

Construction Problems Near Trees

Any time construction takes place near existing trees, there are a number of risks to existing plants and trees.

Trees are never the same shape below ground as they are above, so it is difficult to predict the length or location of their roots. Typically, however, approximately 90-95 percent of a tree's root system is in the top three feet of soil, and more than half is in the top one foot. The part of this root system in which construction damage should be avoided is called the Protected Root Zone (PRZ).

One common method used to identify the PRZ is to define it as the "dripline"—the area directly below the branches of the tree (Fig. 1). However, many roots extend beyond the longest branches a distance equal to two or more times the height of the tree. For this reason you should protect as much of the area beyond the dripline as possible.

Soil compaction is a potential problem. Soil compaction occurs when the soil particles are squeezed together. This reduces the amount of pore space in the soil and restricts air and water movement in and out of the soil.

A grade change during construction can either lower or raise the existing soil level. If the grade is lowered, there is the possibility that the roots of tree will be removed or exposed. If the grade under a tree is lowered two feet, most of the feeder roots are removed. When the grade is raised, an additional layer of soil is added. Most trees are intolerant of more than a foot of fill. Some trees will not even tolerate more than two inches. When soil is added, the amount of air and water reaching the roots is altered. The air movement is most critical.

If clay soil is used as fill dirt, the situation can become very serious. Often the soil excavated from the basement is spread over the site. If this soil is clay, by the time fill is added, and the lawn established, there isn't much that can be done for the trees.

Watch carefully for construction-related injury. If the injury is severe, a tree will begin to die back almost immediately. In other instances, there can be a delay of a year or more before the symptoms show up. Sometimes a tree will die completely or it may die back partially and then appear to recover and begin growing again. In other cases, a tree will decline gradually over a period of several years.

There is no cure for construction injury. It can only be prevented. Where mature trees are to be saved on a construction site, they should be protected. Any area containing mature trees should be roped off. The larger the area roped off, the better. Heavy equipment should not be driven over this area, nor should the area be used for storage of construction materials. If soil levels must be changed around trees, consider building retaining walls to maintain the soil levels around the trees. Again, the larger the area left unaltered, the better.

University of Minnesota Extension, Protecting Trees From Construction Damage: A Homeowner's Guide

The **Master Gardener Hotline** is open from April to October, Monday through Friday. Lines are available 9:00 am to noon and 1:00 pm to 4:00 pm at 888-678-3464

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