

# Lighting fires – literally!

There is an emerging trend in fires started by defective or poorly installed light fixtures. These fires have been across a range of industries and lamp types, and some suggestions are noted below to improve your risk prevention.

## Fluorescent Lights

Fluorescent lights are present in most workplaces and generally have a good fire safety record. This does not preclude them from problems and, indeed, there have been a number of fires attributed to failing fluorescent fixtures. The problem is that the lamp ballast (a small transformer mounted in the light fixture base) can fail.

Because a failing ballast can get extremely hot, it can become a fire hazard. All modern magnetic ballast designs have an internal temperature sensor that shuts the ballast off when it gets too hot. In most designs, when the ballast cools off, the sensor will allow the ballast to turn back on.

A fluorescent fixture where some or all of the lamps shut off by themselves, and later come back on, is probably a fixture with a failing ballast and should be attended to by a licensed electrician. More recent electronic ballasts with 'inherent overload protection' are now available. These units are designed to shut down when they fail and appear to be less prone to over heating hazards.

## High Intensity Discharge Lights (HID)

High Intensity discharge lights (also known as metal halide lamps) are commonly found in warehouses, factories and large retail spaces. These lamps include the yellow sodium lights, as well as the bright white halide lamps. They all run at significantly high temperatures and can start fires if too close to combustible materials. These lamps can fail violently due to their high internal pressure. If the fixture has no secondary containment (eg a lens, bowl or shield) then the extremely hot pieces of debris can fall down onto people and property below the light, likely resulting in serious injury, damage and possibly causing a major building fire if flammable material is present. Although the frequency of failure is relatively low, the consequences are serious. There are several precautions that can be taken to reduce the risk:

- Use only well designed lamps from reputable manufacturers and avoid lamps of unknown origin.
- Inspect lamps before installing to check for any faults such as cracks in the tube or outer bulb.
- Replace lamps before they reach their end of life (ie. when they have been burning for the number of hours that the manufacturer has stated as the lamp's rated life).
- For continuously operating lamps, allow a 15 minute shutdown for every seven days of continuous operation.
- Relamp fixtures as a group. Spot relamping is not recommended (ie. replace all the bulbs at once).

Also, measures can be taken to reduce the damage caused by a violent lamp fail:



- Ensure that the fixture includes a piece of strengthened glass or polymeric materials between the lamp and the area it is illuminating. This could be incorporated into the bowl or lens assembly of the fixture.
- Use lamps that have a reinforced glass shield around the arc tube to absorb the impact of flying arc tube debris, preventing it from shattering the outer bulb. Such lamps are safe to use in 'open' fixtures. These lamps carry an 'O' designation on the packaging reflective of American National Standards Institute (ANSI) standards.

### **Down Lamps**

Down lamps are mostly found in the home but are also in retail and office installations. Most down lights (be they halogen or incandescent) run very hot and require adequate ventilation to function safely. The majority of fires involving down lights have been caused by poor installation. Installers have failed to provide adequate separation or to install appropriate shields over the fixtures. This allows the lamp to ignite combustible materials in the ceiling space, leading to a number of major fires.

Solutions are to inspect and modify defective installations or replace the fixture with a low temperature compact fluorescent or LED alternative.

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