

May 25, 1995

Nebraska FACE Investigation 95NE017

SUBJECT:

Worker Falls 33 Feet While Constructing Elevator Shaft.

SUMMARY:

A 51-year old construction superintendent fell 33 feet to his death while constructing an elevator shaft. He was in the process of setting up a work platform at the time of the incident. A 4x8 foot sheet of plywood had just been set down over two 2"x12" boards which were resting on two 2"x6" boards nailed to the frame of the elevator shaft. When the victim stepped on the sheet of plywood one of the 2"x6" boards broke. The platform gave way and he fell 33 feet to the concrete floor at the bottom of the elevator shaft.

The Nebraska Department of Labor (NDOL) investigator concluded that to prevent future similar occurrences, employers should:

- *Provide appropriate fall protection equipment to all workers who may be exposed to a fall hazard.
- *Insure holes in walking/working surfaces are protected by covers.
- *Insure walking/working surfaces have sufficient strength and structural integrity to support workers.
- *Thoroughly address worker safety in the planning phase of all construction projects.
- *Develop, implement and enforce a comprehensive safety program that includes, but is not limited to, training in all hazard recognition and the use of fall protection devices.

PROGRAM OBJECTIVE:

The goal of the workplace investigation is to prevent work-related deaths or injuries in the future by a study of the working environment, the worker, the task the worker was performing, the tools the worker was using, and the role of management in controlling how these factors interact.

This report is generated and distributed **solely** for the purpose of providing current, relevant education to the community on methods to prevent occupational fatalities and injuries.

INTRODUCTION:

On February 21, 1995, a 51 year-old construction superintendent died as a result of injuries sustained from a 33 foot fall in an elevator shaft under construction. The NDOL was notified by a local television station which had heard about the incident. The FACE investigator responded and was at the scene within one and a half hours after the incident. OSHA also was on site. The FACE investigator interviewed company management the day of the incident and interviewed witnesses on February 22, 1995. The employer is a general contractor that has been in business for 11 years. The company employs 14 people. This was the first fatality in the history of the company. They have a written safety program and the individual in charge of safety had other primary duties.

INVESTIGATION:

The victim was the superintendent at this particular job site. He had worked for the company for four years and had been at the incident site for four months. The company was remodeling an old building and as part of the project they were building an elevator shaft. At the time of the incident the victim was putting up a temporary platform to work on while installing headers in the elevator shaft. Two 10'x2"x6" support boards (cleats) had been nailed horizontally (one on each side of the shaft) to vertical 2"x6"s to support the work platform. Two 10'x2"x12" planks had been placed on top of the 2"x6" cleats (A and B) as shown in Figure 1.

The victim was assisting two other workers who were attempting to slide a 4'x8'x $\frac{3}{4}$ " sheet of plywood into position on top of the 2"x12"s. It appears the victim was standing on one of the 2"x6" cleats (B) while positioning the plywood sheet. After the plywood was in place on the 2"x12"s (Figure 2), witnesses said the victim stepped on the plywood platform. When he put his weight on the platform, the 2"x6" cleat (A) on the opposite side broke in half and the platform fell throwing the victim to the bottom of the shaft. There was another platform approximately 15 feet below the one that fell, configured the same as Figure 2. It had an opening approximately two feet by eight feet through which the victim fell. Coworkers immediately called 911 and the victim was transported via ambulance to the hospital where he died 40 minutes later. No fall protection was worn or available while workers were installing the work platform.

The investigation revealed that the 2"x6" that broke appeared to be defective. The board had a large nail driven through the area that split as shown in Figure 3. It appears that the board had begun to split and it had been nailed to keep it from splitting further. It is the opinion of the FACE

Investigator that as a result of its weakened condition, the board broke completely when the victim placed his weight on the platform.

CAUSE OF DEATH:

The cause of death, as listed on the death certificate, was a ruptured thoracic aorta as a consequence of chest trauma.

RECOMMENDATIONS/DISCUSSION:

Recommendation #1: Provide appropriate fall protection equipment to all workers who may be exposed to a fall hazard.

Discussion: In this particular case the victim was exposed to a fall of 33 feet. In accordance with 29 CFR 1926.501 (2)(b)(1) fall protection is required for each employee on a walking/working surface with an unprotected side or edge six feet or more above the lower level. 29 CFR 1926.502 (a)(2) states that the employer shall provide and install fall protection systems required for an employee before that employee begins work that necessitates the fall protection.

Recommendation #2: Ensure holes in walking/working surfaces are protected by covers.

Discussion: There was another work platform in the shaft approximately 15 feet below the platform that fell. This platform was identical to the one they were attempting to build when the incident occurred. It only covered two-thirds of the shaft opening, leaving an area approximately 2 x 8 feet open to the concrete floor below. The victim fell through this opening. Had this opening been covered in accordance with 29 CFR 1926.501 (b)(4)(ii) the victim would have fallen only about 15 feet onto plywood and may not have sustained fatal injuries.

Recommendation #3: Insure walking/working surfaces have sufficient strength and structural integrity to support employees.

Discussion: In accordance with 29 CFR 1926.501 (a)(2), it is the employers responsibility to insure walking/working surfaces have sufficient strength and structural integrity to support employees safely. In this case a board was used that could not support the load. To preclude this from recurring it is recommended that all materials used in constructing walking/working surfaces be closely examined prior to using to insure condition and suitability. The 2"x6" board that broke appeared as if it had been used before and possibly was damaged before it was used in the construction of the work platform.

Recommendation #4:Thoroughly address employee safety in the planning phase of all construction projects.

Discussion: During the planning phase of this project the fall hazard should have been identified and steps taken to mitigate it. The planning and incorporation of safety measures prior to any work being performed will identify potential hazards so preventive measures can be implemented. This was the first job of this magnitude the company had undertaken. Prior to this the company had done projects on a smaller scale, such as home remodeling, where fall protection in many cases was not required. It is imperative to thoroughly address ramifications of any changes is focus during the lifecycle of a project or a company.

Recommendation #5:Develop, implement and enforce a comprehensive safety program that includes, but is not limited to, training in all hazard recognition and the use of fall protection devices.

Discussion: If training in fall protection had been provided as required by 29 CFR 1926.503 (a)(1), the victim, as well as his coworkers, should have recognized the hazard and taken steps to insure the necessary fall protection was obtained and used.

REFERENCES:

Federal Register, Vol. 59, No. 152, Rules and Regulations, Labor, Safety Standard for Fall Protection in the Construction Industry, 29 CFR 1926.501, 1926.502, and 1926.503. August 9, 1994

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