

Potentials of metal mesh to contain bushfires

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Bushfires have very devastating effects on human life, economy and environment. Current techniques and approaches are capable of extinguishing fires with intensity less than 2.5 MW of heat per fire front. However, the heat intensity of a large fire could reach well above 100 MW/m. Fire propagates through direct flame contact, radiation and ember attack. A successful technique to contain intense bushfires should be able to deal with all three modes of fire propagation.

This work investigates prospective approaches to contain intense bushfires. Preliminary study indicates that using metal mesh has potential. There have been several reports on the News that metal meshes could prevent bushfire from propagation. A recent study reveals that a mesh with porosity of 25 % is able to block 89 % of direct heat flux of a large bushfire. Some applications such as Bunsen burners indicate its effectiveness against direct flame contact. Their values against ember attacks are well known in Australia and other countries. Australian Standard for construction of buildings in bushfire-prone area [AS 3959-2009] recommends that mesh should be applied on all openable windows, gutters and external doors with a maximum aperture size of 1.8 mm. However, this study shows further detail investigation is required in order to minimize the wind force.