

# A Review Paper on Effective Material Management to Minimize Problem in Building Construction Project

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**Abstract** - Most of the construction company concern about the material management it's planning, controlling delivery, inventory control management from their design phase to construction phase. Material has a direct impact on the cost, quality and time of the project so having materials at the right place, right time, right quality and right quantity is essential for effective execution of building project. The reduction of wastage during transport of materials, handling of materials, storage of materials, should be used top management inventory control technique.

**Key Words:** Construction Material, Project Management. Construction site management

## 1. INTRODUCTION

Management of material for a construction project is very important as material are the major resource for the company. The total cost of material for a project is 50% or more of the total cost. So here we can define material management the process of providing materials at the right time for the right place, from the right source, right quality and right quantity to minimize the cost of project and finish the project on time. To manage well the material are concern with Planning, inspection, issue procedure, inventory control, purchasing, material supply, transportation, material handling, maintenance and information system are the main requirements. The material management should be consider from the purchasing phase throughout the construction period. Generally construction materials are heavy, bulky, critical, expensive, and its stock in a large amount to construction site there for there is a need for effective material management to minimize problems for handling materials. It's the role of the materials management is strongly economical for all organization in every time the organization must ensure all the material is lowest final cost, assurance of supply, lowest administrative cost, buying material with economical cost, operating cost with optimum quality and profits can be increased.

## 2. Components of Material Management

- Purchasing
- Transport & Handling
- Inspection
- Storage

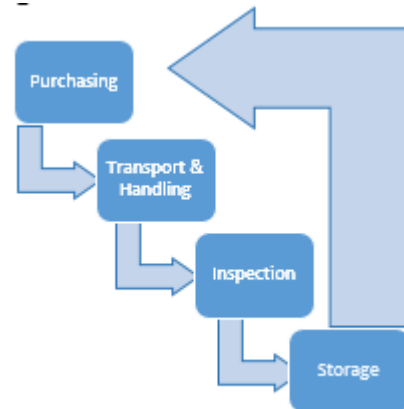


Figure 1. Components of material management

## 3. Problems of Material Management.

Material management have over a long period many problems most for the construction organizations. As the size of project increases the scale of activities concerning with material management there are numbers of problems related to material management, the problems may be associated with planning, storage requirement, lack of communication, delivery problems, handling problems, lack of security, etc. some of these problems are describe.

- ✚ **Planning:** problems related to planning include scheduling of time, ordering, measuring it emphasized that planning is very important for the increase of productivity, and timely completion of the project. If the construction materials planning process is not implemented properly the productivity of project will be hang down.
- ✚ **Delivery problems.** Problems in construction material have negative impact on time completion of construction project. Many situation are exist in which material cant arrive on time
- ✚ **Lack of security.** Security in the construction industry is becoming increasingly important. It means that how we manage risk arising from unauthorized access to, sharing of Data, systems & information the end result of poor security could affect project financial margins. Understanding the lack of security profile and conducting effective management will help safe and productive construction environment.

✚ **Storage requirement.** In the construction industry, it is essential that the storage of equipment and materials is considered for the total of the project. A large number of materials required more storage depends on the magnitude of the project also it is very important to keep lots of material and equipment which are used on the construction project. All the material must have proper space, safety, as well as dry.

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#### 4. Literature review:

(Madhavi, Mathew et al. 2013) have focused on the problems which is comes to place in construction industries. In this investigation authors have found that improper material management construction conducted that construction project cost is depend on material, machine, manpower, subcontractor, overhead cost and general condition may affect project cost if the material is not managed well it will create cost variance. Project cost can be controlled according to schedule of project.[1]

(Hadi, Venchek, 2010) the paper show the extend version of Ng-Mode for multiple criteria of inventory control ABC analysis they provide an example which is compared the ABC model with Ng model.[2]

(Soni, Harsh et al. 2016) most of the organization are using now a days the inventory control techniques after using the always better control analysis it will reduced 20% cost of materials in total cost. The major factors for the material management is poor management of time, cost and poor inventory control which delay the project.[3]

(Mohopadkar, patil 2017) inventory control in the construction industry is one of the most important factors there for the organization have to know about proper material management techniques for the success of the project with the given time. Paper is on the importance and technique of inventory management it shows that the materials entire expenditure of construction project is about to 60% to 70% so its possible to reduce the overall cost of the project.[4]

(Rajgor, Pitroda 2017) materials are in construction phase one of the important phase especially in residential and industrial construction material are the main factor for the completion of the project it describe the importance of material management in construction industry and those function for the successful completion of a project. Importance of material management (1) lack of

communication (2) reduce lead cost (3) utilization of resources (4) supply of material (5) product control[5]

(Indrasan, Rajput et al. 2018) in this paper for an inventory control management the existing situation was analyzed and twofold improvement is proposed by using ABC and EOQ analysis for better inventory management to decrease the organization inventory level and cost overruns by avoiding overstocks and use the technical way.[6]

(Jadhav, Magadam, et, al. 2018) it was a case study for the Indian residential construction project to find out the most significant factors causing delays the collection data was through questionnaire survey the participants was consultants, contractors, and owners the factor was by using RII method and recommended to avoid delays in construction projects.[7]

(Mishra, et al. 2018) the methodology for this investigation is Innovation Action Research (IAR) for two important question 1. How to find and convey material information for scheduling of project? 2. How to prepare material with nearest term scheduling? The paper have propose a solution for the material from their design phase to construction phase in construction project.[8]

(Aku okarocha, 2013) the author has analysis those factors which effect the material management in building construction project. Primary and secondary data was collected the statistical analysis was used thought the use of multiple regression show it's very important for the effective material management in building construction project. To manage well material give as cost control, on time execution of project, failure of project[9]

(Kulkarni-et al-(2017) the researcher has found the factors which effecting material management in building construction project furthermore has carried the voids created by the improper material in a construction project.[10]

(Karoriya, Pandey 2018) every construction project management is maintaining to manage and minimize wastage of construction materials for the successful completion of construction projects within a given time, cost, with design quality and handling of materials, requires systematic planning and controlling the researcher have used inventory control technique for the cost overruns in construction projects.[11]

(kumar, lilhare et, al. 2016) all organizations have to balance the critical stock outs and minimize the inventory costs the investigator have used ABC analysis inventory control technique and find to help managers during management of inventory items it help to understand of problems occurs in inventory and safety stock.[12]

## 5. Conclusion & Recommendations:

Studying effective material management in a construction project to minimize problems with applying inventory control technique maintain material management processes from the design stage to construction stage and efficiency of project completion on time, quality and under budget. This is because the poor construction material management can effects the overall performance of project in the terms of time, cost & quality. One of the issue that may happen with every construction project that is the wastage of material management if it not manage well and minimizing wastage of construction materials at construction project.

For the successful execution of a project it is important that top management must pay more attention for all activities of a construction project.

- ✚ On time of completion of project it's important that top management should pay more attention toward material management in construction project.
- ✚ Use of software such us MS project, Primavera etc. to avoid errors in material management.
- ✚ Inventory control technique ABC analysis should be used to find out the total annual usage value in percentage.
- ✚ All organization should maintain the balance between critical stock outs and minimizing inventory costs.
- ✚ Construction material management plays a key role in making the project successful.
- ✚ A successful project s that to finish on a specific time, cost and quality.
- ✚ Its need of material management system to save time and cost.

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