



Insurance Council
of Australia



Future Proofing Australia's Resilience

Insurance Council of Australia Summary report

Acknowledgement of Country

The Insurance Council of Australia acknowledges the Traditional Owners of country throughout Australia and their continuing connection to land, culture, sea and community. We recognise the tens of thousands of years of continuous custodianship and placemaking by First Nations peoples and their proud role in our shared future. This report was produced on the lands of the Gadigal people of the Eora Nation. We pay our respects to Elders past, present and emerging.

About this Report

The National Construction Code (NCC) is Australia's primary set of technical design and construction provisions for buildings and sets the minimum required level for the safety, health, amenity, accessibility and sustainability of buildings. Significantly, no direct requirement currently exists to consider the impacts of extreme weather events on the durability and resilience of buildings. The Australian Building Codes Board (ABCB), on behalf of the Australian Government and each State and Territory government, produces and maintains the National Construction Code.

The Insurance Council of Australia (ICA) commissioned the Centre for International Economics (CIE) – a leading economic research firm that provides independent, quantitative, evidence-based advice – to conduct a high-level economic analysis of the anticipated costs and benefits of amending the NCC and relevant referenced standards.

Contents

Key Findings	4
Strengthening the National Construction Code Brings Considerable Returns on Investment	6
Estimating the Costs of Cyclones, Bushfires and Floods	7
Cyclones and the NCC	8
Bushfires and the NCC	9
Flooding and the NCC	10
Conclusion	10

Key Findings

1

Extreme weather events are imposing enormous costs on Australian households.

Australian homeowners are losing about \$4 billion each year due to extreme weather events such as bushfires, cyclones and floods, highlighting the need for greater action to future proof Australia's resilience in the face of worsening weather. This cost includes rebuilding or repairing buildings damaged from extreme weather events, the cost of replacing and repairing home and contents, and disruption costs including temporary accommodation and impacts on employment.

2

These costs are projected to double by 2050, as bushfires, cyclones and floods become more severe and/or frequent in a changing climate.

The Centre for International Economics (CIE) analysed current and future residential building related costs from bushfires, cyclones and floods, which are becoming more frequent and/or severe as Australia continues to experience the compounding effects of climate change.

By 2050, the costs of rebuilding, repairing homes, replacing contents, and displacing people are expected to exceed \$8.7 billion per year. This is a conservative estimate, and more than double the current costs. Cyclones are projected to drive costs of up by \$4.4 billion per year by 2050, bushfires \$2 billion a year by 2050 and floods \$2.3 billion per year by 2050. These numbers assume that climate change will continue to drive an expansion of high-hazard zones, and development will continue to increase in high-risk areas, such as floodplains.

3

There are clear economic benefits in making homes more resilient to bushfires, cyclones and floods.

To address this challenge, we can strengthen the National Construction Code (NCC) to require that new homes are made more resilient to the impacts of bushfires, cyclones and floods. Strengthening the NCC could reduce the current average annual building related costs estimated to be around \$2 billion per year for cyclones, \$1.475 billion per year for floods and \$486 million per year for bushfires.

4

We must avoid new homes being built in vulnerable areas, including high-risk parts of the floodplain.

The CIE analysis shows that flooding causes expensive damage, reducing the cost-benefit of some building measures targeting flood. The study supports ICA's call to see states and territories reform planning rules so that new homes are not built in high-risk areas of the floodplain. New developments must consider the consequence and likelihood of the full range of possible flood events including larger and rarer floods beyond the 100-year (1% annual exceedance probability - AEP). Development assessments should also consider future climate projections expected over the full lifecycle of the building.



We can make insurance more affordable and available by improving what and where we build.

To create stronger and safer homes, we can improve the National Construction Code, as well as building out of harm's way by improving planning rules – this will benefit all Australians in the long run. To make the NCC stronger, we need to broaden its scope and expand its focus beyond occupant health and safety to include building resilience.

Taking action in these areas can also help address the growing challenge of insurance affordability and availability, given insurance prices reflect the level of risk within a given market. If we don't make what and where we build stronger, it will be dangerous and expensive. It will cost billions of dollars for recovery and add to an already strained insurance sector.

Strengthening the National Construction Code Brings Considerable Returns on Investment

The CIE study shows the significant cost benefits of strengthening the resilience of new buildings in Australia, particularly given the increased likelihood of more severe and frequent extreme weather events in the future.

The CIE analysis highlights a range of areas where the NCC could be strengthened to improve the resilience of buildings from the impacts of bushfire, cyclones and floods, and provides credible and evidence-based information to support future work by key industry and government bodies, including the ABCB, to undertake potential future changes to the NCC.

This includes any future regulatory impact analysis that may be conducted by the ABCB to determine the costs and benefits of changing the NCC.

The report provides an analysis and aggregated data of:

- the impacts that extreme weather events have on the built environment (particularly residential buildings) and the extent to which a lack of building resilience contributes to the problem, and
- opportunities to strengthen the NCC to improve the resilience of residential buildings to extreme weather events.

As part of the study, CIE identified the main impacts that could potentially be avoided with more resilient buildings, including:

- costs associated with rebuilding or repairing damaged buildings.
- costs associated with replacing and repairing home contents.
- disruption related costs, including for example temporary accommodation, the stress and mental health problems associated with living in temporary accommodation and the location of temporary accommodation.

Other costs that have not been quantified could include:

- disruptions to schooling, where the location of temporary accommodation is not close to the enrolled school.
- long-term displacement, which can delay community recovery.
- carbon emissions associated with damaged and destroyed buildings and the emissions associated with repair and/or rebuild.

Estimating the Costs of Cyclones, Bushfires and Floods

As a high-level analysis, the report identifies the types of changes that could be considered and provides a high-level assessment of whether these changes are economically viable. It does this by examining the current arrangements, size of the problem and limitations of the NCC across cyclones, floods and bushfires.

The report's high-level finding is that annual residential building costs from extreme weather events addressed by the National Construction Code (bushfires, cyclones and floods) are around \$4 billion per year (see Table 1 below).

Table 1 - Estimated annualised residential building-related costs

	Bushfire	Cyclone	Flood	Total
	\$ million	\$ million	\$ million	\$ million
Insured losses	247.58	584.04	794.56	1 626.17
Uninsured losses	61.90	146.01	198.64	406.54
Under-insured losses	60.11	431.29	190.03	681.42
Mental health impacts	80.47	577.12	200.31	857.91
Loss of housing	23.07	165.47	57.43	245.98
Employment impacts	13.71	98.31	34.12	146.13
Total	486.84	2 002.24	1 475.09	3 964.16

Source: CIE estimates.

The report's findings are intended to support the ABCB's future work program to ensure NCC-compliant buildings are resilient to extreme weather caused by climate change, and any assessments that are needed to progress updates to the NCC.

Cyclones and the NCC

Many of Australia's homes are not resilient to tropical cyclones, and unless significant changes are made to the design, method and criteria for new houses, the impact and losses from these events in Australia will increase at an alarming rate. CIE estimates the residential building-related costs from tropical cyclones could be around \$2 billion per year which is double the estimated costs based on the 10-year average (see Table 2 below).

Table 2 - Estimated residential building-related costs from tropical cyclones

	Estimated cost
	\$ million
Insured losses	584.04
Uninsured losses	146.01
Under-insured losses	431.29
Mental health impacts	577.12
Loss of housing	165.47
Employment impacts	98.31
Total	2 002.24

Source: CIE estimates.

Given our susceptibility to cyclones, particularly along our coastlines, Australia has been broken into four wind regions (A, B, C, D), with each region having different requirements under the NCC. Areas A and B are considered non-cyclonic and Areas C and D are considered cyclonic, with the level of risk of cyclones varying across each region.

Against the backdrop of these four distinct wind regions, the analysis examined previous work identifying limitations of the NCC and identified a range of areas where it could potentially be strengthened to improve buildings' resilience from the impact of cyclones. These impacts include the threat of water ingress, which is when water penetrates through the building's windows, vents, doors, or other similar vents.

Previous work found that water ingress is one of the main drivers of insurance claims following a cyclone and this occurred even when wind speeds were well below the design speed. The report concludes there are significant opportunities and economic benefits from strengthening the NCC to reduce water ingress from wind-driven rain.

There are also opportunities to address high internal pressure in houses in Wind Region B which are currently not designed for high internal pressure. Internal pressure occurs when a house experiences damage to an external opening, such as a window, door or garage door in a tropical cyclone, and when combined with the large uplift pressures on the roof, can result in roof failures.

CIE also found that there are significant cross-overs between storm and bushfire resilience measures and, if taken together, they would deliver even greater economic benefits for Australian homeowners.

Bushfires and the NCC

Australia is experiencing more intense and frequent bushfires in our warmer climate, and so it is critical we improve the resilience of Australian homes to combat the threat this poses.

CIE estimates that residential building-related costs of bushfires are around \$487 million per year (see Table 3 below).

Table 3 - Residential building-related costs of bushfires

	Estimated cost
	\$ million
Insured losses	247.58
Uninsured losses	61.90
Under-insured losses	60.11
Mental health impacts	80.47
Loss of housing	23.07
Employment impacts	13.71
Total	486.84

Source: CIE estimates.

The report also highlights many Australian homes are susceptible to extreme damage from a bushfire as they are built to a standard that does not address some of the key causes of property loss, including house-to-house ignition, maintenance, compliance, landscaping and storage of combustible materials.

Concerningly, the report also confirms there has been an increase in the number of houses built in bushfire prone areas, particularly in New South Wales, Victoria and Queensland, which will continue to increase exposure to bushfire-related risks.

The report also points out that despite ember attack being the main source of ignition for many bushfires in Australia, the basis upon which the relevant standard's requirements are set is based upon flame contact and intensity, not ember attack. In addition, the report finds that in most states and territories there is no requirement for houses built more than 100 metres from vegetation to include any bushfire protection measures, even if in a designated bushfire prone area.

The report proposes a series of relatively low-cost bushfire mitigation measures which are currently outside the scope of NCC, but which have potential to improve resilience. These include increasing separation distances between buildings to limit the spread of fires between houses, as well as the use of non-combustible fences. It also proposes changes to the types of materials used for retaining walls, and their positioning around houses to lessen the fire risk. The report also looks at how fire can be minimised by the use of more fire-resistant water tanks, and reducing risk by storing combustible materials like firewood and gas cylinders in safer distances away from houses.

Flooding and the NCC

As climate change drives an increase in the intensity of heavy rainfall events in parts of Australia and increases the risk of associated flooding, it is becoming increasingly important to examine the role of building codes and standards, as well as reforms to land use planning, to reduce the risks and impacts of flood events on the built environment.

Despite this, the ABCB Flood Standard is designed to reflect the current NCC objectives of health, safety, amenity and sustainability, so it primarily focuses on structural safety and life safety, rather than building resilience. The report found that in many cases, changes to land use planning offers the most practical, direct and cost-effective option to improve building resilience because it avoids exposure to risk in the first place.

It highlights the benefits and opportunities for improved integration between land use planning and building standards to minimise risk and to form a comprehensive flood risk management system.

It found that the current building standards and codes are underpinned by historical rainfall regimes and do not adequately account for current and future conditions. To address this, land use planning, building regulations and rainfall and runoff guidelines should be informed by forward looking science and modelling that takes into account the growing risk of flooding events in the future.

In addition, the report highlighted that the current building standards and codes do not achieve the desired outcomes in minimising damage when floods occur, and that there are opportunities to enhance flood resilience through building standards, including increased floor heights.

It found the return on investment when making structural improvements to homes to improve resilience, such as increasing flood elevation, is greater in homes situated in high-risk flood zones, compared to those homes situated in lower flood risk areas.

Conclusion

To withstand extreme weather, homes need to be stronger and more durable. With the report finding that extreme weather events are costing Australian homeowners around \$4 billion a year, it is clear that the definition of resilience needs to be embedded in the NCC to reduce risks from future extreme weather events. Importantly the NCC is only one lever to bolster resilience - there are many other policy opportunities to better protect Australians, including increased resilience investment and reforming land use planning.



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About the Insurance Council of Australia

The Insurance Council of Australia is the representative body for the general insurance industry of Australia. Our members represent approximately 90 per cent of total premium income written by private sector general insurers, spanning both insurers and reinsurers. Our work with our members, consumer groups and all levels of government serves to support consumers and communities when they need it most.

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