**ADMINISTRATIVE REPORT** **DATE: June 18, 1997**
**PUBLIC HEALTH SERVICE/CDC/NIOSH/DSR**
**FACE-97-08**

**TO:** **Director, National Institute for Occupational Safety and Health**

**FROM:** **Division of Safety Research, NIOSH**

**SUBJECT:** **Carpenter's Helper Dies After 120-Foot Fall From an Unprotected Floor Edge of an Atrium--South Carolina**

## SUMMARY

A 22-year-old male carpenter's helper (the victim) died of injuries he received after crawling from an unprotected floor edge onto an unsecured piece of plywood and falling 120 feet to the ground. At the time of the incident, concrete forming work had been completed on 12 floors of a condominium under construction. The victim was part of a crew removing form materials (plywood, etc.) and was assigned to work on the 10th floor. The victim had been on the 12th floor obtaining a safety harness and was en route to the 10th floor via a personnel hoist when he stopped the hoist and exited at the 11th floor. A co-worker from the floor above had yelled down to the victim, asking him to plug in an extension cord that was hanging from the 12th to the 11th floor. He crawled under a red tape warning line at the floor edge of the atrium onto a piece of unsecured plywood. The plywood gave way and the victim fell 120 feet to the ground. The local emergency medical service responded in less than 10 minutes, but the victim was pronounced dead at the scene. NIOSH investigators concluded that, to prevent similar occurrences, employers should:

- *implement 29 CFR 1926.501 (b)(1), which requires that all walking/working surfaces with an unprotected side or edge which is 6 feet 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*
- *develop and implement a comprehensive written safety program*
- *address worker safety issues in the planning phase of construction projects.*

Additionally, prime contractors should:

- *utilize contract language that requires subcontractors to implement a site-specific safety and health program prior to the initiation of work.*

## INTRODUCTION

On March 23, 1997, a 22-year-old male carpenter's helper (the victim) died of injuries he received after falling 120 feet from an unprotected floor edge. On April 14, 1997, officials of the South Carolina Occupational Safety and Health Administration (SCOSHA) notified the Division of Safety Research (DSR) of this fatality, and requested technical assistance. On June 10, 1997, a safety specialist from DSR investigated the incident and reviewed the circumstances with the employer and officials of SCOSHA. Photographs of the incident scene and witness statements were also reviewed.

The employer in this incident was a concrete forming company which had been in business for 15 years and had 15 employees. The employer had been contracted to supply the concrete forming work for the construction of a 12-story condominium. The employer did not have a written safety and health program, but bi-weekly safety meetings were held by the employer. Also, the owner was the designated safety officer. The victim had worked for the employer for 9 days. This is the first fatality experienced by the employer.

## INVESTIGATION

The employer had been subcontracted to do the concrete forming work for the construction of a 12-story condominium. At the time of the incident, the employer had been at the construction site for 4½ months. The concrete pillars and floors had been completed and the employer was in the process of removing the wooden forms. On Sunday, the day of the incident, two crews were directed to work on different levels of the condominium. The crew the victim was assigned to was going to remove forming materials (plywood, 2x4's, 2x6's, etc.) and perform cleanup duties on the 10th floor. Although the crew was assigned to work on the 10th floor, the employees could retrieve safety harnesses from either a box on the ground or from a location on the 12th floor.

At about 7:30 a.m. the employees were reporting to their assigned work locations. The victim traveled to the 12th floor and was observed obtaining a safety harness. He then rode the personnel hoist down to the 11th floor where he exited. A co-worker located on the 12th floor yelled down to the victim to plug in the extension cord that was hanging from the 12th to the 11th floor. The victim was observed crawling under a red warning tape that had been placed around the atrium floor edge on the 11th floor. The cracking of plywood was heard and before the victim could be alerted to the danger, the plywood and victim fell to the ground 120 feet below (see Figure). **Note: A warning line which consisted of red danger tape and manila rope tied to rebar strung along the atrium floor edge was being used in lieu of a guardrail system at the time of the incident.**

**CAUSE OF DEATH**

The coroner listed the cause of death as closed head trauma-skull fracture.

**RECOMMENDATIONS/DISCUSSION**

**Recommendation #1: Employers should implement 29 CFR 1926.501 (b)(1), which requires that all walking/working surfaces with an unprotected side or edge which is 6 feet 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.**

Discussion: A warning line which consisted of a red danger tape and manila rope tied to rebar strung along the atrium floor edge was being used in lieu of a guard rail system at the time of the incident. The warning line being used was not adequate in that it had been installed at the floor edge of the atrium. The use of a guardrail system, safety net system, or personal fall arrest system may have prevented this incident.

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

Discussion: Employers should develop and implement a comprehensive written safety program which includes, but is not limited to, the proper use of fall protection equipment, and the recognition and control of fall hazards. Development, implementation, and enforcement of a written safety program and the establishment of standard safety practices will demonstrate to workers the employer's commitment to safety.

**Recommendation #3: Employers should address worker safety in the planning phase of construction projects.**

Discussion: Safety concerns should be addressed and incorporated into all construction projects during the planning phase and throughout the entire project. Such a procedure would allow for the identification of potential hazards prior to the initiation of work so that appropriate intervention strategies could be implemented.

**Recommendation #4: Prime contractors should utilize contract language that requires subcontractors to implement a site-specific safety and health program prior to the initiation of work.**

Discussion: Prime contractors should use contract language that requires all subcontractors to identify how they intend to implement a site-specific safety and health program prior to the initiation of work. Subcontractors' safety programs should be consistent and compatible with the prime contractor's safety program. The contract should contain clear and concise language as

to which party is responsible for a given safety or health issue. Any differences should be negotiated before work begins. Once the provisions for these responsibilities have been established, the respective parties should ensure that the provisions of the contract regarding safety and health are upheld.

**REFERENCES**

Office of the Federal Register: Code of Federal Regulations, Labor 29 Part 1926.501 (b)(1), July 1, 1995.

**Figure. Atrium Floor Area**
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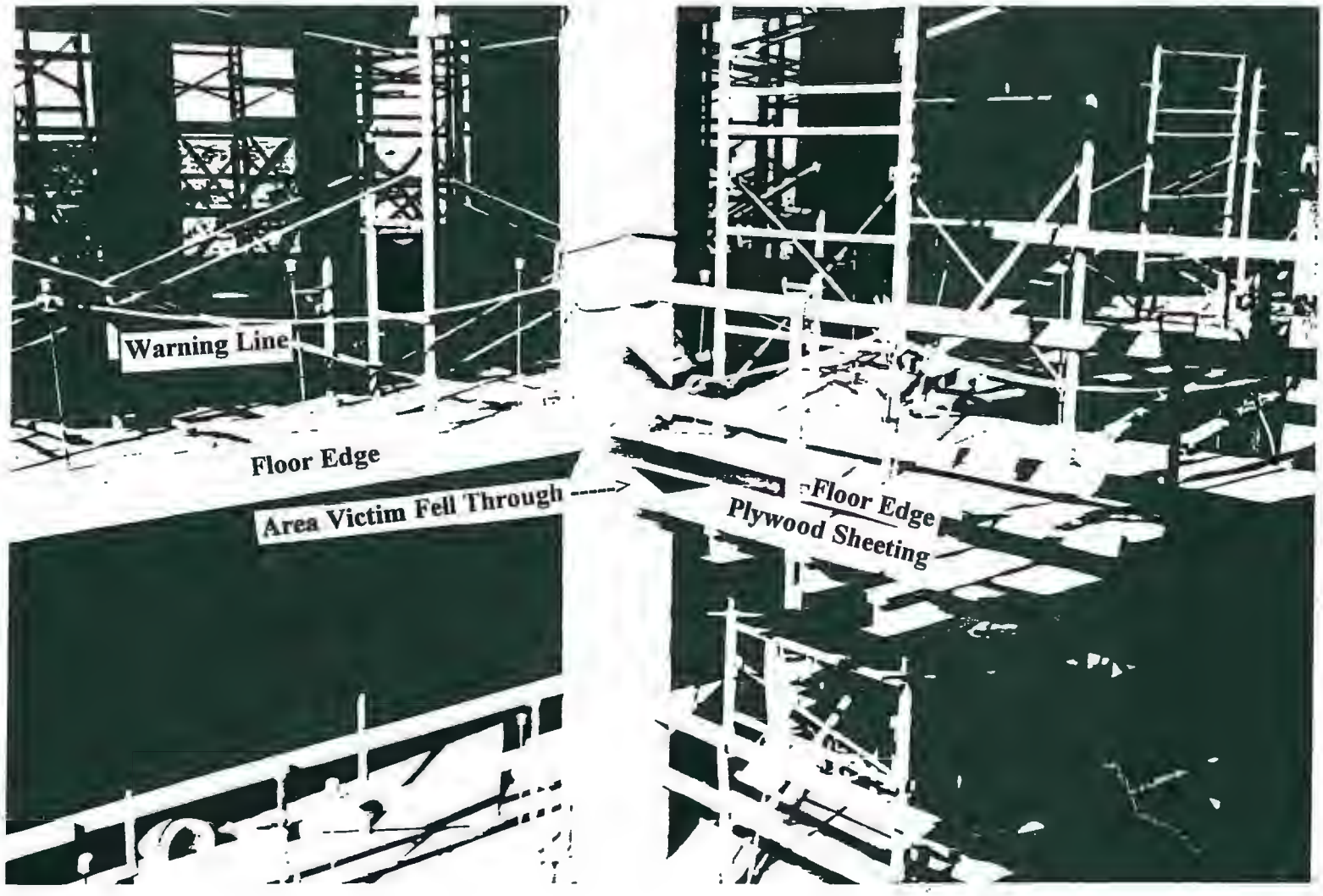

Richard W. Braddee
Safety Specialist
Trauma Investigations Section
Surveillance and Field
Investigations Branch
Division of Safety Research

Virgil J. Casini
Project Officer
Trauma Investigations Section
Surveillance and Field
Investigations Branch
Division of Safety Research

Ted A. Pettit, M.S., P.E.H.S.
Chief
Trauma Investigations Section
Surveillance and Field
Investigations Branch
Division of Safety Research

Fatality Assessment and Control Evaluation (FACE) Project

The National Institute for Occupational Safety and Health (NIOSH), Division of Safety Research (DSR), performs Fatality Assessment and Control Evaluation (FACE) investigations when a participating State reports an occupational fatality and requests technical assistance. The goal of these evaluations is to prevent fatal work injuries in the future by studying the working environment, the worker, the task the worker was performing, the tools the worker was using, the energy exchange resulting in fatal injury, and the role of management in controlling how these factors interact.

States participating in this study: North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, and Virginia.

Additional information regarding this report is available from:

Division of Safety Research
National Institute for Occupational
Safety and Health (NIOSH)
1095 Willowdale Road
Morgantown, West Virginia 26505-2888
Phone: (304) 285-5916
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