



THE LANDSCAPE CENTER

Landscaping for energy efficiency

Are you looking for cost-effective yet eye-pleasing ways to lower your energy bills? Planting trees, shrubs, vines, grasses, and hedges could be the answer. In fact, landscaping may be your best long-term investment for reducing heating and cooling costs, while also bringing other improvements to your community.

A well-designed landscape will

- Cut your summer and winter energy costs dramatically
- Protect your home from winter wind and summer sun
- Reduce consumption of water, pesticides, and fuel for landscaping and lawn maintenance
- Help control noise and air pollution

Landscaping saves money year-round

Carefully positioned trees can save up to 25% of a household's energy consumption for heating and cooling. Computer models devised by the U.S. Department of Energy predict that the proper placement of only three trees will save an average household between \$100 and \$250 in energy costs annually.

On average, a well-designed landscape provides enough energy savings to return your initial investment in less than 8 years.

An 8-foot deciduous (leaf-shedding) tree, for example, costs about as much as an awning for one large window and can ultimately save your household hundreds of dollars in reduced cooling costs, yet still admit some winter sunshine to reduce heating and lighting costs. Landscaping can save you money in summer or winter.

Summer

You may have noticed the coolness of parks and wooded areas compared to the temperature of nearby city streets. Shading and evapotranspiration (the process by which a plant actively moves and releases water vapor) from trees can reduce surrounding air temperatures as much as nine degrees F.

Because cool air settles near the ground, air temperatures directly under trees can be as much as 25 degrees F cooler than air temperatures above nearby blacktop. Studies by the Lawrence Berkeley Laboratory found summer daytime air temperatures to be 3-6 degrees F cooler in tree-shaded neighborhoods than in treeless areas.

A well-planned landscape can reduce an unshaded home's summer air-conditioning costs by 15-50%. One Pennsylvania study reported air-conditioning savings of as much as 75% for small mobile homes.

Winter

You may be familiar with wind chill. If the outside temperature is 10 degrees F and the wind speed is 20 miles per hour, the wind chill is -24 degrees F. Trees, fences, or geographical features can be used as windbreaks to shield your house from the wind.

A study in South Dakota found that windbreaks to the north, west, and east of houses cut fuel consumption by an average of 40%. Houses with windbreaks placed only on the windward side (the side from which the wind is coming) averaged 25% less fuel consumption than similar but unprotected homes. If you live in a windy climate, your well-planned landscape can reduce your winter heating bills by approximately one-third.

-- The National Renewable Energy Laboratory