



# SECTION 03

# YOUR PROPERTY

**HOW PREPARED IS IT?**



## **NEED SOME HELP?**

- Visit **cfa.vic.gov.au**
- Call the Victorian  
Bushfire Information  
Line on **1800 240 667** or  
via National Relay Service  
on **1800 555 677**

**This section outlines what you must do as a minimum to reduce the effects of bushfire on your property.**

This involves:

- understanding how fire behaves in your environment
- knowing the steps to take to prepare your home and property before the fire season.

You need to prepare your property for the best chance of survival during a bushfire.

## ➤ FIRE BEHAVIOUR

Victoria has a great diversity of vegetation, topography and weather. Environments that are high-risk for fire are:

- where suburbs meet the bush
- close to forest and woodlands
- close to grass or paddocks
- near coastal scrub.

Knowing how a fire behaves in your environment will help you to better prepare your property.

Bushfires are influenced by:

- vegetation (fuel)
- topography
- weather conditions.

### VEGETATION (FUEL)

There are two fuel types – fine and heavy. By removing fine fuels from your property you can reduce the amount of heavy fuels that burn.

#### A. FINE FUELS

- ✓ These are fuels that are the thickness of a pencil or less.
- ✓ They ignite quickly and burn easily, so they drive a fire's speed.
- ✓ Branches, twigs and leaves and other fine fuels found on the ground can also burn easily.
- ✓ Types of scrub and trees drop leaves and twigs on the ground around them. These give off far more heat when they burn.
- ✓ Fibrous and dry tree bark can carry fire to the treetops, break away and spread fire.

#### B. HEAVY FUELS

- ✓ These are greater than the width of a pencil.
- ✓ They take longer to ignite but will burn for longer.
- ✓ Branches, trees and logs are examples of heavy fuels.
- ✓ They create an extremely hot fire.

### VEGETATION MANAGEMENT

Vegetation includes all the plants, foliage and mulch around your home.

By managing the vegetation around your property you can create space around your home. This will reduce bushfire intensity.

This helps protect your house from direct flame contact and reduces the radiant heat to which your house will be exposed.

While ember attack will still occur, vegetation management around your house is important. You can reduce the likelihood of embers starting new fires near your house.



## TOPOGRAPHY

### Fires burning uphill

A fire will burn faster uphill. This is because the flames can reach more unburnt fuel in front of the fire.

As a general rule, for every 10° slope, the fire will double its speed as it travels uphill.

For example, if a fire is travelling at five kilometres an hour along flat ground and it hits a 10° slope it will double in speed to 10 kilometres an hour up that hill.

By increasing in speed the fire also increases in intensity, becoming even hotter.

### Fires burning downhill

As a fire travels downhill it reduces in speed and intensity. The flames reach less fuel and less radiant heat pre-heats the fuel in front of the fire.

For every 10° of downhill slope, the fire will halve its speed. Fires tend to move more slowly as the slope decreases.



## WEATHER CONDITIONS

Bushfires can vary greatly according to weather conditions. They often start on hot, dry and windy days.

### Temperature

A string of hot days will dry out vegetation, making it easier to burn. This can be made even worse by underlying dry conditions. The drier the vegetation the easier it will burn. A bushfire spreads as a result of burning embers, radiant heat and direct flame contact.

### Wind speed

Wind has a significant influence on the:

- ✓ **speed** at which a fire spreads
- ✓ **direction** in which a fire travels and the **size** of the fire front
- ✓ **intensity** of a fire, by providing more oxygen

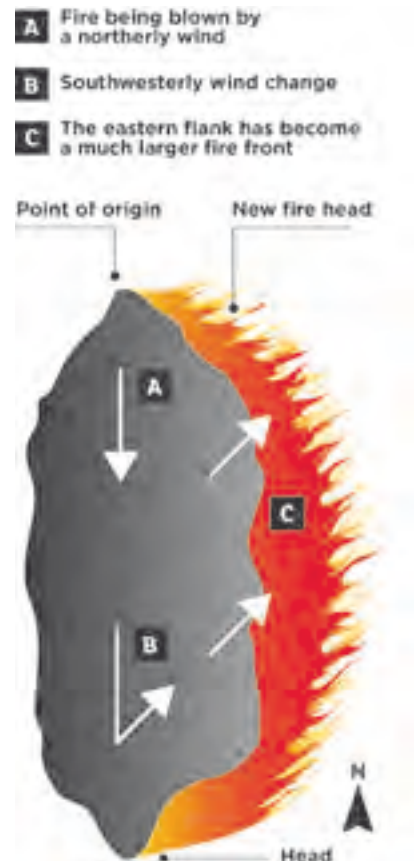
- ✓ likelihood of **spotting**. Burning pieces of leaves, twigs and bark (embers) are carried ahead of the fire by winds, causing new fires to ignite. These are known as spot fires.

### Wind change

A change in wind direction is one of the most dangerous influences on fire behaviour. Many people who die in bushfires get caught during or after the wind change.

In Victoria, hot, dry winds typically come from the north and northwest and are often followed by a southwest wind change. In this situation the side of the fire can quickly become a much larger fire front.

A change in wind direction can change the size of the fire front. This makes wind a very dangerous ingredient in a bushfire.



Fire spread

## HOW RADIANT HEAT AND DIRECT FLAME CONTACT IGNITE HOUSES

The heat that radiates from a bushfire is very intense. Radiant heat can ignite exposed surfaces without direct flame contact.

Radiant heat can also crack or break windows, allowing embers to enter a building. Plastics such as wall cladding can distort or melt, exposing timber framing. Radiant heat is extremely dangerous to people if they are unprotected by a building, shelter or barrier.

The distance between vegetation and the house will determine how much direct flame contact and/or radiant heat the house is subject to.

If the distance from the fire is doubled, the radiant heat load on the building can be reduced by four times.

The chance of direct flame contacting a house is increased when vegetation close to a house is ignited.

You can greatly reduce radiant heat and direct flame contact by carefully managing the vegetation around your home.



## ➤ CAN YOUR PROPERTY REALLY WITHSTAND A BUSHFIRE?

Everyone in Victoria who lives near dense forest, bush, grassland or the coast needs to prepare their property for bushfire. Even if your plan is to leave early on fire risk days, you need to prepare your property.

A well-prepared house where the vegetation is well managed has a greater chance of not catching alight in a bushfire. Regardless of property preparation, most homes will not be able to withstand fires in **Code Red** conditions.

You need to consider the materials that your house is made with and its design. By making modifications you can improve the likelihood that your house will survive bushfire.

Information on construction and renovation can be found in *A Guide to Retrofit Your Home for Better Protection from a Bushfire*. This publication is available at [cfa.vic.gov.au](http://cfa.vic.gov.au)

*“Even with enough managed vegetation, the safest option is to leave high-risk bushfires areas early on **Severe, Extreme** and **Code Red** days.”*



## ➤ PREPARING YOUR PROPERTY

You can reduce the impact of bushfire on your home by preparing your property.

These preparations must begin well before the bushfire season.

You should prepare your property even if your plan is to leave early on days of fire risk.

This will give your house a greater chance of getting through undamaged.

You will have to consider:

- ➊ how you will manage vegetation (pages 30-32)
- ➋ if your home is constructed or modified to withstand a bushfire (Houses are not designed to withstand **Code Red** conditions). (page 33)
- ➌ whether it is possible to improve the safety of your house with modifications and maintenance (pages 34-35).

The illustration on pages 28–29 shows an example of a well-prepared property with managed vegetation.

CFA has a free Home Bushfire Advice Service to help you understand:

- the level of risk at your property
- what changes can be made to improve your safety.

For more information visit **[cfa.vic.gov.au](http://cfa.vic.gov.au)**, call 1800 240 667 or 1800 555 677 (NRS).



## THE WELL-PREPARED PROPERTY

Mature trees can help shield against radiant heat and embers. They must be strategically located and well managed.

Keep grass cut to less than 10cm.

Keep woodpiles away from house.

Remove flammable items from decks and verandahs, such as boxes, furniture and doormats.

Store flammable liquids away from house.

Get rid of dry grass, leaves, twigs and loose bark.

Prune lower branches of shrubs to separate from surface fuels underneath.

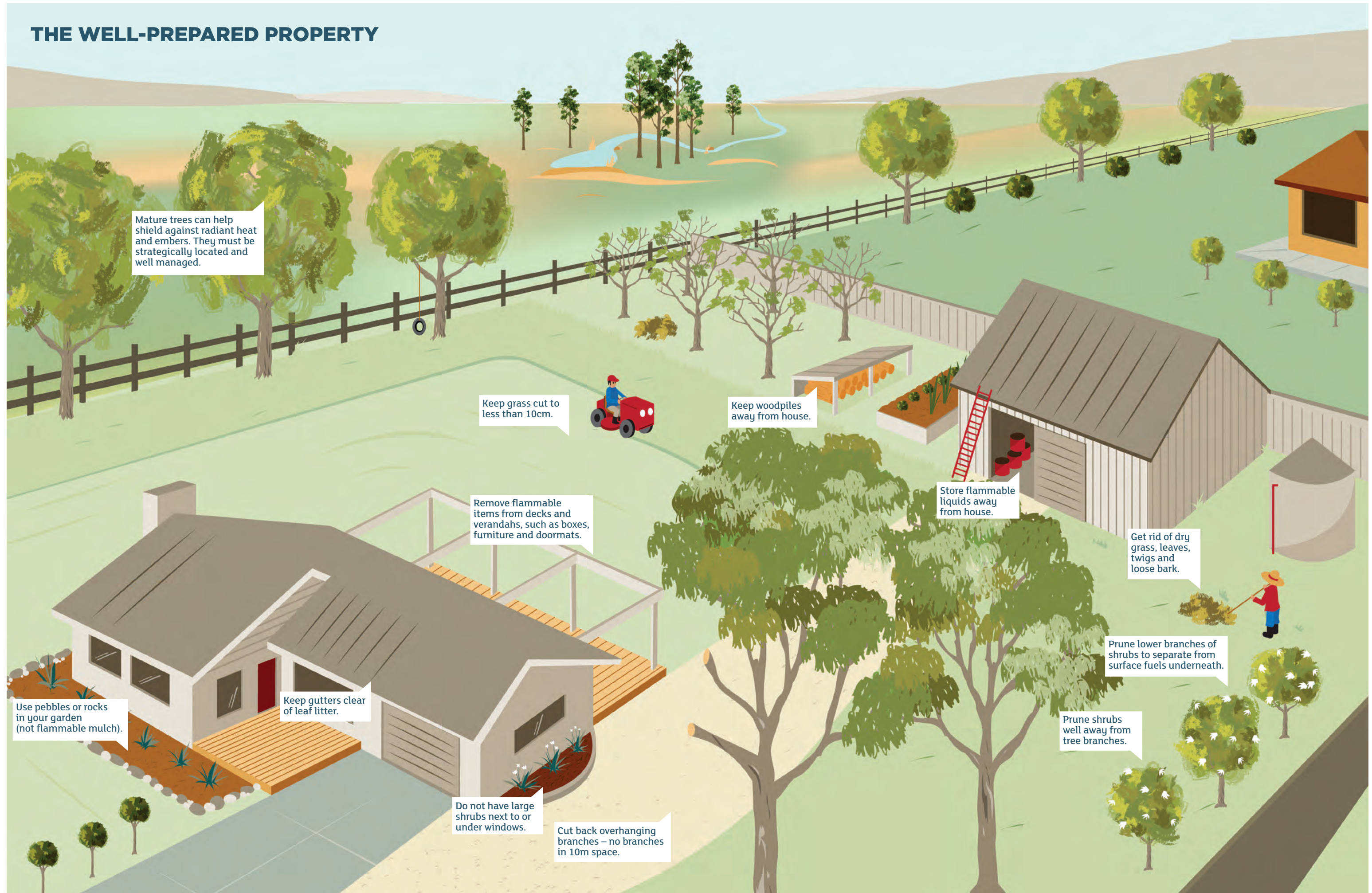
Prune shrubs well away from tree branches.

Use pebbles or rocks in your garden (not flammable mulch).

Keep gutters clear of leaf litter.

Do not have large shrubs next to or under windows.

Cut back overhanging branches – no branches in 10m space.





## A. MANAGING VEGETATION

Managing the vegetation on your property will reduce a bushfire's intensity.

By having managed vegetation, you will reduce the amount of direct flame contact and radiant heat on your house.

As a general rule you may need to undertake more vegetation management if there is dense forest all around you.

For example:

- Keep grass short – no more than 10 centimetres high.
- Make space between plants and trees.
- Keep fallen leaves no more than two centimetres deep.



Keep in mind that mature trees can sometimes help shield against radiant heat and embers and can play a useful role in the protection of your home against bushfires.

Managing the vegetation around your home has four main purposes:

1. To give your house the best possible chance of surviving the passage of the fire front.
2. To reduce the chance of direct flame contact and radiant heat igniting your home.
3. To help you protect your home from ember attack.
4. To provide some level of shelter as a last resort if you and your family get caught.

Whatever the type of vegetation that surrounds your home, you need to consider how it will burn during a bushfire. In general:

- homes located in a dense forest are more likely to experience high-intensity fires
- homes located in more open country may experience lower intensity, but fast moving, grassfires.

If you live in a rural environment, also consider other property assets such as sheds or fences that you want to protect.

## Use the layout of your property

Fire always follows a path where fuel is located. It does not spread easily over low-fuel areas.

Manage vegetation around your home and on your property and use the following to help reduce fire intensity:

- driveways
- pools
- tennis courts
- cultivated soil or gravelled areas
- mown lawns
- grazed paddocks
- dams and natural water features.



### Trees and bushfire

A fire will only burn trees where there is sufficient surface and elevated fuel to carry the fire into the tree canopy.

The fire front is often carried by undergrowth, such as shrubs and tall grasses, but loose, flaky or ribbon bark can contribute to ember attack.

What is growing under your trees? Consider how easily fire might be able to spread from the ground into the tree tops.

Fine fuels that are continuous from ground to treetop (known as ladder fuels) can assist the spread of fire from the ground up into the treetops.

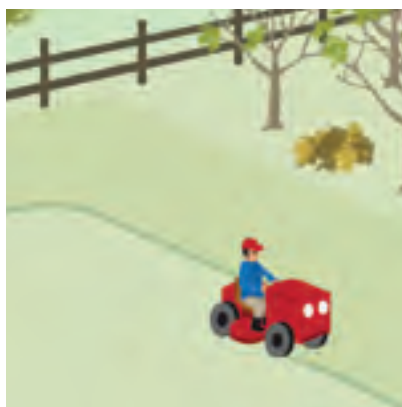
You can reduce fuel ladders by:

- ✓ removing lower branches of trees
- ✓ pruning shrubs so that their tops are well away from the lower branches of trees
- ✓ pruning the lower branches of shrubs to separate the foliage from the surface fuels underneath
- ✓ reducing accumulated debris such as loose flaky bark, dead twigs, leaves or needles from within the branches of plants.



### Lawns and grass

- Grass needs to be kept less than 10 centimetres high. Higher than that and fire can use the grass as a ladder to other vegetation.
- You do not need to cut green lawns any shorter than five centimetres otherwise you risk causing the grass to dry out.
- Lawns between 5–10 centimetres shade the root zone and retain moisture.



### Remove weeds

Weeds are commonly found in residential bushland areas and contribute significantly to bushfire risk.

Give priority to removing and controlling them. This will help reduce potential fire fuel on your property.

Your council can help you identify weeds in your local area and provide ideas on how to remove them.

### Mulching

Mulch, such as wood chips or pea straw, is a fine fuel and can ignite during ember attack. It is extremely dangerous if used within a **10-metre** radius of your home especially under windows.

Instead:

- Use non-flammable mulch alternatives, such as pebbles, sand or rocks.
- Use weed matting cut to fit around plants and secured with rocks, pebbles or soil. It can be used to help retain soil moisture in garden beds.
- If you must use flammable (plant-based) mulch, apply it immediately after the fire season. This will allow it to break down over winter. Decomposed mulch still provides good moisture retention during summer. It is less likely to ignite than more recently laid mulch.
- If plant-based mulch is still dry at the beginning of the fire season, keep it wetted down or cover it with soil or sand during the fire season.





### Burning off and fire restrictions

Burning off dried fine fuels and cutting back vegetation is one way to prepare your property.

If you are planning to do a small burn-off on your property, you must do this well before the fire restrictions come into force.

For more information visit [cfa.vic.gov.au](http://cfa.vic.gov.au) or your local council.

### Plant selection

When planning your garden and property, consider the types of plants you use.

No plant is completely fire-resistant as given the right conditions all plants will burn. However, some are more flammable than others.

To help you select plants that are suitable for your local environment:

- check with your local council
- visit the Department of Sustainability and Environment at [dse.vic.gov.au](http://dse.vic.gov.au)
- consult CFA's forthcoming fire-smart landscaping publication at [cfa.vic.gov.au](http://cfa.vic.gov.au)



### The '10/30 right'

Under the '10/30 right', no planning permit is required to reduce fuel, including native vegetation, around your home.

However, as the right does not exist in all municipalities, you should check with your council – before removing any vegetation.

The '10/30 right' planning exemptions give residents who own their property in certain areas the right to:

- ✓ remove, destroy or lop any vegetation within 10 metres of a building used for accommodation
- ✓ remove, destroy or lop any vegetation, except for trees (i.e. ground fuel), within 30 metres of a building used for accommodation
- ✓ remove, destroy or lop any vegetation for a combined maximum width of four metres either side of boundary fences.

You need to have prior written permission from the landowner for clearance on their side of the fence.

### The '10/50 right'

For land subject to a Bushfire Management Overlay, the 30-metre provisions are extended to 50 metres. Clearance over and above these two planning exemptions requires a planning permit.

For further information on the 10/30 and 10/50 rights, please visit [dse.vic.gov.au](http://dse.vic.gov.au)

*“As part of your preparation, check that you have adequate home and contents insurance.”*



## **B. YOUR HOME'S STRUCTURE AND BUILDING DESIGN**

To reduce the impact of embers on your home there are some important building improvements that are recommended. These measures will assist in ember-proofing your house, making it more difficult for embers to enter the house or burn against the house.

The number of improvements will depend on the type of house you have. Research shows there are areas around your house that can contribute more to the overall bushfire risk than others. These include decks, windows, doors and roof areas.

CFA and the Building Commission's *A Guide to Retrofit Your Home for Better Protection from a Bushfire* includes building and renovation ideas to better prepare your home.

Anywhere embers can lodge or enter your house can start a fire.

### **➤ Is your house above-ground on stumps or on a concrete slab? Do you have a timber deck or veranda?**

Protect underfloor spaces with non-combustible sheeting or metal mesh. This will prevent embers from landing under the house and starting small spot fires. Remove any combustible materials stored beneath the floor.

### **➤ Is your house constructed from bricks, timber, cladding or a mixture?**

Roughly sawn timber or badly maintained brick work can catch embers. Ensure any external timber cladding is regularly maintained and all gaps are sealed. Seal or repair any holes, cracks or damage to flooring and walls. Cover all external vents with metal mesh (not aluminium) and keep clear of debris to prevent embers from entering your home.

### **➤ Are your window and door frames well sealed?**

Place weather stripping around the inside of doors and windows to eliminate any gaps.

### **➤ Do you have any skylights or evaporative coolers?**

Make non-combustible fire screens to cover external skylights. Protect evaporative coolers with metal mesh screens. You will need to check with your evaporative cooler supplier to ensure the performance of the system is not compromised by installing the mesh.

## **CURRENT STANDARD FOR THE CONSTRUCTION OF HOUSES IN RESPONSE TO BUSHFIRE RISK**

Following the 2009 bushfires the Victorian Government brought forward the introduction of the new Australian Standard AS3959-2009 – Design and Construction of Buildings in Bushfire Prone Areas.

The standard requires houses in higher bushfire areas to be built to modified specifications.

The standard applies to all new homes to be built in Victoria.

For more information about the construction of new homes or the modification of existing homes please:

- visit [cfa.vic.gov.au](http://cfa.vic.gov.au) or [buildingcommission.com.au](http://buildingcommission.com.au)
- contact your local council planning or building department for further information.

## C. HOUSE MAINTENANCE AND IMPROVEMENT

### ROOF

Gaps in the roof pose a high risk for ember penetration.

#### Sarking (reflective non-combustible sheeting)

Sarking is an effective treatment to prevent embers from entering through your roof. Unless installed at construction stage this can become very expensive.

#### Seal gaps by using compressed mineral wool insulation

This can be a cheap and effective solution for existing homes. Careful installation is required to ensure all gaps are sealed. Sealing gaps is an effective defence against burning embers.

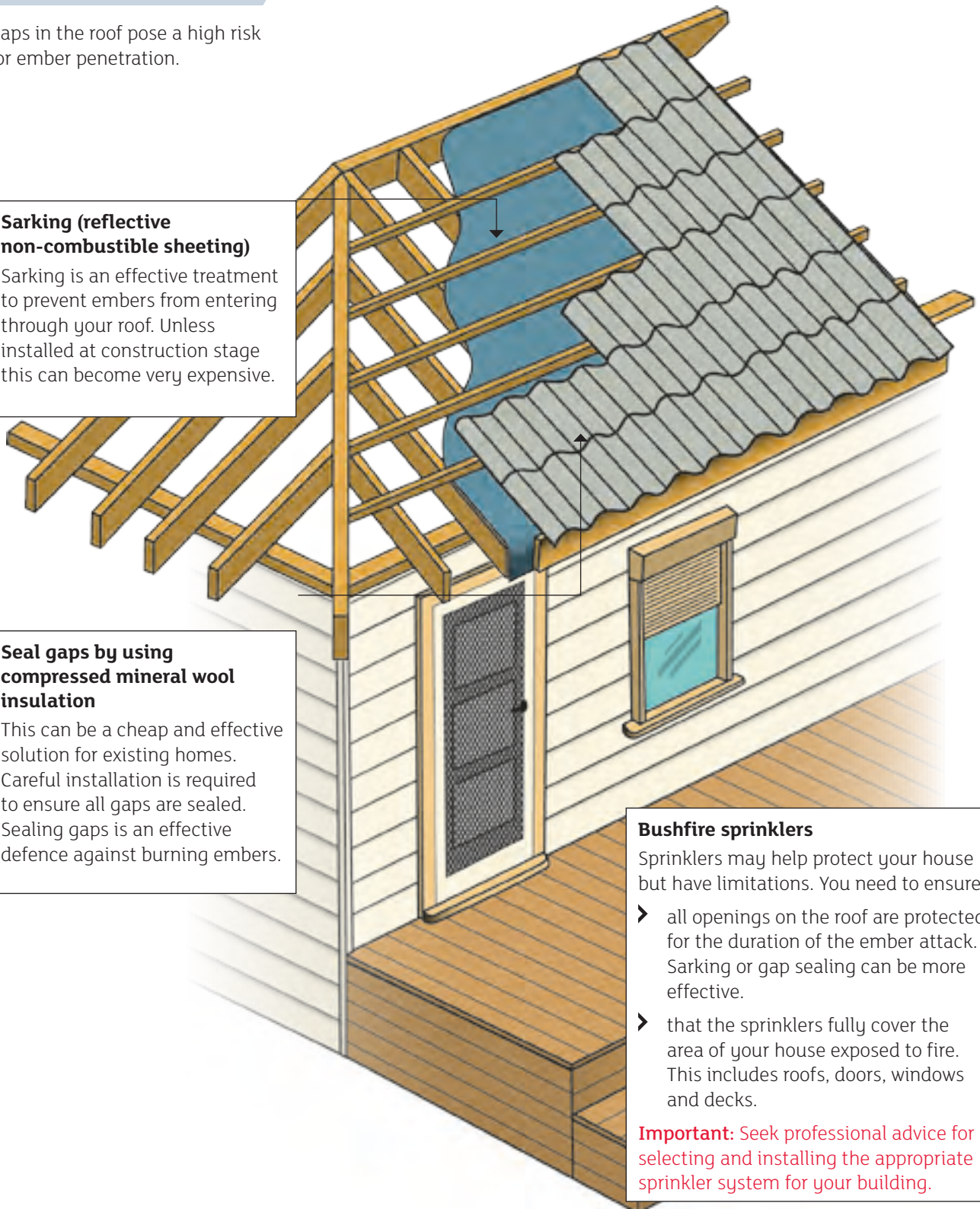
#### Bushfire sprinklers

Sprinklers may help protect your house but have limitations. You need to ensure:

- all openings on the roof are protected for the duration of the ember attack. Sarking or gap sealing can be more effective.
- that the sprinklers fully cover the area of your house exposed to fire. This includes roofs, doors, windows and decks.

**Important:** Seek professional advice for selecting and installing the appropriate sprinkler system for your building.

*“Greatly reduce the risk of embers entering your house. Seal all gaps around your house and roof, or install fine fly wire mesh around larger areas that cannot be sealed.”*



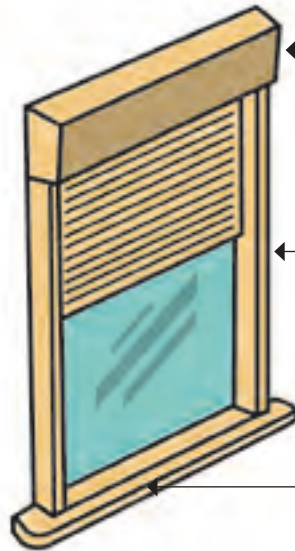


## WINDOWS

Open and unscreened windows pose an extreme risk.

### Screened windows and sills

Installing wire mesh screens (not aluminium) with 1.5-millimetre holes over both the window and frame can prevent embers touching the glass or timber. This can also be an effective method for reflecting radiant heat.



#### Shutters

Installing shutters over both the window and frame will protect windows from cracking from flying embers.

#### Seal gaps around window frames

This is an effective treatment for existing metal window frames. The sealant should be a fire-retardant product.

#### Maintenance of window sills

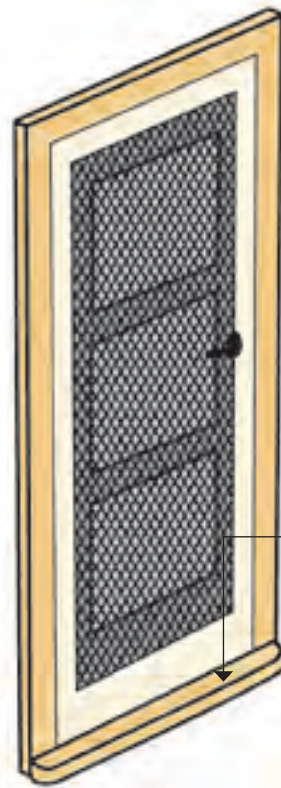
Embers lodging on combustible window sills pose a high risk. Maintain window sills so there is no flaking paint.

## DOORS

Open and unscreened doors pose an extreme risk. Embers lodging on combustible door sills and gaps around door frames pose a high risk.

### Screened doors

Installing metal screen doors over timber doors will reduce the chance of an ember igniting the door.



#### Seal gaps around door frames

If the door is non-combustible then sealing the gaps around the door will prevent embers from entering into your home.

#### Non-combustible door sill

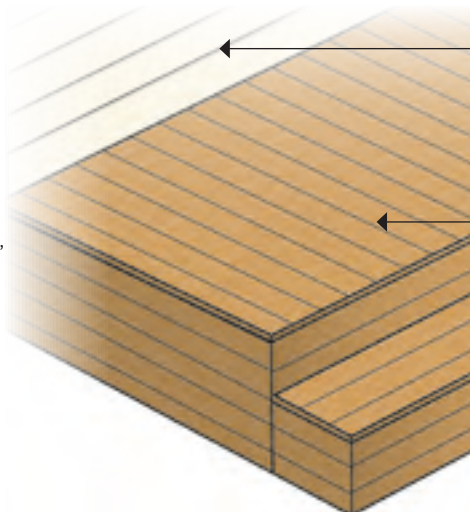
Replacing combustible door sills with a non-combustible product will reduce the chance of an ember igniting.

## DECKS

Embers lodging on decks pose a very high risk of ignition

### Non-combustible decking materials

Non-combustible decking material will not burn. Use concrete stumps, metal framing and fire-retardant-treated timber.



#### Separation from the dwelling to prevent fire spread

If the deck is built with combustible material, non-combustible material should be placed between the deck and the house. This will reduce the possibility of the fire spreading between the deck and the house.

#### Construct with gaps between decking materials

Leaving gaps between the decking timbers will allow most embers to fall through. However, there is still a possibility of embers igniting at timber junction points. Ensure there is no fuel under the decking and that you have access to put out any spot fires underneath.



## FIRE AND THE ENVIRONMENT

### Vegetation management outside your property

Private landholders must always obtain permission from their local council (or VicRoads for most main roads) for any works on roadsides, including fire management and planting.

Local residents do not need a permit to remove fallen wood from roadside areas scheduled for burns within two weeks of a planned burn.

Department of Sustainability and Environment (DSE) and Parks Victoria may undertake planned burns and build fuel breaks to manage vegetation on public land.

A fuel break is a strip of land where vegetation has been reduced or removed.

### Environmentally friendly ways of managing your fire safety

Identify the environmental assets that you would like to protect from fire or fuel reduction.

These may include:

- waterways
- erosion-prone areas
- shrubs that provide screening or bird habitat
- hollow trees that provide nesting sites
- rare species
- bushland that you have regenerated.

Design your fire management using the following environmental management principles:

- Where practical, avoid damaging the environment. Consider things you can do to help keep embers from entering your buildings before you consider vegetation removal.

- Reduce the fuels by methods that avoid exposing the soil and encouraging weed growth. Consider raking and slashing fuels.
- Offset or compensate changes to the natural environment. Replace removed vegetation with vegetation of the same type and quality elsewhere on your land.

Seek appropriate advice on managing your soil, vegetation and waterways from your local council or (DSE).

### Using fire

Using fire for ecological or fuel reduction purposes is a complex and specialist tool.

You should seek advice from your local council, CFA Regional Office or local DSE office.