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Evacuation of mixed populations from trains on bridges

Anne S. Dederichs and Janne G. Sørensen

An understanding of human evacuation dynamics and performance are important when designing complex buildings such as bridges and applying performance-based codes in order to reduce the risk of exposing occupants to critical conditions in case of fire. Literature provides a number of case studies of real fire incidents as well as experiments concerning fire and evacuations []. The majority of previous studies deal with the evacuation behavior of homogeneous groups and applies normative standard. However, a significant part of the population is poorly described such as are people with impairments which are about 10%-21% of the world's population (Bendel, 2006), furthermore a mixed population comprehends elderly people , giving an additional 10% (Bendel, 2006). In Denmark 20% of the population are aged below 15 years (Danmarks statistik, 2011). In recent years a series of studies have focused on a broader population for experiments and models (Larusdottir, 2010). The discussion of "equal access" (Steinfeld, 1979) is slowly followed by the demand on "equal egress" (Proulx, 1996). However, the passengers on trains on bridges are rarely homogeneous mixture. At the same time equal egress is far from assured today (Diament, 2009). This paper is on the evacuation of mixed populations from trains on bridges. The populations applied in the experiment are mixed corresponding to a composition corresponding to the population of Denmark.

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