

## Documents

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### **Effect of down stand depth variation on atriums upper balconies smoke contamination**

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#### **Abstract**

In case of fire in an atrium, smoke produced is recognized as one of the major hazards for the occupants because of open spaces present in an atrium. The effect of varying the down stand depth at fire compartment on smoke contamination in upper balconies of an atrium has been investigated in this paper. Correlation to predict the smoke contamination in upper balconies of an atrium in the presence of 0.5 m deep down stand structure has also been developed. This correlation is compared with correlations developed for 1 m deep down stand and without down stand structure by past research. The comparison results showed that when the depth of down stand structure increase, smoke contamination in upper balconies of an atrium also increases. The results also showed that smoke contamination in upper balconies of an atrium decreases when the ratio of  $w/d$  increases. The comparison of correlations from 1 m and 0.5 m deep down stand showed that the difference in smoke contamination increases when  $w/d < 3$ . By comparing the correlations from 0.5 m deep down stand and no down stand, there is very small difference in smoke contamination from both case but it is applicable for  $w/d < 3$ . © 2014 Owned by the authors, published by EDP Sciences.

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