

Energy Saving Landscapes



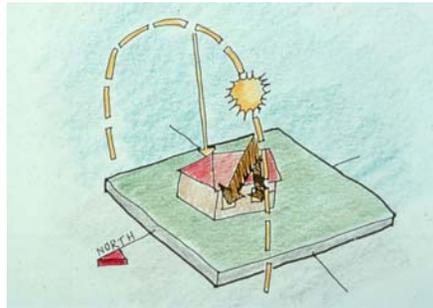
Natural Resources In Agricultural Landscapes

Energy costs of heating and cooling homes continue to increase. Both rural and urban homeowners can reduce these costs by strategically planting trees in their landscape. In Minnesota, shade trees can reduce air conditioning costs in the summer months up to 25%. A well placed windbreak planted on the north and west side of the house can reduce winter fuel expenses up to 20%.

Whether you are planning to build a new home or have an existing home, planting trees in the right location on your property can save energy costs while beautifying your property.

Summer Cooling:

In the summer months we want to keep our homes cool. Approximately half of the unwanted heat in the home comes from sun shining through the windows. Less than 5% comes through the roof and walls. Because of the high angle of the sun, heating from the sun mainly occurs on the east and west sides of the home. Therefore, it is recommended to plant deciduous trees to **shade the east and west windows** of the home. The west side is the highest priority. Select deciduous shade trees that can be planted 20 feet from the

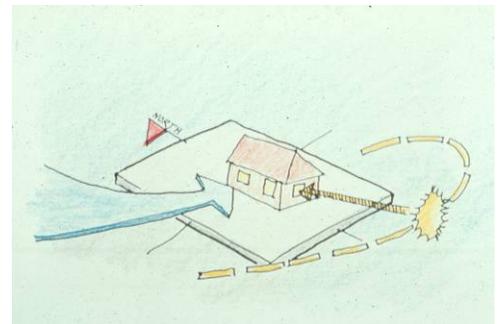


house and will grow at least 10 feet taller than the window. Deciduous trees can block the sun's rays by 60 to 90% in the summer.

Shading other areas in your landscape in the summer months may also be beneficial and economical. Providing shade to your air conditioning unit and shade to the paved parking area for vehicles can also make your environment more comfortable.

Winter Heating:

During the winter months when the angle of the sun is low to the south, we want our south facing windows to be un-obstructed by trees so passive solar energy from the sun can warm the inside of the home. The solar energy gained can amount to 5 to 20% of the energy needed to heat a Minnesota home. In winter months, deciduous trees with just their branches and twigs can block 30 to 50% of the sun's solar energy. To avoid shading south windows, trees south of the home should be at least twice their mature height away from the house.



Cold wind leaking into the home and warm air escaping is the most important factor affecting heating costs, accounting for 25 to 40% of the heating load. In Minnesota our prevailing winds in the winter months is from the northwest. Therefore, planting trees for winter wind protection from the west and the north is cost effective and adds diversity to your landscape.



Space will be the limiting factor in creating a small or large shelterbelt or windbreak on the west and north sides of your property. Seek out landscape or agency professionals when designing your windbreak. The traditional windbreak begins with 1 or 2 rows of shrubs, then 1-3 rows of deciduous trees (small to large) and ends with 1-2 rows of conifer trees approximately 50-200 feet from the house. Conifers are usually spruce; they are dense and low to the ground.

Plant spacing varies with the trees and shrubs and the desired density. If trees are planted too close they will be stunted and limb dieback may occur. Common tree spacing's are:

	In the Row:	In Between the Row:
Shrubs and Small Trees	4-6 feet	10-12 feet
Trees (deciduous and conifer)	15-20 feet	20-30 feet

Possible Assistance Programs:

For urban residents there may be community tree planting assistance programs through state tree agencies, city or county government, state department of natural resources or private grant agencies.

For rural residents there are opportunities for cost share and even annual land payments for the land planted to trees as windbreaks, shelterbelts and living snow fences. The USDA Conservation Reservation Program (CRP), continuous sign up offers many positive tree planting incentives. Contact your county Farm Service Agency (FSA) office for more details. Other helpful agencies are the Natural Resource Conservation Service (NRCS), the Soil and Water Conservation District (SWCD) and the University of Minnesota Extension.

Energy Safety Tips for the Home:

- Install and maintain smoke alarms near bedrooms and on all floors of the home.
- Install and maintain a Carbon Monoxide (CO) alarm near bedrooms on each floor of the home.
- Replace smoke alarm and CO alarm batteries annually.
- Develop a fire escape plan for your family.
- Have fireplaces professionally cleaned at least once a year.
- Have heating and cooling systems checked and serviced annually.
- Test your home for Radon.

Energy Saving Landscapes Summary:

- Plant shade trees to shade east and west facing windows.
- Plant conifer trees to create a windbreak from the west and north.
- Plan you're planting so that it doesn't conflict with existing trees, utility lines above and below ground, future building plans, etc.
- Select trees and shrubs wisely and space them properly.
- Use recommended diverse species of trees and shrubs.
- Take advantage of available educational resources.

Web Links

Saving Energy with Trees, MN Department of Commerce, Energy Information Center

www.state.mn.us/mn/externalDocs/Commerce/Energy_Saving_Landscapes_110802040030_Landscaping.pdf

National Agroforestry Center

www.unl.edu/nac

MN – Farm Service Agency

www.fsa.usda.gov/FSA/webapp?area=home&subject=copr&topic=crp

Department of Natural Resources

www.dnr.state.mn.us/firewise/index.html

www.dnr.state.mn.us/treecare/energy/index.html

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