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To Study the Role of Store Management in JIT

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Abstract: ***Construction projects execution has changed drastically more from last decades. In execution of project there are many departments working for successful project execution. These all departments need to cope up with the changes occurring in industry. One of the departments helping for execution of project is store. To execute project successfully store department role is very important. In traditional system, store is only considered as the storage place. Small or medium scale construction organization does not use the store as effective department for in time project delivery. Store management can support to Just in time concept and helpful for inventory control and in time project completion. Store management increases the efficiency of work and helps for smooth working. It is observed that the activity going on site are delayed majorly due to unavailability of material. Poor store management leads to purchase of material with high rate as emergency from local vendors to avoid delay. Sometimes the material within the stor due to poor store management gets wasted and to lead cost for project. This paper is to study effective store management which helps to JIT approach causing minimum inventory cost and wastage of material.***
Keywords: Store management, JIT, Inventory

I. BACKGROUND OF STUDY

In construction industry, changes are occurring rapidly and with these changes new ideas needs to explore. These Ideas may useful to minimize cost, speedy & smooth work. When these ideas are implemented systematically it ultimately reduces the work load stress, and helps to improve the working condition. The store management is one of the supporting department for execution and management. It can improve the JIT implementation on project. Factors affecting for implemented techniques are rarely discussed. For material to reach in time store plays important role.

II. INTRODUCTION

Just in time is method used in production industry which improves the efficiency of manufacturing. JIT provides information what is required, when it is required and in how much quantity it is required. By applying the JIT we can minimize the inventory cost. But for proper implementation of JIT store management plays important role. The information required for JIT is provided by store management. Well managed store can efficiently help for measuring stock, issuing material and providing data to purchasing team to place order at right time. Poor store management can impact JIT and indirectly the project.

III.PROBLEM STATEMENT

Material management system on major construction projects have been changing from decades. New techniques being used for improvement of material management. JIT is one of the techniques used for material management but there are some challenges in implementation of JIT effectively.

JIT totally depends on the site store. Therefore, this study on store management is carried out to study the process of store for effective working of JIT o construction project.

IV.SITE STORE

Site store is temporary store, which is used for storage of purchased, transferred materials. It plays important role in communication within the site execution team and top management like managers, VP, MD of organization. Site store maintain the record of Purchased material, Material consumed on site and material transferred from site or transferred to other site or rejected material.

Site store is first check-up gate which checks the material for its quantity, make, size, dimensions and then send it to quality department before unloading for checking. After unloading of material, it is store responsibility to stack and keep it properly. Care should be taken it should be in good condition till its usage.

For better JIT implementation store management needs to be in a systematic way. For proper store management steps to be follows as below.

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A. Resource Coding

We use multiple Resources on construction project. Bifurcation with coding to the each and every material can make the task easy for finding the material. Resource coding should be done at the time of estimation. So that in each phase the tracking of resources will be easy. Bifurcation and coding to the resources makes the easy understanding to the Account department also.

One of the way to bifurcate the material is bifurcating them with its usage. Material which can be used for civil activity should be under civil material head, material used for electrical work should be under electrical head, material used ofr safety work should be under the safety material head ,asset material under the asset head and like wise for other.

B. Store Arrangement

Store should be well arranged so that each and every material stored in store has its defined place. One can easily find or store material in store. 5s technique should be implemented for arranging the store. Display the name plates for racks with the codes and material name. Arranging the material helps to issue the material easily.

There should be working area in middle of store. These area can be used for received material counting, material Cleaning , material maintenance purpose.



Image 01; Site Store Material stacking in racks



Image 02: Site store Arrangement with proper working space

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C. Material Issue

Actual role of store starts from here to improve the JIT implementation. Before issuing the material from store issue slip should be generated at site level. And data should be maintained till end of the project. Issue slip data gives us information about quantity usage for particular activity in that period. It also provides the base data for minimum stock. By the time of entering issue slip and issuing the material we comes to know the stock of material.

D. Periodic Stock Checking

For inventory control we should have a data about the stock of material in store. Store arrangement helps us for easy stock checking. The theoretical stock can be derived form issue slips. If we combined all issued slip together we can calculate theoretical consumption of material.it can be derived as,

Theoretical material consumption = issue slip 01 + issue slip 02 + issue slip 03 + …..

We should always cross check the theoretical stock with actual stock we have in our store. Actual stock should be checked periodically and reconciliation for materials should be done to know the stock. Stock on store should always be equals to theoretical consumption.

Actual Stock = Theoretical consumption.

E. Minimum Stock

For the better implementation of JIT there should be a time to complete the process of purchase. Process starts from indent to material receival requires time. To cope with this we should have a minimum stock in our store so that there will not be any impact on activity due to material unavailability. Minimum stock can be calculated form past experience or from using constants. For calculating the minimum stock we can use following steps.

1) Derive the Constants

By the of estimation team derive the constants.for RCC work we have X cum concrete, Y sqm shuttering and Z MT steel frequired for execution the A sqft area. We can calculate the constant as,

For Steel,
Steel Constant P = Z x 1000 Kg of steel for executing the A soft area.
i.e P= Z x 1000 / A Kg / sqft

For shuttering,
Shuttering constant Q = Y x 10..764 sqft of shuttering for executing the A sqft area
i.e. Q = Y x 10.764 / A sqft/ sqft

For concrete,
Concrete constant R= X x 35.33 cuft concrete for executing the A sqft area
i.e. R= X x 35.33 / A Cuft/sqft

From constants we comes to know the quantity of activity for executing the area.go through the planning cycle and calculate the periodically area execution and we can easily maintain the minimum stock of material like steel, cement, row material, shuttering material etc.

2) Consumables Stock

For activity completion consumables material stock is required. In analysis these items comes under B or C categories. For minimum stock calculation of these material we can use thumb rule.for example,
To complete the steel activity we required Cover block and binding wire. These can be calculated as,

According to past experience minimum 160 to 200 nos of cover block are required per MT usage of steel.
So, for executing Z MT steel qty we should have cover block in our stock Z x 200 nos.

Minimum stock of cover block = Z x 200 nos .

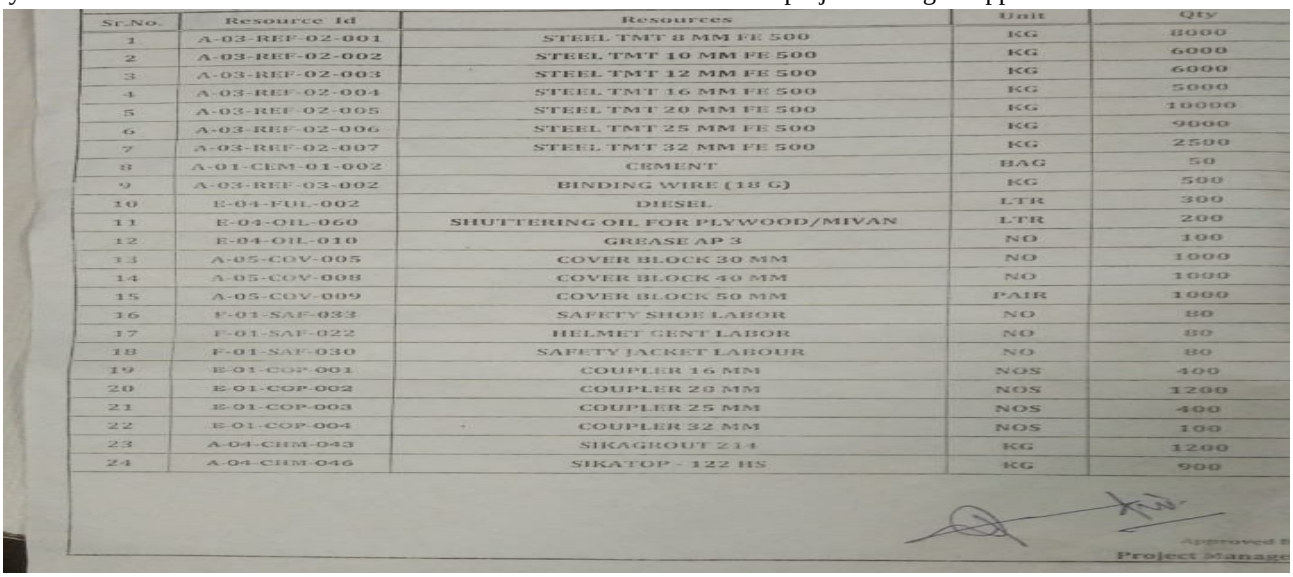
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For binding wire we use a constant of 13 to 15 kg per MT execution of steel.i.e to execute the Z mt steel qty we required Z x 14 kg of binding wire.

Minimum stock for binding wire = Z x 14 kg

For all materials we should calculate the minimum stock to avoid emergency. This can avoid the time delay due to material unavailability.

Display the board of minimum stock of material to be maintained in store with project managers approval.



Sr.No.	Resource Id	Resources	Unit	Qty
1	A-03-REF-02-001	STEEL TMT 8 MM FE 500	KG	8000
2	A-03-REF-02-002	STEEL TMT 10 MM FE 500	KG	6000
3	A-03-REF-02-003	STEEL TMT 12 MM FE 500	KG	6000
4	A-03-REF-02-004	STEEL TMT 16 MM FE 500	KG	5000
5	A-03-REF-02-005	STEEL TMT 20 MM FE 500	KG	10000
6	A-03-REF-02-006	STEEL TMT 25 MM FE 500	KG	9000
7	A-03-REF-02-007	STEEL TMT 32 MM FE 500	KG	2500
8	A-01-CEM-01-002	CEMENT	BAG	50
9	A-03-REF-03-002	BINDING WIRE (18 G)	KG	500
10	E-04-FUL-002	DIESEL	LTR	300
11	E-04-OIL-060	SHUTTERING OIL FOR PLYWOOD/MIVAN	LTR	200
12	E-04-OIL-010	GREASE AP 3	NO	100
13	A-05-COV-005	COVER BLOCK 30 MM	NO	1000
14	A-05-COV-008	COVER BLOCK 40 MM	NO	1000
15	A-05-COV-009	COVER BLOCK 50 MM	PAIR	1000
16	F-01-SAF-033	SAFETY SHOE LABOR	NO	80
17	F-01-SAF-022	HELMET CENT LABOR	NO	80
18	F-01-SAF-030	SAFETY JACKET LABOUR	NO	80
19	E-01-COP-001	COUPLER 16 MM	NOS	400
20	E-01-COP-002	COUPLER 20 MM	NOS	1200
21	E-01-COP-003	COUPLER 25 MM	NOS	400
22	E-01-COP-004	COUPLER 32 MM	NOS	100
23	A-04-CHM-043	SIKAGROUT 214	KG	1200
24	A-04-CHM-046	SIKATOP - 122 HS	KG	900

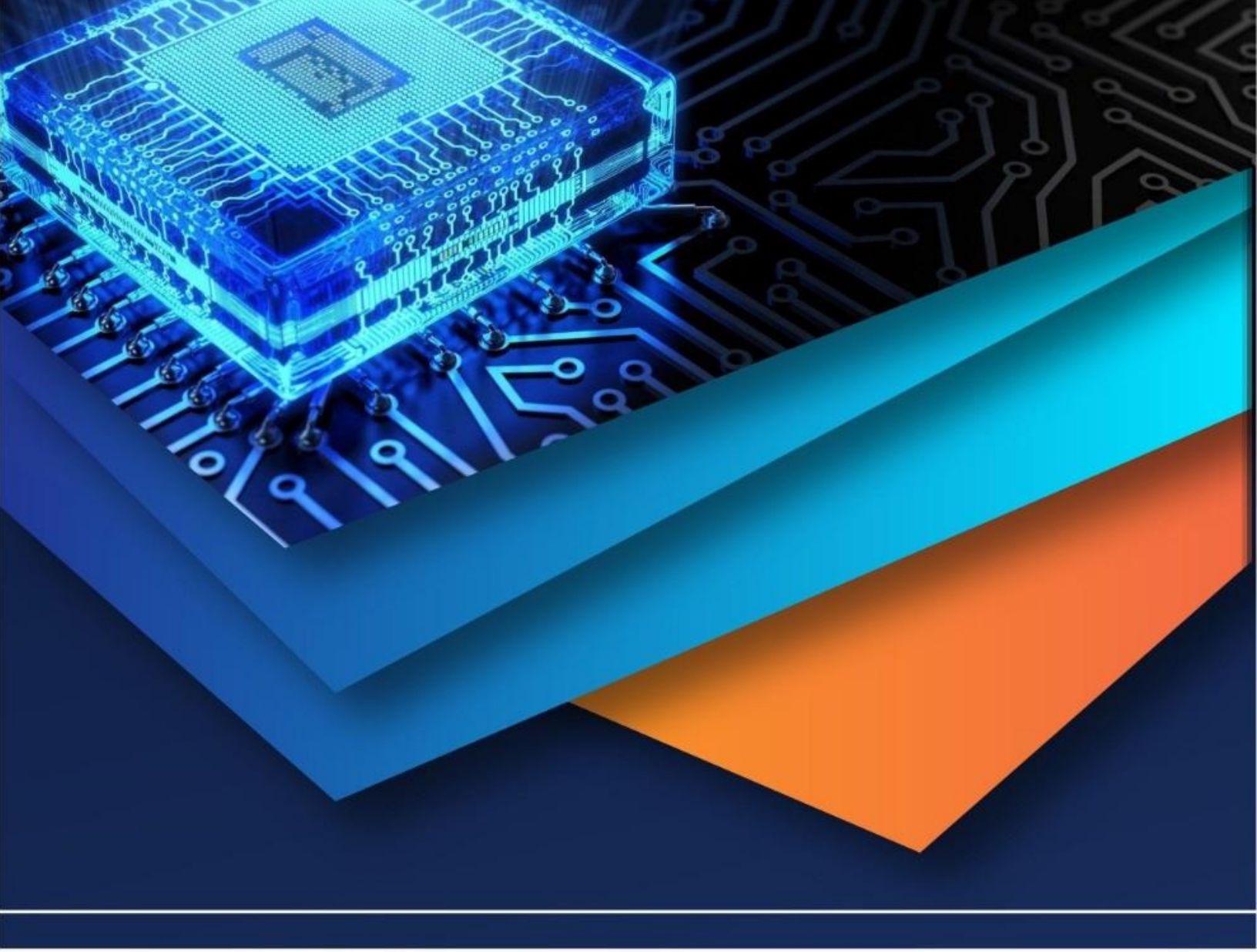
Image 03; Display of minimum stock with project managers approval

V. CONCLUSIONS

This is to conclude that, for the material to be reach in time on site, store management gives the support in advance. Procurement of material within the time can done with the help of inventory management. Therefore it will leads to JIT Implementation on construction site efficiently.

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