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ANALYSIS OF HUMAN BEHAVIOR AND EVACUATION IN BUILDING FIRES USING COMPUTER EVACUATION MODELS

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Abstract

Human behavior in critical situations is at the core of all concerns about the fire safety of buildings, regardless of their destination. The way in which the human caught in the fire reacts to the risk factor to which he is exposed, his behavioral response to the direct action of the fire, or his psychological response to the effect of the fire (temperature, smoke opacity, reduced visibility, exposure to toxic combustion gases), are all factors that can drastically influence the required safe escape time. All these considerations underlie the modern evacuation models used both in the design phase of fire-safe buildings and during the post-event investigation of these undesirable situations. This paper analyzes the possibilities of using the computerized evacuation models and highlights the advantages of using the engineering approach in the field of fire safety.

A study was conducted using Pyrosim specialized software and one of the most popular evacuation model, namely FDS+Evac, in order to evaluate the numerical model's capability to predict the occupant evacuation in the case of a presumptive building fire scenario.

Key words: evacuation models, FDS+EVAC, fire safety engineering, fire simulation, human behavior

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