

MASSACHUSETTS DPH/DLI/NIOSH  
FACE MA-92-07  
DATE: May 05, 1992

TO: Director, Massachusetts Department of Public Health,  
Occupational Health Surveillance Program

FROM: Massachusetts Fatal Accident Circumstances and  
Epidemiology (MA FACE) Project Field Investigator

SUBJECT: Demolition Laborer Dies in Fall Through Roof Opening  
in Massachusetts

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**SUMMARY**

A 70 year old male demolition laborer fell 26 feet to his death through a roof opening during the course of manual demolition work at a multi-million dollar school renovation project in Massachusetts. On the day of the incident, the victim was part of a five man rooftop crew manually dismantling tar, gravel and wooden planking from a flat built-up gymnasium rooftop to expose the steel gridwork beneath. Once the tar and gravel weather barrier was removed, strategic chain saw cuts were made to the wooden planking to create more manageable pieces to facilitate their removal. As work progressed, this on-going process exposed the crew to an increasing danger of falling through the ever widening roof opening. An eyewitness account described the victim standing approximately 5-6 feet from the roof opening one moment, and falling through it the next. The working surface was described as clear, dry, and stable with no noticeable slip/trip hazards present. The victim fell approximately 26 feet directly through the 10' x 10' opening and onto a waste heap of tar and gravel debris below. Immediately following the fall, the victim was in a state of semi-consciousness, labored to breathe and suffered only a slight visible facial abrasion. Moments later however, with advanced life support assistance on hand, the victim went into cardiac arrest and was pronounced dead less than one hour later at the regional hospital. The Massachusetts FACE Investigator concluded that in order to prevent future similar occurrences, employers should:

- \* consider and address worker safety in the planning phase of construction projects and do so on a daily basis if necessary
- \* select and appoint a designated safety person to develop, implement, and enforce a comprehensive safety program that includes, but is not limited to, worker training in fall hazard recognition and the use of fall protection devices

\*           implement current standard(s) which require floor openings to be adequately protected and/or personal protective equipment to be used in the presence of fall hazards.

## **INTRODUCTION**

On March 25, 1992 the Massachusetts FACE Investigator was notified by a municipal police department via the statewide Occupational Fatality Hotline, that a 70 year old male demolition laborer had died approximately 15 minutes earlier as the result of a construction site fall at a multi-million dollar school renovation project. An immediate investigation was initiated. On April 01, 1992, the FACE Investigator reviewed the incident site with company representatives and interviewed the company president and responding police department authorities. Multiple photographs, co-worker statements, police department records, and death certificate were obtained during the course of the investigation.

The employer in this incident was a general demolition contracting company in business for 42 years and employed 5-10 employees, as needed, as heavy equipment operators, truck drivers, and general laborers. The company did not have any written safety program or designated safety officer. No safety training of any kind was provided. The victim had been employed for 10 days as a general demolition laborer. His level of construction industry education and/or training was unknown to his employer.

## **INVESTIGATION**

The company had been awarded a contract to destroy a portion of a gymnasium building as part of a multi-million dollar municipal school renovation project. The project called for demolition of the existing structure by first manually removing the built-up roofing material to expose the steel supporting gridwork beneath.

On the day of the incident, weather conditions were favorable for exterior demolition work. Such conditions were clear and dry, yet somewhat cold. Following breakfast, the victim and a co-worker had reported to the jobsite earlier than required. The general contractor for the project had instructed them on the previous day what to do, and to proceed if they wished, in the event of his absence. Beginning at the edge of the rooftop, the duo proceeded and were soon joined by a third laborer.

Following removal of the built-up tar and gravel weather barrier, the crew then removed wooden roof planks with manually operated hand tools without incident for the bulk of the morning. Having trouble removing some of the wooden planking, the co-worker witness recalled the victim seeking assistance from the other co-worker relative to the difficulty he was having. Following a brief cigarette break, the co-worker commenced making several chain saw cuts of the hardfast planking to facilitate removal. These cuts were being made in close proximity to the roof opening created during the earlier a.m. hours.

During this course, the victim and the co-worker witness of these events walked over to watch the cuts being made. The co-worker witness claimed to be looking right at the victim when at approximately 11:02 a.m., the victim just fell through the 10' x 10' roof opening to a waste heap of demolition material on the gymnasium floor approximately 26 feet below. There were no reports of identifiable working surface collapse or of any slip and/or trip hazards.

Responding to the victim and summoning local emergency medial services immediately, the crew witnessed him in a semi-conscious state and laboring to breathe with only a single facial abrasion visible. Although an advanced life support unit was in the immediate area and able to respond almost instantaneously, the victim went into cardiac arrest shortly after their arrival and was unable to be resuscitated. He was transported and pronounced dead at the regional hospital approximately 45 minutes later.

#### **CAUSE OF DEATH**

The medical examiner listed the cause of death as blunt chest trauma (ruptured aorta).

#### **RECOMMENDATIONS/DISCUSSION**

Recommendation #1: Employers should consider and address worker safety in the planning phase of construction projects and do so on a daily basis if necessary.

Discussion: Prior to project engagement and prior to each phase thereafter, the employer and/or project foreman should identify and review the potential hazards with the employees and discuss how to control the hazards and how the work can be performed safely. These discussions should include information on hazards in the immediate work area as well as information on the overall site that could create additional hazards for workers. Following this incident, one co-worker claimed that his understanding of current fall protection requirements did not call for such measures and/or devices to be used on this site. Regardless of rules or regulations, had basic and fundamental safety precautions been in place at the time of this incident, it may never have occurred.

Recommendation #2: Employers should select and appoint a designated safety person to develop, implement, and enforce a comprehensive safety program that includes, but is not limited to, worker training in fall hazard recognition and the use of fall protection devices.

Discussion: As the company did not have any written safety program, training program or designated safety officer, employers should select and appoint such an individual to develop, implement, and enforce a comprehensive safety program that includes, but is not limited to training workers in the recognition and avoidance of fall hazards and training in the proper selection of personal protective equipment, guardrailing systems, motion stop systems, and/or suitable covering of wall/floor openings, etc. Daily, weekly, and/or monthly safety meetings which are conducted by a designated safety person and cover such vital areas as fall protection and personal protective equipment constantly remind affected employees of the dangers associated with their occupation(s) and how best to deal with them.

Recommendation #3: Employers should implement current standard(s) which require that wherever there is a danger of falling through a floor opening, it be guarded by a standard guardrailing and toeboard system, or be covered capable of supporting the maximum

intended load and be installed as to prevent accidental displacement. In the absence of the aforementioned, lifelines and harnesses shall be provided for and used by workmen engaged in occupations where a hazard of falling more than 25 feet above land, or temporary or permanent floor exists.

Discussion: Although the purpose of this project phase was to remove existing roofing material to expose support gridwork beneath, thus creating floor openings, Massachusetts Department of Labor and Industries Standard 454 CMR 10.111 (2)(f) and OSHA Standards 29 CFR 1926.500 (b) and 1926.500 (f)(5)(ii) nonetheless require that floor openings be guarded by a standard railing and toeboards, or a cover capable of supporting the maximum intended load, and be so installed as to prevent accidental displacement. Given the feasibility of this option relative to the type of work in progress, a more logical course of action would have included strict compliance with the provisions of Massachusetts Department of Labor and Industries Standard 454 CMR 10.25 (7)(d) and OSHA Standard 29 CFR 1926.104 which outline safeguarding measures for workmen engaged in operations exceeding 25 feet above land or temporary or permanent floor.

#### **REFERENCES**

Office of the Federal Register: Code of Federal Regulations, Labor 29 Parts 1926.104, 1926.500 (b), and 1926.500 (f)(5)(ii) (1990)

Commonwealth of Massachusetts, Massachusetts Department of Labor and Industries - Rules and Regulations for the Prevention of Accidents in Construction Operations - Code of Massachusetts Regulations, Labor 454 Parts 10.111 (2)(f) and 10.25 (7)(d) (1988)