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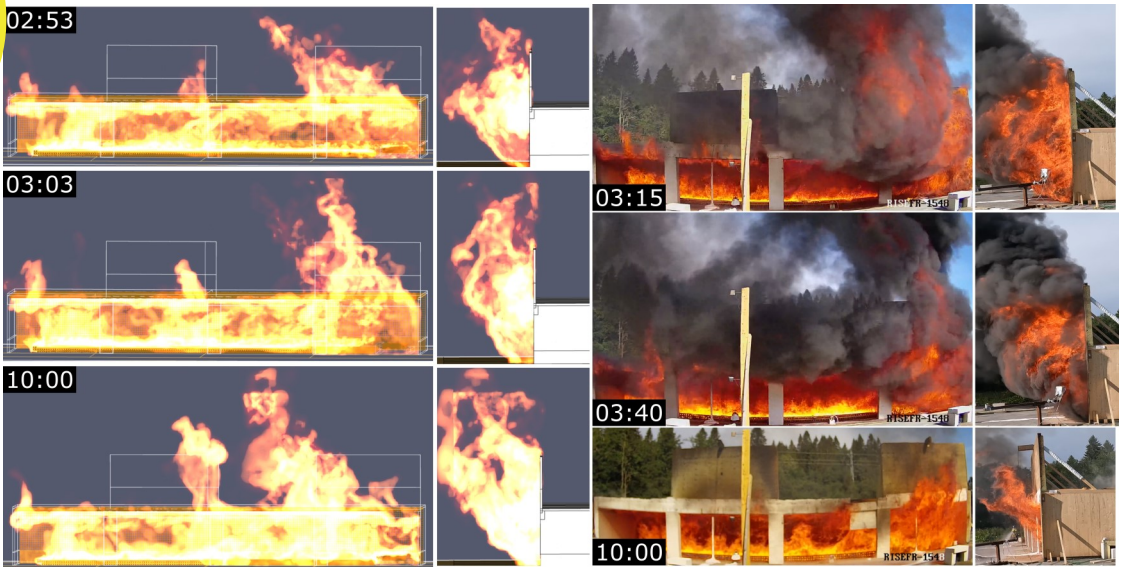

Numerical simulation of fire spread in a large-scale open CLT compartment

Results from a numerical simulation of fire in a large-scale CLT compartment using Fire Dynamics Simulator (FDS) was recently published in Fire Safety Journal. Results show that the simulation was able to reproduce the characteristic results of the previous experiment (FRIC-02), but some limitations were identified.

The CFD simulations using FDS were able to reproduce the characteristic results fo FRIC-02, namely the fast fire spread and the non-symmetrical flames. It also gave more insight into the effect of wind, and that even low wind velocities (2 m/s) coming diagonally from behind would create an underpressure in front of the compartment where the wind was passing by. This underpressure affected the air supply through the windows, which consequently affected the oxygen concentration and the temperature distribution inside the compartment. With no implementation of wind, external flames and temperatures were more symmetrical.

These results show that a CFD simulation could be useful to further explore mechanisms of fire development in a specific fire experiment, and thus supplement the understanding obtained from measurements and video analysis.

Links to more info

The paper is published under open access and can be freely downloaded here:

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