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

FROM:Massachusetts Fatality Assessment and Control
Evaluation (MA FACE) Program Field Investigator

SUBJECT:Massachusetts Window Washer Dies in Six Floor Fall
From a Ten Floor Building - 93-MA-014-01

DATE:October 17, 1994

SUMMARY

On August 12, 1993, a 28 year old male window washer plummeted six floors to his death from the side of a ten story building. The victim and a coworker were suspended side by side in boatswains-like rigging from anchor points on the rooftop of the building. Moments before he fell to the busy city sidewalk, the victim yelled to his co-worker that his line was slipping. Immediately after the fall, building personnel called emergency medical services who responded within minutes. The victim was transported to a major area hospital where he was pronounced dead. In order to prevent future similar occurrences, the MA FACE Project recommends that employers:

- ensure that employee suspension rigging is firmly attached to substantial anchor points
- design, develop and implement a comprehensive safety program that includes, but is not limited to, employee training in the proper use of approved rigging and fall protection devices
- provide window washing employees with approved suspension equipment.

In addition, commercial building owners should consider:

- retrofitting old buildings with permanent anchorage points.

INTRODUCTION

On August 12, 1993, the state medical examiners office notified the MA FACE fatality hotline that a 28 year old male window washer had fallen to his death earlier in the day. An investigation was initiated. The employer was interviewed by phone on September 16, 1994, and the OSHA Compliance Officer was consulted. Information on the company's organization, the botswains chair-like descent system, the American Society of Mechanical Engineers (ASME)/ American National Standards Institute (ANSI) standard for window washing, the OSHA incident report, newspaper clippings, and the death certificate were obtained during the course of the investigation.

The employer was a regional window cleaning company in business approximately fourteen years and five months. In addition to the victim, it employed one other window washer who was working with the victim at the time of the incident. It did not employ a designated safety person or have any comprehensive written safety and health policies in place regarding potential hazards in the window cleaning industry.

The victim was a 28 year old male non-union window washer who was recruited by his co-worker on an as needed basis. He reportedly had ten years of experience in window washing and was well known in the regional business. The employer claimed that the victim was trained and familiar with the botswains rigging.

INVESTIGATION

The employer was subcontracted by an office building cleaning company to provide exterior window cleaning services for a ten story building on August 12, 1993. At approximately 8:00 a.m. the victim and a co-worker reported to the jobsite to provide this service. Their first task was to determine how best to complete the job. When they noted that there were no anchor points in the building's masonry facade for attaching their safety belts, they ruled out standing on the building's exterior window sills. They next thought of placing planks out of the windows until they learned that the windows were secured and caulked. Consequently, they chose to use their botswains chair-like descent system to go over the edge of the building's roof.

The descent system consisted of a chair board, belt and D-ring which was secured via a lifeline to an anchorage point. The chair board utilized 5/8" nylon rope and had a rope-grab mechanism which operated on the principle of friction for controlled descent. Although the system did not include an independent lifeline, the manufacturer's one-page information sheet on the chair warned that an independently anchored safety line with rope grab device, lanyard and safety belt or harness was required by OSHA. The equipment was recommended for construction, maintenance, repair, escape, and rescue work; however, ANSI did **not** approve its use for window washing operations.

The co-worker secured his chair board and an independent life line to an abandoned and covered rooftop skylight assembly twenty three feet from the roof edge. The victim secured his chair board and lifeline to the frame of a rooftop air conditioning unit which was approximately seventeen feet from the building's parapet wall. The air conditioning unit was located on two horizontal 4" x 6" x 8' posts. The unit was elevated to prevent rain water from accumulating at its base.

The men went over the building's parapet wall, approximately fifteen feet apart, between two rows of windows. They swung their respective chairs back and forth to access and clean their chosen row of windows.

At approximately 10:45 a.m., after they had made five drops, the men were cleaning windows at the sixth floor level. The victim apparently waved to a female office worker inside the building, and then yelled to his co-worker that his line was slipping. The life line released and the victim fell to the

busy city sidewalk. Building personnel immediately called emergency medical services who responded and transported the victim to a major area hospital. He was officially pronounced dead approximately twenty five minutes after the fall.

Subsequent investigation revealed that the frame of the air conditioning unit was not bolted to the posts, and that the posts were not firmly secured to the building's roof. MA FACE thus determined that the victim's chair **and** life lines slipped between the bottom frame of the air conditioning unit and the top of the posts upon which the unit was seated.

CAUSE OF DEATH

The medical examiner listed the cause of death as multiple injuries.

RECOMMENDATIONS/DISCUSSION

Recommendation #1:Employers should ensure that employee suspension rigging is firmly attached to substantial anchor points.

Discussion: Too often workers attach their safety lines to drain covers, HVAC units, old masonry, or other ill-suited anchor points, and the consequences are tragic. Employers should ensure that employees tie off on approved anchorage points by showing and explaining to them which anchor points are firmly secure and capable of supporting their weight. According to OSHA standard 1926.104 (b), an anchorage point for a lifeline must be capable of supporting a minimum dead weight of 5,400 pounds. Eyebeams, eyelets, ridge beams, and roof trusses generally provide acceptable support. Had the victim attached his lifeline to a firmly secured anchor point, this fatality may not have occurred.

Recommendation #2:Employers should design, develop and implement a comprehensive safety program that includes, but is not limited to, employee training in the proper use of approved rigging and fall protection devices.

Discussion: The company did not have a written safety program, training program or designated safety officer. An effective safety training program should minimally cover the recognition and avoidance of fall hazards, the proper selection of personal protection equipment and anchorage points, and what to do in the event that there is no apparent safe way to complete a job. Daily, weekly, and/or monthly jobsite safety meetings which are conducted by a designated safety person are also essential. Such meetings remind employees of the dangers associated with their occupation(s) and how best to deal with them.

Recommendation #3:Employers should provide window washing employees with approved suspension equipment.

Discussion: The botswains chair-like descent system was recommended for use in construction, maintenance, repair, escape, and rescue work; however, it was **not** approved for use in window washing operations. The American National Standards Institute adopted the ASME Standard A39.1-1987 11.3, which specifically prohibits the use of emergency descent equipment (equipment which is operational in the down direction only) for window cleaning. Employers should ensure that employees use approved and safe descent systems for window washing.

Recommendation #4:Government agencies should consider requiring building owners to retrofit old buildings with permanent anchorage points.

Discussion: Both the Massachusetts State Building Code and the Building Officials and Code Administrator Inc. require all new buildings over 50 feet or 4 stories to install anchors, belt terminals or other approved safety devices in order to allow for safe window cleaning operations. Given that there are a large number of older buildings that do not have safe tie off points for window cleaners, construction or maintenance personnel, commercial building owners should consider retrofitting their older buildings with permanent anchorage points.

LIST OF REFERENCES

American National Standards Institute (ANSI) A39.1-1987 11.3
29 Code of Federal Regulations 1910.28(j), 1926.104(b)
Building Officials & Code Administrator, Inc., 1993, Section 3110.0
The Massachusetts State Building Code, Section 713.0