

Holistic approach of the fire safety of the Military Hospital in Neder-Over-Heembeek

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Abstract – This work analyzes, in a global way, the actual fire safety level of the Military Hospital Queen Astrid (MHKA) and gives advice to improve it.

Keywords - Military Hospital, Life Safety, Holistic, Fire Safety Engineering, Performance-Based Design, Fire Safety Concept

Introduction

A profound and general analysis of the Military Hospital, after decennia of transformation and reorganization, became more than necessary. Due to those changes, the building could no longer guarantee the required safety level and especially the “life safety”.

Aim of the study

Firstly an overview of the actual fire safety level by application of different analysis strategies (in conformity with regulations and codes, risk analysis, etc.). Secondly, for a specific zone, identifying and comparing the RSET and ASET. Based on the results of the preceding studies, advice will be given on how to improve the fire safety level in the future.

Approach

A holistic view on the MHKA based on a fire safety concept and the application of Performance-Based Design (PBD). A complete fire free building is a utopia. The aim is to strive for a manageable and justified fire safety level. The use of all the PBD steps was, due to the size of the building and the lack of time, impossible. Defining the study object as described in the aim of the study was more than necessary.

Results of the holistic analysis

From the general analysis and the case, it can be seen that the PBD methodology has many advantages for the study of the MHKA. The most important advantages are: a holistic approach, consider the characteristics of the MHKA (use of the building, objectives stakeholders, etc.), indicate the sensitive fire safety related points, allow sensitivity analysis, supply of useful data, etc. The use of different methodologies during the PBD, for instance the prescriptive and risk analysis, shows an important lack in the domain of active and passive fire protection, evacuation, management, etc. A number of infrastructural and non-infrastructural changes are necessary to improve the guaranty of the life safety level. The study of a nurse unit (case study) was an educative example to show the actual shortages and the fire safety concept in order to improve the actual safety level.

Conclusion

Without a holistic approach and PBD it would be impossible to obtain an overview of the fire safety level of the MHKA and to advice the implementation of different fire safety measures to improve it. The results obtained from this study will be useful for every planned fire safety project, in particular to work out the fire compartmentation dossier for the MHKA. The most important fact is that Life safety is the highest priority, it is indispensable and it is applicable in any circumstances and everywhere.