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IMPROVEMENT OF THE ISOLATION OF THE AIR CAVITY FOR VENTILATED CLADDING SYSTEMS FOR FIRE SAFETY PURPOSES

Cladding systems are needed for different reasons, amongst them to provide adequate internal environment, thermal insulation, ventilation, and furthermore after recent fire incidents to prevent the spread of fire. In the case of Grenfell Tower, the majority of the spread of the fire was via combustion of materials of the envelope.

Along with the removal of such highly-flammable materials from cladding panels, in this paper the isolation of the air cavity of the ventilated cladding systems is to be analysed and hopefully improved with an extra fire safety measure. The aim of air cavities is mainly to provide resistance to moisture and condensation via natural ventilation as well as to ensure an optimum indoor climate under normal duty.

However, in the event of a fire, the air cavity is a potential narrow path for the fire to quickly spread up to other storeys. To prevent the exposure of the materials to the flames, a strategy combining thermally-reacting fire-resistant expanding foam and a fire retardant substance is to be discussed under proper compartmentalisation conditions and a previous correct strategy of fire barriers and other fire safety measures within the building. A control systems strategy relying on the mentioned adequate compartmentalisation will be also described.

Means of installation, replacement and decommissioning in such a system are also assessed.