

A Material Management in Construction Project Using Inventory Management System

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Abstract- Material management is a critical component of the construction industry. The goal of materials management is to insure that construction materials are available at their point of use when needed. The materials management system attempts to insure that the right quality and quantity of materials are appropriately selected, purchased, delivered and handled on site in a timely manner and at a reasonable cost. A proper implemented material management program can achieve the timely flow of materials and equipment to the jobsite, and thus facilitate improved work face planning, increased labour productivity, scheduling and minimize the cost. material management is an important function in order to improve productivity in construction project. It is defined materials management function which take off, vendor evaluation and selection, purchasing, expenditure, shipping, material receiving, warehousing and inventory, and material distribution. In this project we have prepare scheme of material management in the construction industry for building project also conducting survey of industry and determine the various format for construction material management. As well as talk over the tracking system of material management in the industry and also discuss the software development for proper management.

Indexed Terms- inventor, material distribution, take off, quality of material

I. INTRODUCTION

Material management is term to can't controlling the kind amount location movement and timing of various commodities used in production by industrial enterprises. Material management is the planning, controlling directing and coordinating those who activities which are concerned with materials and

inventory requirements, from the point of their introduction into the manufacturing process. It begin with the determination of materials quality and ends with its issuance to production to meet customer 's demand as per schedule and at the lowest cost Material management is the basic function of the business that adds value directly to the product itself.

Materials management embraces all activities concerned with designing or manufacturing the product. Information, stores and stock control, inspection of the material received in the enterprise, transportation and materials and many other functions. In the words of Bethel, its responsibility end when the correct finished product in proper condition and quality passes to the consumer.

II. MANAGEMENT OF MATERIAL RESOURCES

Materials management is concerned with the management of material resources. It considers the cost we incur on materials and seeks to reduce this cost. Traditionally, we think of the cost of materials in terms of the price we pay to acquire the materials, that is, their basic cost. This is what we see in the statements of a company's annual accounts. This cost, by itself, is enormously high, as materials account for 50 to 60 per cent of the net price of a product.

The materials purchase function is particularly important in the present scenario because most of the industries of the engineering type such as automobile industry Purchase 90 to 95 per cent of items through vendors and fabricate 5 to 10 per cent in house. These 5-10 per cent items represent the core competency of the industry.

III. OBJECTIVES OF MATERIAL MANAGEMENT

- Efficient material planning
- Buying or purchasing
- Procuring and receiving
- Storing and inventory control supply and distribution of materials
- Quality assurance
- Secondary objectives are classified as given below
- Efficient production scheduling
- To take or buy decisions
- Prepare specifications and standardization of materials
- To assist in product design and development
- Forecasting demand and quality of materials requirement
- Quality control materials purchases
- Material handling use of value analysis and value engineering

IV. PURPOSE OF MATERIAL MANGEMENT

- To gain economy in purchasing
- To satisfy the demand during period of replacement
- To carry reserve stock to avoid stock out
- To stabilise fluctuation in consumption
- To provide reasonable level of client services

V. LITRATURE REVIEW

Nigeria, Olatunjiayet, John small wood; “improving materials management effectiveness” This research provides a literature review in the field of uncertainty dampening methods for manufacturing systems, and proposes a new model to improve materials management effectiveness in materials requirements planning environments. The literature review gives rise to a classification framework of the models along nine structural dimensions that refer to the safety buffer treatment, the environmental characteristics and the type of approach. On the basis of the classification framework, the proposed model provides guidelines for approaching the problem of dimensioning, positioning and managing safety stocks against demand uncertainty. The effectiveness

of the proposed model has been tested by comparing it to the traditional approach, through a computer- based simulation.

Khyomesh v. Patel (pg student) prof. Chetna m. Vyas (ph.d. cont.) “construction materials management on project sites” This paper is written to fill a void created by the absence of proper materials management on construction sites. To managing a productive and cost efficient site efficient material management is very essential. Research has shown that construction materials and equipment may constitute more than 70% of the total cost for a typical construction project. Therefore the proper management of this single largest component can improve the productivity and cost efficiency of a project and help ensure its timely completion. One of the major problems in delaying construction projects is poor materials and equipment management. This paper describes the main results of survey carried out in Ahmedabad that investigated the material management of 3 well known builders of Ahmedabad.

Nariah kasim; “Developing materials management” this paper is forecast that in the near future there may be a move towards the conscious development of materials management within manufacturing industry. This development will be based upon management recognition of the significance of materials management, combined with extensive pressure upon the costs and efficiency in the functions which make up the materials management systems. There will be a number of urgent motivating factors, ensuring that solutions are found to overcome any difficulties, and that change takes place to introduce the materials management concept. The final outcome is forecast to be an integration of the materials management function into one group; with the explicit task of, maintaining a constant flow of product, reducing costs where feasible, and improving relationships with both suppliers and other functions within the company.

Narimah kasim “intelligent materials tracking system for construction projects management” This paper An essential factor adversely affecting the performance of construction projects is the improper handling of materials during site activities. In

addition, paper-based reports are mostly used to record and exchange information related to the material components within the supply chain, which is problematic and inefficient. Findings from a literature review and surveys showed that there is a lack of positive examples of such tools having been used effectively. Therefore, this research focused on the development of a materials tracking system that integrates RFID-based materials management with resources modelling to improve on-site materials tracking. Rapid prototyping was used to develop the system and testing of the system was carried out to examine the functionality and working appropriately. The proposed system is intended to promote the employment of RFID for automatic materials tracking with integration of resource modelling (Microsoft Office Project) in the project management system in order to establish which of the tagged components are required resources for certain project tasks. In conclusion, the system provides an automatic and easy tracking method for managing materials during materials delivery and inventory management processes in construction projects.

Madhavarao k. Mahindra, “a critical analysis of material management techniques in construction project” In this report construction sector, material management plays major role for effective completion of the project. The cost of project increases when the planning, material identification system is poor. Shortage and deficiency in storage of material will cause losses in labor productivity. To maintain the effective management, to achieve the timely supply of materials and equipment and to reduce the cost of projects, a wellplanned material management program is required. This improves planning, higher labor productivity, proper schedules and lower project costs. This paper explains about the techniques for material management for construction project by using SCurve, ABC Analysis for clear understanding the management of four important construction materials. By implementing these techniques, we have found an optimized way to reduce the cost of the project. Using S-curve technique, the variation in planned cost and actual cost is assessed. Quantity of materials procured for the project should be determined by the using A-B-C analysis.

Ss. Asadi, “improving materials management on Construction projects “this report is An essential factor adversely affecting the performance of construction projects is the improper handling of materials during site activities. Materials management is made problematic by materials shortages, delays in supply, price fluctuations, damage and wastage, and lack of storage space. The results were used to develop a real-time framework for integrating RFID-based materials tracking and resource modelling. It is concluded that the prototype system developed can improve materials management on construction projects. And to improve the real-time management of materials on sites, and hence improve project performance.

Narimah kasim1, “ict implementation for materials management in construction projects: case studies” this paper is Construction materials usually constitute a major portion of the total cost in a building construction project. Materials management is made problematic by materials shortages, delays in supply, price fluctuations, damage and wastage, and lack of storage space. Despite the potential benefit of ICT, convincing construction organisations to embrace its use and implementation has proved a difficult task. Microsoft Excel Spreadsheet and handheld devices are found to be the common ICT tools adopted in the materials management processes Finally, this paper concludes the finding from interviews towards the ICT implementation of materials management in the construction projects.

Mr.m.kalilurrahman1, Mr. S.S.janagan, “construction waste minimization and reuse management “This paper is Construction industry has been developing rapidly around the world. The development has led to serious problem in generation of construction wastes in many developing countries and expectation of the natural resources to large extend. The construction wastes clustered into physical and non-physical waste and it has greater impact to environment, economy and social of each country. Before it can be managed well, it is important to understand the root cause of the generation. This paper identifies and detects factors contributed to the generation of construction waste. Mapping technique was applied for identification works and interview was conducted to detect the physical and non-physical waste. These

factors were grouped into seven categories: Design, Handling, Worker, Management, Site condition, Procurement and External factor. The significant factors of each category of waste were determined. The findings will help construction players to avoid, reduce and recycling the physical and non-physical wastes. Furthermore, the paper has put forward some recommendations for better improvements in construction. Key Words: Construction Wastes, Red“Optimising material procurement for construction waste minimization an exploration of success factors” This report is construction waste occurs during the actual construction activities, there is an understanding that it is caused by activities and actions at design, materials procurement and construction stages of project delivery processes. The use of Just-in-Time (JIT) delivery system and prevention of over ordering are also important for mitigating waste through materials procurement processes. Measures through which the procurement process could enhance waste efficiency are further highlighted and discussed in the paper. Findings of this study could assist in understanding a set of measures that should be taken during materials procurement process, thereby corroborating waste management practices at design and construction stages of project delivery process.

Orji² eric agu 1 cletus owoh, “reducing material wastes in building construction sites” This report is Construction material waste has both environmental and cost performance consequences. In this period of global economic recession and environmental awareness, it has become necessary to adopt effective waste reduction strategies in order to reduce the cost of construction projects as well as produce environmental friendly projects. The aim of the study is to identify the effective waste reduction methods in building construction sites so that developers and construction professionals can key into the different methods in order to bring about qualitative project delivery and enhanced sustainable development. Reviewing some literatures related to the topic, the study identified the sources of construction wastes, the implications of wastes and ways of controlling them. The review equally revealed that consciousness of the implication of waste is very little appreciated considering the fact that the level of environmental awareness and willingness to pursue the goal of

sustainability in the country is low. In view of this, the study concludes that efforts at adopting green practices may not advance so much, as such it recommends that the projects must include a waste management plan as part of the prerequisites for their approval.

“Best practice of construction waste management and minimization material management is an important issue as seen in construction waste management.” This report is a best practice of material management is accompanied by various benefits which are acknowledged by several studies, the benefits of effective material management must be well comprehended for the sake of waste minimization. Another convincing fact about waste is that poor site management accounts for the largest factor of waste generation. Hence the site condition is very crucial in developing effective material management. Factors contributing to the efficiency of material management process are effective logistical management and supply chain management. The logistics system must be performing as schedule so that materials are wisely managed on-site without encountering presence of excessive materials

R. Shreena shankari¹, d.ambika², s.s. kavithra³, “a review on waste material minimization in construction industry” This paper is material waste has been identified as a major problem in the construction industry. Studies from various sites confirmed that even the materials that are least wasted like glass, electrical fixtures, paints etc. Represents a relatively certain percentage on construction cost. These materials also have an adverse effect on environment. Materials are very important on building sites, and all the materials that are delivered are not used for the purposes for which they had been ordered and disappearance of these materials constitute a part of waste and it has a negative effect on environment and also effects the contractors profitability Considering materials 13.zakaria dakhli id and zoubeir lafhaj, “management in construction: an exploratory study” This project is While materials count for a considerable amount of construction costs, the way materials are managed seems to be improvised rather than approached methodically. This study investigates the practice of novel techniques used to manage materials in the construction industry. Techniques that have already

proven themselves to be efficient ways to manage the production pace within the industry include the pull system, Just-In-Time, Kitting and off-site fabrication. It also highlights the obstacles that hinder the adoption of innovative techniques, such as sub-contractor coordination.

VI. CONCLUSION

In construction industries 70-80% of amount will be used to purchasing material. In this project we have proper scheme of material management in the construction industry for building process also conducting survey of industries and to collection of data also information about the controlling the wastage of material. In this project I am going to collect the dates from project manager, billing engineer and store in charge etc. The result is compared and will come the conclusion.

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