Insulation – installing ceiling insulation and your health and safety

Effective **1 November 2009,** all Queensland insulation installers, whether or not operating under the Australian Government's Home Insulation Scheme, will be required to take additional electrical safety measures as provided in the *Electrical Safety (Installation of Ceiling Insulation) Notice 2009*, 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 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.
- fire resulting from insulation material installed near recessed lights (in particular halogen downlights) and accessories without suitable clearances/barriers in place
- 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
- insulation containing synthetic mineral fibres (SMF's) — 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
- vermin or insects in the ceiling cavity or in untreated or damp insulation
- non fire-retardant insulation
- accessing and traversing the roof cavity, tripping over debris, material and tools
- working at heights
- inadequate lighting, and
- manual handling.

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.

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

- develop safe work procedures for removing and installing insulation, using information from:
  - the *Electrical Safety (Installation of Ceiling Insulation) Notice 2009*
  - the risk management process — refer to the *Risk Management Code of Practice 2007*
  - the manufacturer of the insulation material
  - relevant material safety data sheets (MSDS)
  - AS 3999-1992 (Thermal insulation of dwellings - Bulk insulation – Installation Requirements), and
  - section 4.5.2.3 of the Wiring Rules (AS/NZS 3000:2007).
- any safe work procedure should include measures to ensure the electrical safety of all persons and property, both during and after the installation
- 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 (which may include insulation manufacturer's instructions) and training to anyone involved in the installation work
- ensure metal or other conductive fasteners are NOT used when installing 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 falls
- 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:

- 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 implement 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 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 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.

- 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
- 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
- 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

From 1 November 2009, metal or other conductive fasteners are not to 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) – see *Electrical Safety (Installation of Ceiling Insulation) Notice 2009*

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, and make sure you do not damage any electrical cables or electrical equipment while trimming, cutting or fixing insulation
- do not place material over recessed 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
- keep in constant contact with someone
- wear appropriate, maintained and correctly-fitted PPE, 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
  - appropriate footwear.
- handle the insulation with care and minimise the release of fibres or dust
- step on roof 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
- wash your hands, face, neck and hair, with soap and water.

Where can I get more information?

- Workplace Health and Safety Queensland at www.worksafe.qld.gov.au
  or call 1300 369 915.
- The Electrical Safety Office at www.electricalsafety.qld.gov.au or call 1300 650 662.
- The *Electrical Safety (Installation of Ceiling Insulation) Notice 2009*
- The *Risk Management Code of Practice 2007* offers practical advice on risk management.
- Workplace Health and Safety Queensland
  - *Identifying and recording asbestos in the workplace*
- Queensland Health - *Heat related illness, signs, treatment and prevention*
- Visit www.safeworkaustralia.gov.au to download the *National code of practice for the safe use of synthetic mineral fibres*.
- Visit 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 rebate program

- Important changes to the Australian Government's Home Insulation Program came into effect from 2 November 2009.
- For information relating to the installation of ceiling insulation under the Home Insulation Program, please visit www.environment.gov.au/energyefficiency or call 1800 808 571.

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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: …/…/…

Hazard identification
Hazard:
Associated risk:
Specific circumstances relating to the risk:

Persons at risk:

Risk assessment
Existing control measures (if any):

Likelihood: *(tick)*	Almost certain	☐	Likely	☐	Possible	☐	Unlikely	☐	Rare ☐
Consequences: *(tick)*	Catastrophic	☐	Major	☐	Moderate	☐	Minor	☐	Insignificant ☐

Risk control
Possible control options:
Elimination:
Substitution, Isolation or Engineering:
Administrative or personal protective equipment:

Preferred control options (and why):

Implementation plan

Control option	Associated activities	Resources required	Person(s) responsible	Proposed implementation date	Sign off and date	Scheduled review date

Review
Are control measures in place?
- Yes
- No, comment (why not):

Are controls preventing or minimising the risk?
- Yes
- No, comment (why not):

Are there any new problems with the risk?
- No
- Yes, comment (what are they):