

# Protect Your Home Electronics from Lightning

*Today's homeowners have more to lose*

Take a moment to calculate the value of all your home electronic gear—televi- sions, DVDs or VCRs, computers, stereos, game boxes, printers, fax machines, telephones, security systems and other equipment typically found in homes today—and you'll quickly realize the potential damage a lightning strike could do. And it only takes one such strike to turn some of your prized possessions into toast.

Severe thunderstorms may occur only a few days each year in many locales, but when a storm does pass through, the number of strikes it produces can be alarming. Lightning takes more lives and causes more property damage than hurricanes or earthquakes.

And it doesn't take a direct strike to destroy thousands of dollars of electronic equipment. Because most electrical circuits and communications networks connect to the outdoors, a near-miss that hits a tree or other object outside a home can still wreak havoc on equipment installed inside. To minimize the risk, every home should be shielded by some level of lightning protection.

Although much about lightning remains a mystery, the technology behind lightning-protection systems has advanced considerably. These systems are routinely installed in commercial and industrial buildings, and their effectiveness is well documented by organizations such as the Lightning Protection Institute (LPI), a nationwide nonprofit organization ([www.lightning.org](http://www.lightning.org)).

Lightning protection systems do not attract lightning to structures, nor do they repel it. Rather, these systems intercept the lightning and channel the energy onto a low-resistance path. This safely discharges, or "grounds," the electrical current to the earth.

Computer and electronic stores sell surge suppressors that offer protection from sudden electrical overloads, commonly referred to as voltage surges or spikes. They may be installed in your load center where the electricity enters the home, or they may be plug-in units at the point of use. These latter units should not be confused with true lightning arrestors, however. A certified lightning protection system for a home may cost

anywhere from \$1,500 to \$4,500, but it provides a much higher level of protection. In lightning-prone areas, many homeowners have learned that they can't afford to be without this protection.

A certified lightning protection system is made up of four separate yet interconnected components that work together to form a multi-layered shield. This system includes:

- **Lightning rods** or "air terminals." These metal devices are installed on the roof to intercept and divert lightning to earth before it can affect a home's electrical circuits.
- **Grounding conductors.** Typically of heavy-gage copper wire, conductors connect the lightning rods to a ground point and form a path to carry high-intensity electrical surges away from the home.
- **Ground terminations** (electrodes) such as solid copper-clad rods or rings buried outside the home. Electricity diverted to ground through these electrodes dissipates harmlessly into the earth.

- **Surge suppressors.** These point-of-use appliances are installed in the home's electrical system or wherever electronic equipment is used and form a last line of defense against transient electrical overloads. (Remember: surge suppressors must be well-grounded to work properly.)

Lightning protection systems must be installed correctly and tested by a certified technician to ensure that all components perform correctly. Ground terminations, in particular, must be checked for resistance, which measures how effectively electricity will discharge into the surrounding earth. Soil and site conditions can vary and, if the electrical ground is faulty, the lightning protection system may not work at all. Conversely, a properly functioning electrical grounding system can actually improve the operation of electronic equipment.

For more information on residential wiring systems, visit the Copper Development Association on the Internet at <http://buildingwire.copper.org>. **HP**