

Housing archetypes

The Where We Build, What We Build Project

As natural hazards intensify, living expenses like energy, mortgages and insurance will get more expensive for climate vulnerable homes – that is, homes that are in high-risk areas and have not been built to mitigate those risks. This project aims to encourage building or retrofitting of homes that are climate-ready, by demonstrating that the benefits of doing so outweigh the costs.

The Where We Build, What We Build project was undertaken in the Adelaide Hills and Fleurieu Peninsula region. One of the goals of the region is to remain liveable, affordable and resilient in the changing climate, by better managing climate risks.

To help achieve this, the project explored:

1. Where We Build – the exposure of the region's existing housing to flood, heat and bushfire risks
2. What We Build – the sensitivity of the region's existing housing to those risks
3. Climate-Ready Home – the ideal specification for a climate-ready home in the region
4. Economic Analysis – the costs and benefits of building or retrofitting to climate-ready specifications, compared with existing housing stock and standards.

The project is an initiative of Resilient Hills & Coasts, delivered by Edge Environment. It was jointly funded by the Commonwealth and South Australian Governments under the South Australian Disaster Resilience Grant Program, and the Insurance Council of Australia. The scope covers Adelaide Hills Council, Alexandrina Council, Mount Barker District Council, City of Victor Harbor and District Council of Yankalilla.

Some homes are more resilient to flood, bushfire and heat because of the construction materials they are built from. This project identified the most common housing types ('archetypes') in the Adelaide Hills and Fleurieu Peninsula region, their characteristics, and their resilience to flood, bushfire and extreme heat.

Common house types in the region

Five archetypes represent 80 percent of the housing stock in the study area. In order of prevalence, they are: Modern House, Contemporary House, Brick Veneer House, Lightweight 50s House, and Victorian House. Table 1 summarises the key characteristics of each archetype.

Resilience ratings

The Contemporary House is the most resilient, and the Victorian House the most vulnerable, of the common housing types in the region. However, with a resilience rating of only 3.1 out of 5, a Contemporary House is still well behind the ideal climate ready home.

The Contemporary House performs the best in terms of bushfire resilience, as would be expected given the improved building codes that have applied since 2009. From an insurance perspective, bushfire was traditionally seen as binary, meaning that if a house ignited, it typically led to total loss. However, the insurance industry is now seeing more incidents of partial loss due to those building code improvements.

The differentiation in extreme heat resilience is largely based on the R- values of the roof walls and windows. The R-values stated in the NCC from 1990, 2010, 2016 and 2019 for commonly used wall and roof systems in Australia were used to inform the R-values of the archetypes based on the assumed year of construction for each archetype.

Differentiation in flood resilience is largely based on the floor finishes. Timber is increasingly being repaired rather than replaced following a flood event. In comparison, broadloom carpet typically requires total replacement. As such, the Modern House (the only archetype that typically has carpet instead of timber floor finishes) received a lower resilience rating.

Where we build. What we build.

Table 1. Key characteristics of the regional housing archetypes.






Archetype					
Brick Veneer House					
External wall cladding	Brick cladding	Brick cladding	Fibre cement weatherboard	Stone cladding	Brick cladding
Roof covering	Concrete tiles	Zinc aluminium coated corrugated steel	Terracotta tiles	Zinc aluminium coated corrugated steel	Zinc aluminium coated corrugated steel
Building condition (0 – 10, with 10 being best)	5	10	5	5	10
Floor height	0.2	0.2	0.5	0.2	0.2
Year of construction	1960 - 1980	1980 - 2005	1945 - 1960	1845 – 1954	2005 - onwards
Internal linings	Plasterboard	Plasterboard	Fibre cement sheet	Plaster	Plasterboard
Wall insulation	None	Glasswool	None	None	Glasswool
Window frame	Aluminum	Aluminium	Timber	Timber	Aluminium
Floor finishes	Timber feature flooring	Broadloom carpet	Timber feature flooring	Timber feature flooring	Timber feature flooring
Decks, patios and verandahs	Concrete	Stone	Timber	Concrete	Tiles

Table 2. Resilience of the housing archetypes.

Archetype (% of housing stock)	Flood Resilience	Bushfire Resilience	Extreme Heat Resilience	Overall Resilience Rating
Contemporary House (28%)	3.0	3.2	3.2	3.1
Brick Veneer House (19%)	3.0	3.0	2.1	2.7
Modern House (30%)	2.0	3.0	3.2	2.7
Lightweight 50s House (13%)	3.0	2.9	1.7	2.5
Victorian House (6%)	3.0	2.9	1.4	2.4
*Climate-ready home	3.2	3.5	5.0	3.9

*Refer to Climate Ready Home Specification factsheet for further details on this archetype

Further information

This factsheet is part of a series. For more information on building or retrofitting more climate resilient homes in the Adelaide Hills and Fleurieu Peninsula region, read the other factsheets or the full project report, available online.