

CSI Country Wide Case Study Safety Strategy Discussion

Construction Safety Investigator



Instructions:

The objective of this tool is to provide field supervisors with information to proactively engage workers and discuss safety-related concerns that they may encounter. Safety discussions should not be limited to the subject above and should pertain to the activities that workers will be involved in that may have the potential for safety-related exposures.

Case Day:

10/19/16

Accident Type:

Scaffold Platform Collapse

Relevant laws, rules and codes may include:

29CFR 1926.20(a)(1); 1926.21(b)(2); 29 CFR 1926.451(f)(1); 29 CFR 1926.451(a)(1)

Case:

Several people Injured When Climbing Scaffold Collapsed

Accident Detail:

Two climbing scaffolds collapsed with debris falling to the ground from the 48th floor of a high-rise residential building under construction. The loading platform was being used for moving materials, formwork tables, and equipment in and out of the building. The incident occurred while the pair of scaffolds were being repositioned from the 47th floor to the 48th floor of the building.

The platforms had been in use at the site for more than a year and had been raised previously using the hydraulic system or by crane when required by the manufacturer.

The distance between the two scaffold platforms was about 7 feet. The contractor responsible for the scaffolds placed approx. 16 purlins, approx. 20' 6" long, spanning two larger platforms, and also placed plywood over these purlins converting this space between the larger platforms into a deck. This arrangement allowed the contractor to carry the purlins between the floors and carry materials while climbing the platforms.

The contractor hydraulically climbed two larger scaffolds together, with materials spanning between them, in a synchronized manner. The hydraulic jacks were positioned on the 46th floor and during the hydraulic climbing, both scaffolds failed.

The materials on the two scaffolds, weighing approximately 13,000 pounds, fell to the ground, and the two failed scaffolds were later brought down with a crane.

Four people were injured, including two site workers and a fifth person, a by-stander, died of a heart attack while fleeing the debris.

Reconstructive Safety Evaluation:

- What are some of the possible causes of the accident being discussed?
- What actions could have been taken that might have prevented this accident from occurring?

Accident Scene Conclusion:

The investigation revealed the following:

- The scaffold manufacturer prepared the engineering drawings of the scaffold, which was signed by a professional engineer. The manufacturer also furnished the parts, all engineering data, drawings, specifications and training for assembling and operation of the scaffold.
- The manufacturer manual stated that under Hydraulic repositioning “No payload (service load) is allowed on the loading platform while it is being repositioned.” During climbing the allowable load is the self-weight (dead weight) of the platforms only” (Simply put; during climbing, no load can be placed over the platforms, as it will compromise structural integrity).
- The platforms were substantially loaded with approximately 6,500 pounds of materials each during the climb.
- The loading of the platforms was further exacerbated due to floor-to-floor height between 47th and 48th floor which was significantly greater than the height the design prepared by the manufacturer factored in.
- The load on the platforms during climbing, coupled with the increased floor-to-floor height, overstressed the scaffolds, and resulted in the failure.
- An additional anomaly was created when the contractor climbed both scaffolds together in a synchronized manner with superimposed loads that also spanned both platforms. Failures were compounded.
- Wind was not a contributing factor to the failure.

Preventive Safety Measures Include:

- Complete a Job Safety Task Analysis that includes scope of work, anticipated exposures and safety equipment and/or procedures needed to ensure the task is completed successfully and safely.
- Conduct a pre-work meeting to review the JSTA and ensure workers understand the task to be completed, any safe working procedures and have the necessary safety equipment.
- Employees should have adequate training on job-specific tasks. Proper training must extend to all workers, including day laborers. Language barriers and communication should also be considered during training.
- Assemble, operate, maintain and disassemble scaffolds according to all engineering data, drawings, and specifications as well as manufacturer instructions.
- Scaffolds and scaffold components shall not be loaded in excess of their maximum intended loads or rated capacities, whichever is less.
- Never modify or alter a scaffold unless engineered, designed and approved to do so by the Manufacturer.

Attendance Roster:

Reference: This case investigation was reported by the U.S. Department of Labor, Occupational Safety and Health Administration - Incident 10/19/16, Miami, FL

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