

Guidance note – Electrical safety guide for insulation installers

Purpose

Queensland insulation installers must take specific electrical safety measures as prescribed under the [Electrical Safety Regulation 2013](#), to protect themselves and building occupants.

Background

Division 5 of the [Electrical Safety Regulation 2013](#) applies to persons conducting a business or undertaking (PCBU) that includes the installation of ceiling insulation. The legislation informs the insulation material requirements and assessment of the electrical risk involved with the insulation process and materials used to prevent exposure to electrical risk.

The risks

When installing ceiling insulation, you must prevent or minimise the associated health and safety risks. For example:

- Electric shocks or burns caused by contact with:
 - » defective electrical cables—e.g. perished or rodent-damaged cable insulation
 - » exposed terminals or conductors of electrical equipment in the ceiling space—e.g. behind light fittings, fans, etc.
 - » electrical cables damaged while installing insulation materials—e.g. by cutting, piercing, nailing or stapling into electrical cables
 - » foil insulation which has become energised through contact between the foil and a source of electricity.
- Fire resulting from combustible insulation material installed near recessed lights (in particular halogen downlights) and accessories without suitable clearances/barriers in place.
- Exceeding the safe operating temperature of electrical cables when surrounded by thermal insulation material—advice regarding de-rating of electrical cables may be obtained from a person with specialist expertise such as a licensed electrical contractor.
- Insulation containing synthetic mineral fibres (SMFs)—rockwool, glass wool, other fibres or dust can irritate the skin, eyes and upper respiratory tract.
- Hazardous substances—e.g. asbestos, pesticides, chemicals or lead.
- Heat and humidity—these and other factors can cause heat stress.

- Disease or infection from vermin or insects in the ceiling cavity or in untreated or damp insulation.
- Combustion of non-fire-retardant insulation.
- Accessing and traversing the roof space, tripping over debris, material and tools.
- Working at heights—e.g. falling through ceilings and roof penetrations or falling from roofs.
- Inadequate lighting.
- Hazardous manual tasks—e.g. handling awkward bulky bats and heavy foil rolls in cramped spaces, use of hand tools when cutting, or removing roofing materials.

Prior to installation

If you're a PCBU you must prevent or minimise health and safety risks associated with installing ceiling insulation by following the four-step risk management process. Refer to the How to manage work health and safety risks Code of Practice 2021.

Before work starts:

1. Identify hazards—find out what could cause harm.
2. Assess risks—if necessary, understand the nature of the harm that could be caused by the hazard, how serious the harm could be and the likelihood of it happening. This step may not be necessary if you are dealing with a known risk with known controls.
3. Control risks—implement the most effective control measure that is reasonably practicable in the circumstances and ensure it remains effective over time.
4. Review hazards and control measures to ensure they are working as planned.

Examples demonstrating how to manage work health and safety risks in consultation with workers are detailed in Appendix B of the How to manage work health and safety risks Code of Practice 2021.

To stay safe, do the following before the installation work starts:

- Develop safe work procedures for removing and installing insulation, using information from:
 - » the risk management process—refer to the How to manage work health and safety risks Code of Practice 2021 and Electrical Safety Code of Practice 2021 Managing electrical risks in the workplace
 - » the Hazardous manual tasks code of practice 2021
 - » the manufacturer of the insulation material
 - » relevant material safety data sheets (MSDS)—e.g. glues and gap fillers

- » AS 3999-2015 (Thermal insulation of dwellings—Bulk insulation—Installation Requirements)
- » the [Electrical Safety Regulation 2013](#)
- » clause 4.5.2.3 of the Wiring Rules (AS/NZS 3000:2018).
- Ensure all installers engaged or employed by PCBU's are trained in assessing the electrical risk from the installation of ceiling insulation.
- Provide appropriate information and training to anyone involved in the installation work, for example from:
 - » insulation manufacturer's instructions
 - » the certificate from a licensed electrical contractor stating the marking method that identifies non-capable circuits in the ceiling structure. Only required where electrically conductive ceiling insulation has been installed.
- Ensure only non-conductive fasteners are used to install ceiling insulation.
- Consult with anyone involved in the work.
- Ensure that any exposure to SMF products will meet the standards outlined in the National Code of Practice for the Safe Use of Synthetic Mineral Fibres.
- Provide appropriate tools and personal protective equipment (PPE)—it's preferable to use manual tools. Any power tools should be fitted with effective dust collection to capture fibres and dust and be protected by a safety switch (also known as a residual current device or RCD).
- Ensure that a system is in place to prevent or minimise the risk of a fall.
- Ensure that a system is in place to prevent or minimise the risk of injury from hazardous manual tasks.
- Ensure that a system is in place to prevent heat-related illnesses, e.g. avoid installation work during the hottest time of the day.
- Ensure there are adequate first aid facilities—cover open wounds and cuts, and
- Ensure there are adequate washing facilities—obtain approval to use washing facilities.

Before you enter the roof space to start the insulation

- Do a pre-work risk assessment of the roof space, and advise the owner/occupier of any identified risks that you cannot prevent or minimise:
 - » An on-site operational risk assessment must include the electrical risk from the installation of the ceiling insulation and record any control measures necessary; records of this assessment must be kept for five years by the insulation installer.
 - » If specialist expertise is required regarding electrical risks, advise the owner/occupier and recommend that a licensed electrical contractor be engaged to provide advice and assist in implementing any control measures to address the risks before you commence installation work.
- Before electrically conductive ceiling insulation is installed—ensure a certificate is obtained from a licensed electrical contractor which states the following:
 - » That the contractor has inspected and tested the existing electrical installation in the ceiling structure of the building.
 - » That the contractor is satisfied that the existing electrical installation in the ceiling structure of the building is electrically safe.
 - » That an approved safety switch has been installed on each capable circuit located in the ceiling structure of the building.
 - » That each non-capable circuit located in the ceiling structure of the building has been identified and clearly marked.
 - » The way in which non-capable circuits located in the ceiling structure have been marked to distinguish them from capable circuits.
- Ensure that you know:
 - » how to safely access the roof space
 - » how to prevent or (if this is not possible) minimise any associated risks
 - » where and how to store the insulation
 - » what to do in an emergency
 - » if you have any relevant allergies.
- Ensure you are properly hydrated to manage dehydration and heat-related illnesses.
- Ensure there are measures in place to prevent or minimise the risk of injury from hazardous manual tasks.
- Learn the safe work procedures for removing and installing insulation.
- Tell others who are not involved in the work to keep away from the stored insulation and from any areas immediately below where you will be working.

- Before proceeding with the installation of insulation materials (particularly foil insulation), turn off all electricity to the property at the main switchboard—there may be a number of main switches including for light and power, hot water, and solar power.
- Check that your tools and PPE are adequate and maintained.

Only start work once all the above is complete, and you are satisfied that the system of work and working environment is safe and without risk to your health.

While installing the insulation

- Identify and mark the position of all electrical cables in the work area and ensure that all insulation fixing points are well clear of electrical cables and equipment.
- Make sure you do not damage any electrical cables or electrical equipment while trimming, cutting or fixing insulation.
- If installing electrically conductive ceiling insulation, and there are one or more non-capable circuits located in the roof space of the building, ensure that:
 - » you are aware of how any non-capable circuit has been marked by the licensed electrical contractor
 - » any non-capable circuit is not covered anywhere by the electrically conductive ceiling insulation
 - » any non-capable circuit is kept at least 25mm away from the electrically conductive ceiling insulation material.
- Do not place insulation material over recessed fans, lights and associated equipment such as transformers (in particular halogen downlights).
- Maintain minimum required clearances for insulation materials around electrical equipment (e.g. downlights) and fit fire-resistant barriers where required as specified in clause 4.5.2.3 of the Wiring Rules (AS/NZS 3000:2018).
- Follow the safe work procedures for removing and installing insulation—any safe work procedure must include measures to ensure the electrical safety of all persons and property, both during and after the installation.
- Where possible, keep in constant contact with someone.
- Wear appropriate, well maintained and correctly fitted PPE when working with dusty insulation such as fibreglass or when working in dusty roof spaces, including:
 - » a half-face (class P1 or P2) disposable particulate respirator, in accordance with AS/NZS 1715:2009
 - » a head-covering and goggles, to avoid eye irritation
 - » long-sleeved, loose-fitting clothing and gloves, to minimise skin contact.
- Wear appropriate footwear.

- Follow the developed measures to prevent or minimise the risk of injury from hazardous manual tasks.
- Handle the insulation with care and minimise the release of fibres or dust.
- Step on ceiling joists or other beams—not the ceiling material.
- Keep your work areas clean and clear of fibres and dust, by regularly using an industrial vacuum cleaner fitted with high-efficiency particulate filters, and place waste in plastic bags capable of containing dust.

After the installation

- If you suspect that electrical equipment such as cables, light fittings, etc have been damaged, or the ceiling insulation could be energised by contact with electricity, do NOT turn the power on—liaise with the owner/occupier and engage a licensed electrical contractor to assess/control the electrical risks.
- Dispose of debris and waste appropriately.
- Wash your hands, face, neck and hair, with soap and water.

Roof space entry requirement

The Electrical Safety and Other Legislation Amendment Regulation 2024 introduced new requirements for carrying out work in or entering domestic roof spaces. These new requirements are specified in Part 6 Division 7 of the [Electrical Safety Regulation 2013](#).

From 1 January 2025, a PCBU must ensure, so far as is reasonably practicable, that a worker does not carry out work in or enter the roof space of a building unless the building's relevant electrical installation(s) have been de-energised.

For more information refer to the guidance note link: [Guidance-note-Roof-Space-Work 2025](#)

Legislation extract: Electrical Safety Regulation 2013

The below is an extract from the Electrical Safety Regulation 2013 (the regulation).

The regulation should be read in its entirety, the extract below is for the purposes of this guidance note. Read the [Electrical Safety Regulation 2013](#).

Part 6, Division 5, Subdivision 1, Section 89 Installation must comply with wiring rules, cl 4.5.2.3

A person conducting a business or undertaking must ensure that ceiling insulation is installed in a building in a way that complies with the wiring rules, clause 4.5.2.3, as in force from time to time.

Notes

- 1 The wiring rules, clause 4.5.2.3 deals with recessed luminaires and their auxiliary equipment.
- 2 At the commencement of this section the wiring rules, clause 4.5.2.3 is available on the department's website.
- 3 ES Act—section 30 (see [section 8](#)).

Extract from the Wiring Rules Clause 4.5.2.3

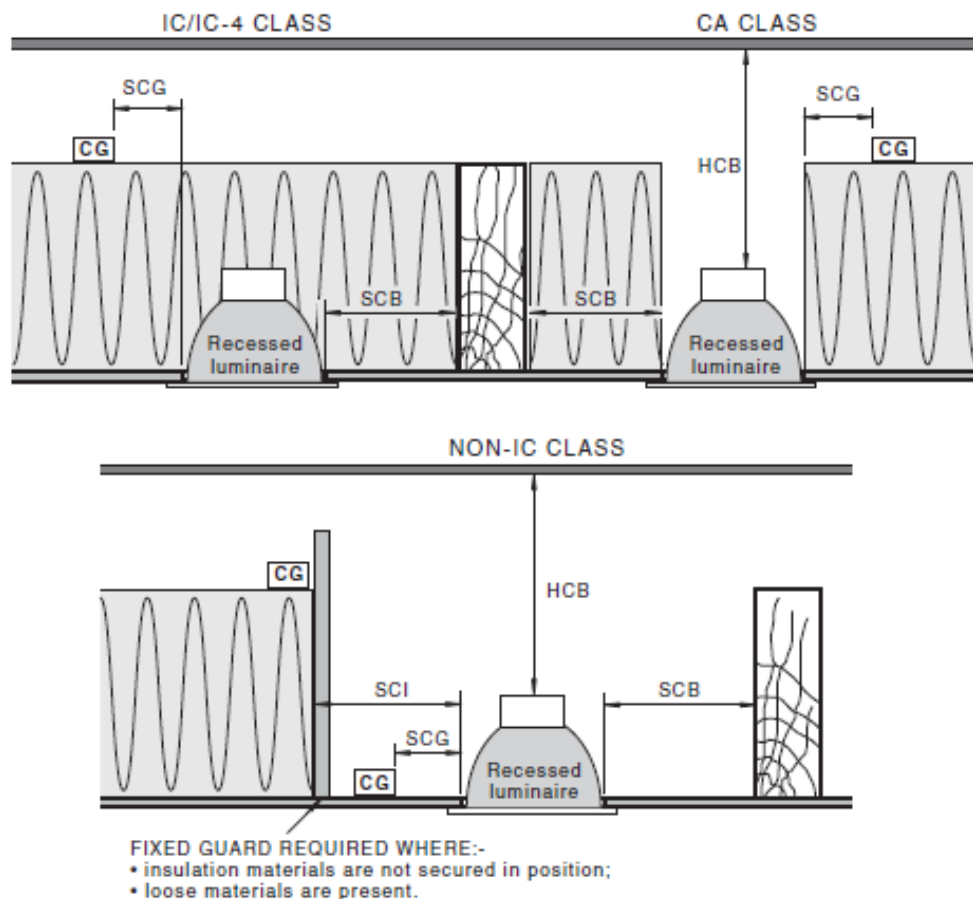
The below is an extract from AS/NZS 3000:2018 (the Wiring Rules).

The clause should be read in its entirety, the extract below is for the purposes of this guidance note to provide information, on the requirements of ceiling installation on or near recessed luminaires to ensure compliance with section 89 of the Electrical Safety Regulation 2013.

4.5.2.3 *Recessed luminaires*

4.5.2.3.1 *General requirements*

- (a) Recessed luminaires and their auxiliary equipment shall be installed in a manner designed to prevent –
 - (i) excessive temperature rise of the luminaire and auxiliary equipment; and
 - (ii) the risk of fire from ignition of combustible materials.
- (b) The requirement in (a) shall be satisfied by one of the following methods:
 - (i) The installation of a luminaire designed and certified by the manufacturer as being suitable for operation –
 - (A) in contact with combustible materials; or
 - (B) in contact with, or enclosed/covered by, thermal insulation material.
 - (ii) The installation of a luminaire in combination with a barrier tested and classified in accordance with AS/NZS 5110 as being suitable for the installation conditions.
 - (iii) The installation of a luminaire with separation from thermal insulating materials, combustible building elements and loose combustible materials not less than –
 - (A) the minimum clearance specified by the manufacturer of the luminaire, which may require a barrier or guard constructed of fire-resistant materials; or
 - (B) the default clearances as specified in Figure 4.9, which may require a barrier or guard constructed of fire-resistant materials.



Dimension	Any lamp up to 100 W
HCB—height clearance to building element	100 mm
SCB—side clearance to building element	100 mm
SCI—side clearance to insulation	100 mm
SCG—side clearance to auxiliary equipment [control gear (CG)]	50 mm

FIGURE 4.9 DEFAULT MINIMUM CLEARANCES FOR RECESSED LUMINAIRES

4.5.2.3.2 Warning sign

Where recessed luminaires are installed in an accessible roof space, a permanent and legible warning sign shall be installed in the roof space adjacent to the access point, in a position that is visible to a person entering the space. The sign shall contain the words shown in Figure 4.10 with a minimum size of lettering 10mm.

** Exception: Where all recessed luminaires installed in an accessible roof space are either IC or IC-4 classification the warning sign is not required.*



FIGURE 4.10 WORDING FOR WARNING SIGN TO BE INSTALLED IN ACCESSIBLE ROOF SPACES CONTAINING RECESSED LUMINAIRES

4.5.2.3.3 Installation

- (a) The following requirements shall be undertaken for the installation of recessed luminaires:
 - (i) Suitably designed and certified recessed luminaires have installation classifications and shall be marked accordingly. The manufacturer's instructions shall provide all details in regard to restrictions for installation in certain applications.
 - (ii) In New Zealand only, unmarked light fittings shall be treated as 'Do-not-cover'. For these typical fittings, the installation method shall be to provide barriers [see method in clause 4.5.2.3.1 (b)(ii)] during installation, so as to prevent contact with material that may impede airflow (e.g. thermal insulation) or that may be affected by the high temperature (e.g. combustible building elements and insulation).
 - (iii) Where building insulation is already fitted and recessed luminaires are retrofitted, added or altered, precautions shall be taken during the installation of the luminaires so as not to compromise the safety of the installation.

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NOTES:

1. In New Zealand under the New Zealand Building Code, building insulation is required.
2. Instructions for insulation installers in relation to clearances from recessed luminaires and other types of electrical equipment that may be adversely affected by lack of cooling air circulation are included in AS 3999 in Australia and New Zealand NZS 4246.

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- (iv) The presence of bulk thermal insulation, particularly over the rear of a ceiling-mounted recessed luminaire, can readily impair cooling air circulation.
Unless the recessed luminaire manufacturer specifies otherwise [see method in Clause 4.5.2.3.1 (b)(i)] or the barrier is classified to permit insulation coverage [see method in Clause 4.5.2.3.1 (b)(ii)], the space above the luminaire shall remain clear. The space is shown as dimension HCB in Figure 4.9.
- (v) Where clearances are to be applied [see method in Clause 4.5.2.3.1(b)(iii)] and bulk thermal insulation is not fixed in position, one of the following means shall be provided and secured in position to maintain the clearances:
 - (A) A barrier complying with AS/NZS 5110.
 - (B) A guard complying with AS 3999.
 - (C) A barrier or guard constructed of fire-resistant materials.
- (vi) Unless the auxiliary equipment instructions permit otherwise, any auxiliary equipment operating at a high temperature shall be installed above any insulation as illustrated in Figure 4.9.
- (vii) If the recessed luminaire is supplied with a detachable barrier, the complete luminaire, included its barrier, shall be installed.
- (viii) For recessed luminaires with lamps of wattage higher than 100 W, only the methods in Clause 4.5.2.3.1(b)(i) or 4.5.2.3.1(b)(iii), shall be used.
- (ix) Combustible materials shall be prevented from being in close proximity or contacting hot surfaces of the recessed luminaires. This includes structural timber which may be affected by pyrolysis which over a long exposure can result in increased susceptibility to ignition.
Where extraneous material, such as leaves, vermin debris or combustible materials stored in a roof space, are present in proximity to the recessed luminaire, the precautions shall include the use of a suitably designed and certified recessed luminaire [see method in Clause 4.5.2.3.1(b)(i)] or a barrier [see method in Clause 4.5.2.3.1(b)(ii)].
- (x) Bulk thermal insulation may also be retrofitted, added or altered, in which case precautions shall be applied by the insulation installer, where recessed luminaires are present, or the luminaire installer, where insulation is present.

(b) The following precautions should be considered for the installation of recessed luminaires:

- (i) The heat generated from lamps should be dissipated in order to prevent overtemperature damage to the luminaire or to adjacent materials. Cooling air circulation through or around the equipment is a requirement for the typical range of recessed luminaires.

AS/NZS 60598.1, AS/NZS 60598.2 and AS/NZS 5110 detail the test method and maximum surface temperature permitted for recessed luminaires or barriers. Those standards permit a maximum temperature of adjacent materials to be no more than 90°C.

- (ii) Under National Construction Code requirements, bulk thermal insulation is prevalent in modern building constructions within roofs, ceilings, walls and floors depending on the type of building and its climate zone.

AS 3999 (in Australia) and NZS 4246 (in New Zealand) include instructions for insulation installers in relation to clearances from recessed luminaires and other types of electrical equipment that may be adversely affected by lack of cooling air circulation.

4.5.2.3.4 *Classifications of recessed luminaires*

Recessed luminaires are classified as follows by AS/NZS 60598.2.2:2016, Appendix ZZ:

- (a) *Non-IC luminaire* A recessed luminaire that cannot be abutted against or covered by normally flammable materials or used in installations where building insulation or debris are, or may be, present in normal use.

Non-IC luminaires shall not be installed in residential installations.

Refer to Clause 4.5.2.3.

Non-IC luminaires complying with AS/NZS 60598.2.2 are marked with the symbol shown in Figure 4.11

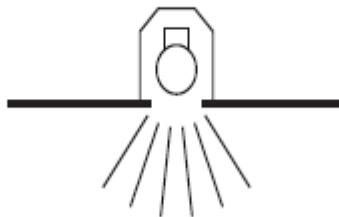


FIGURE 4.11 NON-IC SYMBOL

- (b) *Do-not-cover luminaire* A recessed luminaire that can be used where normally flammable materials, including building insulation, are, or may be, present, but cannot be abutted against any material and cannot be covered in normal use.

In New Zealand only, 'Do-not-cover' luminaires shall not be installed in residential installations. Refer to Clause 4.5.2.3.5.

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'Do-not-cover' luminaires complying with AS/NZS 60598.2.2 are marked with the symbol shown in Figure 4.12.

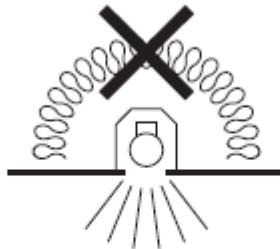


FIGURE 4.12 DO-NOT-COVER SYMBOL

- (c) *CA90 luminaire* A recessed luminaire that can be abutted against normally flammable materials, including building insulation, but cannot be covered in normal use. Building elements, building insulation or debris have limited access to the heated parts of the luminaire.

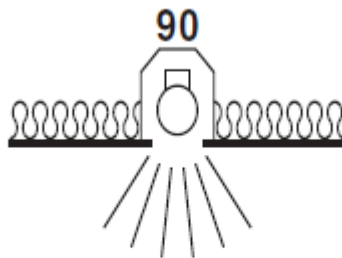


FIGURE 4.13 CA90 SYMBOL

- (d) *CA135 luminaire (New Zealand only)* A recessed luminaire that can be abutted against normally flammable materials, including building insulation, but cannot be covered in normal use. Building elements, building insulation or debris have some access to the heated part of the luminaire.

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In New Zealand only, CA135 luminaires complying with AS/NZS 60598.2.2 are marked with the symbol shown in Figure 4.14.

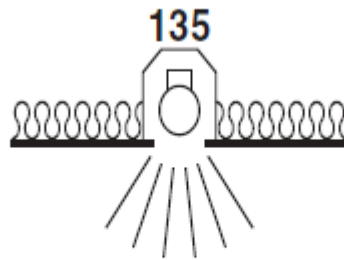


FIGURE 4.14 CA135 SYMBOL

- (e) *IC luminaire A* recessed luminaire that can be abutted against normally flammable materials, including building insulation, and can be covered in normal use. Building elements, building insulation or debris have access to the heated parts of the luminaire.

IC luminaires complying with AS/NZS 65098.2.2 are marked with the symbol shown in Figure 4.15

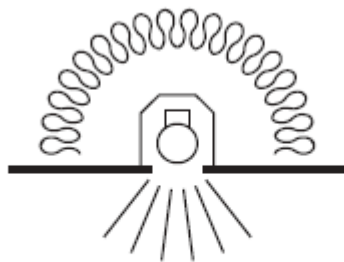


FIGURE 4.15 IC SYMBOL

- (f) *IC-4 luminaire* A recessed luminaire that can be abutted against normally flammable materials, including building insulation, and can be covered in normal use. Building elements, building insulation or debris have restricted access to the heated parts of the luminaire. This classification of recessed luminaires is effectively a sealed unit that has a restricted flow of air between the habitable room the luminaire emits light into and the void/space where the main body of the luminaire is located.

IC-4 luminaire complying with AS/NZS 65098.2.2 are marked with the symbol shown in Figure 4.16

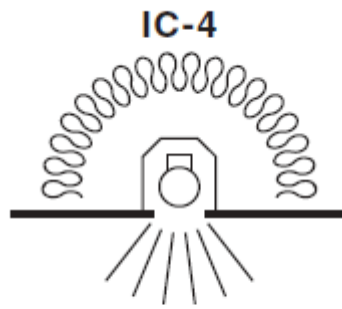


FIGURE 4.16 IC-4 SYMBOL

4.5.2.3.5 Requirements for specific classifications

Recessed luminaires of classifications compliant to Appendix ZZ of AS/NZS 60598.2.2 shall be installed as per the following:

(a) In Australia only:

A

- (i) In residential installations, only Do-not-cover, CA90, IC or IC-4 luminaires shall be installed.
- (ii) In non-residential installations, only Non-IC, Do-not-cover, CA90, IC or IC4 luminaires shall be installed.

CA135 luminaires shall not be installed in residential or non-residential installations.

(b) In New Zealand only:

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- (i) In residential installations, only CA90, CA135, IC or IC-4 luminaires shall be installed.
- (ii) In non-residential installations, only Non-IC, Do-not-cover, CA90, CA135, IC or IC-4 luminaires shall be installed.

NOTE: Table 4.3 provides information and guidance on the classifications, symbols applications and general restrictions on recessed luminaires.

Exception: Luminaires of classes specified by amendment A to AS/NZS 60598.2.2:2001, and labelled accordingly, may be installed as if they were classified under Appendix ZZ of AS/NZS 60598.2.2:2016 edition, as follows:

- (a) CA 80 may be treated as CA 90.
- (b) CA 135 may be treated as CA 135.
- (c) IC may be treated as IC.
- (d) IC-F may be treated as IC-4.

TABLE 4.3

GUIDE TO RECESSED LUMINAIRE CLASSIFICATION, APPLICATION AND GENERAL RESTRICTIONS ON USE

Type	Abutted ⁽¹⁾	Normal use ⁽²⁾ —covered	Use with insulation ⁽³⁾	Accessibility to high temperature parts ⁽⁴⁾	Surface of luminaire normal operating temperature limit	Comments
Non-IC	No	No	No	Fully accessible	No limit on side or top surface of luminaire Mounting surface of luminaire limited to 90°C	Not for residential use, intended for non-residential use only Non-IC luminaires are prohibited in residential dwellings or other places where building insulation may be installed (now or in the future) These luminaires have not been tested to show they are safe for use with building insulation
Do-not-cover	No	No	Yes	Fully accessible	No limit on side or top surface of luminaire Mounting surface of luminaire limited to 90°C	Suitable for residential or non-residential use in Australia Prohibited from installation in residential locations in New Zealand Cannot be covered Clearance distances from sides of luminaire to insulation and clearance above luminaire are to be in installation instructions supplied with the luminaire and have to be adhered to for correct installation

(continued)

TABLE 4.3 (continued)

Type	Abutted ⁽¹⁾	Normal use ⁽²⁾ —covered	Use with insulation ⁽³⁾	Accessibility to high temperature parts ⁽⁴⁾	Surface of luminaire normal operating temperature limit	Comments
						These luminaires have been tested to show they are safe for use with building insulation present (observing manufacturer's stated installation clearance distances) They are not to be covered in building insulation; however, have been tested to show if inadvertently covered they should not become a fire hazard
CA90	Yes	No	Yes	Limited access In this Standard, this is assessed for access to high temperature parts by use of a 5.6 mm probe to side and top of luminaire	90°C limit on side or top or mounting surface of luminaire	Suitable for residential or non-residential use in Australia and New Zealand Cannot be covered Insulation can be placed against the sides of the luminaire Manufacturer's clearance above luminaire to be observed for correct installation These luminaires have been tested to show they are safe for use with building insulation present and placed against the sides of the luminaire They are not to be covered in building insulation; however, have been tested to show if inadvertently covered they should not become a fire hazard

(continued)

Source: AS/NZS 3000:2018 Clause 4.5.2.3 © Standards Australia. Used with permission.

TABLE 4.3 (continued)

Type	Abutted ⁽¹⁾	Normal use ⁽²⁾ —covered	Use with insulation ⁽³⁾	Accessibility to high temperature parts ⁽⁴⁾	Surface of luminaire normal operating temperature limit	Comments
CA135	Yes	No	Yes	Some access In this Standard, this is assessed for access to high temperature parts by use of a 50 mm probe to side and top of luminaire	135°C limit on side or top surface of luminaire Mounting surface of luminaire limited to 90°C	Not permitted for use in Australia New Zealand only—suitable for residential or non-residential use Cannot be covered Insulation can be placed against the sides of the luminaire Manufacturer's clearance above luminaire to be observed Cannot be used where building materials or insulation is not rated for exposure to constant temperatures of 135°C (cannot have such materials that may be placed so as to be touching the sides of the luminaire) These luminaires have been tested to show they are safe for use with building insulation present and placed against the sides of the luminaire They are not to be covered in building insulation; however, have been tested to show if inadvertently covered they should

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TABLE 4.3 (continued)

Type	Abutted ⁽¹⁾	Normal use ⁽²⁾ —covered	Use with insulation ⁽³⁾	Accessibility to high temperature parts ⁽⁴⁾	Surface of luminaire normal operating temperature limit	Comments
IC	Yes	Yes	Yes	Limited access In this Standard, this is assessed for access to high temperature parts by use of a 5.6 mm probe to sides and top of luminaire	90°C limit on side or top or mounting surface of luminaire	Suitable for residential or non-residential use in Australia and New Zealand Used where some air transfer is allowed or desired between living space and roof space (there will be some air transfer between the spaces if the luminaire is not fully covered in insulation) These luminaires have been tested to show they are safe in normal use when covered in building insulation and abutted to combustible building elements
IC-4	Yes	Yes	Yes	Restricted access In this Standard, this is assessed for access to high temperature parts by use of a IP4X—1 mm probe to sides and top and front face of luminaire	90°C limit on side or top or mounting surface of luminaire	Suitable for residential or non-residential use in Australia and New Zealand Used where air transfer is not permitted or not desired between living space and roof space (there will be no air transfer between spaces even if there is no insulation covering the luminaire) Typical use is passive house design where no air transfer is allowed These luminaires have been tested to show they are safe in normal use when covered in building insulation and abutted to combustible building elements

(continued)

TABLE 4.3 (continued)

Type	Abutted ⁽¹⁾	Normal use ⁽²⁾ —covered	Use with insulation ⁽³⁾	Accessibility to high temperature parts ⁽⁴⁾	Surface of luminaire normal operating temperature limit	Comments
No marking	No	No	No	No		Not verified as tested/compliant to Australian/New Zealand Standards Marking is required by standard—no marking indicates non-compliance Do not install any luminaire that does not have one of the marking symbols or instructions specifying any clearance distances

NOTES:

- 1 May be abutted against normally flammable building elements or insulation.
- 2 Intended and tested to be used under building insulation as part of normal operation.
- 3 May be used where building insulation may be installed (now or in the future).
- 4 Classification and probe to determine access of insulation, etc. to high temperature parts.

Source: AS/NZS 3000:2018 Clause 4.5.2.3 © Standards Australia. Used with permission.