SMOKE ALARMS

General information

Legislative requirements

In South Australia, legislation is in place to make domestic smoke alarms compulsory for all residential buildings. In some situations the smoke alarms need to be interconnected. See "Interconnecting smoke alarms" below.

Home owners are required, by Regulation 76B under the *Development Act 1993*, to install battery powered or hard-wired (240 volt mains powered) smoke alarms*.

> * Houses built since 1 January 1995 must be equipped with hard-wired smoke alarms. All other houses must be equipped with at least replaceable battery powered smoke alarms. From 1 Feb 1998 when a house with replaceable battery powered smoke alarms is sold the new owner has six months to install alarms which are hard-wired to the 240 volt power supply or powered by 10 year life, non-replaceable, non-removable batteries.

Penalties apply for non-compliance.

In rented homes the owner of the property is responsible for the installation of working smoke alarms and must ensure that they are maintained. The minimum maintenance required under Australian Standard 1851 – 2012 is detailed in [hyperlink to Smoke Alarm Servicing Schedule]. This schedule, appropriately signed and dated, can be kept as a record of maintenance. The MFS recommends a more rigorous maintenance regime (see below "Maintenance of Smoke Alarms") and suggests that more frequent maintenance instructions and responsibilities are included in leasing agreements as the responsibility of the tenant.

Why do you need a smoke alarm?

Smoke obscures vision and causes intense irritation to the eyes. This, combined with the effects of the poisons in the smoke, can cause disorientation, impaired judgement and panic, reducing the victim's ability to find an exit.

Most fire-related deaths result from the inhalation of toxic fire gases rather than from direct contact with flame or exposure to heat.

Correctly located smoke alarms in your home give early warning of fire, providing you with the precious time which may be vital to your survival.

Home Fire Escape Plan

The installation of smoke alarms forms one part of a Home Fire Escape Plan. It is vitally important that every family has a complete Home Fire Escape Plan which is practised and understood by all occupants. Advice on the development of a Home Fire Escape Plan is available from the South Australian Metropolitan Fire Service (MFS) by telephoning 8204 3611 or visiting our website http://www.mfs.sa.gov.au.

Types of smoke alarms

Ionisation Smoke Alarms

Ionisation smoke alarms detect small diameter smoke particles, the invisible products of combustion, and are most effective in the case of flaming fires. They are not suitable for locations affected by cooking, combustion heating appliances or open fires.

Photo-Electric Smoke Alarms

Photo-electric smoke alarms detect larger smoke particles, the visible products of combustion, and are most effective in the case of smouldering fires. They are suitable for installation near kitchens or in areas containing combustion heaters or open fires.

Best protection

Research indicates that photo-electric alarms provide the best detection across a range of fires.

For homes which already have ionisation alarms, we recommend that they be supplemented with additional, interconnected photo-electric alarms. When existing ionisation alarms reach 10 years of age, they should be replaced with photo-electric alarms.

The MFS recommends that the best protection is provided by photo-electric smoke alarms which are hard-wired to the 240 volt power supply and interconnected to give the earliest warning possible.

Interconnectable alarms

The interconnection of multiple alarms ensures that if one alarm detects smoke, all interconnected alarms will activate to sound the warning. Alarms can be interconnected by wires in the ceiling space or by wireless interconnection.

From 1 May 2014 multiple smoke alarms must be interconnected in all new Class 1 and Class 2 buildings and in any new extensions to buildings which require more than one alarm.

"Class 1 and 2 buildings" means:

- Any single dwelling including detached houses or attached houses such as row houses, terrace houses, town houses, villa units, etc.
- A boarding house, guest house, hostel or the like with a total floor area not exceeding 300m2 and in which not more than 12 persons would ordinarily reside. *Note:* Larger buildings of these types will require a commercial type fire alarm system.
- Any building containing 2 or more sole-occupancy units each being a separate dwelling (ie. flats, motel units, apartments and the like) where the building is not required to be fitted with a commercial type fire alarm system.

Regardless of when your house was built, the MFS recommends that if you have multiple smoke alarms they should be interconnected. Both the ionisation and the photo-electric types of smoke alarm are available as interconnectable alarms.

Quality assurance

For assurance of quality in manufacture, the MFS recommends that you buy smoke alarms which comply with Australian Standard 3786. Look for 'AS 3786' and/or the Standards Australia 'five ticks' symbol on the packaging. (Pictured right)

Fire detection systems

In a large domestic dwelling, it is advantageous to have the domestic smoke alarms interfaced to a Residential Fire Alarm Indicator Panel. The occupants, and the Fire Service on their arrival, will then know exactly where the fire has been detected in the house.

Residential Fire Alarm Indicator Panels are also an advantage in lodging houses, blocks of flats or apartments.

> Note: Residential alarms may only be used where the Building Code of Australia does not call for an Australian Standard 1670 system

Some monitored security alarms are only equipped with smoke *detectors*. These detectors may not comply with AS 3786 (Smoke Alarms) and therefore may not comply with Regulation 76B of the *Development Regulations 2008* or the Building Code of Australia. Where a monitored security system with non-compliant smoke detectors is installed, owners need to install one or more smoke alarms that are AS 3786 compliant.

Smoke alarms for impaired persons

For those who are deaf or hard of hearing, there are smoke alarm systems available that incorporate strobe lights and vibrating elements in addition to the audible alert signal.

If you are dependent on others for movement (e.g. paraplegic), a smoke alarm system may be interfaced with equipment that will send a pre-recorded message or signal to the service provider so that the fire service and a designated carer can be immediately notified to respond.

Power supply options

Hard wired - 240 volt power supply with battery backup
Battery Operated - Replaceable battery with low power warning signal
Lithium Battery -Built in, non-replaceable, non-removable battery with a 10 year life
Interfaced with Domestic Security System – Some smoke alarms are connected via a domestic security system. It is critical that the smoke alarms in such a system are AS 3786 compliant.

Installation

Legislation requires that a qualified electrician install hard-wired (240 volt) smoke alarms.

Battery-powered alarms may be installed by the householder, carefully following the manufacturer's instructions.

Maintenance of smoke alarms

The maintenance of domestic smoke alarms is covered by Australian Standard 1851-2012 which states that the maintenance of smoke alarms may be carried out by the occupant in accordance with the manufacturer's recommended procedure and need not be recorded.

Australian Standard 1851-2012 recommends a minimum standard for maintenance procedures. The MFS recommends more frequent maintenance in some instances to ensure that smoke alarms operate at their maximum efficiency.

Changing the battery

Change the battery once a year or if a 'battery low' warning 'beep' is emitted. Ensure that the appropriate battery is used for the smoke alarm you have installed. (Refer to the manufacturer's instructions.)

It is strongly recommended that batteries are changed each year. An ideal time to do this is when you change your clocks back at the end of daylight saving.

Change your clock; change your smoke alarm batteries.

Remember: Hard-wired (240 volt) smoke alarms may also have backup batteries which must be changed regularly.

Testing smoke alarms

Press the test button once a month, and when you return from an extended absence, to ensure that the smoke alarm is working. Test the backup battery of a hard-wired (240 volt) alarm by isolating the power supply (main switch or circuit breaker) before pushing the test button.

If the smoke alarms are interconnected make sure that the interconnected smoke alarms also sound when you press the test button.

To test the alarms which are connected to a security system, refer to the owner instruction manual or follow the testing advice which is displayed on the control panel.

Cleaning smoke alarms

At least every six months, remove dust, lint or cobwebs from the outside of the alarm using the soft brush attachment of your vacuum cleaner. Any other cleaning should be done in accordance with the manufacturer's instructions.

Test the alarm after cleaning.

Replacing smoke alarms – life expectancy

All smoke alarms that comply with AS 3786 have a recommended service life of 10 years under normal operating conditions. After that time smoke alarms may malfunction and their efficiency may be compromised with accumulated dust, insects, airborne contaminants and corrosion of electrical circuitry. They should be replaced at least every 10 years. The MFS strongly recommends they should be replaced with hard wired, interconnected (240v) photo-electric smoke alarms.

The limited lifespan of smoke alarms applies to ALL smoke alarms regardless of power source (battery or 240 volt) or the type of smoke alarm (ionisation or photo-electric/photo-optical).

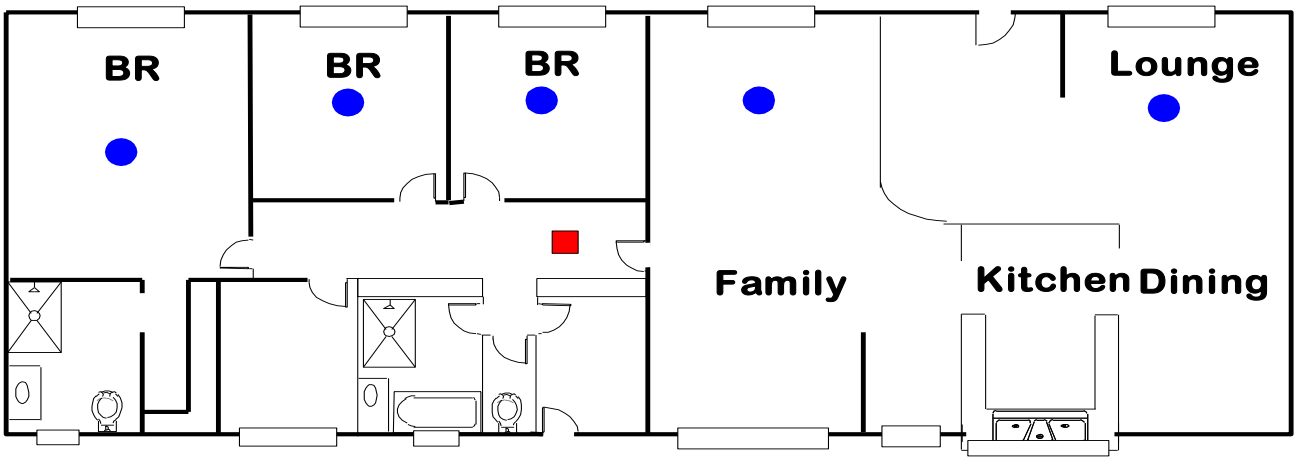
Ionisation smoke alarms contain a minute particle of radioactive material. (Ionisation type smoke alarms can be identified by the black and yellow radiation symbol which appears on the smoke alarm casing.) An exemption under the *Radiation Protection Control Act 1982* permits up to two domestic ionisation smoke alarms to be disposed into domestic waste during any period of seven days. For more information go to the EPA website at:
http://www.epa.sa.gov.au/ and search ‘smoke alarms’.

Old photo-electric smoke alarms (no radiation symbol) can be discarded with normal domestic rubbish.

Location of smoke alarms

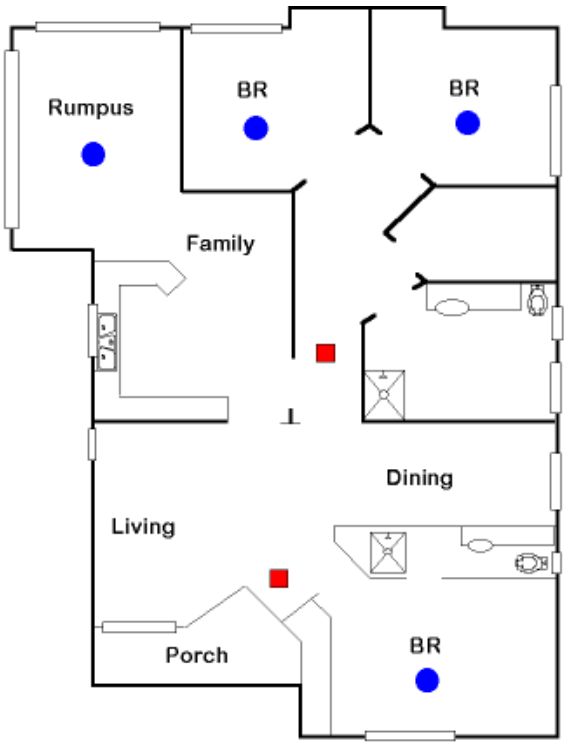
If you have a passageway leading to the bedrooms, install the alarm at the end closer to the living area.

If you sleep with your bedroom doors closed the MFS recommends additional alarms in the bedrooms, interconnected with those located in passageways and other parts of the dwelling, to ensure that you are alerted by the activation of any alarm.



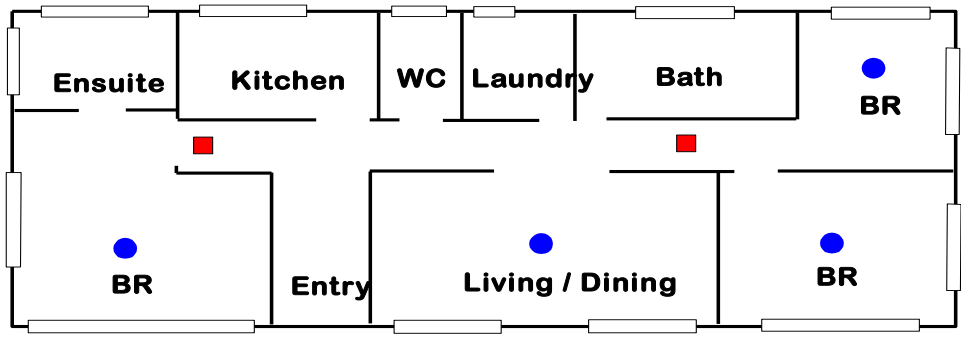
- ■ Absolute minimum requirement
- ● MFS recommendation for additional protection

If there is no passageway but the bedrooms are accessed directly from the living area, install the alarm outside each bedroom 900mm from the doorway. For additional protection, also install alarms in each bedroom. Install them as close as practicable to the centre of the room and interconnect them with the alarms located in other parts of the dwelling. Consider the installation of photo-electric alarms in the living area to reduce the incidence of nuisance alarms.



■ Absolute minimum requirement
● MFS recommendation for additional protection

If there are bedrooms at both ends of the house install interconnected alarms in the passageway to each of these areas.

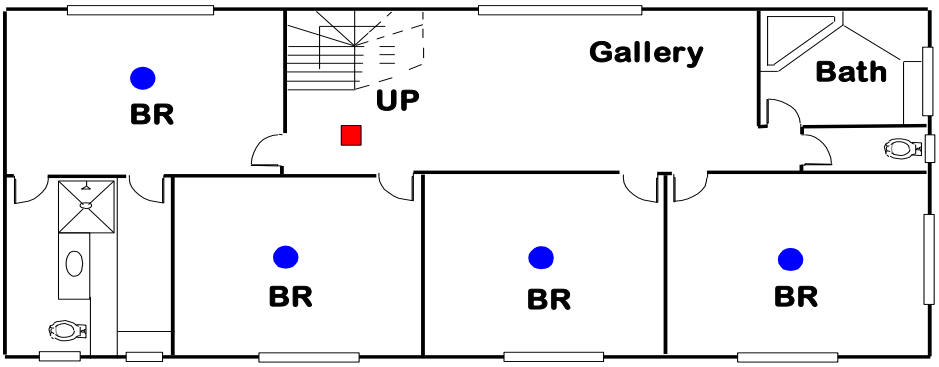


■ Absolute minimum requirement
● MFS recommendation for additional protection

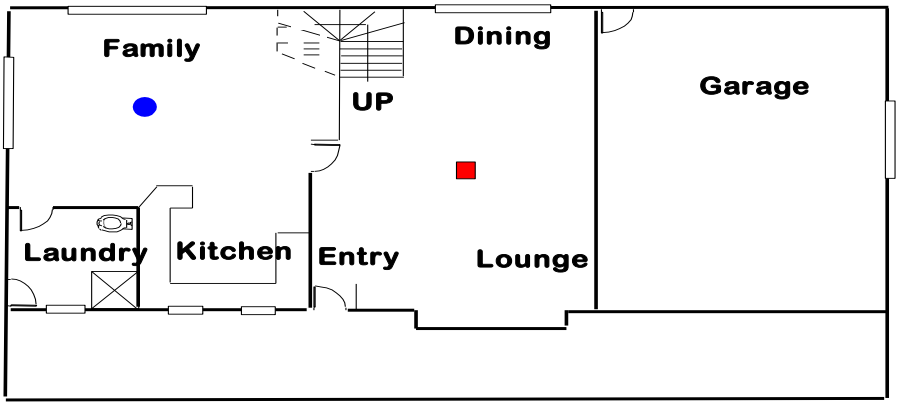
In passageways, the installation point should be at the end closest to the living area and certainly before the first bedroom is reached so that when the alarm sounds, there will be sufficient time to allow evacuation by normal exit routes e.g. doors.

If you have two or more storeys, smoke alarms should be installed on each level and the MFS recommends that they be interconnected.

Upper level:



Lower level:



■ Absolute minimum requirement

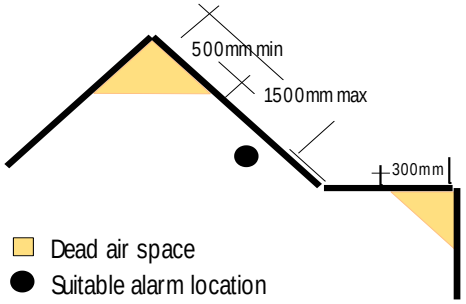
● MFS recommendation for additional protection

Dead air spaces

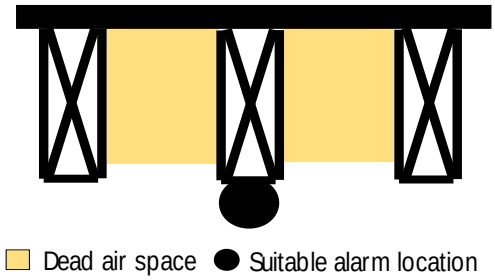
Corners between walls, between a wall and ceiling and at the apex of a sloping ceiling contain dead air space which smoke may not readily penetrate.

Alarms placed in these spaces may not activate.

On a sloping ceiling the alarm should be installed between 500 and 1500mm down the slope from the apex.



If a flat or sloping ceiling has closely spaced exposed beams the areas in between the beams should be considered as dead air space and the alarm should be attached to the bottom of a beam.



Note: The MFS **does not** recommend side wall installation.

Always ensure that smoke alarms

- Are not painted over - this may restrict the airflow into the alarm.
- Are located where there are no continual drafts - dust or lint may cause the alarm to activate.
- Are located away from the bathroom and laundry - steam may activate the alarm.
- Are not disconnected from the electrical supply to overcome nuisance alarms from cooking or smoke from an open fire. Instead, seek advice from the MFS and install the appropriate type of alarm in the right place.
- Are replaced within 10 years of installation. Check the manufacturer's instructions.

Ducted air conditioning systems

The MFS recommends that factors such as ducted air conditioning systems may require additional interconnected smoke alarms to be installed.

For further advice ring the Community Safety & Resilience Department on 8204 3611, Country callers 1300 737 637
email samfscommunitysafety@ sa.gov.au
visit our website www.mfs.sa.gov.au
or call in to the Adelaide Fire Station at 99 Wakefield Street, Adelaide during business hours.