

## **HOUSING DEVELOPMENTS IN AND NEAR BUSHLAND**

Fobif has sent the letter below to the Victorian Bushfires Royal Commission:

2 April 2009

Dear Commissioners,

### **COMMUNITY CONSULTATION MEETINGS**

We note that one of your desired outcomes for the community consultation meetings (which we were unable to attend) is:

*identify key issues for further research and investigation by the Royal Commission.*

We would like the Commission to investigate the following 3 issues that come under the land use planning part of the Terms of Reference.

Over the last 4 years we have made presentations at planning panel hearings on what we believe is inadequate consideration of bushfire risk in the planning of new housing estates in forested areas. We have argued that the inappropriate planning of new housing endangers residents and has environmental consequences. As residents come to realize the hazardous situation they are in, they seek to clear vegetation on their land or on public land nearby.

As a result of our participation in these planning processes we have become aware of the following issues we would like the Commission to investigate:

#### **1 The Standard for Building in a Bushfire-Prone Area**

We believe that during the 6 years it has taken to finalise the new Australian Standard AS3959 (Construction of Buildings in Bushfire-Prone Areas), the safety to residents that could be offered by such a Standard has been compromised.

The revision of AS3959 was commenced following the Canberra Fire Storm of January 2003, which claimed 4 lives, and the revision was finished 5 March 2009.

The second draft of the Standard (DR05060, 7 Feb 2005) used a modelling based on a Fire Danger Index (FDI) of 120 and a wildfire flame temperature of 1200K. After 4 more years of discussion, away from public scrutiny, the FDI level used in the modelling has been reduced to 100 and the flame temperature has also been reduced. The Draft Standard put before the Australian Building Control Board (ABCB) for adoption used a flame temperature of 1000K, there were also options of 910K and 1090K presented. We are puzzled as to why the danger index and flame temperature would be reduced, when climate change considerations point in the opposite direction.

Following Black Saturday, the Victorian Government stated they wanted a strong new Australian Standard. On 5 March 2009 the ABCB decided on a flame temperature of 1090K for the new Standard. Bushfire scientists have found it extremely difficult to measure or estimate wildfire flame temperatures. Typical estimates are in the range 1000K to 1500K (Sullivan et al 2003\*).

An Australian Standard based on an FDI of 120 and a flame temperature of 1200K was an option never put to the ABCB.

The safe separation of housing from vegetation is sensitive to the values of FDI and flame temperature assumed in the modelling. If an FDI of 120 and a flame temperature of 1200K were used then a house would have to be 39 metres away from a forest on level ground for the radiant heat to reduce to 29 kW/sq m. For an FDI of 100 and a flame temperature of 1090K, the separation distance for the same conditions would be 25 metres. At a radiant heat flux of 29 kW/sq m, wood ignites spontaneously after prolonged exposure.

On Black Saturday the predicted FDI levels were up to 185 ([www.bom.gov.au](http://www.bom.gov.au)) and the flame temperatures were of the order of 1470K (Bushfire Bulletin, March 2009, Building Commission).

So, after 6 years of deliberations the new Australian Standard will not provide protection to housing for a given vegetation regime, for the fire weather conditions present on Black Saturday. This is alarming as the basis for the *Stay and Defend or Leave Early Policy* is that the resident's house is to be used as a refuge against radiant heat as the fire front passes. A house built to the new Australian Standard would not withstand the radiant heat of a Black Saturday event as the FDI would be well over the value of 100 used in the Standard and flame temperatures would also be over the 1090K used.

A comparison can be made with the response to the Cyclone Tracy disaster in Darwin, where the Bureau of Meteorology measured winds up to 189 km/hr (one minute average speeds). The government's immediate response was to bring in a new building standard which ensured new buildings could withstand these winds.

If residents use AS3959 so that their house can withstand fire weather up to an FDI of 100 then as we experience higher FDI levels because of climate change the residents will seek to remove the vegetation they see as threatening them. A better solution is to have an adequate building standard which provides for safe housing at the FDI levels we can expect with climate change and within the existing vegetation constraints.

\* *A Review of Radiant Heat Flux Models used in Bushfire Applications*, AL Sullivan, PF Ellis & IK Knight; International Journal of Wildland Fire, 2003, **12**, 101-110.

## **2. Planning Tools for New Housing Estates in Bushfire-Prone Areas**

Over the last 5 years we have argued at planning panel hearings that the existing planning tools (Practice Note *Planning for Wildfire Protection and Building in a Wildfire Management Overlay* (WMO)) don't provide adequate protection from wildfire to allow for the safe design of housing estates in forested areas.

The problem is that these provisions allow a new housing estate to be built with a continuous canopy of trees right up to a house. Branches over-hanging a house are to be removed and understorey is to be managed (see p11 & 13 of *Building in a Wildfire Management Overlay*).

During fire storm conditions, as were experienced in Canberra in January 2003 and in Victoria on Black Saturday, a housing estate built under these provisions would be in the flame zone of a wildfire because of a fire storm in the canopy. This has to be an unacceptable result for planning a new housing estate.

Over one month after Black Saturday, these documents are still the main planning tools for planning a new housing estate in a forested area (see DPCD web site).

During a planning panel hearing we were involved in, a document was produced which claimed to provide the technical basis to support the above planning documents (see Appendix 1 *WMO Site Assessment Methodology – A Technical Overview*; D Maughan, Bushfire Consultant & N Krusel, CFA Manager; April 2005).

We believe that Maughan & Krusel define two principles that are critical in planning for building in bushfire-prone areas:

1. A worst case scenario has to be assumed – Maughan & Krusel used the Ash Wednesday fire weather conditions. Now the Black Saturday conditions would provide the worst case scenario.
2. A house has to be sufficiently separated from unmanaged vegetation for the radiant heat flux to be reduced to 29 kW/sq m. This is the flux at which wood ignites spontaneously after prolonged exposure.

We don't believe either of these principles have been translated into the planning documents under discussion.

As to what is a safe separation distance for new housing from vegetation under fire storm conditions – we don't know. We do know from the Australian Standard modelling that it will be considerably more than 39 metres (this is the separation required from a forest on level ground with a FDI of 120 and a flame temperature of 1200K, to get the radiant heat flux down to 29 kW/sq m).

We would like the Commission to investigate these planning tools which are used at present to guide the planning of new housing estates in forested areas.

### **3. Ministerial Direction No6**

Ministerial Direction No6 requires planning panels and planning authorities in Victoria to use the *Guidelines for Rural Residential Development* when considering proposals for rural residential development. We believe that the guidelines modified in October 2006 for new residential developments in rural areas don't adequately address the safety of residents from wildfire in forested areas.

Prior to October 2006 the Guidelines said (p7):

*An amendment [planning scheme amendment] must only provide for rural residential use or development of land which:*

*Is not in an area with a fire hazard rating of **high** or greater.*

(That is, rural residential development wasn't encouraged in a high fire risk area).

With the changes to these Guidelines in 2006 the only reference to wildfire risk is (p6):

*The following matters should be considered as relevant:*

- *Fire hazard*

(That is, any restrictions have been lifted, and considering the fire hazard is all that's needed).

We have found during our presentations at planning panel hearings that planning authorities give little consideration to the threat to residents safety of placing new housing estates in forested areas. We would like to present to the Royal Commission (at a later stage) some case studies of re-zonings where these weakened guidelines have lead to housing estates being approved in very hazardous areas.

We would like the Royal Commission to investigate these Guidelines as we see them as a means by which we can at least ensure that future housing estates are not subject to the devastation of February 7 type fire storms.

### **Summary**

We would like the Commission to investigate:

- How come the new Australian Standard will allow new housing to be built which will not withstand Black Saturday fire weather conditions? We believe as a minimum, the new Standard should withstand these conditions.

- How the planning tools discussed under item 2 can be modified to give adequate separation of rural residential housing from bush? If a safe environment is provided in the design of new housing estates, then there won't be later calls for destruction of vegetation for safety reasons.
- How come the revised *Guidelines for Rural Residential Development* appear to reduce the consideration to bushfire hazard protection in planning for new housing estates in forests?

While we will be making a formal submission at a later stage in the process, at present we are responding to the call to identify issues for the Commission to research.

Yours faithfully

Frank Panter  
Vice President