

SAFETY MANAGEMENT IN BUILDING CONSTRUCTION SITES: INDIAN CONTEXT

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Abstract: India is a making creating and most patterns are happening in building industry. India has most labor supply to utilize as alternatively accessible to the construction work to development industry. Across the world, it is felt that acceptable and assurance being developed venture is depending of concern. In India this is among quite possibly the most fundamental issue. In India insurance of worker is currently not taken as prevalent difficulty because of which numerous representatives lose their ways of life because of absence of assurance on building site. The preeminent reason for this learns about is to hold best of work and to diminish mishap on building site. The aim of the study is to identify and evaluate the safety management in building construction sites. The study also focused on health and safety issues and minimizes the accidents during construction work. The review of literature associated with the research is the beginning step in obtaining the facts about the related studies. The review of literature provides background knowledge about safety management that guided the design of the questionnaire. Questionnaire is distributed among the management of the construction industry. The study was conducted among the 20 management personal working in building construction industry. Questionnaire is used to collect responses from experienced respondents. The result of this study is analyses the different responses regarding safety management. In questionnaire survey Likert scale 1 to 5 used for strongly disagree, disagree, moderately, agree and strongly agree respectively. The result of the study determined via relative importance index method and their respective ranks has been generated against each response. This study also helps to know the problems occurred to the management for implementation the safety rules.

Keywords: Safety Management, Building, Construction Sites

Introduction: In India this is among quite possibly the most fundamental issue. In India insurance of worker is currently not taken as prevalent difficulty because of which numerous representatives lose their ways of life because of absence of assurance on building site. The preeminent reason for this learns about is to hold best of work and to diminish mishap on building site.

Security is one of the most elaborate elements in the authoritative community for the high as can be casualty notoriety round the globe. In most association, specifically over the top risk ventures like development, security inconveniences instead of business are the fundamental priority to be handled. Giving safeguarded work environmental factors is a moral depend exhibiting issue for the government assistance of everyone chipping away at the task site or passing by means of the site. An appropriately security programming would really help with bringing down mishaps at building sites and furthermore to restrict building costs, develop efficiency and productivity and more prominent critically it should store lives of representatives and hence make a commitment emphatically to the structure undertaking and the country all in all. This is real in a huge number of association tasks and is in fostering a work securely custom inside the organization.

What's more, safeguarded work page is a component of the real expectations of the functioning environmental factors and the direct or working perspectives of the person dealing with the site. Development Company's responsible to allow safeguarded working environmental factors for all building individuals on the site, alongside these utilized with the guide of sub-workers for hire and to monitor the general population from hurt. The principal components that energize safeguarded rehearses on improvement page are philanthropic subject for representatives and general society, money related expense of mishaps and administrative necessities for work site wellbeing.

Relevance and Motivation for the Study

The matter of business environment wellness and security is uncommonly pertinent, because of the reality via neglecting to stick to its standards, it affect moral, crime planning and monetarily every friendly, mental and financial aspects of the general public. Laborers on building locales are revealed to uncommonly extreme dangers, on account that functioning essentials are ceaselessly changing, a number advancement apparatuses and systems are utilized, and individuals of a number proficient stages are involved. Step by step instructions to sort out the work to ensure safeguarded and fortifying work environmental elements is critical.

During indistinguishable time the appropriate to get healthy working requirements being developed venture has been a focal difficulty in the worldwide promoting effort the spot advanced wellness and insurance lawful rules and strategies have separate segments

principally for the improvement undertaking (ILO 2005; ILO, 2007; CRB, 2010). In the meantime, more secure and better working requirements make a fundamental commitment to neediness easing and supportable improvement as advancement is work serious, basically in developing worldwide areas (Charles et al 2007). Moreover working on the wellness and security risk organization of the advancement errands has again and again been demonstrated to store lives, time, and cash to develop business endeavor altruism and legitimate notorieties (Rwamamara, 2007; Kikwasi 2010).

Research Objectives

1. To study the problems occurred during implementation of safety rules.
2. To study about the safety management adopted by the construction industry.

Review of Literature

Md. Mehrab Hossain and Shakil Ahmed (2018)

The paper is meant to look at the recent security rank and recognize the primary driver of not rehearsing wellbeing rules in the building destinations in Bangladesh. The review was led in three phases. Initially, the current principles and guidelines of development wellbeing were contemplated. Also actual review was directed among the on-going building locales. Thirdly factors that impact the security execution in building locales were recognized by directing poll review and positioned in light of Factor Index (FI). The study observed 20 significant reasons these influences the development wellbeing execution at place of work.

S. Gerassis et.al (2017)

Burrow development is impacted from its

beginnings by various kinds of vulnerabilities answerable for countless dangers. This issue has been tended to continually during the last times accomplishing positive outcomes, however the mind boggling work situations and the normal changeability of the development processes forestall stopping this issue. Consequently, this study presents an elective approach for security prioritization in burrow development acquiring significant data until now obscure urgent for strategy creating in foundation projects. The technique proposed comprises on the examination of information from word related mishaps noted thru the development of passages somewhat recently.

Haroldo Pereira Gomes et.al (2016)

The fundamental goal of the study is to dissect the impression of Occupational Health and Safety in little development ventures in the Brazil development industry. The embraced method is subjective in environment and looks to comprehend the personality of the recent performs by discussions said with 'entertainers' who are straightforwardly engaged with limited scope building locales, as well likewise with other people who are engaged with enormous scope work destinations.

S. Kanchana et.al (2015)

The security issues are to be seen as right from the arrangement stage till the completion and giving over of the plan. Improvement industry uses capable and uncouth labourers subject to building site setbacks and prosperity possibilities. An unmistakable composing study was finished to grasp the purposes behind setbacks, preventive measures, and improvement of safe working environment. A genuine coordination

between project labourers, clients, and workforce is expected for safe work conditions which are a ton of ailing in Indian advancement associations.

Waqas Ahmed Khan et.al (2014)

This study was to survey what is happening of word related wellbeing and security in the material enterprises of Lahore. The concentrate additionally engaged to examine the wellbeing and security related issues in the businesses alongside their gamble appraisal and to assess business related sicknesses which influences the soundness of works. Wellbeing, security and hazard examination were done in enormous scope material businesses of Lahore.

S. R. Meena et.al (2013)

Development Industry in India has changed radically during the mostly current pair of many years. It is the second biggest utilizing area close to rural area, yet first in quite a while of mishaps near the street mishaps. From the development of building straightforward designs, streets and minor common work projects, the development business has changed altogether of many years. Security on development place of work has been overlooked by development organizations worldwide and especially in nations where workforce is required.

Methodology

It was once guaranteed that the query technique is lined up with the query. The association of the improvement establishments and the structure individuals in the query used to be thusly seen required. For example, advancement mishaps take area in building assignments or improvement sites and contain improvement labourers. To accomplish such advancement labourers, the assent of the structure establishments for which they

are functioning are compulsory. This query approach applies to a large portion of the query parts of this query challenge which incorporate warmth stress, labours wellness profile, physical make-up torment, and the security environment. In this manner to expand a gadget that can be utilized to indicate the root intentions of mishaps in development, the data series from the structure representatives worried in the mishaps is significant.

Momentarily, the philosophy utilized in this query is given beneath:

- a) Compiling of associated information
- b) Questionnaires
- c) Facts assortment
- d) Figures Investigation

The example estimation for extraordinary query questions was once subsequently learned through the writing survey. It was once guaranteed that building companies are picked in a manner that can allow the quality advisor example of the business. To acquire this, exclusively the structure organizations enlisted in Grade one or more have been seen for realities assortment.

The necessary insight for the query adventure was once moreover gathered through the net the use of the web crawler. Different key expressions and period of time was once used to assemble measurements from the web. These countries have been picked as a target for the differentiation of Indian guideline allowing for reality referenced in the part two that these global areas have broadly expanded the prominence of the word related security and wellness in the structure venture through their guidelines.

Generally speaking, as a query methodology, a total of 20 reactions are investigated from building locales in the

records assortment stage. All the records series utilized in this query have been in the first place inspected on lovely little examples to conclude the qualities and shortcomings of question organization, phrasing, and request. Also, data from 20 respondents had been collected the utilization of poll, in which surveys intended for management personal.

Sample

The samples of respondents were chosen for analysis of result through questionnaire survey. For the questionnaire responses researcher select the management personal associated with construction industry. The safety issues and its management handled by administration of the company, so questionnaire is carried out for management staff. The management personal includes the site manager, contractor, safety supervisor, engineer etc. There are total 30 questionnaires distributed among the management staff, out of which 24 responses received. After the finalizing and left out the incomplete responses, 20 responses were selected for final result discussion.

Data Analysis

This study contains the questionnaire survey for management staff. The responses were analysed through the questionnaire survey, in which all responses were observed by Linkert scale and their rank wise result is prepared. Data analysis includes the different responses and these responses were analysed to get the final result and conclusion.

Relative Importance Index (RII) Method

The record aggregated by information assortment through poll could be additionally gone before for creating result. To amass got data of the poll filled into an Excel sheet to investigation the

separated information. The general Importance Index (RII) is acquired to be aware of the position or position of the components and meaning of insurance in building project.

It is choose the connection meaning of the quantity of thought processes and results of deferrals. The equivalent methodology is going too embraced in this find out about inside various associations. It is gotten and furthermore changed over to relative importance index (RII) for each issue as follows.

$$\text{Relative Importance Index} = \frac{\sum W}{AN}$$

Where w is the weightage according to each and every question which are answered by the respondents, varying from 1 to 5, here A show the very fine weight (here A is 5) and N show total varies of respondents.

The Questionnaire

The questionnaire study used to be a phase of segment one of the query plan. In this stage the reason used to be to conclude the grip of the key task people of the imperative risks perceived in the subsequent stage. As the writing brought up, danger assessment and discussion or agree choices.

Rating Scale

Strongly Agree		Agree	Moderately	Disagree	Strongly disagree		
5		4	3	2	1		
S.N.	Questions	5	4	3	2	1	
1	How would you rate the administration overall performance evaluate on Health and Safety?	6	9	3	2	0	
2	Does your budget allowed for proper health and safety?	5	7	4	3	1	

observably depends upon on how people stressed in the strategy choose hazard, thus this stage used to be indispensable to situate out how key people become mindful of a number wellness and insurance gambles. The picked assembling sites had been multi-story structures.

The questionnaire for management having the questions related to administrations about the health and safety of all employees. In this questionnaire the questions contains the overall performance on health and safety, budget allowance for safety, management attention, safety training, safety meetings held, having effective SMS, purchasing coverage safety requirements, maintenance of tools and equipment, risk file at site, risk identification, risk resolved, accidental insurance and accidents demonstrations. Total 20 respondents filtered for final result investigation. The questionnaire included the managers, contractors and supervisors.

Result and Analysis

Result of the questionnaire by Responses

The questionnaires for management were observed through Liker scale 1 to 5 with disagrees

3	Do you think management pay attention on performance review regarding health and safety issues?	6	8	3	2	1
4	How would you rate the committee meetings attended by management / managers?	4	7	5	2	2
5	Do you think your subcontractors strongly monitor the company's health and safety policy?	5	7	3	3	2
6	How would you rate the presence of workers for attending safety training at site?	7	9	2	1	1
7	Do you think that your safety officer/ supervisors/ foreman have received safety training?	8	6	3	2	1
8	Do you think the firm has an active safety management system in commercial building site?	7	6	4	3	0
9	Do you suppose the purchasing coverage consists of health and safety requirements?	4	7	6	2	1
10	How would you judge the protected running methods which are developed to execute duties safely?	3	6	5	4	2

Table: Result of the questionnaire by responses

Analysis: The second questionnaire is generated for management. It includes the respondents such as manager, owner, contractor, safety authority, engineer etc. This table contains the responses of 20 respondents. The above table describes the

result of questionnaire by the Relative Importance Index method through scale 1 to 5. The table shows the different responses of respondents against each question.

Result of the questionnaire through Relative Importance Index Method

S.N.	Questions	RII	Rank
1	How would you rate the administration overall performance evaluate on Health and Safety?	0.79	2
2	Does your budget allowed for proper health and safety?	0.72	6
3	Do you think management pay attention on performance review regarding health and safety issues?	0.76	5
4	How would you rate the committee meetings attended by management / managers?	0.69	9
5	Do you think your subcontractors strongly monitor the company's health and safety policy?	0.7	8

6	How would you rate the presence of workers for attending safety training at site?	0.8	1
7	Do you think that your safety officer/ supervisors/ foreman have received safety training?	0.78	3
8	Do you think the firm has an active safety management system in commercial building site?	0.77	4
9	Do you suppose the purchasing coverage consists of health and safety requirements?	0.71	7
10	How would you judge the protected running methods which are developed to execute duties safely?	0.64	10

Table: Result of the questionnaire through Relative Importance Index Method

Analysis

The result for the second questionnaire about management is described here. The above table represents the result of the questionnaire through Relative Importance Index and rank wise. The result of each question is described, in which RII value lies between 0.64 and 0.80. The table also show the highest rank to the question related to the presence of workers for attending safety training at commercial site and the lowest rank to the question related to audit conducted.

Conclusion

The find out about moreover gives components preventing wellness and assurance chance organization in building destinations. There is a need for an efficient system and a more extensive perspective that comprises of person's judgment, while at the equivalent time a comprehensive strategy which contemplate all adventure stages like plan, acquirement and development. The components comprise of the low phase of public focal point of guidelines, absence of sources like faculty and assets, protection of the guidelines, intricacy of plan, the

obtainment framework, and low phase of training, site design and area.

The questionnaire was performed for management purpose in which 10 questions were formulated for selected 20 managers. The responses of these respondents presented in table and graph view. The result was generated through RII method in which each question is explained with RII value and rank wise. The highest rank is received to the question presence of workers for attending safety training, in which 35 % respondents strongly agree that most of the workers attend the safety training provided by the company while only 5% respondents disagree that workers were not regular to attend the safety training.

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