# THINK SAFETY

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## Electrical surge protection

Businesses routinely experience power surges and typically don't notice when they happen. However, modern equipment is becoming more susceptible to power surges that can lead to severe damage to machines, data loss to computers and, in extreme instances, fire. Understanding the benefits of surge protection can help proactively reduce the risk of loss due to power reliability and power quality issues.

### HOW TO REDUCE THE RISK OF LOSS FROM A POWER SURGE

Contact a licensed electrical contractor with experience in the selection and installation of surge protection in businesses such as yours.

Quality surge protection will be installed in a layered approach, which will likely include:

- Type 1 (building entry surge protection device or whole building surge protection). Aimed to address external power surges, this type of device is typically mounted on the line side of the main incoming electrical service panel.
- Type 2 (secondary surge suppressor). An important layer considering the high percentage of internal power surges, this device was built for both internal and external surges. It's installed in electrical panels to safeguard branch circuits and associated equipment.

### WHAT IS A POWER SURGE

Power surges never last long, happening in nanoseconds, microseconds or milliseconds. They occur when wiring voltage jumps to 110% or more above normal.

An interesting fact is that 60-80% of surges start inside, often due to powering on and off large equipment during business operations. Internal power surges can also be caused by loose or damaged wiring.

Power surges that start outside (external surges) can be caused by the utility company re-routing electricity, excavations that hit underground cables or lightening strikes.

- Type 3 (point-of-use device). This surge protection device is the most common. Surge-sensitive electronics can be plugged into this type of protector that looks similar to a power strip. But take note, not all power strips are surge protectors.

## WHAT TO LOOK FOR WHEN BUYING SURGE PROTECTION

- A label with a UL 1449 3rd Edition listing. (Some protectors may be marked as UL tested or UL approved — those are different than UL listed.)
- A device that matches your building's nominal operating voltage (Vn).
- Lower clamping voltage (Vpeak) is better, as this is the point when the device will divert electricity to the building's grounding system.
- A higher rated maximum discharge current (Imax), as this is a sign of how long the device will last.

## ELECTRICAL CONTRACTORS INSTALLING SURGE PROTECTION

- Should evaluate your building's grounding system resistance and incoming power quality before installation.
- Should have experience installing surge protection for your type of electrical service and class of business.

**Sources:**

NFPA

*Mutual Boiler Re® Hazard Guide Power Surge*