

## Lightning Protection for Trees

It takes years and years to grow a large, magnificent tree. It takes only seconds for lightning to strike one down.

**DAMAGE:** More than half of the trees that are struck by lightning eventually die. For an unprotected tree, minimal damage may be evident of the trunk (cracking, peeling bark, etc.) while the roots have suffered considerable damage. Such a tree will probably soon wilt after being struck. For other trees, lightning may break off branches, trunks may split down the middle, or the entire tree may explode or burn. Even if lightning does not physically kill a tree, it is much more vulnerable to destruction by boring insects and decay fungi.

**CAUSE:** Trees are attractive lightning targets because they provide a better conducting path than air for lightning to travel from the storm cloud to the earth. The tallest trees in a grove, trees in open areas, trees on the edge of a grove facing an approaching storm, trees on hilltops, and trees located close to buildings where wiring or plumbing might enhance ground conductivity are likely points of discharge for lightning bolts. Contrary to popular belief, lightning will often strike the same place more than once.

The tree species most often struck are: oak, elm, pine, tulip tree, cottonwood, ash, maple, sycamore, hemlock, and spruce.

**SOLUTION:** Although a tree lightning protection system does not prevent a tree from being struck by lightning, it is possible to equip a tree so that lightning will be conducted harmlessly into the soil. A system of heavy, copper cables is installed from the highest point in the tree and from the ends of the major branches, down the trunk, and into the soil beyond the tree's main root area.



*A damaged strip of bark resulting from a lightning strike. A tree lightning protection system would have prevented this from occurring.*

Copper is a better conductor, making it more attractive to lightning than wood. If lightning were to strike the protected tree, it would actually strike only the copper and travel down the conductor cable into the ground where its energy would be safely dissipate, thus saving the tree from being damaged or destroyed.

An added benefit of a tree lightning protection system is called the cone of protection. This refers to an area beneath and around a tree that is protected from lightning strikes. Lightning that would normally strike anywhere within this area will be attracted instead to the copper protection system of the tree. The cone of protection reduces the chance of injury or damage for people, buildings, or animals within the cone.