

The phases of materials management process construction essay



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Materials Management is an integrated process of planning and controlling all necessary efforts to make certain that the quality and quantity of materials and equipment are appropriately specified in a timely manner, are obtained at a reasonable cost and are available when needed. The materials management systems combine and integrate the off-take, vendor evaluation, purchasing, expediting, warehousing, distribution and disposing of materials functions.

Materials management is a process where it shows how the building was designed and materials are estimated. From the initial phase of planning until the completion phase that is waste management, the materials management will need to be efficient in order to avoid any delay and extra cost. Therefore, materials management is an important process in project management as it can help a project to reduce expenses and complete on time.

2. 2 Phases of Materials Management Process

Bidding Phase

The contractor identifies the materials needed as well as any special requirements or special materials to be used in the project. Quantities needed are estimated and a bid package is put together and submitted.

Sourcing Phase

This phase involve in selection of the reputable suppliers and manufactures. The selection of suppliers is critical and the performance of a supplier can decide between a successful project and a project full of delays. Therefore, <https://assignbuster.com/the-phases-of-materials-management-process-construction-essay/>

the contractor needs to verify that the supplier is capable of delivering the right material.

Material Procurement

The generation of a material requisition schedule. Once a material requisition schedule is in place, individual requisitions are generated from the construction site by either the foreman or the project manager. When a release form is generated, suppliers are contacted for procuring the material needed. The type of material needed, quantities, time when the material is needed and delivery location are specified to the supplier.

Construction Phase

This phase involves in receiving, storing and distributing the material on site. The receiving process involves inspection of the material when it is received to verify that the type of material delivered is the one ordered, quantities received against quantities ordered and quality of the delivered material.

Post- Construction Phase

After the installation of the materials in place, the EC has to manage any surplus material. The surplus is handled differently depending on the type of material and also whether or not the contractor has a warehouse. If the company has a warehouse, the surplus material is stored in the warehouse for use in the future projects.

2. 3 Classification of Materials

Raw materials: Example; plastic granules.

Purchase components

Work- in- progress

Finished goods

Spares

Consumables: Examples; Coal, paints, mineral oil, etc.

Machinery and equipment: Examples; lathe machines, electric motors, etc.

Inflammables: Examples; petrol, kerosene, etc.

Chemicals: Examples; carbides acids and nitrous gases.

Furniture: Examples; chairs, tables, etc.

Scrap materials: Examples; waste materials.

Packaging materials: Examples; boxes, bottles, wax and grease, etc.

Fuel stock: Example; coal, etc.

General stores: Examples; soap, brooms, stationary, etc.

2. 4 Participants in Materials Management

1. Pre " construction Phase

Architect

Need to designs for best use of standard sizes, for multiple applications and for their recyclability.

Engineer

Ensures appropriate structural component dimensions, quality and spacing for use of standard fasteners and materials for multiple applications and recyclability.

Estimator

Use the latest materials takeoff technologies and exercises accuracy in estimates.

Purchaser

Has to plans purchases and deliveries in order to reduce surplus and to balance materials maintenance during on-site storage versus transportation energy consumption.

Construction Site Phase

Site Construction Management

Applies the materials management plan to the site and oversees its implementation.

Site Materials Manager

Keeps track of new materials, cuts and used materials, organizes and stores them for availability in accordance.

Subcontract Management

Need to communicate with site management and Materials Manager regarding the types of materials that able to use for various purposes.

Trade Workers

Use materials properly, store new materials properly, handle and cut them carefully for maximum use or minimum waste.

3 Off-site Phase

Suppliers

Use recyclable packaging and returnable containers and pallets, and accept the returned containers and pallets or informs the site of others who will accept them.

Recyclers & Haulers

Provide containers for convenient materials storage and retrieval if appropriate. Instruct the site personnel in separation and quality requirements.

3. 0 COMPARISON OF INFORMATION (CASE STUDY)

Temporary Road

Materials

Figure 1: Existing Site Layout

Double Storey Terrace

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Reinforcement

Temporary building

Waste materials

Store

Scaffold store

Materials

Store

Semi-detached houses

Timber

Access

Concrete batching plant

Scenario of the Case Study

Almatab Sdn. Bhd. is carrying out a housing project which is semi-detached houses and double storey terrace in Johor. The construction site layout has been prepared as shown in Figure 1 which illustrates the layout equipment, building materials and access roads for the erection of the building. As a new site manager, you are requested to study the site management to be applied for the project and give some comments and advices on the layout.

3. 1 Evaluation of Existing Site Layout

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- There is no site entrance and exist.
- The security hut is not shown.
- The materials name is not specified.
- Should be water supply for sanitary and fire protection.
- No power supply in the site layout as it is needed for equipment and lighting.
- Lack of canteen for the worker to eat and rest.
- Site office cannot be located near the waste materials.
- Car park should be provided.
- Water drainage also need to included as it is for the wastes and sanitary.
- The materials are being cramp in one place.

3. 2 Problems of Poor Planning Site Layout

1. Wrongly located the materials.

- Too far from work area.
- Stocked over a drainage line.
- Their delivery was wrongly phased and not needed until much later.

2. Wrongly located the plants and equipment.

- Not enough storage for aggregates.

- Fixed cranes are unable to reach all parts of the works.

3. Insufficient space in the site.

- Materials may be stacked on roadways that can cause hazards.

- Working areas become too cramped.

4. Wrongly located the site office.

- Site office located near noisy activities such as mixer or too near the roads.

Canteen

Water Supply

Scaffold Store

Site Office

T

T

Cement Store

Site Exit

Site Entrance

Equipment Storage

Steel Storage

S. H

S. H

Reinforcement

Timber

Waste Materials

Aggregate Storage

Power Supply

Line Sewer

Access

Temporary Road

Concrete batching plant

Semi-detached houses

Double Storey Terrace

Figure 2: Improved Site Layout

3. 3 Suggested improved Site Layout

- There are two security huts in the layout.
- Site entrance and exit is located easily as it near the security hut.

- The site office has been located near the site entrance.
- All the materials have been specified and located accordingly.
- There is canteen for the worker to rest and eat.
- The water and power supply also has been place in the site layout.
- Provided a car park for visitor and worker.
- The materials storage areas are grouped at the back of the work area.
- Equipment storage is away from the power supply.
- Temporary toilet has been installed near the site office and canteen.
- Concrete batching plant has been moved near the site exit.
- Waste materials were moved to the end of site for safety purpose.
- The line sewer was added for drainage and waste purpose.

4. 0 RECOMMENDATION

4. 1 Elements of Materials Management on site

Safety

Fire prevention: Fire is a major cause of damage on construction site.

Medical services: On construction project a first aid kit is a must.

Construction safety clothing: Basic safety supplies like safety shoes, hard hats, gloves and goggles must be used by workers.

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Delivery access

The access need to be available from time to time as any particular materials may be need to use for the work that on process.

Material storage

The location and sizes of space for any particular material need to be consider by calculating the area required and relevant factors before selecting a suitable area as the storage.

Access roads

Although there is no structure was constructed as temporary road, an access must be provided on site.

Material handling and lifting equipment

The use of proper equipment for material handling can result a direct cost and time savings.

Personnel movement on the work area

There must be a sufficient space allow in the work area so that the job site won't be too cramp for any movement.

Temporary facilities related to project requirements

After selecting the temporary facilities that are needed on site, the size required for them must be estimated.

5. 0 CONCLUSION

Based on the case study of materials management on site, we can conclude that it is important to properly organize the materials, equipment and plan on site. This is because a good planning of materials management can help to avoid any delays of works on site and reduce any extra cost for a project. Any wastes that are produce during the construction also need to be handle wisely either to be recycle or reuse for future project as it can cause hazard if not properly handle. Although the materials management process is practiced for every construction project, it still has many flaws that have to be improved. Therefore, every participants or team members of project need to play their role accordingly as it takes more than a single person responsibility to make it possibly successful in the future.