



Fire Engineering & Bush Fires

BCA Part G5

Sarnia Rusbridge – Holmes Group

Part G5 – Construction in Bushfire Prone Areas

Relates to Class 2, 3, 9 buildings located in designated bushfire prone areas, being land which has been designated under a power of legislation as being subject, or likely to be subject, to bushfires.

Recommendation 48 of the 2009 Victorian Bushfire Royal Commission in 2010 was that the ABCB include bushfire provisions in non-residential buildings occupied by vulnerable people. This led to the new Part G5 requirements in BCA 2022.



5-7 May 2026



Melbourne Convention & Exhibition Centre



fireaustralia.com.au

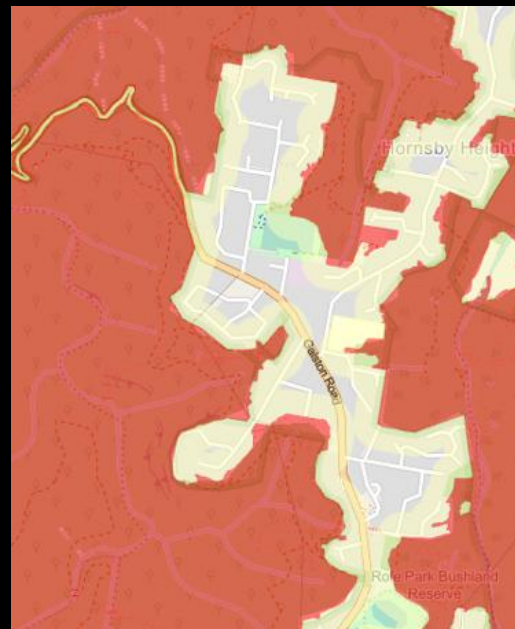


Applies to any building located on an area of BAL 12.5, other than QLD.

Requires compliance with Specification 43.

Any higher BAL requires a performance solution against the Performance Requirements.

Any non-compliance with Spec 43 would also need a Performance Solution



5-7 May 2026



Melbourne Convention & Exhibition Centre

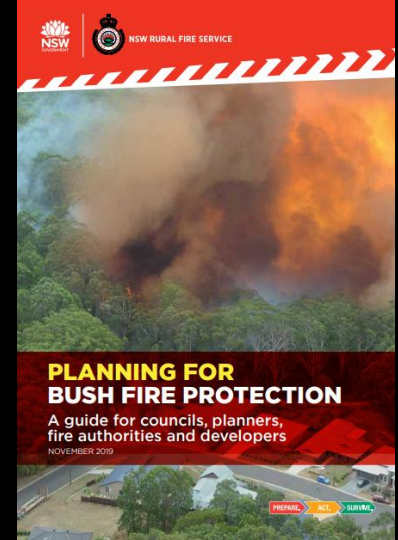


fireaustralia.com.au



So who can do the Performance Solution?

Is this the role of the bushfire consultant or a fire engineer?



5-7 May 2026



Melbourne Convention & Exhibition Centre



fireaustralia.com.au



A fire engineer is an appropriately qualified and experienced practitioner who, through sound and robust engineering practice, provides services that achieve reductions of risk for life for people in structures, reduction in property and environmental damage from structure fires, and the implementation of fire safety codes and regulations.



5-7 May 2026



Melbourne Convention & Exhibition Centre



fireaustralia.com.au



So bush fire consultant and Fire Engineer need to work together

Bush fire consultant can provide the design fire.

Fire Engineer uses the design fire to determine building and occupant safety.



5-7 May 2026



Melbourne Convention & Exhibition Centre



fireaustralia.com.au



Spec 43

- C43C3, S43C4, S43C5 – separation requirements
 - External walls to be fire rated or use a material / system that satisfies AS 1530.8.1 for a heat flux of 10 kW/m² or more
- S43C9 & S43C12
- S43C11 – one option requires a hydrant system complying with E1D2



5-7 May 2026



Melbourne Convention & Exhibition Centre



fireaustralia.com.au



S43C9 & S43C12

- AC needs to run for 4 hours (assume mains power) to maintain 25deg°C
- Then have to consider failure of the AC
- Who's job is it to do this? And how?



5-7 May 2026



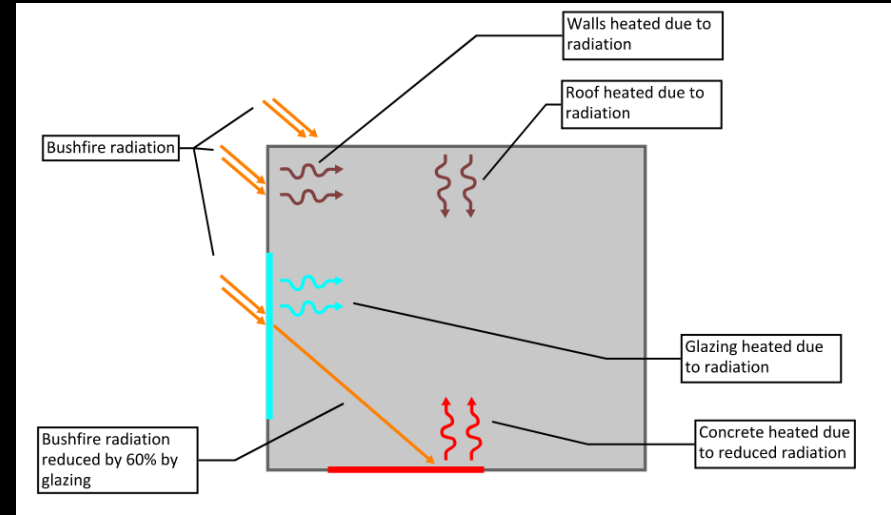
Melbourne Convention & Exhibition Centre



fireaustralia.com.au



- The building envelope is heated by the incoming radiative heat flux due to the bushfire exposure.
- The incoming radiation heats the envelope (glazing, walls and roof).
- Glazing also transmits part of the radiation, which can heat surfaces inside the building.
- The envelope conducts the heat and acquires an internal temperature.
- Air inside the building is heated due to elevated internal surface temperatures.



5-7 May 2026



Melbourne Convention & Exhibition Centre



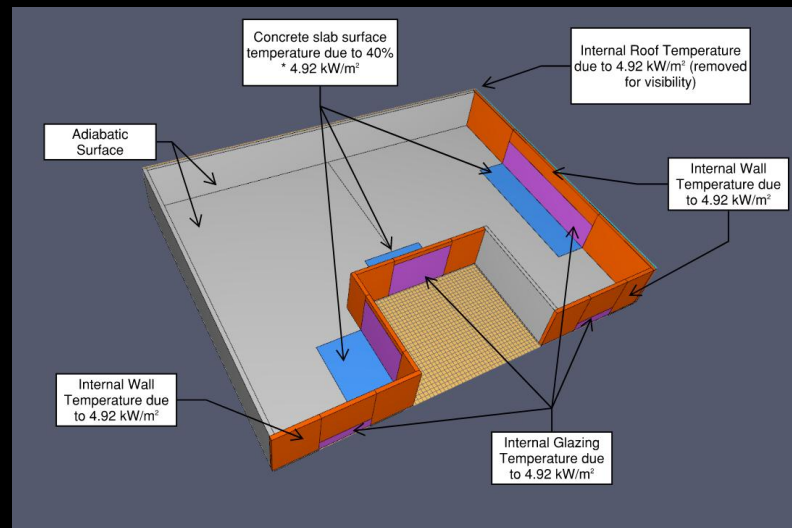
fireaustralia.com.au



Heat transfer model of the wall and roof construction undertaken using SAFIR.

Applying the resultant heat flux from the bushfire allows an estimate of the temperature on the internal faces.

This was then entered in a CFD model (FDS), where the building elements are provided with the temperatures from the heat transfer model to show the temperature distribution in the room.



5-7 May 2026



Melbourne Convention & Exhibition Centre



fireaustralia.com.au



G5P1

A building that is constructed in a designated bushfire prone area must be designed and constructed to—

- (a) reduce the risk of ignition from a design bushfire with an annual exceedance probability not more than 1:100 years, or 1:200 years for a Class 9 building; and
- (b) take account of the assessed duration and intensity of the fire actions of the design bushfire; and
- (c) be designed to prevent internal ignition of the building and its contents; and
- (d) maintain the structural integrity of the building for the duration of the design bushfire.

G5P2

Basically a repeat of Spec 43



5-7 May 2026



Melbourne Convention & Exhibition Centre



fireaustralia.com.au

