

# FLOODING IN AUSTRALIA 2020

## ARE YOU AT RISK?

Over one million private properties, or about one in 10 homes, have some level of flood risk in Australia.



## HIGH RISK FLOOD AREAS

While every waterway has a risk of flooding, some floodplains are at higher risk than others, with different flood depths and different levels of development. The highest risk local government areas (LGAs) in each state are listed below.

### Most at-risk across Australia

- Brisbane, QLD
- Central Coast, NSW
- Clarence Valley, NSW
- Hawkesbury, NSW
- Kempsey, NSW
- Lismore, NSW
- Shoalhaven, NSW
- Townsville, QLD
- Tweed, NSW
- Wollongong, NSW

### New South Wales

- Central Coast
- Clarence Valley
- Hawkesbury
- Kempsey
- Lismore
- Narrabri
- Richmond Valley
- Shoalhaven
- Tweed
- Wollongong

### Queensland

- Brisbane
- Bundaberg
- Cassowary Coast
- Cairns
- Gold Coast
- Ipswich
- Moreton Bay
- Noosa
- Rockhampton
- Townsville

### Victoria

- Benalla
- Campaspe
- Frankston
- Greater Bendigo
- Greater Geelong
- Greater Shepparton
- Maribyrnong
- Melbourne
- Mornington
- Peninsula
- Wyndham

### Western Australia

- Bassendean
- Belmont
- Bunbury
- Busselton
- Carnarvon
- Greater Geraldton
- Harvey
- Murray
- Swan
- Stirling

### Tasmania

- Central Coast
- Devonport City
- George Town
- Huon Valley
- Latrobe
- Launceston City
- Meander Valley
- Northern Midlands
- West Coast
- West Tamar

### South Australia\*

- Burnside
- Gawler
- Mid Murray
- Murray Bridge
- Renmark
- Paringa
- West Torrens

### Northern Territory\*

- Alice Springs
- Katherine

\*Note: There are fewer LGAs listed for SA and NT due to fewer LGAs and lower flood risk in these areas overall. This information is based on the total sum of premium at risk.

## WHAT PUTS A PROPERTY AT RISK?

The location of a property is the main driver of flood risk.



The areas at risk of flooding are dictated by topography (i.e. the surface of the land) and rainfall in the catchment, as water follows the lowest path across the landscape.

This means floods don't affect every part of a geographic region in the same way. For example, they can significantly damage the same areas repeatedly over time, while having no impact on other locations that are close by.

If you live in a flood risk area, your risk can vary significantly depending on:



### Location of your home

The exact location of a building on a parcel of land can make a significant difference to flood risk. For example, where your home sits on your property – such as the top of a hill or bottom of a slope.



### Floor heights

As floodwaters rise, properties with lower floor levels will be affected first, while properties elevated above the surrounding terrain and above the height of surrounding waterways may escape with little or no damage.

## HOW FLOOD RISK IS DETERMINED

### FLOOD FREQUENCY

Annual Exceedance Probability (AEP) is the measure used by engineers and land planners to describe the size and frequency of floods. AEP describes how likely a given flood event is to occur each year, based on historical flood records and computer modelling of potential future floods.

You may hear a property described as being at risk of a 1-in-100 year flood or a 1-in-20 year flood.

**This does not necessarily mean that the property floods once every 100 years. It means the property has a 1-in-100 or 1% chance of flooding in any given year.**

Next time you hear the terms 1-in-100 or 1-in-20 for example, a better way to think of it is as a 1% (1-in-100) or 5% (1-in-20) chance of that type of flood occurring in the next year. Major floods can still occur in close succession over a few years followed by long periods with no significant floods.

If you live in a 1% AEP flood zone, you have a 50% chance of being flooded in a typical lifetime (70 years), and a 15% chance of being flooded twice in this period.

EXAMPLE OF AEPs AND THE LIKELIHOOD OF FLOODS		
Size of Flood / AEPs	Probability of experiencing the given flood in a period of 70 years	
	At least once (%)	At least twice (%)
1 in 10 (10%)	99.9	99.3
1 in 20 (5%)	97.0	86.4
1 in 50 (2%)	75.3	40.8
1 in 100 (1%)	50.3	15.6
1 in 200 (0.5%)	29.5	4.9

Reference: NSW Floodplain Development Manual.

## CAUSES OF FLOODS

Floods are caused by heavy and extreme rain. In Australia, some of the weather systems that produce the most extreme rain include the following.

### Tropical cyclones

Large tropical heavy rain-producing weather systems. They are most common in the tropics but their heavy rainfall can extend across more southern regions of Australia. For more information about tropical cyclones, read the [IAG Tropical Cyclone Fact Sheet](#).

### Severe thunderstorms

Thunderstorms typically last only an hour or two, and sometimes are as short as a few minutes, but may produce very intense localised rainfall. They can cause flash flooding and flooding in small river catchments.

### Monsoon lows

Slow moving systems that produce heavy rainfall over large areas. For example, the north Queensland and Townsville floods in February 2019.

### Mid latitude lows

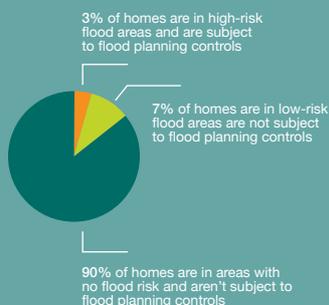
Large weather systems that are responsible for bursts of heavy rainfall, mostly across the southern half of Australia. Most produce heavy rainfall over two to three days and can cause large rivers to flood, as well as flash flooding of smaller streams. *East Coast Lows* are a specific type of mid latitude low occurring off south-east Queensland, eastern NSW, eastern Victoria and eastern Tasmania – they have produced some of the heaviest rainfall experienced in these regions.

### Storm surge

The rapid rise of sea level, over and above the predicted tide. This can occur during tropical cyclones and mid latitude lows. This can exacerbate flooding as the higher sea level prevents water from escaping other inland areas. Additionally, storm surge combined with wave action can impact coastal properties and cause flooding.

# 97%

of homes are in areas that are generally not subject to planning and building controls.



## FLOOD PLANNING AND BUILDING CONTROLS

In Australia, contemporary flood-related planning and building controls are generally designed to restrict development of homes in flood zones up to the 1% AEP or higher. This aims to balance the need to develop homes for people to live in with the need to make sure they live in a reasonably safe place.

A third of flood-prone properties in Australia are within this higher risk 1% AEP flood zone, and are subject to special planning and building controls. Newer homes in these areas will be built to a higher standard, often with raised floor levels or flood-compatible materials.

The remaining two-thirds of flood-prone properties are in lower-risk flood zones. These properties can still flood during extreme events, but typically aren't built to withstand flood inundation (water through the home).

## FLOOD DAMAGE TO HOMES

Floods can cause significant damage to homes and repairs can be costly and inconvenient for homeowners.

If floodwater enters a home it can cause extensive damage to floors, walls, cabinetry, electrical wiring and air-conditioner units. It can also destroy contents such as whitegoods, electrical goods and furniture.

In the worst-case scenarios, floods can cause structural damage to homes.

As an example, less than 10cm of floodwater entering a home could mean that you need to strip out your wall linings, floor coverings (including tiles) and cabinets (e.g. kitchen, laundry, bathroom and wardrobes) so that you can dry out and sanitise the surfaces and interiors of walls.

Floodwater can be contaminated by overflows from the sewage system, which can contain dangerous bacteria and pathogens, so it's important to sanitise surfaces afterwards, and strip out materials to prevent rotting, corrosion and mould. In this case, it is likely that you may not be able to live in your home for several months as your home is repaired.

## TYPES OF DAMAGE RESULTING FROM FLOOD



Electrical problems



Structural damage



Corrosion and mould

## HOW TO PREPARE FOR A FLOOD

### Know your risk

Check with your local floodplain management authority to see whether your property is at a high risk of flooding. Depending on where you live this could be the local council, catchment management authority, water authority, or territory government.

Remember that flood-related planning and building controls only apply to the highest-risk areas, so ensure that you ask about the risk from potential flood events larger than the 1% AEP flood.

### Have an emergency flood plan

The safest place to be during a flood is outside the floodplain. If you are evacuating during a flood, take all safety precautions and listen to the advice of your local emergency services, including whether you should stay or go, particularly when driving.

Floodwaters that reach the bottom of a car door can be enough to carry a vehicle away, **so never drive through floodwaters**. Driving through floodwaters is one of the biggest contributing factors to fatalities during floods. Having a flood plan in place can take the stress out of evacuating and potentially save lives.

To develop your flood plan, follow these tips:



Understand the warnings and signs that will trigger your flood plan.



Know in advance where you will go and who you will call.



Know your local flood safe evacuation routes.



Practice your flood plan with everybody in your household, including pets.



Think about how you could protect sentimental objects.

e.g. by raising them onto a bench or table if you have time to safely do so before evacuating.



Put together an emergency kit for your home or business.



Never drive through floodwaters.

Your local state emergency service can give you more information about developing a flood plan and emergency kit.

## HOW TO MAKE YOUR HOME MORE RESILIENT TO FLOODS

### Retrofitting your home

If you live in a flood prone area, you may want to speak to a certified builder or your local floodplain management authority to find out what improvements can be made in your home to make it more resilient to floods.

Raising the floor level of your home above the level of possible floodwaters is typically the most effective way of reducing your risk, but this is only suitable in certain circumstances.

### Building to the code

If you are building a new property, speak to your local council about your individual flood risk and your AEP. Even if you are not in a 1% AEP, you may still be in a floodplain and exposed to risk.

Ensure that your builder is meeting all the requirements based on the flood risk of your property. You may also want to consider building above the minimum standards\*, or using different materials or fixtures which may be more resilient and worthwhile for your home in the unfortunate event you experience a flood.

For example, you could choose to build your floor level higher than the minimum standard to greatly reduce the chance of being flooded. **Increasing floor height is one of the most effective ways to protect against floods.**

There are many online resources that provide examples of resilient materials. For example, the [Queensland Reconstruction Authority](#) provides a number of guides on building homes that are more resilient to floods.

\*A 'minimum standard' is the minimum necessary requirement for a building and is generally designed to focus on 'life safety', i.e. keeping you safe. Minimum standards do not take into account the potential financial implications if your property is significantly damaged during an event.

## INSURANCE AND FLOODS

### How to ensure you're covered

- Check that you have home building and contents insurance, that your policy is up-to-date and includes cover for flood and/or other types of water damage which may occur, such as storm surge. Each policy may have slightly different wording and cover, so if you're unsure, contact your insurer to check what you are covered for.
- Check that you have appropriate insurances in place for any vehicles, boats or caravans that may be on your property.
- Use an online insurance calculator as a guide to help you decide how much to insure your house and contents for.
- Check whether you are adequately covered for 'removal of debris' (clean-up costs after a flood).
- Check that your insurance policy covers you for temporary accommodation in case you can't live in your home.
- If you're a small business, check if you are covered for the costs of interruption to your business if there is a flood.

## CLEAN-UP COSTS AND REPAIR

The costs of sanitising and clean-up after a flood should be included in your sum insured, or the terms of your policy. The clean-up may involve stripping out wall linings and floors to limit the chance of mould spreading. It is important to consider these costs when deciding how much it will cost to repair or rebuild after a flood.

### How much do repairs cost?

When there is significant damage to a home or a home is destroyed by a flood, repair costs can reach tens of thousands of dollars.



**\$80,000**  
was the average claims cost to repair homes.\*



**More than \$100,000**  
Many flood-related home claims during the Townsville floods were above \$100,000, with some reaching as high \$800,000.

The typical repairs included stripping back each home to the frame and slab, removing the kitchens and bathrooms and arranging two hygienist visits to sanitise the property before everything could be re-installed.

\*Source: IAG claims data for 2019 Townsville floods

## INFORMATION

### State Emergency Services

**Australian Capital Territory  
Emergency Services Agency**  
[esa.act.gov.au](http://esa.act.gov.au)

**New South Wales SES**  
[ses.nsw.gov.au](http://ses.nsw.gov.au)

**Northern Territory Police,  
Fire & Emergency Services**  
[pfes.nt.gov.au](http://pfes.nt.gov.au)

**Queensland SES**  
[ses.qld.gov.au](http://ses.qld.gov.au)

**South Australia SES**  
[ses.sa.gov.au](http://ses.sa.gov.au)

**Tasmania SES**  
[ses.tas.gov.au](http://ses.tas.gov.au)

**Victoria SES**  
[ses.vic.gov.au](http://ses.vic.gov.au)

**Western Australia Department  
of Fire & Emergency Services**  
[dfes.wa.gov.au](http://dfes.wa.gov.au)

### Other useful links

**Bureau of Meteorology**  
[bom.gov.au](http://bom.gov.au)

**Bushfire & Natural Hazards CRC**  
[bnhcrc.com.au](http://bnhcrc.com.au)

**CitySmart Flood Resilient  
Homes Program**  
[citysmart.com.au/floodwise](http://citysmart.com.au/floodwise)

**Floodplain Management Australia**  
[floods.org.au](http://floods.org.au)

**Insurance Council of Australia**  
[understandinsurance.com.au](http://understandinsurance.com.au)

**Queensland Reconstruction  
Authority**  
[qra.qld.gov.au/resilient-homes](http://qra.qld.gov.au/resilient-homes)