



The National Institute for Occupational Safety and Health (NIOSH)

Promoting productive workplaces
through safety and health research



Fall from a Scaffold Involving a Construction Foreman

FACE 8202

INTRODUCTION

The National Institute for Occupational Safety and Health (NIOSH) Division of Safety Research (DSR) is currently conducting the Fatal Accident Circumstances and Epidemiology (FACE) Study. By scientifically collecting data from a sample of similar fatal incidents, this study will identify and rank factors which increase the risk of fatal injury for selected employees.

On August 16, 1982, a 29-year-old male foreman fell from the platform of a 16' welded tubular scaffold and landed head first on the 6" concrete slab. The foreman died approximately 24 hours later in the intensive care unit of a local hospital. The attending medical examiner notified DSR on August 20, 1982.

CONTACTS/ACTIVITIES

Subsequent to receiving notification, DSR sent a research team, consisting of an epidemiologist, safety researcher, civil engineer, safety engineer and safety specialist, to visit the company on August 26, 1982 and the incident site on August 26 and 31, 1982. Interviews were held with the co-owner of the company, new construction foreman and co-workers. Information obtained from these interviews pertained to company history and processes, policies and procedures, incident scenario, safety and training programs, employee evaluations, injury records, and relevant work practices. The incident site was surveyed in the presence of the witnesses who were able to describe the appearance of the site at the time of the incident. The scaffold and truss involved in the incident were still at the site and were observed. During the survey, the locations of the victim, scaffold and truss were identified and 35mm pictures were taken.

SYNOPSIS OF EVENTS

This construction company had been established for approximately 12 years and had erected numerous commercial metal buildings. According to the co-owner, the company had no prior history of occupational fatalities nor disabling injuries.

The construction activity consisted of the erection of a commercial metal building designed to be a retail tire store. The design consisted of 35 metal trusses (each of which was approximately 60' long, 11' high at the apex, and 300 lbs. in weight) set 40" apart and attached to 18' sidewalls (masonry block and metal columns) built upon a 6" concrete slab. The

building was approximately 60' wide and 110' long with two garage doors on each side with showroom windows and a main entrance door at the front.

At the time of the incident, the slab with the block and metal sidewall framing (without exterior panels) were complete and (31 of 35) of the 35 trusses had been set and secured in place. The erected trusses had been raised with either a hydraulic, telescoping boom crane or a backhoe with extension attachment. Wooden spacers constructed from 2 x 4's were used to align the truss at a proper distance from a previously placed truss and to minimize its lateral movement until secured. The trusses were secured to the sidewalls by two metal screws at each end and to the proximal trusses by two metal roof purlings which would be attached to the truss by screws.

The working foreman (the victim) and three other employees were involved in the activity of raising, setting and securing the metal trusses on the afternoon of August 16, 1982. There were four trusses left to be installed, and the workers hoped to finish those that afternoon. The victim and another employee were on the 16' scaffold's 8' x 4' platform which did not have guardrails. The other employee was using a 6' wooden stepladder to reach and remove the hoist chain attached to the truss which had just been raised into place and aligned with a wooden spacer. In the process of removing the chain, the truss began to rotate on its base, in a downward direction. The foreman and other employee grabbed the truss in an attempt to prevent its movement and subsequent damage. The foreman and other employee were not able to maintain the truss. The other employee had to let go while the victim continued to hold on. The truss then continued to rotate on its ends downward and knocked over the scaffold and ladder. It is not clear whether the victim fell before or after the truss hit the scaffold. The other employee was able to hold onto a previously secured truss and this prevented him from falling.

A resident of a nearby home was a trained EMT and was able to provide quick emergency care for the victim. This care consisted of fitting the victim with a cervical collar and keeping him warm. An ambulance arrived approximately 40 minutes after the incident occurred and transported the victim to a nearby hospital.

MEDICAL FINDINGS

While in the hospital, neurosurgery was attempted to relieve cerebral pressure caused by a massive subdural hematoma. The damage was irreversible and the victim died approximately 24 hours after being admitted. Toxicologic tests of blood for alcohol and urine for basic neutral and narcotic drugs were all negative.

GENERAL CONCLUSIONS AND RECOMMENDATIONS

Several factors contributed to this fatal incident. The truss' involved in the incident apparently began to move due to the slippage or shearing of the wood spacer. Spacers observed at the incident site were open-ended and cracked. These conditions diminish their ability to adequately hold an unsecured truss. When the truss began to fall, the victim not only grabbed it but also apparently refused to let go in apparent disregard for his own safety. Also, although less contributory since the entire scaffold was knocked over, the victim and other employees were working from a platform which had no guardrails.

It is recommended that future efforts be made to utilize a more suitable type of temporary spacer. A spacer made of metal and with clasps to fasten it in place would be less likely to be dislodged. Safety training should stress that workers should not grab onto large objects in motion. Future efforts should stress the importance of and strictly enforce the proper use of guard rails around scaffold platforms.

The courtesy and cooperation of the company officials and employees are gratefully acknowledged.

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