

# LPI Lightning Protections



An easy to understand handout on the effects of lightning on a home.

## The Nuts & Bolts of Lightning Protection

**Key Elements Of The System**

- 1 air terminals**  
(lightning rods)  
spaced according to safety standards
- 2 down conductors**  
cables connecting the terminals to grounds
- 3 bonding**  
joining metallic bodies and roof components to ensure conductivity
- 4 grounds**  
minimum of two ground rods at least 10 feet deep into the earth
- 5 surge arresters**  
installed at electrical panels and surge suppressors provided for in-house electronics

**How Lightning Enters**

- A single bolt of lightning can carry over 30 million volts of electricity.
- A direct strike to a structure can rip through roofs and chimneys, explode brick and concrete and ignite fires.
- An indirect or secondary lightning strike to a nearby tree or power line can induce unwanted surges into a home.
- Lightning can also enter through phone, cable lines and computer modems, as well as roof projections such as weathervanes, antennas and satellite dishes.
- Home extras like irrigation systems, invisible fences and electric gates can provide a low-resistance pathway for lightning's destructive energy.

**How the System Works:**

A lightning protection system provides a specified path on which lightning can travel. The destructive power of the lightning strike is directed safely into the ground, leaving the home and occupants unharmed. A properly installed lightning protection system dissipates the dangerous electrical discharge to eliminate the chance of fire or explosion of nonconductive materials (wood, brick, mortar, tile, etc.).

**Who Can Install:**

Lightning protection is not a do-it-yourself project. Only experienced and reputable UL-listed and LPI certified lightning protection contractors should install lightning protection systems. Qualified specialists use UL-listed materials and ensure that methods of installation comply with nationally recognized safety standards of LPI, NFPA and UL.

All materials must bear the UL-listing mark for lightning protection installation in accordance with nationally recognized safety standards.

The Lightning Protection Institute • Saving Lives & Protecting Property Since 1955 • [www.lightning.org](http://www.lightning.org)