Bushfire Resistant Design

Appropriate design can be crucial when protecting your house from bushfire. Below basic checklist to consider when designing a house in a bushfire prone area.

Roofing

It is important that the roof is designed to avoid potential valleys where embers can be trapped.

- Ideally roof should be pitched, with a slope either side.
- Valleys should be kept to a minimum.
- A metal or fibre cement roof is suitable. A tiled roof should be fully sarked to prevent embers from entering.
- Timber shingles are not recommended.

A pitched sloping roof minimises the chance of embers being trapped.

Verandahs

- All exposed timber should be treated with fire retardant.
- Under floor spaces should be sealed to prevent embers entering.

The decking boards on this verandah have no gaps to allow the passage of embers. Further protection is obtained through keeping the area free of vegetation.

Exposed timber should be treated with fire retardant.

A grassy embankment, or "green vegetation zone", is a safe alternative to a verandah.

Framing

- There are no requirements for steel framing as the frame is not generally exposed to ember attack or direct flame contact from the bushfire unless the structure has already become involved in fire.

Gutters

Leaf debris in gutters is one of the easiest places for sparks from a fire to set your home alight.

- Install non combustible gutter guards on your gutters.
- A product, “Fire Plugs” is now available to allow you to easily fill your gutters with water in the case of approaching fire. The product contains downpipes with an added hose connector, allowing you to easily switch the plugs “on”, insert a hose and fill your downpipes with water, without having to climb onto your roof.

Windows

- Timber window frames should be treated with fire retardant.
- Non combustible shutters initially protect the building, but could cause people to stay in doors, unaware of fire in other areas of the home.
- Windows should be toughened glass and leadlight windows should be covered with a sheet of toughened glass or non combustible shutter.

Toughened glass windows protect against shattering under exposure to direct flame.

Openings

- Flywire mesh installed on openings should be steel.

Orientation

- Numerous factors in the immediate environment can make a difference when selecting the orientation of your house. It is advisable to avoid building on the top of hills or north facing slopes.

LPG Tanks

- LPG tanks should ideally be installed away from the building.
- If an LPG tank is located next to your house, vents should face away from the property.

These LPG tanks are stored away from the house. Vents are facing away from the wall.

Walls

- Timber should be fire retardant treated.
- PVC cladding should not be used.
- Gaps should be sealed.

Water Tanks

- You must ensure there is water in the tank, even if it involves purchasing water.
- Fire brigade fittings on tanks are advisable.
- A diesel pump for pumping water is necessary, to ensure the pump will still operate without electricity.

This water tank fitting allows fire brigade access.

A diesel fuelled generator provides power for the water pump to operate in the case of fire.

The Building Code of Australia (BCA) provides a uniform list of technical provisions for the design and construction of houses in Australia to an acceptable standard for structural soundness and safety, including fire safety. In the code for building in bushfire areas the publications makes reference to the Australian Standard AS 3959 *Construction of buildings in bushfire-prone areas*. This standard specifies requirements to improve the performance of houses when built in bushfire prone areas. Both these documents make reference to specific testing requirements for materials used in construction.

There may be variations to the above requirements dependent on the level of bushfire risk that the house is exposed to. These levels of risk can be determined from AS 3959. There may also be variations between the States due to compliance with State and local legislation.

FPA Australia Technical Officer, and CFA Captain, Sharon Merritt states “It is important to keep in mind that it is not all up to the design of your house, in the event of a bushfire you must have a plan and know the correct procedures for protecting yourself and your property.”

Further information:

Schauble, J (2004). *The Australian Bushfire Safety Guide – The Essential Survival Guide for Every Home.* Harper Collins Publishers.

Webster, J (2000). *The Complete Bushfire Safety Book*, Random House Australia.