

LivSafe is a conscious safety initiative of Liberty Videocon to help people live safer, secure lives through an education series of proactive and preventative suggestions in the safety arena. This document does not purport to promote any product, directly, or indirectly.

## Measures to prevent injuries and fatalities from common accidents occurring at construction sites



### Overview

Occurrences of accidents at construction sites are common and of many types. Whatever the nature of accidents be, they result in loss of life and limbs of the workers, and are therefore tragic. However, they can be avoided through implementing effective safety measures.

We at Liberty Videocon General Insurance

value the safety of the construction workers; and intend to suggest some precautionary measures to avoid such accidents at the construction site. We sincerely hope that the safety measures suggested in this document will help prevent onsite mishaps, and keep the workers safe and secure.

### Criticality of the Supervisor's role at the Construction Site

Construction supervisors have a great deal of responsibility. In addition to managing project schedules and constraints, supervisors must play a critical role in addressing the safety of the workers at the construction site. This includes the administration of safety procedures and guidelines as well as the enforcement of these policies. Supervisor's negligence can result in serious injury to workers and even fatalities on the job.

### Case Study

#### I. One die, six injured in Chennai metro rail construction site accident

A major accident took place at a metro rail construction site in Chennai, in which one worker died and six were injured. The accident occurred due to a 'crane boom failure'. One of the giant cranes at the site was about to drop a nearly 25-tonne reinforcement bar - iron cage-like structure used in the construction of the diaphragm wall for the underground station - in the underground chamber, the huge iron bar fell from a height of 22 metres on the seven men stationed underneath.

##### Learning

Supervisor negligence can result in serious injury and even death on the job. Construction supervisors have a great deal of responsibility to ensure safety for the onsite workers.

#### II. Rod falls on man from high rise

A resident of a building was on his way to meet a friend,

when a rod came crashing on him from the 22nd floor of the high rise tower.

##### Learning

A safety net must be put up around a structure under construction / renovation to avoid debris, work material and tools dropping from scaffolds.

#### III. Construction worker dies after fall from building

In February 2012, a construction worker died after falling from a building while working. He was working without a safety belt. It was found that safety rules were blatantly flouted at the construction site, where labourers worked without helmets, shoes and belts.

##### Learning

Workers at building construction sites must compulsorily use personal protective equipment like safety belts, helmets and footwear to safeguard from accidents like trips or falls.

## Common accidents at construction sites and the precautions to be taken to prevent their occurrence:

### Electrical Accidents



- Keep an eye out for overhead or ground-level power lines when using ladders or poles to avoid electrocution.
- Check all cords and connections for signs of wear and tear.
- Make sure tools and equipment are well-maintained. Check that circuits are not overloaded with too many electrical devices.

firm surface to support workers.

- Keep the workplace clear and tidy ensuring loose items are suitably covered or secured or stored at a proper place.
- Mark the holes in the flooring properly.

or solvents and therefore, need to be handled carefully.

### Scaffolding Accidents



- Protect workers with guardrails and safety nets around the structure to avoid debris / work material and tools dropping from scaffolds or flying through air and falling out, causing injury.
- Ensure scaffoldings are correctly assembled to prevent collapse of scaffold caused by instability or overloading.
- Do not erect scaffoldings close to overhead power lines.

### Welding Rod Accidents

- Welders are exposed to toxic gases, toxic fumes, UV light, sparks and high temperatures. They must use proper protective gear, special goggles and helmets while at work to protect their faces, heads and eyes from damage.
- Ensure there is adequate ventilation.

### Crane Accidents



- Ensure crane operators are properly trained and have passed requisite crane operating exams.
- Determine lift angle, weight, and height before a lift takes place.
- Mandate workers to use visual signals to communicate information about a lift.

### Forklift Accidents

- Wandering pedestrians and workers must be sufficiently observant from oncoming or reversing forklifts, the vehicle running off a loading dock, load falling off while manoeuvring and while negotiating blind spots, or narrow aisles.
- Place loads in perfect positions so their center of gravity doesn't shift.
- Use trained drivers, keep equipment well-maintained and ensure that the operation area is kept clear.
- Ensure drivers set off the alarm to alert nearby pedestrians walking into the path of the forklift.

### Accidents from Slips, Trips and Falls



- Make sure personal protective equipment like safety harnesses, safety helmets, goggles and footwear are properly used when working on structures.
- Select ladders that are safe and suitable for the job and erected on a

### Power Tool Accidents

- Use tools for the task they are designed for and do not use tools that are worn or defective. Follow the manufacturer's instructions carefully.

### Chemical Burns



- Chemical burns may result from acids, bases, oxidizers

### Trench Collapses

- Make sure safeguards are in place when trenches are constructed to protect workers inside the trench from a collapse.

### Fires & Gas Explosions

- Certain stored chemicals and mixtures of gases are flammable and extremely volatile. Establish strict rules and guidelines for employees to follow when handling these materials.

To ensure maximum safety for workers from a range of potential hazards and accidents at construction sites, all the mentioned safety measures need to be strictly followed onsite.

## Trivia

### 51 workers fall to death at Willow Island cooling tower construction site

The 1978 Willow Island disaster in West Virginia, is thought to be the largest construction accident in American history. A cooling tower under construction at a power station collapsed, killing 51 construction workers. The disaster occurred because the usual method of scaffold construction for building large cooling towers was not followed, instead, the scaffolding was bolted to the structure as it was being built. On the fateful day, as concrete was being raised, the cable hoisting the bucket of concrete went slack and the crane pulling it up fell toward the inside of the tower. The previous day's concrete started to collapse and unwrap from the top of the tower. A jumble of concrete, wooden forms and metal scaffolding fell into the hollow center of the tower. All the 51 workers on the scaffold at that time fell to their deaths.

The Occupational Safety and Health Administration (OSHA) investigation showed a series of errors and short cuts that triggered the event. Scaffold was attached to concrete that hadn't had time to sufficiently cure. Bolts were missing and the existing bolts were of insufficient grade. There was only one access ladder, restricting ability to escape. An elaborate concrete hoisting system was modified without proper engineering review.



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