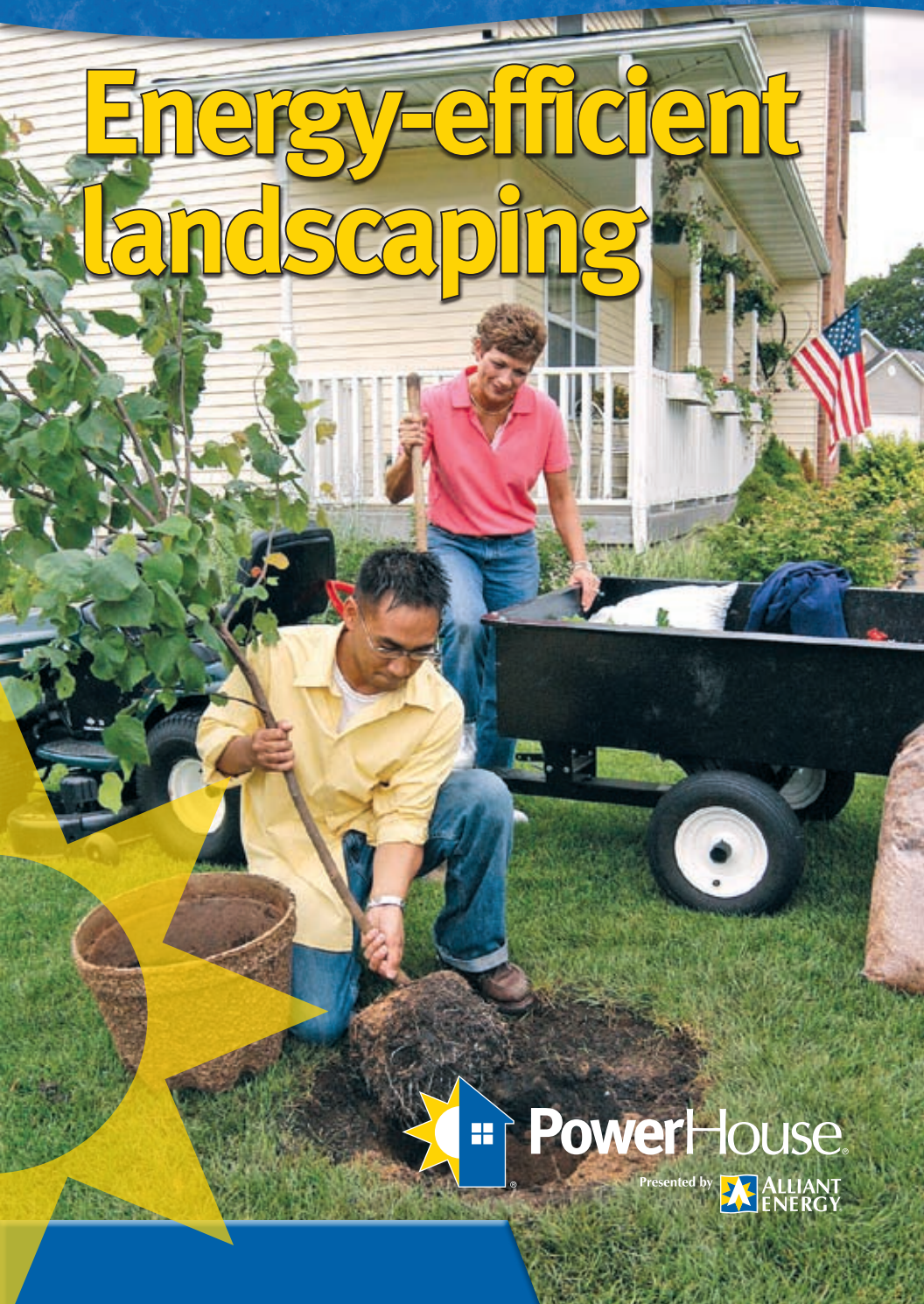


SAVE MONEY ■ SAVE TIME ■ SAVE ENERGY

Energy-efficient landscaping



PowerHouse®

Presented by  ALLIANT ENERGY

At Alliant Energy, we're dedicated to helping you get the most from your energy dollar. Creating an energy efficient landscape is one way to cut both your heating and cooling costs, and we'd like to help you learn how.

A well-designed and energy-efficient landscape provides a number of benefits.

- Cuts summer and winter energy costs
- Protects home from winter wind and summer sun
- Reduces consumption of water, pesticides, and fuel for landscaping and maintenance
- Helps control noise and air pollution

Cutting energy costs

Properly positioned trees can save up to 25 percent of a household's energy use for heating and cooling, according to the U.S. Department of Energy. In fact, the correct placement of only three trees will save an average household \$100-\$250 in energy costs in a single year!



Taking inventory

Each home is unique when it comes to planning the right landscape to maximize energy savings. Start by taking an inventory of your home's existing energy and comfort-related problems.

- Do you have a large window that is openly exposed to the harsh glare of the summer sun and heat?
- Does your front door open to chilling northerly winter winds?

If you're building a new home, you're in the perfect position to include energy-efficient landscaping in your plan from the ground up! By creating a well thought out landscape plan, you can address these issues.



Getting started

Here are the tools you'll need to get started on your plan:

- Graph paper – the kind that has 1/4 inch squares works well
- Sturdy mounting board, such as cardboard, foam core board, or mat board
- Measuring tape
- Tracing paper

Start by mounting the graph paper on a sturdy board. It makes it easier to carry around the yard with you and to write on.

Draw the perimeter of your property to scale on the graph paper. Indicate north with an arrow so you'll know what direction the property faces. Next, draw in the buildings including the house, garage, shed, etc. Add sidewalks and paths, decks, fences, everything that is a permanent fixture on the property. Indicate where the utility lines are. This is the time to use the “call before you dig” hotline to have your underground utilities marked. Remember, it's the law (see page 8).

Now you have an accurate picture of the “bones” of your landscape. This is the skeleton upon which all your other landscape features will be built. You may also want to add any existing large trees to this drawing, as long as you consider them permanent structures.

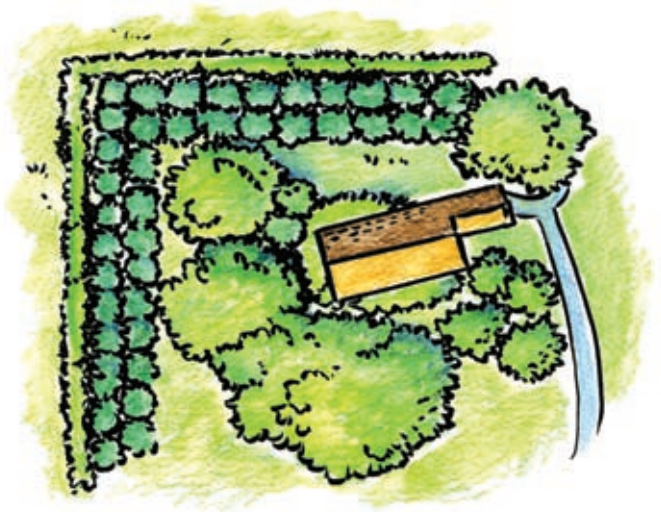


It's time to add the second layer. Place the tracing paper over your drawing, and tape it down at the top. Now your tracing paper is "hinged" and can be raised and lowered. On this sheet, pencil in existing plantings, flower beds, arbors, shrubs ... and any trees you didn't include on the base drawing.

What you want to see taking shape in your drawing are the various areas of use in your landscape. There's the public yard; what people see from the street. This is where your home gets its "curb appeal." Somewhere you'll also have a service area: where you store the garbage cans, place your dog kennel or maybe a tool shed. You will probably also have a private area, maybe in back of your house where you do your outdoor "living".

As your plan takes shape, you can add or subtract as many sheets of tracing paper as you need to develop your energy-efficient landscaping plan.

With your scale drawing in hand, you are now ready to determine ways to enhance your landscaping to maximize energy efficiency.



Your scale drawing might look something like this

Benefits of shade in the landscape

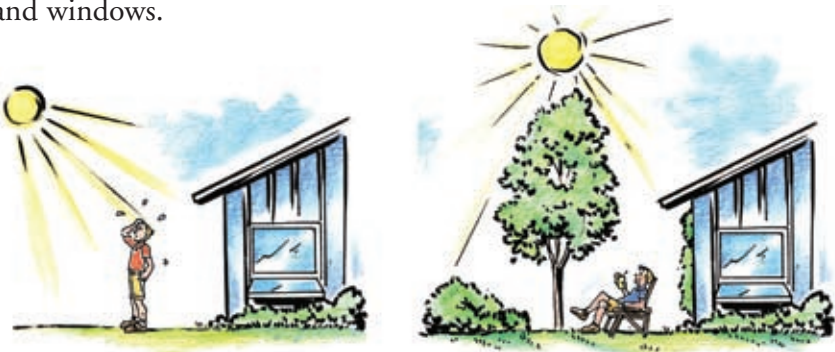
Shade is your friend when it comes to improving the energy efficiency of your landscape! Did you know that unshaded roof temperatures can exceed 140 degrees? Or that shading your air conditioner can increase its efficiency by up to 10 percent? Adding the right shade in the right place can noticeably reduce your energy consumption.

Your landscape plan is likely to include both deciduous and evergreen trees. Deciduous trees are those that lose their leaves in the winter, and evergreens retain their leaves all year long, as their name implies.

The best locations for deciduous trees are on the south and east sides of a house to provide shade during summer, and allow the sun's warmth to penetrate during the winter months. Evergreens are best planted on the north and west sides to provide protection from cold winter winds.

In addition to planting trees, strategically placed shrubs and even ground covers can improve the energy-efficiency of your landscape. Planting shrubs, bushes, and vines next to your home creates a dead air space that insulates your home both winter and summer.

Groundcover plants will shade the soil and pavement around your home, reducing radiation and cooling air before it reaches the house and windows.



Plant selection

When selecting landscape trees and plants, be sure to consider their mature size before you purchase. Think about the shape of the tree, its growth rate and how it will enhance your existing landscape and architecture. Identifying trees already growing in your community or neighborhood will help in making your selections. When selecting trees for planting in the vicinity of overhead electric power lines, select those that have a low mature height and will not grow into the electric lines.

Make sure you are familiar with the tree's required growing conditions. Does it prefer a certain soil pH? Does it require full sun, or will it grow in partial shade? What soil conditions will it need?

Whenever possible, choose landscape plants that are native to your area. Native plants are those which existed in the area prior to European settlement. Native plants are adapted to

Here's a list of trees you might find helpful while developing your energy-efficient landscaping plan. While all are generally hardy throughout the Midwest, check with your local nursery or county extension office for specifics. They will help you determine what tree best suits your specific micro-climate.

Low Growing Trees

Generally do not exceed 20-30 feet

- Amur Maple – *Acer tataricum*
- American Hornbeam – *Carpinus caroliniana*
- Pagoda Dogwood – *Cornus alternifolia*
- Flowering Crabapple – *Malus spp.*
- Japanese Tree Lilac – *Syringa reticulata*
- Eastern Redbud – *Cercis Canadensis*
- Blackhaw Viburnum – *Viburnum prunifolium*

Medium to Large Trees

Mature height 50-100 feet

- Sugar maple – *Acer saccharum*
- Silver maple – *Acer saccharinum*
- White Ash – *Fraxinus Americana*
- White Oak – *Quercus alba*
- Swamp White Oak – *Quercus bicolor*
- Bur Oak – *Quercus macrocarpa*
- Kentucky Coffeetree – *Gymnocadus dioica*
- Callery Pear – *Pyrus calleryana*
- Norway Spruce – *Picea abies*
- Eastern White Pine – *Pinus strobes*
- Eastern Red Cedar – *Juniperus virginiana*
- White Spruce – *Picea glauca*

Shrubs

- Serviceberry – *Amelanchier alnifolia*
- Redosier Dogwood – *Cornus stolonifera*
- Nanking Cherry – *Prunus tomentosa*
- Highbush Cranberry – *Viburnum trilobum*
- Nannyberry – *Viburnum lentago*

area growing conditions, are better able to handle stress in addition to being more disease and pest resistant.

Remember that slow-growing trees may take longer to mature, but they live longer, have deeper root systems and stronger branches.

Specific information is available from your county extension office, local nurseries and the Department of Natural Resources.

Preparing to plant

Once you have selected the plants, make sure that you are ready to plant once you bring them home, or as soon as they arrive. Plants left in the sun before planting lose water rapidly and will have a more difficult time getting started.

If you must store your plants, keep them in a cool, shady place like an unheated garage and make sure the root system stays moist.

Always call before you dig

Anytime outdoor work requires digging – landscaping, installing a fence or building a deck – always, always – call before you dig. It's the law, and it could save your life. The call is free, the service is free, and you can call anytime, day or night.

Just dial 8-1-1

Getting utility lines marked is quick and easy with 811. When you dial 811, your call is forwarded to the One Call Center in your area for processing. Local Call Center operators record the location of the dig and then notify the affected utility companies of your digging plans.

Be sure to call 811 at least three business days in advance of your scheduled dig to allow time for the request to be processed. Once your lines are marked, stay at least 24 inches away on either side of the lines when digging.

Knowing what's below will protect you, your family and your neighbors.

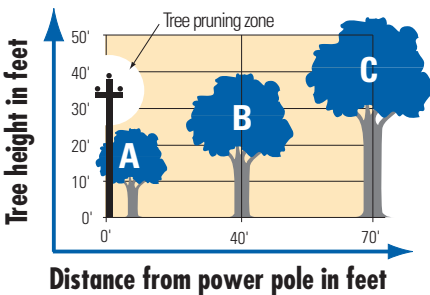
Alternatively, you can contact your One Call Center directly at the numbers listed below.

- In Iowa, call 1-800-292-8989
- In Minnesota, call 1-800-252-1166
- In Illinois, call 1-800-892-0123
- In Wisconsin, call 1-800-242-8511

Choosing where to plant

Medium to large trees should be located 15 to 20 feet from the side of a house, and 12 to 15 feet from the corner. Smaller trees can be planted closer to the house to shade walls and windows. A 6-8 foot deciduous tree planted near your home will begin shading windows the first year! Remember that trees planted in groups provide maximum shade.

When deciding where to plant, always consider the tree's mature height in relation to overhead utility lines and look up before you plant.



- A:** Small trees (less than 25 feet tall), such as crabapple, hawthorn, Japanese tree lilac, etc., and shrubs can be planted under power lines.
- B:** Medium trees (up to 40 feet tall), such as birch, honey locust, littleleaf linden, etc., should be planted at least 40 feet away.
- C:** Large trees (more than 40 feet tall), such as ash, maple, oak, etc., should be planted at least 70 feet away.

Landscaping around transformers and meters

Meters and transformers aren't the most attractive elements in your yard. But they serve a very important purpose, and for your family's safety it's crucial to make sure they remain accessible.



Leave at least a 10-foot clearance around a pad mount transformer (the large green metal boxes), and take special care to keep the doors clear. Electric, gas and water meters need one foot of clearance on each side. Do not plant vines or thorny bushes around utility equipment, and keep any type of plant neatly pruned.

Do not build any structure, such as a deck, over your meter. Meters are required to be accessible to the utility companies. As the homeowner, you would be responsible for any costs to have the meter moved to an accessible location.

Tree planting

After the area has been approved for planting, dig a hole two to three times as wide as the root ball and only as deep as the root ball. Gently place the tree in the hole. Once you make sure the tree is placed straight and upright, remove the container or cut back the burlap and backfill the hole with dirt.

Tamp the dirt down lightly as you go to remove air pockets. Add two to three inches of mulch around the tree. Push the mulch away from the trunk to prevent rot and insect damage. Water thoroughly. Your new tree needs one inch of water per week (including rain water). An easy way to remember is to use five one-gallon milk jugs full of water each week.



Tree care

A young tree should be staked only if it's in danger of falling – it needs to sway with the wind to develop a strong trunk and root system. If you need to stake your new tree, add a 2-inch square stake to the windward side, and support the trunk with wire threaded through a piece of garden hose.

To protect tender young trees from wildlife damage, surround the trunk with a length of hardware cloth or chicken wire to make it inaccessible to hungry critters!

Tree pruning

Your tree should come with a list of instructions for proper care – be sure to follow the recommendations carefully to ensure healthy growth.

Pruning is an essential part of keeping your tree healthy. Wait at least five years before pruning your new tree, and use the “one-third rule”:

- Never remove more than 1/3 of a tree's crown.
- Where possible, try to encourage side branches that form angles that are 1/3 off vertical (10 o'clock and 2 o'clock positions).
- For most broadleaf trees, don't prune up from the bottom any more than 1/3 of the tree's total height.

The illustrations show the proper way to make a pruning cut. Never cut a branch flush against the trunk, and don't leave long stubs. Remove only dead, broken or crossing branches. Tree paints or other solutions are no longer recommended for sealing pruning cuts – the wound will heal itself quickly if the cuts are made properly.

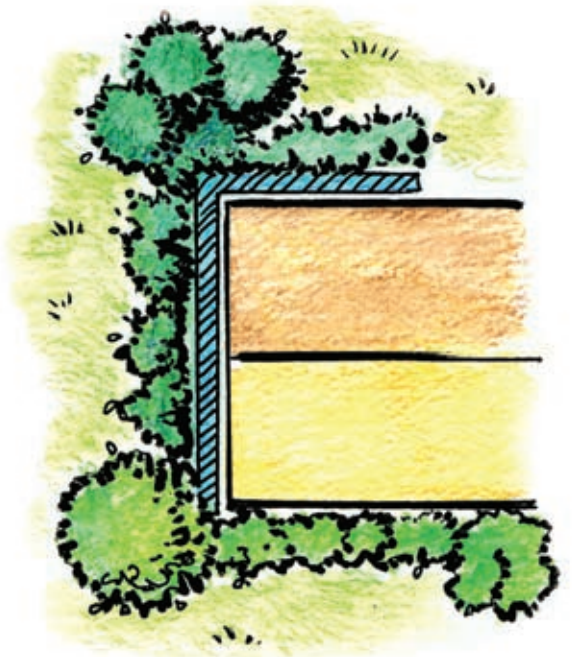


Never “top” a tree by cutting main branches back to stubs. The practice starves the tree by drastically reducing its food-making ability and makes the tree more susceptible to insects, disease and storm damage. The stubs also will sprout spindly branches that can quickly grow back higher than the original limb and require even more frequent pruning.

When you’re pruning, be sure to check for power lines first. Not only can electrical current travel through trees, but falling branches can easily catch on or knock down power lines. If your tree has power lines nearby, call a professional arborist for help.

Foundation planting

Shrubs or small trees planted along the foundation of your home will provide an insulating dead air space in winter and cooling shade during the heat of summer. When planning, allow one foot of clearance between full-grown plants and your home’s foundation. For good airflow, allow three feet between plantings and your air conditioning unit.



Shrubs planted along the foundation create an insulating dead air space

Vines for shade

When trees are young and incapable of shading a large area, vines can be used to provide shading on walls and windows. Vines will prevent direct sun from striking and heating up building surfaces. Studies show an eight degree difference between shaded and unshaded wall surfaces which is the same as a 30 percent increase in insulating value for shaded walls, and interior temperatures can be reduced by as much as 20 degrees.

Vines can shade walls during their first growing season! Although some vines will cling directly to masonry or wooden surfaces it is best to provide a trellis or arbor for them to climb on. This will help prevent damage to exterior home surfaces.

Windows as well as walls may be shaded by vines. Deciduous vines such as Boston Ivy will shield the sun during the heat of summer, and allow it to penetrate during the winter months.

A word about windbreaks

Windbreaks are an effective means to intercept and redirect winter winds. However many of us with modest urban or suburban sized lots don't have the room to plant windbreaks as they are most effective when planted a distance from the house of two to five times the height of the mature trees.



If you are fortunate enough to have the room, a windbreak of evergreens planted to the north and northwest of your home will protect it from harsh winter winds. Windbreaks are most effective when they extend to the ground, and are planted in multiple rows.

Even if you don't have the room for a large evergreen windbreak, you can still put its principles to work in your landscape. A thick hedge or open weave fence is also effective in blocking cold winter winds.



It all adds up

With a little planning, and a few well-placed plantings, a landscape that is beautiful can also boost energy efficiency and help you manage your utility costs year round. For energy savings today and for years to come, put your landscape to work for you.

If you'd like to learn more, call 1-800-ALLIANT or visit our Web site at powerhousetv.com to check out other *PowerHouse* brochures:

- 101 Easy Ways to Save Energy
- Appliance Operating Costs
- Choosing & Using Appliances
- Cooling Your Home
- Electrical Safety
- Heating Your Home
- Insulating Your Home
- Natural Gas Safety
- New Home Construction
- Power Quality and Surge Protection
- Weathering the Storm
- Weatherizing Your Home

You can also find great energy efficiency and safety tips on our website at alliantenergy.com.

For more information ...

1-800-ALLIANT

www.alliantenergy.com

www.powerhousetv.com



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