



**FESHCom**  
**Electrical Safety Subcommittee**

ESS Determination D2014-03 05-May-2014

## **Power Sources for Printers and Copiers**

Copiers and printers that use the Xerographic image process use relatively large amounts of electricity during the printing cycle. Xerographic printers and copiers are distinguished by the use of toner powder as ink. These copiers and printers use either light energy reflected from the original document or microprocessor-controlled lasers or light emitting diodes (LEDs) to create the desired image on the paper using the toner powder. The printer then uses a hot-surfaced fuser drum to permanently melt, or “fuse,” the toner powder onto the paper. Heating the fuser drum uses in excess of 1000 watts, and the paper transport mechanism and printer controls further increase the power requirements of these printers and copiers.

It is important to avoid overloading receptacle circuits and relocatable power taps, also commonly called RPTs and power strips. The circuit breakers and fuses that protect common receptacle circuits are designed to tolerate transient low-magnitude overloads and will allow currents that are twice their rating to pass for 7 to 10 seconds before tripping. Lower levels of overloads are tolerated for longer periods of time, up to nearly 5 minutes for minor overloads. Printers that are only used for small and infrequent printing jobs may cause brief overloads that remain within the tolerance of the fuses and circuit breakers.

All Xerographic copiers, and Xerographic printers that serve multiple people or are used to generate long documents or multiple copies, must be plugged directly into a wall receptacle. Xerographic printers that are used by only one person who does not use it to print long documents or multiple copies may be powered through an RPT that otherwise serves only low power computing loads. If the operation of printer causes a circuit breaker to trip, alternate means of powering the printer or other loads on the affected receptacle circuit must be found. Copiers and printers that use other printing technologies, such as inkjet, dot matrix, and thermal transfer do not have similar high power requirements and are not subject to this restriction. Exceptions to this determination are subject to approval by the AHJ.