

## **THE FIRE-AFTER-EARTHQUAKE EVENT IN A LIBRARY BUILDING** **Simulation of natural fire**

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Post-earthquake non-structural damage can alter significantly the fire behaviour of a building which, if not taken under consideration, could downgrade the structural safety and pose a threat for the fire fighting and rescue crews. The target of this study is to examine the impact of the damage of the non-structural members on the development of natural fire in a four storey library building. Several fire scenarios that correspond to different levels of damage are simulated and the gas temperatures arising in the vicinity of the steel structural members are discussed. The simulation is performed on a 3-D model, using the Fire Dynamics Simulator (FDS), a Computational Fluid Dynamics code for the simulation of thermally driven flows with an emphasis on smoke and heat transport from fires. The fire spread within the compartment is simulated using a temperature controlled activation of heat release devices representing the combustible materials. The intensity of the fire scenarios is discussed in correlation to the existing damage.