

## Workplace Health and Safety Queensland

## Installing ceiling insulation – your health and safety

Queensland insulation installers are required to take specific electrical safety measures as prescribed under the *Electrical Safety Regulation 2002*, to protect themselves and Queensland householders.

**Non-compliance is a breach of electrical safety obligations – significant penalties apply.**

### The risks

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

- serious 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, and
  - foil insulation which has become energised through contact between the foil and a source of electricity
- the safe operating temperature of electrical cables may be affected when surrounded by thermal insulation material — advice regarding such de-rating of electrical cables may be obtained from a

person with specialist expertise such as a licensed electrical contractor

- fire resulting from combustible insulation material installed near recessed lights (in particular halogen downlights) and accessories without suitable clearances/barriers in place
- insulation containing synthetic mineral fibres (SMFs) — rockwool, glasswool, 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 cavity, tripping over debris, material and tools
- working at heights — e.g. falling through ceilings, falling through roof penetrations, falling from roofs
- inadequate lighting, and
- 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.



FIRE HAZARD - Halogen downlight and transformer covered with loose fill insulation



SHOCK HAZARD - Electrical cable pierced by a staple, energising the foil insulation

## Prior to installation

If you're an employer or self-employed person you must prevent or minimise health and safety risks associated with installing ceiling insulation by following the five-step risk management process. Refer to the *Risk Management Code of Practice 2007* for guidance. Form A2 (Risk assessment and control) on page 14 of Supplement 2 of the Code provides a template for hazard identification, risk assessment and control measures (see copy attached).

Before work starts:

1. Identify the hazards — is there something that could cause harm?
2. Assess the risks — is harm likely, could it be serious?
3. Decide on control measures — what is the best way to control the assessed risks?
4. Implement controls — what planning/steps will ensure controls are implemented effectively?
5. Monitor and review — are the controls being used, working properly, and effective?

Establish if there are elements of the risk assessment that will require special expertise, such as for electrical, asbestos and hazardous substances.

**For installing electrically conductive ceiling insulation — a licensed electrical contractor MUST be engaged.**

'Electrically conductive ceiling insulation' means a product, other than metal foil batts, used, or to be used, as ceiling insulation that is readily able to conduct electricity.

### 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 *Risk Management Code of Practice 2007* and the *Electrical Safety Code of Practice 2010 - Risk Management*
  - the *Manual Tasks Code of Practice 2010*
  - the manufacturer of the insulation material

- relevant material safety data sheets (MSDS) — e.g. glues and gap fillers
- AS 3999-1992 (Thermal insulation of dwellings - Bulk insulation – Installation Requirements)
- the *Electrical Safety Regulation 2002*
- clause 4.5.2.3 of the Wiring Rules (AS/NZS 3000:2007)
- ensure persons conducting a business or undertaking which includes the installation of ceiling insulation, including all persons engaged or employed by them as installers, are trained in carrying out an assessment of 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
  - for electrically conductive ceiling insulation - the certificate stating the marking method that identifies non-capable circuits in the ceiling structure
- 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 cavity to start the installation work:**

- do a pre-work risk assessment of the roof cavity, and advise the owner/occupier of any identified risks that you cannot prevent or minimise:
  - such 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

**A licensed electrical contractor must be engaged before the installation of electrically conductive ceiling insulation.**

- 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; and
  - that the contractor is satisfied that the existing electrical installation in the ceiling structure of the building is electrically safe; and
  - that an approved safety switch has been installed on each capable circuit located in the ceiling structure of the building; and
  - that each non-capable circuit located in the ceiling structure of the building has been identified and clearly marked; and
  - the way in which non-capable circuits located in the ceiling structure have been marked to distinguish them from capable circuits

**A certificate from a licensed electrical contractor must be kept for at least five years by the insulation installer and should inform the on-site operational risk assessment.**

- ensure that you know:
  - how to safely access the roof cavity
  - 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 e.g. main switches for light and power, main switch for hot water, main switch or isolator for solar power

**These switches do not turn off the main electrical cable supplying the switchboard — this cable may run in the ceiling space.**

- check that your tools and PPE are adequate and maintained, and
- 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 health.

## During installation

**Metal or other conductive fasteners must not be used when installing ceiling insulation and the installation of ceiling insulation must comply with clause 4.5.2.3 of the Wiring Rules (AS/NZS 3000:2007).**

Additional electrical safety requirements apply when installing electrically conductive ceiling insulation.

### 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 ceiling structure of the building, ensure that:
  - you are aware of how any non-capable circuit has been marked by the licensed electrical contractor; and
  - any non-capable circuit is not covered anywhere by the electrically conductive ceiling insulation; and
  - 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 3000:2007)

**Default clearances are 50mm from incandescent and 200mm from halogen downlights including 50mm clearance for any associated transformer – unless the downlight is designed for the application or is installed within a suitable fire-resistant enclosure.**

- 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

- 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 ceilings spaces, including:
  - a half-face (class P1 or P2) disposable particulate respirator, in accordance with AS/NZS 1715
  - 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, and
- 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 installation

Immediately after you have installed the insulation:

- 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, and
- wash your hands, face, neck and hair, with soap and water.

## Where can I get more information?

- **Workplace Health and Safety Queensland**  
by calling 1300 369 915 or visit [www.worksafe.qld.gov.au](http://www.worksafe.qld.gov.au) to download:
  - *Risk Management Code of Practice 2007*
  - *Manual Tasks Code of Practice 2010*
  - *Fact Sheet — Identifying and recording asbestos in the workplace*
  - *Fact Sheet — Managing workplace health and safety risks under the Foil Insulation Safety Program (FISP)*
- **Electrical Safety Office**  
by calling 1300 650 662 or visit [www.electricalsafety.qld.gov.au](http://www.electricalsafety.qld.gov.au) to download:
  - *Electrical Safety Regulation 2002*
  - *Wiring Rules clause 4.5.2.3 – Recessed luminaires*
  - *Electrical Safety Code of Practice 2010 Risk Management*
- **Queensland Health**  
Visit [www.health.qld.gov.au](http://www.health.qld.gov.au) to download:
  - *Heat related illness, signs, treatment and prevention*
- **Safework Australia**  
Visit [www.safeworkaustralia.gov.au](http://www.safeworkaustralia.gov.au) to download:
  - *National code of practice for the safe use of synthetic mineral fibres*
- **Standards Australia**  
Visit [www.saiglobal.com/shop](http://www.saiglobal.com/shop) to purchase a copy of:
  - Australian/New Zealand Standard 1715:2009 — Selection, use and maintenance of respiratory protective equipment
  - Australian/New Zealand Standard 3000:2007 — known as the Wiring Rules
  - Australian Standard 3999-1992 — Thermal insulation of dwellings – Bulk insulation – Installation requirements
- **Australian Government** by calling the safety hotline on 13 17 92 or visit

[www.climatechange.gov.au](http://www.climatechange.gov.au) for information on the Australian Government's:

- Home Insulation Safety Program
- Foil Insulation Safety Program (FISP)

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## Form A2: Risk assessment and control

Fill in one form for each hazard identified at the workplace.

Workplace area or grouping: _____ Reference : _____ Form completed by: _____ (print) _____ (sign) Date form completed: .../.../...						
<b>Hazard identification</b> Hazard: Associated risk: Specific circumstances relating to the risk:  Persons at risk:						
<b>Risk assessment</b> Existing control measures (if any): Likelihood: <i>(tick)</i> Almost certain <input type="checkbox"/> Likely <input type="checkbox"/> Possible <input type="checkbox"/> Unlikely <input type="checkbox"/> Rare <input type="checkbox"/> Consequences: <i>(tick)</i> Catastrophic <input type="checkbox"/> Major <input type="checkbox"/> Moderate <input type="checkbox"/> Minor <input type="checkbox"/> Insignificant <input type="checkbox"/>						
<b>Risk control</b> Possible control options: Elimination: Substitution, Isolation or Engineering: Administrative or personal protective equipment:  Preferred control options (and why):						
<b>Implementation plan</b>						
Control option	Associated activities	Resources required	Person(s) responsible	Proposed implementation date	Sign off and date	Scheduled review date
<b>Review</b> Are control measures in place? <ul style="list-style-type: none"> <li>• Yes</li> <li>• No, comment (why not):</li> </ul> Are controls preventing or minimising the risk? <ul style="list-style-type: none"> <li>• Yes</li> <li>• No, comment (why not):</li> </ul> Are there any new problems with the risk? <ul style="list-style-type: none"> <li>• No</li> <li>• Yes, comment (what are they):</li> </ul>						