

CAUTIONARY NOTE BUNKERS/SHELTERS

Bunkers are not currently endorsed in South Australia for use as a safe refuge in a bushfire as no recognised standards exist for such a purpose.

Since the Black Saturday Bushfires, there has been considerable interest in bunkers because of survival stories in the media but ***there were also seven people who died in bunkers in the Victorian fires.***

The purpose of this Cautionary Note is to help people make an informed decision about the construction of bunkers.

This is a very complex area because it includes structural design, bushfire behaviour, accessibility, the fire resistance of materials and fittings, etc.

However, if technical advice is required, then you are advised to consult with suitably qualified building professionals.

If you are intending to buy or build a bunker, please consider the following information.

A bunker is not a substitute for other bushfire measures such as:

- vegetation management
- protecting the house (ensuring the building meets current fire protection standards)
- water storage and
- regular maintenance of the house (i.e. cleaning out gutters).

You should only install a bunker if:

- you are confident that the level of fire protection exceeds that of your house
- you can afford to build a good quality, appropriately positioned bunker
- you are committed to maintaining it in good order
- you have considered the proximity of nearby buildings which could threaten your safety if they catch fire and
- you have considered how the bunker will fit into your family's Bushfire Survival Plan.

Things to consider

Location

- If the bunker is to be built inside an existing home, it should be designed to:
 - incorporate quick access with an alternative escape directly to outside, and
 - withstand the weight of the house collapsing on it, and
 - allow occupants to emerge even if the house collapses



- If the bunker is to be built away from an existing home, consider how people can access the bunker quickly and safely and whether the escape route will remain safe to use in the event of a fire
- It should be sited and constructed to ensure collapsing structures or trees do not prevent the occupants from getting out of the bunker after the immediate danger has passed
- If underground, any adjacent retaining walls should have non-combustible handrails to assist in keeping falling tree limbs and building materials away from the entrance so that it will not be blocked.

Reasonable conditions

The bunker should be constructed in such a way that it;

- limits temperature increase
- prevents the build-up of carbon dioxide levels
- prevents the removal of oxygen by the fire
- excludes smoke and other toxic products of combustion
- contains a sufficient volume of air for the expected number of occupants and the amount of time that they can reasonably be expected to remain there
- is sealed from the outside air
- is of adequate size for the anticipated number of occupants and any supporting equipment and
- allows some visual communication to outside (e.g. fire resistant window) to determine when the fire has passed and it is safe to leave the bunker.

Structural and fire safety

- If the bunker is underground, the walls and roof must be sufficiently strong to withstand the earth pressure and should be water proof. Depending on the location of the bunker, it may need to be able to withstand collapsing structures and trees, and vehicles driving on top of it
- It should be resistant to high winds and burning embers
- It should be able to resist very high temperatures
- If the bunker is part of a house, it should be sealed from the rest of the building and be suitably sealed to prevent fire and smoke from entering
- External surfaces (such as paving) should slope away from the opening for drainage and to reduce the accumulation of embers.

Access and exits

- The door should swing inwards and locking/latching functions should provide both security and easy access in an emergency
- Ideally, there should be two escape routes from the bunker. At least one escape route should be located outside the “fall” zone of any building or tree collapse
- Access should be quick and easy for people of all ages and physical ability
- The area immediately in front of the access door should have some protection for people waiting while the door is being opened.

Signage

- There should be external signage to alert fire brigades that a bunker is on site and where it is located
- There should be a sign inside the bunker indicating -“This bunker is designed to house X people for Y hours” so the occupants can make rational decisions about questions regarding when to leave the bunker).

Fit for purpose

- A bunker should be kept fit for the purpose for which it was designed. As part of annual **Prepare. Act. Survive.** activities, the bunker should be regularly maintained and checked, particularly if it is used for other purposes outside the fire season. This could mean removing potentially hazardous items such as gas cylinders either from inside the bunker or from the immediate approaches.

Internal services

- Consider having enough space to sit or lie down
- During a bushfire, many services could become inoperable and contingency plans will be critical, for example:

Power – A bunker should have wind up or battery powered light and a radio, each capable of running for at least 3 hours.

Telephone – Ideally, there should be mobile coverage in the bunker.

Radio – Ideally, there should be radio coverage so occupants can listen to radio update on the fire status.

Water – A bunker should contain fresh water for the occupants. Knapsack sprays might help to extinguish small fires/ embers when occupants leave the bunker.

Sewerage – A self-contained toilet should be considered.

First aid kit

Food

Development Approvals

A house that complies with the latest building standards should be regarded as the safest building on the property.

There are **no** such building standards for a bunker and in many instances a bunker is regarded as an outbuilding that may not require any approval.

But, if the bunker is buried more than one metre in the ground, then a development approval (building rules consent only) is required to construct the bunker so that the structure can be checked to ensure it can withstand the earth pressure. However, such approval **does not** verify that the bunker will provide a guaranteed safe refuge in a bushfire.



Further Information

Compliance with the information provided in this Cautionary Note does not mean that use of a bunker will guarantee life safety in the event of a bushfire.

If technical advice is required, then you are advised to consult with suitably qualified building professionals.

Further general information on bushfire protection can be obtained from the following:

- Country Fire Service
 - Telephone (08) 8463 4200
 - Email cfshq@cfs.sa.gov.au
- Department of Planning and Local Government
 - Telephone (08) 8303 0602
 - E-mail dplg.building@sa.gov.au
 - Web site www.dplg.sa.gov.au
- Your local council
- Any consumer queries about representations being made about bunkers should be directed to the Office of Consumer and Business Affairs' advice line (08) 8204 9777 or 131 882 for country callers.

