

### **Assumed Likely Fire attack locations:**

Most likely attack is assumed to be from the W (national park) and N (Ridge Rd directions). Cleared area below house and E side is less likely but still must be shielded from ember attack.

### **Australian Standard AS5414**

This standard “Bushfire External Water Spray Systems Design Overview (see Appendix 5) suggests on the higher risk areas the following specs:

Application rates not less than: 10 L/m<sup>2</sup>min on windows; 5 L/m<sup>2</sup>min on roofs, decks and other surfaces; and 1 L/m<sup>2</sup>min on perimeter ground surfaces at a minimum pressure of 160 kPA at the most hydraulically disadvantaged nozzle.

Typically fixed head approaches to house defence rely on flooding the premise with usually, given tank capacities, up to 500 l.p.m of water to the windows, roof, decks and walls of the building usually for less than one hour, but in principle extendable if you can turn down the pump flow before and after the fire front. Without that capacity available remotely (which is usually not provided) the system gives very restricted cinder protection because it is designed to flood the building, but only when a firefront is present, unless the user is present to turn down the system pump manually.

This approach recognises it is infeasible to meet the specs of AS5414. Even the 5 l/min on all surfaces required by the standard, let alone its requirements for windows, would require 2,850 l/min using up a proposed 30,000 l tank in 11 minutes! Consistent with this a similar view of the infeasibility of the standard is taken by Platypussprinkler.com<sup>2</sup>.

Most houses in bushfires burn down either from cinder attack before the fire front moves through, or from embers after the fire front has passed.<sup>3</sup> For this reason intermittent but long term wetting is to be preferred to a massive flood of water for the short period the fire front is passing through (typically 20 minutes). It is important to wet all surfaces and into cracks and crannies. Not too much water should be wasted on roofs which in Australia are not flammable, but rather roof wetting should be directed at keeping gutters wet.

It is for these reasons the choice made was to rely on external impact sprinklers covering the entire house surface and directed upwards under eaves which are particularly vulnerable, rather than fixed head sprays, and have chosen to allow the system to remotely moved between different volumes of water spray depending on the prevailing threat that is to be countered.

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<sup>2</sup> The Platypus Sprinkler system has been designed to be affordable and make the most effective use of available water. To fully comply with the current Australian Standard would result in a very expensive sprinkler design putting it out of reach for most people and one requiring significantly larger volumes of water to be used. Compliance with the standard is simply impractical and unnecessary. <https://platypussprinkler.com/platypus-sprinkler-faq/>

<sup>3</sup> <https://bushfireresilience.org.au/topics/sprinkler-systems/>