

RISK MODEL

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Introduction

The objective of this model is to define the potential risk of loss of a specific house over its 50 year design life.

The spatial representation of the risk model takes into account: the bushfire events (intensity and characteristic of embers radiant heat and flame), the individual element between the bushfire and the house that could contribute to or mitigate structural loss, the house vulnerability (based on material and design), and the influence of human behaviour (see Figure 1).

The risk considered in this model has been defined as the risk of building damage to a point where it no longer provides a safe haven for occupants. The probability of destruction of the house in a 50 year period $Pr(D50)$ include the probability of arrival of a fire in 50years time and the probability of the house to be destroyed when the fire arrive.
 $Pr(D50) = Pr(A50).Pr(D)$

The probability of destruction of a house is base on different scenarios of destruction: destruction by embers entry in the envelope, by ember accumulating in re-entrant corner, by ignition from radiant heat from the bush or from surroundings object burning.

Probability of house destruction is the aggregate probability of failure of each object.

$$1-Pr(D) = [1-Pr(EE)] [1-Pr(EBT)] [1-Pr(RadBush)] [1-Pr(RadSur)]$$

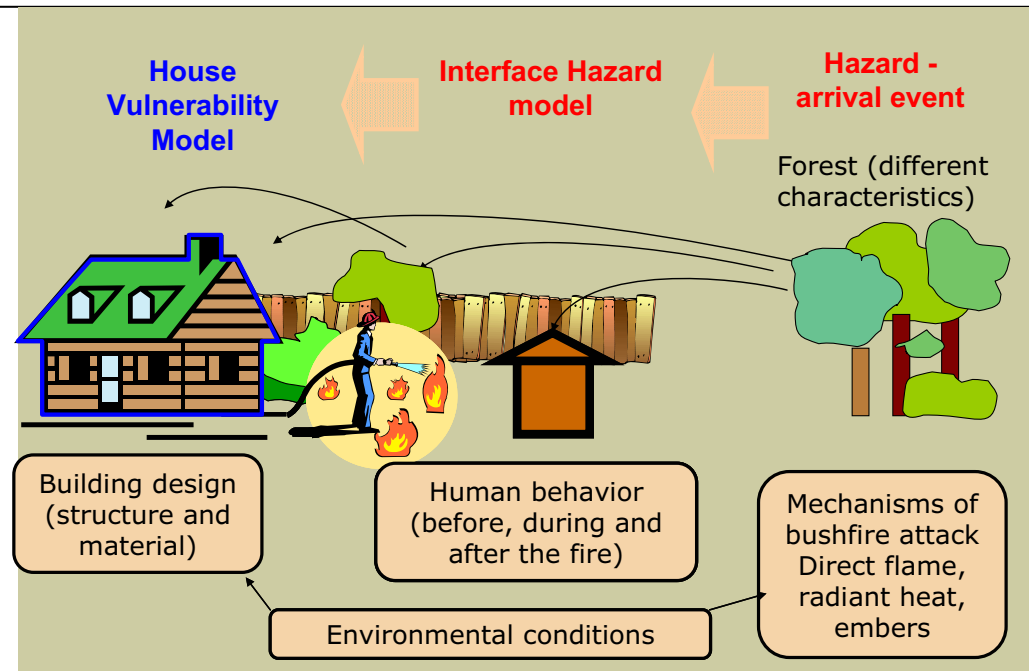


Figure 1 Representation spatial risk model

