

Risk Assessment and Control Measures in Construction Industries

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ABSTRACT

Risk assessment procedure is the one by following it there will be minimal hazards prevailing and occurrence of any injuries or accident will be avoided. for any kind of work, it will have many steps and process in it and it has many process in it there are many chances of occurrence of things that we don't desire. to make these process more reliable these should be framed as a routine process as a procedure. by making it into a procedure it will be followed as a routine work and followed strictly. now by making the existing procedure into a safer one by eliminating all the hazard in it and eliminating hazard prevailing to the minimal amount. this paper shown as many more content like construction accident and control measures.

Keywords--- construction, accident, hazards, risk assessment, control measures.

I. INTRODUCTION

Risk identification and control measures in the construction industries involves a critical sequence of information gathering and the application of a decision-making process. These assist in discovering what could possibly cause a major accident (Risk identification), how likely it is that a major accident would occur and the potential consequences (risk assessment) and what options there are for preventing and mitigation a major accident. these activities should also assist in improving operations and productivity and reduce the occurrence of incidents and near misses.

II. LITERATURE REVIEW

Study on fall protection from scaffolds by scaffold sheeting. During construction k. Ohodet al(2011). This journal states about frequency of fall accident is one of the most serious problems in construction industries and the counter measure such as guidelines etc., For fall from scaffold have been tightened the experiments were performed by using a sand bag and human dummy.

Head and neck injury patterns in falls: Epidemiologic and Biomechanical Considerations Freeman et al (2014) Fatal falls often involves a head impact which are in turn associated with a fracture of the skull or cervical spine. Prior authors have noted the degree of inversion of the victim at the time of impact is an important predictor of the distribution of skull fractures. All the journals suggested that work hazard identification and control measures in construction. Industries and safe operation is done the amount of injuries and accident can be reduced largely. So concentrating on safe operating procedure of the work at height is necessary.

III. METHODOLOGY TO IDENTIFICATION OF HAZARD

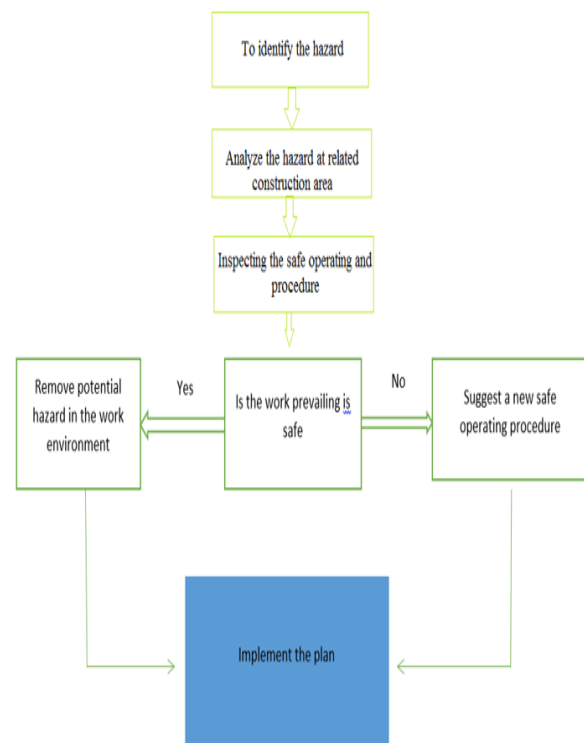


Figure 1

This figure 1 information develops in hazard analysis provides both the factual basis to set priorities for emergency planning and also the necessary documentation for supporting hazards materials emergency planning and response efforts.

IV. COMMON CONSTRUCTION HAZARDS

1. Excavation hazards
2. Scaffold execution
3. Shuttering
4. Form work
5. Curing
6. Welding hazard during construction site
7. Concerting
8. Carpentry
9. Lifting operations

1. Excavation hazard

Excavation is the process of moving the earth soil, rock or other materials with tools equipment or explosion.

Hazards-slip/trop/fall from edges incompetent operator, incompetent bands man Damaged equipment's or tools, side wall compiles.

2. Scaffold execution

Executing a temporary structure for holding workers and material for workers at height.

Hazard- collapse of scaffold uneven safe, loose sand incorrect lifting method. Fear of working at height falling of tools and materials.

3. Shuttering works

Shuttering is a temporary platform constructed with the help of wooden planks, wooden legs, steel rods or bamboos over which form wore is supported and ultimately pouring of concentrate is done.

Hazard-damaged equipment or tools un safe handy for tool sharp edge, open flame, fall from height, tools, slip, trip, incompetent workers.

4. Form work

Formwork is the term given to either temporary or permanent molds into which concrete or similar materials are poured. In the contents of concrete construction, the false words support the false work supports the shuttering molds.

Hazard- Damaged equipment or tools unsafe handling for tools, sharp edges, open flame, fall from height, falling of material and tools, slip, trip, incompetent worker, improper handling.

5. Curing

Curing of concrete is defined as providing adequate moisture, temperature, and time to allow the concrete to achieve the desired properties for its intended use.

Curing Hazards – Slip, trip, fall, water accumulation.

6. Welding

Join together by heating the surface to the point of melting with a blowpipe, electric arc, or other means, and uniting them by pressing, hammering, etc.

Welding Hazards – Electrocution, fumes, fire and explosion.

7. Concreting

A construction material made of a mixture of cement, sand, stone, and water that hardens to a stone like mass.

Concreting Hazards – Burn injury due to contact with cement, contact with rotating parts.

8. Carpentry

Carpentry is a skilled trade in which the primary work performed is the cutting, shaping and installation of building materials during the construction of buildings, ships, timber bridges, concrete formwork, etc.

Carpentry Hazards – Sharp edges, incompetent person, Protruded nails, nip points, saw dust.

9. Lifting Operations

Operation done to lift any materials by name or machine from one place to another is called lifting operation.

Lifting Operations Hazards – Fall of object from height, incompetent operator and rigger, Equipment failure.

Construction accident in percentage:

- 56 % fall from height
- 21 % trapped by something collapsing or overturning
- 10 % struck by a moving vehicle
- 5 % contact with electricity or electrical discharge
- 4 % struck by a flying /falling object during machine lifting materials
- 3 % contact with moving machinery or materials being machine
- 1 % exposure to a hot (or) harmful substance

V. HAZARD COTROL METHODS

1. Excavation

- Adequate training for workers, authorized entry, tool box talk, sign boards
- Providing barricading for excavation work

2. Scaffolding

- Used certified scaffold materials
- Working at height training, used personal protection equipment.
- Only competent person is allowed to erect.

3. Shuttering work

- Providing guarding for machinery.
- Providing life line for working at height.
- Work platform erected by competent person and inspected by scaffold inspector.

4. Formwork

- Provision of appropriate PPE'S.
- Fire extinguisher near hazardous task, provide working at height and manual handling training.

5. Curing

- Provide proper draining system for the over flow water to drain from the work place.

- Provision of appropriate PPE'S.
- Adequate curing equipment.

6. Welding Hazards Control method:

- Emergency response training programs and certificate competent welders, providing fire extinguisher at every welding point.
- Provision of flashback arrestor, Provision of sufficient exhaust for the fumes.

7. Concreting Hazards Control method:

- Provision of adequate concreting machine, provision of appropriate PPE's, Training for workers.
- Planning the concrete schedule and ensuring the work place is maintained good housekeeping, avoiding concrete batching at site.

8. Carpentry Hazards Control method:

- Component training, Tool inspection with checklist, Provision of appropriate PPE.
- Adequate storage yards, Isolating the work place, Provision of appropriate of exhaust.

9. Lifting Operations Hazards Control method:

- Vehicle inspection with daily checklist, Training for operator and rigger, Colour code followed for every 3 months.
- Separate rigger allotted for lifting operation.

VI. CONCLUSION

An effective risk assessment and control measures in construction industries process encourage the construction company to identify and quantify risk and to consider risk containment and risk reduction polices. to finding the review this various report is based on the various journals. this report has highlighted the important of risk assessment and control measures in construction industries carried out for the tasks involved in the construction industry.

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