

TREE PRESERVATION IN CONSTRUCTION AREAS

Trees are valuable living resources that require our efforts to preserve them during and after construction. Trees increase property values, decrease heating and cooling costs, benefit wildlife and enhance our lives in countless ways. Whether we are building, remodeling, installing utilities, or constructing roads we must take into consideration the tree's requirements to remain alive and healthy. We cannot replace a monarch in our lifetime or our children's lifetime.

The consequences of not protecting trees will result in their death or decline over a period of years. The expense of removing and replanting the trees justifies the initial cost of providing protection and care during construction. A large tree removal could cost thousands of dollars, while a fraction of that may have preserved it. Protecting trees can be accomplished in ways that will not slow the construction process. The results of our efforts will be healthy trees that will provide invaluable benefits and beauty for years to come. *Tree Protection*, in construction areas, is being done with excellent results at Michigan State University's campus and in other parts of the country.

WHY TREES ARE HARMED or KILLED DURING CONSTRUCTION:

1. **90-95%** of **tree roots** are within the upper 24 inches of soil. They extend horizontally beyond one and a half times the height of the tree. This area is known as the **ROOT ZONE**. If the soils in the *root zone* are driven over by construction equipment or vehicles, **COMPACTION** occurs. This compaction eliminates air spaces, reduces root growth and increases drought stress. (*Driving over an area seven times with a tractor will compact the soil equal to concrete*). Trees need oxygen for their roots to survive. Driving or piling dirt over the root system (changing the grade) eliminates this oxygen and will slowly suffocate the tree. Because trees can live on stored food reserves, it sometimes takes up to five years before the tree dies. Soil compaction cannot easily be remedied. Prevention is the best and the most important thing you can do for your trees.
2. **Roots** support the tree structurally while providing water and nutrients to the leaves for growth. Cutting roots while trenching or excavation may result in death or die back to parts of the crown. These wounds can also be entry points for decay fungi. This can result in death or failure of the tree in high winds or storms creating an extreme liability in the future. It is highly important to protect the root system even though it is unseen.
3. Breakage or cutting of **branches** in the crown should also be avoided. When too much of the crown is removed, the tree cannot produce enough food for future growth. In this weakened state, it also becomes more susceptible to disease and insects. If pruning must be done, a professional arborist should be called. Damaging the **bark** on the trunk disrupts nutrient flow and provides an opening for decay fungi.

WHAT CAN YOU DO TO PROTECT TREES BEFORE AND DURING CONSTRUCTION?

Before construction begins, the site should have a thorough inspection by a professional arborist to determine which trees are worth saving. The meeting should also include the general contractor and property owner. Tree species have different characteristics that will determine their value and ability to survive in the post construction environment.

Valuable trees should be identified early so construction methods and appropriate levels of protection can be determined.

METHODS OF TREE PRESERVATION DURING CONSTRUCTION:

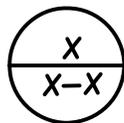
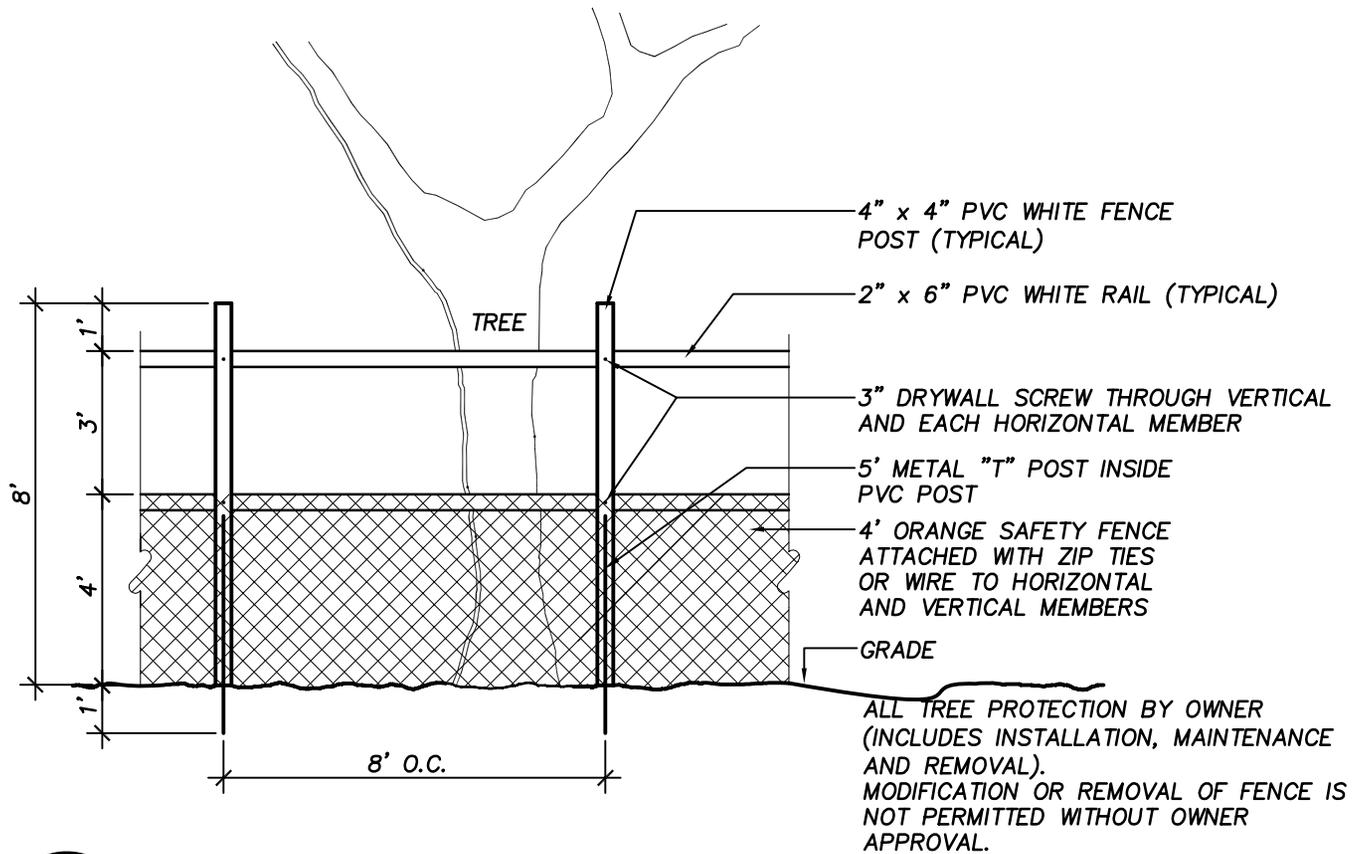
- 1. PROTECTIVE FENCING:** The “**Root Zone**” (*one and a half times the height of the tree*) should be protected from compaction by **fencing** this area around the tree. The “**DRIP LINE**” (*the area from the trunk to the branch tips*) should be fenced if space does not allow the entire root zone to be protected. If the area inside the drip line must be disturbed, an Arborist should be consulted to determine the impact to the tree, consider alternative construction methods, and provide remedial treatments. The amount of soil area the tree requires to survive is determined by the age, health and species. The minimum, “**Protective fencing**” should consist of ropes and signs, orange construction or snow fences. A better option would be a metal chain link or wire farm fence. The best for long term projects and heavily used sites is wood or vinyl 4x4 posts with 2x6 cross pieces positioned horizontally at four and eight feet. If numerous subcontractors are working on the project there is more opportunity for mistakes and damage to occur. Therefore, consider using the more substantial tree protection. Educating all of the workers on the property is very important. Once people are informed and understand the reasons trees need our protection they generally will become cooperative partners in protecting the trees. A clause in the construction contract may require restitution or fines if trees are negligently damaged.
- 2. Wood Chips** (mulch) with a minimum depth of four inches should be placed under all trees before construction begins. Start a foot from the trunk and extend to the dripline, if possible. This will help prevent compaction should a vehicle violate the protective fence. It becomes an additional layer of protection for the root system. Wood chips can be left in place after construction. They provide moisture conservation for the trees along with many other benefits.
- 3. Roads and driveways** should be located as far from trees as possible. If a temporary drive is needed in the root zone, use up to twelve inches of wood chips as base for the equipment to drive on. Research has found plywood does not provide adequate protection against compaction.
- 4. Directional boring** machines should be considered instead of trenching to install gas and electrical lines. These machines can bore under trees and roads hundreds of feet. Their expense may be offset by the minimal damage to trees and structures. There are increasing numbers of contractors using this method for installing utilities. Combine utilities in one trench instead of two or more. Trenching or digging in the root zone of a tree, should be avoided.
- 5. Monitor** the water and fertilization needs of the trees during and after construction. Thousands of trees are destroyed needlessly every day during construction. By following some of these simple steps, you can save your customers thousands of dollars and help preserve the trees for years to come.

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PVC TREE PROTECTION FENCE— BY OWNER

SCALE: 1/4"=1'-0"

11/3/06

M./LIBRARY/DETAILS/FENCES/TREEPRCT.DWG