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29 January 2016

The Research Director  
Legal Affairs and Community Safety Committee  
Parliament House  
Brisbane QLD 4000

Sent via email to: [lacsc@parliament.qld.gov.au](mailto:lacsc@parliament.qld.gov.au)

Re: *Fire and Emergency Services (Smoke Alarms) Amendment Bill 2015*

Dear Sir/Madam,

Master Electricians Australia (MEA) appreciates the opportunity to comment on the *Fire and Emergency Services (Smoke Alarms) Amendment Bill 2015*.

MEA fully supports legislation being introduced that would require all residential accommodation to be fitted with hard-wired, photoelectric and ionisation type smoke alarms. While battery operated smoke alarms are certainly better than nothing, hard-wired smoke alarms can detect fire faster and are more reliable in the long term. MEA would support any legislative and/or regulatory measures that would require these in every home.

Regarding the specific clauses in the Amendment Bill, we recommend the following changes:

**Clause 5 (1)(2A)(a) – Alarm type**

MEA would not recommend mandating the use of one specific alarm type as at Clause (1)(2A) of the Bill. We draw attention to Australian Standard "Fire detection, warning, control and intercom systems-system design, installation and commissioning" AS1670.6-1997 *Appendix A* which discusses fire and detection characteristics.

**A4 ALARM SELECTION**

**A4.1 General** *The object of any smoke alarm is to provide early warning of a fire in order to maximize escape time. Whilst attempting to reach the same objective, different detection principles, such as ionization or photoelectric, behave differently. In deciding which type to install, consideration needs to be given to the likely type of fire (smouldering or fast flaming) and therefore the type of particulate matter and gases to be detected. The ambient conditions and the likelihood of the installation creating an unacceptable level of nuisance alarms should also be considered. A mixture of alarm types may be required to optimize detection results.*

We recommend a combination of both photoelectric and ionisation smoke alarms to ensure thorough fire detection in a home. Photoelectric alarms can detect visible particles of combustion, for example, smouldering cigarette smoke, and respond to a wide range of fires. They are particularly responsive to smouldering fires and the dense smoke given off by foam filled furnishings or overheated PVC wiring. Ionisation smoke alarms detect invisible particles of combustion, for example from burning toast, and activate more quickly for fast, flaming fires



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with little visible smoke. Each alarm type has different features suited to the fire risks in particular areas of a home and only with a combination of photoelectric and ionisation alarms will residents have the highest level of fire protection.

For these reasons, legislating for the installation of both alarm types, or a combination alarm that offers both kinds of detection, is the preferred approach. This would ensure a higher level of protection for residents in domestic dwellings in line with the recommendation of Fire and Rescue NSW.

#### **Clause 5 (1) (2B)(a) – Voltage rating**

We recommend that the voltage rating at *Clause 5 (1) (2B)(a)* be consistent with AS/NZS 3000:2007 (The Wiring Rules) which specifies 230V. See clause 1.6.2 of the Wiring Rules:

...

*(c) Voltage and voltage tolerances.*

*NOTE: The nominal voltage and tolerances for low voltage supply systems and electrical installations are—*

*(a) for Australia, 230/400 V +10% to -6% (in accordance with AS 60038);*

#### **Clause 5 (1) (2B)(b) – Hard wired with battery backup only**

A smoke alarm must be hard wired to a dwelling's electricity supply with a battery as a backup measure only in the event of a power outage. It is a reality that occupants remove smoke alarm batteries when they intermittently activate, making the smoke alarm inoperable. Allowing the use of battery only smoke alarms, even if a sealed battery unit, will enable consumers to remove the batteries or the entire smoke alarm from service, leaving the occupants unprotected.

We further recommend that battery only operated smoke alarms should be removed from sale as a priority.

#### **Further comment**

There are other measures, in addition to smoke alarms, that MEA believes would go a long way towards preventing smoke and fire related deaths. Electrical installations that are faulty and/or not properly maintained pose a serious fire risk. Data from the Australasian Fire Authorities Council indicates that 23% of house fires across all Australian states are caused by electrical fault. A large number of these fires can be avoided if the following measures are implemented, namely:

#### **1. Install safety switches on all capable subcircuits**

With the increasing availability of cheap imported electrical products, the risk of substandard electrical equipment faulting and creating a fire risk grows for unknowing consumers. Safety Switches work to prevent fire by detecting the leakage to earth of current from a circuit and tripping the circuit within as little as 30 milliseconds. This



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technology not only saves lives directly by preventing electrocution but significantly reduces the risk of property damage and loss of life due to fire.

Unfortunately, despite the deaths of four young men under the Home Insulation Program (HIP), no state or territory government has committed to legislation that would require safety switches on all capable subcircuits in all homes. This is despite the fact that one of the key recommendations emerging from the 2013 Coronial Inquest into three of the deaths under the HIP was an expansion of safety switch laws. In the Report of the Royal Commission into the HIP that followed in 2014, Mr Ian Hanger AM QC, also recommended that safety switch requirements be expanded throughout Australia. To date, neither of these recommendations has been actioned.

Safety switch requirements differ from state to state with some more comprehensive than others. However, importantly, no state or territory requires safety switches to be installed on all capable subcircuits in all homes with most applying only to power and/or lighting circuits. The fitting of safety switches on power and lighting circuits only, while providing some protection against electrical shock, leave the circuits that support appliances such as stoves, ovens, hot water systems and air-conditioners, unprotected. A range of factors such as water ingress, screwing or nailing through live cables inside walls, and contact with damaged equipment can cause injury or death on circuits other than power and lighting.

MEA has been campaigning tirelessly for over five years for the expansion of safety switch laws. It is time for government to take immediate action and change safety switch laws before more lives are needlessly lost.

## 2. Install arc fault interrupters

An arc fault interrupter is a type of circuit breaker that breaks the circuit when it detects a dangerous electrical arc. Electric arc faults occur when an electric current quits its intended path and travels through damaged insulation. Each arc heats and gradually carbonizes the insulation, eventually resulting in the carbonized insulation igniting.

The most common causes of an electrical arc fault are loose wiring, ageing installations, damaged extension cords, overloaded plug outlets and faulty appliances.

An arc fault interrupter distinguishes between a harmless arc that occurs incidental to normal operation of switches, plugs and brushed motors and an undesirable arc that can occur, for example, in a lamp cord that has a broken conductor in the cord.

MEA would like to see government encouraging the Queensland public to have arc fault interrupters installed on their switchboard as an integral fire prevention tool.

## 3. Arrange for a five yearly inspection by a licensed electrical contractor of all electrical equipment

The reality is that all electrical installations deteriorate over time, particularly those of lower quality. A further fire prevention method is a regular inspection of all household electrical



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installations every five years. A periodic inspection by a licensed electrical contractor can reveal if any electrical circuits or equipment are overloaded, identify any electric shock risks and fire hazards, recognise any defective electrical work and highlight any lack of earthing or bonding.

#### 4. Stop the sale of noncompliant electrical articles

In addition to the above measures, it is imperative that smoke alarms and all electrical goods sold in Australia meet Australia's stringent safety standards. The recall of Infinity cables and the more recent raft of hoverboard battery chargers deemed not to meet Australian standards, demonstrate the need for more stringent procedures to be put in place that would prevent faulty electrical product being made available to consumers.

These measures include:

- National implementation of the Electrical Equipment Safety System,
- Creation of a register of electrical products to facilitate an efficient safety recall, and
- Cooperation between Customs, the Australian Consumer and Competition Commission and state electrical regulatory bodies to prevent noncompliant product from entering the Australian marketplace.

In the interests of electrical safety and to prevent any further tragedies, we urge the Queensland government to support these measures going forward.

Finally, MEA strongly recommends that any regulatory measures addressing smoke alarms be accompanied by an awareness campaign educating the public about the importance of testing their smoke alarms regularly.

MEA would welcome any opportunity to be involved in future consultations on this critical safety issue.

Yours sincerely,

A handwritten signature in black ink, appearing to read "Gary Veenstra".

Gary Veenstra  
State Manager - Queensland