MASSACHUSETTS DPH/DLI/NIOSH
FACE MA-92-06
DATE: May 04, 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: Self-Employed General Contractor Dies in Fall From Rooftop in Massachusetts

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SUMMARY

A 28 year old self-employed general contractor specializing in roofing material application fell 38 feet to his death off of an ice encrusted rooftop under construction in Massachusetts. While attempting to remove a rooftop tarpulin in icy weather conditions the victim slipped, fell, and slid 19 feet down the roof to an adjoining structure rooftop striking the rear portion of his head. He then slid an additional 14 feet down that rooftop to a 16 foot vertical drop over the edge to the frozen ground below. Losing consciousness, yet maintaining respirations and vital signs, the victim received emergency medical treatment on the scene within five minutes and was transported immediately to the regional medical center where he died four days later. The MA FACE Investigator concluded that employers should:

* evaluate environmental factors that would inhibit commencement and assurance of safe work practices in the planning phase of construction projects and on a daily basis, if necessary

* implement current standard(s) which require the use of roof bracket working surfaces and catch platform systems on roofing operations

* implement current standard(s) which require the use safety belts/harnesses, lifelines, and lanyards when working from elevations

* Select and appoint a designated safety person to develop, implement, and enforce a comprehensive safety program that includes, but is not limited to, training in fall hazard recognition and the use of fall protection devices

INTRODUCTION

On February 12, 1992, the MA FACE Investigator was notified by the Massachusetts Department of Public Health that receipt of a death certificate revealed a targeted fatality occurring on January 27, 1992. The death certificate indicated that a 28 year old construction contractor died of injuries received in a fall from a roof at a homesite under construction. The FACE Investigator immediately initiated an investigation of the incident. On February 18, 1992, the FACE Investigator reviewed the incident site, which had undergone numerous changes, with the developer's general construction superintendent. The hospital medical records department representative and a municipal police officer were also interviewed. The death certificate, fire department and rescue squad reports, as well as multiple site photographs were obtained during the course of the investigation.

The employer in this incident was a general building contracting company specializing in roofing operations. In business for one and two-thirds years (21 months), it sporadically employed 1-2 employees as laborers. The company did not have any written safety program or designated safety officer. No safety training of any kind was provided. The victim in this incident, whose training background was primarily on-the-job, was the employer who established the company and remained president/owner until death.

INVESTIGATION

The company had been subcontracted to apply finish roofing materials on a 4,000 square foot homesite under construction. At the time of the incident, the building shell was intact and the rooftop joists sheathed (permanent plywood covering on which finish roofing materials are applied). A tarpaulin was in place covering the rear northside portion of the sheathed roof to further protect workers inside the building from the elements. On this day, early morning weather conditions resulted in a one-quarter inch to one-half inch blanket of ice on all exterior surfaces. Freezing rain continued to fall at the time of the incident. Despite the icy weather conditions, and fully intending to commence operations for the day, the victim ascended a ladder to gain access to the lower family room rooftop 16 feet from ground level. This roof had a 6:12 pitch (the roof rose 6 inches for every 12 inches in length). First nailing down a 2 inch by 4 inch lumber remnant for footing near the base of the upper rooftop which had a 10:12 pitch, and following placement of a second lumber remnant further up, he then made his way to the peak of the upper main house rooftop 38 feet from ground level. He then began

removing the tarpaulin to expose the roof for application of finishing materials.

As there were no eyewitnesses to the fall, it is speculated that as he lifted the tarpaulin from the eastern side of the rooftop, freezing rain accumulated and adhered to the exposed sheathing causing him to slip and slide 19 feet down the upper roof and onto the adjoining family room roof below. Blood and hair samples found on the family room rooftop confirmed he struck the rear portion of his head at this point. He then proceeded to slide 14 feet down the family room roof, over the eave edge, and down vertically an additional 16 feet to the frozen ground below. The construction site superintendent inside the structure on the second floor, after hearing a " thud " overhead, witnessed the victim falling past a second story window feet first and landing on the ground below. An employee of the victim was on site but was not involved, nor was he an immediate witness to the incident. He was not interviewed as his identity was unable to be established. The victim was treated on site for notable depressed fracture of the rear skull and bloody secretions from the mouth. He was transported by ambulance to the regional hospital emergency where he subsequently died of his injuries 4 days later.

CAUSE OF DEATH

The medical examiner listed the cause of death as blunt head trauma.

RECOMMENDATIONS/DISCUSSION

Recommendation #1: Employers should evaluate environmental factors that would inhibit commencement and assurance of safe work practices in the planning phase of construction projects and on a daily basis, if necessary.

Discussion: The victim decided to commence typically dangerous roofing operations for the day despite severe weather conditions. Assessing and respecting environmental factors such as those on the day of this incident would have prevented this fatality. Employers involved in such operations should be assured that virtually all environmental factors are taken into consideration and that all work is performed safely.

Recommendation #2: Employers should implement current standard(s) which require the use of roof bracket working surfaces and catch platform systems on roofing operations.

Discussion: Massachusetts Department of Labor and Industries Regulation 454 CMR 10.104 (22) (b) and OSHA Standards 29 CFR 1926.451 (u) (1), (2), and (3) require roofing brackets constructed to fit the pitch of the roof as a suitable working surface AND catch platform(s) on sites with ground to eave heights greater than 16 feet. Such catch platforms are to be equipped with guardrails, midrails and toeboards and are required on roofing operations with pitches (slopes) greater than 4:12 (roof rises 4 inches for every 12 inches in length). Such systems may have played a vital role in the prevention of this incident. This provision does not apply where employees engaged in work upon such roofs are protected by a safety belt attached to a lifeline.

Recommendation #3: Employers should implement current standard(s) which require the use of safety belts/harnesses, lifelines, and lanyards when working from elevations.

Discussion: Massachusetts Department of Labor and Industries Regulation 454 CMR 10.25 (7) and OSHA Standard 29 CFR 1926.104 requires that in the absence of generally acceptable catch platform systems, the employer remains responsible for implementation of current in-place standard(s) that require the use of personal protective equipment in all operations where there is an exposure to hazardous conditions or where it is indicated that the need for using such equipment is necessary to reduce the hazard(s) to the employees. Safety belts/harnesses, lifelines and lanyards tied off to a secured point would have proved instrumental in the prevention of this incident.

Recommendation #4: 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,

training in fall hazard recognition and the use of fall protection devices.

Discussion: Employers should emphasize safety of employees by developing, implementing, and enforcing a comprehensive safety program that includes, but is not limited to training workers in the recognition and avoidance of fall hazards, along with training in the proper selection and use of personal protective equipment. A selected and designated jobsite safety person versed in required fall protection requirements may have readily identified potential fall hazards and been instrumental in the prevention of this incident.

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REFERENCES

1. Office of the Federal Register: Code of Federal Regulations,
Labor 29 Parts 1926.451 (u) (1), (2), and (3) (1990)
1926.104 (1990)

2. 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 10.104 (22) and 10.25 (7) (1988)