

Well-placed trees can keep house warm, cool

By Penny Wright
special writer

"Buy it like you buy a car." With those words, horticulturist Nancy Butler emphasized the worth of one of nature's finest gifts — a tree.

Butler, who works for Michigan State University's Cooperative Extension Service, and others in her field say trees can do more than add beauty to the environment.

They say trees can reduce energy needs.

FEW PEOPLE are aware of the energy-conserving potential of trees, she contends.

Studies show that carefully locating trees and other plant materials on a building site can significantly reduce heating and cooling bills.

In their book, "Design with Climate," Victor and Aladar Olgyay estimate that with good protection on three sides of a building, fuel savings might run as high as 30 percent.

Butler believes that with analysis trees can be selected that will enhance a site and will also reduce the effects of the two prime energy-grabbers: winter winds and the summer sun.

She described the principles involved.

WIND FLOWS in layers of air over the ground following a path of least resistance. When the air stream hits a barrier, it exerts a pressure against that surface. In the case of a building, a positive pressure builds up on the windward side.

At the opposite end of the building (the leeward side) a negative pressure is created. This pressure difference causes air infiltration — the scourge of every heating bill-payer.

A key element to reducing the heat-stealing properties of winter winds is a good windbreak. Trees planted perpendicular to the windstream divert the air flow over and around a building.

According to Butler, the denser the barrier and more graded in height, the more effective the windbreak will be.

Butler advises using multi-rowed windbreaks to force the wind upward for longer distances. "With one tree, the wind goes up very quickly and the comes down very quickly," she said.

WHILE DENSELY branched evergreens make the best wind barrier, large shrubs, especially on a berm, will substantially reduce air flows.

Deciduous trees also provide wind control even though they lose their leaves in the winter. Butler recommends combining faster growing deciduous trees with slower growing evergreens to allow the windbreak time to mature.

Perimeter wind screens aren't the only type of air stream blockage available to property owners. A row of evergreens planted next to a building, at a distance of approximately five feet to avoid foundation damage, will create a dead air space between the wall and trees.

The undisturbed air space will have a higher temperature, which in turn modifies the temperature difference between the inside of the building and the exterior air. Similar to a layer of insulation, the dead air space will reduce the amount of heated air escaping from the building.

AIR CONDITIONING loads and warm weather discomfort can be reduced by modifying the amount of summer sun reaching a building. Deciduous trees prove most popular for shade because they provide access to the sun during the spring and autumn months when warmth is desired.

Leaves reflect and absorb the sun's radiation. Depending on the density of the foliage, they can completely block or filter solar rays. The effect is a reduction of air temperature near the ground.

Butler says that on a hot day, it may be as much as 25 degrees cooler under the canopy of a tree than in full sun. Since the east, south and west faces of a building bear the brunt of the summer sun's heat, he advises planting trees to shade these sides.

Trees with large, round crowns and dense foliage will throw the biggest shadow.

HOW CAN an energy-conscious shopper maximize the benefits of a tree purchase?

"By taking the time to research and narrow down the options," says David Golab, a designer with Plymouth Nursery and Garden Center in Plymouth.

Golab maintains that designing an energy-saving landscape is basically a four-step procedure.

First, shoppers should assess their sites to determine wind flow patterns and the movement of the sun across the lot. While winds move in a westward direction across Michigan, local areas tend to get winter winds moving from the northwest.

In the summer, the winds mostly come from the southwest. Site conditions such as hills and buildings can change wind patterns.

Similarly, property owners should know the position of the sun as it moves across the site at different times of the day and during different seasons. This can be done by observation or with the use of a sun angle chart.

THE SECOND step involves analyzing the trouble areas of the lot. This means finding the places that are most vulnerable to the harsh effects of the wind and sun.

As a third step, property owners should make a concept plan of proposed solutions. Making a drawing of the site can ease the task.

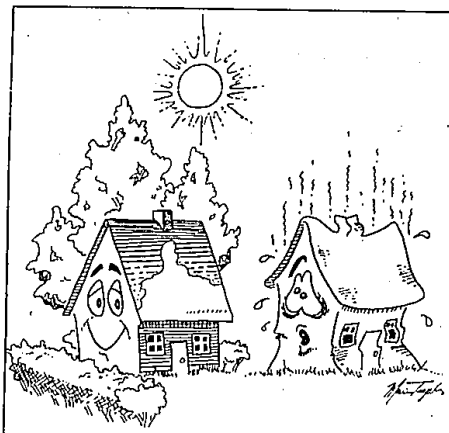
The final step is to go shopping. This is the time to talk to professionals to determine what types of trees will fit site needs as well as your pocketbook.

Golab emphasizes that the decision making process should not be rushed.

Butler concurs and says to new homeowners especially, "I would say live in a house for a year, find out where the energy inefficiencies are and then pick the trees."

Butler says that the Michigan Cooperative Extension Service has information and advice on landscaping from local nurseries and arbors.

For more information on landscaping, in Cass County, call 616-666-6666 or in Wayne County, 734-4350.



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Area residents have the chance to learn more about the law at free seminars and film festivals during community law week.

Oakland County Bar Association will sponsor programs throughout the county April 30 through May 4. Subjects include wrongful employment discharge, personal injury, traffic violations, drunk driving, Medicaid-Medicare, and landlord/tenant problems.

Free programs include a concert by the Metropolitan Youth Symphony at 3 p.m. Sunday, April 29 in the Commissioner's Auditorium, 1200 N. Telegraph, Pontiac; Law Week Film Festival, noon-2 p.m. Monday April 30 in Ferndale Public Library, 222 E. Nine Mile, Ferndale; and a Law Week Film Festival from 4-7 p.m., Thursday, May 3 in Highland Township Library, 208 W. Livingston, Highland.

Free public seminars include:

- Tuesday, May 1 — "Consumer Law" and "Real Estate" from 7-9 p.m. in Royal Oak Public Library, 222 E. Eleven Mile, Royal Oak
- Wednesday, May 2 — "Workers Compensation" and "Personal Injury" from 2-4 p.m. in Clinton Center, 22180 Parklawn, Oak Park; "Employment Termination" and "Employment Discrimination" from 2-4 p.m. in Commissioner's Auditorium, 1200 N. Telegraph, Pontiac
- Thursday, May 3 — "Wills" and "Medicare/Medicaid" from 2-4 p.m. in Royal Oak Public Library, 222 E. Eleven Mile, Royal Oak

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