a home can be situated to take advantage of shade from existing trees on south and west exposures, energy expended for cooling can be considerably reduced.

To shade the roof or a wall of a one-story home, trees which will reach a medium to large size should be selected and placed 15 to 20 feet from the side or 12 to 15 feet from the corner of the structure. To be most effective, the canopy of the tree should extend over the roof. Smaller trees such as crape myrtles and redbuds can be planted closer to the house and used for shading walls and window areas. Since they are deciduous, these plants will provide shade during the summer and allow light and sun to penetrate during winter.



Earth-Kind uses research-proven techniques to provide maximum gardening and landscape enjoyment while preserving and protecting our environment.

The objective of Earth-Kind is to combine the best of organic and traditional gardening and landscaping principles to create a new horticultural system based on real-world effectiveness and environmental responsibility.

The principal goals of Earth-Kind include:

- Water conservation
- The safe use and handling of fertilizers & pesticides
- Reduction of yard wastes entering urban landfills
- Landscaping for Energy Conservation

As your interest and knowledge in these areas grows you will have an increased awareness of the many programs, practices and activities that are Earth-Kind. Working together we can make a difference in conserving and protecting our valuable natural resources.

AgriLIFE EXTENSION
Texas A&M System

For more information
see our Web site:

EarthKind.tamu.edu



Another way to reduce energy consumption with trees and shrubs is to provide shade for the outside portion of a split system air conditioner. A study by the American Refrigeration Institute shows that this practice can reduce the temperature inside a home by as much as 3 degrees F. However, shrubs planted near the compressor should not obstruct air flow or service access. Screening outdoor air conditioning equipment with plantings not only reduces energy consumption but can also enhance the aesthetic appearance of a home or business.

Espaliers and Vines:

In addition to shading roof areas, plants can protect walls from heat and cold. Vines, shrubs and certain trees can be used as espaliers (plants trained to grow flat against walls). The foliage cover insulates walls against summer heat and cold winter winds. Trees, shrubs and vines can also be highly effective in reducing noise and dust pollution also.

There are several ways to support plants against walls. Some vines such as English Ivy have specialized roots that cling to masonry or wooden surfaces. However, this can harm wooden surfaces since it hastens wood decomposition and provides protection for termites and other insects. Vines that do not cling usually twine and must have support. This can be provided by trellises placed on or close to the house. A third way to support shrubs and vines on a wall is to place mortar nails in the joints between the brick and securely fasten plant stems with ties or similar materials.



Windows, as well as walls, may be shaded by vines on trellises. Deciduous vines such as Boston ivy and wisteria will allow the sun to penetrate during the winter. If a quick effect is desired, annual vines such as morning glories, hyacinth bean and moon vines can be planted economically from seed in early spring and will usually provide the needed shade in time for the hottest summer weather.



Overhead Structures:

The use of landscape arbors and other overhead structures are another effective means of addressing energy conservation. These structures, either attached or adjacent to a home or business can shade walls and windows, thus reducing energy consumption and providing cool, restful sitting and viewing areas.

If wooden structures are used, the 1 or 2 inch lathe strips are usually spaced 1 to 1 1/2 inches apart. This spacing provides adequate shade while allowing air to circulate freely. If vines are used as a partial or complete cover, the structure is referred to as an arbor. Grape arbors, once as common as patios are today, can serve as attractive, practical additions to the landscape.

Groundcovers:

The temperature a few inches above turf or other groundcover plants is frequently 12 to 15 degrees F. lower than above asphalt or concrete surfaces. By using turf and groundcover plants between homes and paved areas, such as drives and walks, summer temperatures can be significantly reduced. There are several well adapted plant materials that are well suited for these applications. Also consider factors such as drought tolerance, as well as insect and disease resistance in making your selection.

The use of these simple but effective Earth Kind landscaping techniques can greatly assist in reducing energy consumption and costs. Working together home owners, businesses and communities can assist in creating a healthy and sustainable environment for the future.