

Appliances and Personal Heaters in County Facilities

CTSI recommends extreme caution in determining how and where small appliances and personal heaters are used in county facilities. These items can cause fires by overloading a facilities electrical system. They can also County Pool has suffered several large fire losses by malfunctioning appliances, another by a candle inadvertently left burning on an employee's desk. We recommend all Member County's enlist the help and guidance of a facilities professional or licensed electrician and suggest the following steps be used as a starting point in managing this considerable risk:

- Electrical appliances should be restricted to a centrally located kitchen or break area, limiting the number needed to adequately serve employees in any building or facility. Personal appliance use outside this central area is discouraged.
- The number and type of appliances will depend on the number of users, but might include one or more commercial grade coffee makers, a single toaster or toaster-oven and one or more microwaves. All should be equipped with appropriate protective circuitry from the manufacturer.
- Newer appliances have protective circuitry such as auto shutoff and failsafe breakers incorporated into them by the manufacturer. These disable the appliance if it is tipped over, overheats or otherwise malfunctions and are highly recommended.
- Wiring in the area where the appliances are located should be equipped with grounded outlets and 20 amp breakers that are professionally installed. A facilities professional or licensed electrician should determine if the number and type of devices can be handled by the circuits supplying the area. (* see excerpt below)
- Limit the use of extension cords and prohibit plug multipliers. If the number of appliances in a designated centrally located area requires additional

outlets, these needs to be professional engineered and installed.

- If the centrally located kitchen or break area has a sink, all electrical outlets within six feet of that sink must be protected by a Ground Fault Circuit Interrupter (GFCI).
- A facilities official or a specific designated person(s) should check the cooking area at the end of each work day to assure all appliances are turned off. It is extremely important this check be extended to weekends and holidays, especially if employees are allowed flexible work schedules.
- Personal heaters should be considered extreme fire hazards. If allowed, these must be equipped with protective circuitry to guard against tip-over and overheating. Older models seldom have these features. If allowed, keep these devices in the open, away from combustibles. Arrange for periodic monitoring by a facilities official.
- Candles or similar items with open flames should be forbidden in all county facilities.

* **Outlet Overload** (excerpt from HowStuffWorks.com)

What This Means for Counties

How many appliances or devices are too many? A simple calculation is all that is needed. The formula is Wattage divided by Volts = Amps ($w/v = a$). To illustrate, total the watts of power required by all the appliances on a single circuit...say it totals 2,000 watts. Divide that number by the volts in your facility (usually 120) and you come up with 16.6 amps of current. With a 20 amp electrical outlet, you're using around 80 percent of the available current, which is the most you should be using per circuit. It is best to have a professional electrician perform this calculation for commercial buildings.

For more information, contact CTSI at 303-861-0507.