Protecting Electronic Equipment From Power Surges

A little prevention could go a long way to saving $$$

Each year, electronic equipment valued in the millions of dollars is destroyed due to transient voltage surges. These surges are caused by nearby lighting strikes, or by fluctuations in the power supply from the utility company caused by routine system switching. Electrical surges enter buildings through the buildings' normal electric power service and often happen too quickly for fuses and circuit breakers to react.

Sensitive electronic equipment can be damaged by an electrical power surge. When developing a strategy to protect sensitive equipment, begin at the furthest point from the equipment and work in. Think of it as providing rings of protection from the equipment.

Within your building, begin with a properly grounded electronic system. Without this, any power surge will be difficult to guard against. The next step is to stop surges at the electrical service box where electrical power enters the building. This can be accomplished by installing a hard-wired secondary voltage suppressor. Secondary voltage suppressors can be installed as part of the electric meter, between the electric meter and the service panel, or within the service panel. There are several types of surge protectors which provide various levels of protection. The three levels of protection in order of reliability are:

- ✓ Silicon avalanche diode based suppressors
- ✓ Metal oxide varistor (MOV) based suppressors
- ✓ Gas surge arrestors

These hard-wired units keep surges caused by lighting or utility switching from entering the building. Surge suppressors should be tested by an independent testing facility using a qualified electrical contractor.

Once the outside surges are taken care of, protection should be provided for electrical voltage fluctuations caused by switching equipment on and off within the building. Everyone has witnessed the short change in brightness of lights which occurs when nearby electrical motors switch on and off (air conditioners, washing machines, etc.). These surges are best handled through small units plugged into the wall at the point where equipment is used. Plug-in units are designed to fit into office environments and can provide the protection necessary for surges generated by equipment on the same branch circuit. These suppressors should also be tested by an independent testing facility such as Underwriters Laboratory (UL Standard 1449).

In many cases, a few dollars of protection can prevent thousands of dollars in losses to electronic equipment. For advice on manufactures and the numerous products available, consult a reputable electrical supplier or your local utility company.