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# Risk Analysis of Material Handling in Construction Industry

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**ABSTRACT:** Risk management is tremendously favored conception in a numeral of businesses. For enhancing the production and enlarge the profits many companies frequently establish a risk management procedure in their projects. Construction sector is widely complex and have often considerable budgets, and thus reducing risks associated with projects should be a priority for each project manager. The main purpose of this project is to identify the key risk factors in materials and material management that affect construction project. The examination has been prepared integrating of near about fifty divergent questions. Miscellaneous construction sites were visited for examination survey. The sheet of questionnaire comprises of Likert scale to measure risk factors in materials by Statistical on the basis of Likelihood and Impact from the Site Engineers or Project Engineers. Statistical Package for the Social Sciences (SPSS) software was used for analysis of various risk factors from Questionnaires survey data for preventive measures or mitigation techniques for various risks on construction site.

**KEYWORDS:** Risk management procedure, construction, material management

### I. INTRODUCTION

As stated by eleventh five year scheme, it is the second tremendous economic pursuit after agriculture. Every construction activity no matter what its size and complication comprises risks, which might vary in the final result on Project. Risk management is the methodical action of recognizing, scrutinizing, and responding to predict risk. It includes maximizing the possibility and consequences of positive events and minimizing the likelihood and consequences of contrary events to meet the project objective. The accomplishment or failure of any project depends significantly on how we recognize and deal with the risk factors which affect construction of our project. Materials management is a remarkable component in reckon management.

It is determining element adversely influencing the accomplishment of construction predict. Material is the main component in any of the construction projects. In recent developments a wide range of building materials is available for the construction of civil engineering structures. The total budget of materials may be up to 60% or more of the total budget incurred in construction project dependent upon the type of project. Therefore, if the material management in construction projects is not managed properly it will generate a major cost variance in project. The total budget of the project can be well controlled by taking remedial measures towards the cost variance befall in the project. Effective construction materials management process is a key to success of a construction project. The effective material Management is a key of Success in Construction industry.

Construction workers build, repair, maintain, renovate, modify and demolish houses, office buildings, temples, factories, hospitals, roads, bridges, tunnels, stadiums, docks, airports and more. The International Labour Organization (ILO) classifies the construction industry as government and private-sector firms erecting buildings for habitation or for commercial purposes and public works such as roads, bridges, tunnels, dams or airports. In India, building employees

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also scrubbed hazardous waste sites. Building as an orchestration of gross house hold handiwork varies widely in industrialized countries. In supreme homeland, employers have relatively few full-time employees. Many companies specialize in skilled trades-electricity, plumbing or tile setting, for instance-and work as subcontractors.

## II. INDUSTRY ORGANIZATION

The construction of buildings wedge embrace fabricators, usually called general contractors, who build residential, industrial, commercial, and other buildings. ponderous and civil engineering building fabricators build sewers, roads, highways, aqueduct, subterranean passage, and other projects related to our Nation's infrastructure. Specialty trade contractors perform specialized activities related to all types of construction such as carpentry, painting, plumbing, and electrical work.

Construction usually is done or coordinated by general contractors, who specialize in one type of construction such as residential or commercial building. They take full responsibility for the complete job, except for specified portions of the work that may be omitted from the general contract. Although general contractors may do a portion of the work with their own crews, they often subcontract most of the work to heavy construction or specialty trade contractors. Specialty trade contractors usually do the work of only one trade, such as painting, carpentry, or electrical work, or of two or more closely related trades, such as plumbing and heating. Beyond fitting their work to that of the other trades, specialty trade contractors have no responsibility for the structure as a whole. They acquire sequence for their work from universal contractors, builders, or property holders. Repair work is almost always done on direct order from owners, occupants, architects, or rental agents.

## III. MATERIAL HANDLING

In the construction industry, the term 'material handling' refers to the delivery, movement, storage and control of materials and other products. Varieties of plant worn for material handling on site comprise; hydro mechanical backhoe, presbyopic handlers, derrick, tow-motor trucks, hoisting apparatus, conveyor apparatus and so on.

From receipt and inspection of materials, through to storage, assembly and use, the material handling system should be well-coordinated and organized so that everyone on site is aware of how it works. When grasping substance, production should be the foremost cogitation. Pre-start inspections are critical, load limits should not be exceeded, method statements should be followed, and it may be necessary for a banks man to direct material movements around the site.

Handling and storing materials involve diverse operations such as hoisting tons of steel with a crane; driving a truck stuffed with tangible bricks; bringing bags or materials extremely; and heap up clothe bricks or alternative materials such as drums, barrels, kegs, and lumber. The systematized grasping and stockpiling of materials are essential to industry. In addition to raw materials, these operations provide a continuous flow of parts and assemblies through the workplace and ensure that materials are available when needed. Regrettably the illegitimate handling and storing of materials habitually sequel in extravagantly injuries, In addition to pedagogy and tutelage, applying predominantly welfare concept such as orthodox work practices, equipment, and controls can help reduce workplace accidents involving the moving, handling, and storing of materials. Whether moving materials manually or mechanically, your employees should know and understand the potential risk integrated with the chore at hand and how to jurisdiction their workplaces to diminish the danger.

Because numerous injuries can result from improperly handling and storing materials, workers should also be aware of disasters that may consequence from the high-risk or irregular handling of equipment as well as from improper work practices. Furthermore, workers should be expert to acknowledge the modus for abolishing or at least minimizing the occurrence of such accidents. Patrons and workers should scrutinize their workplaces to notice any risky or unhealthful states, practices, or equipment and take corrective action.

When operating materials recitation, employees should attach grips or holders to loads. Furthermore, employees should always wear suitable personal precautionary impediment and use proper lifting techniques. To prevent injury from oversize loads, workers should seek help in the following:

- When a load is so bulky that employees cannot properly grasp or lift it,
- When workers cannot sight on every side or over a cargo, or

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- When workers cannot carefully handle a load.

Applying the following intimate defensive equipment averts needless injuries when manually poignant materials:

- Hand and forearm protection, such as gloves, for loads with sharp or rough edges.
- Eye protection.
- Safety shoes or boots.
- Metal, fiber, or plastic metatarsal guards to protect the instep area from impact or compression.

Workers should utilize blocking materials to govern loads cautiously. Employees should also be conservative when placing blocks beneath a elevated load to assure that the load is not released before removing their hands from under the load.

### **Decorous trace to Lift:**

1. Keep feet parted – one at the side of and one behind the object
2. Keep back consecutive and virtually vertical.
3. Tuck in your chin
4. Tuck in elbows and arms
5. Keep body weight directly over feet

When bulky objects are to be handled or when objects are to be carried on the shoulder, employees shall be trained in these techniques for special situations.

### **Handling Barrels and Drums:**

When possible, when moving barrels and drums they should be moved by using a dolly or other mechanical devices.

If two employees are assigned to up-end a full drum, they should use the following procedures:

1. Grasp both chimes (rolled edges at both ends of the barrel) near their high points; lift one end and press down on the other;
2. As the drum is up-ended and brought to balance on the bottom chime, release the grip on the bottom chime and straighten the drum.

When two employees are to overturn a full drum, they should use the following procedure:

1. Restricted quarters can result in badly wounded hands.
2. Their palms against the side of the drum, they push until the drum balances on the lower chime.
3. They step forward a short distance, and each employee releases one hand from the top chime in order to grip the bottom chime. They ease the drum down to a horizontal position until it rests solidly on its side. To roll a barrel or drum, an employee should push against the sides with his/her hands.

To change direction of the roll, he/she should grip the chime, not kick the drum with his/her feet. To lower a drum or barrel down a skid, turn it and slide it end-wise. Do not roll it. To raise a drum or barrel up a skid, two employees stand on opposite sides of the skid (outside the rails, not inside, and not below the object being raised). They roll the object up the incline. Handling drums and barrels can be hazardous, even when using utmost care. Special handling equipment and tools must be made available to make the job safer and easier.

## **IV. STACKING MATERIALS**

Stacking materials can be treacherous if employees do not follow welfare instructions; dropping material and subside loads can squash or pin employees, causing injuries or death. To help prevent injuries when stacking materials, workers must do the following:

- Stack lumber no more than 16 feet high if it is handled manually, and no more than 20 feet if using a forklifts;
- Remove all nails from used lumber before stacking;
- Stack and level lumber on solidity supported bring;
- Ensure that stacks are stable and self-supporting;

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- Do not store pipes and bars in racks that face main aisles to avoid creating a hazard to passerby when remaining supplies;
- Stack bags and bundles in interlocking rows to keep them secure, and
- Stack bagged material by stepping back the layers and cross-keying the bags at least every layers.

## IV. CONCLUSION

Risk Analysis in construction of any project is very important and it should be prioritize by every construction project. The success of every construction project mostly is determined the risk assessments of material handling. It is conclusively identified that proper material treatment, Adequate material usage and proper planning for procurement of material are among the forefront factors for success that mitigate the amount of risk in construction project under the period of the study.

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