

Title:

Zero-flow response to fire in longitudinally-ventilated tunnels

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**ABSTRACT**

Planned responses to the outbreak of fire in road tunnels are reviewed with special reference to un-manned tunnels with two-way traffic and lengths in excess of 1 km. Attention is drawn to strong differences between current practices in the EU and Japan, arising partly because of a striking difference in the proportions of longitudinally ventilated tunnels (with or without mechanical ventilation). Whilst these are rare in the EU, they are common in Japan and, as a consequence, great attention needs to be paid to the most suitable form of response in the event of an incident. It is proposed that, with the advent of modern methods of controlling jet fans, the most appropriate response to fire will be to use the fans actively to maintain zero-flow conditions, at least in the case of horizontal tunnels. The technical capability of achieving this is demonstrated by reference to the results of full scale tests in Japan and China.

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