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Numerical investigation on the effect of down stand structure in fire compartment on smoke contamination atrium upper balconies
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Abstract
Atrium is gaining popularity in the modern societies because of its special attraction. However, during fire incident it causes significant risk due to its open spaces between floors. In atriums smoke can move easily to upper floors through these open spaces and causes smoke contamination of the atrium upper floors. Moreover, presence of down stand structure at the fire compartment opening is required in any shop in atrium shopping mall to display the trade name of the shop. This study investigated the effect of down stand structure on smoke contamination of upper balconies of an atrium by using Fire Dynamic Simulator, CFD software. A correlation that predict the smoke contamination occurrence in the presence of fire compartment down stand structure is developed. The results shows that down stand structure resulted in increasing the effect of smoke contamination in upper floors of an atrium. © (2014) Trans Tech Publications, Switzerland.

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