



ELECTRICAL CURRENTS

Newsletter from the Office of the Chief Electrical Inspector

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● CPSC Counterfeit Circuit Breakers Alert!

The Consumer Product Safety Commission has announced a recall of counterfeit circuit breakers labeled as Square D. About 371,000 units were distributed by Specialty Lamp International Inc., of Deerfield Beach, FL, from May 2005 through June 2006.

Actual Square D circuit breakers have: (a) the amp rating written on the handle in white paint on the front of the breaker (*authentic Square D circuit breakers manufactured prior to 2003 did not have white paint on the amperage numbers*); (b) the Square D insignia molded onto the breaker side; and (c) a yellow chromate mounting clip with half of the top of the clip visible. If your breaker, labeled as Square D, does not match this description, it could be counterfeit.

For additional information, contact Specialty Lamp at (866) 650-3076 between 8 a.m. and 5 p.m. ET, by email <mailto:bart@specialty-lamp.com>, or visit the company's Web site at www.ebulb.net.

Safety Tip of the Month!

Stand clear when operating any electrical overcurrent device (even behind a cover). Devices fail, short circuits occur, and such failures may result in arc flash injuries.

● Identifying Disconnecting Means For Septic Pumps And Their Controllers.

Many simple residential septic pumping systems are being installed with a single-pole disconnect switch upstream from a listed indoor/outdoor alarm enclosure that serves as a junction (and testing) point for the motor and alarm circuits. When "within sight" of the motor or controller location (i.e. the servicing access hatch to the pump motor and pump controller/float switch), this will satisfy the requirements of NEC 430.102(A) and (B). This configuration "appears" to disconnect everything downstream, but many installers opt to feed the alarm and high-level alarm float switch from a separate power source. Typically the required disconnect identification plate (NEC 110.22 and WAC 296-46B-110(3)) is minimal and says "SEPTIC", "PUMP", "SEPTIC SYSTEM", "SEPTIC DISCONNECT" or something equally non-specific. If there are two power sources, this creates a potentially dangerous exposure to an individual performing repair or maintenance on the system.

If the disconnect switch (single- or two-pole) actually de-energizes all circuits associated with the system, then abbreviated labeling is adequate. If it does not, then the identification plates must be detailed enough to identify that only the pump motor and controller/float switch are disconnected **and** the alarm circuit and its float switch are powered from a separate source.

● Free Recycling For Mercury Thermostats

The Washington State Department of Ecology (Ecology) is offering a free recycling program for mercury thermostats. Electrical contractors who remove old mercury "t-stats" can join a free program to help to keep mercury out of the environment. Each of these devices can contain between three and five grams of mercury.

Mercury is very toxic and a big problem once it gets into the environment. While sealed metallic mercury is fairly safe to deal with, mercury vaporizes, even at room temperature, and the vapor is toxic to breathe. Children and fetuses are especially vulnerable to the effects of mercury. It can damage the brain and nervous system, as well as kidneys and other organs.

The good news is that Ecology and thermostat manufacturers are picking up all costs for a new mercury thermostat recycling program. They are asking electrical contractors to join in the effort to keep mercury t-stats out of the trash and out of the environment. Here's how it works: Ecology will get you set up with a free recycling bin. Electricians in a shop collect old mercury t-stats whenever they do a change-out or upgrade. When they return to the shop, they place the **entire unit** in the bin. When the bin is full, tape it shut, slap on the label, and it goes out the door with the shipping pre-paid and a new bin is sent to you free of charge.

To sign your business up for this program, or for a list of current mercury thermostat recycling sites, contact Michael Bergman at Ecology: 360.407.6243; mber461@ecy.wa.gov.

● Cautions About Installing Your Own “Green” Power Source

As fossil fuel costs rise and we learn more about global climate change possibilities, we are hearing the term “green” power from many sources. Many individuals want to participate in solutions and even have the option of voluntarily contributing to “green” power sources via their utility bill payments. Consumers should be cautious in their decisions if considering the purchase their own “green” power production equipment.

Electric utilities need two types of power - one for base load, the other for peak loads. The solar and wind driven systems (alternatives to nuclear, hydroelectric, and fossil fuel burning generators) are not continuous and often vary inversely with grid power needs.

Grid-tied solar power production systems and equipment on private property have a long history of successful use supplying small-scale base load in the US and many European countries. Nearly all of this equipment available in the US has been properly tested for electrical safety and been listed by electrical product testing laboratories. Investment payback time claims vary by manufacturer, but cost-per-watt of capacity continues to decrease as solar panel manufacturing processes improve.

Consumer-owned small wind turbine generating equipment is a relatively new industry and some manufacturers have not had their equipment tested and listed by electrical product testing laboratories or engineer review. They are placing the responsibility on their customers to have the equipment evaluated for safety, a practice that most electrical equipment manufacturers avoid. Typically, only one-of-a-kind equipment requires the level of inspection being required of customers with these unapproved wind turbine installations.

For the protection of utility line workers, neither wind nor solar grid-tied power systems are capable of supplying power to the property when utility power fails.

At this time, “green” power is very expensive when compared to other generating sources. The most effective energy saving measures are often the simple, not so obvious, changes people can make like: replacing incandescent bulbs with energy efficient bulbs, turning down the thermostat and turning off the light when nobody is in the room.

● Lightning Protection Systems

To install Lightning Protection Systems (LPS) without being a licensed electrical contractor, you must be a registered general contractor under chapter 18.27 RCW. If you are not a licensed (01) electrical contractor, the only electrical equipment or conductors you may install are the conductors detailed in *NFPA 780 – Standard for the installation of Lightning Protection Systems*. You may make the required (NEC 250.106) inter-system bonding connections to building structural steel, reinforcing steel in concrete encased electrodes, metallic piping systems, and premises made electrodes of rods, pipes or plates.

You may not install any of the required components of the premises grounding electrode system or terminate the LPS conductors on any electrical system equipment enclosures, boxes, or raceways. You may not terminate the LPS conductors on the premises grounding electrode conductor. Any termination of lightning protection system conductors on a premises grounding electrode conductor must be done by an electrical contractor. The electrical contractor doing the termination work is responsible for permitting and inspection of this connection. Other than the connection to the premises grounding electrode system, electrical work permits and electrical inspection will not be required for the installation of NFPA 780 Lightning Protection Systems.

● Electrical Question of the Month

This Month’s Question: Individuals learning the electrical construction and maintenance trade (under the requirements of electrical contractor licensing and electrician certification), must have a current electrical training certificate: **A)** only when they are enrolled in a formal apprenticeship program [under RCW 49.04], **B)** constantly while enrolled in an approved electrical training program, **C)** only when working in the field for an electrical contractor, **D)** only after completion of the electrical training program, before they apply to get credit for the school.

May’s Question: A medical device approved under US Public Law No. 94-295, 90 Stat. 539: **A)** is exempt from inspection of the supply circuit, **B)** is required to be listed, **C)** is compliant with state electrical laws (RCW 19.28), **D)** must be serviced by a certified electrician.

Answer is: C) [RCW 19.28.371]