

From the Editors Personal Files: Focus on one of the most frequently asked questions – **DAISY CHAINING**

RELOCATABLE POWER TAPS (RPT'S); Common Name: POWER STRIPS

I am often asked why I have enforced a NO DAISY-CHAINING policy and found that it is usually followed by a “show me the regulation”, question. On the one hand, it’s quite simple, just refer the questioner to the International Fire Code—2003 (IFC), Sections 605.4.1 and 605.2. (Note that it’s not a new regulation. The following has been around back through various Uniform Fire Code (UFC) revisions prior to adoption of the International Codes which continue to regulate the “no daisy-chaining” requirement.

605.4.1 Power tap design. Relocatable power taps shall be of the polarized or grounded type, equipped with overcurrent protection, and shall be listed. *[The key word here is “Listed” which is a means of complying with the National Electrical Code (90.7, 110.2, 110.3) and OSHA (1910.303(a) & (b) for acceptability of equipment. OSHA (1926.403(b)(2) also establishes uses limited to the listing. Note, however, that RPT’s are not permitted on construction sites or similar because they are limited to indoors, dry locations and light loads only.]*

605.4.2 Power supply. Relocatable power taps shall be directly connected to a permanently installed receptacle. *(Note that this requirement means the plug can only be connected to a proper “wall” receptacle or branch circuit outlet. This totally excludes plugging the power strip into another power strip or extension cord.)*

So, can “Power Strips” be daisy-chained: **NO!** Lets walk through the sequence establishing daisy-chaining as “non-compliant.”

NEC Article 90-7: Examination of Equipment for Safety (Generally permits examinations by organizations such as UL.)

NEC Article 110.2 Approval (Equipment is only acceptable if approved.)

NEC Article 110.3 Examination, Identification, Installation and Use of Equipment. (Establishes a foundation for mandatory examination permitting only approved equipment to be placed in use after proper examination and Listing, et al.)

UL 1363: Relocatable Power Taps This is the Standard under which the RELOCATABLE POWER TAP (Power Strip) is examined, tested and Listed by Underwriters Laboratories under Product Category XBYSS . This is where the fundamental intent for use and installation of the RPT is outlined by the Standard. With this Category (XBYSS) and the File Number (EXXXXX) off the Power Strip you can search the UL Web Site for a complete description, use restrictions, design and more. Here you will find that cord-connected RPT’s are NOT permitted to be connected to OTHER cord-connected RTP’s (Part 1.7). This UL search will also list all other UL Standards that apply to the base standard, UL 1363.

Enforced by OSHA:

29 CFR 1910.303 (b) (2) Installation and use: Listed or labeled equipment shall be used or installed in accordance with any instructions included in the listing or labeling.

29 CFR 1926.403 (b) (2) Installation and use: Listed or labeled equipment shall be used or installed in accordance with any instructions included in the listing or labeling.

The following outlines other important facts or “nice-to-know” items, presented in an abbreviated fashion:

- For RPT’s with flexible cords, OSHA’s 1910.305 (g)(1) outlines uses of flexible cords.
- RPT’s are not extension cords and their flexible cords tend to be short, usually well under 15 feet.
- RPT’s that provide electrical surge protection and filtering are called Transient Voltage Surge Suppressors or simply TVSSs. Although these TVSSs are Listed under a different UL Standard (UL 1449), they are treated the same for OSHA purposes. Vulnerabilities include (a) an open neutral, (b) when used with equipment with signal connection (CATV), phone line, data line, or control wiring in addition to AC power. RPT’s with Surge Protection (must be marked “SA”) will provide full protection minimizing these vulnerabilities. Surge Arresters which work by shorting high voltage surges to ground (same as TVSSs) are regulated by NEC’s Article 280. TVSSs are regulated by NEC’s Article 285.
- TVSSs work via a metal-oxide varistor (MOV) or “variable resistor” which increases in resistance as the current through it increases, thereby blocking the temporary high-voltage surges caused by lightning strikes or utility switching transients that might damage attached equipment.
- RPT’s cannot be permanently mounted. If removable without the use of tools, you can secure them in place.
- RPT’s with “circuit interrupters” cannot be viewed as having a “circuit breaker” which is tested more severely.
- RPT’s are not designed for high power loads like space heaters, microwave ovens or refrigerators.
- RPT’s are NOT Listed for use with General Patient Care areas or Critical Care areas. See NEC Article 517.

Bottom line: Misuse has frequently led to fires and property damage.

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