



## SAFETY ALERT

Subject: Potential Dangerous Failure of Metal Halide Lamps Installed In Open Type Luminaires.

Number: 08/12

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Who Should Read this: Top Level Budget Holders, Prime Contractors, Private Finance Initiatives, Public, Private Partnership and other traditionally procured contracts, Project Managers, Site Estate Authority Teams and Property Managers with responsibility for MOD projects and Property Management Works Services (including the legacy work of EWCs/WSMs), Coordinating Authorising Engineers, Authorising Engineers Electrical, Authorised Persons Electrical and Designers, Installers and Maintainers of final electrical distribution equipment.

When it takes effect: immediately

When it is due to expire: When updated or rescinded.

### 1. Document Aim.

To alert all personnel responsible for maintaining lighting systems of a potentially dangerous failure mode intrinsic to metal halide lamps, typically used in high bay and floodlighting applications.

## **2. Introduction.**

- a. COMPLIANCE WITH THE CONTENTS OF THIS ALERT WILL ENABLE COMPLIANCE WITH THE HEALTH & SAFETY AT WORK ETC ACT 1974 AND ITS SUBORDINATE REGULATIONS.
- b. The appropriate MOD officer shall arrange for the Maintenance Management Organisation (MMO) contractor to carry out all actions in accordance with this Alert.
- c. Any work required as a result of this Safety Alert must be carried out in accordance with JSP 375 Volume 3 – MOD's Safety Rules & Procedures.
- d. On MOD Establishments occupied by United States Visiting Forces (USVF) responsibility is jointly held by USVF and DIO (USF). At base level this jointly managed organisation is to take appropriate action to implement the contents of this Alert. Where this Alert contains procedures which differ significantly from USVF practice DIO (USF) code of practice will be issued.

## **3. Requirement**

- a. Identify open type luminaires that have metal halide lamps installed.
- b. Where metal halide lamps in open type luminaires are identified, confirm:
  - the lamps are suitable for open type luminaires and
  - are installed in accordance with the lamp manufacturer's instructions.
- c. Where lamps are found to be of an unsuitable type or are not installed in accordance with the lamp manufacturer's instructions they are to be replaced with a suitable lamp at the earliest opportunity. The continued short term use of unsuitable lamps is to be the subject of a local risk assessment that should consider the age, usage, and the area in which the lamps are installed.
- d. Maintenance strategies for metal halide lamps in open type luminaires must ensure the lamps do not exceed their rated life.

## **4. Background**

- a. Metal halide lamps are widely used in flood lighting and high bay lighting and are often found in aircraft hangars and other facilities across the MOD.
- b. An incident has been reported where a metal halide lamp has ruptured in an aircraft hangar and hot debris has fallen to the ground in close proximity to an aircraft maintenance facility. The open type luminaire did contain a safety grid (mesh) but this only retained the larger pieces of debris.
- c. Metal halide lamps operate at both a high pressure and high temperature and they can rupture unexpectedly causing high temperature glass fragments to fall over a wide area below, presenting a hazard to personal and creating a fire risk. The fire risk is increased if there are flammable materials stored or being used in the area. Glass

fragments may also become a hazard in areas used by aircraft as they present foreign object damage (FOD) hazard.

- d. There are a number of factors which increase the likelihood of a metal halide lamp failing in this dangerous manner including:
  - its installation in an incorrect type of luminaire;
  - the incorrect mounting of the lamp;
  - exceeding the lamp's rated life, and
  - extended periods of continuous use.
- e. Luminaires used in these types of application fall into two categories namely, 'open' or 'enclosed' luminaires. Enclosed luminaires have a bowl or lens, or some other method to completely enclose the lamp, and this type of luminaire contains the fragments in the event of a lamp rupture. Open type luminaires have nothing to contain the lamp, except perhaps some open containment such as a grill or wire guard, and this type of luminaire can create a hazard if a lamp ruptures.
- f. Metal halide lamps are rated for either open or enclosed luminaires, and some are rated for both. Open rated lamps have a double skin or outer coating to contain any rupture whereas an enclosed rated lamp would rely on the luminaire to contain a rupture.
- g. It is not possible to accurately predict or eliminate the risk of metal halide lamps rupturing, however there are several precautions that can be taken to minimise the risk namely:
  - inspect the lamps before installing to check for any faults such as cracks in the tube or outer envelope;
  - replace the lamps before they reach the end of their rated life;
  - for continuing operating lamps, allowing a 15 minute shutdown for every 7 days of continuous operation; and
  - group relamping.