

FINAL KY FACE #96KY093

Date: 6 December 1996

Subject: Welder Dies After 30-foot Fall From Steel Structure

SUMMARY

A 31-year-old welder working at a construction site died after falling 30 feet. The victim, along with two co-workers, was on an I-beam structure preparing to weld handrails when the incident occurred. The victim informed his two co-workers that he was going to talk with another person on the crew and left the area. He was wearing a hard hat, full-body safety harness with two shock-absorbing lanyards, and steel-toed shoes. He went down one level and crossed a roped-off area, stepping onto a steel-grate floor. The unsecured flooring moved, and the victim fell 30 feet to the dirt floor below. The Kentucky FACE investigation team concluded that, in order to prevent similar occurrences, employers should:

- ensure that employees do not enter roped-off areas;
- enforce guidelines established by the employer regarding safety rules;
- ensure that employees evaluate the terrain and necessary equipment prior to beginning a procedure.

INTRODUCTION

On 9 September 1996, KY FACE was notified of the fall and subsequent death of a welder at a building site. An investigation was initiated to determine the circumstances surrounding the event. The case was discussed with the county coroner, the Occupational Safety and Health (OSH) compliance officer who investigated, and the employer's safety director. Photographs taken at the scene were viewed. A site visit was not made.

INVESTIGATION

The victim had worked for this company for two months, and on this particular job site for three weeks. He was a certified welder and had several years of experience working in this type of setting. A formal orientation to company policies, procedures and safety practices was attended by the victim. He had received specific safety instructions from the company's safety director approximately one hour prior to the incident. At the time the incident occurred, he was wearing a full-body safety harness with two shock-absorbing lanyards, hard hat and safety glasses. There were a total of 243 employees at this site.

The contractor was hired to construct expansion facilities at a paper mill. They had been at the site almost a year and the project is expected to take another two years to complete. The contractor, based out of state, had a safety director on the site, and safety meetings were held with employees at the beginning of each shift to review job hazards and direct each shift's activities. Full body harnesses were issued to the employees and required to be worn. The spring-loaded, double-action lanyard and full-body harness were in excellent condition, according to the OSH officer. The job site was partially netted.

The morning of the incident was clear and dry. The victim and two co-workers were asked to weld permanent handrails approximately 42 feet above the ground, along the stairway of the exposed I-beam structure. The victim and his assistant were beginning to weld the handrail when the assistant discovered that he needed a new wheel to grind off the slag. The victim said he would get it because he also needed to talk with another crew member who was on the ground. He proceeded down one flight where the steel-grating floor was laying in place, secured to the horizontal I-beams. The 24"x132" gratings created a permanent floor for chips to fall

through in the paper mill process. The grated area was taped off with red plastic warning tape. The victim's destination was the area where a crew of three workers "shoot" down (attach to the steel beams) the grating in the third floor. He stepped over two red-barricaded areas en route. The lifeline to which his lanyard should have been attached was only eight inches away; he had to climb over it to pass. For an unknown reason, he never attached the lanyard to the lifeline. The grate on which he stepped, not having been secured, moved off the edge of the eight-inch I-beam as he stepped, creating a gap through which he fell approximately 30 feet, striking a forklift parked below. The grate also fell.

The incident occurred at 7:40 am. Emergency medical services (EMS) personnel left with the victim, still alive, at 8:10 am, but he died en route to the hospital.

CAUSE OF DEATH

The cause of death was multiple head trauma.

RECOMMENDATIONS/DISCUSSION

Recommendation #1: Employees should be instructed not to cross cordoned-off areas. If this should become necessary to complete a task, full use of fall protection equipment should be required.

Discussion #1: In this case, the area where the floor was not secured was appropriately barricaded to warn employees not to enter that area. However, the victim chose to step over the caution tape and enter the hazardous area. Employees should be instructed not to enter such areas unless tied off with an approved safety harness and lanyard. The use of a "traditional" safety belt/lanyard combination, as required by 29 CFR 1910, is sometimes not practical, particularly where worker mobility is required. Use of a retracting lanyard equipped with a locking device and attached to a lifeline can provide sufficient mobility in some instances.

Recommendation #2: Enforce guidelines established by the employer regarding safety rules.

Discussion #2: In this case the employer had a comprehensive written safety program, as well as a full-time on-site safety director. In addition to safety orientation classes held upon new employees being hired, safety sessions are held at the beginning of each shift, and safety equipment is issued and required to be worn. The victim in this case was wearing the required safety equipment, but had failed to connect his lanyards to the lifeline.

Recommendation #3: Employers should ensure that employees evaluate the terrain and necessary equipment prior to beginning a procedure.

Discussion #3: In this case, the workers did not take all necessary equipment (a new wheel grinder) up the structure that morning. Had they anticipated the morning's activities, they could have brought an additional grinder with them or changed the wheel prior to ascending the structure. Also, the employee should have carefully considered why the area was cordoned off. If he knew, he might not have entered the area. The floor had been left unsecured for two weeks prior to the incident. The grate had only a 3/8" lip on the I-beam. His step caused the grate to move. The victim, even if he knew why the area was blocked off, might not have realized the extremely small clearance on the I-beam.

REFERENCES

29 CFR 1910. Code of Federal Regulations. Washington DC: US Government Printing Office, Office of the Federal Register.