ABSTRACT-
This dissertation work is aimed to minimise and control the construction cost of a construction project. To minimize the cost of a project there are different methods such as quality management, time management etc. In this work I have applied the inventory control system to control the cost of a project. In inventory control system if we applied ABC analysis and EOQ to the project then there will be definitely savings in cost and also avoids wastage of material. The mathematical module of ABC analysis and EOQ gives the importance of material and its effect on cost of construction project because the cost consumed by the materials in any project is approximately 65% to 70% cost of total project. In this work one case study of construction project of a school building has been considered and the cost required by project with and without material management is analysed.

INTRODUCTION-
Success of any construction project strongly depends on the effective utilization of cash flow, material management to complete project in scheduled timeframe with required quality norms in optimized cost. Considering importance of project material management this project includes importance of material management for construction cost optimization with theoretical details & practical illustration of inventory control systems. Project provides details of basic elements of construction material management, role of inventory process in material management including inventory terminologies & classification, Inventory process, inventory control systems, key performance indicators of inventory management systems, inventory models and optimization of inventory with importance of material resources planning to keep just in time inventory. Further to it project provide importance of material management for finance & cost control for construction project with relation to inventory costs. Also further project apply all this theoretical terminologies & process to a practical case study of a typical construction site. In concluding section, project provides detail of financial analysis of effective utilization of inventory models in material management for cost reduction.

One of the most important aspects of any business is inventory management. Those who have never worked in the business sector may not understand the importance of efficient inventory management. But, the reality of it is if you don't have control of your inventory, you will be unable to ascertain you will have enough inventory on hand to handle the needs of your customers. Even worse than that--you will not have enough supplies on hand to produce the products you need to meet the needs of your customers. This requires the inventory.

PROBLEM DEFINITION
In construction industry it is usual problem that the actual cost of project exceeds than estimated cost of a project. This problem needs proper planning, management and control on project to resolve it. Cost of project can be controlled by proper inventory control system which includes the material management for project. For inventory control ABC analysis and EOQ is used in this project.

OBJECTIVE OF THE WORK
The main aim of this work is to control the cost of a project by implementing the inventory control system in the work.

INVENTORY CONTROL SYSTEM FOR CASEB STUDY
Material management is an important management tool which will be very useful in getting the right quality & right quantity of supplies at right time, having good inventory control & adopting sound methods of condemnation & disposal will improve the efficiency of the organization & also make the working atmosphere healthy any type of organization, whether it is Private, Government, Small organization, Big organization and Household. Even a common man must know the basics of material management so that he can get the best of the available resources and make it a habit to adopt the principles of material management in all our daily activities.

ABC Analysis
ABC = Always Better Control
This is based on cost criteria. It helps to exercise selective control when confronted with large number of items it rationalizes the number of orders, number of items & reduce the inventory.
About 10% of materials consume 70% of resources
About 20% of materials consume 20% of resources
About 70% of materials consume 10% of resources.

Economical Ordering Quantity
EOQ is mainly governed by the ordering cost and holding cost irrespective of the description of the material. It is their possible for a project/store after gut ordering cost and holding cost to prepare ready reckoned type reference table for EOQ in terms RS. For various figures of annual demand is known, we
can find out EOQ value from which the physical quantity can be worked out

**Formula for EOQ**

Let

- \( A = \) Total items consumed per year
- \( P = \) procurement cost per year
- \( C = \) annual inventory carrying cost
- \( Q = \) Economic order quantity

Then,

- \( P = \) Number of orders*cost per order
  \[ = \frac{AP}{Q} \]
- \( \text{Inventory carrying cost} \)
  \[ = \text{Average value of inventory in a year} \times \text{inventory carrying cost} \text{ per year} \]
  \[ = \frac{1}{2} QC \]

Therefore:

- \( \text{Total cost} = \frac{AP}{Q} + \frac{QC}{2} \)
- \( Q^2 = \frac{2AP}{C} \)
- \( Q = \sqrt{\frac{2AP}{C}} \)

**RESULT AND DISCUSSION**

- From work it is observed that if there is proper material management then there will be control on cost.
- Due to EOQ wastage of material can be controlled.

The following table shows the analysis of different costs and the cost saved due to application of inventory control system.

<table>
<thead>
<tr>
<th>Description</th>
<th>Without Material management</th>
<th>With Material management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Cost of A Project (Rs)</td>
<td>56048685</td>
<td>54453756</td>
</tr>
<tr>
<td>Total Cost Required for Materials (Rs)</td>
<td>38339010</td>
<td>3674815</td>
</tr>
<tr>
<td>% Cost Consumption By Materials</td>
<td>68.40</td>
<td>67.48</td>
</tr>
<tr>
<td>Total Cost Of A Project Without Materials (Rs)</td>
<td>17706941</td>
<td></td>
</tr>
<tr>
<td>Difference In The Cost (Rs)</td>
<td>1593095</td>
<td>2.84</td>
</tr>
<tr>
<td>% Cost Saved</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**CONCLUSION**

1) During present research work, it has been observed that the major factors that contributes to poor inventory control are -
   a) Improper management of time, cost and manpower.
   b) Ignorance of contractor towards material management in construction project.

2) During research it is also observed that there is no proper execution and tracking of a work.

3) Due to unavailable of 100% data % reduction in cost could not be judged accurately and we are recommending the use of ABC analysis and EOQ which surely will help in reduction of cost on construction site due to
   a) Wastage control,
   b) Right incoming quantity,
   c) Materials handling,
   d) Strict control,
   e) Frequent ordering,
   f) Accurate forecast &
   g) Reduce lead time etc.

4) Project conclude with financial results in terms of saving in inventory cost resulting in cost optimization, reduction in project completion time with help of detail study, analysis and application of inventory control systems to a case study. Following table shows the difference between cost of material of project without inventory control system and cost of materials with the implementation of inventory control system.

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