

BUSHFIRE BUNKERS

A SUMMARY OF PRODUCTS AND CONCEPTS

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INTRODUCTION

1. The 2009 Victorian Bushfires Royal Commission has received many submissions from members of the public that touch on the use of bunkers as a means of survival during the passage of a bushfire. The evidence before the Commission also suggests that there is a high level of public interest in the use of bunkers, their design, safety and availability.
2. The purpose of this paper is to summarise the findings of a scan (of public submissions received by the Commission and the internet) of the range of bunker-type products currently available in the marketplace, or under development, in Australia, and to highlight other ideas or concepts for bunkers put forward in public submissions received by the Commission.
3. It is not the role of the Commission to consider in detail the merit of particular products — this is a matter for the Commonwealth and Victorian Governments and their agencies, or for individual consumers. Inclusion of a product in this paper in no way implies that it has been assessed or endorsed by the Commission. However, the Commission recognises the value in sharing information it has received about specific products, technologies, ideas and innovations, with all interested parties. With this in mind, it has developed the attached summaries, which provide a snapshot of each of the proposals submitted to the Commission and identified websites that contained information on specific products, or ideas for products.
4. While the Commission also received a number of submissions from individuals outlining their personal experiences of bunkers (for example, during the passage of the 7 February 2009 fires or subsequent problems with councils regarding their installation) these submissions were not summarised for the purposes of this paper. Similarly, submissions or websites that propose key features for the construction of fire bunkers or collate available information on fire bunkers aimed at individual consumers have been used to identify potential products, but have not been summarised in this paper.
5. For the purposes of this paper, a broad definition of bunker is used (see the section titled 'Observations' for further discussion of terminology). However, the main focus is on commercially available products specifically marketed as bushfire bunkers.

PART ONE: PUBLIC SUBMISSIONS

6. As at 31 August 2009, the Commission had received more than 1400 formal submissions including 17 that provided information on specific bunker-type products or concepts for such products.¹ The content of these submissions has been summarised in the following way:
 - **Appendix One** summarises specific products or technologies that have already been developed, produced or marketed. A short summary of each submission is provided.
 - **Appendix Two** lists other options that have been put forward as ideas or concepts, rather than specific products.

¹ Two of these submissions were confidential and have been excluded from this paper.

Bushfire Bunkers – A Summary of Products and Concepts

7. As noted above, this paper simply summarises the information put forward in the submissions. No further investigation or analysis of these products, or any claims made in the submissions or associated websites, has been undertaken.
8. The full text of each of the submissions summarised is available from the Commission's website at <http://www.royalcommission.vic.gov.au/Submissions/View-Submissions>.

PART TWO: INTERNET BASED SCAN

9. To supplement the information received by the Commission through submissions, an internet based search of commercially available bunker products in Australia was undertaken as at 31 August 2009, using key words (namely 'bunker' or 'shelter' and 'fire'). Due to the volume of information available, this search was limited to specific products or technologies that have already been developed, produced or marketed. **Appendix Three** provides a short summary of the identified products.
10. This paper simply summarises the information put forward on identified websites. No further investigation or analysis of these products, or any claims made on the websites, has been undertaken. It is also not suggested that all relevant products were identified in the search.

PART THREE: SURVEY OF DEMAND FOR BUNKERS

11. A brief targeted survey of suppliers of bushfire bunkers in Victoria was conducted to ascertain a broad view from the industry about the relative availability and demand for bunkers before and after 7 February 2009.
12. A total of 19 survey participants were identified from the review of public submissions and internet based scan, on the basis that the available information suggested that their product was commercially available or likely to become commercially available in the near future; they provided public contact details (indicating that they were 'visibly' in the market); and they were based in Victoria. Of this sample, 13 completed the survey either by phone or email.²

OBSERVATIONS

13. A number of observations were made during the review of formal submissions, the internet based product scan, and the survey of industry participants that appear relevant to understanding the market for bunker type products. These are detailed below.

² One company declined to participate as the relevant member of staff was on leave, one company advised that it did not produce a specific bunker product, and 4 were unable to be contacted or did not respond to the invitation to participate within the required timeframe.

TERMINOLOGY

14. Evidence before the Commission indicates a range of definitions for bunkers. For example:
- “an underground shelter or large outdoor container”³
 - “... a place where individuals can take refuge during a bushfire. This may include a fire shelter which is separate from the house, but could also include a cellar, or a safe room.”⁴
 - “ a purpose built structure for private use (normally by a family group) intended to provide shelter from a fire front during a bushfire. This may be an above or below ground structure”, but not a cellar or safe room.⁵
15. An internet search identified that, amongst other things, the term ‘bunker’ relates to:
- “a fortification of earth; mostly or entirely below ground”
 - “hardened shelter, often buried partly or fully underground, designed to protect the inhabitants from falling bombs or other”.⁶
16. The review of submissions and internet based scan identified similarities between the current use of the term ‘bunker’ in the Australian context and these definitions.
17. The review identified that many individuals and companies used the term ‘bunker’ interchangeably with the term ‘fire shelter’ to refer to solid, purpose-built underground and above ground structures that were intended to provide refuge for individuals and families during the passage of a fire, but were distinct structures from the main dwelling (although the period of time anticipated, and the complexity of the structure varied significantly). Most were of concrete construction.
18. The word bunker was sometimes also used to describe a ‘safe haven’ within the structure of a house (for example, a cellar or pantry).
19. In some cases, the term was used to refer to structures that could provide refuge for larger groups such as multiple families or whole schools. These took the form of larger versions of the individual or family bunkers.
20. Without a clear definition of what is meant by the term ‘bunker’, there is a possibility that misunderstandings could occur between individuals looking to acquire a bunker and manufacturers offering to supply.

³ Australasian Fire and Emergency Service Authorities Council, *AFAC Discussion Paper on Bushfire Bunkers for Residential Homes (Draft in Development Stage)*, Version 0.3, 9 May 2009.

See Exhibit 85 – Statement of Gledhill, Attachment 8 (WIT.025.002.0084) at 0104

⁴ Victorian Building Commission, *Community Information Sheet: Bushfire Bunkers*, Melbourne, undated.

See Exhibit 169 – Supplementary Statement of Arnel, Annexure U (WIT.3000.002.0417)

⁵ Exova Warringtonfire, *Technical Report: Use of Fire Refuges*, Dandenong, 20 August 2009. See Exhibit 169 – Supplementary Statement of Arnel, Annexure T (WIT.3000.002.0404) at 0408

⁶ For a list of available web definitions, see:

http://www.google.com.au/search?hl=en&defl=en&q=define:bunker&ei=QrGcSsfTAZD6kAWumPGyBg&sa=X&oi=glossary_definition&ct=title

Bushfire Bunkers – A Summary of Products and Concepts

LEVEL OF DETAIL PROVIDED ABOUT PRODUCTS

21. The submissions and internet based scan identified great variances in the level of detail provided by manufacturers. Whilst some manufacturers provided detailed specifications, others provided little information about the nature of construction. Others provided significant detail about how their bunkers perform under tests but were vague in the interpretation of the results.
22. The range of features described also varied. Most claims focused on the strength and structural integrity of the bunker as the key feature. Several referred to air supply or filtration systems, though many did so in very vague terms. A small number of products made reference to the heat or fire resistance of the structure or construction materials. A range of materials and additional features were canvassed.
23. It appears that many of the products marketed as bushfire bunkers are existing products (either cyclone shelters or concrete water tanks) modified for use as a bushfire bunker. The level of proposed modification varied (for example, in some instances, the only modification suggested was locating the structure underground).
24. These variances raised questions about the extent to which manufacturers' designs might meet individuals' assumptions of the product to be provided, and the extent to which individuals are provided with the information necessary to make an informed decision about their purchase. However, without seeking further information from individual consumers and manufacturers, it is not possible to assess whether these questions translate to a problem in the market.
25. For some products, it was unclear whether or not they are currently available or are still at the concept or prototype stage.
26. The internet scan identified that some companies had been established, or new bushfire specific products developed, in the wake of the 2009 Victorian bushfires. In addition, whilst some websites provided comprehensive contact details (including physical locations), others provided only an email address or mobile phone number.
27. The relevance of these observations is twofold. First, it could indicate that the performance of many bunkers currently on the market has not been sufficiently researched or tested and thus, that they may not perform to the levels claimed by manufacturers, or anticipated by consumers. Second, it could indicate that the existing market is much smaller than implied by the number of manufacturers identified, as many products may not ultimately be commercially produced, for one reason or another. However, without further research, it is not possible to reach conclusions as to the nature of the existing market.

AUSTRALIAN STANDARD

28. Some manufacturers made explicit statements indicating that there was no existing Australian Standard for bunkers. During the survey, some industry participants also indicated that they have delayed releasing their product into the market pending the development of standards or further guidance.
29. However, a number of websites claimed that either the bunker and / or its components complied with Australian Standards. Whilst this may be technically correct, it could be argued that the statement implies the existence of a standard for bunkers.
30. Reference to Australian Standards, without a clear indication of the nature of the Standard and elements of the structure to which it applies may contribute to exaggerated confidence by consumers about the extent to which bunkers can provide for their personal safety.

USE OF BUNKERS

31. There is a significant level of inconsistency in statements made by individual manufacturers as to the use of bunkers. Some advise that bunkers should not be used for any other purpose than sheltering during a bushfire. Others advertise that their bunkers provide alternative storage for household or other items. Some advise that bunkers should be located away from structures and trees whilst others advise that their bunkers should be located close to the house for easy access.
32. This inconsistency could contribute to a lower level of understanding by consumers as to the correct use of bunkers, resulting in incorrect use and undermining the bunker's ability to provide for their safety.

DEMAND FOR BUNKERS

33. The targeted survey of industry participants confirmed that many bunker products have been developed in response to the 7 February 2009 bushfires. All but one of the respondents indicated that their product was either still under development or had been released since 7 February 2009.
34. Generally, industry participants surveyed considered that interest and demand had increased significantly since 7 February 2009 (one respondent estimated he had 100 calls per week in weeks following the fires) and remained steady, though the level of interest appears to vary considerably among respondents (from around two enquiries per week to up to ten enquiries per day). Some survey respondents noted that demand dropped off somewhat over the winter months, while others noted that demand tended to increase following media coverage of bunkers or other bushfire related issues.
35. Most companies pointed to an increase in the number of enquiries or website hits as the key indicators of demand. Some also used other measures such as requests for site assessments, increased orders, sales or 'serious enquiries'.

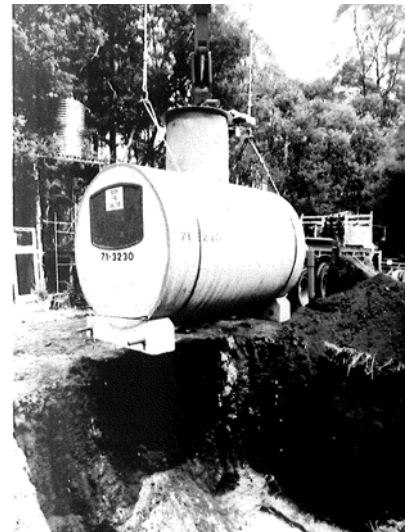
APPENDIX ONE: BUNKER PRODUCTS IDENTIFIED IN PUBLIC SUBMISSIONS

Product Name	SafeCell
Submission number	61 / SUBM.002.002.0073
Name of person / organisation	Thermacell Australia
Owner / producer	Appears to be Thermacell Australia
Brief Description	<p>SafeCell is a protective structure built from Thermacell Insulated Concrete Framework.</p> <p>Thermacell is engineered using formulas of polystyrene to form “Strong Fire-retardant Polystyrene Formwork” used in casting concrete wall and floor structures. The blocks are dry stacked without mortar and have keyways top and bottom, which push together like ‘LEGO’ blocks. The blocks are hollow and are filled with concrete.</p> <p>Thermacell’s submission advises that though the SafeCell was originally designed for underground installation, it is a “flexible design” that could be adapted to meet client’s individual needs.</p> <p>The submission advises that the design can accommodate as few as two to as many as dozens of people for a prolonged period of time.</p>
Cost	N/A
Availability	N/A
Supporting Documentation	N/A
Website	www.thermacell.com.au
Contact Details	<p>Thermacell Australia</p> <p>PO Box 447</p> <p>Somerville VIC 3912</p> <p>Phone: (03) 5977 7996</p> <p>Fax: (03) 5977 7996</p>

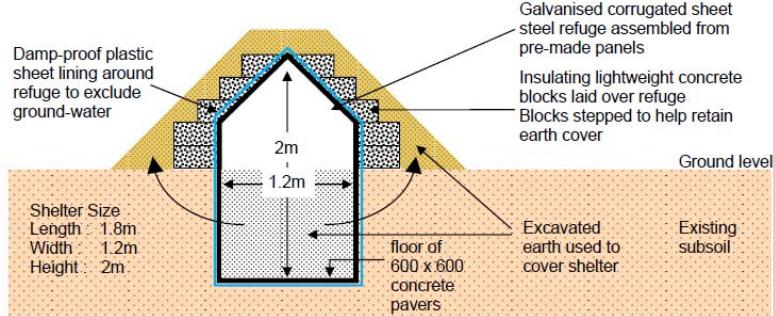
Note: N/A refers to Not Applicable or Not Available

Bushfire Bunkers – A Summary of Products and Concepts

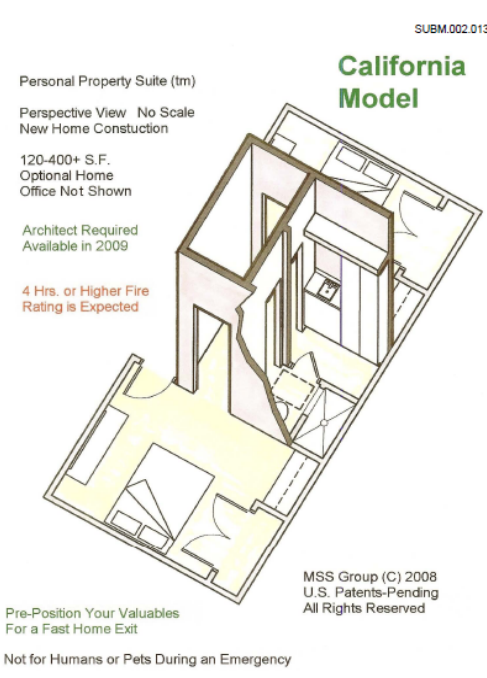
Product Name	Little Beauty Bushfire Shelter
Submission number	226 / SUBM.002.009.0167
Name of person / organisation	Raymond Toyne
Owner / producer	Patented by Mr A R Toyne
Brief Description	<p>The Little Beauty bushfire shelter was developed after the Ash Wednesday fires and was tested twice in September and October 1983 by an independent test chemist at the Knox Agricultural Institute. It is described in the submission as a “separate atmosphere to the external” rather than a bunker, and on the website as “an underground, self-contained environment which protects human life from the effects of bushfire...a personal refuge center, located only meters from the family home.”</p> <p>The shelter is comprised of two chambers. Compressed air is stored below a primary chamber, which is separated from the outside atmosphere by a secondary chamber. A constant and carefully regulated air supply is discharged into the primary chamber. The air from the primary chamber is then pushed through the secondary chamber and discharged outside. The air system operates on an adiabatic principle and the differential pressure principle taken from the ‘gas laws’ in physics.</p> <p>The amount of air can be varied depending on the number of occupants. An example of five people sheltering for two hours is given.</p> <p>The shelter is placed underground for amenity and to overcome the problem of radiant heat.</p>
Cost	N/A (the shelter was costed at approximately \$2000 when it was produced in 1983)
Availability	Not commercially available. The designer’s preference was to provide the patented design to government for its use for the community.
Supporting Documentation	Detailed submission including photos, detailed specifications and correspondence spanning 25 years.
Website	http://bushfireshelter.com/
Contact Details	N/A



Bushfire Bunkers – A Summary of Products and Concepts

Product Name	Domestic Emergency Bushfire Refuge
Submission number	253 / SUBM.002.011.0100
Name of person / organisation	Doug Coates (architect)
Owner / producer	N/A
Brief Description	<p>The submission outlines the key design and construction parameters for a bushfire refuge. It also provides possible design specifications for three domestic bushfire refuges that could be built from pre-made kits of parts. Key features include:</p> <ul style="list-style-type: none"> • Constructed from either corrugated sheet steel or glass-fibre reinforced concrete. • Damp-proof plastic sheet lining around the refuge to exclude ground water. • Structure partially underground – covered by insulating lightweight concrete blocks and earth cover. • Inner and outer insulated doors – steel frames with metal-strip touch seals to exclude smoke. • Provides refuge for six adults. • Dimensions – 1.8m (L) X 1.2m (W) X 2m (H)  <p>Cross-section : Option A</p>
Cost	N/A
Availability	N/A (designs only, not a commercial product).
Supporting Documentation	Detailed diagrams / specifications.
Website	N/A
Contact Details	N/A


Bushfire Bunkers – A Summary of Products and Concepts

Product Name	Personal Property Suite™ California Model
Submission number	278 / SUBM.002.013.0027_R
Name of person / organisation	Michael D Montaigne
Owner / producer	Possibly MSS Group (USA)
Brief Description	<p>The Personal Property Suite (US patent pending) is described as a “dual use” space, highly fire resistant safe room suite. It is an above ground structure of concrete and steel construction that is designed to provide for a four hour fire rating or higher. The California Model includes a toilet, kitchenette and hallway as well as optional home office and/or bedroom.</p> <p>It does not appear to be designed specifically as a bunker (the submission notes it is not for humans and pets during an emergency, but to pre-position valuables for a fast home exit in the case of an evacuation). However, the submission proposes that it could be upgraded with additional layers of insulation, reserves of compressed air, water, food and medical supplies and then tested to certify it for human and pet occupancy for 4-10 hours.</p> 
Cost	N/A
Availability	N/A
Supporting Documentation	Simple diagram of California Model.
Website	N/A
Contact Details	N/A

Bushfire Bunkers – A Summary of Products and Concepts

Product Name	Tasmanian (Goff) Fire Retreat “Shelter”
Submission number	371 / SUBM.002.013.0646_R
Name of person / organisation	Donald Goff
Owner / producer	Donald Goff
Brief Description	<p>The shelter, based on the design of “Anderson” shelters used in World War Two, has the following key features:</p> <ul style="list-style-type: none"> • Underground to protect occupants from flame and radiant heat • Provided in kit form, along with assembly instructions • Materials – corrugated zincalume and galvanised tubing • Size – approx 2m x 2m x 2m.
Cost	Around \$1000
Availability	Unclear (Patent Pending)
Supporting Documentation	Assembly instructions and newspaper article.
Website	N/A
Contact Details	N/A

Bushfire Bunkers – A Summary of Products and Concepts

Product Name	Cyclone Shelter
Submission number	410 / SUBM.002.015.0202_R
Name of person / organisation	Markus Rogers
Owner / producer	Cyclone Shelters Queensland (CSQ)
Brief Description	<p>A concrete cyclone shelter that can be covered with earth to create a bushfires bunker. The website describes the following key features of the cyclone shelter:</p> <ul style="list-style-type: none"> • Engineered and government and council approved. • Concrete "igloo" - a very strong impact resistant steel reinforced concrete geodesic dome. • Can be landscaped, covered with rocks and soil, and plant cover. • Easy to manufacture, strong and quick to build. • 3m x 6m diameter. • Client may determine the amount and size of the reinforcing steel rod and thickness of the concrete. <p>No specific information on bushfire bunkers is provided (except that oxygen support is available)</p> 
Cost	Under \$9000 (including all council applications and fees)
Availability	Appears to be available now. Queensland based company.
Supporting Documentation	N/A
Website	http://www.cyclone-shelters.com/
Contact Details	<p>Markus Rogers 132 Riverstone Road Gordonvale QLD 4685 Ph: 07 40 566 914 / 0427 745 477 Email: oz_jd104q@hotmail.com</p>


Bushfire Bunkers – A Summary of Products and Concepts

Bushfire Bunkers – A Summary of Products and Concepts

Product Name	FireARC Chambers
Submission Number	662 / SUBM.002.016.0935_R
Name of person / organisation	MineARC Systems
Owner / producer	MineARC Systems
Brief Description	<p>MineARC Systems are an Australian company with over 15 years experience in the provision of emergency safe-refuge solutions in underground mining, oil, gas and tunnelling industries. They describe themselves as the leading developer and manufacturer of underground refuge chambers.</p> <p>The FireARC Refuge Chamber is a chamber specifically designed for a bushfire emergency. The design of the FireARC shelter includes consideration of the following aspects:</p> <ul style="list-style-type: none"> • Structural • Internal Climate – air conditioning • Oxygen Supplies • Toxic Gases – internal scrubbing for carbon monoxide and carbon dioxide • Cladding – fire protection cladding rated for direct heat exposure of up to 2000 degrees for 2 hours • Capacity – varies • Duration – up to 4 hours • Maintenance
Cost	N/A
Availability	Appears to be available
Supporting Documentation	Further technical specifications are detailed in the submission.
Website	http://www.minearc.com.au/I9/bush-fire-chambers/
Contact Details	<p>Unit 2 274 Welshpool Road Welshpool Western Australia 6106 ph: +61 (8) 9333 4966 fax: +61 (8) 9333 4900 email: info@minearc.com.au</p>



Bushfire Bunkers – A Summary of Products and Concepts

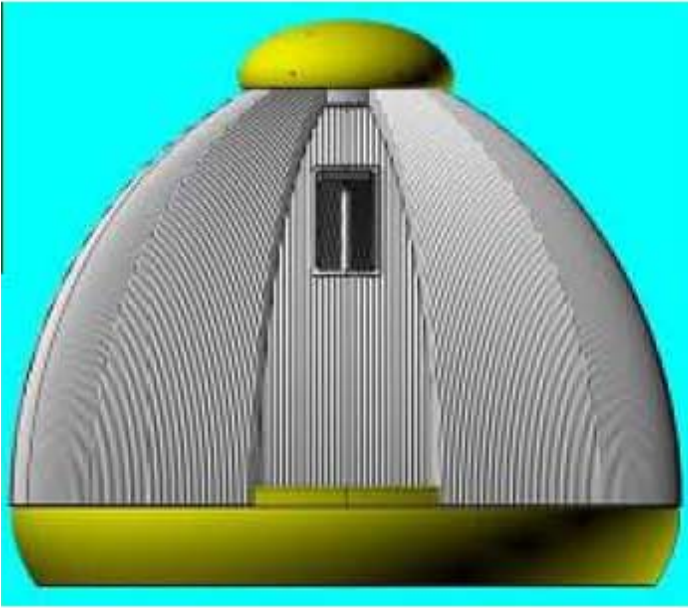
Product Name	Bushfire Survival Cell / Wildfire Protection Safety Cell
Submission Number	668 / SUBM.002.016.1006_R
Name of person / organisation	Wildfire Protection Services
Owner / producer	Wildfire Protection Services
Brief Description	<p>The Bushfire Survival Cell / Wildfire Protection Safety Cell is a purpose built container. The container is fitted with an insulated fire rated door, using 5.5mm laminated glass. The container would be externally clad in fire rated sheeting giving a minimum of 2 hours @1190 Kelvin. Wildfire Protection Services expect the Cell to pass testing for use in the Flame Zone for AS3959.</p>  <p>Internally, air would be filtered and supplied from a floor venting system, with steel ducting allowing air vents at the top of internal walls. Options such as positive pressure breathing apparatus gives 20 to 40 minutes of breathable air in the most smoke filled and toxic environments.</p> <p>As a backup, Wildfire Protection Services also provide their Xscape Suit and Smoke Hood for each person sheltering. The suits have been tested and resist temperatures up to 3000 degrees Fahrenheit as well as “extreme levels” of radiant heat.</p>
Cost	N/A
Availability	Appears to be available.
Supporting Documentation	Bodycote Warrington fire test results and further technical specifications are available in the submission.
Website	http://www.wildfireprotection.com.au/
Contact Details	<p>Wildfire Protection Services Pty Ltd Fact 6/69-77 Mark Anthony Drive Dandenong, Victoria 3175 Phone: 03 9706 6191 Paul Mobile: 0412 456766</p>

Bushfire Bunkers – A Summary of Products and Concepts

Product Name	Bushbunker
Submission Number	1046 / SUBM.002.028.0350_R
Name of person / organisation	Bushbunker
Owner / producer	Bushbunker
Brief Description	<p>Limited detail was provided in the submission. However, further detail was sourced from the Bushbunker website.</p> <p>The Bushbunker is a shell constructed from 150mm thick, steel reinforced, fire retardant light concrete. The shell is a flexible, modular design that is prefabricated, meaning that the entire concrete structure is fabricated in one piece, providing enhanced structural integrity and a completely water and air tight solution.</p> <p>Whilst it is recommended that the Bushbunker is completely buried underground, so as to make use of the insulating properties of the earth, it is able to be partially buried or set into an embankment with some surfaces exposed.</p> <p>A series of two fire doors is used to separate the entrance/storage area from the bunkers main interior to create an air lock which protects against the infiltration of radiant heat through the first steel fire door.</p> <p>The design includes steel fire doors, steel frames and sealing, bench seating, compressed air cylinders, sealed lead triple charge battery powered electric lighting, storage shelving, water drums, UHF radio and EPIRB (emergency global positioning system), and fire blankets and first aid provisions.</p> <p>The Bushbunker has been designed to comfortably accommodate up to 6 adults for an extended period when equipped with compressed air cylinders. These air cylinders also provide positive internal air pressure inside the bunker, making it impossible for noxious and poisonous outside gasses and smoke to enter.</p> <p>Hanging above each seating area is a series of refillable standard 20 Litre water containers, which provide a gravity fed source of clean water for drinking, cooling and first aid purposes.</p>
Cost	N/A
Availability	Product appears to be in concept stage.
Supporting Documentation	N/A
Website	http://www.bushbunker.com/



Bushfire Bunkers – A Summary of Products and Concepts

Contact Details	info@bushbunker.com
Product Name	Figloo
Submission Number	1385 / SUBM.002.045.0014
Name of person / organisation	Attila Kovarfi Fyproshell Pty Ltd
Owner / producer	Fyproshell Pty Ltd
Brief Description	<p>Fyproshell's Figloo range are curved, above-ground shelters, designed to shelter between 6 and 12 people. The Figloo is made from prefabricated aerated concrete walls, with "Miniorb" corrugated iron cladding inside and out. The walls are designed to withstand flame attack for more than 200 minutes. The shelter is designed to provide enough air for 2 hours with additional air available through scuba air cylinders.</p>  <p>FIGLOO TYPE 06 DESIGNED FOR A FAMILY OR 6 PERSON</p>
Cost	\$9000 +
Availability	Appears to be conceptual. The website indicates that Fyproshell are looking for "business angels" to help develop prototypes and establish manufacturing processes.
Supporting Documentation	Images and further detail of the Figloo, as well as designs for a public fire or emergency refuge shelter are available in the submission and on the Fyproshell website.
Website	www.fyproshell.com.au
Contact Details	fyproshell@optusnet.com.au

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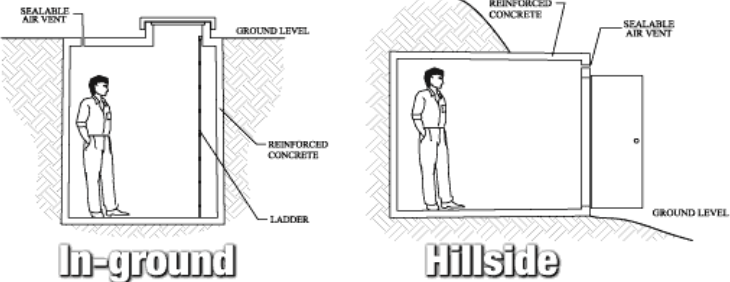
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APPENDIX TWO: NEW IDEAS AND CONCEPTS IDENTIFIED IN PUBLIC SUBMISSIONS


Submission number	Name of person / organisation	Concept /Product Type	Brief Description
265 / SUBM.002.011.0156	John Dean	Bunker	Advocates government researching and publishing simple bunker designs and other specifications, to be installed by individuals with no further regulation or approval. The submission includes nominal designs, including features such as building the bunker into a slope and covering it with dirt, use of a range of building products, an entry tunnel leading to main chamber, and inclusion of an air compressor, a pressure release mechanisms and a periscope.
367 / SUBM.002.013.0568_R	Brian Albert Carter	Building design / internal bunkers	Advocates the use of earth covered buildings for fire safety purposes and provides examples of designs. Also advocates the use of “concrete fire and cyclone proof pantry bunkers” as currently required in the Northern Territory.
431 / SUBM.002.015.0366_R	Kenneth Mival	Bunkers	Advocates use of “secure refuges” (such as steel outbuildings, concrete tanks or windowless concrete bunkers) and development of related Australian Standards and building codes. Detailed design specifications for a “Tank Stand and Fire Refuge” are attached to the submission. However it is unclear whose design this is.
517 / SUBM.002.015.1300_R	Claire Mitchell	Fire shelter	A concept for construction of a domestic fire shelter, including description and basic plans and specifications. Includes possible specifications for wheelchair access.
751 / SUBM.002.037.0366_R	Roger La Brooy	Bunker	A concept for construction of a concrete underground bunker. The submission includes possible specifications and designs including considerations for air quality and entry and exit.

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APPENDIX THREE: BUNKER PRODUCTS IDENTIFIED IN INTERNET BASED SCAN

Product Name	N/A
Website	http://www.alternatedwellings.com.au/concrete-bunkers.html
Name of person / organisation	Alternate Dwellings
Owner / producer	Alternate Dwellings
Brief Description	<p>Alternate Dwellings bunkers are constructed of durable reinforced concrete and are designed to be placed into the ground with only partial exposure.</p> <p>The bunkers are designed for either top or side access. Alternate Dwellings advise that the bunkers “are designed to be located in a cleared area away from houses, sheds and other buildings as well as any built up vegetation.”</p> <p>The bunkers come with fire resistant doors.</p>  <p>In-ground Hillside</p> <p>A sample of the concrete bunker is on display at Alternate Dwelling’s Display Centre at Officer.</p>
Cost	\$4,800 + delivery
Availability	Appear to be available now
Supporting Documentation	N/A
Contact Details	389 Princes Highway Officer Phone: (03) 5943 1120

Bushfire Bunkers – A Summary of Products and Concepts

Product Name	N/A
Website	http://www.fireshelters.com/
Name of person / organisation	FireShelters.com
Owner / producer	FireShelters.com
Brief Description	<p>Fireshelters advertise that their bunkers “are designed for maximum air volume and strength from the minimum materials.”</p> <p>All Fireshelters are installed underground and rated to a point load of 10,000 kg. The pre-cast concrete is watertight. Doors are double skin steel and between the skins is a layer of fire rated insulation. When closed, the Fireshelters are airtight.</p> <p>Top entry doors are 650mm x 650mm. Side entry doors are 600mmX800mm. All doors open outwards or slide.</p> 
Cost	N/A
Availability	Appear to be available in at least Victoria and Western Australia
Supporting Documentation	Website contains further detail on site selection and safety aspects.
Contact Details	Brian Mundy, Gisborne - 0419 512 678 Steen Vestergaard, Woodend - 0418 550 132

Bushfire Bunkers – A Summary of Products and Concepts

Product Name	N/A
Website	http://www.fireproofshelters.com.au/
Name of person / organisation	Fire Proof Shelters
Owner / producer	Fire Proof Shelters
Brief Description	<p>Limited detail on Fire Proof Shelters is available on their website. The company describes their bunkers as follows:</p> <ul style="list-style-type: none"> • “Pre-cast Reinforced Concrete (3 Hour Fire Rating) • Purpose Built Fire Bunker From The Ground up! • Fully Rated 3 Hour Fire Door to Australian Standards! • Air Supply For 4 Adults up to 5 Hours 9.5 Cubic Metres of Air! • The Only Guaranteed Bush fire Protection for Your Family • Smoke Proof Seal & Airtight! • Fast Easy Access • Use For Storage in Winter!”
Cost	\$7,950 + GST plus installation and delivery
Availability	Appears to be available.
Supporting Documentation	Website provides further information on site selection and safety.
Contact Details	<p>Fire Proof Shelters Office Phone: (03) 9444 1555 Email: info@fireproofshelters.com.au</p>



Bushfire Bunkers – A Summary of Products and Concepts

Product Name	N/A
Website	http://www.firebunkers.com.au/
Name of person / organisation	Fire Bunkers Pty Ltd
Owner / producer	Fire Bunkers Pty Ltd
Brief Description	<p>Fire Bunkers shelter is made up of pre-fabricated flame retardant concrete panels and located underground. In addition to the structure, Fire Bunkers also include air canisters, battery powered lighting, UHF Radios, a solar powered facility, and other survival accessories.</p> <p>Fire Bunkers advise that “due to the relatively rapid transition of fire fronts, the Firebunker is meant to be a short term survival location with the intended confinement limited. However, appropriately equipped, the Firebunker has been designed to accommodate up to 6 people for up to 5 hours.”</p>
Cost	N/A
Availability	Does not appear to be available yet. The website advises that the product will be available in July 2009.
Supporting Documentation	N/A
Contact Details	<p>Fire Bunkers Pty. Limited 16 Wiggs Rd Riverwood, NSW Australia 2210 Phone: (02) 9584 7002</p>


Bushfire Bunkers – A Summary of Products and Concepts

Product Name	N/A
Website	http://www.statewidefirebunkers.com.au/
Name of person / organisation	Statewide Fire Bunkers
Owner / producer	Statewide Fire Bunkers
Brief Description	<p>Statewide Fire Bunkers advise that all their products are “pending new Australian building standards” and products listed on their website are examples only. However, they further specify that all Statewide fire bunkers have been engineered using Australian standards.</p> <p>Statewide’s standard bunker is 4.1m long, 2.4m wide and 2.4m high and can have one or two sub-surface entry points. They advertise that all sub-surface doors and jams are purpose built by a leading fire door manufacturer.</p>
Cost	N/A
Availability	Don’t appear to be available yet.
Supporting Documentation	N/A
Contact Details	sales@statewidefirebunkers.com.au info@statewidefirebunkers.com.au support@statewidefirebunkers.com.au


Bushfire Bunkers – A Summary of Products and Concepts

Product Name	N/A
Website	http://firesafebunkers.com/
Name of person / organisation	Fire Safe Bunkers
Owner / producer	Fire Safe Bunkers
Brief Description	<p>Fire Safe Bunkers' Bunker is a 150mm thick steel reinforced concrete bunker, approximately 2.0m wide by 2.0m high. Fire Safe Bunker advise that all materials used to construct this Bunker have a tested Fire Rating in excess of 3 hours.</p> <p>Fire Safe Bunker also provides a Fire Blanket, Safety Helmets, LED Lighting, Smoke Hoods / Breathing Masks, a Fire Extinguisher and a 406Mhz Emergency Beacon (PLB).</p>
Cost	\$9700
Availability	<p>Fire Safe Bunkers' website advises that they intend to commence taking orders by mid-April 2009. However it further notes:</p> <p>“* THE FINDINGS OF THE “BUSHFIRE ROYAL COMMISSION” ARE IMPERATIVE TO OUR ORGANIZATION & THE COMMENCEMENTS OF ANY WORKS PROGRAM ... Please continue to leave your registration of interest at the “Contact us” tab so we may be able to respond to your inquiries as these findings conclude...”</p>
Supporting Documentation	N/A
Contact Details	inquires@firesafebunkers.com

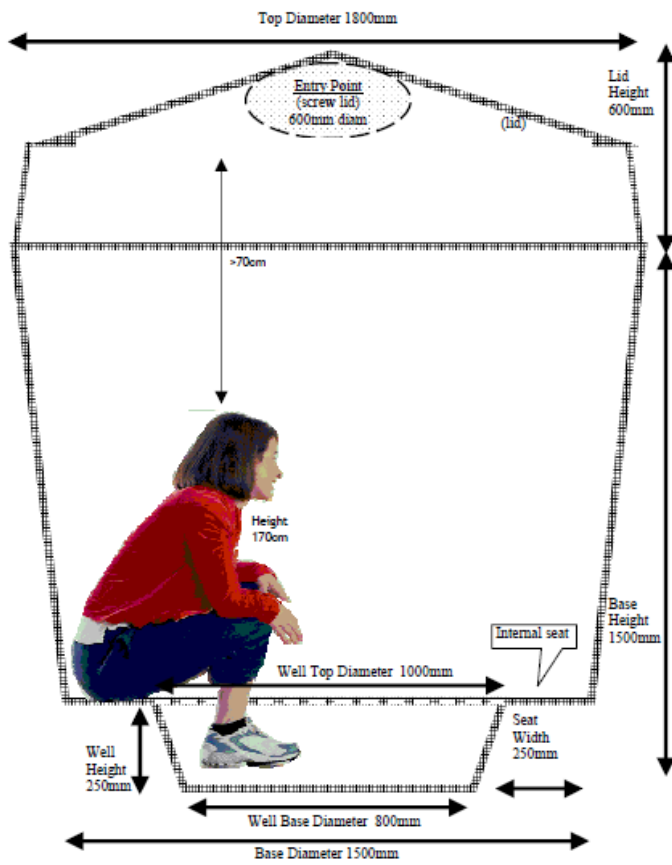
Bushfire Bunkers – A Summary of Products and Concepts

Product Name	Timbercrete Bunker
Website	http://www.timbercrete.com.au/fire-resistant-building-materials.html
Name of person / organisation	Timbercrete Australia
Owner / producer	Timbercrete
Brief Description	<p>The Timbercrete “fire resistant bunker” is 3.6 m long by 3.2 m wide and has a metal fire resistant door — RFL -/240/30. The bunker includes a fire resistant glass window, which is triple glazed. Each pane is 5mm thick with a 50mm cavity between each layer to maximise insulation value.</p> <p>A fire resistant spy hole is located near the door. The spy hole measures 210mm wide 180mm high and is constructed of triple pane fire rated glass as per the window.</p> <p>Each bunker is equipped with an air tank that can be turned on as the fire storm approaches. This will slightly pressurise the bunker forcing excess cooler air out around the small gaps surrounding the fire resistant door. Pressurising the inside of the bunker prevents smoke or harmful gases entering the bunker.</p> <p>Timbercrete advise that the tank “will be sufficient to provide fresh air for all the occupants during the danger period of the fire storm.”</p> 
Cost	N/A
Availability	Available in kit form
Supporting Documentation	Further information and a copy of the full test report detailing results of CSIRO tests is available on the website.
Contact Details	<p>Timbercrete Campaspe Paul Ryan Mob: 0428 575 010 Location: 197 McNee Rd WYUNA Vic Postal: RMB 1482, McNee Rd WYUNA Vic 3620 Tel: (03) 5859 4294 Fax: (03) 5859 4292</p>

Bushfire Bunkers – A Summary of Products and Concepts

	Email: campaspe@timbercrete.com.au
Product Name	Bushfire Bunkers
Website	http://www.bushfirebunkersaustralia.net.au/
Name of person / organisation	BioSeptic Pty Ltd
Owner / producer	BioSeptic Pty Ltd
Brief Description	<p>BioSeptic's Bushfire Bunker is a round concrete vessel with a 150mm thick roof that can be buried 300mm to 900mm underground. Entry is either by ladder through a protected opening in the roof, or by a side entry door accessed by steps. The bunker is manufactured from fibre steel concrete, to Australian Standard AS1546.1. BioSeptic advise that the Bunker lid is 150mm thick and has been engineered to withstand the weight of a small truck.</p> <p>There are two Bushfire Bunker models, each 2.5 metres in diameter. The small model has an internal height of 1.485 metres, and the large model has 2.27 metres of head room.</p> 
Cost	N/A
Availability	Appears to be available
Supporting Documentation	N/A
Contact Details	<p>BioSeptic Pty. Ltd. PO Box 3250 Narellan NSW 2567 1-5 Anzac Avenue Smeaton Grange, Narellan NSW 2567 Phone: 02 4629 6622 Fax: 02 4629 6655 Email: sales@bioseptic.com.au</p>

Bushfire Bunkers – A Summary of Products and Concepts

Product Name	FirePit Australia
Website	http://www.carltonhandyman.com/ and click on “Fire Pit Australia” at the top of the page
Name of person / organisation	Carlton Hardware and Handyman Centre
Owner / producer	Appears to be Carlton Hardware and Handyman Centre
Brief Description	<p>The proposal for FirePit Australia is a construction of composite plastic with an expected fire resistance of 6+ hours. Carlton Hardware and Handyman Centre advise that the FirePit will mostly be buried and depending on test results, the lid may be insulated using either a double-wall system or a product such as Rockwool. In addition, Carlton Hardware and Handyman Centre advise that the FirePit will not be vented.</p> 
Cost	\$1500-\$2000
Availability	Does not appear to be available as yet. The website advises that the first delivery is expected in mid-April.
Supporting Documentation	N/A
Contact Details	Paul Steinberg: paul@carltonhandyman.com

Bushfire Bunkers – A Summary of Products and Concepts

Product Name	N/A
Website	http://www.victorianfirebunkers.net/
Name of person / organisation	Victorian Fire Bunkers
Owner / producer	Victorian Fire Bunkers
Brief Description	<p>Victorian Fire Bunkers are 1800 high x 2000 wide x 3000 long and made of pre-fabricated concrete, steel and fire retardants. The bunkers are designed to go underground and include one access point. Victorian Fire Bunkers offer an individual site assessment to determine which position will best suit.</p> <p>Optional extras include fire safety products and chemical oxygen generators.</p>
Cost	N/A
Availability	Doesn't appear to be available as yet.
Supporting Documentation	N/A
Contact Details	<p>Mobile: 0439 637 767</p> <p>Website: www.victorianfirebunkers.net</p> <p>Email: info@victorianfirebunkers.net</p>










Bushfire Bunkers – A Summary of Products and Concepts

Product Name	N/A
Website	http://www.aussiebunkers.com.au/
Name of person / organisation	Aussie Fire Bunkers
Owner / producer	Aussie Fire Bunkers
Brief Description	The website provides no detail on the proposed bunker and does not appear to have been updated since late February. The website advises that “Australian Fire Bunkers are waiting for the new Government building standards to be released on March 19th 2009 before releasing our new models. This will ensure that your bunker will meet the new standards with maximum product effectiveness, quality and safety.”
Cost	N/A
Availability	Do not appear to be available.
Supporting Documentation	N/A
Contact Details	Phone: 0418 540 428 Email: enquires@aussiebunkers.com.au

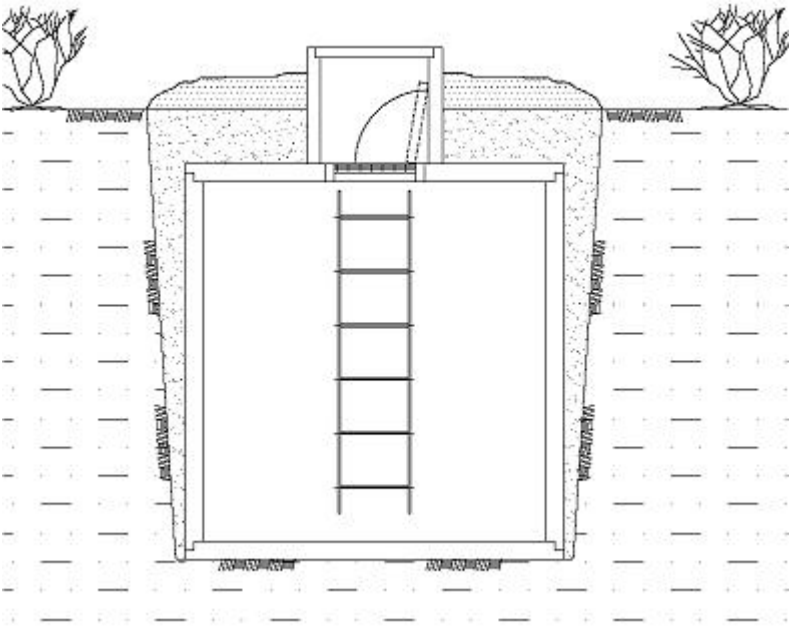
Bushfire Bunkers – A Summary of Products and Concepts

Product Name	N/A
Website	http://www.earthlinkedhomes.com.au/fire-shelters.php
Name of person / organisation	Earthlink Homes
Owner / producer	Earthlink Homes
Brief Description	Earthlink Homes' concrete fire shelters or bunkers are pre-cast concrete structures that can be installed either above or below ground. Though the structures are marketed as fire shelters as well as "custom made cellars to store items such as wine" the website notes that it is important not to store "too many items in the shelter as this will reduce the volume of air available."
Cost	N/A
Availability	Appear to be available
Supporting Documentation	N/A
Contact Details	Via website


Bushfire Bunkers – A Summary of Products and Concepts

Product Name	Waterford Havens Safety Bunkers
Website	http://www.waterfordconstructions.com/
Name of person / organisation	Waterford Constructions
Owner / producer	Waterford Constructions / Monolithic.com
Brief Description	<p>Waterford Constructions proposal is for steel re-enforced concrete fire bunker based on Monolithic's Dome design, which has been used overseas in the construction of homes, schools, gymnasiums, bulk storage facilities, churches and offices. Limited information is available on its website, beyond designs in what appears to be a business plan aimed at raising start-up capital.</p> <div data-bbox="645 746 1335 1731" style="border: 1px solid black; padding: 10px;"> <p>Waterford CONSTRUCTIONS - Fire bunkers. How they are built. <small>These are Monolithic.com Ecoshells. This tech is the core of our bunkers. Pictured is an Indonesian housing project done by Monolithic. To demonstrate the construction process. The only difference is the size and that the bunkers will be subterranean.</small></p>  <p>A footing is dug and form boards are leveled to a few cm above the leveled dirt. Rebar is placed inside the form and concrete is poured into it to create a slab.</p>  <p>Vertical rebar is wet set into the concrete along with heavy duty wire cable loops. Using a steel bar and levers trapped by the wire loops.</p>  <p>The airform is held in place and then inflated using a high pressure low volume fan.</p>  <p>When the Airform reaches the correct pressure, a rebar hoop is placed on the top of the airform.</p>  <p>Then vertical lengths of rebar are attached and more horizontal hoops added. No rebar is added where doors and windows are to be attached.</p>  <p>High strength concrete is placed on the airform.</p>  <p>Inside the dome, the airform is deflated and removed and a layer of concrete added, to embed the rebar.</p>  <p>The top coat is smoothed and after the concrete has cured, a cement only layer added to help seal the concrete.</p> <p style="text-align: right;">3m across (floor) x 1.8m high. \$7800 fully built.</p> <p>WaterfordHAVENS SAFETY BUNKERS </p> <p style="text-align: right;"><small>www.waterfordCONSTRUCTIONS.com www.monolithic.com Ph. Shaun. 0404 066 334</small></p> </div>
Cost	\$7800
Availability	Doesn't appear to be available as yet.
Supporting Documentation	N/A
Contact Details	Shaun: 0404 066 334

Bushfire Bunkers – A Summary of Products and Concepts

Product Name	Flat Pack Fire Bunker
Website	http://www.flatpackfirebunkers.com.au/
Name of person / organisation	Flat Pack Fire Bunker
Owner / producer	Flat Pack Fire Bunker
Brief Description	<p>The Flat Pack Fire Bunker is made of reinforced concrete and comes in two standard sizes: the Couples Bunker and The Family Bunker. All bunkers provide 2.5 hours air capacity and come with a fire rated access door, a steel access ladder, and an access shaft with vermin lid.</p> 
Cost	\$3000 plus GST +
Availability	Available Australia Wide
Supporting Documentation	N/A
Contact Details	0448 913 169

Bushfire Bunkers – A Summary of Products and Concepts

Product Name	N/A
Website	http://www.bunkersdownunder.com.au/
Name of person / organisation	Bunkers Down Under
Owner / producer	Bunkers Down Under
Brief Description	<p>Bunkers Down Under are concrete tanks manufactured to AS1546.1. The tanks have an engineered 130mm reinforced concrete lid with an insulated hatch with seals that stop water, smoke or fire entering the bunker. The access hatches are made by an Australian owned manufacturer that also produces fire doors compliant with current Australian standards.</p> <p>The bunker has a ventilation system that circulates fresh air. These vents can be closed during the fire to prevent air escaping from the shelter and toxic fumes or smoke entering the shelter. The bunker can accommodate 5 people for approximately 3 hours.</p> <p>Optional extras include seating, shelves for storage of emergency items, outside temperature sensor with internal display, emergency oxygen supply, first aid kit, EPIRB (emergency global positioning system), LED torch, fire blanket and a lock.</p> 
Cost	N/A
Availability	Appear to be available.
Supporting Documentation	Additional information on products and maintenance requirements is available on the website.
Contact Details	<p>Bunkers Down Under Pty Ltd Part of the Rivatec Group of companies 5 Marklea Cl Tuggerah NSW 2259 Phone (toll free in NSW): 1 300 733 669 Outside NSW: (02) 4353 0647 Email: info@rivatecgroup.com.au</p>

Bushfire Bunkers – A Summary of Products and Concepts

Product Name	Wombat's Burrow Bushfire Bunkers
Website	http://www.wombatsburrow.com.au/
Name of person / organisation	Wombat's Burrow
Owner / producer	Wombat's Burrow
Brief Description	<p>Wombat's Burrow bushfire bunker is an underground structure with an above ground section to allow easily location and views of the outside from inside. Doors are provided at both ends. Additional ventilation is provided through a battery powered blower and smoke scrubber. The bunker includes seating, LED lighting and safety equipment and clothing storage.</p> <p>Additional options include angled entry stairs, wheel chair access ramps, entry ramp well covers, auxiliary radiant heat shields, paving and safety lighting.</p>
Cost	N/A
Availability	Appear to be available.
Supporting Documentation	N/A
Contact Details	Mobile: Grant (Victoria) 0415 218 418; Graham 0407 230 391 Email: sales@wombatsburrow.com.au


Bushfire Bunkers – A Summary of Products and Concepts

Product Name	Concrete Fire Bunker
Website	http://www.hytekconcreteproducts.com.au/index.php/selectedContent/1223315200?PHPSESSID=703f653220e6a0719976ba8acd b41e74
Name of person / organisation	Hytek Concrete Products
Owner / producer	Hytek Concrete Products
Brief Description	<p>Hytek Concrete Products' concrete fire bunker has been developed based on their experience "over the last 10 years of manufacturing pre cast concrete wine cellars".</p> <p>The bunkers are available in multiple sizes, from steel reinforced concrete. The bunkers are advertised as "engineered and certified as a cellar" and as waterproof. The bunker can be supplied with a 240x240x240 rated door, jams and furniture and multiple entry options are available including two doors to minimise radiant heat.</p> 
Cost	\$6500 +
Availability	Appears to be available
Supporting Documentation	Further images available on website
Contact Details	<p>Hytek Concrete Products Pty Ltd</p> <p>Lot 3</p> <p>Lindsay Point Road</p> <p>Paringa SA 5340</p> <p>Phone: 1300 767 355</p> <p>Email: hytekconcrete@hotmail.com</p>

Bushfire Bunkers – A Summary of Products and Concepts

Product Name	Bunket
Website	http://www.bunket.com.au/
Name of person / organisation	Australian Fire Bunkers Pty Ltd
Owner / producer	Australian Fire Bunkers Pty Ltd
Brief Description	Very limited information is available on the website, except to advise that Bunkets are above ground concrete fire bunkers aimed at protecting individuals from bushfires up to 2000 degrees.
Cost	N/A
Availability	The website advises that they will be available around Christmas following testing.
Supporting Documentation	N/A
Contact Details	Cnr Bayfield Rd East & Canterbury Rd Bayswater North, Victoria, 3153 Australia Ph: 1300 286 538 Fax: (03) 9720 4481

Bushfire Bunkers – A Summary of Products and Concepts

Product Name	N/A
Website	http://www.aussieprecast.com.au/ConcreteFireBunker.htm
Name of person / organisation	Aussie Precast Products
Owner / producer	Aussie Precast Products
Brief Description	<p>Aussie Precast Products' bunkers are concrete bunkers with 110mm thickness walls, floor and roof, reinforced concrete and a 2 hour rated fire door.</p> <p>Aussie Precast Products advertise that "the bunker could be used as an ideal storage area, with shelving added, for all your fire-fighting equipment such as shovels, rakes, protective clothing, filtered breathing masks, fire blankets, helmets, buckets, torches etc. If you decide not to stay it would be an ideal storage space for documents, family photos and treasured possessions."</p> 
Cost	N/A
Availability	Appears to be available
Supporting Documentation	Dimensions are available on the website.
Contact Details	<p>11229 PRINCES HIGHWAY, COBARGO NSW 2550 PHONE: (02) 64938327 FAX: (02) 64938338 EMAIL: beachline@bigpond.com</p>

Bushfire Bunkers – A Summary of Products and Concepts


Product Name	Wildfire Safety Bunker
Website	http://www.wildfiresafetybunkers.com.au/
Name of person / organisation	Wildfire Safety Bunkers
Owner / producer	Wildfire Safety Bunkers
Brief Description	<p>Wildfire Safety Bunkers are precast, concrete safety bunkers. A key component of the bunker is a door made from stainless steel and with insulation cavities to reduce heat transfer. The door is heavily reinforced and double insulated. The door weighs 45 kg and is hydraulically assisted for ease of opening and closing. The entry door is located above ground.</p> <p>A further component is the provision of fresh air inlet and exhaust ducts to keep fresh air in the bunker at all times and to stop the build up of condensation when not in use. Wildfire Safety Bunkers advise that during the bushfire season these ducts can be sealed off from the inside of the bunker.</p> <p>Optional Extras</p> <ul style="list-style-type: none"> • A 1000 litre underground water tank to service a roof top sprinkler to help to extinguish any hot embers around the entry of the bunker for approximately 30 minutes. • A reserve of fresh circulating air to double the air supply available to the occupants. • A high temperature glass sight window for outside observations. • A jack to assist in opening should the door become obstructed. • A sealed below ground battery box. • A solar panel to service the batteries. • A siren to guide residents to the bunker in thick smoke • A strobe light along with a location beacon. • A heavy steel deflection cage that is fitted over the entry door to the bunker to protect from falling trees.
Cost	N/A
Availability	Appear to be available now.
Supporting Documentation	Further information is available on the website.
Contact Details	<p>PO Box 1225, Morningside, Victoria 3931</p> <p>Anthony Tratt: 0419 500 113 David French: 0419 367 269 Email: sales@wildfiresafetybunkers.com.au</p>

Bushfire Bunkers – A Summary of Products and Concepts




Product Name	Frabbe 1220
Website	http://fire-shelter.com.au/
Name of person / organisation	Couray Fabrications
Owner / producer	Couray Fabrications
Brief Description	<p>The Frabbe is marketed as a shelter for both people and animals, as well as “an all-season optional outside storeroom / saferoom / winecellar / sleepout”.</p> <p>The Frabbe is 3280mm long, 2150mm wide and 2750mm high and is a steel-ribbed structure with eight insulation fire-rated layers to withstand extensive heat exposure and to resist heavy object impact and prevent buckling of shelter or disturbance of air flow.</p> <p>The Frabbe is equipped with a siren, flashing light, scuba tank, four oxygen canisters, masks, fire resistant blankets and first aid kit.</p> <p>Couray Fabrications advise that the panels have been fire tested by direct exposure to heat/flames in excess of 1000 degrees Celsius for 40 minutes and from an ambient heat of 30 degrees Celsius moved to only 48 degrees Celsius. The same test conducted at a distance of 500mm from direct heat/flames for four hours resulted in an increase in ambient temperature of only eight degrees Celsius.</p> <p>The bunker has 19.7 cubic metres of sealed air, which Couray Fabrications advises would provide enough air for up to 12 people or animals for more than 3 hours, backed up by an on/off air pipe. The bunker is designed to be completely airtight and, with inside negative pressure, to prevent toxic fume or smoke slippage.</p> <p>A small window is fitted into the door to allow occupants to observe and assess outside conditions.</p> <p>Optional benches are provided with internal compartments for safe keeping valuables and supplies, including safety gear.</p>
Cost	\$13,860 +
Availability	Unclear whether or not the product is currently available.
Supporting Documentation	Further technical information is available on the website.
Contact Details	<p>9 Aspley Place Seaford VICTORIA 3198 Phone: 03 9786 1609</p>



Bushfire Bunkers – A Summary of Products and Concepts

	couray@couray.com.au
Product Name	N/A
Website	http://www.firesheltersaustralia.com.au/
Name of person / organisation	Fire Shelters Australia Pty Ltd
Owner / producer	Fire Shelters Australia Pty Ltd
Brief Description	<p>Fire Shelters Australia’s shelters are concrete constructions with a fire rated door (4 hours), smoke seals, independent air supply for up to 6 people and feature seating, interior lighting and a fire proof peep hole.</p> <p>Fire Shelters Australia advises that its shelters “have been fully engineered to Australian Standards.”</p> 
Cost	\$15,000 - \$20,000
Availability	Appear to be available now.
Supporting Documentation	Images and technical diagrams available on website
Contact Details	Adelaide (08) 8388 5534 Sydney (02) 9247 2428

Bushfire Bunkers – A Summary of Products and Concepts

Product Name	Wombat Underground Fire Shelter
Website	http://firesafeshelters.com.au/
Name of person / organisation	Firesafe Shelters
Owner / producer	Firesafe Shelters
Brief Description	<p>Firesafe Shelters' are constructed with reinforced concrete and include a fire proof door with vision panel. The shelters can accommodate 6 to 8 people and include a first aid kit, fire blanket, battery free torch, fire extinguisher and tank of compressed air. Firesafe Shelters advertise their product as a multi-functional unit which "can also be used for: wine storage / cellar, gun safe or important documents."</p>    <ul style="list-style-type: none"> • Constructed with re-inforced concrete. • Fire proof door, with vision panel. • Comfortably suits 6-8 people. • First aid kit, fire blanket, battery free torch, fire extinguisher and tank of compressed air. • Multi-functional unit, can also be used for: wine storage/cellar, gun safe or important documents etc. <p>Firesafe Shelters identify that the placement of the shelter is "extremely important as all properties vary in topography." They advise that the placement "should conform to Australian Standard [AS 3595-2009] 'Construction of Buildings in bushfire-prone areas'.</p>
Cost	N/A
Availability	Appear to be available.
Supporting Documentation	Specifications are available on the website
Contact Details	0418 338 190 0412 191 271 Factory 1/99 Heyington Ave Thomastown VIC 3074