

Electrical – Construction

05.02.04

Installation of bulk thermal insulation around electrical equipment and accessories >

This bulletin provides information to employers, workers and contractors regarding electrical safety issues when installing bulk thermal insulation.

Legislation

- [Workplace Health and Safety Act](#)
NT WorkSafe information bulletin [09.01.02 Duty of Care](#) provides a guide to the statutory duties of care for employers and workers to themselves and others under Part 5 Section 55 – 57.
- [Workplace Health and Safety Regulations](#)
Regulations 62 - Electrical installations and equipment, states that electrical installations, materials, equipment and apparatus at a workplace shall be protected and maintained to minimize the risk of electrical shock or fire.
- **AS/NZS 3000:2007 Wiring Rules**
Regulation 62 calls up AS 3000. Clause 4.5.2.3 Recessed luminaires, and Figure 4.7 Default minimum clearances for recessed luminaires, are especially relevant to this type of work. (See pages 2 and 3 of this bulletin).
- **AS 3999-1992 Thermal insulation of dwellings - bulk installations - installation requirements**
Installers should be aware that all bulk installation must be installed in compliance with Australian insulation installation standard AS 3999-1992.
- **Electricity Reform Act**
Section 67 Electrical installations to comply with technical requirements, and Section 68 Responsibility of owner or operator of installation.
- **Electricity Reform (Safety and Technical) Regulations**
Regulation 3 Installations to comply with Australian Standard, and Regulation 4 Certain electrical installation work.

Insulation installers

Insulation installers are warned of the dangers associated with installing conductive foil type insulation near electrical equipment including cables, light fittings and ceiling fans etc. Installed incorrectly this could cause the insulation to become energised, posing an electrical risk, not only to the installer, but also to others.

putting safety first >



While such events may not always result in death, they can still have a serious impact on your health, including burns, damage to the nervous system, brain, sensory/motor organs, heart and lungs. A shock can also throw you off balance resulting in fall injuries. The prospect of such injuries occurring in a roof space can make rescue difficult resulting in a delay in treatment.

Installers should be aware that all bulk insulation must be installed in compliance with Australian insulation installation standard, AS 3999-1992 Thermal insulation of dwellings - bulk installations - installation requirements.

Note:

- Clause 4.2 (e) is replaced with clause 4.5.2.3 of AS/NZS 3000:2007 Wiring Rules;
- Figure 4.5 is replaced with figure 4.7 of AS/NZS 3000:2007;
- The Wiring Rules sets out the minimum clearance distances between bulk insulation and recessed luminaires, including down lights.

Hazard identification

An employer must carry out the general statutory duty of care by proceeding, in a systematic way, to:

- identify hazards; and
- identify, and assess the seriousness of, risks resulting from the hazards; and
- determine appropriate risk management measures:
 - > to eliminate, as far as reasonably practicable, avoidable risks; and
 - > to minimise, as far as reasonably practicable, unavoidable risks; and
 - > carry the risk management measures into effect; and
 - > monitor and review the effectiveness of the measures.

The risk management measures must include measures to avoid damaging electrical equipment/cables when installing conductive material like aluminium insulation products, and avoid overheating electrical fittings by smothering them with bulk insulation.

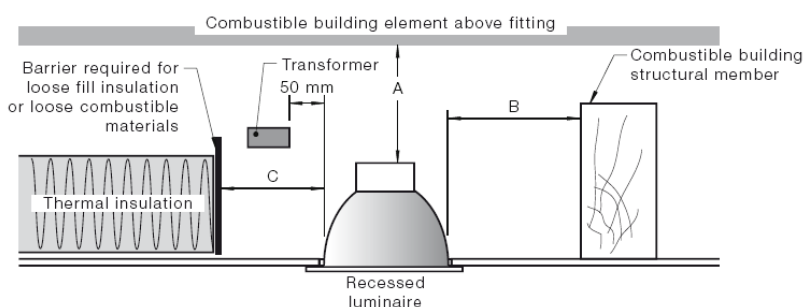
Anyone entering a roof space should conduct a risk assessment to determine possible hazards prior to starting work.

Safety alert

Safety Alert SA200908 – 21/10/2009

Incorrect installation of Bulk Thermal Insulation around electrical equipment and accessories

AS/NZS 3000:2007 Wiring Rules *(Reproduced for educational purposes only)*



Dimension	Incandescent lamp	Halogen lamp
A – clearance above luminaire	50 mm	200 mm
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

Clause 4.5.2.3 Recessed luminaires

(extract from Australian Standard reproduced for educational purposes only)

Recessed luminaires and their auxiliary equipment shall be installed in a manner designed to minimize temperature rise and prevent the risk of fire.

The temperature rise at the rear of a recessed luminaire shall be limited to prevent damage to adjacent materials.

This requirement shall be satisfied by one of the following methods:

- a) The use of a luminaire specifically designed and certified by the manufacturer to permit—
 - i. contact with combustible materials; or
 - ii. enclosure or covering by thermal insulation material, as appropriate to the location of the luminaire.
- b) Installation of the luminaire within a suitable fire-resistant enclosure.
- c) Provision of required clearances from combustible and thermal insulating material as specified by the manufacturer of the luminaire.
- d) Provision of the default clearances from combustible and thermal insulating material as specified in Figure 4.7.

Where manufacturer's installation instructions that specify required

clearances are not available, the luminaire shall be installed in accordance with (b) or (d).

NOTE: In the case of a suitably designed luminaire, the installation instructions may specify that no clearance is required.

Recessed luminaires and their auxiliary equipment shall be installed in such a manner that necessary cooling air movement through or around the luminaire is not impaired by thermal insulation or other material.

Where thermal insulation is of a type that is not fixed in position, e.g. loose fill, a barrier or guard constructed of fire-resistant material shall be provided and secured in position to maintain the necessary clearance (see Figure 4.7).

Where thermal insulation may reasonably be expected to be installed in the space containing a recessed luminaire, the luminaire shall be installed in such a manner as to provide for the subsequent installation of thermal insulation.

Recessed luminaires shall be installed in accordance with (a) or (b), or provided with equivalent protective measures, where there is a likelihood of extraneous combustible material, e.g. leaves or vermin debris etc, collecting on or around the luminaire.

NOTES:

1. National Building Codes require the installation of thermal insulation in many situations.
2. AS/NZS 60598.1 and AS/NZS 60598.2.2 detail the test method and the maximum surface temperatures permitted for recessed luminaires. These maximum temperature limits must be satisfied to permit any reduction in the default values of Figure 4.7.

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