

Iron Worker Dies After Falling 26 Feet From Structural Steel

DATE: September 26, 1994

SUMMARY

On November 22, 1993, a 53 year-old male iron worker fell 26 feet as he moved along a steel beam. The incident occurred at the construction site of a two-story building where the steel frame work was being completed. The victim was marking a steel I-beam for placing steel joists and was last seen moving along the beam. He apparently lost balance while moving over an irregular section between two beams, fell and landed on a cement piling. NJDOH FACE investigators concluded that, in order to prevent similar incidents in the future, these safety guidelines should be followed:

- **Employers should ensure that fall protection is used at all times.**
- **OSHA should expedite the implementation of a comprehensive fall protection standard for the construction industry.**

INTRODUCTION

On November 22, 1993, NJDOH FACE personnel were informed by the county medical examiner of a work-related fatal fall at a construction site. The next day, a FACE investigator visited the site and met with the OSHA

compliance officers investigating the incident. At that time, the FACE investigator interviewed the general contractor for the site and a co-worker who witnessed part of the incident. Photographs were also taken of the incident scene. Additional information was obtained from the OSHA file, the police report, and the medical examiner's report. The victim's employer (who was a sub-contractor at the construction site) declined to be interviewed for this investigation.

The employer was a structural steel erection contractor with 20 employees. The company had been subcontracted to erect the structural steel framing at the construction site of a new office building and had been working there for about two weeks. The company had a fall protection program which included using static lines and safety nets. The victim was a 53 year-old male steel worker who had been hired from a union hall. He was described by his co-workers as a competent and cautious iron worker.

INVESTIGATION

The site of this fatality was the construction site of a two-story suburban office building. The building, which had been under construction for about three weeks, had progressed to the point where the steel

support columns and beams had been erected. The general contractor estimated that there was about two weeks of steel work left, and that the building would be completed in about eight months.

The day of the incident, a Monday, was described as a "picture perfect" autumn day with temperatures in the low to mid 60's. With the frame work completed, the steel contractor was preparing to install the steel bar joists that would support the building's floors. This required an iron worker to mark the main beams, position the joists, and connect them to the beams. In keeping with OSHA regulations, the iron workers on the perimeter of the building were wearing safety belts with lanyards and a safety net had been positioned under the equipment penthouse opening. The victim was working on an 8 inch wide steel I-beam located on the second floor of the building, 26 feet above the ground. Because he was working on the second floor of a tiered building less than 30 feet high, he was not required under OSHA standards to use fall protection.

At about 10:10 a.m., the victim was marking the I-beam for installing the bar joists. He was seen "cooning" the beam, meaning that the victim had straddled the beam and was moving by sliding his feet along the beam's lower flange. This method is considered safer than walking directly on top of the beam. He was last seen moving slowly along the beam when he apparently realized that he was facing the wrong direction and started to turn around. As he turned, he fell and grabbed onto a bundle for a moment before letting go. Falling, he struck the steel work on the first floor before landing on a cement piling. His co-workers went to help him and called for assistance. Rescuers found him unconscious with a weak pulse and transported him to the local hospital. The emergency room physician pronounced him dead on arrival at 11:03 a.m.

The federal OSHA investigation found that the beam the victim was on was directly connected to a smaller beam. Although flush on the upper flanges, the size difference left a space of 6 inches between the two beam's lower flanges (see illustration). OSHA concluded that the victim was unaware of this and lost his balance when his foot met the gap as he turned around.

CAUSE OF DEATH

The county medical examiner determined that death was caused by a rupture of the aorta and massive non-penetrating trauma to the chest.

RECOMMENDATIONS/DISCUSSIONS

Recommendation #1: Employers should ensure that fall protection is used at all times.

Discussion: Although the employer was in compliance with current OSHA fall protection regulations, the circumstances permitted a fatal fall to occur. To prevent future incidents, the FACE project recommends that fall protection should be used when employees are working at heights above 10 feet (it should be noted that FACE has documented fatal falls from heights less than 5 feet). A number of fall protection devices are available that may provide the mobility needed by connectors and other iron workers. An example may be to use retractable reel system that would feed out safety line as the employee moved.

Recommendation #2: OSHA should expedite the implementation of a comprehensive fall protection standard for the construction industry.

Discussion: This incident shows that a worker can fall a significant distance and still be within the OSHA regulations. These regulations also vary by situation and occupation, such as requiring fall protection for over 30 feet for steel connectors but only 16 feet for roofers. FACE recommends that OSHA expedite the implementation of the comprehensive fall protection standard it is now developing.

REFERENCES

29 CFR 1926.105 Code of Federal Regulations, Washington, D.C., U.S. Government Printing Office, Office of the Federal Register.

It is important that employers obtain correct information about OSHA regulations and methods of ensuring safe working conditions. Because it is often difficult for a small business to obtain this type of information, the following sources may be helpful:

U.S. Department of Labor, OSHA

On request, OSHA will provide information on safety standards and requirements for fall protection. OSHA has several offices in New Jersey which cover the following areas:

Hunterdon, Union, Middlesex, Warren and Somerset Counties.....(908) 750-3270
Essex, Sussex, Hudson and Morris Counties.....(201) 263-1003
Bergen and Passaic Counties.....(201) 288-1700
Atlantic, Gloucester, Burlington, Mercer, Camden, Monmouth,
Cape May, Ocean, Cumberland and Salem Counties.....(609) 757-5181

NJDOL OSHA Consultative Services

The New Jersey Department of Labor OSHA Consultative Service will provide free advice for business owners on methods of improving health and safety in the workplace and complying to OSHA standards. Their telephone number is (609) 292-3922.

New Jersey State Safety Council

The NJ Safety Council provides a variety of courses on work-related safety. There is a charge for the seminars. Their address and telephone number is:

NJ State Safety Council
6 Commerce Drive
Cranford, New Jersey 07016
Telephone (908) 272-7712

Other Sources

Building trade organizations and labor unions are a good source of information on suppliers of safety equipment and training.

To contact [New Jersey State FACE program personnel](#) regarding State-based FACE reports, please use information listed on the Contact Sheet on the NIOSH FACE web site. Please contact [In-house FACE program personnel](#) regarding In-house FACE reports and to gain assistance when State-FACE program personnel cannot be reached.