Material Management of High Rise Construction Project: A Review

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Abstract: The goal of material management is to ensure that the materials are available at their point of use when needed. Hence, well-organized procurement of material represents a key role in the successful conclusion of the work. If the materials are not managed properly then it affects the cost of the construction and also the time and effort invested on the construction site is wasted. There are many problems to affect the civil construction project. Like, cost, time, quality, safety, materials etc. This paper shows awareness and considerate of the different factors affecting construction material management is required to reduce project cost overrun and job completion delay, thereby on the increase quality of the construction and overall project performance. Material management is concerned with the planning, identification, procuring, storage, receiving and distribution of material. From the material management processes decrease the cost of material and also time saving of high rise construction projects.

Keywords: Construction Project, High Rise Construction, Material Management, Reduce Cost

I. INTRODUCTION

In this age of modernization the building industry is developing very fast with this development there is huge amount of money spent on this industry. Material management is defined as planning, identification, procuring, storage, receiving, and distribution of the material. The main purpose of material management is to assure that the right materials are in the right place, in the right time, in the right quantity when needed. The cost of materials is about 65% of the total cost of any building. The responsibility of material management department for the flow of materials from the time the materials are ordered received and stored until they are used in the basis of material management. If the materials are not managed properly then it affects the cost of the building and also the time and effort invested on the construction site is wasted. The money and time wasted due to poor materials management can be saved and can be used for betterment of the project. There is also a significant amount of materials wastage as materials if not managed on the site in a proper manner. This wastage of materials, wastage of time, and wastage of money all creates a loss of money and energy.

The mismanagement during handling of materials at site not only affects the economy but also the health hazard to the labors and other project staff. So it is necessary to manage the materials on the site in a scientific manner.

II. CRITICAL LITERATURE REVIEW

Some critical literature review regarding performance indictors in construction projects are mention below,

Dawood Nashwan et al. (1994) studied the affect of material by in search of the observation of construction business. The result of the study defined that there are still common troubles with construction material management (MM) system primary to resources. There are many contractor are find the factors behind construction material management. There is not defined particular method for the lacking behind construction material management process. **(7)**

Patel Khyomvesh et al. (2011) carried out one MM team synchronization connecting the site and the association. Good manage, tracking and monitoring of the organization was mandatory. Rigid employing good MM organizations were seen to have improved their in general effectiveness by 34%. **(4)**

Phani Madhavi et al. (2013) studied the material management inventory control, procurement and tracking, planning, purchasing and Always Better Control (ABC) analysis for the construction project. Considerate of the troubles that arise at the job site due to, inventory, purchase and how to materials are handle on construction site was taken into deliberation. **(2)**

Patil Ashwini et al. (2013) conducted that the overall cost of material in construction project may be 50% to 55% of overall cost of construction project, so that it is vital for service provider to believe that well-timed flow of material at construction site is possible of doing well achievement of project. Also conducted S curve analysis for different materials and Economic Order Quantity (EOQ) analysis for the material management. **(10)**

Soygaonkar Amit et al. (2014) they are conducted the case study in Nasik region for the job layout of a construction project. They are suggested the job layout for the project. And compare the suggested and the actual job layout. From the comparison the suggested layout are more efficient and the management of materials are more comfortable. **(12)**

P. Lenin et al. (2014) analyses identified different factors manipulate time and cost overruns show that, the different issue are dependable for cost overrun of civil projects are describe. For different issues the improper management of materials is effects on cost of total project and finished time of the project are more. **(9)**

Gulghane et al. (2015) conclude that MM process needs a change to get better for management of materials for extra good organization and efficiency on the construction sites. Low management of construction materials affect the generally presentation of constriction sites in conditions of cost, time, quality, and effectiveness. **(14)**

Pande Aditya et al. (2015) carried out the different analysis for the material management. They are conducted the Economic Order Quantity (EOQ) analysis and S curve analysis. From the analysis the cost of material maybe 50% of overall cost of the construction project, so that it is vital for service provider to believe that well-timed flow of material is possible cause of winning finish of project. **(1)**

Nayak Rakesh et al. (2016) carried out the difference between theoretical and actual practice on the site for Economic Order Quantity (EOQ) analysis for the different materials. Also identify the material management process to the efficiency of the project completion and the cost of the project. They are conducted the market survey of the Gwalior region for the different materials. They concluded the overall cost of the project is reducing by the material management. **(11)**

Qasim Muhammad et al. (2017) they are conducted the wastage of the materials of the project. Form the improper management of the materials the wastage of materials are more so that the cost of the project are increased and also the effects on the environment. **(10)**

Mohopadker Jyoti et al. (2017) concluded that Materials cost for 60-70% of the whole expenses for construction site. It has possible to decrease on the whole price of the project through the help of inventory management control for the project & also keep away from the same difficulty for subsequently project. **(5)**

K. Gupta et al. (2017) studied the theory of the material management and they concluded the doing well management of construction materials has to be base on and modernized information and process utilize a well-designed construction materials management system. The project is to discover the general performance in MM and increase a construction MM organization to make possible the organization of construction materials mostly in the civil building. **(3)**

Patel Dixit et al. (2018) they are carried out the different factors of effecting the material management for the civil construction project. There should be an inner material management group for coordination between site and contractor. Proper control, monitoring and tracking of the organization is necessary. **(13)**

Kasim Narimah et al. concluded brief overview of materials management practices on construction projects. Low management of materials affect the generally presentation of building projects in situation of time, budget, worth, efficiency. The wastage of resources should also be minimizing during construction in order to stay away from loss of revenue for construction industry. **(8)**

The following table 1 shows the factors affecting Material Management of High Rise Construction Project.

Table: 1 Factors affecting Material Management of High Rise Construction Project

No.	Factors	Author/Year						
		Patel Khyomvesh (2011)	Pani Madhavi (2013)	Patil Ashwini (2013)	Pande Aditya (2015)	Nayak Rakesh(2016)	P. Lenin (2017)	Patel Dixit (2018)
1	Inventory Control	*	*	*	*			
2	Process of Material Management		*					*

3	Time Overrun					*	*	
4	Cost Overrun					*	*	
5	Coordination of Site engineer & Foremen			*				*
6	Planning, Tracking, and Monitoring	*	*					*
7	Wastage of Material				*		*	
8	Lacking of Material	*				*		
9	S- Curve Analysis				*			

III. CONCLUSION

Based on critical literature review the following conclusion drawn:

The research has examined materials management on high rise construction projects. From the material management processes reduce the cost of material. Material Management has also time saving of high rise construction projects. So the all over the price of high rise construction projects reduce and the consumers have benefits of price.

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