

Occupational Safety and Health in Construction Industry for High Rise Building

Venumadhav Yemul¹, Milind Darade²

¹ Post Graduation Student Civil Engineering Department, Savetribai Phule Pune University
Dr. D Y Patil School of Engineering, Lohegaon
Pune, Maharashtra 412105, India

² Assistant Professor Civil Engineering Department, Savetribai Phule Pune University
Dr. D Y Patil School of Engineering, Lohegaon
Pune, Maharashtra 412105, India

Abstract

This paper consists study of Safety, Health and Environment in construction industry. Further, safety rules and regulations and different work permits are also incorporated in this report. Considerable attention has been focused on addressing construction health and safety in construction industry for high rise building. The aim of this study is to examine the safety health and environment (SHE) of high rise building. A questionnaire survey was administered to construction SHE to better understand the health and safety management practices and associated problems followed up by field interviews to explore key issues identified by the survey.

Keywords: Occupational Safety and health, Safety health and environment in construction industry.

1. Introduction

Occupational safety and health is often considered as an issue supported by everyone. Unfortunately, when it comes to spending money on health and safety, many people do not feel it is vital to the success of projects. Thus, it is not normally a cost code item, and it is subject to cutbacks if budgetary constraints develop. This stems from the failure of many to recognize that an effective Occupational safety and health program can reduce job accidents and directly or indirectly reduce project costs. Identifying the appropriate means of achieving or maintaining acceptable safety performances, particularly on large projects, is the focus of the study herein described. Specifically, this study is conducted to give guidelines for large projects, high rise buildings for occupational safety and health that can improve project performance.

Health and safety at construction sites deals with both physical and psychological well-being of workers on construction sites and other persons whose health is likely to be adversely affected by construction activities. It is of primary concern to employers, employees, governments

and project participants. Occupational safety and health therefore is an economic as well as humanitarian concern that requires proper management control.

The construction industry has therefore earned the reputation of being a dangerous or highly hazardous industry because of the disproportionately high incidence of accidents and fatalities that occur on construction sites around the world. Internationally, construction workers are two to three times more likely to die on the job than workers in other industries while the risk of serious injury is almost three times higher.

2. Objectives

The objective of this study is to study about the occupational safety and health for high rise building in construction and to achieve the following;

1. To achieve the prime objective of “Zero accident” and reduce deaths from work-related injuries in construction.
2. To create safety awareness to every individual associated with the project.
3. To provide the necessary safety inputs.
4. To integrate safety work practices.
5. To formulate and effectively maintain the accident prevention program of the project.

3. Methodology

The findings of past occupational safety and health research studies provided the framework with which this study was developed. This study differed from the prior research efforts in that it was designed to identify factors that influence occupational safety and health performance at the project level. This study focused on high rise building construction projects. This study focused on

occupational safety and health on high rise or multi-storeyed buildings. The building between 25 to 35 floors.

4. Introduction to OSHA & SHE

4.1 Occupational Safety & Health Administration (OSHA)

The Occupational Safety and Health Act of 1970 (OSHAct) was passed by the United States Congress to prevent workers from being killed or seriously harmed at work. The law requires that employers provide their employees with working conditions that are free of known dangers. The Act created the Occupational Safety and Health Administration (OSHA), which sets and enforces protective workplace safety and health standards.

4.2 Occupational Safety & Health Act Of 1970 OSHA Duties

To assure safe and healthful working conditions for working men and women; by authorizing enforcement of the standards developed under the OSHAct, by assisting and encouraging the States in their efforts to assure safe and healthful working conditions, and by providing research, information, education, and conducting training in the field of occupational safety and health.

4.3 Safety Rules & Regulations

1. Use of Personal Protective Equipment and Safety Devices.
2. General Housekeeping, Stacking of Materials.
3. Road Safety inside Project. Access, Egress & Workstation Safety.
4. Safe Use of Construction Power Supply &
5. Maintenance of Installations.
6. Work Permits Systems.
7. Use, Maintenance & Inspection of Construction Plant & Machinery.
8. Scaffold & Formwork Norms.
9. Use of Material & Personnel Handling Devices.
10. Fire Prevention, Protection & Preparedness.

5. Work Permit Systems and Reports

5.1 Work Permit Systems

The following permit systems are to be adopted at site:

1. Excavation Clearance Permit.
2. Confined Space Entry Permit.
3. Permit To Work On Plant, Machinery & Other Power Driven Equipment.
4. Permit to Open Manhole Covers / shaft work.

5. Height work permit.
6. Hot work permit.
7. Night work permit.
8. Radiography work permit.

5.2 Checklists and Reports

5.2.1 Checklists

The following checklists are to be adopted at site:

1. General Safety Inspection Checklist.
2. Erection Safety Checklist.
3. Safety in Scaffolding Checklist.
4. Safety while Working At Height Checklist.
5. Electrical Safety inspection Checklist.
6. Crane Inspection Checklist.

5.2.2 Reports

The following reports are to be adopted at site:

1. Site Safety Inspection Report.
2. Electrical Safety Inspection Report.
3. Crane / Vehicle / Earth Moving Equipment Inspection Report.
4. Equipment Fitness Report for Vehicle & Earth Moving Equipment and cranes.
5. Safety Audit Report.
6. Safety Audit compliance report.
7. Safety Minutes of meeting.

5.3 Monthly Reports

The following monthly reports are to be adopted at site:

1. Accident Investigation Report
2. Preliminary Accident Report
3. Dangerous Occurrence Investigation Report.
4. Monthly Site Safety Statistics.
5. Safety index.
6. Monthly man-hours report.
7. Monthly safety performance report.

6. Conclusions

1. Consideration of Safety, Health and Environment leads to healthy and safe working environment and safety work practices.
2. Injuries, fatalities and diseases and can be reduced by better performance and monitoring.
3. Awareness about safety, health and environment can be created in every individual associated with the project.

4. With the help of different reports and checklists the safety management can be easily done and there record can be saved for assessment.

References

- [1] Adan, E. (2004). Factors affecting Safety on Construction Projects. Department of Civil Engineering, Palestine.
- [2] D.J. Hsu a, Y.M. Sun b, K.H. Chuang a, Y.J. Juang b, F.L. Chang b (2007) “Effect of Elevation Change on Work Fatigue and Physiological Symptoms for High-Rise Building Construction Workers”.
- [3] Guide to Workplace Health & Safety Representatives Workplace Safety for Residential Construction Sites, WCB (Workers Compensation Board) Information Series publication, April 2011.
- [4] Jimmie Hinze, Associate Member, ASCE, and Paul Raboud (1988) “Safety on Large Building Construction Projects”.
- [5] Jos Verbeek, Ivan Ivanov (2013) “Essential Occupational Safety and Health Interventions for Low- and Middle-income Countries”.
- [6] Jimmie Hinze, Professor, M.E. Rinker, Sr. School of Building Construction, College of Design Construction and Planning, Univ. of Florida, Gainesville(2013) “Integration of Construction Worker Safety and Health in Assessment of Sustainable Construction”.
- [7] LIU Xiaoyong, HU Yiming, CHEN Daoyang, WANG Lilia (2012) “Safety Control of Hydraulic Self-Climbing Formwork in South Tower Construction of Taizhou Bridge”.