

عنوان مقاله:

The Study of Fire Risk Assessment Models in Buildings

محل انتشار:

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خلاصه مقاله:

Introduction: Fire is one of the important issues that has grade role in all three categories of safety, health and environment. The use of appropriate methods of fire risk assessment by identifying risks and applying appropriate technical and management measures to control or minimize the probability of disasters and mitigation can reduce significantly the damages caused by fire. Therefore, the main objectives of this research are review and compare the fire risk assessment models to determine using terms of models. Methods: In order to achieve the main objective of this research, initially existing fire risk assessment models were reviewed. Then by using descriptive-analytical method, the fire risk assessment models and their application were discussed. These models are described in this research such as CESARE-Risk model in Australia, FIRECAM and FIERA System in Canada, CRISP model in the UK and QRA that has been developed at Lund University in Sweden. Findings: According to this study, in the models based on the risk-cost assessment method, including CESARE-Risk, FIRECAM, and FIERA, certain conservative assumptions and approximations have been made due to the complexity and the lack of sufficient understanding of fire phenomena and human behavior. As a result, these models should not be used for absolute assessments of fire risk and loss, while they are considered to be reliable when used for comparative assessments and for the selection of a cost-effective fire safety system solution. As for the CRISP model, its scope have been limited to two story residential occupancies, and have been used to evaluate such tradeoffs as fire detection installation versus the need for additional passive fire protection, and caution has been urged relative to the model's use in more complex buildings. Finally, challenges and limitations to the use of LUND QRA method, including difficulties in developing appropriate analytical expressions and uncertainty factors. Conclusion: In this research, fire risk assessment models are studied. On this basis, the models developed for specific occupancies are only applicable to those buildings and cannot be easily extended to other ones. This is mainly due to the implicit assumptions and simplifications made within the computer code. Another important issue relates to the acceptance of the fire risk assessment methodologies for fire safety designs. Some of the reasons include the lack of education and technology transfer to ... educate designers and code officials on the use and usefulness of these methods, as well as the lack of p

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Fire, building, fire risk assessment, risk assessment models
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