MASTER ELECTRICIANS AUSTRALIA

Lead.Connect.

ESV Regulation changes

- Point of Supply
- ES Installations Regulation
- Exemption orders

[redacted] / October 2019

Introduction

Master Electricians Australia (MEA) is the trade association representing electrical contractors recognised by industry, government and the community as the electrical industry's leading business partner, knowledge source and advocate. Our website is www.masterelectricians.com.au

Master Electricians would like to thank ESV for the opportunity to respond to the various changes in the regulations and provide the following comments.

Achieving the greatest possible protection from electrical harm.

The opening sentence of the summary part of the RIS says this:

Stray electrical currents travel along paths (in the earth) other than their intended path …

Those 14 words capture the most serious challenged faced by the electrical contracting industry every day. Put simply, the work we do and the product we work with, can cause injury and death. While this RIS focuses on one form of protection for consumers and electrical workers, in our view it overlooks the most cost-effective and efficacious protection – residual current devices (RSDs) or safety switches. Research undertaken by Master Electricians suggests up to 15 people are killed and 300 hospitalised in Australia each year in domestic electrical accidents that could have been prevented had safety switches been installed.

So as regulators in Victoria consider ways in which to strengthen the electrical safety regime, Master Electricians Australia urges both regulators and politicians to consider mandating wider use of safety switches as part of a holistic approach to protecting people from the potential dangers occur when, as cited above, stray electrical currents travel along unintended paths.

Around 60 per cent of Victorian homes have one or more safety switches installed. Although this may seem like a high figure, it still means that a large portion of Victorians are not adequately safeguarded in the event of electric shock. And very few homes have protection for all circuits. Safety switches are mandatory in Victoria for all new properties on both power and lighting circuits. They are also required on older properties where extensive renovations have taken place. Many other states – such as Queensland and Western Australia – have made it mandatory to have a safety switch installed on every circuit. It is time that Victoria lifted its electrical safety standards to the same level.

In recent years Victoria has been plagued by a spate of electrical deaths that were entirely avoidable. From young apprentices to elderly Victorians performing DIY electrical work, too many lives have already been lost. The only way to comprehensively safeguard all Victorians from the threat of electric shock is via changes to government regulation It is time to lift Victoria's electrical safety standards into line with numerous other states who have already made safety switches mandatory on all properties. In the end, the cost and inconvenience to home owners must be measured against the human cost of inaction.

Urgent action required

Master Electricians Australia urges Energy Safe Victoria to encourage a move towards more widespread use of safety switches to prevent electrical accidents caused by inadvertent current leakage. While we believe that ideally safety switches should be fitted to every circuit in every home, we also believe there is some "low hanging fruit" – areas in which regulations could be enacted relatively quickly and at relatively low cost to home owners. In the first instance, governments should regulate for safety switches on all circuits in situations where home owners are profiting from their property. This would include the sale of existing homes, where adding safety switches to the property could be mandated as part of the sale process. It could even be done during the settlement period, funded from the purchaser's deposit so there would be no out-of-pocket costs to the home owner. Such a move would ensure the entire Victorian housing stock was upgraded over time.

The second area is on rental properties. We believe landlords could reasonably be required to provide the highest level of electrical safety for their tenants. Given the relatively low cost associated with retrofitting modern safety switches to switchboards, and considering that such expenses are tax-deductible to the owner of a rental property, we believe there is no good reason not to implement this measure for rental homes. As a matter of social justice, we believe that people should not be denied the safest possible electrical environment simply because they do not own the home in which they live. All residents are entitled to be protected from harm and death in their homes. And we urge the Victoria Government to show leadership in relation to its own public housing stock. The most vulnerable members of society – public housing tenants – are entitled to the same levels of safety as are available to others. Upgrading the switchboards in all public housing would set an example for private landlords and put the state on the road to ensuring maximum electrical safety.

Underground consumer's mains

Insulation resistance

Underground consumer's mains will need to meet the insulation resistance requirements set out in Table 216B (216B). It must meet these requirements when the work is tested after it is completed (231(1a)).

MEA would raise the following observation concerning the above change. We believe that the following extract from AS/NZS 3000 and the Victorian Service & Installation Rules - 2014 may present a conflict in interpretation and understanding by contractors and their staff. AS/NZS 3000 states

AS/NZS3000:2018

8.3.6.3 *Results*
The insulation resistance between—
(a) the conductors of consumer mains and submains; and
(b) live and earthed parts of an electrical installation, or parts thereof,

including consumer mains and submains, shall be not less than 1 MΩ.

Exceptions:

Acceptable insulation resistance values for items likely to adversely affect test results are as follows:

1. *For sheathed heating elements of appliances; not less than 0.01 MΩ.*
2. *A value permitted in the Standard applicable to the electrical equipment.*
3. *For functional earth connections of RCDs; not less than 0.05 MΩ, or as prescribed by the manufacturer.*

NOTES:

1 For shorter cable runs, the insulation resistance should be significantly greater than 1 MΩ, e.g. for polymeric cables up to 50 m a value in excess of 50 MΩ would be expected.

2 Insulation resistance varies with insulation materials, and decreases with increased length and/or higher temperature.

3 PVC insulated cables with a route length of 50 m can be expected to have insulation resistances of at least 20 MΩ at a temperature not exceeding 20°C but only 6 MΩ at a temperature of 30°C.

4 XLPE insulated cables can be expected to have insulation resistance of at least 1500 MΩ for a route length of 50 m.

Victorian Service & Installation Rules - 2014

5.2.2 Testing

The Electricity Safety Act and Regulations require all electrical installation work to be tested in accordance with that Act and Regulations. Underground consumer's mains shall also be tested to ensure compliance with SIR Clause 7.5.2.1 (Minimum Insulation Resistance).

7.5.2.1 Minimum Insulation Resistance

The insulation resistance between conductors and between conductors and earth of unmetered mains and sub-mains shall not be not less than the following values when tested using a 500 V D.C. insulation resistance tester:

- *For cables up to 50 m route length – 50 MΩ.*
- *For cables in excess of 50 m route length, a reduction of 5 MΩ for each additional 25 m route length is acceptable subject to an absolute minimum of 5 MΩ being obtained.*
- *On reconnection of existing installations, if the underground mains test greater than or equal to 5 MΩ and less than 50 MΩ, the supply will be reconnected and a defect notice may be issued.*

Master Electricians would raise the following feedback :-

- There is no allowance in the regulation for reconnection of existing mains after a fault.

- That the regulation introduces confusion regarding the correct M ohms result compared to AS/NZS 3000 and the Victorian SIR and that environmental and other conditions will have a significant impact on these readings. In AS/NSZ 3000 the notes in section 8.3.6.3 provide guidance needed.

Definitions:

Master Electricians would like to highlight that there is some inconsistency in the definitions section of the regulation and the Victorian SIR 2014. The regulation and AS/NSZ 3000 2018 are consistent however the Victorian SIR 2014 are not consistent with the other 2 documents.

Our concern is confusion in the industry. Obviously, our preference is to maintain the definitions in the ESV Regulation and AS/NSZ 3000 definition of Service Protective Device, however the Vic SIR 2014 refer to a Supply protective device with no clear definition.

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> ***Service Protective Device****: means a fuse, circuit breaker or other protective equipment installed for interrupting the supply to an electrical installation from the supply network of a major electricity company or interstate electricity supplier;*
>
> ***AS/NZS3000:2018***
>
> *1.4.106 Service protective device*
>
> *A fuse or circuit-breaker installed as required by the electricity distributor for interrupting the supply to an electrical installation on a consumer's premises from the supply main.*
>
> ***Victorian Service & Installation Rules - 2014***
>
> *6.8.2 Assemblies to Accommodate LV Supply Protection Devices (SPD)*
>
> *6.8.2.1 General*
>
> *The customer is responsible for the provision of an assembly to accommodate supply protective device/s (SPD) provided by the Distributor. This equipment must be of an acceptable type as required by these Rules and shall be located and installed in accordance with the relevant requirements of the current Electricity Safety Act and Regulations*.

Patient areas

MEA wishes to raise concerns over the confusing responsibilities and or duties of "Occupiers", "A person who commissioned electrical installation" and "electrical contractors".

> ***202B Electrical installation work in patient areas***

A person must not install, alter, repair or maintain an electrical installation or a portion of an electrical installation in an area the person knows or should reasonably be expected to know is a patient area or intended to be a patient area unless the installation or the installed, altered, repaired or maintained portion of the installation complies with AS/NZS 3003.

Division 1B—Duties related to patient areas

303C General duties—patient areas

*(1) **The occupier** of any premises that contains a patient area or an area that is intended to be a patient area **must ensure that**—*

(a) any electrical installation installed in the patient area or any installed, altered, repaired or maintained portion of an electrical installation located in the patient area complies with AS/NZS 3003; and

(b) any electrical installation located in the patient area is safe and maintained and operated safely.

(2) A person who commissioned electrical installation work on any premises that contains a patient area or an area that is intended to be a patient area must ensure that—

(a) any electrical installation installed in the patient area or any installed, altered, repaired or maintained portion of an electrical installation located in the patient area complies with AS/NZS 3003; and

(b) the registered electrical contractor or licensed electrician commissioned to carry out the electrical installation work in the patient area is given written notice prior to the carrying out of that work—

(i) that the work requires or includes electrical installation work in a patient area or an area intended to be a patient area; and

(ii)detailing the location and boundary of the patient area; and

(iii)detailing the use or intended use of the patient area.

Specifically, our concern is with the wording in section 202 B “or should reasonably be expected to know”. We believe that this wording is in direct conflict with the duties of occupiers and “a person who commissioned electrical installation”. It is imperative that if there is a duty bestowed on a party then that party should be solely responsible for that duty. This is also a cause for concern between Occupiers and “a persons who commissioned electrical installation” who has the greater duty if they are not the same person.

MEA believes that section 303 (c) (1) and (2) may well be improved by adding additional wording to assist both the “Occupier and “Commissioner” be advised in the regulation how to fulfil their duties. MEA would suggest wording such as

303 (c)

(3) For the parties idenitifed in subsection (1) and (2) the relevant duty may be fulfilled by advising the electrical contractor engaged to under take the work, referred to in Section 202(b), that the premise will contain patient areas and provide detailed instructions or plans to the contractor as to the location and use of the patient areas within the premise.

This paragraph also achieves an outcome in section 202 on how an electrical contractor can fulfil their responsibilities in relation to patient areas.

Multiple occupancy buildings and subdivisions

MEA would question with section 209 regarding the intent of this section only applying to “new” occupancy building and subdivisions. MEA is unclear of the intent and application of the new regulation being applied to existing installations. MEA would suggest that the regulators intent for this clause is made clear by either inserting a date that the requirements apply from or that this regulation is applicable only after the commencement date. Again we would suggest in either edit that a date of application is inserted into the regulation.

209 Multiple occupancy buildings and subdivisions

(1) Any consumer’s mains or switchboards associated with the distribution of electricity to lots within a multiple occupancy building or subdivision must be installed on common property associated with the multiple occupancy building or subdivision.

(2) Submains supplying an individual occupier’s portion may only be installed within that individual occupier’s portion or any common property associated with the individual occupier’s portion.

(3) Any subcircuit that originates from a switchboard associated with an individual occupier’s portion of a multiple occupancy building or subdivision must not supply electricity to another individual occupier’s portion.

238 Prescribed electrical installation work

MEA wishes to clarify the interaction of 2 sections of the regulations and if necessary seek relevant alterations which improves interpretation of the regulations intent. Section 238(2) states;

> *(2) For the purposes of section 45 of the Act, prescribed electrical installation work means work on all or part of any fixed electrical equipment operated at any voltage installed in a patient area (other than communication equipment operated at extra low voltage).*

However in Schedule 6 : Installation Of Low Voltage Equipment

> Person installing low voltage plug-in electrical equipment that requires assembly.
>
> Example: a person who is not licensed or registered as an electrical contractor under the Act can install low voltage medical equipment that requires assembly and making internal electrical connections, provided that the person is approved by the manufacturer and the medical equipment is designed to be connected to electricity supply by plugging into a socket outlet designed for the plug.

Our concerns are raised when AS/NZS 3000:2008 definition is used to determine what is electrical equipment which states

> *1.4.50 Electrical equipment*
>
> *Wiring systems, switchgear, controlgear, accessories, appliances, luminaires and fittings used for such purposes as generation, conversion, storage, transmission, distribution or utilization of electrical energy.*

We believe that appliances as defined as electrical equipment in both section 238 and schedule 6 causes a conflict in the interpretation.

Emergency restoration of private electric aerial lines in high bushfire risk areas

MEA would request that within the regulations as an addendum note that the relevant website location of the portal to obtain the reference code from Energy Safe Victoria be provided.

> ***221 Emergency restoration of private electric aerial lines in high bushfire risk areas***
>
> *(2) The installation work responsible person must—*
>
> *(a) prior to the commencement of any reconstruction work—*
>
> *(i) obtain a written undertaking from the owner of the private electric line that the owner will have the private electric line placed underground within 60 days after the date of the undertaking the reference code referred to in paragraph (iv) was obtained; and*

(ii) provide Energy Safe Victoria with the number of the certificate of electrical safety that will be issued in relation to the reconstruction work; and

(iii) if requested by Energy Safe Victoria, provide Energy Safe Victoria with a digital photograph or copy of the written undertaking referred to in paragraph (i); and

(iv) obtain a reference code from Energy Safe Victoria for that work #; and

(v) obtain a reference code from Energy Safe Victoria for that work; and

(b) within 5 business days after the completion of the reconstruction work, provide Energy Safe Victoria with—

(i) a copy of the undertaking referred to in paragraph (a); and

(ii) the reference code for that work; and

(iii) the certificate of electrical safety for the reconstruction of the private electric line; and

(c) carry out that reconstruction work in accordance with regulation 220(2) and (3).

 # ESV reference code as per subclause 2(a)(iV) may be obtained from www.esv.gov.au