Fire Safety Improvement of Rumah Toko Building by Smoke Shaft Systems

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Abstrak

This paper examines the fire smoke hazards of commercial - multi-function buildings known as Rumah Toko or ?Ruko" The fire simulation was carried out using the NIST Fire Dynamic Simulators (FDS) model. The input for the model was taken from a typical design and sizes of this building built in Indonesian cities. On the basis of a set fire, two (2) design scenarios have been analyzed, i.e. the traditional design and an improved design. The results of this work show that in the ordinary design of the Ruko building, smoke production during a fire can overcome the occupants in relatively short period of time. Meanwhile the improved design by means of installing smoke shaft systems can improve the venting capacity of the building. On the basis of smoke density level, the margin of safety for evacuation efforts is extended from 160 s to more than 400 s by the use of smoke shaft systems.