ORR Partners
Fire Safety and Bushfire Consultants

Submission

Fire and Emergency Services (Smoke alarms) Amendment Bill 2015

Legal Affairs and Community Safety Committee

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FPA AUSTRALIA
Bushfire Planning and Design Accredited

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Introduction

We would like to thank the Legal Affairs and Community Safety Committee for the opportunity to comment on the proposed legislation.

Much has been made of the debate between ionization and photoelectric smoke alarm technology. There have been calls for outright bans on the sale of ionization based products. Such calls whilst well-meaning fail to understand the issues and oversimplify the problem. Do they suggest simply changing from one technology to another will stop fatalities in residential accommodation, it will not. What do we tell a community when having changed technology we still have residential fatalities. If we present this simplistic message are we in danger of providing a false sense of security to a population that has no understanding of the issues involved. If I change the device that's all I need to do, then issues such as good housekeeping, fire prevention and understanding of the nature of fire and planning to escape will be lost or seen as unnecessary.

Residential fire protection is multifaceted if the outcomes we all aspire to are to be achieved; detection technology is only one aspect. Ionization smoke alarms do work, they detect the byproducts of a fire be it at a flaming stage. Over the years they have been used and they have reduced the death toll from fire in residential and domestic accommodation. So what is the issue today that makes this technology inappropriate?

Times have changed, our homes are now filled with synthetic materials which burn hotter and faster than natural materials, melt and provide a much greater heat release. They also give of toxic and debilitating fumes. The impact of these factors, particularly with detection at the flaming stage, results in a reduced available safe evacuation time. Today estimated at less than 3 minutes from first flame. Australian Standard AS1670.1 mandates the installation of photoelectric detection in sleeping areas and paths of travel to an exit, it did not ban ionization detectors. This was for two fundamental reasons:

1. The most likely design fire in a sleeping area is a smouldering fire. As photoelectric detection is more suited to this type of fire development, it is the technology of choice.

2. The issue with the egress paths is one of visibility. Even when fire development is adequately detected if the exits are not clearly visible they are unlikely to be used, reducing the evacuation options and potentially trapping the occupant. As the photoelectric technology is based on obscuration levels i.e. a developing lack of visibility, it again is the most appropriate detection technology.

The issue is therefore not whether one technology is faulty and another not, the issue is one of fitness for purpose. In residential accommodation today we do not see single fuel type fire, residential fire involve multiple fuel types and therefore, as a generalization, residential fires will always contain elements of the visible smoke suited to photoelectric technology. As such photoelectric smoke alarms cover a greater range of residential fires and should be the technology of first choice. If the minimum is being installed to meet the regulatory requirement that minimum should be photoelectric. This is not to say ionization smoke alarms could not be used to supplement the regulatory minimum where appropriate.

Mandating the most fit for purpose technology is however only one element of residential fire safety. Consideration of installation location to avoid nuisance alarms and therefore possible disablement, installation covering all levels of the building, interconnection of all devices to simultaneously raise the alarm throughout the residence, adequate sound level to awake a sleeping occupant and an education program for residents to understand the nature of fire and how fast a structural fire can develop. The tragic Slacks Creek house fire is an example of a failure in each of these elements, let us not have another one.

General Comment:

In this submission a reference to a clause is a reference to the clause number within the Fire and Emergency Services (Smoke Alarms) Amendment Bill 2015.

Throughout the proposed amendments the term owner and lessor are both used. Should this not be consistent and refer only to the owner. Does not the lessor also work as the agent of the owner?

We are unsure whether this amendment applies only to leased or rented accommodation or whether it is intended to cover all residential accommodation and domestic dwellings. The comments provided are based on rental residential accommodation. Should it be intended to apply to all housing stock then a requirement permitting a 9V photoelectric smoke alarm with user replaceable battery may be required for non-rental properties.

Clause 4: Amendment of s 104RA (Definitions for div 5A)

Comment 1: This comment refers to the proposed insertion of a definition of *building classification.*

The definition for "building Classification" refers to a specific release of the Building Code of Australia. The comment is to seek the removal of the 2015 reference and make the clause generic. This is considered appropriate as the BCA as amended is adopted within each state and territory through the Building Codes Committee process. Removing the date reference removes the potential need in the future for an unnecessary amendment the act simply because the wording within A3 is amended.

Suggest:

> ***building classification*** *means a building classification under the Building Code of Australia as at the date of the application of this legislation.*

This way the definition would apply as at the time of installation.

Comment 2: This comment refers to the proposed insertion of a definition of *domestic dwelling*.

This comment seeks to simplify the wording. The proposed wording covers both class 1a and class 1b buildings. A reference to class 1 is, under the BCA, a reference to both Class1a and Class 1b. Secondly the BCA definition of sole occupancy unit is wider than buildings that provide sleeping accommodation.

The presumption is s. 104 of the Act applies purely to buildings providing sleeping accommodation not other forms of SOU. The removal of the reference to Class 2 building may provide unintended consequences.

Suggest:

> ***domestic dwelling*** *means—*
> *(a) a building classification class 1; or*
> *(b) a sole occupancy unit within a class 2 building.*

Comment 3: This comment refers to the proposed insertion of Section 104RB (2) Sub-clause (2) (a).

Under the definition of sole-occupancy unit remove the date reference.

Suggest:

"under the Building Code of Australia part A1.1,"

Reason as per comment 1

Clause 5: Amendment of s 104RB (Owner must install smoke alarm)

Comment 4: This comment refers to the proposed insertion of Section 104RB (2) Sub-clause (2) (a).

The clause is dealing with the location of the smoke alarm per storey within the dwelling and draws a distinction between storeys containing bedrooms and those that do not.

The proposed wording in (i) references a dwelling, a reference to storey is considered more appropriate as that is the focus of the clause not the dwelling itself.

The proposed wording in (ii) does not make it clear that a smoke alarm installed in the hallway serving a bedroom satisfies the requirement of (i). Our comment is predicated on the assumption that was the intention. If this is not clarified some practitioners may seek to double up by placing one smoke alarm in the living area serving the hall and an additional smoke alarm(s) in a hallway itself. Given the detection spacing indicated in AS1670.1 this may needlessly increase costs.

Suggest:

(2) A smoke alarm must be installed on or near the ceiling—

(a) for each storey of the domestic dwelling containing a bedroom—

(i) between each part of the storey containing a bedroom and the rest of that storey; and

(ii) where a part of the storey containing a bedroom is served by a hallway, that has an entrance to a bedroom, in that hallway;

(iii) Compliance with (ii) satisfies the requirements of (i),

(b) for each storey that does not contain a bedroom—in an exit path for that storey.

Comment 5: This comment refers to the proposed insertion of Section 104RB (2A) Sub-clause (b).

This comment seeks to remove the limitation imposed by specifying a date reference for the smoke alarm product standard. AS3786 1993 has already been superseded by AS3786 2014 which is referenced in BCA2015. Currently both the 1993 and 2014 versions are referenced in BCA 2015 to allow manufacturer's a transition period to the new ISO based smoke alarm standard. The 1993 version it is expected will be deleted in a future release of the BCA. It is suggested to remove the date reference in favour of the application date of the legislation or to simply reference BCA Specification A1.3 Documents adopted by reference.

Suggested:

(2A) Each smoke alarm must—

(a) be a photoelectric smoke alarm; and
(b) comply with AS3786 as at the date of the application of this Act, and
(c) have been manufactured less than 10 years before the smoke alarm is installed; and
(d) operate when tested.

Comment 6: This comment refers to the proposed insertion of Section 104RB (2B) Sub-clause (a).

The reference to 240V should be 230V. Australia has standardized on a consumer voltage of 230Vac.

Suggest:

(2B) Also, each smoke alarm must be—

*(a) a **230V** smoke alarm that is hard-wired to the domestic dwelling's electricity supply;*

Comment 7: This comment refers to the proposed insertion of Section 104RB (2B) Sub-clause (b).

104RB(2B)(b)(i) -The current requirement in the BCA specification E2.2a is for a smoke alarm system is for connection to the consumer mains. This typically is a 230Vac smoke alarm which, under the AS3786 standard this is considered an externally powered smoke alarm. As such it requires a secondary power source, typically a battery.

When the primary power, consumer mains, is missing the battery takes over; equally if the battery is missing there is still the primary power. This provides a redundancy and therefore reduction is risk to life safety due to the smoke alarm being non-functional due to loss of a power source. Where a smoke alarm has only an internal battery, removal of the battery means a loss of fire detection and increased risk to life safety.

For this reason the battery should be not user serviceable. AS3786 has provisions for smoke alarms with both a serviceable and non-serviceable battery supply; and provides a definition for “non-removable”.

104RB(2B)(b)(ii) – Battery life can be defined in its shelf life which may be 10 years or more. The shelf life does not however provide any indication as to the service life of that battery in the application to which it is being applied.

For this reason defining the battery life in terms of the service life of the product provides greater surety of performance. AS3785 has specific battery power performance requirements. Where this is applied to a 10 year non removable battery it must apply to its service life.

Suggest:

(b) powered by a battery that is—

(i) non removable; and

(ii) manufactured to have a battery service life within the smoke alarm of at least 10 years.

Clause 7 Insertion of new ss 104RDA and 104RDB

Comment 8: This comment refers to the proposed insertion of Section 104RDA Replacing battery-powered smoke alarms.

If comment 7 is implemented then there is no reference to replacing a battery. The battery has a service life of 10 years and cannot be serviced. Therefore if the smoke alarm does not function when tested then either the battery(s) are spent or the device itself is faulty either way it must be replaced.

Suggest:

(1) This section applies to a smoke alarm in a domestic dwelling that is installed to meet section 104RB(2)— 2(B)(b)

(2) If the smoke alarm does not operate when tested in accordance with section 104RD the owner of the domestic dwelling must immediately replace the smoke alarm with a smoke alarm that complies with section 104RB(2)— 2(B)(b).

(3) Despite subsection (2), the owner of the domestic dwelling must replace the smoke alarm within 10 years after the day the smoke alarm was manufactured.

Comment 9: This comment refers to the proposed insertion of Section 104RDB Replacing hard-wired smoke alarms

Mains powered smoke alarms can have two types of standby battery - one replaceable, the other being non-removable and rechargeable. Where the battery is replaceable then the owner/lessor or tenant can perform the task. Where the battery is non removable/rechargeable the outcome is the same as the non-removable 9v model. The wording for this clause needs to address both types.

For smoke alarms with replaceable batteries AS3786 requires the manufacturer to nominate acceptable battery types and models. This is to ensure any replacement battery will continue to meet the required power supply performance so the smoke alarm remains compliance to the standard.

Suggest:

(1) This section applies to a smoke alarm in a domestic dwelling that is hard-wired to the dwelling's electricity supply.

(2) If the smoke alarm does not operate when tested in accordance with section 104RD and the battery is capable of being replaced, the owner of the domestic dwelling must immediately replace the installed battery with a battery specified by the manufacturer.

(3) If subsequent to (2) the smoke alarm does not operate when tested in accordance with section 104RD, the owner must immediately replace the smoke alarm with a smoke alarm that complies with section 104RB.

(4) If the smoke alarm does not operate when tested in accordance with section 104RD and the battery is non removable, the owner of the domestic dwelling must immediately replace the smoke alarm with a smoke alarm that complies with section 104RB(2)— 2(B)(a).

(5) Despite subsection (2, 3 & 4), the owner of the domestic dwelling must replace the smoke alarm within 10 years after the day the smoke alarm was manufactured.

Background

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Principal Engineer for Brooks Australia - Major supplier of residential fire safety systems in Australia and NZ

Technical Director – Fire Protection Association Australia

Chair – Standards Committee FP002 Fire Detection, Warning, Control and Intercom System. Responsible for AS3786 Smoke Alarms and AS1603.3 Heat alarms

Chair – Fire Protection Industry (ODS & SGG) Board, Department of Environment Canberra

25 years in residential fire safety

Worked with housing bodies, private and government, nationally since 1993

BPAD – Level 3 Certified Practitioner (BPD-L3- 34)

Master Fire Safety Engineering – UWS

Graduate Diploma – Design for Bushfire Prone Areas - UWS

Member – Society of Fire Protection Engineers

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