

INSTALLATION

KEY POINTS

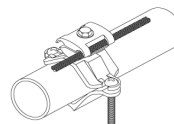
- System components are made of copper, bronze or brass alloys. No aluminum is permitted.
- Installation is provided so that all components are interconnected into one system.
- No sharp conductor bends less than 90° are permissible.
- Cable should always be installed in a downward path following the natural contour of the tree.
- Air terminals are installed as near to the top of the tree as the climber can safely ascend.
- Tree drives penetrate the tree about 1" in depth. The drive is offset approximately 2-1/2" to allow for future tree growth.
- Final Ground Connection—Installation is best when down lead cable is under grade a minimum of 8".
- For ground plates, installation is best when plate is under grade at least 18".
- Tools Needed for Installation - Channellocks, Hammer, 1/2" Box-end Wrench, Ground Rod Driver. Optional tool: Cable Stand.

Let IPC assist you with tree estimates, questions and to discuss IPC services.

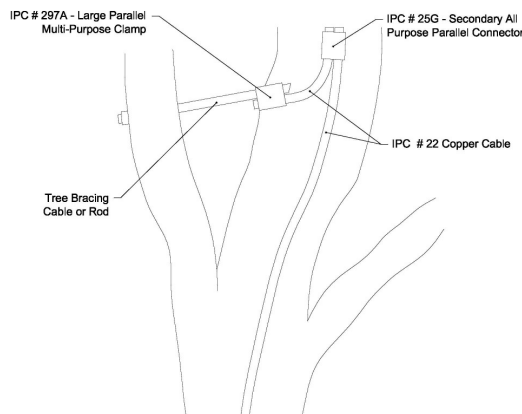
Additional Bonding Requirements

Pipe Bonds - Underground metallic gas or water pipes that are located within 25' of the protected tree, require a bond into the lightning protection system. This bond connection will equalize the potential differences and prevent any side flashes from entering the nearby structure. IPC has various pipe clamps available depending on the pipe diameter. See illustration.

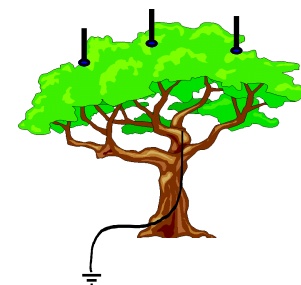
IPC Part IP-306A is depicted in this bonding example.



Cable Support or Braces - For each metallic brace or support cable, it is necessary to create a bond into the lightning protection system. This connection prevents potential damage from a side flash as the bond will equalize the potential differences. For this bond, use a length of cable (22) with a small clamp (25G) to the tree system while the other cable end extends to the bracing cable and connects using a larger clamp (297A). This connection is required in one place only for each bracing cable. See illustration.



Lightning Protection Systems for Trees



INSTALLATION TIPS & HELPS for ARBORISTS



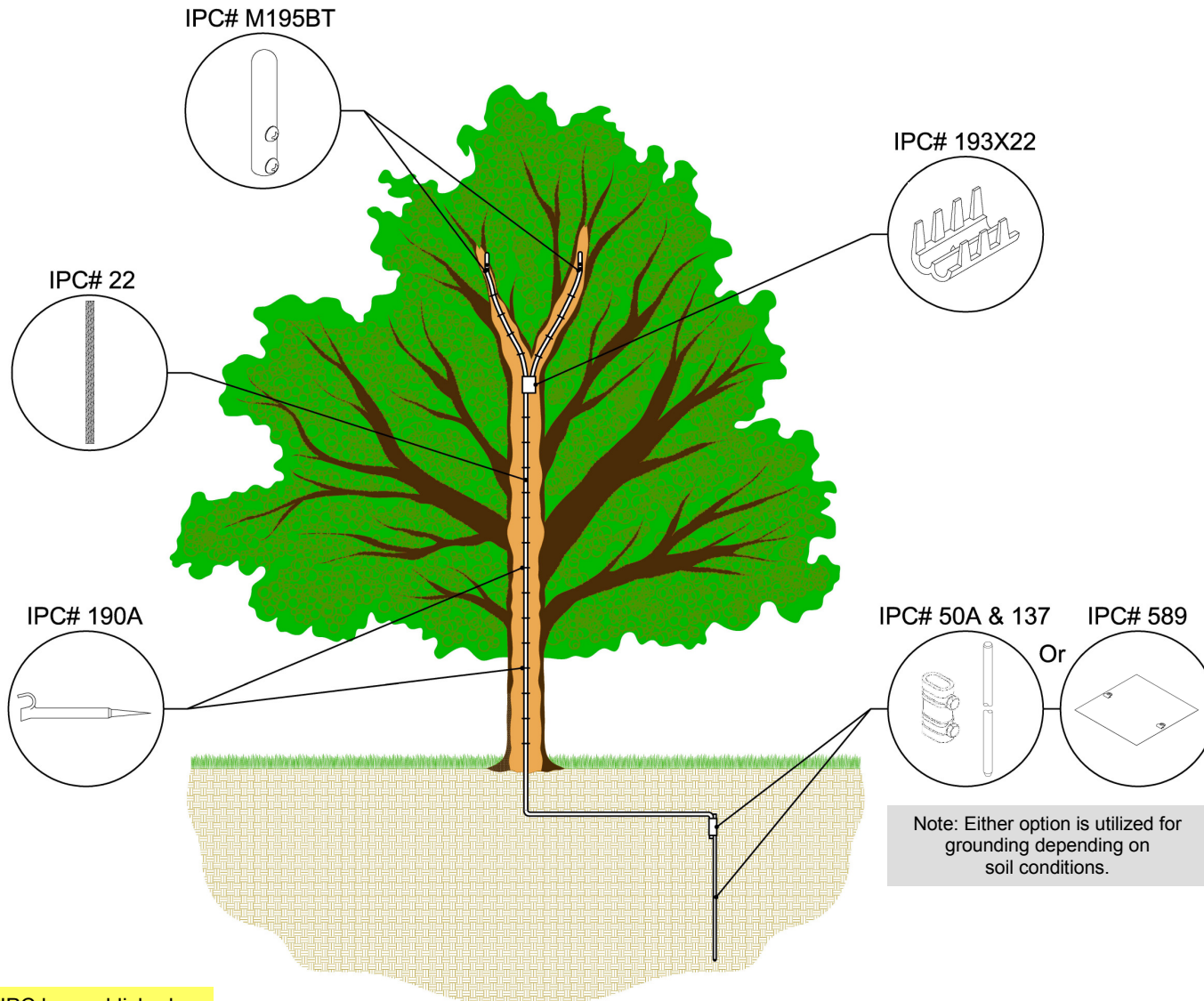
COMPONENTS INSTALLED IN A TREE LIGHTNING PROTECTION SYSTEM

Easy Tree Installation Guidelines (Ref. ANSI A300 Part 4)

Note: These abbreviated instructions are a quick overview and placement of the components. The complete ANSI A300 Part 4 Lightning Protection Standard and the ISA Best Management Practices booklet are both available for purchase from TCIA or ISA. The ANSI Standard provides the basic requirements while the BM Practices provides more how-to-do-it with commentary and illustrations. Note: For estimating purposes, IPC spaces Air Terminals at 27' (ANSI allows up to 35' in distance) and Tree Drives at 4' 6" apart (ANSI allows up to 6' distance).

Air Terminals, (**M195BT**) are connected to Cable, (**#22**) which is supported on tree by Tree Drives, (**190A**) every 3-6 feet. IPC will assist you in determining the number of air terminals if you supply the overall height and spread of the tree. Additional runs are spliced into the main cable using Side by Side Connector, (**193X22**). The main cable run follows down the entire tree trunk from the top to the base/trunk and continues out to a minimum of 10' where grounding takes. For installation where good soil conditions are present, use a Ground Rod, (**137**) and Clamp (**50A**). Where rock or shale is present, IPC recommends installing Ground Plates (**589**), as an alternative grounding solution.

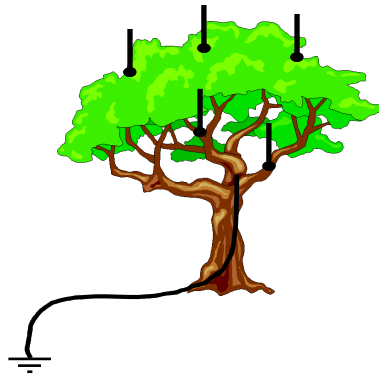
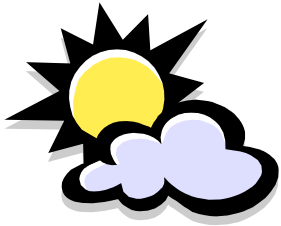
IPC provides arborists with free estimates. Required information is the type of tree, height, drip line diameter and if bracing cables are/will be installed in the tree.



IPC has published a companion brochure entitled BR0028, *Installing Your First Tree Lightning Protection System*. This brochure provides

Independent Protection Company, Inc.
ipclp.com - Toll-free 800-860-8388 - jyoder@ipclp.com

④



The discharge has now been completed and the negative cloud charge and the positive ground charge becomes zero.

**Drawings are not to scale.*



Independent Protection Co., Inc.

1607 South Main St.
Goshen, IN 46526
574-533-4116 or 1-800-860-8388
Fax: 574-534-3719
info@ipclp.com • www.ipclp.com

History & Facts

IPC is a designer and manufacturer of lightning protection systems for trees and all types of structures. We are family owned and operated, located in Goshen, Indiana and established in 1934.

Services Available

Your local Arborist is ready to assist you with lightning protection systems for your prize tree(s). In addition to the services of pruning, tree and stump removal, fertilization and other services your arborist might provide, they have elected to provide the service of lightning protection for trees.

Please call your local Arborist today to protect and preserve trees from the damage that is caused by lightning strikes. We offer Arborists immediate delivery of our product and also assist with any technical concerns or special situations. We provide copper/bronze equipment, which have been specifically manufactured for tree installations.

Contact Your Local Arborist:



IPC utilizes standards accepted by TCIA

#TR0018

How a Tree Lightning Protection System Works

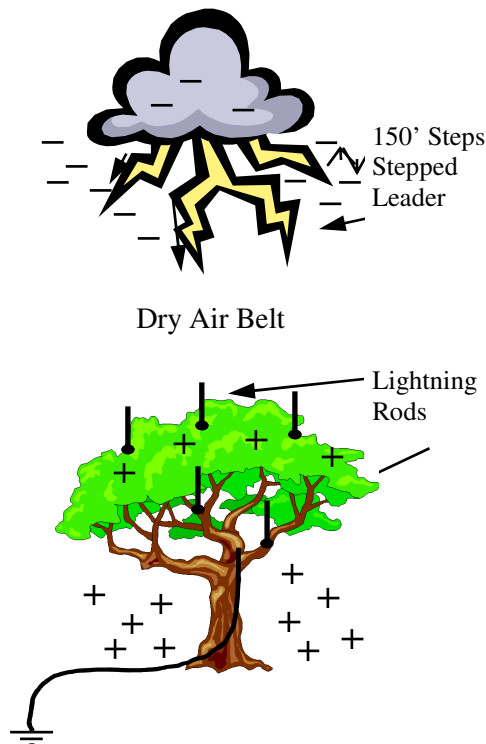
A brief explanation of what happens when lightning strikes.



Independent Protection Co., Inc.

How a Tree Lightning Protection System Works

①

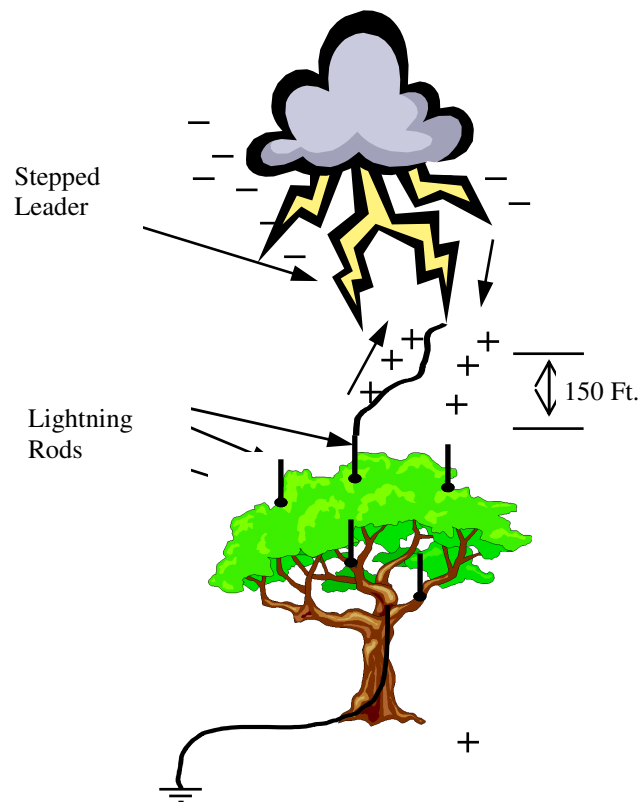


During a thunderstorm, negative charges of electrical energy build up in the lower part of clouds hovering close to Earth.

Conversely, positive charges develop in the ground, directly underneath the cloud.

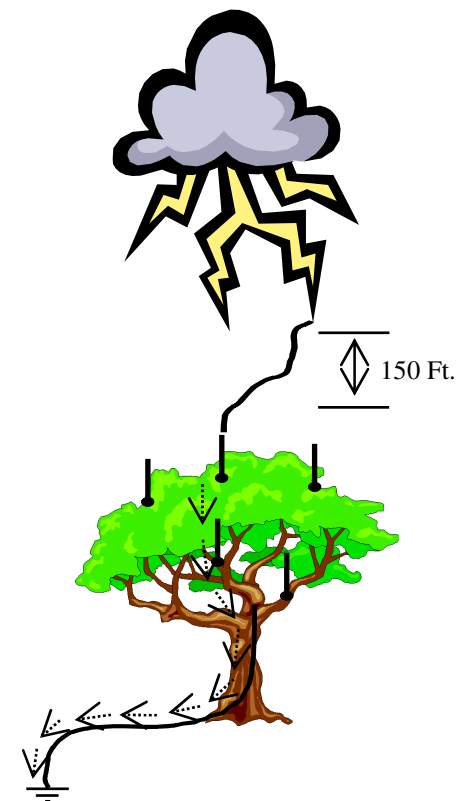
Lightning occurs when the dry air between the cloud and the ground is moistened by rain or high humidity. Lightning strikes start downward in 150 foot intervals.

②



In a lightning protection system, the positive ground charge is attracted upward through the conducting cables attached to the tree. When the negative downward stroke from the cloud is about 150 feet above the top of the protected tree, the positive ground charge leaps upward to meet the lightning bolt.

③



The two opposite charges are neutralized emptying the negative charges from the cloud and dissipating the ground charge. This all occurs in about 1/5000 of a second.