Grow Your Own Savings

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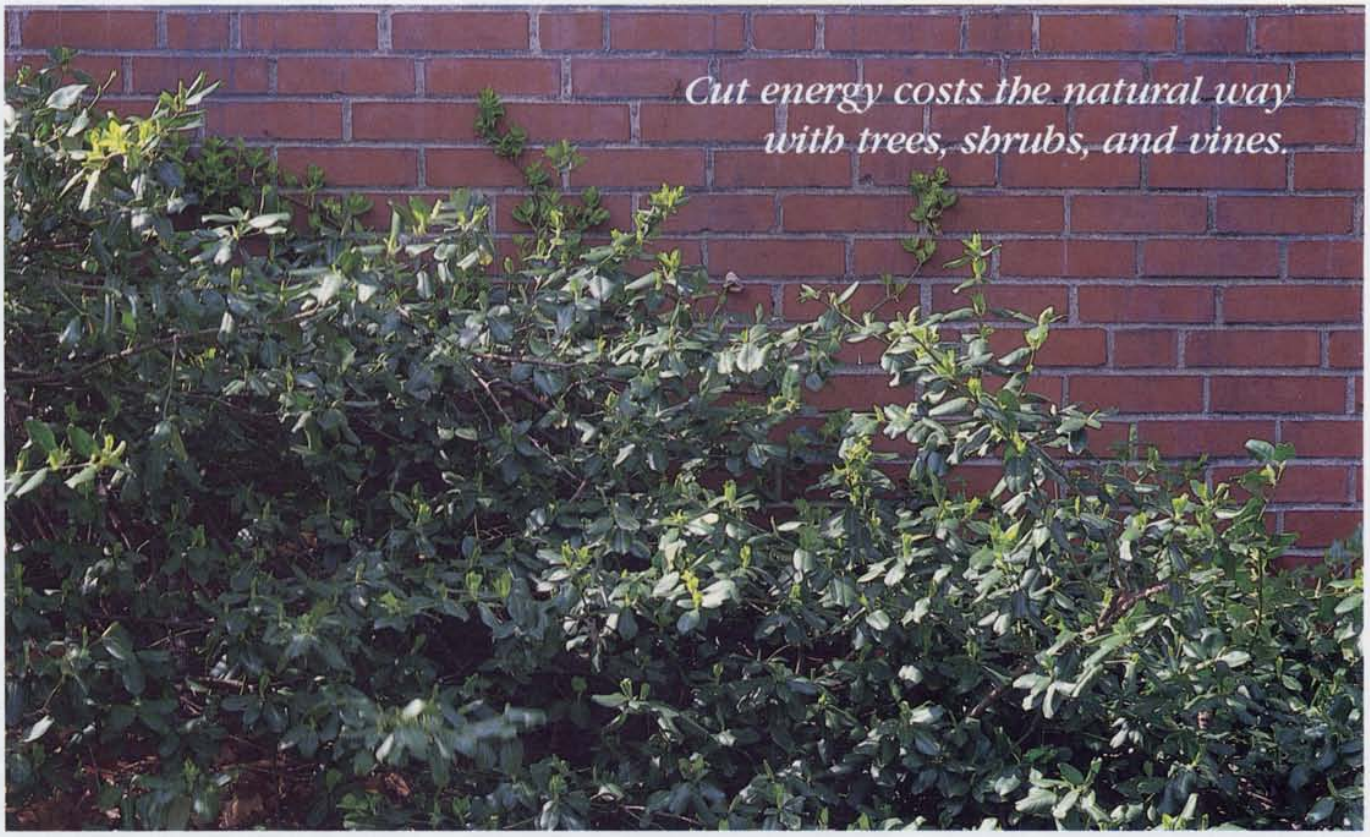


illustrations by Coraleta Alley photography by Nick Decker

It's possible to grow energy savings — right in your own backyard. Sensible landscaping can cut winter heating bills by as much as 30 percent and summer cooling costs by as much as 50 percent. In addition, if you're saving energy, you're helping conserve oil, coal, and other resources for the future.

Plant a tree stategically and it will shade part of your roof from the sizzling summer sun. Encourage a clematis plant to scale the heights of a trellis so it shades your porch or windows. For winter energy savings, shelter your home from the wind with conifers, or keep your foundation warm with a low wall of slow-growing shrubs.

These are just few of the ways that you can use vegetation to reduce the amount of energy used to cool and warm your home. Landscaping can improve your home by keeping it cooler in the summer and warmer in the winter.

The effects of landscape vegetation can substantially improve the interior temperature of your home. Proper use of shrubs, vines, and trees can minimize the effect of the three major factors responsible for unwanted heat or cold: air infiltration, heat conduction, and the transmission of radiant energy, or sunlight.

The first of these, air infiltration, occurs when outside air seeps into your house through cracks around doors or

windows, porous materials, abutting walls, and other small openings. Outside air is drawn into or out of the home through these openings by a difference in air pressure between the inside and outside of the building.

Differences in air pressure are the result of the force of wind on an outside surface or by the circulation of warm and cool air within the house. Trees and shrubs can reduce the velocity of wind striking an outside wall of a building. They also can reduce temperature fluctuations inside your house.

The second major way a home gains or loses heat is by thermal conduction. Heat is transferred through the construction materials of the structure. The amount of heat that is conducted depends on the resistence to heat flow (R-value) of the material, its thickness, the surface area, and the temperature difference between the indoor and outdoor layers of the material.

Landscape plantings can yield energy savings when they retard heat transfer. For instance, a tree positioned to shade the west wall in summer helps keep the wall cooler. As a result, there is not as much heat conducted to the inside because the temperature difference between the inside and outside walls is not as great.

Radiant energy, or sunlight, is the third factor involved in a home's heating and cooling efficiency. Shrubbery that shades glass patio doors from late afternoon rays is one example of vegetation's effectiveness in blocking excess radiant energy.

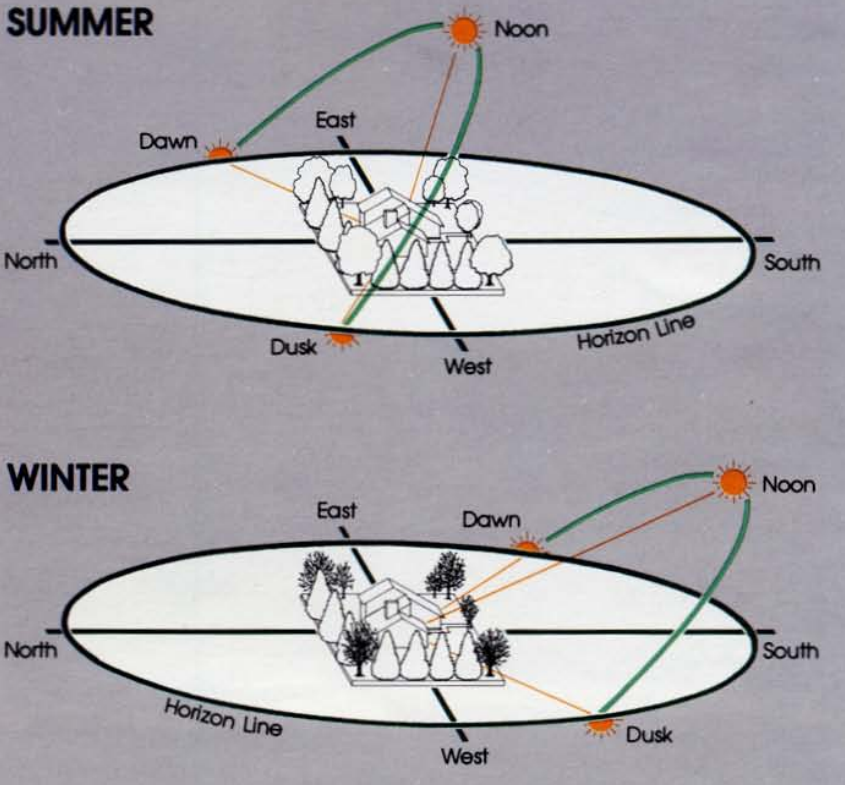
Air infiltration, heat conduction, and radiant energy are the chief forces which raise or lower your home's energy consumption. Plantings around your home can offset the influence of these forces. Selecting the right landscaping methods can help you enjoy moderate inside temperatures, lower utility bills, and the satisfaction of having used fewer natural resources.

Summer Shade

Trees can be excellent sun screens during long, hot summer days. Studies have found that shading the roof, walls, and windows on the west side of a mobile home have reduced annual cooling costs 30 percent to 50 percent. Savings may not be as great for other types of homes, although shading even 20 percent of the roof for the entire day can reduce energy costs.

Solar Angles

The seasonal path of the sun is a major factor in determining the type and location of your plantings. Landscaping for summer, when the sun is overhead, should shade the west and east sides of your home. Landscaping for winter, when the sun is low in the sky, should expose the south of the house for maximum solar gain.



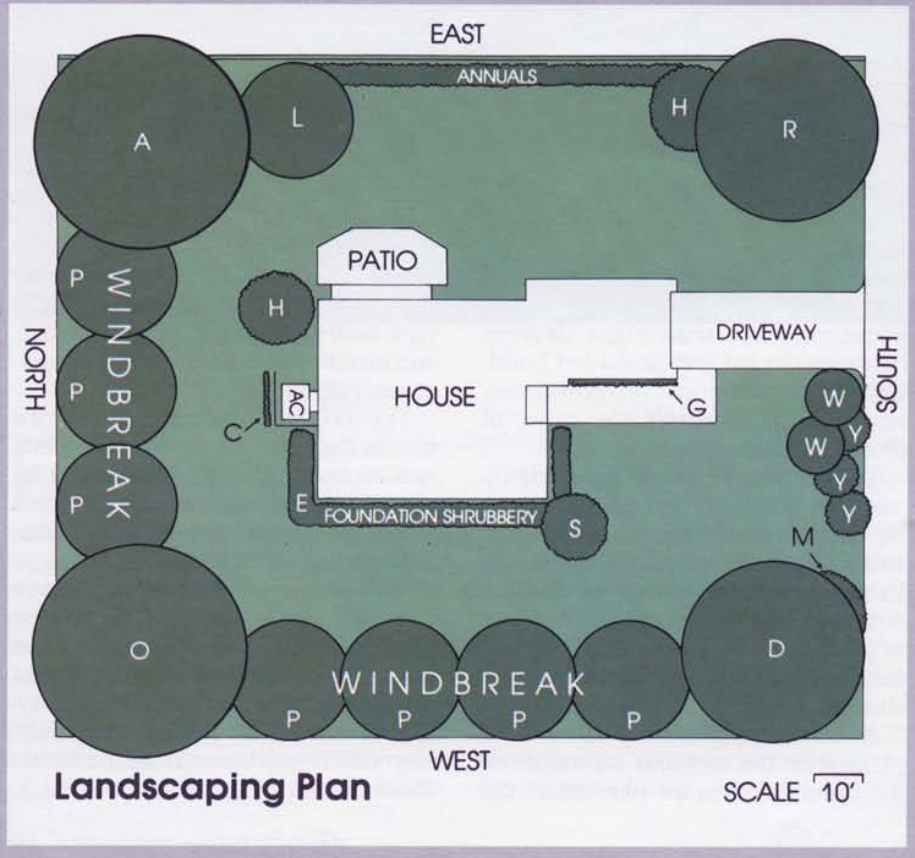
Another study showed that an eight-degree difference between shaded and unshaded wall surface was equivalent to a 30-percent increase in the insulating value for the shaded wall. Differences of more than eight degrees between shaded and unshaded building surfaces are common, which correspondingly increases the value of providing shade.

The amount of shade provided by trees depends on the type you plant. Deciduous trees such as white ash, willow-leaf oak, and thornless honey locust are among the species that are desirable. These trees shed their leaves in the fall and they generally have few branches, so they don't block as much sunlight in winter.

Shade trees generally should be planted on the east and west sides of the house. If trees are planted on the south side, they should be pruned along the lower portion of the trunk to allow maximum solar heating of walls in winter. Placement of trees also may depend on maintaining a desirable view from windows, space, appearance, and avoiding overhead wires or underground pipes.

The ultimate height and spread of a tree is the most important consideration. For safety, a tree should not be allowed to get more than 50 percent taller than the highest part of the house unless it is planted almost as far away as its ultimate height. For instance, a tree that will reach 100 feet should be planted at least 75 feet away from the house, and a tree that will reach 20 feet should be planted at least 15 feet away. If your tree will be pruned frequently, then planting distance from the house should be increased by another third.

Energy consumed to cool and heat your home can be greatly reduced by properly using vegetation to landscape it. Careful consideration of the site, climate, and vegetation can ensure the best results around your home. Sensible landscaping can cut summer cooling costs by as much as 50 percent and winter heating bills by 30 percent.

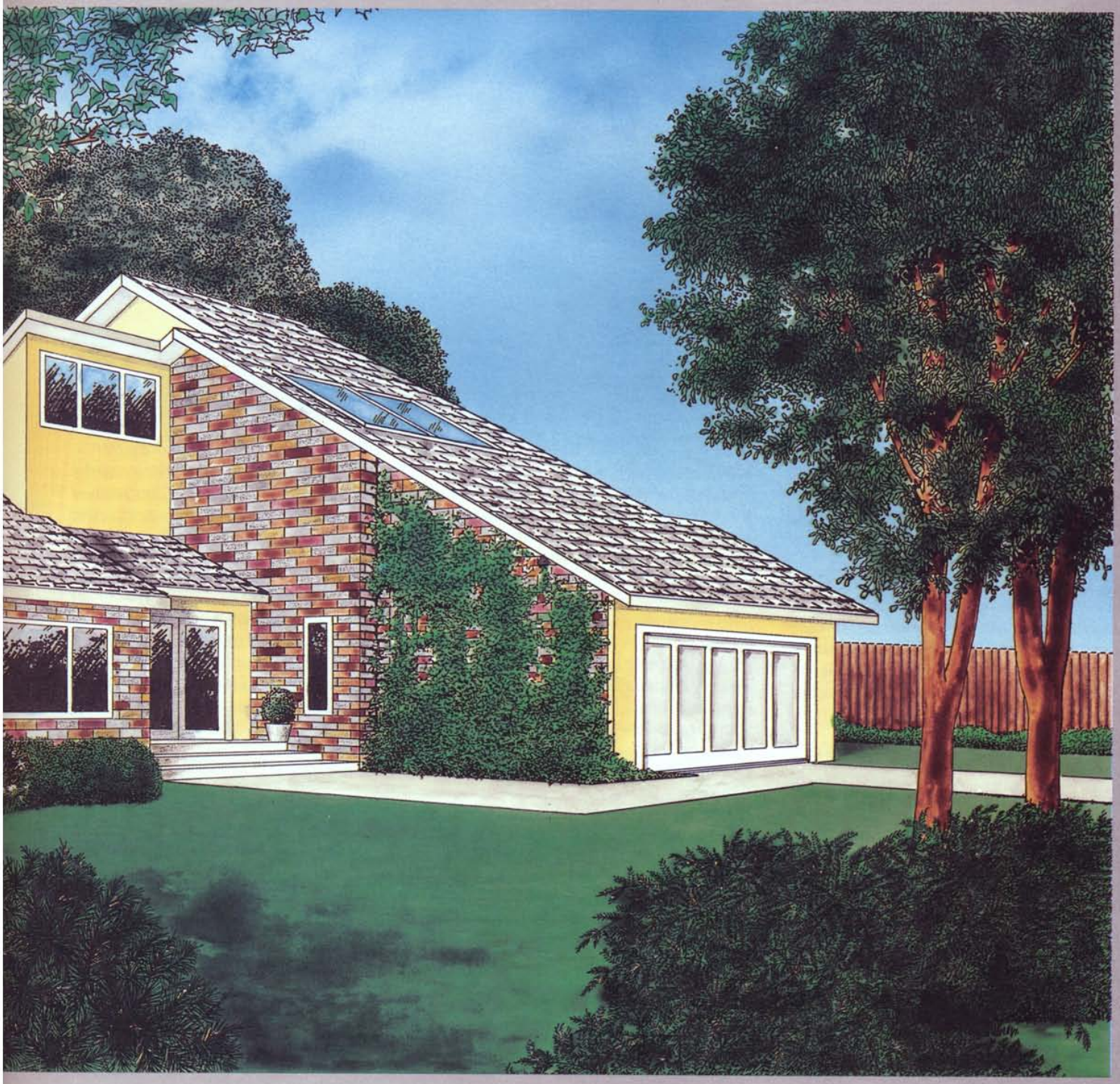


Landscaping Plan

SCALE 10'

LEGEND

A - white ash	L - maple
C - clematis	M - dwarf mugo pine
D - dogwood	P - red or white pine
E - evergreens	R - red bud
H - holly	O - oak
W - hawthorn	Y - yew
G - grapevines	S - viburnum (snow ball)



Landscaping to save energy can do more than cut utility bills and increase property values. When you save energy, you help conserve coal, natural gas, and other resources for the future. The place to start may be your local nursery where you can get advice on the species that are most likely to grow well and meet your expectations. General landscape techniques can be considered before you visit your local nursery.

- *Plant deciduous trees such as white ash, willow leaf oak, or thornless honey locust so they shade the roof of your house.*
- *Use deciduous vines such as bittersweet, silver lace, clematis, morning glory, or climbing roses to shade south walls and windows.*
- *Plant taller shrubs to shield sliding-glass patio doors or other architectural features on the west side of the house from late afternoon sun.*
- *Shade your air conditioner to increase its efficiency.*
- *Plant low-growing shrubs such as yews, junipers, or Japanese holly around your foundation to create a layer of "dead air" for winter insulation.*
- *Plant a windbreak — even a single row of conifers — to protect your home from prevailing winds during winter.*