

Community Safety Messaging for Catastrophic Bushfires:

Lessons Learnt from Black
Saturday Bushfires, Victoria 2009



PROCEDURAL

GUIDELINE

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Review period

This position should be reviewed by the doctrine owner come 1 November, 2021.

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Acknowledgements

We acknowledge the *Lessons Learnt from the Black Saturday Bushfires: Information for Fire Agency Managers of Community Safety* (Victoria Police, 2014), the important findings of that report and the people whose lives and experiences informed it.

Source of authority

The Council endorsed this AFAC position on *Community Safety Messaging for Catastrophic bushfires: Lessons Learnt from Black Saturday Bushfires, Victoria 2009* at the 27 October, 2016 meeting.

Purpose

This guideline is intended to provide fire authorities around Australia with evidence-based advice about the key messages that could be conveyed to communities about bushfire survival. It captures the key findings of the Victoria Police report into the Black Saturday fire fatalities.

Scope

This guideline supports fire agencies developing community messaging about bushfire readiness. For any bushfire, it is recommended that people leave areas threatened by bushfire early. However, if they make the decision to stay, following this guideline may increase their safety and chances of survival.

This guideline does not encompass all the messages that fire agencies need to communicate in relation to bushfire safety; it addresses only community safety messaging for catastrophic bushfires as identified through the lessons learnt from the Black Saturday fires.

This guideline assumes a level of knowledge of bushfire science and safety. It should be read in conjunction with AFAC's *Bushfires and Community Safety* position.

Statement of engagement

This guideline was developed through consultation and contribution from members of AFACs Community Engagement Technical Group (CETG). Members of the CETG with jurisdictional responsibility for bushfire provided the technical writer with guidance on their jurisdictional messaging to be incorporated into this guideline.

Audience

The intended audience of the guideline is community engagement practitioners from AFAC member agencies.

Definitions, acronyms and key terms

In this guideline, the following terms have specific meanings.

At-risk groups: People who are unable to receive, or act on information, prior to or during an emergency.

Disability: The *Commonwealth Disability Discrimination Act 1992* defines disability in relation to a person as:

- a. total or partial loss of the person's bodily or mental functions; or
- b. total or partial loss of a part of the body; or
- c. the presence in the body of organisms causing disease or illness; or
- d. the presence in the body of organisms capable of causing disease or illness; or
- e. the malfunction, malformation or disfigurement of a part of the person's body; or
- f. a disorder or malfunction that results in the person learning differently from a person without the disorder or malfunction; or
- g. a disorder, illness or disease that affects a person's thought processes, perception of reality, emotions or judgment or that results in disturbed behaviour;

and includes a disability that:

- h. presently exists; or
- i. previously existed but no longer exists; or
- j. may exist in the future (including because of a genetic predisposition to that disability); or
- k. is imputed to a person.

To avoid doubt, a disability that is otherwise covered by this definition includes behaviour that is a symptom or manifestation of the disability.

Introduction

How to use this document

This guideline provides fire authorities around Australia with evidence-based advice about the key messages that could be conveyed to communities about bushfire survival. It captures the key findings of the Victoria Police report *Lessons Learnt from the Black Saturday Bushfires: Information for Fire Agency Managers of Community Safety*.

This guideline expands on the major findings of the report (section 8) and provides practical, detailed and useful information to help local fire authorities communicate the report's findings to communities and improve fire safety.

Each set of key messages is accompanied by:

- the related major learning from the report, and
- more detailed information about the context of each issue, including a real life example.

Major learnings are taken directly from *Lessons Learnt From The Black Saturday Bushfires: Information for Fire Agency Managers of Community Safety* (Victoria Police, 2014). Text that has been edited for clarity is shown in square brackets [...].

Context

This guideline supports fire agencies developing community messaging about bushfire readiness. For any bushfire, it is recommended that people leave areas threatened by bushfire early. However, if they make the decision to stay, following this guideline may increase their safety and chances of survival.

This document does not encompass all the messages that fire agencies need to communicate in relation to bushfire safety; it deals only with the messages about community safety that arose from the lessons learnt through the Black Saturday fires. The fires occurred during Catastrophic/Code Red conditions (FFDI >99, GFDI >149)

This document assumes a level of knowledge of bushfire science and safety. It should be read in conjunction with AFAC's *Bushfires and Community Safety* position (Document ID 2006).

AFAC's guideline

This guideline is based on the AFAC Principles for bushfire and community safety. The highest priority for mitigation or intervention actions by AFAC member agencies should be the protection of life. In all cases, the protection of people – including firefighters – should be the first and highest priority for agencies when preparing for and responding to bushfires. In addressing this priority, agencies must endeavour to minimise the risk to firefighters and other responders.

Managing the risk posed by bushfire is a shared responsibility between government, communities and individuals. AFAC member fire agencies, including some land management organisations, have statutory responsibility for mitigating the impact of bushfire. Some agencies may also have a responsibility to take reasonable measures to prevent the escape of fire from land under their control either as an owner or occupier. Additionally, police and other emergency services may also have an emergency management role.

Arrangements for emergency management planning vary. In some jurisdictions, a state / territory agency may be designated to lead planning; in others, local government is responsible. In all cases, local government plays a critical role in developing local emergency response and recovery plans.

Collective action by people preparing for and responding to bushfires will invariably achieve better results than individuals acting alone. AFAC member agencies should support initiatives that encourage and assist members of communities at risk from bushfires to act together in support of fire management efforts.

People should be allowed and encouraged to take responsibility for their own preparedness and safety and to make their own decisions on how they will respond to a threat of bushfire.

This guideline also recognises the definition of at-risk groups developed by AFAC's Community Engagement Technical Group (CETG) to be: People who are unable to receive, understand, or act on information, prior to or during an emergency.

Planning for a bushfire

Developing a fire plan

Major learning

People need to know that one of the benefits of fire planning is as a mechanism for controlling fear and anxiety. They also need to know that not having thought out a fire plan will make it harder to control fear and anxiety in the event that they have to face an intense bushfire.

Key message

Bushfires are scary and stressful. Anxiety and panic will stop you from thinking through alternative actions that could save your life.

Making decisions with your family and planning what you would do in a fire before the bushfire season begins will help make sure everyone knows what to do in the event of a bushfire. This will help you cope and survive.

Things you might discuss with your family include your trigger to leave, where you will go, what routes to take, what you will do with pets and livestock, how you will communicate with others, how you will stay informed, and what you will do if you can't leave.

Even people who plan to leave should have contingency plans in place that everyone in the household knows in case they are unable to leave (see Developing contingency plans).

Context

In an emergency our brains resort to autopilot, often relying on a habitual or regular pattern of behaviour.

Fear is a primitive response and typically enables a limited range of ability to deal with threats, namely flight, fight or freeze. During a bushfire, such basic responses are not sufficient; people need to be able to keep thinking through the different options for escape. The alternatives available may be complex and depend on our understanding of the changing conditions and circumstances (e.g wind direction, the success or failure of previous bushfire plan actions).

To make effective decisions during a terrifying situation, individuals need to have already thought through and practised their plan for each of the contingencies possible.

For example, this includes deciding – should their primary safer place become inaccessible – where they will go, and if – despite preparations and defence – their house is engulfed, what actions they will take next.

If a contingency has been considered beforehand, and learnt through practice, enacting the plan will be automatic once triggered. For example, if wind is coming from the north, use a planned refuge to the south, and vice versa.

Many fatalities on Black Saturday were categorised as staying and defending. However, in the majority of cases these people had intended to leave, but were caught out and put some defensive measures in place as a last resort.

There are many examples from the Black Saturday bushfires where people appeared to be frozen with shock and therefore unable to move, leading to their deaths. In some cases, this was also a factor in the death of others trying to help them.

Develop contingency plans

Major learning

People need to have more than one fire plan and everyone should have a fire plan for the eventuality that they cannot evacuate [leave] from their property before a fire, and the eventuality that they have to evacuate [escape] a burning house during an intense bushfire.

Key message

You need to plan and make important decisions well before there is a fire – such as when to leave, what to take and what to do with animals.

Having alternative (or contingency) plans that detail what you will do if parts of your bushfire survival plan fail is very important.

You must have contingency plans in the event that you:

- cannot leave as planned,
- are prevented from implementing your primary fire plan, or
- must escape a burning house.

Context

Fire services encourage people to discuss and make a plan for what to do during a fire, but recognise that it is not possible for people to plan for every situation.

Not everyone thinks clearly in an emergency. In a bushfire, people can be confused, disoriented and physically or psychologically stressed. In these conditions, making good decisions becomes very difficult.

This makes it extremely important for people to have plans in place for multiple contingencies. This may include additional plans if they are prevented from

leaving early due to, for example, dangerous roads or a fast moving fire, or if the fire breaches their house and they are forced to escape.

Being prepared with contingency plans for different scenarios will help to keep you calm and increase your chances of survival.

During the Black Saturday bushfires, there were circumstances in which people were unable to implement their original fire plans. In one case, a couple's plan was compromised by the husband being in hospital at the time of the fires. The plan required a generator to power a water pump, but manually opening the power-operated door to the garage where the generator was located proved too difficult for the woman. Fortunately, she was rescued, but a contingency plan might have helped in this instance.

Plan for households with older people and people with a disability¹

Major learning

When assessing their own ability to stay and [actively] defend their property, older people and those with pre-existing medical conditions need to consider, realistically, if they have enough medical or physical reserve to be able to cope with the combined effects of chemical poisoning from smoke inhalation and extreme heat.

Key message

Staying during a bushfire can be physically and mentally demanding. Defending your home will be extremely hard work and require significant resources. You may need to defend your home for many hours in hot and dangerous conditions. It may take hours and sometimes days of extreme effort.

Any pre-existing physical limitations can be exacerbated by extra physical demands that are placed on people during a bushfire.

Defending your home requires at least two fit and determined adults who are physically and mentally able to work in arduous and difficult conditions.

Defending your home is risky. You could be seriously injured, suffer psychological trauma or die. The safest option is to be well away from the threat.

Part of your planning – and an important consideration if you are planning to stay and actively defend your property – should be an assessment of the strength, endurance and ability to cope with the effects of a fire of everyone in your household.

¹ Disability as defined on page 1 of this guideline.

Context

It is vital that the young, anyone older than age 65 and those with a permanent or temporary disability, including heart or breathing-related conditions, do not subject themselves to the demands of a major bushfire or house fire. They are more likely to die from the effects of heat and smoke poisoning, and their presence, should they become incapacitated, is likely to place other people with them in danger.

It is important for fire and emergency service agencies to engage stakeholders through their community engagement and practice recommendations to ensure disability- and age-related risk and situation is assessed against the clearly articulated challenges and demands of a bushfire as defined in this guideline.

A bushfire is an extreme situation requiring extreme physical endurance. Residents with any type of disability should plan to evacuate early.

There is evidence from Black Saturday that high temperatures, stress (including concern for relatives or friends and / or property) and smoke inhalation can exacerbate and trigger pre-existing medical conditions. The stress of a bushfire resulted in coronary episodes, asthma attacks and the inability to manually operate important escape routes such as (normally automatic) garage doors.

Plan for carers and caring agencies

Major learning

People, parents in particular, need to know that having to look after children and older people is fraught with extra risks – both to those needing care and those providing it. It is quite possible that in extreme situations, the added risk of having children or older people present will lead to all persons being killed. This is particularly the case in the event of a house fire and subsequent forced evacuation during an intense bushfire.

Key message

If you care for children, older people or people with disability², you should leave early, well before a fire arrives. It takes approximately 15 minutes for a house to be fully engulfed in a bushfire. This leaves little time to move people who need assistance.

It is understandable that you want to keep your family close in a stressful situation, but if you are planning to stay and defend your home during a bushfire, it is strongly advised that children are well away from the threat.

² Disability as defined on page 1 of this guideline.

Households with children, older people or people with disability should plan to leave the property early and well before a fire arrives.

Agency carers who care for children, older people or people with disability should refer to their organisational policy and practice. At a minimum, they should ensure they have an appropriate plan in place for clients who are likely to be unable to receive or act on information prior to or during an actual emergency.

Context

The presence of children, older people or people with disability can lead to panic if these people become disoriented or lost in the flurry of activity required to evacuate. Those caring for others are further burdened by the need to provide that assistance, by anxiety about coping, and potentially by panic if they are unable to care adequately for themselves or the person in their care.

Analysis of the deceased and survivor accounts from Black Saturday showed that families with young children and babies in particular were less able to defend their properties.

Importantly, it was noted that children sometimes behaved in unexpected ways, leading to the death of the child and possibly, in one case, the death of three adults trying to find and rescue a missing child.

There are an increasing number of agencies that support older people and people with disability within communities. These agencies need to know how to plan their responses in the event of a bushfire. It is important for fire and emergency service agencies to engage these carers and community support agencies through their planning processes in order to ensure disability- and age-related risk is assessed against the clearly articulated challenges and demands of a bushfire as defined in this guideline.

During a bushfire

Don't rely on warnings

Major learning

People need to know that they cannot rely on telephones and the internet for early advanced warnings on days of catastrophic fire danger such as Black Saturday.

Key message

During bushfire season, it's up to you to stay informed. Do not wait for a warning. Some fires may start quickly and threaten homes and lives within minutes. Disruptions to services such as power, telephones and water are often common during a bushfire or on a bushfire risk day.

Do not be fully dependent on information from outside sources such as radio or internet warnings in case these are not available. On bushfire risk days, stay updated by using more than one source of information so you will know if a fire has started near you. This could include a battery powered radio, talking to your neighbours and accessing other local information. It could also be listening for sirens, aircraft and other indicators of fire activity and keeping an eye out for smoke.

It also means remaining aware of your surroundings and using your own knowledge and experience to make informed decisions. Keep an eye on conditions outside – you may become aware of a fire before the emergency services.

Context

While emergency services and public radio broadcasts can help residents to understand how a bushfire is behaving on a wider scale, disruptions to power and telephone infrastructure can mean these services are not available.

Just as people do not rely solely on a weather forecast to know if it is raining, they must also keep watch on conditions at their property and nearby surrounds.

Residents should learn how bushfires behave. This enables advice from sources such as online and radio to mix with their own informed observations. It will also ensure they are not rendered powerless if communications are lost.

An inability to access internet warnings may have actually saved the life of a homeowner on Black Saturday, as it forced him to be more reliant on situational awareness. His observations of the immediate situation caused him to evacuate. He later reported that if he had had more access to information via the internet he might have stayed.

Know your exit routes

Major learning

Those involved in emergency management – when telling people at particular locations to activate their fire plans – must also provide information about which routes to follow to leave the area.

Key message

Emergency services endeavour to provide information on routes for safe egress, but it is not always possible due to the dynamic nature of fire. Hence, the emphasis on leaving early remains the safest option for anyone in a high risk bushfire area.

Plan ahead so you know how you will leave. Know different routes to get out of the area – some may be closed if a fire is already burning nearby.

Mark your main routes, including back-up routes, on hard copy maps.

Context

Driving in a bushfire is extremely dangerous and can be fatal. A drive that would normally take five minutes could take two hours with road closures, traffic jams, crashes, smoke, fallen trees and embers getting in the way.

During the Black Saturday fires, trees fell and blocked roads. In some cases, there was confusion about road closures and when roads had reopened. In one instance, if not for the actions of a local SES member informing those who had gathered at a refuge that a road had reopened, there was significant potential for those people at the refuge to have been killed if they had remained.

Be alert to fires near you despite the name of the fire

Major learning

Those involved in emergency management of fast-moving fires need to keep renaming the fires (or use another means) to impart the extent of the fire to residents living far away from the point of origin of the fire.

Key message

You should remain alert to fires that are close to your location. The name of the fire may not always indicate how close the fire is to you.

Bushfires can change direction, and even light winds can make a difference to the speed and path of a fire front.

Context

Emergency services endeavour to provide information on the point of origin, speed of spread, direction of travel and areas under threat, but it is not always possible to provide this information in the early stages of a fire due to its dynamic nature. Hence, the emphasis on leaving early remains the safest option for anyone in a high risk bushfire area.

Many of those affected by the Black Saturday fires reported that they did not anticipate fire could travel as quickly as it did. Some reported that they did not feel threatened given that the name of the fire was a region some distance away.

Wear fire-resistant clothes and shoes

Major learning

A person's first and last lines of defence in a bushfire are their clothes and shoes. Shoes in particular should be as fire-resistant as possible. In marginal survival conditions, shoes, in particular, can be the difference between living and dying.

Key message

In a bushfire, protect yourself from the heat of the fire. The heat from a fire can kill you.

Protective clothing can only protect you from low levels of radiant heat.

Ensure you wear clothing that is made of natural fibres like cotton or pure wool. Nylon and polyester can melt or burn. Footwear can make a difference between survival and death. Strong work boots or shoes with thick nitrile rubber soles are recommended, sandals or runners are not.

Clothing needs to cover all of your skin, from your neck to your ankles and wrists. Wear long-sleeved shirts and long trousers that are loose fitting and made from natural fibres such as pure wool, heavy cotton drill or denim.

Protect your hands with canvas gardening or work gloves. Protect your head with a hard hat, or strong, heavy cotton or felt wide-brimmed hat with a drawstring (or some other means of ensuring it does not blow off your head during extreme conditions).

Wear goggles to protect your eyes and a face mask or cloth to help you breathe.

Do not wear shorts or thongs.

Context

Clothing has become an important focus as our understanding of bushfire survival factors improves. Those planning to stay and defend a home or property must prepare appropriate clothing. Inappropriate clothing can cause injury and death.

Defending a property from bushfire requires suitable clothing that offers protection from heat, flame, embers and falling materials. In situations where people are forced to move around on an active fire ground, poor footwear can lead to death. When footwear fails, burns to the feet reduce mobility and will restrict a person's ability to move and seek refuge.

The Black Saturday report identified situations where people were put in additional danger due to a lack of appropriate clothing or footwear. In some instances, this was due to intense heat burning their skin, while others were incapacitated when their footwear melted. There are also instances of people being unable to escape because of radiant heat on their unprotected skin.

Rely on your own water for firefighting and drinking

Major learning

People living in areas serviced with reticulated water need to know that this source of water is almost certainly going to fail during a major bushfire event like Black Saturday, particularly as houses and the water reticulation infrastructure are impacted by fire.

The only water supply that they will be able to rely on is that already stored on their property.

Key message

A property's regular water supply is likely to fail during a bushfire. Pumps relying on mains electricity will fail if the supply is interrupted; high demand on reticulated systems from firefighting efforts will result in very low water pressure, and plastic pipes may melt.

If you have decided to stay and defend your property, you will need water that you have reserved only for fighting fires³.

Water tanks (made of metal or concrete with metal fittings), pools or dams can be a source of water. However, a diesel pump or generator is required to have an independent means of powering your water supply. Your generators or pumps should be readily accessible during a bushfire.

³ Jurisdictional fire authority requirements vary in relation to how much water is required to be reserved for firefighting purposes. Some base their water requirements on property size and / or number of buildings on the property.

Make a list of other places where you could strategically store water around your property. Bathtubs, troughs, buckets and garbage bins can be filled with water that can be used to put out spot fires on your property or in your home.

Context

Power outages cause pump failure at on-property water supplies. Low water pressure in reticulated systems – resulting from high demand and fire truck use – mean a property's regular water supply is likely to fail in a bushfire.

Filling a bath, sink and other containers with water before water pressure and power failure occur helps residents fight the fire, protect themselves and stay hydrated, noting that the bathtub should never be used as a refuge (see Avoid shelter in bathrooms). Plastic piping used in reticulated systems will melt when exposed to fire, rendering the system useless.

Following Black Saturday, a number of people reported that, as the fire impacted their area, the water pressure dropped to a very low level, one totally inadequate for firefighting. One person reported that she was wetting down her house with a garden hose as the fire approached and then the water stopped. People also reported observing plastic water meters and plastic plumbing melting, affecting the water pressure in the reticulated systems.

Understand and practise fire-safe landscaping and gardening

Major learning

People need to have a good understanding of the intractable nature of some common materials typically found around houses, namely railway sleepers used as edging and retaining walls, treated pine posts and, worst of all, wood chip mulch on garden beds.

Key message

Having a well maintained property, including a properly maintained garden, can help protect your home from a fire.

Remove combustible material from around your home, including wood piles, mulch, leaves and outdoor furniture.

A cleared area around your home gives you and firefighters space to work from to protect your home.

Maintain your property throughout the year. Leaving it to the last minute is dangerous.

Context

It is extremely dangerous to defend a property if the garden and surrounding areas are not planned with bushfire potential in mind. Vegetation and other materials found in gardens can fuel bushfires. Planning and managing your garden and house surrounds to minimise volatile items will reduce the dangers posed by embers and flames as a fire approaches. Considerations include:

- fleshy plants and a low-cut, well-irrigated lawn are essential;
- fences and retaining walls should be built of stone, brick or concrete;
- paths should be gravelled or dirt;
- trees and shrubs should be planted individually to prevent a 'wall of fire' igniting;
- clutter, leaf litter, dead bark and trees are highly hazardous; and
- treated pine is very dangerous because it can catch embers and give off cyanide as it burns.

A resident who survived the Black Saturday fires commented on how difficult it was to hose down mulch the day after the fires as it retained so much heat.

Understand the likelihood and effects of high winds

Major learning

People need to know that on days of catastrophic fire danger, extremely dangerous winds may destroy the integrity of a house structure, thereby rendering the best-prepared fire defences useless.

Key message

Most houses are not designed or constructed to withstand fires in Catastrophic / Code Red⁴ conditions.

In Catastrophic / Code Red conditions, homes may be damaged before the fire arrives. This increases the chances of them being destroyed when the fire arrives.

Gale-force winds during Catastrophic / Code Red conditions may cause structural or other damage to your home that allows embers from the fire to enter and start fires inside the house.

Context

Wind that often accompanies even Low-Moderate fires can cause fires to behave unexpectedly, while gale-force winds associated with Extreme and Catastrophic / Code Red conditions can breach houses by blowing off roof materials or throwing tree limbs through windows.

4 This guideline acknowledges the different terminology used in different jurisdictions.

If a house or other structure is breached in this way, the house is extremely vulnerable to flames, smoke and fire.

The Black Saturday bushfires report cites cases where people experienced difficult conditions due to the force of the wind. For example, the strength of the wind made it difficult to shut the door to keep the fire out.

Houses built to AS3959 are not built to withstand fire and wind conditions likely to be experienced during Catastrophic / Code Red conditions.⁵

Plan to leave a burning house

Major learning

People need to better understand what to do if their house catches fire during a bushfire and they cannot control the spread of the fire in their house. Specifically, they need to understand that they have no alternative but to start planning an evacuation from [leaving] the house.

Key message

Leaving early is always your safest option during a bushfire. In the event that you are sheltering from the fire in a house or other solid structure, you should:

- protect yourself from the heat of the fire and, if possible, shelter in a space on the side opposite to the fire;
- make sure you have at least two points of exit – including one direct exit to the outside of the house – in every room used as a shelter; and
- not shelter in a room that has frosted windows that do not let you see outside – during a bushfire it is important that you can look outside and know what is happening.

If your house catches fire while you are inside, you should:

- act quickly to move away from the areas of the house on fire, closing all doors behind you;
- keep down low to minimise breathing in toxic smoke from the house fire;
- avoid getting trapped in a room with only one exit, and make sure you move to areas where there is a direct exit to the outside of the house;
- move outside to burnt ground (where the fire has already passed) as soon as you can as staying inside a burning house will almost certainly end in death; and
- remain situationally aware throughout and be prepared to modify your plan according to the conditions.

5 AS3959 Building in Bushfire Prone Areas

Context

If people have planned to stay, their plan should include what to do if their house catches fire during the bushfire (see Developing a fire plan).

If their plan is to leave, they should still have a contingency plan that includes what to do if their house catches fire in case they are prevented from leaving (see Developing a fire plan).

People should think carefully before enacting any plan they have made in case it needs to be modified to suit the conditions. There is evidence that those who are prepared and alert are more likely to survive⁶.

It is likely that once fire breaches a shelter, its occupants will have to evacuate to another refuge.

Radiant heat, smoke inhalation and flames are more likely to overcome residents if they stay in their home once it is alight.

While it may seem more frightening to leave the home they have been sheltering in, residents must understand that any burning structure, including their home, can be deadly.

If residents have already planned a refuge in the event that their home is overcome by fire, they will be better able to make the decision to evacuate before it is too late.

In the Black Saturday fires there are reports of people dying because they refused to leave a burning house, while others in the same house who did evacuate managed to survive.

Know when to leave a burning house

Major learnings

1. Having identified that they need to evacuate from [leave] a burning house, people need to know what signs to look for that indicate that their situation is about to get significantly worse if they do not evacuate [leave] immediately.
2. Where a person is in a house that has caught fire and they can no longer contain the spread of the fire, if they fail to evacuate from the house, they will die. But if they evacuate from the house, they may survive.

Key message

If you need to seek shelter in a house, know when to leave. Staying inside a burning house will almost certainly end in death.

⁶ "Deep survival": Experience of some who lived when they might have died in the 7 February 2009 bushfires. Jim McLennan, Mary Omodei, Glenn Elliott, Alina Holgate

While you are in the house you must actively monitor your surroundings. It is critical to look outside and be alert to the conditions around you. Monitor the ceiling space and watch for embers.

If you hear breaking glass, see flames inside the home or have trouble breathing, you will need to act quickly.

Structures burn from the inside out and, once alight, burn rapidly. Housing construction materials fuel the fire and can release poisons into the air. Radiant heat and smoke are two of the biggest hazards inside a house when it burns. Radiant heat can cause people to pass out before smoke or flames overcome them.

Move outside to burnt ground (where the fire has already passed) as soon as you can.

Protect yourself from the heat of the fire. Stay low to the ground where possible.

If it is still too hot outside, you will need to seek shelter in another building or protect yourself from radiant heat by putting a solid object between you and the heat from the fire.

Context

Once a structure is breached or alight, it will burn to the ground.

Residents taking shelter in a structure need to have good awareness of their surroundings. If it catches fire without them noticing, it is likely they will be unable to evacuate.

Appropriate shelter has more than one clear exit.

Once the fire front has passed it is safer to be outside the house. From outside you will also be able to douse falling embers and monitor the situation. During the Black Saturday bushfires, there are reports of families surviving by evacuating their homes after they became vulnerable through damage from strong winds.

Avoid shelter in bathrooms

Major learning

Many people sought refuge in their bathrooms – often in the bath. A bathroom is usually a very difficult room from which to evaluate the outside conditions with a view to evacuating. Furthermore, once a house catches fire and starts to become fully involved, a bathroom is a particularly difficult room from which to escape.

Key message

In a bushfire, the bathroom is the most dangerous place to shelter. Most bathrooms are unsuitable to shelter in because:

- they typically have only one door which can make escape impossible if that exit is blocked by flames and heat.; and

- they often have frosted windows that make it difficult to monitor the conditions outside.

While a bathtub may have been filled with water as a source of water supply, it is *not to be used as a place of shelter*.

Context

The bathroom is the most dangerous place to shelter from a bushfire.

Advice regarding sheltering in bathrooms during weather events such as cyclones has led to confusion about these rooms also being the safest to shelter in during a bushfire. While a small, strongly structured room may provide shelter from collapse due to wind damage, this is not the primary danger in a bushfire.

Bathrooms and toilets are generally small, have a single exit and do not provide a good view of the outside surroundings. Many lack clear or large windows. These rooms are also extremely difficult to evacuate if a fire breaches the house.

While filling a bathtub and sink with water before a bushfire arrives may help, this is not a reason to continue sheltering in these rooms.

The Black Saturday bushfire report identifies that bathrooms were the most common room of the house where deceased persons were found (27% of fatalities had hidden in bathrooms). It is believed that many people were under the misunderstanding that this was the safest room in which to shelter. Some people died while sheltering in the bathtub.

Seeking shelter in alternative places of refuge as a last resort

Major learning

People need to know how cars and fire bunkers can be used on property as alternative places of refuge, but also what the pitfalls of these alternative refuges are, particularly in relation to fire direction and their placement on a property in relation to any burning building they are sheltering in.

Key message

Vehicles and fire bunkers are only shelters of last resort during a bushfire.

Moving to shelters such as cars or fire bunkers can expose you to many more dangers than staying inside a properly prepared and defended property.

In situations where no other options are available, you should look for alternative sheltering places that are clear and away from the path of the fire.

Taking shelter in a ploughed paddock, a body of water such as a swimming pool, river or dam may protect you from radiant heat. A stationary car in a clear area may also offer protection⁷.

These are last resort options and carry a high risk of trauma, injury or death. Always plan to leave early to avoid this situation.

To increase your chances of survival while sheltering in a car, stay in the car and tightly close windows and doors. Cover up with woollen blankets and get down below window level to protect yourself from the heat and drink water to prevent dehydration.

If you are considering a private bushfire bunker, ensure you deal only with suppliers or manufacturers whose products have been rigorously tested and meet the state and national building regulations and safety standards. Bushfire bunkers not built to these standards – including homemade bunkers – may be potential death traps. Careful consideration should be given to the location of the bunker in relation to homes and fires.

A well designed and constructed bunker may provide a temporary place of refuge during the passage of the fire front. However, extreme caution is required when using bushfire bunkers as part of a household's fire plan. Leaving entry into the bunker until the last possible minute will unnecessarily put your life at risk.

Context

One of the major issues with fire bunkers is the ability to get to them safely during a bushfire. While fire bunkers appear to offer a failsafe, last resort refuge, this is not necessarily the case. In conditions like those on Black Saturday, people who plan to use a bunker need to enter it before the fire strikes their property.

People should only take refuge in their vehicle as an absolute last resort. Sheltering inside a vehicle offers a slightly higher chance of survival than being caught in the open, but any existing stay or go strategies are much safer options.

The large amount of plastic used in cars reduces the level of protection cars can offer. The position of the car in relation to the direction of the fire and danger of exposure to hazards such as falling tree limbs and downed powerlines add to the considerable risk of sheltering in a vehicle.

Radiant heat is also a major hazard inside a car. Woollen blankets, appropriate clothing and access to drinking water are all important contributors to survival.

The experience of people in the Black Saturday bushfires indicates those attempting to defend properties first before seeking refuge in a fire bunker may not have been

⁷ AFAC 2012, *Guideline for People in Cars During Bushfires*

able to reach the bunker for a range of reasons. Several people died in circumstances where it appears they were trying to reach a fire bunker after initially taking refuge in their house or while attempting to defend the house from outside. The poor placement of fire bunkers also contributed to consequences including death.

During the Black Saturday bushfires a number of people living on larger properties with large, cleared areas of land (usually for agricultural purposes) used cars as primary or secondary fire refuges. They moved their cars around the property to ensure they were not exposed to high levels of radiant heat. There were also examples where people died inside houses but their cars survived with little or no damage, mostly where large areas of land were clear around the house.

In the immediate aftermath

Protect yourself from breathing in toxic chemicals

Major learning

People need to be aware of the debilitating physical and cognitive effects of breathing in the chemicals contained in smoke, particularly smoke from a burning house. They need to know that the difficulty they experience breathing is because of poisoning from the chemicals contained in the smoke of house and bushfires.

They also need to know that the difficulty they are experiencing breathing is highly unlikely, during a bushfire, to be due to a lack of oxygen in the air per se. It is highly unlikely that in a bushfire a house will catch fire internally with all doors and windows intact. It is highly unlikely that lack of oxygen in the air will cause difficulties breathing.

Key message

Even once a fire has passed, you will need to defend and patrol your property for many hours. It will be very dangerous, and the smoke from burning materials may be toxic.

Ensure you have safe water for hydration and keep a face mask or cloth over your nose and mouth.

Context

Bushfire smoke can affect air quality as it contains fine particles and gases such as carbon monoxide, nitrogen oxide and carbon dioxide.

When burning, the materials from which houses are built can release poisonous chemicals released from building materials.

Smoke has a chemical asphyxiating (oxygen-blocking) effect that stops the body from getting enough oxygen, creating the misconception that the fire is 'sucking' oxygen from the air.

It is vital to minimise exposure to bushfire smoke, especially that of vulnerable people including children, the elderly, smokers and people with existing heart or lung conditions.

Even after a fire has passed, large fires may smother an area with smoke for days. After a fire, it is advisable to wear a face mask or cloth, and wet down dry, dusty areas to avoid raising particles during clean-up.

Wheezing, coughing, chest tightness or shortness of breath can occur for several days after smoke is inhaled, so monitor people with asthma and other lung conditions carefully.

Supporting discussion

This guideline has been developed by considering the major learnings from *Lessons Learnt from the Black Saturday Bushfires: Information for Fire Agency Managers of Community Safety*. AFAC's Community Safety Group considered the major learnings and referred the report to the Community Engagement Technical Group to develop this guideline for use by community safety practitioners.

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