A3072

Preserving trees during construction

Stan Binnie

Wooded lots are in high demand by people seeking home building sites. The price of a building lot with trees is usually much higher than one without, and buyers are willing to pay 5 to 10 percent, even up to 20 percent more for an existing home with trees. However, home construction can damage and even kill the much-desired trees, turning them into an economic liability.

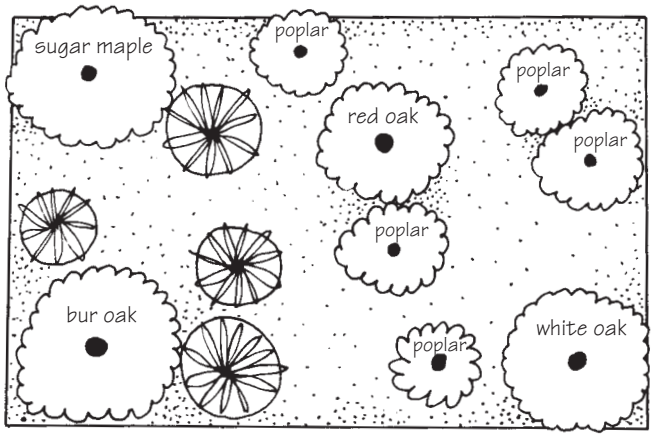
Plan before you build

Protecting the existing trees begins when you plan your home. Select a building site that is large enough to accommodate your house and still allows room for undisturbed areas of trees. Small wooded lots are not practical. Many of the trees will have to be removed to make room for the house, and the remaining trees may be damaged by grading and other activities that go with home building.

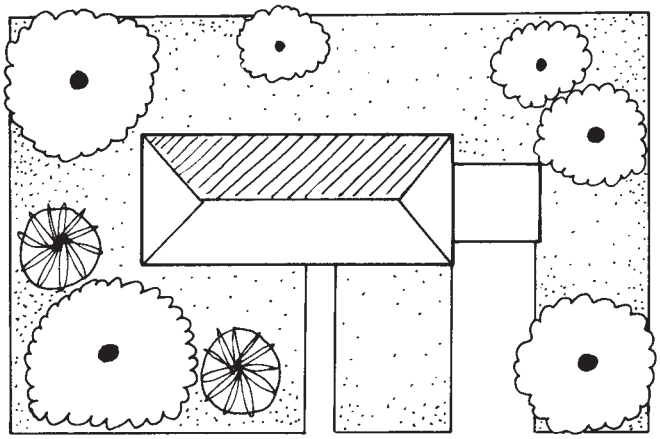
Trees vary in their ability to tolerate construction damage. Among the most sensitive are red oak, white oak, and sugar maple. These species will need more protection during construction. More tolerant trees include bur oak, silver maple, poplars, and willows. In general, young trees are better able to withstand the changes that construction brings than are large, mature trees.

Select a home design that will disturb the area around the trees as little as possible. Keep in mind the trenches dug to install underground water pipes, electric and gas service, telephone and sewer lines will damage or destroy part of a tree's root system. With your blueprints in hand, consult the different utilities to plan service installations as far from the trees as possible.

Plan your driveway to minimize damage. Locate it as far from trees as possible. Limestone gravel placed over the tree's root system will change the chemical makeup of the soil, resulting in poor growth or yellow leaf color. Paving a driveway shuts off the supply of air and water to the root system and suffocates the tree.



Trees on a wooded lot lived many undisturbed years before construction.



Before you build, work with the builder to prevent damage to valuable trees.

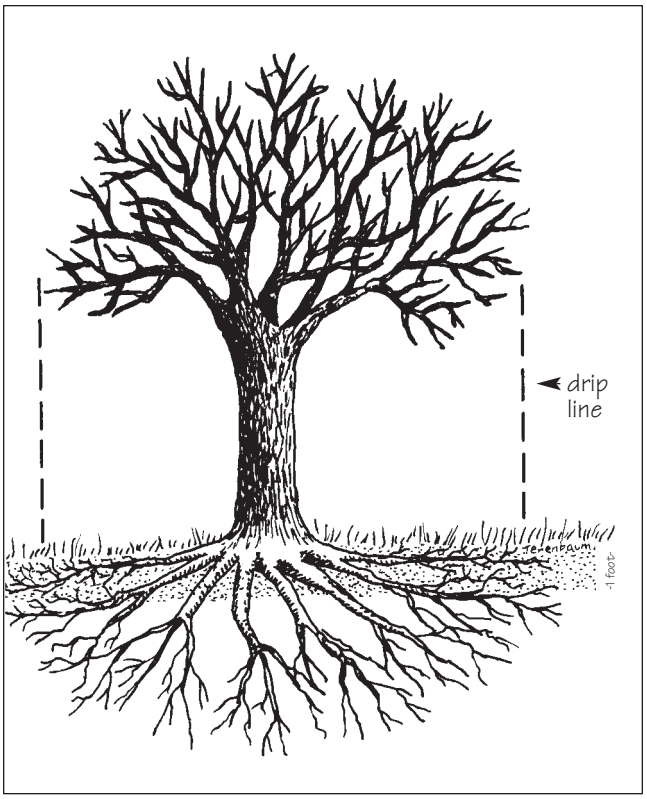
Work with builder to avoid damage

Most of a tree's feeder root system is within the top foot of soil. In fact, many roots grow in the organic litter that has accumulated under the tree. The root system extends at least as far (often farther) than the ends of the branches. Remember, mature trees have been growing in the same place for many years. The tree developed roots at a soil depth optimum for absorbing the nutrients, moisture, and oxygen that are necessary for the growth and survival of the tree. If the root zone is disturbed by adding fill, cutting away soil or moving heavy equipment over the root zone, the tree is almost sure to suffer.

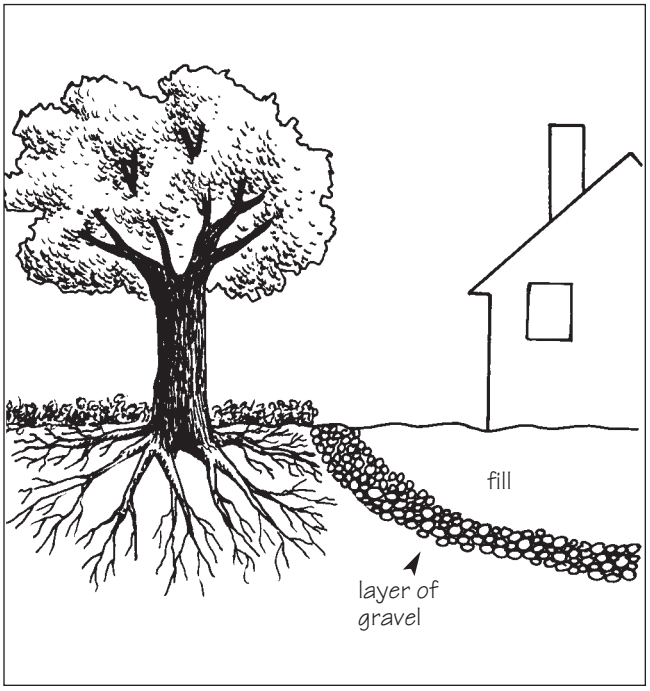
One of the most common (and most destructive) causes of construction damage to mature trees is to add soil, thereby burying the roots. When this happens, the roots lose their supply of oxygen and water. If you must add soil fill around the tree, use a porous soil, like a sandy loam, that will let the roots "breathe." Or, put a layer of gravel (*not* crushed limestone) over the root zone before adding soil. Small, circular pits dug around trees to keep soil fill away from the base of the trunk seldom preserve trees, because the soil fill outside the well covers the major portion of the fine root system. Avoid stockpiling topsoil or construction materials around trees during construction. On the other hand, removing topsoil during home construction will damage the feeder roots. Without their protective soil covering, the roots are subject to drying and injury.

Ask your contractor to keep heavy equipment away from the trees. Build a fence around the root zone if necessary. Broken branches, torn bark, and crushed roots not only hurt the tree, but make it more open to disease and insect invasion. Driving heavy equipment near trees will compact soil and damage the roots. Before construction begins, you may want to cover the root area with several inches of wood chips to minimize compaction.

If at all practical, preserve the natural habitat of the tree, both during and after construction. For example, oak trees thrive in acid soils. Their fallen leaves help create and maintain acidic surface layers of soil that differ significantly from the alkaline material below. If you clear away the natural undergrowth, establish a lawn and rake up the leaves each fall, you will eventually change the upper soil surface, and the oaks will decline and possibly die. Try to maintain the natural drainage pattern of the site. When grading changes the underground flow of water that the tree is accustomed to, the tree will suffer.



The tree's feeder roots grow in the top foot of soil and often extend as far or farther than the ends of the branches.



If fill must be placed over tree roots, put a layer of gravel over the roots before adding fill. This allows water and oxygen to get to the roots.

What to do if construction damages trees

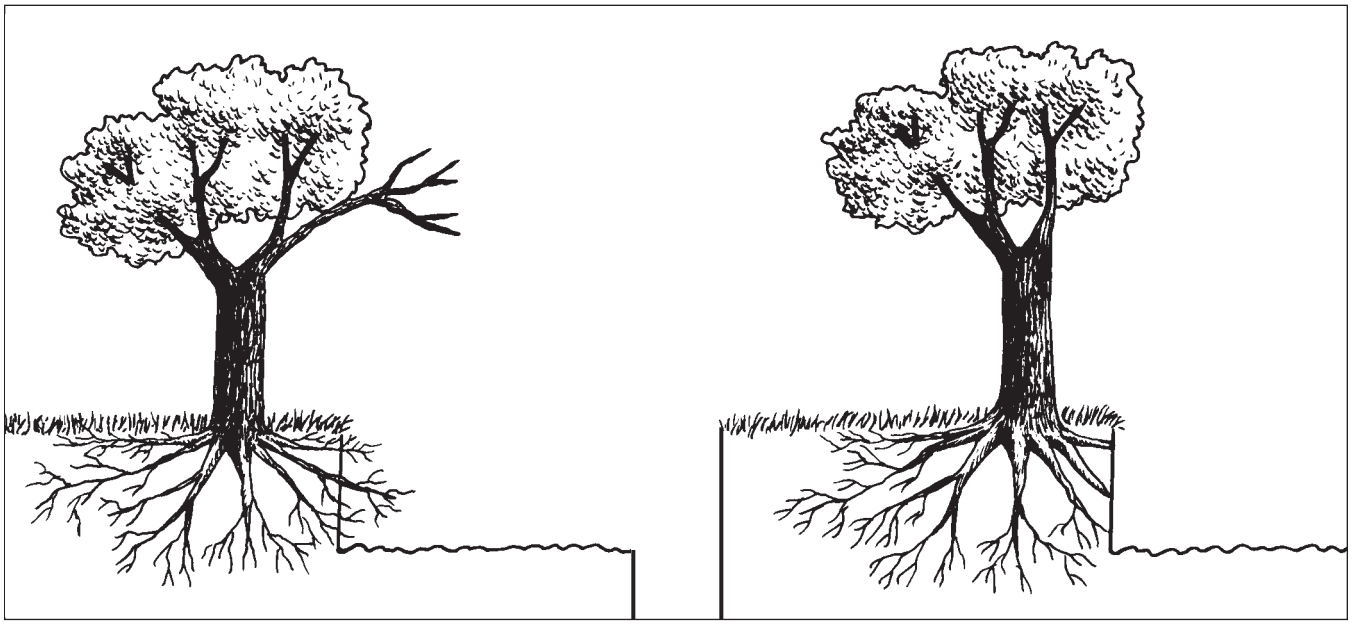
Symptoms of trees suffering from construction damage may appear the next growing season, or may take two or three years to appear. When the roots are damaged, the tree is not able to take up enough water and nutrients to feed all the branches. The result is die-back in the top of the tree and at the ends of the branches as the areas farthest from the root system begin to die. Some trees develop yellow foliage as a result of nutrient deficiencies. Foliage may be small and sparse. Tree growth may slow down.

To revitalize trees suffering from construction damage, you can thin the crown, place mulch over the root system of the tree and fertilize. Thinning the crown may be the most effective way to help a tree in decline. A tree with a damaged root system is not able to sustain all of its branches and leaves. Removing dead or dying branches will help to bring the crown to root ratio back into balance. This may increase the tree's chances for survival. However, do not remove healthy, growing branches.

Mulching with organic material, such as wood chips or shredded bark over the root zone will simulate the forest floor environment. This soft, fertile covering encourages the growth of fine roots which absorb more nutrients, water, and oxygen. Fertilizing may seem to bring trees back to life by stimulating more luxuriant foliage, but no amount of fertilizer will save the tree if root damage is extensive.

Even if no symptoms appear, give extra care to trees following construction work. Water well during dry spells and fertilize once a year in early spring or late fall.

Trees add value to your home. The cost and care of preventing tree damage during construction protects those assets to your home. For more information on preventing construction damage to trees or revitalizing damaged trees, contact your county Extension office or a local arborist.



Trees cannot support all their branches when roots are cut during construction.

Prune dead branches, thin the crown, and water, fertilize, and mulch trees damaged by construction.

Additional information

For more information about selecting, planting, and caring for trees, consult the following Extension publications:

A Guide to Selecting Landscape Plants for Wisconsin	(A2865)
Caring for Deciduous Shrubs	(A1771)
Caring for Your Established Shade Trees	(A1817)
Dutch Elm Disease in Wisconsin	(A2392)
Evergreens—Planting and Care	(A1730)
Fertilization of Trees and Shrubs	(A2308)
Landscape Plants that Attract Birds	(G1609)
Salt Injury to Landscape Plants	(A2970)
Selecting, Planting and Caring for Your Shade Trees	(A3067)

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