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## LOSS CONTROL TOOLS

# Surge Protection

Modern electrical systems are prone to power surges, which are a major cause of damage and fire to electrical equipment and appliances. Power surges can be caused by internal sources such as equipment starting and load cycling; short circuit faults and faulty wiring; as well as by external sources such as utility activity, power fluctuations, transformer failures and lightning strikes. The most effective way to protect a facility's equipment from damaging power surges is to ensure that proper surge protection devices (SPDs) are installed at both the building's main incoming service panel and at the individual piece of equipment or appliance.

To protect your electrical and electronic equipment, the following is recommended:


- Engage the services of a licensed electrician to install surge protection using a tiered or layered approach.
- Have a type 1 device installed at the line side of the main service panel (building entry SPD) to protect the entire building's electrical system.
- Secondary surge protection can be accomplished by installing a type 2 SPD at the load side of the main service panel, which will protect equipment from internal power surge sources.
- At a minimum, type 3 SPDs (i.e. power strips) should be installed to protect individual equipment, computers, electronics and systems.

Consult with a licensed electrician to plan and install these devices based on the specific needs of the facility. To ensure the devices are properly designed and installed, it is recommended that they at least comply with the following:

1. UL Listing (UL 1449 Revision 3) .The following terms do not indicate adequate surge protection: "UL tested," "meets UL," and "UL." The surge protector should indicate that it is "UL listed."
2. For a plug strip, the clamping voltage should be UL 330 volts, the surge-current rating should be at least 36,000 amps, and the joule rating should be at least 360 joules.

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3. For permanently installed surge protection, the clamping voltage should be no more than UL 400 volts, the surge-current rating should be at least 36,000 amps, and the joule rating should be at least 360 joules.
  4. Failure indicator light or buzzer
  5. Status light (for indicating proper wiring and grounding)
  6. Recessed on/off switch on strip surge protectors
  7. Multi-mode protection (line to neutral, line to ground, neutral to ground)
  8. Adequate plug spacing (wide enough to plug in power supplies if needed)
  9. Point of use surge protection devices should incorporate phone/modem and/or coax protection to cover all plug-in connections and any given piece of electronic equipment

While there is a cost involved in implementing these recommendations, doing so will mitigate the potential for losses due to power surges, saving the deductible expense as well as the soft costs associated with handling the aftermath of such incidents. In addition, preventing losses will help maintain favorable loss history and protect against the impact of losses on the cost or availability of insurance in the future.

*These discussions are not intended to represent a comprehensive review of all of the possible causes and preventive measures for losses from power surges, but are offered for general information purposes. If you need more information, please feel free to contact us.*