Tree Protection from Construction Damage

Trees can be damaged or killed by a wide variety of construction activities. It's not always easy to save trees, but your efforts will help. This document describes measures to minimize construction impact.

PROTECTED ROOT ZONE
First, protect roots that lie in the path of construction. Approximately 90 to 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. Construction activities should be avoided in this area. Protect as much of the area beyond the tree's dripline as possible. Some healthy trees survive after losing half of their roots. However, other species are extremely sensitive to root damage even outside the dripline.

If possible, do not disturb the Protected Root Zone (PRZ). The PRZ is defined by its "critical root radius." It is more accurate than the dripline for determining the PRZ of trees growing in forests or that have narrow growth habits. To calculate critical root radius, measure the tree's diameter (dbh) 4.5 feet above the ground. Measure in inches. For each inch, allow for 1 to 1.5 feet of critical root radius. If a tree's dbh is ten inches, its critical root radius is 10 to 15 feet.

STEPS TO CREATE A SUCCESSFUL LANDSCAPE PROTECTION PLAN:

- **Mark construction zone boundaries at the edge of the protected root zone.** Use measuring tape, stakes and string to mark them.
- **Inventory trees on the site.** Record the location, size, and health of each tree. Trees that are overmature, display poor form, lean heavily over buildings, or have insect or disease problems should be removed prior to construction. Also mark trees that need pruning.
- **Select the trees to be saved.** Note how each tree fits into the landscape. If the PRZ falls inside the construction zone, seriously consider changing the original design, adding protection measures or removing the tree before construction begins.
- **Protect the trees you plan to save**. Develop a map while working with the builder showing the location of trees to be protected and the safest route for access to the building zone. Then install bright orange polypropylene fencing and post "Off Limits" signs at the PRZ of the trees you plan to save. **SOIL COMPACTION IS ONE OF THE MOST COMMON KILLERS OF URBAN TREES.** Stockpiled materials, heavy machinery and excessive foot traffic damage soil structure and reduces soil pore space. Roots suffocate.
- **Make sure all construction workers know that nothing inside this area is to be disturbed.** A landscape protection contract will help ensure compliance. Take several photographs of the site before construction begins.
- **Prepare trees for construction disturbance.** You'll boost your trees' chance for survival if they're vigorous. Regularly water if rainfall is not adequate. Fertilize if trees are nutrient stressed. Prune branches that are dead, diseased, hazardous or detrimental to natural form.
- **Monitor the construction process.** Visit the site regularly and inspect the trees. Should damage occur, begin repairs as soon as possible. Water trees throughout the construction process.
- **Make final inspection of the site**. After construction has been completed, evaluate the remaining

trees. Look for signs and symptoms of damage or stress. It may take several years for severe problems to appear.

Other considerations during construction include site clearing, soil damage, grade changes, soil excavation and pavement installation. Work with an experienced professional urban forester or arborist, certified with the International Society of Arboriculture.

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