The National Institute for Occupational Safety and Health (NIOSH)

Promoting productive workplaces through safety and health research NIOSH

Carpenter Dies After Falling 16 Feet From Roof–North Carolina

FACE 9509

SUMMARY

A 46-year-old male carpenter (the victim) died after falling 16 feet from a roof onto a concrete porch floor. The victim was a member of a five-man (foreman and four carpenters) crew laying roofing felt on the gable roof of a newly-constructed, prefabricated church and sacristy. The roof was 48 feet wide by 106 feet long. The crew had completed applying the felt to one half of the roof and were applying the eighth course to the second half of the roof when the incident occurred. The victim was walking backward on the roof unrolling the felt. Approximately 8 feet in front of the victim, a second crew member was temporarily nailing down the felt. A short distance behind the second crew member, the two additional crew members were permanently nailing the felt to the roof sheeting. The foreman was on the roof observing the crew. The men were only unrolling 8 feet of felt at a time because it was a windy day, with gusts up to 25 miles per hour. As the men approached the end of the roof, the foreman was called to the ground to discuss the color of the shingles with the church preacher. The worker temporarily affixing the shingles looked up to see the victim approaching the edge of the roof and yelled for him to Awatch out.@ The victim lost his balance and fell backward off the roof. The victim fell approximately 6 feet, struck a cross brace on the framework of the church=s porch, then fell another 10 feet, striking his head on the concrete floor of the porch. The crew members left the roof and ran to the victim, finding him unresponsive, bleeding from the nose and ears. One of the workers ran to the parsonage and had the preacher call the 911 operator. The crew was instructed by the 911 operator to initiate cardiopulmonary resuscitation (CPR). The crew continued CPR until the emergency medical service (EMS) arrived. When EMS personnel could not detect any vital signs they called the county coroner, who pronounced the victim dead at the site. NIOSH investigators concluded that, to prevent similar occurrences, employers should:

- **ensure that appropriate fall protection equipment is available and correctly used when working where there is a danger of falling**
- **develop, implement, and enforce a comprehensive written safety program**
- **routinely conduct scheduled and unscheduled workplace safety inspections**
- **encourage workers to actively participate in workplace safety.**

INTRODUCTION

On March 7, 1995, a 46-year-old male carpenter (the victim) died from injuries received in a 16-foot fall from a roof. On March 10, 1995, officials from the North Carolina Occupational Safety and Health Administration (NCOSHA) notified the Division of Safety Research (DSR) of this fatality, and requested technical assistance. On March 22, 1995, a DSR safety specialist conducted an investigation of this incident. The incident was reviewed with the employer, the crew foreman, the NCOSHA compliance officer assigned to the case, and a fall-equipment manufacturer representative. The site was photographed, the police report was reviewed, and the medical examiner=s report was requested during the investigation.

The employer in this incident consisted of a parent company that manufactured pre-fabricated homes and employed 15 workers. A subsidiary company included the outside-construction crew on which the victim worked. Ninety-five percent of the employer's business involved single-dwelling residential housing, though the employer would occasionally construct larger structures, such as the church in this incident. The employer had been in operation for 38 years and had no written safety policy, program or safe work procedures. Training was provided on the job, and monthly safety meetings, attended by all workers, were conducted by the safety director. This was the first fatality experienced by the employer. The victim had worked for the employer for 2 years.

Since the incident, the employer has begun to develop a comprehensive safety program, and has purchased a fall protection system consisting of body harnesses, lanyards, four 50-foot lifelines equipped with rope grabs, and anchorage points to be attached at the crest of the roof, to be used during roofing operations.

INVESTIGATION

The employer had been contracted to pre-fabricate and erect a church and sacristy 48 foot wide by 106 foot long. The fabricated materials were prepared at the parent company=s manufacturing plant, then shipped to the job site. After a concrete footer, four courses of cement block, and a 12-foot by 24-foot concrete and block porch floor were in place, a 5-man construction crew was dispatched to the site to erect the structure.

In a span of 12 days the crew of 4 carpenters (including the victim) and a foreman had erected the skeletal structure, laid the plywood floor, attached the aspenite outer walls, and applied the plywood sheeting to the roof of the church.

On the day of the incident, the crew was applying the roofing felt to the plywood sheeting on the 5:12-pitched gable roof of the church. The crew had completed half the roof and was applying the eighth course to the second side of the roof. The victim was walking backward on the roof, unrolling the felt approximately 8 feet at a time, because the wind was gusting up to 25 miles per hour. Approximately 8 feet in front of the victim, a co-worker (facing the victim) was temporarily nailing down the felt. A short distance behind that worker, two crew members were permanently nailing the felt to the roof. The foreman was on the roof observing the crew. None of the men were wearing fall protection.

As the men approached the roof=s edge the crew foreman, on the roof observing the men, was called to the ground to discuss the color of the shingles with the church=s preacher. The worker temporarily affixing the felt looked up to see the victim approaching the edge of the roof and yelled for him to Awatch out.@ The victim lost his balance and fell backward off the roof, striking a temporary brace on the skeletal framework of the church=s front porch, 6 feet below the roof=s edge. The victim fell an additional 10 feet to the concrete porch floor, striking his head. The crew left the roof and ran to the victim, finding him unresponsive and bleeding from the nose and ears. One of the workers ran to the parsonage and had the preacher call the 911 operator. The crew was instructed by the 911 operator to initiate cardiopulmonary resuscitation (CPR) and to continue until the emergency medical service (EMS) arrived. When EMS personnel arrived and could not detect any vital signs, they summoned the county coroner, who pronounced the victim dead at the scene.

CAUSE OF DEATH

The medical examiner listed the cause of death as skull fracture.

RECOMMENDATIONS/DISCUSSION

Recommendation #1: Employers should ensure that appropriate fall protection equipment is available and correctly used when working where there is a danger of falling.

Discussion: 29 CFR 1926.501 (b) (1) states that “each employee on a walking/working surface (horizontal and vertical surface) with an unprotected side or edge which is 6 feet (1.8m) or more above a lower level shall be protected from falling by the use of guardrail systems, safety net systems, or personal fall arrest systems.” In this incident, there was no fall protection equipment present on the roof; however, on the day of the NIOSH investigation, the employer purchased a fall protection system that was demonstrated by a fall-protection equipment manufacturer representative at the site.

Recommendation #2: Employers should develop, implement, and enforce a comprehensive written safety program.

Discussion: The development, implementation, and enforcement of a comprehensive safety program should identify, and reduce or eliminate worker exposures to hazardous situations. The safety program should include, but not be limited to, employing workday hazard assessments to enable the recognition and avoidance of fall hazards; and providing, and enforcing, the use of appropriate safety equipment such as safety nets, or safety belts and lanyards.

Recommendation #3: Employers should routinely conduct scheduled and unscheduled workplace safety inspections.

Discussion: Employers should be aware of the hazardous conditions at jobsites and should take an active role to eliminate them. Scheduled and unscheduled safety inspections should be conducted by a competent person to ensure that jobsites are free of hazardous conditions. Even though these inspections do not guarantee the prevention of occupational injury, they may identify hazardous conditions and activities that should be rectified. Further, they demonstrate the employer’s commitment to the enforcement of the safety program and to the prevention of occupational injury.

Recommendation #4: Employers should encourage workers to actively participate in workplace safety.

Discussion: Employers should encourage all workers to actively participate in workplace safety and should ensure that all workers understand the role they play in the prevention of occupational injury. In this instance, the victim was walking backward on a roof 16 feet above ground without any guarding or safety equipment. Workers and co-workers should look out for their personal safety and the safety of co-workers. When workers observe hazardous conditions or activities, they should, depending on the circumstances, notify management and/or remind co-workers of the proper way to perform their tasks and protect themselves. Employers must instruct workers of their responsibility to participate in making the workplace safer. Increased worker participation will aid in the prevention of occupational injury.

REFERENCES

29 CFR 1926.501 (b) (1) Code of Federal Regulations, Washington, D.C.: U.S. Government Printing Office, Office of the Federal Register.

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