



# ONE HOUSE

TO SAVE MANY

## Project Fact Sheet

### What is One House?

- To address the need for increasing community resilience to natural hazards, Suncorp partnered with CSIRO, James Cook University (JCU) and Room11 Architects to design, prototype and test what could be Australia's most resilient home.
- In the hope that we can share the learnings from the project with all Australian homeowners, it has been called 'One House, to save many'.
- Collaborating over many months, the expert team combined existing research on home resilience and their own scientific expertise to find the vital components required to make a home safe, liveable, easy to maintain, and more resilient to the damage caused by natural disasters – while remaining comparative to the cost of any standard architecturally designed home built today.
- The design of One House takes inspiration from the iconic 'Queenslander', reimagining it into a modern home with features specifically selected to help withstand natural disasters such as bushfires, floods and cyclones.
- Testing was also a key part of the process and in dedicated facilities at the Cyclone Testing Station at JCU Townsville and the CSIRO-operated Bushfire Burnover Facility in Southern NSW, the house was subjected specific features to a series of simulations.
- The result of this collaboration, research and testing enabled the team to qualify specific design principles and demonstrate how clever use of design and materials can dramatically increase the resilience of a home. This has led to a more robust and resilient house design that that we can all learn from and one that can help to protect us against extreme weather.
- One House shows the power of collaboration, and why this is critical to helping make Australia more resilient to natural disasters. All levels of government, industry experts, businesses, community groups and individuals have a role to play.

### Why has Suncorp developed One House?

- The aim of One House is to help highlight how we can improve the resilience of our homes and encourage homeowners, governments and industry to view resilience as a vital consideration for homes today. The project was also designed to generate conversation around building standards – as these must continue to be reviewed as the severity, and frequency of weather events increases.
- At Suncorp, we recognise the role insurance plays in reducing the impact of natural disasters – through supporting our customers and communities to get back on their feet after disaster strikes, but also in educating them on how to reduce risk.
- We hope our One House campaign will raise awareness and start conversations around the need for better resilience. We'll be sharing our work with government and industry stakeholders, including building representatives – as we continue to work with them to identify ways these recommendations can be incorporated moving forward to better protect what matters for Australian homeowners.



# ONE HOUSE

T O S A V E M A N Y

## What can Australians learn from One House

We know not everyone can replicate One House, but we hope Australians – whether they are building a new house, planning a renovation or even just thinking about ways they can improve the resilience of their existing home, can learn from and take on board some of the thinking and practical ideas identified through One House.



For Australians planning on **building a new home**, One House contains lots of examples of how we can future proof our homes against extreme weather. Some of these features include:

- Installing **electrical wiring in the roof** to prevent loss of power during a flood event.
- Installing **power points and switches at least 1 metre above floor level** to reduce the risk of electrical issues during flooding.
- Using internal **wall linings that are waterproof**, for example – in One House we used a fibre cement sheet system with vertical battens covering the joints – this allows occupants to remove and reuse after the cavity has been cleaned and dried.
- Constructing **external finishes from strong, non-combustible materials** including core-filled block and aerated autoclaved concrete cladding.
- Ensuring **glazed elements are fitted into a frame** designed to keep embers out while evenly distributing heat across the building. This can prevent window cracking which occurs when glass is heated up at different rates in a bushfire. Glazed windows and doors also assist in the event of a cyclone – helping to prevent water from entering the home.
- Installing **bi-fold mesh screens** or a similar product around balconies which can be left open or closed to provide an additional envelope that helps reduce heat load during a bushfire, and additionally protect a home from damage caused by wind driven debris during a storm.
- Using **waterproof and easy to clean flooring** such as concrete, tiles and pavers.
- Utilising **ceiling space to store services** such as air conditioning, batteries and hot water.
- Using **roof material that has a lower thermal conductivity** than traditional roofing materials and will reduce the head load during a fire – in One House we used stainless steel. Also consider an uncoated finish, as paint can blister and burn in a fire.



And for homeowners interested in increasing the resilience of their existing home, there are some simple, low-cost but high impact things you can do including:

- Installing **fixed and operable high-performance mesh screens** to slow down flame spread during a bushfire.
- Installing a **dual tank system** - two galvanised water tanks. One for firefighting so if the home is ever disconnected from its main water source occupants still could extinguish flames on site. The second tank is a dedicated back-up water supply, ensuring occupants always have drinkable water.
- **PVC plastic gutter fixings**: In the event of a fire, these fixings melt and the gutters become 'sacrificial' and safely fall away from the house. This helps protect the home from embers and also reduces the likelihood of embers entering the back-up water supply, affecting its quality.
- **Protective outdoor storage**: In high wind weather events like storms or cyclones, anything around a home can become flying debris. To combat this, get yourself an outdoor storage area with core-filled block perimeter walls. This allows occupants to secure items around their home prior to a high wind event to minimise flying debris.
- Ensuring household **appliances are free standing rather than integrated** into the house, to allow the occupants to remove or raise appliances off the floor prior to an expected inundation event.
- Consider **cyclone-rated roof fixings**, which are less likely to fail during extreme events with strong winds. The One House roof frame also utilises a tie down system to the concrete slab that eliminates the risk of a 'flying roof' during a severe wind event.
- For high-set homes, consider **air pressure relief** on the lower level or sub floor to avoid high pressure pockets that lead to structural failures.

While One House has some great recommendations for strengthening new and existing homes, in the first instance, homes need to be designed and built to suit the local environment now, and into the future. We designed One House to be resilient to bushfires, flooding and cyclones, but all these features may not be required in your location, so it is important to build and strengthen your home to suit your environment.

