

Naki Ocran

Title

Fire Loads and Design Fires for Mid-Rise Buildings

Abstract

This study which involves the development of fire loads and design fires for residential and non-residential mid-rise buildings is part of NEWBuildS' "*Rationalization of Life Safety – Code Requirements for Mid-rise Buildings*" project. The project is focused on analysing the code requirements that relate to fire resistance and the use of automatic sprinklers for mid-rise buildings built with combustible or non-combustible construction. The ultimate goal of the project is to come up with alternative solutions and, potentially, trigger changes in the code requirements for mid-rise buildings.

A review, compilation, and analysis of fire load survey data was conducted from available literature for residential and office buildings. A web survey of floor areas was also conducted for floor areas of mid-rise buildings. Fire loads and fuel packages for mid-rise buildings were developed based on previous surveys as well as the web survey. The fire load data in conjunction with statistical data was used to select fire scenarios from which design fire scenarios were chosen.

The fire characteristics of the selected fuel packages, such as heat release rate, and production of toxic gases, were analyzed using the two-zone fire risk analysis model, CUrisk, in order to develop appropriate design fires for mid-rise buildings.

Date of Completion

2012

Degree

M.A.Sc.

Supervisor

George Hadjisophocleous and Ehab Zalok