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Halogen hazards

The upcoming changes to installation standards for halogen downlights have been sparked by numerous recent fires down-under.

A recent spate of fires in Victoria and NSW has prompted warnings and media alerts about the risks associated with halogen downlights from numerous bodies, including NSW Fire Brigades, Standards Australia, the Victorian Government's Minister For Energy & Resources, and the Insulation Council of Australia and New Zealand (ICANZ).

Melbourne's Metropolitan Fire Brigade claims 57 fires in the past 18 months have been caused by halogen downlights in the ceiling space. North of the border, 75 house fires in NSW have been attributed to halogen downlights in the past five years. Given halogens are also extensively used in commercial multi-unit complexes, offices, food/retail stores and aged care facilities, the problem could be a lot more widespread.

The halogen fire triangle

The fire triangle in Diagram 1 (opposite) sums up the hazards associated with halogens. While the fuel can be any combustible material in the roof space (eg insulation, wooden beams or debris), the heat/ignition source is the low voltage light fitting or its transformer, which can reach temperatures of up to 370°C and trigger a fire. Meanwhile, oxygen is present in sufficient quantities in the ceiling cavity to allow combustion.

While insulation material that comes into contact with the hot lights can ignite or smoulder, transformers have been known to also meltdown or catch fire if there is inadequate ventilation around them.

Insulation matters

Insulation materials can include pulped paper/cellulose, expandable foams, polyester batts, sheep's wool, glass-fibre wool and rock wool – all of which have different fire ratings.

Under these circumstances, batts can be better than blow-in insulation because they are not free to drift around in the roof space. Even where combustible insulation material is mixed with the 'borax' fire retardant, the improved fire rating may only last a few years.

Incorrect downlight installation can also compromise the fire separation rating in multi-storey developments due to the associated fire hazard – why you should always use a registered, licensed electrician. Similarly, it's paramount that insulation be correctly installed according to Australian Standard 3999. Many handymen or tradesmen may be unaware of how to correctly install insulation near downlights.

New installation standards

In 2008, Standards Australia will be changing the Australian/New Zealand Wiring Rules (AS/NZS 3000 Electrical installations) to increase the minimum distance from lights/transformer to insulation from the current 50mm to 200mm. Likewise, the clearance between the light and the transformer will need to be at least 50mm. See Diagram 2.

With existing downlight installations, the fire hazard can be mitigated by checking the installation set-up to ensure there is adequate separation from combustible material. Another option is to replace your halogen lights with ultra-compact fluorescent downlights, which are far more energy efficient and don't produce much heat. ●

Diagram 1: Halogen downlight fire triangle

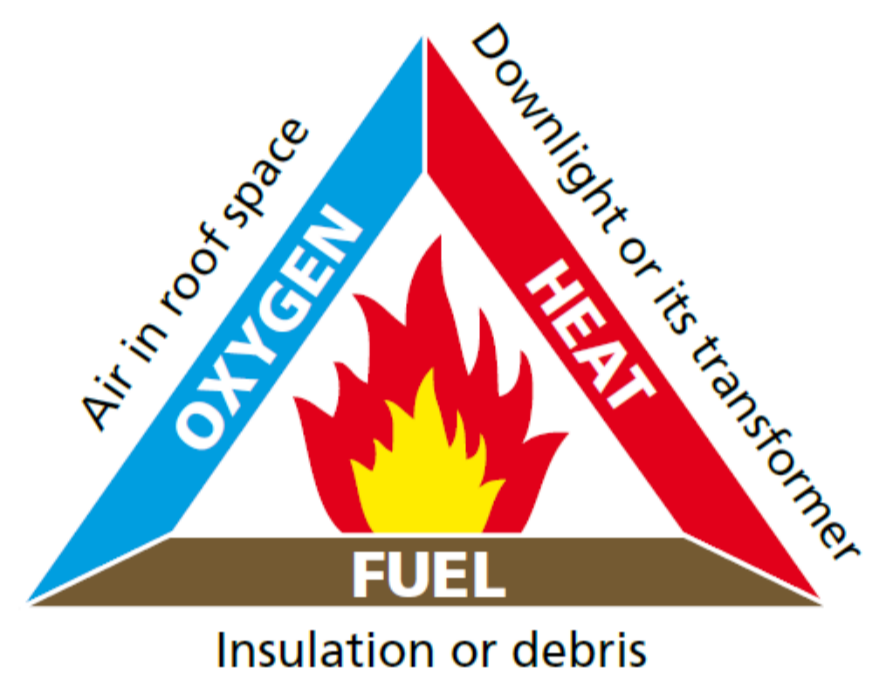
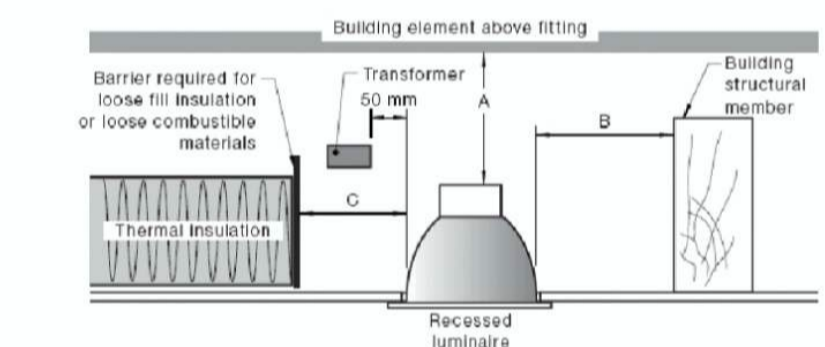


Diagram 2: Default minimum clearances for recessed luminaires



Dimension	Incandescent lamp	Halogen lamp
A - Clearance above luminaire	50 mm	200mm
B - Side clearance to structural member	100 mm	200 mm
C - Clearance to thermal insulation	50 mm	200 mm
D - Clearance to supply transformer	50 mm	

FIGURE 4.7 DEFAULT MINIMUM CLEARANCES FOR RECESSED LUMINAIRES

Source: www.standards.org.au

7 ways to reduce your halogen risks

- 1 Check the clearance around each downlight and its transformer (should be at least 200mm).
- 2 Ensure that no combustible, fine or loose material has accumulated or blown onto downlights or transformers.
- 3 Install an approved guard around the downlight/transformer that prevents combustible material from coming into contact with the downlight/transformer.
- 4 In place of standard dichroic bulbs, use infra-red reflective coating (IRC) light bulbs, which reflect most of the infra-red heat.
- 5 Ensure lights and installations meet current Australian Standards.
- 6 Arrange for a licensed, registered electrician to perform an electrical safety inspection of premises.
- 7 Consider installing a smoke detector in the roof space.