

## About the LPI

In order to ensure quality craftsmanship and proper installation, the LPI has established specific guidelines for materials, workmanship and inspection of all certified lightning protection systems. Lightning protection technology is a specialty discipline and the expertise required for design and installation is not available through many uncertified contractors or installers.

LPI-certified specialists undergo testing which helps to ensure their lightning protection system designs and installations are in accordance with national safety standards of the National Fire Protection Association (NFPA) and Underwriters Laboratories (UL). Contacting a LPI-certified professional provides the expertise and quality-control needed for safe and effective lightning protection.

## Services of LPI

### 1. Standards and Specifications

The LPI Standards Committee regularly reviews national safety standards and provides specifications for installation to assure quality and safety.

### 2. Testing and Certification

The LPI Testing and Certification Program was created in 1971 by the industry to qualify competence in lightning protection. Classifications of certification (Journeyman, Master Installer, Master Installer/Designer and Designer/Inspector) are marked by a series of examinations structured to validate the participant's level of expertise in the system design and applications field.

*The LPI-IP Program provides a third-party inspection service to ensure quality control for residential and commercial lightning protection installations. Visit [www.lpi-ip.org](http://www.lpi-ip.org) for more information about this independent inspection service.*



Yearly reapplication for all classes of membership with applicable testing is also required by the LPI.

### 3. Consumer Education & Information

This pamphlet is part of a public education program conducted by LPI designed to promote lightning protection education, awareness and safety. LPI is the leading resource for lightning protection information and system requirements. Contact the LPI office for further information about lightning safety. For additional information on how to protect your family and home, or for a list of certified professionals, please contact the LPI at 1-800-488-6864 or visit LPI on the web at [www.lightning.org](http://www.lightning.org).



## Lightning Protection Institute

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Call on the experts...  
Certified by LPI

*This brochure is presented by the Lightning Protection Institute and this member firm:*



*Today's homeowners can enjoy the security and peace of mind that a certified lightning protection system provides.*

## Lightning Protection

Lightning is perhaps the most spectacular display of the awesome force and raw power of nature.

According to the National Severe Storm Laboratory, lightning is the most dangerous and frequently-encountered weather hazard that most people experience each year.

Since 1955, the Lightning Protection Institute has been promoting public awareness of information and programs about lightning safety and has endorsed lightning protection systems in accordance with national safety standards.

## Systems of Protection

More and more homeowners are becoming aware of the need to protect their homes from a lightning strike. Increases in the number of lightning protection systems can be attributed to several factors including; the increase in underground utilities and the location of homes, the increase in high cost electronic equipment in the home and the increased concern for health and safety among homeowners and their families.

Educated consumer demands are being met by highly skilled and trained lightning protection professionals designing, installing and certifying state-of-the-art lightning protection systems for the home.

Lightning Protection is designed for two objectives. A lightning protection system shields a home and provides a direct path to ground for the lightning current to flow. It must also prevent damage to the home as the current flows through the system. Lightning protection systems keep homeowners and their property safe from lightning.

## Thunderstorms Result From a Ground/Air Attraction

Thunderstorms result from the powerful clash between cold and warm weather air masses. A cloud-to-ground lightning strike begins as an invisible channel of electrically charged ions moves from the cloud toward the ground. When one channel nears an object on the ground, a powerful surge of ions from the ground moves upward toward the cloud and produces the visible lightning strike. This interchange of oppositely charged ions from cloud to ground results in lightning striking buildings, chimneys,

trees and even humans as these charges try to meet.

A lightning protection system is designed to control or force the discharge onto a specified path, thereby eliminating the chance of fire or explosion within non-conductive parts of the house such as those made of wood, brick, tile, etc. A lightning protection system is not intended to prevent a strike. Its purpose is to provide a safe path on which the current can be safely directed to the ground.

Each year thousands of homes and other properties are destroyed or damaged by lightning strikes. Unprotected homes risk the possibility of damage by fire, explosions or electrical surges and pose a safety risk to occupants. The effects of a lightning strike can be both physically and emotionally devastating.

### *A single bolt of lightning can carry over 30 million volts of electricity.*

- The average homeowner lightning claim in the U.S. is over \$5,000, with claims rising since 2004 and losses ranging from damage to expensive electronic equipment to structural fires that destroyed entire homes.  
– *Insurance Information Institute (I.I.I.)*
- Lightning accounts for more than one billion dollars annually in structural damage to buildings in the U.S.  
– *Underwriters Laboratories, Inc.*
- Lightning can rip through roofs, explode brick and concrete and ignite fires. Roofs, sidewalls, framing and electrical wires are the areas most ignited by lightning fires.  
– *U.S. Fire Administration/Topical Fire Research*

## Protecting Your Home

Protecting your home is a matter of contacting a professional who is qualified to design and install a certified lightning protection system. A complete lightning protection system is typically made up of the following components:

- **Air Terminals** – Also referred to as lightning rods, these inconspicuous copper or aluminum rods are vertically mounted on the roof at regular intervals as defined by industry safety standards. The air terminals serve as strike receptors, designed to intercept the lightning strike.

- **Main Conductors** – Constructed of aluminum or copper, these braided cables connect the air terminals to the other system components and the grounds.
- **Grounds** – A minimum of two ground rods, driven at least 10 feet deep in the earth are required for all structures. The ground terminations direct the dangerous current into the ground, to eliminate the chance of injury or damage to the structure. Special grounding requirements are sometimes necessary in shallow, sandy or rocky soil, which are addressed in the industry safety standards for installation.
- **Bonds** – Bonding joins metallic bodies (roof components) and grounded building systems to the main conductor to ensure conductivity and prevent side flashing (lightning jumping between two objects.)
- **Surge Arresters and Suppressors** – A surge is an increase in electrical current due to a lightning strike on or near a power line or utility service. Surge suppression is installed at the electrical panel/s to prevent the entrance of overvoltages which can cause a fire. Arresters installed at electrical panels help protect heavy appliances and prevent fires at the service panel entrances. Additional devices may be needed to protect other in-house electronics. Surge protection devices are typically installed in conjunction with a lightning protection system.
- **Tree Protection** – LPI recommends that any tree taller than a home or within 10 feet of the structure be equipped with a lightning protection system. Trees do not offer protection and many homeowners choose to have trees protected for their own value. An unprotected tree in close proximity to a structure can also create a side-flash hazard to the nearby home.

*A lightning protection system provides a safe path to ground to control lightning's dangerous current.*

