



Department of Consumer
and Employment Protection
Government of Western Australia

Energy Safety

***INSTALLATION OF RESIDUAL CURRENT
DEVICES IN RESIDENTIAL PREMISES
OFFERED FOR SALE OR LEASE***

Position Paper

October 2008

Foreword

EnergySafety, a division of the Department of Consumer and Employment Protection, is the State's technical and safety regulator for the energy industry.

The electrical contracting industry in Western Australia is regulated by the *Electricity Act 1945*, which is administered by EnergySafety. The prime objective is the safety of people and property.

The standards to be followed by persons working in the electricity industry are set out in the *Electricity Regulations 1947*, which refer particularly to AS/NZS 3000 – Wiring Rules and the Western Australian Electricity Requirements (WAER).

EnergySafety has determined from analysis of electrical incidents that occurred over the last 16 years that 31 of 36 fatalities in non-workplace locations could have been prevented if a residual current device (RCD, also known as a safety switch) had been installed to protect the electrical wiring and appliances involved in the incident.

Additionally, as Western Australia's housing stock ages, pre-1960s homes especially have question marks about the safety of their wiring systems, raising electric shock and fire concerns.

From 1991 the Wiring Rules that apply to all of Australia and New Zealand have required the installation of at least one RCD to protect the power circuits in residential premises. In 2000 the WAER extended this requirement to the lighting circuits also. The new Wiring Rules released in late 2007 now require the installation of at least two RCDs protecting the power and lighting circuits.

This Position Paper details EnergySafety's proposal to extend the requirement for at least two RCDs in residential premises to those properties constructed prior to 2000. The RCDs are to be installed when certain events set out in the Position Paper occur.

EnergySafety believes this initiative is very much in the interests of the community, from both a safety and consumer protection perspective.

EnergySafety welcomes comments from stakeholders and the public, which may be sent in accordance with the information set out in clause 5.



KEN BOWRON
DIRECTOR OF ENERGY SAFETY
1 October 2008

1. INTRODUCTION

This Position Paper details an initiative proposed by EnergySafety for the installation of at least two Residual Current Devices (RCDs) in residential buildings at or before the sale of the property, for owner occupied dwellings, or within two years of gazettal of the relevant regulations, for rented or leased dwellings.

Four options are presented and the preferred option is identified.

Stakeholders and the public are invited to comment on the proposal, which has consumer protection, occupier safety and tradesperson safety connotations.

2. BACKGROUND

RCDs (also known as safety switches) disconnect electricity when a harmful level of electrical current is detected flowing to earth. This flow of electricity indicates a failure of insulation, or contact with live parts by a person, or both. These devices therefore provide high levels of personal protection from electric shock and also reduce the risk of fire from defective wiring or appliances. The normal household fuses and circuit breakers do not operate during an electric shock event because the current involved is too small in most cases.

RCDs became a mandatory requirement in **new** dwellings from:

- 1992 (nationally): socket outlet (power) circuits; and
- 2000 (WA only): socket outlet and lighting circuits using at least two RCDs.

The inclusion of lighting circuits in WA followed serious accidents where householders and tradespersons contacted live parts, often while working in the ceiling/roof spaces of premises. A number of people were electrocuted. Since then, other jurisdictions have agreed this should become national practice through the new edition of the Wiring Rules (AS/NZS 3000) published late in 2007.

The requirement for the fitting of RCDs did not extend to existing WA residences, only to new ones. This is of concern because less than 25% of pre 2000 dwellings are estimated to have been voluntarily fitted with RCDs, and then only for power circuits. The ceiling spaces of older dwellings (where both power and lighting circuits typically run), are of particular concern because:

- Pre-1960 homes are mostly wired with VIR (Vulcanised India Rubber) insulated cables, a known safety risk since the late 1980s. In hot ceiling spaces such insulation becomes brittle over time, and falls or is easily brushed off exposing live wires.
- Poor wiring installation practices in WA, prior to the mid-1980s, allowed cabling joints in accessible locations to be made without the need for them to be properly enclosed. As joint insulation deteriorates over time, these joints now present a serious potential shock risk to persons (including tradespersons) entering ceiling/roof spaces, as they often forget to first turn off the power supply.

Protecting lighting **and** power circuits of all dwellings with two RCDs at the main switchboard (to provide less risk of all lights and power outlets tripping off

simultaneously) overcomes these problems and also safeguards persons using electrical appliances.

For many years EnergySafety promoted retrofitting RCDs into pre-1992 dwellings. During the late 1990s a major publicity campaign, including TV advertisements, achieved only limited success. Although the cost of installation is modest and householders recognise the benefits of RCDs, householders are reluctant to give RCDs priority over their other expenditures such as cars, TVs and Hi-Fi equipment. This was concluded on the basis of a consumer survey.

It was previously determined that government should set an example by installing hardwired smoke alarms and RCDs in its stock of public housing before requiring the general public to do likewise.

In February 2003 (when EnergySafety reported to the Minister for Energy), a joint Minister for Energy and Minister for Consumer & Employment Protection draft Cabinet Submission was prepared to:

- require the installation of RCDs in dwellings, if not already installed, as a condition for the sale of properties (a concept already employed in some other parts of Australia); and
- require rental property owners to provide RCD protection, within a 3 year period.

During the preparation of the Submission the Department of Housing and Works commented that the cost to make HomesWest dwellings comply was \$7m and as a result the draft Cabinet Submission did not proceed at that time.

Since then the Department of Housing and Works received funding to complete the process of installing RCDs in all HomesWest metropolitan and regional dwellings by:

- 30 June 2006 – metropolitan dwellings;
- 30 June 2007 – regional dwellings.

The installation of smoke alarms in HomesWest dwellings is now complete.

On 23 February 2000 a child aged 4 years was electrocuted in a bath. The Deputy State Coroner in her finding issued following the Inquest into the death determined that the cause was a faulty extension cord that allowed intermittent connection between the active and earth conductors. One of the seven recommendations of the Deputy State Coroner was that “consideration be given to a program to achieve the retrofitting of residual current devices to properties built prior to 1991. One option would be to require they be installed in the event of sale or exposure of the property for rental purposes”. This proposal addresses the Coroner’s recommendation.

Residents continue to sustain electrical accidents, some fatal, from electrical installations without RCD protection. It is estimated that of the 36 non-workplace fatalities over the last 16 years, 31 would have been prevented if an RCD had been installed. Examples of such fatalities are:

- On 14 May 2005 in an old dwelling in Floreat, deteriorated original wiring (that had become defective) and unsafe wiring associated with an earlier extension contributed to the electrocution of a person connecting a gas heater to a gas bayonet; and

- On 23 October 2006 in a dwelling in Innaloo an electrician installing socket outlets and an oven was electrocuted when he came in contact with live conductors in the roof space.

Homes built between 1992 and 2000 would require a lesser expenditure as only one additional RCD needs to be fitted.

There is the possibility that the retrofitting of RCDs into pre 1960s premises may cause some “nuisance tripping” of parts of the installation. In fact it is not “nuisance tripping” but a safety alert that indicates, in the interest of safety and consumer (purchaser) protection, the vendor needs to have those parts of the installation rewired, to rid the installation of a serious safety defect. In other words this should not be seen negatively, but positively.

3. OPTIONS

There are a number of options to be considered with regard to this matter and they are described below.

Option 1: Status quo.

EnergySafety to continue its present policy to raise awareness of homeowners and landlords regarding the potential hazards that may exist in their electrical installations and the relatively inexpensive solution that is available to remove these hazards by installing RCDs.

Significant funds have already been spent with disappointing results. It is considered that a continuation of this policy as the primary and sole activity will not achieve a result different from that already achieved and that lives will continue to be needlessly lost due to electrocution of occupiers and tradespersons.

Option 2: Require all residential premises to be fitted with at least two RCDs within a defined period.

This option requires legislation that obliges homeowners and landlords to install at least two RCDs in their premises within a timescale defined in the legislation (say five years).

Whilst the concept behind this option achieves the desired end result its execution is problematic. There is no incentive for the installation of the RCDs to occur. It is likely that most homeowners and landlords who are inclined to install the devices will wait until the end of the defined period at which time there will be pressure on the availability of Electrical Contractors who will not be able to perform the volume of work within the time remaining. The likely result is that the work will not proceed or will be attempted by unlicensed persons with possible deadly results, the opposite of the intention of the initiative.

There is also the difficulty of determining if the equipment has been installed. This would require a massive inspection program and is considered unreasonable and unachievable.

Option 3: Require all residential premises to be fitted with at least two RCDs within a defined period after sale of the property.

Since 2002, in Queensland, purchasers of domestic residences must install an RCD within three months of the property transfer, a property sale being considered in that State as the best time for triggering RCD installations into older dwellings.

Compliance in Queensland is only about 70%, which is considered unsatisfactory. Other States/Territories are considering options to retrofit installations with RCDs, with most favouring the property vendor obligation.

The cost of installing the RCDs under this option falls on the purchaser who has already been subject to a significant number of costs relating to the purchase of the premises and its furnishing and may be reluctant to incur expenditure on RCD installation in preference to other items deemed necessary to daily living.

As with option 2 there is difficulty in determining if the equipment has been installed which would require a significant inspection program.

The other matter is that neither owner-occupied nor tenanted premises need be fitted with RCDs until they are sold, an undefinable period of time.

Option 4: Require all owner-occupied residential premises to be fitted with at least two RCDs on or before the transfer of the land title and all premises subject to the *Residential Tenancies Act 1987* to be so fitted within a defined period.

This option requires legislation that:

- Obliges the owner of a residential premises to have at least two RCDs installed, in accordance with the Wiring Rules, prior to the transfer of the land title;
- Obliges the owner of a residential premises that is leased, rented or hired to have at least two RCDs installed, in accordance with the Wiring Rules:
 - prior to the transfer of the land title (where the property is being sold); or
 - prior to entering into an tenancy agreement with a new tenant; or
 - prior to making the premises available for rent, lease or hire for the first time; or
 - in any case, within 24 months of the legislation coming into force.

The legislation mainly affects residential premises constructed before 1991 but has some effect on those constructed between 1992 and 2000 in that only one additional RCD is required.

The legislation is structured so that within two years the occupiers of tenanted premises and short-stay accommodation and tradespersons working in such buildings will be protected from electric shock by RCDs. This will assist the owners of such premises to meet their duty of care responsibilities. The relatively low expenditure involved to install the RCDs may be recovered in the rent and hire charges.

In the case of owner occupied premises there is no defined time period for the installation of RCDs. However, as the average time between sales of residential premises is about seven years a significant number of dwellings will have RCDs installed within the first 10 years after the legislation comes into force. The relatively low expenditure involved to install the RCDs may be recovered through the proceeds from the sale of the dwelling. The extended time period means that the resource requirements placed on the electrical contracting industry will be minimised.

EnergySafety will continue to remind homeowners of the need to install RCDs to protect themselves, their family and tradespersons working on the property. In future informed tradespersons may refuse to work on a property that does not have RCD protection due to safety and liability concerns.

The legislation also places obligations on the owners of non-strata multi-unit buildings and the bodies corporate of strata unit buildings regarding RCD protection for the house services circuits and common property circuits.

Compliance with the legislation will be achieved by a number of mechanisms. Landlords are obliged under the *Residential Tenancies Act 1987* to comply with all relevant legislation, which would include this legislation when it comes into force. EnergySafety inspectors and network operator inspectors will undertake sample audits of rented properties to determine the level of compliance after expiry of the two year transition period. Homeowners will be subject to conditions of sale imposed by potential purchasers who have been made aware of the RCD requirement by the public education program that will be instigated by EnergySafety through various publications and other media. EnergySafety inspectors and network operator inspectors will undertake sample audits of sold properties to determine the level of compliance. It is intended to approach the Real Estate Institute of Western Australia regarding changes to their Offer for Sale and Acceptance form so that the requirement for the RCDs becomes a standard condition of sale.

4. CONCLUSION

Options 1, 2, and 3 only partly address the requirement for the installation of RCD protection in all residential premises and have significant shortcomings in achieving the required result, being as close to 100% compliance within a reasonable period of time.

Option 4 achieves maximum compliance in leased, rented and short-stay premises within 24 months and will achieve satisfactory compliance in owner occupied premises within 10 years or so after the legislation comes into force and has a built-in compliance mechanism.

EnergySafety therefore believes that Option 4 should be implemented in accordance with the draft regulations available on its website at www.energysafety.wa.gov.au.

5. COMMENTS

Comments are invited on the proposal outlined above from electrical and real estate industry stakeholders and the general public. Such comments may be sent by mail, fax or email, addressed as set out below so as to be received by 28 November 2008.

By mail:

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