

# A Review on “Emergency Management Process in High-Rise Building Construction Projects”

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*Abstract*— Emergency preparedness is a popular concept in protecting workers' safety and health. Emergency management is the creation of systems where communities reduce the risk of accidents and deal with disasters. It does not judge or eliminate threats; instead, the focus is on developing strategies to reduce the impact of disasters. Failure to create a plan can result in death, loss of income, and damage to property. The Construction Industry plays a vital role in our global economy, but the process of building a construction project always has a variety of risks, harmful to business, public safety and interests. As the construction industry grows, security and emergency management are needed. In relation to various natural disasters or emergencies caused by natural and non-natural causes, this paper reviews the analysis of emergency management literature on various high-level construction projects, and also raises safety and emergency management issues, a high-speed emergency response plan, building projects, firefighting and exiting the high-rise building.

**Keywords:** Emergency Management Process, High-Rise Building, Construction Projects

## I. INTRODUCTION

Emergencies and disasters can strike anywhere and at any time bring injuries and illnesses to the workplace. Employers and employees may be asked to deal with an emergency when least expected and proper planning before an emergency is necessary to respond effectively. An emergency at work is a condition that threatens employees, customers, or the public; interrupts or blocks operations; or cause physical or environmental damage. Emergencies can be natural or man-made, and can include hurricanes, earthquakes, floods, fires, winter weather, chemical spills or emissions, outbreaks, discharges of biological activity, explosions involving nuclear or radiation, and many other hazards. Many types of emergencies can be expected in the planning process, which can help employers and employees plan for other unforeseen emergencies. For emergency managers the care should be taken by the construction industry and, the government must work diligently contribution to complete this path. Design risks can be reduced by identifying the causes of accidents, which are possible through accident investigation techniques such as risk creation concepts and human errors. According to a survey in India most of the construction industry, especially in rural areas, does not have a safety and emergency department. In some industries security construction and emergency services are provided only by people who do not have the necessary knowledge and experience in the sector and there is safety and emergency provision being made but implementing these provisions is not available that would prevent accidents. The security

graph in the construction industry remains poor. This work, reports on the first survey of a study that has not been adequately researched in India and that there is little evidence available. The findings presented here should not be seen as conclusions, but rather as a basis for further research and the development of effective interventions to promote Emergency Management within industrial sectors

## II. LITERATURE REVIEW

Cláudio Sapateiro et al. (2009) proposed an approach that takes the view that an emergency response tool can guide response effort. The tool has adopted a fictional model based on existing models of situational awareness and research work undertaken with high-quality organizations. The model schedules the emergency management process is organized in a range that should be coordinated in collaboration with the relevant stakeholders in order to minimize the disruptive situation. The emphasis of the proposed approach is described in the paper, and the focus is on the IT service desk teams that address emergencies that could jeopardize business continuity. [1]

Fire hazards in high-rise buildings using a tree analysis method and the basic concept of safety system engineering are analyzed by Chen Haitao et. al. (2010); the initial causes of the fire accident were shown in detail, beginning with the confirmation of a significant number of basic incidents. Based on the result, the calculations are described from technology and management methods, which provide protection against high-quality building fires. Also, the fire chase was discussed when fires occurred on the high-rise building. Finally, the stairs and exit model were proposed. [2]

Most startling issues are not construction issues but must be monitored and managed by the construction manager (CM) to ensure the success of the project. And this is pointed out by Er. Shrishail Shirur et al. (2014). Some of the building blocks include employee considerations, safety, time constraints, and job flexibility. The non-structural challenges that CMs face as part of the business world include legal issues, government regulations, environmental concerns, and social and political pressures. It is important for the CM to understand the issues you are faced with in planning and managing the construction activities. [3]

Leonidas G. Anthopoulos et al. (2012) proposed an effective disaster recovery model for construction projects. The authors aim to develop a standard model containing policies and procedures, which can bring back a construction project after a disaster. Various terms (e.g., risk and risk analysis, security planning and risk) and international project management standards are evaluated for the purpose of this paper and the existing disaster preparedness structures and types are investigated. The

results of this analysis were used for the design of the proposed model. [4]

Mohamed Marzouk et al. (2016) presented a framework that uses the information architecture model (BIM) and computer simulation to plan labor migration during project work and visualize staff turnover emergencies at any time since the project period. A case study was conducted to show the rate of emergency evacuation of a building during the construction phase to demonstrate the use of the proposed framework. [5]

M. Rahul B. Kesarkar et al. (2016) pointed out the practical application of the Safety and Emergency Model to construction sites. Data was collected by visiting a number of sites and by preparing a questionnaire. Conducted a questionnaire on the Main Building by visiting a number of sites and compiling data collected to monitor security performance and develop a new model. [6]

Makarand P. Garole et al. (2017) focused on efficient use of safety and emergency management in the construction environment. It turns out that most construction projects are ineffective with regard to safety and emergency management which is a major cause of accidents. And the study highlights the importance of safety and health in construction and highlights the factors that affect safety in construction projects. Benefits of safety and health improvements include: Reduction in accident costs, increased productivity, improved human relations and a picture of improved firms. [7]

According to Prashant A / L Tharmarajan (2007), fire safety management has become an important factor in the day-to-day operation of climbing buildings. The aims of his research were to identify the features of fire safety management that influence fire safety for high-rise building users; establishing the highest priority in these sectors; and to identify ways to improve fire safety for high-end users. From the research, it was determined that the three most important aspects of fire safety management are the education and training of high-level building safety personnel; the implementation of procedures for digging out and extinguishing equipment; and to provide clear signs indicating the exit route and location of fire safety equipment. [8]

Adam Cowlard in el. (2013) sought to highlight the critical aspects of a fire safety plan in tall buildings and thus attempt to highlight specific objectives of global operations. A lengthy fire investigation has been conducted to evaluate the effectiveness of current projects in achieving the objectives, and to analyze the current state of the fire safety technology for tall buildings. Accurate interpretation of the design fire of the open plan components is identified as an important information gap to be addressed in order to achieve the long-term objectives of building and building a robust, strong fire safety system for these different components. [9]

Security and Emergency Management (SEM) Safety guidance model is used by Rohit Laxman Tudayekar et al. (2014). Data collected through a questionnaire were analyzed with four residential sites and a SEM index model was developed that significantly improved the safety of the engineer and trainer. [10]

The research was done by S.V.S. Raja Prasad et al.

(2012) at a construction organization involved in the construction of a 2 \* 660MW thermal power plant in India through a combination of implementation strategies such as shortcut algorithm for identifying the correct routes and depending on the capabilities of the assembly points, employees were assigned different assembly points using the mobility model too short of a bush to indicate the shortest route to a specific meeting place. [11]

### III. METHODOLOGY

- 1) Further literature research has been done on reference books, technical research papers, journals etc understanding basic concepts on this topic.
- 2) The next step is to identify the need for research or the realization of the research gap.
- 3) Collection of information needed for the emergency management of high quality construction projects. This data collection is based on a questionnaire survey and detailed interviews with various sector actors.
- 4) Analysis work must be done. It means that the analysis of the data collected above is made up of details of. The findings of the above work are carried out and a comparative study of this data will be conducted with the appropriate emergency management system.
- 5) Evaluate whether the emergency response process is useful for the construction industry. Eventually a translation of the results will be made and conclusions must be made.

### IV. CONCLUSION

From the above review it is concluded that much research has been done on the analysis of the Emergency Management Program for major construction projects. For the purpose of analysis, basic information and data must be collected through a questionnaire and in-depth interviews with various industry stakeholders. The main purpose is to provide emergency response and protection services, to protect people, property and the environment and to minimize the adverse effects on people, property and the environment. This guide is essential for all construction activities, small and large, and is intended to play a role in building, managing and implementing site safety standards. Construction fire safety needs to be managed from the initial stages of construction and procurement and requirements to address the risk to the local staff and neighbors of the site. Personal intervention is very important during check-out, boot check-in, each floor with a one-way guide to improve the use of the two exit stairs, preventing the distribution of panic, high fire emergency evacuations beneficial to employees who are ordered to leave.

### ACKNOWLEDGEMENT

I am very happy to thank my guide, Prof. Pranav K. Lende, Department of Civil Engineering, G. H. Raisoni University, Amravati, for his constant intellectual support for his innovative ideas and valuable guidance. His expert comments and expert response have greatly improved the performance of this work.

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