

Topic 3 Bushfire Behaviour Tree strike, smoke

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Justin Leonard

Conversely, if we look at something like tree strike, at the bottom of the list here, you can imagine that designing a house strong enough to withstand tree strike is near impossible. However, managing the trees and providing a sufficient buffer by managing the trees in the landscape side of the process is relatively straightforward. So, this just gives us a nice handy guide and I'll come back to this a few times throughout the presentation.

Justin Leonard

I'm going to talk about wind and tree strike as our final topic. Tree strikes are a relatively easy thing to deal with, and some of the best rules of thumb I've seen is the 45-degree rule. So, if you can project a line out from the base of your house at 45 degrees, and it looks though substantial tree canopy, well by definition that tree, could impact your house in some way if it fell over. And that's a means to consider whether some pruning, that's hopefully allowed within the 10/30 or 10/50 rule, can adequately support that. I'm not saying the 10/30 and 10/50 rule is adequate if the trees are significantly taller than 10m, but that's a reasonable rule to see whether you've got significant tree strike risk.

And of course, wind implications. Now, this previous picture shows a deliberate retention of the trees in the landscape, and those retention of tall canopy trees do a lot to help moderate the potential risk of this happening, which is direct wind loads acting on your house that is so severe that it could compromise the integrity of your house, or roof, in a fire event.

Justin Leonard

Of course, tree and large branch strike in proximity of house is obviously a really major challenge and issue. It also is a major question around reliability of egress, either off your property and through the local neighbourhood to a place of relative safety. And I'm certainly not predicating that egress should happen during a fire event, because obviously using your house to shelter during the peak of a fire front's key. But, in the event that the house becomes untenable, you then have to consider egress and transitioning through the landscape. And that is really where tree and large branch strike become problems, not from just the context of hitting a house but blocking a driveway, falling on a car, blocking off major traffic routes and causing traffic jams and entrapments on roadways. So, it's really that question about an onion ring approach of considering all the trees and potential actions.

And certainly I'd encourage you to talk to tree experts and arborists around the types of trees and the state they're in, and the likelihood that they could fall. There's a lot in the tree type and their age, and the degree of imperfections in them that help to find the likelihood that they could fall and be problematic in a bushfire.

Justin Leonard

And then, of course, the last one, and last but not least is around really having a deep think about smoke and what it would be like to have to deal with the steady accumulation and build-up of smoke within a house that slowly builds up, and if you can keep the house closed and tight as much as possible, obviously, the rate that that builds up is quite managed. But the really noxious and toxic smoke actually not only just comes from bushfire, but it comes from when urban fuels

and synthetic things, like plastic and whatnot, burn either as an aspect of the house itself or from adjacent things in your broader landscape.

And that really noxious smoke really takes the exposure question to the next level. And that's a question for you getting through in relative comfort and safety within your house, but also that question of whether what you're genuinely exposed to if you need to leave a house, if it's going to become untenable because it ignites.

The top picture here is actually a prompt for me to highlight some more novel ways of thinking about not only having a house that's relatively airtight and well designed to limit the rate of smoke ingress, but to actually consider novel things like hair scrubbers and air purifiers that, if used in designated rooms that are obviously rooms that are also exits from your house, they can help to improve and extend the tenability and limit that smoke ingress. And particularly useful if you're susceptible to smoke. If you're asthmatic or not as physically fit as the rest of the population.