



**THE  
BUSHFIRE  
RETROFIT  
TOOLKIT:  
Making it work  
for older people**

# Acknowledgements

This project recognises the Aboriginal knowledges and cultures that continue to care for Country. We pay our respect to Elders past, present and emerging.

The Bushfire Retrofit Toolkit – Making it work for older people, is funded by the Black Summer Bushfires Recovery Program.

This Toolkit is led by researchers from the University of Canberra (UC), University of Technology Sydney (UTS) and Western Sydney University (WSU).

## **AUTHORS**

Dr Mona Abd Al Salam (UTS), Shuang Wu (WSU), Iina Lohi (UC), Dr Alison Wain (UC), Dr Lois Towart, Dr Sara Wilkinson (UTS), Dr Aso Haji Rasouli (WSU), Dr Saeed Banihashemi (UTS)

## **RESEARCH ASSISTANTS**

Dr Robert Fleck, Irina Acosta

## **ANIMATION AND VISUAL DESIGN**

Deborah Szapiro  
Ella Rousseau  
Simon von Wolkenstein  
Beloved Pictures Pty Ltd

## **PROJECT FUNDERS**

Department of Industry,  
Science and Resources, Commonwealth  
of Australia

This work is licensed under CC BY 4.0.  
To view a copy of this license, visit <https://creativecommons.org/licenses/by/4.0/>

*First Published May 2025*

*Last Updated November 2025*

## **DISCLAIMERS**

### **Purpose**

The purpose of this Toolkit is to provide practical guidance to people who wish to retrofit their property for increased bushfire resilience. In this Toolkit, 'property' refers to the land, all buildings and structures within the property boundary.

This Toolkit is not intended to be used as an instruction manual, or to provide an exhaustive list of measures which must be followed, but rather it is a guide to a range of options which could be adopted to increase bushfire resilience to a property.

Where major works are being considered, we recommend consultation with a fire engineer and/or building surveyor. Some major works may trigger a requirement for compliance with the National Construction Code of Australia.

### **Limitations**

This Toolkit sets out a range of measures which can be taken to increase the resilience of a property to damage during a bushfire. This information is of a general nature only and is not intended to address the specific circumstances of a particular property. The effectiveness of the measures in this Toolkit will depend on the context and quality of implementation, and you should carefully consider how best to implement these measures for your particular property. There is no guarantee, that even if all measures are adopted that your property will not be damaged during a bushfire event. The University of Canberra, University of Technology Sydney and Western Sydney University do not accept any liability for the outcomes or impacts of measures taken to increase the bushfire resilience of a property using this Toolkit.

## ● 01 Introduction

- 1.1 A toolkit tailored for older people
- 1.2 What is retrofitting?
- 1.3 How to use this toolkit
- 1.4 Current toolkits
- 1.5 Definitions
- 1.6 What is a Bushfire Attack Level?
- 1.7 What is an Asset Protection Zone?

## ● 02 Your Lifestyle

- 2.1 Your Lifestyle
- 2.2 Your Independence and Ability

## ● 03 Preparedness and Livability

- 3.1 What to Prepare
- 3.2 Your Property and Landscaping
- 3.3 Landscape and Livability Considerations
- 3.4 Don't leave it too late: evacuate!

## ● 04 Case Studies

- 4.0 Three household scenarios
- 4.1 Kim (the Novice)
- 4.2 Terry and Gale (the Upgrader)
- 4.3 Bruce and Kate (the Exemplar)

## ● 05 Where to Start

- 5.0 Effort, Cost and Priority
- 5.1 Lower effort, lower cost
- 5.2 Moderate effort, moderate cost
- 5.3 Higher effort, higher cost

## ● 06 Videos & Additional Resources

# Contents

01


02

03

04

05

06

- 
- 1.1 A toolkit tailored for older people
  - 1.2 What is retrofitting?
  - 1.3 How to use this toolkit
  - 1.4 Current toolkits
  - 1.5 Definitions
  - 1.6 What is a Bushfire Attack Level?
  - 1.7 What is an Asset Protection Zone?

# 01 Introduction

## 1.1 A toolkit tailored for older people

This Toolkit recognises that there is a range of personal circumstances that impact the decision making and capability of retrofitting for bushfire resilience. Although this Toolkit focuses more on the needs of older people, it aims to provide solutions that are inclusive for all abilities.

Based on lifestyle preferences, many older Australians (65+ years old) have moved to, or remain in, locations away from urban centres, in areas that have **greater bushfire risk**. Statistically, older people are a vulnerable demographic during climate disasters.

For older people, **decision-making** regarding retrofitting for disaster resilience is not always straightforward.

In addition to having access to the right information, older people may experience more financial and/or physical limitations when carrying out a retrofit.

This Bushfire Retrofit Toolkit is aimed at assisting with the decision-making around retrofits, by helping you evaluate your **lifestyle priorities and capabilities**.



01

02

03

04

05

06

## 1.2 What is retrofitting?

Retrofitting your property means making **improvements or modifications** in and around your home and property.

Retrofitting for **bushfire resilience** means adding protection to your home to reduce the impact of flames and embers during bushfires.



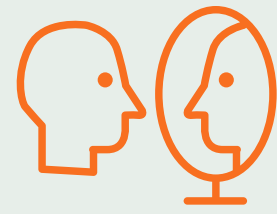
### 1.3 How to use this toolkit

This Bushfire Retrofit Toolkit is **interactive**, which means that there are live **links and icons** you can click on to reveal more information that is relevant to you.

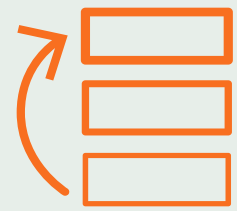
Below are the **icons** that are used in this guide and what they mean:



This means that there is an **interactive link**. Click this symbol to be taken to the relevant information.



Your **lifestyle** preferences and capabilities are a big part of how you plan your retrofit. When you see this icon, it means there will be a question to help you reflect on your lifestyle and how this might influence your retrofit.



This guide will provide you with a range of **retrofit solutions and preparation checklists**.



01

02

03

04

05

06

## 1.4 Current toolkits

Following the Black Summer bushfires of 2019, a number of recommendations, toolkits and guides on how to protect your home and property have been created.

With resources being distributed between different States, Local Councils, and independent organisations, **it can be hard to know where to look first.**

This toolkit summarises **key recommendations** that are common across a range of resources and uses realistic scenarios to help you understand what is achievable.

▶ **Click the image to jump to Additional Resources**



01

02

03

04

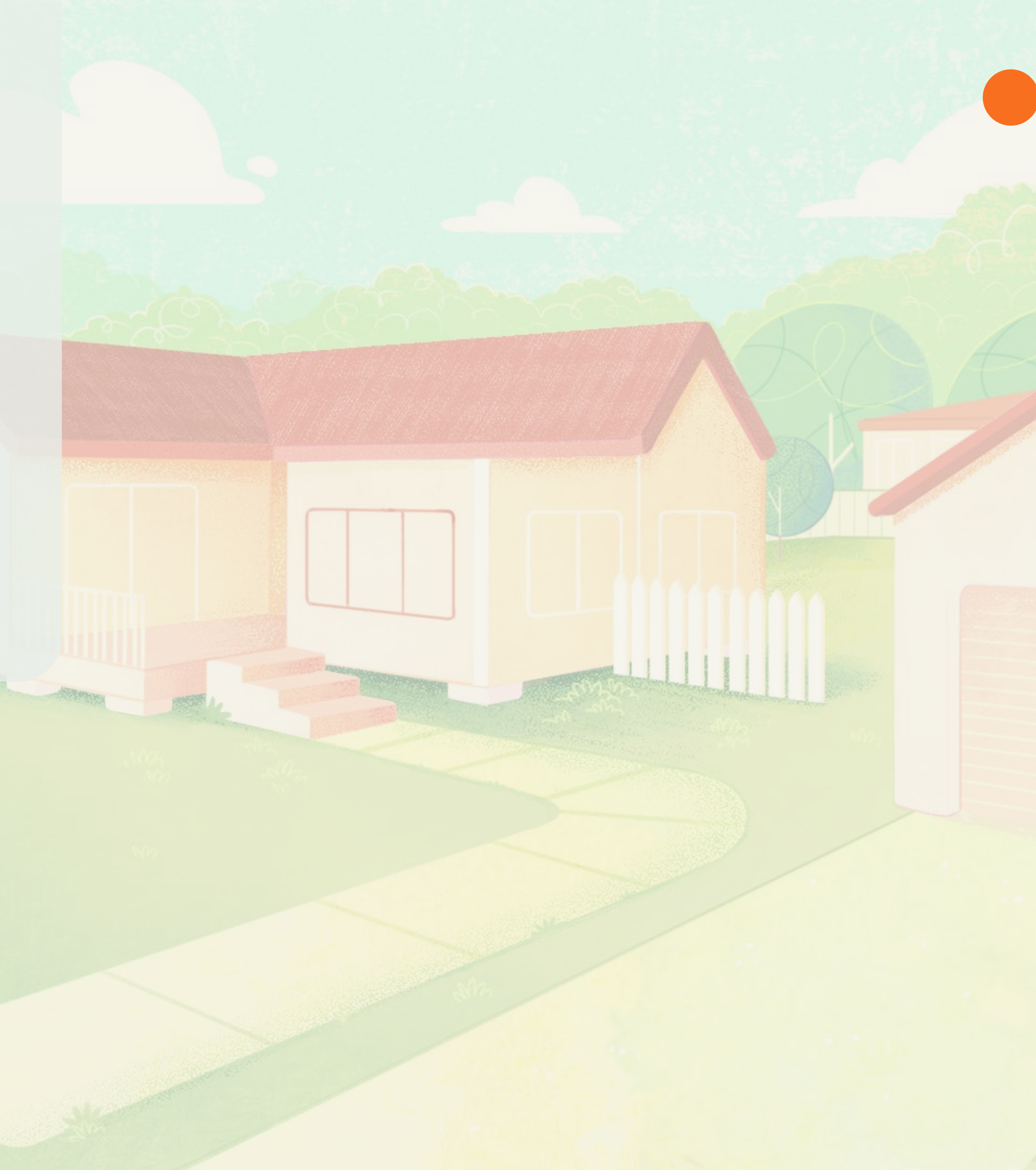
05

06

## 1.5 Definitions

Below are the key definitions used in this toolkit:

<b>accessible design</b>	inclusive design considerations for people of all abilities
<b>climate resilience</b>	capacity to adapt, recover, and withstand the impacts of climate change
<b>inner protection area (IPA)</b>	an area directly adjacent but external to the home that is managed as a bushfire resilient element of a property.
<b>lifestyle</b>	how you live and what you care about
<b>livability</b>	the degree to which a place is suitable or good for living in
<b>retrofit</b>	the process of upgrading or modifying an existing property
<b>toolkit</b>	a step-by-step guide for implementing the retrofit of a property



01

02

03

04

05

06

## 1.6 What is a Bushfire Attack Level?

Australia's national metric for assessing the bushfire vulnerability and compliance of a building is referred to as the Bushfire Attack Level (BAL).

The BAL provides **six measures of bushfire risk severity**, as defined in the Australian Standard (AS) 3959-2018: Construction of Buildings in Bushfire Prone Areas.

The AS3959 (Australia, 2018) published by the National Construction Codes (NCC), determines building compliance within bushfire prone land. It assigns a bushfire resilience construction grade to residential dwellings across a spectrum from low risk to flame zone risk.



01

02

03

04

05

06

## 1.7 What is an Asset Protection Zone?

An **Asset Protection Zone (APZ)** is an area surrounding a structure of value (often the family home) that has reduced fuel, providing a buffer between a bushfire and the structure.

The size of the APZ will vary with slope, vegetation and Forest Fire Danger Index (FFDI), as well as the type of structure it protects.

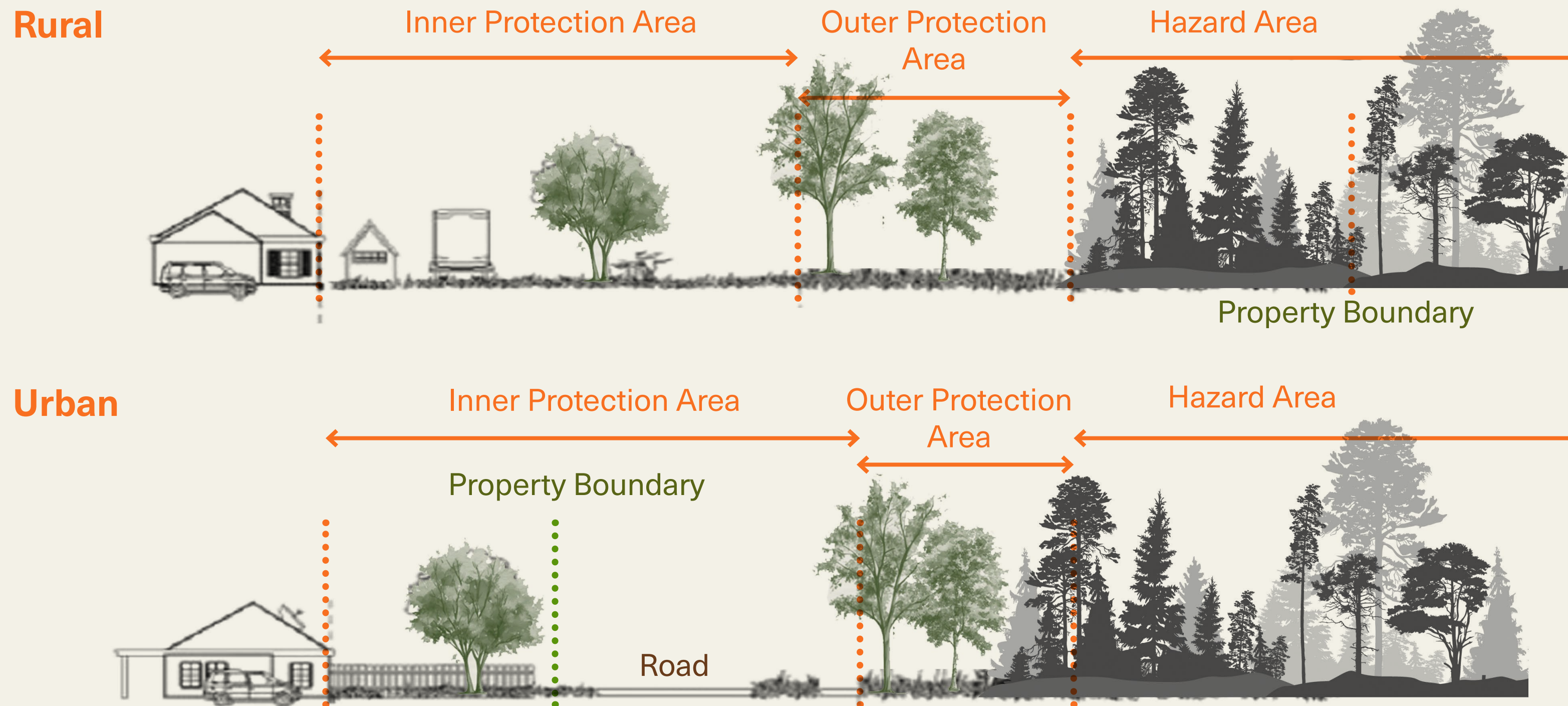
Different states have different names for APZs.

They can also be called Fuel Reduction Zone, Hazard Management Area, Fire Protection Zone or Building Protection Zone.

The main commonality is that they all have **inner and outer protection areas** that work together to create a buffer to create a defensible space and to slow the spread of bushfire.

**Landscape design and garden maintenance** should reflect the practical needs of the APZ, such as using retaining walls to create firebreaks, and reducing fuel sources close to structures.

Below is a diagrammatic representation of some of the possible differences between urban and rural asset protection zones. In some urban areas, it is often only the inner protection area (IPA) that falls within the property boundary.



**TWO ASSET PROTECTION ZONE EXAMPLES**



01

02

03

04

05

06

- 2.1 Your Lifestyle
- 2.2 Your Independence and Ability

# 02 Your Lifestyle

01

02

03

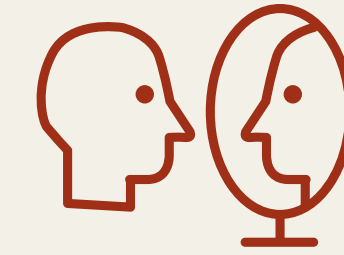
04

05

06



## 2.1 Your Lifestyle



### Where Do You Live?

Where you live can impact your choice of when to evacuate, your BAL rating, and how much you need to fortify your home against climate risks.

Where you live can affect your access to fire fighting services, and your plans for communicating with your community in an emergency.

### How Do You Live?

How often you are home can help determine how defensible your home should be. If you are often away and not able to maintain your home, more extensive retrofit measures may need to be implemented.

### What do you care about?

Personal ways of life and values will dictate what is essential to protect in the event of a bushfire. It is important to consider what would affect your mental health and recovery the most if it were to be lost, and prioritise steps to protect those things.



01

02

03

04

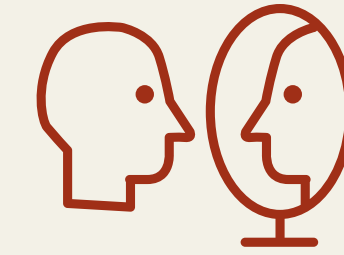
05

06

## 2.1 Your Lifestyle

How you decide to use this toolkit depends on how you want to live and what is important to you.

To get you started, the following **questionnaire** will help you understand why these lifestyle questions are important when planning your retrofit for **bushfire resilience**.



### Where Do You Live?

Which type of climate emergency is most common in your region?

- Bushfires
- Severe storms or Cyclones
- Flooding
- Drought

What is your street, suburb or the land around you like?

- Rural paddocks, in or near bushland
- Semi-rural close to town, near bushland
- Urban in town, near bushland
- Urban in town, away from bushland

### How Do You Live?

Is your lifestyle centred around your home, are you a person who is often out and about, or are you often away visiting people or working in other places?

- At home
- Out and about
- Often away

### What do you care about?

What are the things that are essential for you to get back on your feet if a disaster happens?

- Small and portable – things like pets, family photos, jewellery, laptop and phone, essential documents
- Medium and portable – things like furniture, horses or livestock, motorbikes
- Fixed in place – things that are not movable, like your house or outbuildings

## 2.2 Your Independence

### Your Physical Ability

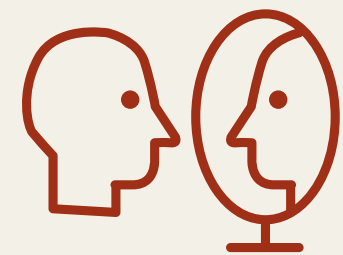
If you are very independent, you may be able to consider many retrofitting tasks yourself.

If you are somewhat independent, you may want to use your local tradesperson and disaster management network for assistance.

If you require additional support, you may want to arrange for general maintenance and home repairs for bushfire resilience through your local aged care service providers.

### Your Financial Ability

Even if you feel like you don't have the means to afford major retrofit measures, there are still simple things that can be done to help protect your home against bushfires.



**Will you feel the same in 5 years?** Consider how your retrofit and maintenance abilities might change in the future and plan ahead.

01

02

03

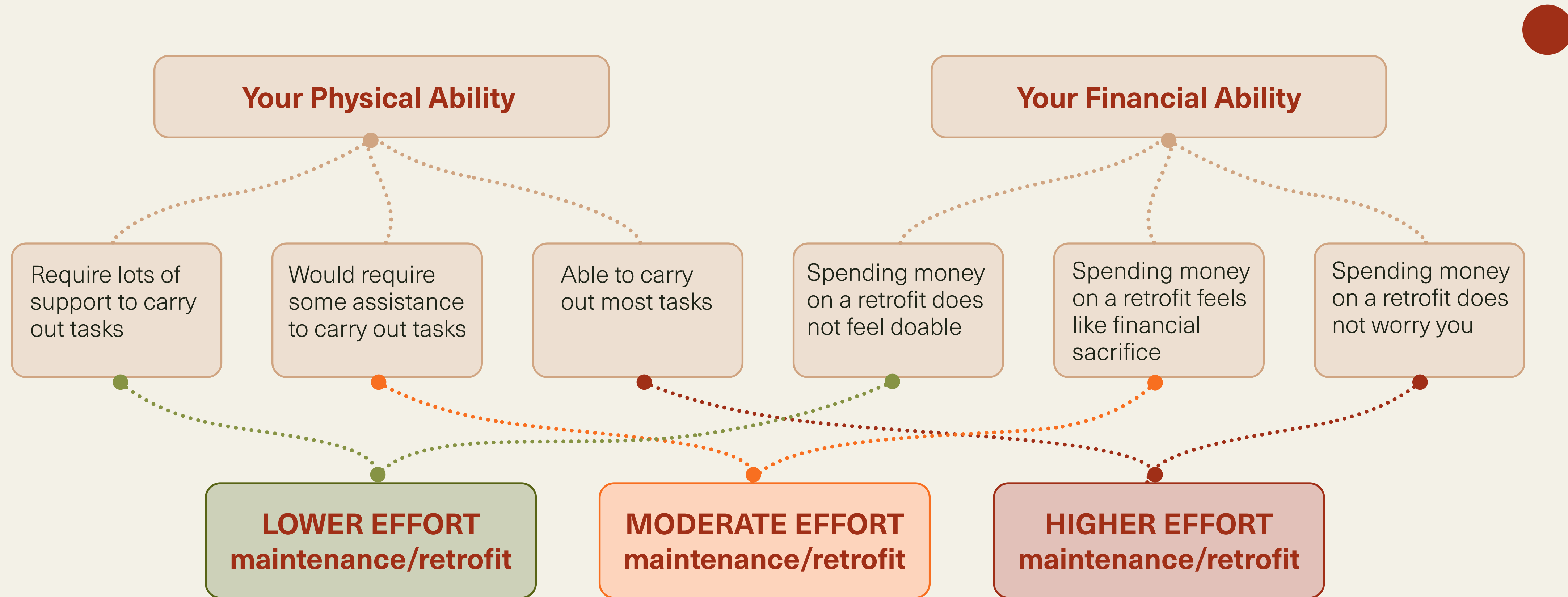
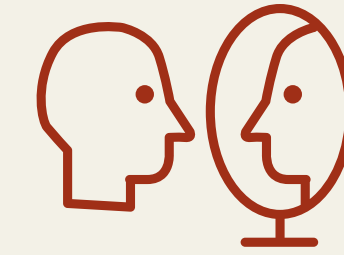
04

05

06

## 2.2 Your Independence

How you decide to use this toolkit also depends on your circumstances, both now and in the future. To get you started, the following **flow chart** will help you understand why these independence questions are important when planning your retrofit for **maintenance**.



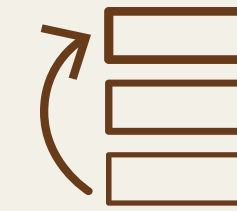
► Click the buttons to jump to Where to Start

- 3.1 What to Prepare
- 3.2 Your Property and Landscaping
- 3.3 Landscape and Livability Considerations
- 3.4 Don't leave it too late: evacuate!

# 03 Preparedness & Livability

## 3.1 What to Prepare

There is a range of considerations for disaster preparedness across your health, network, access to resources, and insurance. Have you thought about these?



01

02

03

04

05

06

### YOUR HEALTH

- stay cool in hot weather
  1. Cool down with wet towels or cool showers
  2. Wear light, loose breathable clothing such as cotton
  3. Drink plenty of water
  4. Have a water spray handy and use to cool down
  5. Put ice in front of a fan to create a cool breeze
- cool your home
  1. Block the sun and exposed window openings
  2. Ensure there are fans or air-conditioner to cool space
  3. Close doors to any unused rooms
  4. Seal any gaps to stop hot air from getting in
- make sure you can move easily around your property

### YOUR NETWORK

- talk to your neighbours about community phone trees and evacuation plans for everyone. Decide on a safe muster area or place to wait if you cannot leave by yourself and need to be picked up.
- stay in regular contact with family and friends during an emergency
- know your neighbours, their preparedness plans might impact you
- get involved with local community initiatives and events to build your local network

### YOUR DISASTER PLAN

- make a bushfire survival and evacuation plan every year.
- check local council resources, for example, refuge centres and recommended evacuation routes, preparedness and response plans.
- find out about local emergency services (eg fire brigade and animal rescue), emergency communications (eg local radio channel for emergencies), and local skills and organisations for emergency cleanup and repairs (eg SES and local tradies).
- plan what resources and help you might need to get back on your feet after a natural disaster

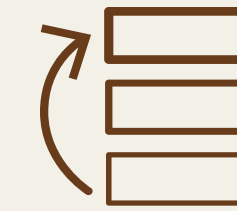
### YOUR INSURANCE

- Have you calculated the cost of replacing your home?
- Does your insurance cover home and its contents? For rural properties, will it cover your machinery, fencing, shed and livestock?
- Is bushfire insurance available, does it cover other natural disasters, will they charge a higher premium in your area?
- Can you afford increases to the premiums?
- How timely are the payouts - will the payment be prompt or is there considerable delay?
- If you are in urgent financial need, can the insurer fast track your claim?
- Will the claim be settled in a cash payout, repair or replacement?
- Are all your insurance documents kept in a safe place and can be accessed online?
- Have you taken photos of everything?



## 3.2 Property and Landscaping Maintenance

Being prepared means setting up preventative measures and planning for the **regular maintenance** involved to both your property and landscape.



### REGULAR PROPERTY MAINTENANCE

- Store any combustible materials, rugs and mats, and garden waste away from house or cover with a non-flammable material.
- Check that generators, pumps, sprinklers and any automated systems are working correctly and that fire fighting compatible connection fittings are up to date (if relevant).
- Monitor for and repair any damage to the bushfire resilience of exterior walls, windows, doors, shutters, painted surfaces, decks, and subfloor areas.
- Clear areas near doors, steps, stairways and windows, and in open underfloor areas of clutter and plant pots.
- Clean out vents and weep holes.
- Maintain artificial lighting in outdoor areas.
- Ensure roof and eaves are kept clear of debris.
- Remove any rubbish that has accumulated over the year and take it to the tip.
- Ensure your water tanks are full if you will be using them for fire fighting systems.

### LANDSCAPE MAINTENANCE

- Keep lawn and grass short and well watered.
- Keep areas under trees clear from debris.
- Ensure any dead, decayed, hazardous plants or other landscape materials have been moved away from the home and the likely seasonal fire path to your home, and your evacuation paths.
- Keep debris and weeds away from your house, from the most likely bushfire approach path, and from your evacuation paths.
- Consider whether you need to selectively thin dense vegetation and prune larger trees and any overhanging branches around built assets (this may involve consulting with neighbours or local authorities).



### 3.3 Landscape and Livability Considerations

When you plan your retrofit you may want to include features to help manage more than just bushfires. For instance:



- Ponds, wetlands and channels can hold water in the landscape during drought, and be ready to absorb or redirect water in heavy rain.



- Windbreaks, earth mounds, walls and terraces can deflect fire, high winds and water away from your home. Ask people who have lived in the area for a long time which direction the wind, fire and flood waters usually come from. This will also help you build networks with your neighbours.



- Open areas such as lawns, tennis courts or paved paths and sitting areas can limit the spread of fire and allow natural light into your house. But shade is also important for reducing heat stress and keeping cooling bills down. Consider low flammability shade materials to protect high sun areas, and use the shade to grow low profile, low flammability plants to maintain the cool conditions around the house.



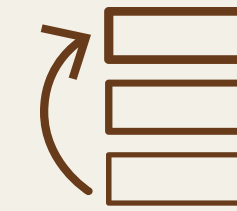
- Smaller, deciduous trees close to the house are less dangerous in fire and high winds than larger, flammable trees such as eucalypts. They are also easier to prune to reduce the risk of crown fires.



- Keeping garden waste and much in waste or compost bins, or in piles at a distance from your house makes walking in the garden more accessible and reduces material that can be strewn around by wind and water, or attacked by fire.



- Accessibility features such as good lighting, wheelchair ramps, pathways with no trip hazards, and grab-rails promote safety in all hazard conditions. It also makes moving around your house for regular maintenance and evacuation easier.



01

02

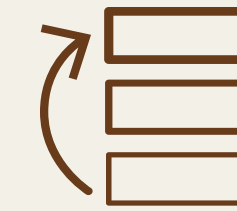
03

04

05

06

### 3.4 Don't leave it too late: evacuate!



Evacuation in the event of an approaching bushfire is the general recommendation. An evacuation plan should be the most important part of your bushfire survival plan. This may need to be updated throughout the bushfire season as required. Once you know where you are going to evacuate and have worked out the best route to take, here are some possible actions you might take, depending on what you have time for.

#### Evacuation pointers

Call someone	Pets	Grab your bags	Emergency Services	Go to muster area	Monitor local conditions	Automated sprinklers
<input type="checkbox"/> Call and let someone know you are evacuating and where you are going so they know where to expect you and that you won't be home.	<input type="checkbox"/> Make arrangements for pets or stock that you cannot take with you when you evacuate.	<input type="checkbox"/> Grab your evacuation bag and dress in fire sensible clothing.	<input type="checkbox"/> Only if you have time, consider leaving a sign at the front gate to let emergency services personnel or fire fighters to know that you have already evacuated, so they don't waste time knocking on your door.	<input type="checkbox"/> Move to your safest waiting area if you need to wait to be picked up.	<input type="checkbox"/> Monitor changing conditions such as local road closures and the health and mobility of yourself and your companions.	<input type="checkbox"/> If possible, turn on sprinklers before you leave, or through remote controlled systems. Use these to keep buildings and nearby areas wet until the fire front has passed.

- 4.0 Three Household Scenarios
- 4.1 Kim
- 4.2 Terry and Gale
- 4.3 Bruce and Kate



**THE NOVICE**



**THE UPGRADER**



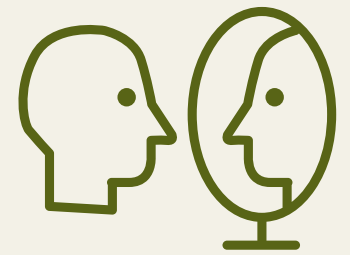
**THE EXEMPLAR**



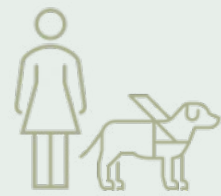
# 04 Case Studies

## 4.0 Three Household Scenarios

We have created **3 different household** scenarios to help you to see lifestyle and independence issues in context. These draw on the experiences of real-life case study participants. They have varying lifestyle values.



Do you identify with any of the case studies?



THE  
NOVICE

**Kim**

**Single with a care dog**

**Age group:** 70-75

**Climate risks:** Bushfire

**Neighbourhood:** Urban in town but close to bushland

**Lifestyle:** Home a lot

**Essentials:** Small and portable items

**Independence:** Requires help with most tasks. Retrofitting does not feel doable.

**Values:** Sustainability, accessibility, garden, pet.



THE  
UPGRADER

**Terry and Gale**

**Couple with mobility limitations**

**Age group:** 75-80

**Climate risks:** Bushfire and drought

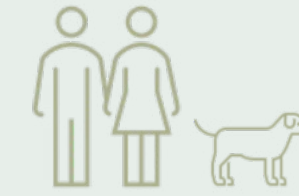
**Neighbourhood:** Semi-rural, mostly bushland but close to town

**Lifestyle:** Out and about

**Essentials:** Small and portable items, some medium size items

**Independence:** Require help with some tasks. Would need to make some financial sacrifices for retrofitting.

**Values:** Sustainability, family, heirlooms, accessibility, garden.



THE  
EXEMPLAR

**Bruce and Kate**

**Couple and dog**

**Age group:** 60-65

**Climate risks:** Bushfire and drought

**Neighbourhood:** Rural (acreage and paddocks) near bushland.

**Lifestyle:** Out and about

**Essentials:** Small and portable items

**Independence:** Able to do most tasks, and have money for retrofitting.

**Values:** Sustainability, family, pets and livestock.

## 4.1 Kim - the Novice

### More About Kim:

Kim has just moved into a bushfire prone area but plans to retire in this house. She is single with a pet dog. Kim has minor mobility issues.

### About her property:

Kim's house is a single storey timber dwelling that has not been kept in good condition.

### Kim's Retrofit Journey:

Kim has no idea where to start with her retrofit and is concerned about her financial and physical ability to carry out a retrofit project on her own.

Kim might start by doing things that are **LOWER effort** and **LOWER cost** first.



[Click to Watch this Animation](#)

**LOWER EFFORT**  
maintenance/retrofit

## 4.2 Terry and Gale - the Upgrader

### More About Terry and Gale:

Terry and Gale have been living in a bushfire prone area for a decade now and have slowly adapted to living with bushfires. Gale has been wheelchair bound previously and Terry has minor mobility issues.

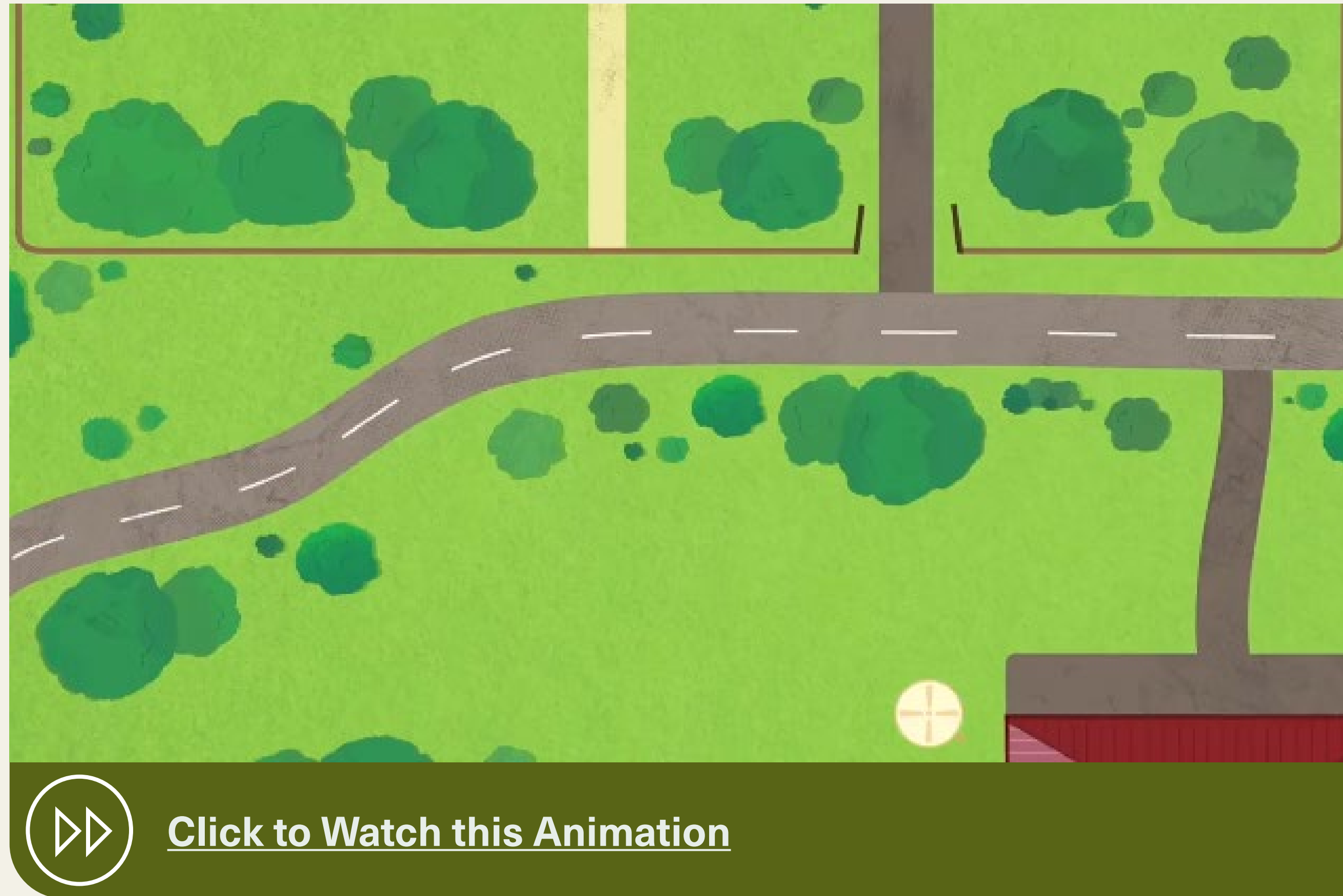
### About their property:

Terry and Gale's house has a subfloor to prevent from flooding and have installed a ramp for accessibility around the house.

### Terry and Gale's Retrofit Journey:

Over the years, Terry and Gale have needed to retrofit for reasons other than bushfires, such as expanding the size of their current house, and adding in features to increase accessibility around their house.

Terry and Gale might do things that are **MODERATE effort** and **MODERATE cost**.



**MODERATE EFFORT**  
maintenance/retrofit

## 4.3 Bruce and Kate - the Exemplar

### More About Bruce and Kate:

Bruce and Kate have been living in a bushfire prone area for more than a decade now and have done as much as they can to protect their homes from bushfires. They plan to retire in their current home and remain as independent as possible as they age.

### About their property:

Bruce and Kate's house is a single storey brick building that they have modified multiple times with bushfire retrofit interventions.

### Bruce and Kate's Retrofit Journey:

Bruce likes to stay tech savvy and has done a lot of his own research into what he can do to protect his house. Over time, they have also upgraded a lot of the original retrofit measures they installed.

Bruce and Kate are doing things that are **HIGHER effort** and **HIGHER cost**.



[Click to Watch this Animation](#)

**HIGHER EFFORT**  
**maintenance/retrofit**

- 5.0 Effort, Cost and Priority
- 5.1 Lower effort, lower cost
- 5.2 Moderate effort, moderate cost
- 5.3 Higher effort, higher cost

# 05 Where to Start


## 5.0 Effort, Cost and Priority

The retrofit and landscape actions listed in this section are categorised by high-level classifications for effort and cost:

**Lower effort and cost** - requiring none or minimal paid assistance

**Moderate effort and cost**- requiring some paid assistance

**Higher effort and cost** - requiring more financial investment and professional assistance

 Within these categories there are still some tasks that are a **higher priority** than others. This means you should consider actioning the tasks at the top of the list first.

**Important note:** The lower, moderate and higher classifications are only to indicate what retrofit and landscaping actions you might be capable of starting first. However, all actions are important so read through all of them, action what you can but plan ahead for a thorough retrofit approach.



01

02

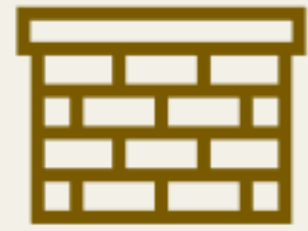
03

04

05

06

## 5.1 Lower effort, lower cost



### EXTERNAL WALLS

- Clear garden waste and clutter from around exterior walls, doors, and steps to remove immediate fuel.
- Store movable combustible objects (lawn mowers, caravans, boats) away from the home.
- Monitor and repair cracks or chipped surfaces that can ignite.
- Keep sprinkler system ready and use it during bushfire season to wet the walls.
- Maintain clear access around walls and steps for emergency movement.



### ROOF

- Avoid storing combustible materials in roof cavities.



### WINDOWS & DOORS

- Ensure non-combustible window shutters remain in good condition and close them when unattended.
- Check windows, doors, and shutters for damage to maintain ember resistance.
- Maintain clear areas near doors and stairways to prevent trip hazards during evacuation.



### SUBFLOOR AREAS, DECKS & STEPS

- Remove slip and fall hazards around deck perimeters.
- Avoid storing combustible materials in underfloor spaces.
- Check for cracks and gaps in decking where embers could enter.
- Monitor timber decking and supports for damage or decay.
- Minimise plants and other combustible items stored on decks and verandas.



### LANDSCAPE

- Keep lawn and grass short and well-watered.
- Clear debris and flammable material under trees.
- Remove or prune trees that threaten safe access or evacuation.
- Use fire-resilient plant containers.

higher priority

**Important note:** Even if you are only able to start with the lower effort actions, you should still plan towards the moderate and high effort actions.

01

02

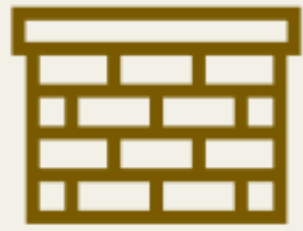
03

04

05

06

## 5.2 Moderate effort, moderate cost



### EXTERNAL WALLS

- Seal all gaps larger than 2 mm, protect vents and weepholes with metal mesh.
- Regularly repaint and reapply fire-retardant treatments to damaged painted areas.
- Shield or relocate exposed pumps and generators within the building envelope.
- Install and maintain artificial lighting in external areas for easier evacuation.



### ROOF

- Repair or replace any damaged gutters, gutter shielding, and sarking materials.
- Consider installing additional sprinkler heads in the roof cavity.



### WINDOWS & DOORS

- Inside the home, use heat-resistant fiberglass interior curtain fabrics with a heat-reflective outer layer.
- Fill gaps in window and door frames using draught seals or close-fitting methods.
- Apply fire-retardant coatings or coverings to combustible materials and maintain them in good condition.



### SUBFLOOR AREAS, DECKS & STEPS

- Install a non-combustible tight enclosure, such as a tight steel mesh, around exposed subfloor spaces.
- Protect vents and weepholes with metal mesh with gaps smaller than 2mm.



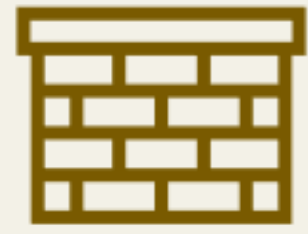
### LANDSCAPE

- Prune or position shrubs away from your house, access ways, and below trees.
- Choose low-flammability plant species.
- Use non-combustible mulches (pebbles, gravel, shells) and keep them wet during fire conditions.
- Keep lawn and grasses short, well-watered.
- Clear of debris, especially grasses under or around trees, shrubs, buildings, and other combustible elements.

higher priority

**Important note:** Even if you are able to start with the moderate effort actions, you should not skip the lower effort actions.

## 5.3 Higher effort, higher cost



### EXTERNAL WALLS

- For timber frame walls with combustible cladding (soft wood timber, PVC):
  1. Protect all re-entrant corners (for at least 500mm in all directions) and bottom of all ground level (at a minimum of 500mm) using non-combustible materials or class 1 durability timber, with additional flame resisting sarking.
  2. Sand and paint any rough sawn timber finishes to prevent embers from catching on and igniting the textured surface.
- Install and maintain step-free doorways, and ramps and grab rails in outdoor areas for easy evacuation.



### ROOF

- Seal ridges and eaves with non-combustible insulation or flashings to resist ember attack.
- Replace combustible fascia and eaves with non-combustible alternatives.
- Wrap framing trusses with flame-resistant sarking.
- Replace any timber battens in the roof with steel battens



### WINDOWS & DOORS

- Install double-glazed windows
- Install roller shutters over windows, that can be closed when you are away or if a fire is approaching.
- Layer a heat-resistant fiberglass interior curtain with a tight steel mesh screen to prevent embers or flames from entering



### SUBFLOOR AREAS, DECKS & STEPS

- Replace combustible posts, supports, and decking and steps with non-combustible alternatives, or apply fire retardant coatings and maintain them in good condition.
- Fire-retardant treatments for timber decking should be reapplied on a regular basis as recommended by the manufacturer.



### LANDSCAPE

- Consider modifying the site plan to include features useful in bushfire such as dams, water tanks, safe evacuation paths, windbreaks and muster points.
- Use non-combustible materials for fencing, edging, decks and other landscape structures.
- Position screen plantings between the house and bushfire direction, maintaining required separation distances.

higher priority

**Important note:** Even if you are able to start with the higher effort actions, you should not skip the lower/moderate effort actions.

01

02

03

04

05

06

# 06 Additional Resources



## **NATIONAL:**

Property-level BAL assessments should be conducted by Fire Protection Association of Australia (FPAA) accredited consultants.

## **ACT:**

### **Planting design references:**

[www.anbg.gov.au/bibliography/fire-plants.html](http://www.anbg.gov.au/bibliography/fire-plants.html)

[www.blog.csiro.au/five-tips-for-replanting-after-bushfires/](http://www.blog.csiro.au/five-tips-for-replanting-after-bushfires/)

<https://suburbanland.act.gov.au/docs/default-source/sustainability-and-innovation/your-resilient-home-guide.pdf>

## **NT:**

<https://nt.gov.au/emergency/bushfire/prepare-and-plan/survival-plans>

<https://nt.gov.au/emergency/bushfire/prepare-and-plan/fire-safety-on-rural-blocks>

<https://nt.gov.au/emergency/bushfire/prepare-and-plan/firebreaks>

## **NSW:**

**Support from NSW Rural Fire Service for owner/builders who wish to submit plans for building or modifying an existing building in a Bush Fire Prone Area:**

[https://www.rfs.nsw.gov.au/\\_data/assets/pdf\\_file/0017/4355/Guidelines-for-Single-Dwelling-Development-Applications.pdf](https://www.rfs.nsw.gov.au/_data/assets/pdf_file/0017/4355/Guidelines-for-Single-Dwelling-Development-Applications.pdf)

[https://www.rfs.nsw.gov.au/\\_data/assets/pdf\\_file/0018/4365/Building-Best-Practice-Guide.pdf](https://www.rfs.nsw.gov.au/_data/assets/pdf_file/0018/4365/Building-Best-Practice-Guide.pdf)

**NSW Rural Fire Service (n.d.) 'Standards for Asset Protection Zones' publication:**

[https://www.rfs.nsw.gov.au/\\_data/assets/pdf\\_file/0010/13321/Standards-for-Asset-Protection-Zones.pdf](https://www.rfs.nsw.gov.au/_data/assets/pdf_file/0010/13321/Standards-for-Asset-Protection-Zones.pdf)

**NSW RFS (2006) 'Planning for Bushfire Protection' – Appendix 5:**

[https://www.rfs.nsw.gov.au/\\_data/assets/pdf\\_file/0006/4398/Planning-for-Bush-Fire-Protection-2006-Appendix-5.pdf](https://www.rfs.nsw.gov.au/_data/assets/pdf_file/0006/4398/Planning-for-Bush-Fire-Protection-2006-Appendix-5.pdf)

**Planting design references:**

[https://www.rfs.nsw.gov.au/\\_data/assets/pdf\\_file/0004/254254/Asset-Protection-Habitat-Areas-illustrated.pdf](https://www.rfs.nsw.gov.au/_data/assets/pdf_file/0004/254254/Asset-Protection-Habitat-Areas-illustrated.pdf)



## **QLD:**

### **Bushfire Resilient Building Guidance for Queensland Homes**

<https://www.gra.qld.gov.au/resilient-homes/bushfire-building-guidance-queensland-homes>

### **Queensland Fire Department – Bushfire Planning**

<https://www.fire.qld.gov.au/compliance-and-planning/bushfire-planning>

### **Queensland Fire and Biodiversity Consortium**

<https://www.fireandbiodiversity.org.au/resources>

## **SA:**

### **CFA (2019) ‘Reducing Fire Risk in Gardens’,**

<https://www.cfs.sa.gov.au/about/publications/publications/reducing-fire-risk-in-gardens/>

## **TAS:**

### **The Bushfire Safety Guide**

<https://bushfire.tas.gov.au/documents/bushfire-safety-guide/download?inline=>

### **Advice for farmers and rural landholders:**

<https://www.sfmc.tas.gov.au/RedHotTips>

## **VIC:**

### **Planting design references:**

[www.apsvic.org.au/fire-resistant-and-retardant-plants/](http://www.apsvic.org.au/fire-resistant-and-retardant-plants/)

[www.cfa.vic.gov.au/plan-prepare/how-to-prepare-your-property/landscaping/plant-selection-key](http://www.cfa.vic.gov.au/plan-prepare/how-to-prepare-your-property/landscaping/plant-selection-key)

[www.joanwebsterauthor.wordpress.com/bushfiresafety/](http://www.joanwebsterauthor.wordpress.com/bushfiresafety/)

[www.surfcoast.vic.gov.au/files/assets/public/03-community/emergencies-and-safety/landscaping\\_your\\_surf\\_coast\\_garden\\_for\\_bushfire\\_-\\_updated\\_1\\_july\\_2025.pdf](http://www.surfcoast.vic.gov.au/files/assets/public/03-community/emergencies-and-safety/landscaping_your_surf_coast_garden_for_bushfire_-_updated_1_july_2025.pdf)

[www.landcarevic.org.au/groups/eastgippsland/egln/green-fire-walls-project-by-lakes-entrance-community-landcare-2/](http://www.landcarevic.org.au/groups/eastgippsland/egln/green-fire-walls-project-by-lakes-entrance-community-landcare-2/)

01

02

03

04

05

06



## **WA:**

<https://www.dfes.wa.gov.au/hazard-information/bushfire/prepare>

<https://publications.dfes.wa.gov.au/publications/guide-for-applying-the-bush-fire-risk-treatment-standards>

[www.wa.gov.au/system/files/2022-05/Guidelines-for-planning-in-bushfire-prone-areas-version-1.4\\_0.pdf](http://www.wa.gov.au/system/files/2022-05/Guidelines-for-planning-in-bushfire-prone-areas-version-1.4_0.pdf)

## **INDEPENDENT ORGANISATIONS:**

### **Fortis House NSW:**

<https://fortishouse.org/>

### **Resilient Building Council Australia:**

<https://rbccouncil.org/rbccouncil/>

### **Renew Green Rebuild:**

<https://greenrebuildtoolkit.com/>

### **Landcare NSW:**

<https://landcare.nsw.gov.au/groups/murrumbateman-landcare-group/designing-gardens-for-bushfire-prone-areas/>

01

02

03

04

05

06

