



Brief for bushfire resistant house designs

Purpose

The purpose of this document is to provide clear guidelines for the preparation of house designs to be considered for inclusion as part of the *Bushfire Homes Service*.

The *Bushfire Homes Service* was devised by the Office of the Victorian Government Architect (OVGA) and the Victorian Chapter of the Australian Institute of Architects (AIA) to co-ordinate and focus the offers of *pro bono* help received from architects. The attached document outlines the service and its operation.

General

Uncomplicated and economical house designs are sought that integrate bushfire resistant design principles with other design considerations to achieve buildings that are capable of complying with AS 3959, *Construction of Buildings in Bushfire-Prone Areas*, and are generally well-designed, sustainable and can service as wide a sector as possible of the demand for house reconstruction in the wake of the February 2009 bushfires.

The Service will not promote expectations that houses can be "fireproof" or that the inherent risk associated with living in locations prone to bushfire attack can be eliminated. The threat of bushfire attack is to be added to the normal issues informing a design proposal which include functionality, user comfort, environmental impact, energy consumption, build cost, whole-of-life cost, qualities of space and form, and user delight.

Housing need

More than 2000 homes were lost in the Victorian bushfires of February 2009. The owners of these homes need to be re-housed and to have their property assets restored. Many home owners will have had a long connection with their property and strong associations with the home which was destroyed. Successful take-up of this Service will depend upon its sensitivity to these factors and ability to meet the range of housing needs felt by the bushfire victims.

Sustainability

All house designs submitted for inclusion in the Service will demonstrate the application of environmentally sustainable design (ESD) principles. This should be evident in the choice of building materials (subject to bushfire design principles), the use of passive heating, cooling and lighting systems, and the adaptability of the design to the changing needs of future households.

Bushfire design principles

The objective of bushfire resistant building design is to contribute to saving lives and property in the event of bushfire attack. The basic approach is to reduce the likelihood of building ignition caused by:

1. embers and burning debris carried on the wind,
2. heat radiation, and
3. direct flame contact.

This can be achieved by the application of three basic principles in the building design phase:

1. Prevent embers and burning debris from entering or alighting upon the building.
2. Reduce the combustibility of the building fabric.
3. Discourage the build-up of combustible material on or near the building.

In addition, houses at risk of bushfire attack also need to be highly wind resistant, as the extreme winds that often accompany a bushfire can damage otherwise sound buildings, making them susceptible to ignition by the means described above.

Further elaboration on these principles and specific information pertaining to particular aspects of house design for bushfire protection can be obtained from the BDP *Environment Design Guide: DES 55* (Bell 2003), Standards Australia's Handbook *SAA HB 36-1993 Building in Bushfire-Prone Areas – Information and Advice* (Ramsay and Dawkins 1993), and the CSIRO's manual on *Landscape and Building Design for Bushfire Areas* (Ramsay and Rudolph 2003).

Specific requirements that houses offered under the *Bushfire Homes Service* will need to be capable of incorporating are contained in the revised Australian Standard for building in bushfire prone areas. The challenge will be to integrate these requirements of the Standard into designs that are informed by broader concerns of sustainability and user amenity.

The actual effectiveness of bushfire resistance has much to do with the quality of execution of the building in accordance with the bushfire resistant principles, particularly how effectively ember and burning debris are prevented from entering the building fabric, and how well the building is maintained, as well as its surrounds in accordance with fire maintenance principles.

AS 3959 Construction of Buildings in Bushfire-Prone Areas

The Australian Standard for building in bushfire prone areas (AS 3959-2009) has recently been revised and was released shortly after the Victorian bushfires. All designers participating in the *Bushfire Homes Service* should familiarise themselves with the revised standard to ensure houses built under the scheme can be constructed to comply with the more stringent applications of the Standard (see below).

The revised AS 3959-2009 mandates that an initial assessment of bushfire risk, categorised as Bushfire Attack Level (BAL), is applied to the assessment of all building works in Victoria. The lowest risk category (BAL-LOW) places no requirements upon building construction and is expected to apply to about 80% of building permits (Building Commission 2009). It is anticipated that about 10% of building permits issued in Victoria will fall into the three highest risk categories (BAL-29, BAL-40, and BAL-FZ). House designs for the *Bushfire Homes Service* should aim for compliance with the requirements of these higher categories.

Functional brief

The Service intends to offer a range of house designs with a variety of plan types, overall dwelling sizes and types of construction, all suited to adaptation to a range of possible site conditions.

Submissions should bear in mind the following:

1. The Service is limiting itself to the offer of single, detached dwellings;
2. Houses should have between two and four bedrooms;
3. There is concern among affected communities that the strictures of the revised Standard will allow only brick veneer on concrete slab construction with shuttered windows. The Service is seeking to demonstrate that a rich variety of responses can be possible within the Code.
4. The Service is offering plans and possible minimal consultation, not full service, whereby attention to the detail of construction is in the hands of the service participants.

Cost

Design proposals should offer efficient and cost effective solutions at the level of schematic design.

Submission of documents

To enable informed selection of designs by beneficiaries, the Service is seeking presentations that will comprise, at the level of schematic design:

- plans, elevations, cross and long sections at 1:100, with room names and any salient features identified;
- a table describing the proposed building materials and basic construction method;
- an external perspective from eye height;
- any additional information deemed necessary to communicate key elements of the design;
- a north point indicating the building orientation for which the house has been designed.

These elements are to be arranged on up to four A3 size sheets.

No names or company logos should appear on the drawings as each submission will be assigned an identification number on the VBRRRA website. However, each submission must separately identify the ARB Registration number of the architect or architectural practice.

Registration of Intent

In the first instance, potential participants should register their intent to contribute to the Service by emailing Elizabeth Raut at the Australian Institute of Architects:

elizabeth.raut@raia.com.au

To ensure a diverse range of dwellings are designed, please advise the following details of your proposed design approach:

1. number of bedrooms;
2. construction type and likely materials;
3. assumed site conditions – eg. flat, sloping, etc.

Registrations of intent are to be emailed by COB, 6 April.

To submit the finished design, please convert the drawings to A3 size electronic documents in .pdf format and ensure the file size does not exceed 10MB.

A3 .pdf drawings are to be submitted to the AIA at the following email address:

elizabeth.raut@raia.com.au

Submissions are to be emailed by COB, 17 April.

What happens next?

A link will be set up on the Victorian Bushfire Reconstruction and Recovery Authority website from which people who have lost homes in the bushfires will be able to:

- view the range of house designs selected to be part of the *Bushfire Homes Service*, and
- register their interest in participating in the Service.

People who express an interest in one of the designs offered through the Service will be encouraged to meet with the architect of the design to discuss its appropriateness to their site and what modifications might be possible or desired. The consultation necessary for this purpose is considered part of the *pro bono* service being offered.

We anticipate that the consultation at no charge will take up to 2 hours in each instance. The Service will monitor the number of consultations directed to each architect and will ensure that the time requested for each architect is limited. We anticipate that the guidance offered at the consultation will assist beneficiaries to determine the next appropriate step for them. This may include taking the plans with any suggested amendments straight to a builder, all the way through to a partial or complete service from the architect. The potential of subsequent work for the architect beyond the *pro bono* work is clearly not the aim of this process but, should it occur, conditions of engagement and payment will need to be negotiated with sensitivity to the circumstances and the associated risks for themselves of *pro bono*, partial or reduced fee services

Use of selected submissions

Submissions received in response to this brief will be used to implement the *Bushfire Homes Service*. This Service is described in the attached document.

All submissions will be received with gratitude as generous offerings of assistance in the bushfire recovery effort. Designs submitted will, however, be reviewed and this process may result in not all designs being published on the Victorian Bushfire Reconstruction and Recovery Authority's website. The aim of the review process is to ensure that a range of house sizes and costs is able to be offered, that the houses are able to comply with all necessary codes, and that the designs can meet the objectives of the Service in all respects.

While copyright of the house designs will remain with the architect, in submitting the designs to the Service, the architect agrees to grant the Service an unlimited licence to modify the designs, use the designs in accordance with the objectives of the Service, which includes both extending the licence in the designs to property owners and the potential for the media to reproduce the drawings.

In submitting designs to the service, the architect also consents to not being attributed as the author of the designs, except to the extent that the architect may be asked to consult with a potential user of the designs.

Timeline

Expressions of Intent by 6 April

Submission by 17 April

Submissions reviewed by 22 April

Enquiries

Please direct all enquiries to Tom Alves at the Office of the Victorian Government Architect:
thomas.alves@dpc.vic.gov.au

THANK YOU AGAIN TO ALL PARTICIPATING ARCHITECTS.

Disclaimer

The OVGA and the Institute make no representation, nor warrant, that the designs are suitable for the purposes of individual owners.

No responsibility for the work of an architect engaged by an owner is taken by the OVGA or the Institute.