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IMPLICATIONS AND STRATEGIES OF SAFETY MANAGEMENT IN HIGH RISE BUILDING CONSTRUCTION TO CONTRACTOR

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Abstract:

High rise building construction sites are one of the most dangerous places due to possible accidents occurring at the site especially for workers as machineries could fall from high places. Contractors whom successfully are able to manage the safety procedures at sites could significantly decrease the amount of accidents to occur. This paper will provide abundant information on the implications of safety management upon contractors a thigh rise building construction sites. The objectives of this research are to investigate on the implications of safety management at construction sites as well as to determine effective strategies in reducing problems of safety practices and also to investigate on implications of safety management towards building construction works. A qualitative method was used as the methodology for this research in which questionnaires are given to safety officers of the contractor's company who are currently developing high rise buildings in Kuala Lumpur. Results of the research show that safety management should be implemented at sites in order to reduce the number of accidents. Therefore, the study found out that the best strategy in avoiding accidents to occur at construction sites is that contractors should always maintain their image among the workers as well as to constantly award and show respect towards them. As a conclusion, it is imperative that contractors manage safety procedures at construction sites in order to avoid accidents to occur which indirectly can decrease the amount of financial spent on accidents. Thus, when no accidents occur at construction sites, this will also be good for the image and reputation of the contractor.

Keywords: Safety management; High Rise Building; Contractor.

1.0 INTRODUCTION

The construction industry is currently being recognized as a major economic force in Malaysia (Abdul Hamid et al., 2003). Construction industry involves many company from different parties, it's also includes many machineries, labour which could also affect the surroundings. Projects vary from single houses to multibillion dollar major infrastructure projects. There are many cases of accidents happening at constructions sites which could cause death and physical damage to labours.. Labours are usually involved in injuries due to accidents such as falling from an elevation, being struck by something, trenching and excavation caving in, being caught between two objects or electrical shock (Schaufelberger & Ken, 2014). Accidents that cause damage to employees, material, equipment and others will cause financial increase to the construction company. The company needs to pay the worker's compensation, the insurance to the family, and cost of the construction will be increased. These cases occur due to low understanding of safety policies, lack of proper training and many more (Schaufelberger & Ken, 2014).

Many construction activities are exposed towards inherent health and safety risks such as working at height (Muiruri & Mulinge, 2014). In an urban context, health and safety accidents are relatively higher due to the fact that high rise buildings remain predominant with the fast-growing complexities of domain-wide construction projects to cope with modernizing cities arena and high demand for housing, offices, services and other infrastructures due to the high urbanisation. Despite its importance, therefore,

construction industry is considered as being risky with frequent and high accidents rate and ill-health problems to workers, practitioners and end user. High rise building constructions are more dangerous because the possibility Of workers getting injuries are higher. Yoon et al. (2013) stated that the contractor's companies that have many workers will have higher rate of accident.

1.1 Problem Statement

The construction sector is the third biggest contributor to the 31,943 accident cases referred to the Social Security Organisation (Socso) last year (The Sun Daily, 2017). Safety management at sites are very important, the accident at sites can cause death or physical damages to the workers. Many workers may still be involved in accidents even when they are wearing safety equipment Construction companies who establish the Occupational Health and Safety Management System Awareness will definitely have lower accident rates (Yoon et al., 2013). In the last 25 years, over 2,800 people have died from injuries a result of construction work (HSE, 2006). In Malaysia, CIDB received more than 100 accident cases at different sites in which 87 workers died at the area (CIDB, 2016).

1.2 Research Objectives

The objectives of this research are; i) to examine the implementation of safety management at construction sites, ii) to determine the implication of safety management towards building construction works and iii) to the strategies in reducing problems of safety practices.

2.0 LITERATURE REVIEW

Construction site means a place where construction work is undertaken and also any area in the immediate vicinity of any such place which is used for the storage of materials or plant used or intended to be used for the purpose of the construction work (Labour Department, 2002).

2.1 Safety

Based on Merriam Webster Dictionary (2018), safety is the condition of being protected from or unlikely to cause danger, risk or injury. It also has similar meaning with the freedom from the occurrence, or risk of injury. Supervisors play a critical role in setting the expectations for safety on sites (Roelofs et al., 2011). Masayuki (2006) stated that one of the important practices at the construction site is guidance and supervision during work progress. Ilyani (2006) explained that any safety program is based on a policy insisting on the safety protection of the employees. "The policy certainly encompasses safety while work and all matters relating to employment". Bakri et al. (2006) stated that safety policy is a requirement of the safety and health policy that reflects the management commitment towards the organization's safety and health. Elbeltagi and Hegazy (2002) affirmed that the major cause of accidents in the construction is due to falls.

2.2 Management

Management encompasses the organizing, planning, controlling, and leading processes executed to achieve the project objectives (Abiola, 2000). The management plays an important role in determining the safety and health of the workers as well as the workplace (Keng & Nadeera, 2014). This is because the key of successful project are not only depends on the time, cost and quality of the projects but there are also major consideration for health and safety of the workers.

Safety management system means a system which provides safety management in an industrial undertaking (Labour Department, 2002). Shim (2006) claimed that even though Malaysia has a very good law on safety policies but it lacks of enforcement from the authorities. Abdul Ghani et al.(2008), also agreed that serious enforcement of the written policy has to be made especially for high rise building projects because of more dangerous at high rise building site. Abudayyeh et al. (2006) suggested the workers to get involve with the employees in making the safety policy. This is because workers will be more motivated to carry the policy and improve it through personal responsibility and continuous

feedback. Misnan and Mohammed (2007) stressed on the involvement of all management team in safety and health culture are important to cultivate the positive beliefs, practices, norms and attitudes between all the key players.

Ilyani (2006) explained that any safety program is based on a policy insisting on the safety protection of the employees. "The policy certainly encompasses safety while work and all matters relating to employment". In order to overcome problems in safety practices, actions against errant contractors and workers should be carried out continuously. It was found that in order to prevent the workers from repeating their offences; they should be penalised (Abdul Ghani et al., 2008). This strategy can motivate the workers and others to enhance their safety awareness in performing their task. Masayuki (2006) identified one of the ways to inculcate safety culture at workplace is by giving award to the workers. In Japan, the award approach honour of awards from Authority to Foremen and Company, from Client to Foreman and Main Contractor as well as from Construction Company to Foreman and Sub Contractor.

3.0 METHODOLOGY

The first stage of the methodology is figuring out the problem statement which involves the need to determine the aim and research objectives, research questions and also the scope of study through secondary data related towards safety management at high rise building construction sites. The data collection done by using questionnaire survey. Results of the data collection was retrieved through a questionnaire survey which were distributed by hand and also through email of the contractor's company in Kuala Lumpur . Whereas secondary data was collected through journals, papers, articles, guidelines and relevant websites. The sampling technique used was purposive sampling The total amount of projects being developed in Kuala Lumpur is 35, however only 31 questionnaires were returned. As for primary and secondary data, information were collected, analyzed and interpreted in order to achieve the objectives of the research. Descriptive statistics such as mean, rank and percentage were used to analyzed the data and conclusions were made based on the findings.

4.0 ANALYSIS AND FINDINGS

Based on the objectives, Table 1 proofs that contractors do implement safety management systems at the site area. Inspections of the accidents are mostly done by the contractor themselves and maintenance on safety equipment were also done simultaneously which proves that the contractors actually do implement the safety procedures at site areas in order to reduce the risk of accidents to happen among the workers The net was also fully installed and covered around the building area which contributes to the decrease of workers falling down. Ismail (2006) explained that any safety program was based on a policy insisting on the safety protection of the employees with all the implementation of safety management at sites, the safety of workers can be secured.

Table 1: To examine the implementation of safety management at construction site.

Criteria	Percentage (%)
Inspection Hazards Every Month	58.1
Installation Of Net	93.5
Maintenance Safety Equipment Twice in a Month	51.6
Enough Supply Safety Equipment	41.9
Installation Of Guard Rails And Board Fences full covered	51.6
Safety Meeting	32.3
Training Safety Equipment Before Construction	51.6
Designated Person Check Formwork Before	54.8
Designated Person Check Formwork After	67.7
Guard Rails And Board Fences	77.4

Designated Person Check Formwork During Installation	58.1
Plan Safety	74.2
Policy	80.6
Certificate Of Hoisting	93.5
Scaffold Component Follow The Guidelines	96.8

Table 2 shows that most safety officers agreed on the point that giving awards to the workers who apply safety practices at the site area was the most effective strategy to reduce problems on managing safety. When a worker applies and follows the rules of the site, accidents would definitely be reduced, therefore awards should be given to appreciate workers who take serious effort in reducing the problem of accidents at the site area.. This is agreed by Masayuki (2006) who also identified on the solution of award-giving towards the workers as a way to inculcate safety culture at the workplace. Besides that, it could also become as an encouragement to other workers in applying and practicing safety precautions at the site, thus workers will have a better understanding that safety procedures is a recommended strategy to reduce problems of accidents occurring at the site. This way, the number of injuries and fatalities among workers could instantly be decreased only if they have knowledge on accidents and how to avoid it. Nevertheless, planning safety precautions from an early stage did not get many agreements as that strategy to reduce this problem because safety plans that are done early could also be disturbed by other factors that could also be the reasons on accidents to happen such as the weather or natural disaster.

Table 2: To determine what is the strategy to reduce problem in safety practices.

Criteria	N	Mean	Std. Deviation
Giving Awards	1	4.13	1.088
Undersrtand The Safety	2	4.06	1.153
Penalised The Workers	3	4.00	1.125
Improve Communication	4	4.00	1.211
Display The Safety Info	5	3.97	1.016
Plan Safety Precaution	6	3.90	1.193

Table 3 shows that the image of contractors plays a vital role and safety management at the site could greatly affect their reputation. Most respondents agreed that with proper safety management at the site, less accidents will happen, the cost could be controlled and the image of contractors can be clean. A clean history on the contractor's reputation of proper safety management could help them to win more tender in the future.

Table 3: To investigate the implication of safety management to building construction works.

Criteria	N	Mean	Std. Deviation
Image Of Contractor	1	4.29	.973
Reduce The Cost	2	4.10	1.274
Reduce Accident At Site	3	4.06	1.063
Spend Money To Safety	4	4.00	1.125
Hidden Cost When Accident Happen	5	3.97	1.048

5.0 CONCLUSION

As a conclusion, safety precautions is extremely important for labours and contractors in order to ensure that the site is a safe place to work. That is why contractors must make sure and make comprehensive preparations to avoid any accidents. Safety hazards are those that pose imminent danger of causing injury or death to workers. The findings can conclude that contractors constantly conduct inspections in order to avoid accidents from happening. They include falling from heights, fire, moving machinery and vehicles,

explosive, electricity, and falling objects. The physical side of safety involves, education and training, proper utilization and maintenance of correct tools and equipment, besides that, equipment for personal protection, good housekeeping, frequent inspections by knowledgeable and objective professional and also integrating safety and health into thorough preplanning for field operations. The contractor has big responsibilities to ensure their worker's safety. Strategies That can be suggested on safety practices are giving the award to workers and give appreciation to them for applying the safety practices in their work. The contractors must manage Safety precautions at sites properly to make sure the workers are safe and accident happen can be minimized. Final goal of the safety system is to improve safety culture and reduce the accidents and their intensity. On the other hand, indices such as the number of accidents, their intensity and ratio of number of accidents to working hours are considered as important indices for performance assessment of the safety system. The implication of safety management is the contractor's image, if the contractor did not have proper safety management at the site, the accidents will happen and give bad reputation to contractors.

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