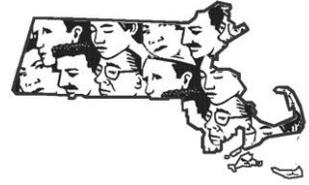


MA FACE

Occupational Fatality Report



Laborer Injured in a Fall When a Portable Platform Ladder Overturned – Massachusetts

Release Date: December 4, 2017
Investigation: # 16-MA-032-01

Massachusetts Department of Public Health
Occupational Health Surveillance Program

SUMMARY

On December 12, 2015 a 68-year-old male senior laborer (victim) was seriously injured in a fall while working from a platform ladder. The victim, employed by a municipality, and a co-worker were dusting crown molding in a meeting room inside city hall. The victim had finished dusting a section of molding and the ladder needed to be moved to continue the task. The co-worker started to move the ladder while the victim remained standing on the ladder's platform. When the co-worker was engaging the ladder's wheels, the ladder shifted and started to tip. The co-worker tried to stop the ladder from tipping, but could not, and both the ladder and the victim fell. The co-worker then placed a call for emergency medical services (EMS) and a call to his supervisor. EMS and local police arrived within minutes. The victim was transported to a local hospital and was eventually released, but he was paralyzed as a result of the incident. The victim died about six months after the incident from complications of the injuries he sustained during the incident.

Contributing factors identified in this investigation included: moving the ladder while a worker was standing on it; not using the ladder manufacturer-provided outriggers; lack of training on the ladder being used; and lack of a safety and health program.

The Massachusetts FACE Program concluded that to prevent similar occurrences in the future, municipalities should:

- **Ensure ladders are never moved, shifted, or adjusted while an employee is on the ladder;**
- **Ensure that any manufacturer-provided safety features on equipment are used at all times;**
- **Evaluate non-routine tasks before assigning them to employees to ensure they have the proper equipment and training needed to complete the tasks safely;**
- **Develop, implement, and enforce a safety and health program that addresses hazard recognition and avoidance of unsafe conditions; and**
- **Provide work environments for employees that, at a minimum, meet all relevant Occupational Safety and Health Administration (OSHA) regulations and industry-accepted standards of practice per the Department of Labor Standards policy.**



INTRODUCTION

On September 8, 2015, the Massachusetts FACE Program was notified by the Registry of Vital Records that a male laborer had died from injuries sustained when he fell from a ladder six months prior. On September 15, 2016, a representative from the Massachusetts FACE Program and two representatives from the Massachusetts Department of Labor Standards traveled to the incident location and met with multiple representatives from the municipality to discuss the incident. The police report, death certificate, product information on the ladder, and the municipality's safety and health information were reviewed during the course of the investigation.

EMPLOYER

The employer was a large municipality that was incorporated in the 1600s and has a population of more than 109,000 residents. The victim, who was an employee of the city's Department of Public Works, Buildings Division, was regularly assigned to work at a community center. There were ten other employees that held the same job title as the victim, senior laborer. The Buildings Division is the only division in the Department of Public Works that employs laborers. The typical workday for the victim was 6:00 a.m. – 2:00 p.m., Monday through Friday. The city had low employee turnover. The victim did have union representation and was a member of a Teamsters local representing the city's laborers.

SAFETY AND HEALTH PROGRAMS AND TRAINING

At the time of the incident, the department did not have a written safety and health program. It was reported that the department did have some basic procedures in place around safety and health for employees. For example, training on proper and safe ladder use was provided to employees who needed to use ladders to complete regularly assigned tasks. Because the victim's routinely assigned tasks did not involve ladder use, the victim had not received the training. The victim's co-worker, a carpenter, had previously received ladder training, but the training did not specifically cover the type of ladder being used the day of the incident. All new hired employees were provided with some on-the-job training. The municipality had workers' compensation insurance as required by law in Massachusetts (G.L. c. 152, Sec. 25A).

VICTIM

The victim was a 68-year-old, male, senior laborer and had worked for the city for 10 years. The victim's main work location was at a community center. His regularly assigned tasks at the community center included, but were not limited to cleaning and other custodial tasks, and did not require the use of a ladder. The victim and the co-worker had both volunteered for overtime work. The incident occurred on a Saturday morning, during an overtime shift.

INCIDENT LOCATION

The incident location was a city hall for a municipality that was constructed in the late 1800s. The incident occurred inside a large meeting chamber that was located on the second floor of the building. The room was approximately 45 feet wide by 49 feet long. The ceiling height of the room was approximately 30 feet high, which took up the third floor section of the building that was directly above the room. The room had a plaster crown molding that was located partway up

the wall at approximately 20 feet high (Figure #1). There was both fixed and portable auditorium row-style seating in the meeting space. The floor was mostly carpet, with a section of wood flooring. There were some stationary railings in the room that separated the entrance area from the rest of the room. The room was primarily used as a city government meeting space.

EQUIPMENT

When the incident occurred, the victim and the co-worker were using an adjustable, portable, A-frame, podium style ladder with a work platform and guardrails around the platform; this is also known as a cage (Figure #2). The city purchased the ladder during the fall of 2015 and the ladder was in good condition at the time of the incident. The ladder was originally purchased by the Department of Public Works to be used in a garage area for a different task. Within a year of purchasing the ladder, the department built a permanent platform and guardrail in the garage area and the ladder was no longer needed. The ladder remained at the garage location in storage.

The ladder had a Duty Rating of Type 1AA, Extra Heavy Duty, and was capable of supporting 375 pounds. The sides of the ladder were made of adjustable fiberglass rails with aluminum rungs. Adjusting the side rails moves the height of the work platform anywhere from eight to 13 feet, when fully extended. The work platform was also made of aluminum and was 18 by 22 inches and had a 42 inch high guardrail around three sides of the work platform. There was a gate on the fourth side of the platform. The overall weight of the ladder was approximately 120 pounds.

The ladder was equipped with three sets of wheels. One set of wheels were used to roll the ladder from one location to another when it was folded up. The other two sets of wheels were part of a wheel lift assembly that was a manufacturer-provided optional accessory (Figure #3). These wheels were attached to each side of the ladder's base. While the ladder was in use, these sets of wheels would be locked in the up position and not in contact with the floor. The purpose of the wheel lift assembly was to enable the ladder to be maneuvered easily when it was in the open, upright position. To engage and lock the lift assembly wheels in the down position, while the ladder was in the open upright position, the yellow foot levers on either side of the ladder's base would be depressed one side at a time. This would bring these wheels in contact with the floor.

The ladder was also equipped with a set of outriggers to help stabilize the ladder when in use. Multiple legible, manufacturer-provided, warning labels and a duty-rating label were attached to the ladder. The wheel lift assembly had a warning label (Figure #4) that stated, "Never allow wheels to contact any surface while cage is being used or adjusted; the cage may roll out and cause injury. Wheels must only be used to assist in transporting the cage. Do not climb the cage with the wheel engaged."

INVESTIGATION

The incident occurred on a Saturday morning in December inside a municipal city hall. The job, which was an overtime shift, was expected to take four hours to complete. The task was to dust plaster crown molding that was approximately 20 feet high (Figure #2). The victim and the co-

worker started the overtime shift at 7:15 a.m. and traveled to the Department of Public Works garage to pick up a platform ladder. From the garage, they drove to the city hall to start the task.

Once at city hall they brought the ladder to the chamber room and the setup the ladder. The ladder was positioned about four feet from the wall. The ladder's outriggers were not deployed and were not being used at the time of the incident. The victim then climbed the ladder and the co-worker handed the victim a portable vacuum. The victim entered the ladder's work platform area with the vacuum and placed the base of the vacuum down on the work platform. The vacuum, with a four foot vacuum extension, was used to clean/dust the plaster crown molding.

By about 8:30 a.m., the victim had vacuumed the section of the plaster molding that he could reach while standing on the platform ladder. The victim and the co-worker agreed that the victim would remain on the ladder's platform as the co-worker moved the ladder further down the wall, so the vacuuming task could continue. It appears that the co-worker then stepped on one of the foot levers and engaged one side of the ladder's wheels. The co-worker then went to the other side of the ladder and started to engage the second set of wheels. As the co-worker was engaging the second set of wheels the ladder jerked, causing the ladder to start to tip away from the wall. The co-worker tried to hold onto the ladder to stop it from tipping, but could not. The ladder continued to tip while the victim was still standing on the ladder's work platform. As the ladder fell over, the victim fell with the ladder and out of the platform. The ladder landed on a section of stationary railing located in the room. The victim landed on the floor. The co-worker went to assist the victim and the victim said that he could not feel his legs.

The co-worker immediately placed calls for emergency medical services (EMS) and then he placed a call to his supervisor. EMS arrived within minutes and the victim was transported to a local hospital. As a result of the serious injuries the victim suffered in the incident, the victim became a quadriplegic and was eventually released from the hospital. Approximately six months after the incident, the victim died from complications of the injuries.

CONTRIBUTING FACTORS

Occupational injuries and fatalities are often the result of one or more contributing factors or key events in a larger sequence of events that ultimately result in the injury or fatality. The Massachusetts FACE team identified the following contributing factors in this incident.

- Moving the ladder while a worker was standing on it
- Not using the ladder manufacturer-provided outriggers
- Lack of training
- Lack of a safety and health program

CAUSE OF DEATH

The medical examiner listed the cause of death as complications of traumatic quadriplegia, due to blunt head trauma with cervical spine fracture, due to fall from ladder.

RECOMMENDATIONS/DISCUSSION

Recommendation #1: Municipalities should ensure that ladders are never moved, shifted, or adjusted while an employee is on the ladder.

Discussion: The victim was standing on the work platform of a portable platform ladder to dust crown molding using a vacuum. After vacuuming a section of the molding, the ladder needed to be moved to continue the task. The victim remained standing on the work platform while the co-worker started to engage the wheel lift assembly. It was during the process of engaging the wheel lift assembly that the ladder tipped over.

It is always important to follow the manufacturer's user instructions and warning labels as well as relevant safety and health regulations. The user instructions for the ladder, which is also accessible online, did not address standing on the ladder while the ladder is being moved. But one of the many manufacturer warning labels affixed to the ladder included the warning of, "Do not shift, walk or jog the ladder when standing on it". In addition, the OSHA regulation 29 CFR 1910.23, *Ladders*, states that, "No ladder is moved, shifted, or extended while an employee is on it".¹

Recommendation #2: Municipalities should ensure that any manufacturer-provided safety features on equipment are used at all times.

Discussion: The manufacturer designed the platform ladder with outriggers. The user instructions provided by the manufacturer included information on how to use the outriggers, but did not provide information on when to use the outriggers. A video produced by the manufacturer on the use of this platform ladder provides additional information about the use of the outriggers.² The video states that the outriggers are not needed to use the ladder safely and that the outriggers are an extra safety precaution to provide more support. The manufacturer also states in the video that when using the ladder, if there is space around the ladder, it's a good idea to use the outriggers.

In this case, if the outriggers were in use at the time of the incident, the ladder might not have tipped over. Employers should set a standard of practice that manufacturer-provided safety features on equipment will be used at all times when operating the equipment. The use of manufacturer-provided safety features should be included in the employer provided training on the equipment (see Recommendation #3).

Recommendation #3: Municipalities should evaluate non-routine tasks before assigning them to employees to ensure they have the proper equipment and training needed to complete the tasks safely.

Discussion: Before assigning overtime work, employers should evaluate the tasks to be performed, including tasks that workers might only perform once, to ensure the assigned employees have the required tools, personal protective equipment, and relevant training needed to complete the task safely. In this case, the victim's normal daily tasks did not involve ladder use and the victim was not provided with ladder training. The co-worker had been provided

ladder training, but specific information on the platform ladder that was being used was not provided in the training.

OSHA requires that employers provide employees with ladder training when ladders will be used to complete tasks. This training should include proper ladder selection, inspection, use and safety. The OSHA regulation 1926.1060, *Training requirements*, states that training on ladders shall enable each employee to recognize hazards related to ladders, and shall train each employee in the procedures to be followed to minimize these hazards.³ Routine training on ladders can inform and remind workers about proper ladder usage. General ladder training should include, but not be limited to:

- How to choose the correct ladder for the job, including ladder type, length, and maximum load capacity.
- Proper inspection of the ladder prior to use.
- Proper handling and placement of ladders.
- Proper setup and use of ladders.

In this case, in addition to the general ladder training, more specific training should be provided to employees on the platform ladder that was being used at the time of the incident. This training should include, but not be limited to:

- How to lock the platform into place
- How to extend the ladder to the desired height
- How to use the side rail locks once the ladder is extended to the desired height
- How to deploy and retract the outriggers
- How to setup the ladder on stairs

All trainings should be performed by a competent person and retraining should be provided for each employee as necessary. In addition, all training should be documented and the documentation should include who provided the training and their qualifications, the content of the training, workers who were trained, and the assessments of workers' comprehension of the training.

Recommendation #4: Municipalities should develop, implement, and enforce a safety and health program that addresses hazard recognition and avoidance of unsafe conditions.

Discussion: Having a municipality-wide safety and health program is an important part of keeping employees safe. A safety and health program should include the systematic identification, evaluation, and prevention or control of general workplace hazards and the hazards of specific jobs and tasks. The core elements of an effective safety and health program are management leadership, worker participation, hazard identification and assessment, hazard prevention and control, education and training, and program evaluation and improvement.⁴ The safety and health program should also include an explanation of the workers' rights to protection in the workplace, and outline safe work practices workers are expected to adhere to, specific

safety protection for all tasks workers perform, how workers can identify and avoid hazards, and who workers should contact when safety and health issues or questions arise.⁴

When developing a safety and health program, employers should start by performing a hazard analysis of all routine tasks performed by employees for potential hazards and incorporate information about any identified hazards and their controls into the program.⁴ When determining potential hazards associated with equipment, information in the manufacturer operator's manual and on the equipment's warning label should be reviewed and incorporated into the safety and health program procedures.

Employers should also use their employees' expertise throughout the program development process by seeking employee input. Once the program is developed, employers should continue to seek employees' input during the routine updating of the program. The program should be updated when safety concerns arise and when new equipment, tasks and chemicals are introduced into the workplace. In addition, for industries where work sites change with each job, the safety and health program should also require that a hazard analysis be performed for each job site before work begins to ensure that the required tools and personal protective equipment (PPE) needed to complete the tasks are available.

Employers should ensure that they have fully and effectively implemented their safety and health program by routinely performing assessments of tasks and immediately addressing any observed unsafe conditions. As part of the program's implementation, training (Recommendation #3) should be provided to all employees on the program's topics and procedures, and should also include hazard recognition and the avoidance of unsafe conditions. All training provided to employees should be documented. In this case, the safety and health program should include a section on proper ladder selection, use, and training.

The Massachusetts Department of Labor Standards (DLS) offers free consultation services to help small employers improve their safety and health programs, identify hazards, and train employees. DLS can be contacted at 978-242-1351. More information about DLS can be found on their website at www.mass.gov/dos/consult.

The Massachusetts Department of Industrial Accidents (DIA) has grants available for providing workplace health and safety training to employers and employees. Any company covered by the Massachusetts Workers' Compensation Insurance Law is eligible to apply for these grants. More information about these DIA grants can be found on their website at www.mass.gov/dia/safety.

Recommendation #5: Municipalities should provide work environments for employees that, at a minimum, meet all relevant Occupational Safety and Health Administration (OSHA) regulations and industry-accepted standards of practice per the Department of Labor Standards policy.

Discussion: The federal Occupational Safety and Health Act require private sector employers to provide workplaces that are free from recognized hazards likely to cause death or serious physical harm to employees. While public sector employees in Massachusetts are not covered by

federal OSHA, in most cases OSHA regulations still apply. Massachusetts executive branch state agencies must comply with OSHA regulations to protect state workers as required by Massachusetts General Law Chapter 149 Section 6½. This law that extends OSHA protection to these state workers is enforced by the Massachusetts Department of Labor Standards.

This incident involved a municipal public sector workplace. The Massachusetts Department of Labor Standards (DLS), in accordance with Chapter 149 Section 6, is charged with inspecting municipal workplaces and determining what procedures and practices are required to protect municipal workers.⁵ As a matter of policy, DLS utilizes OSHA regulations, standards set forth in the MUTCD, as well as other consensus standards such as those developed by the American National Standards Institute (ANSI), as a basis for its inspections and in determining whether proper procedures are being followed to protect municipal workers. In this case, adhering to the following OSHA regulations may have prevented this incident: 29 CFR 1910.230, *Ladders* and 29 CFR 1926.1060, *Training requirements*. These standards include information about ladders not being moved while an employee is on it and that training on ladders should be provided to employees.

REFERENCES

1. OSHA. Code of Federal Regulations. 29 CFR 1910.23. Ladders. Washington, DC: U.S. Printing Office, Office of the Federal Register. 29 CFR 1910.23, *Ladders*.
2. Little Giant Ladder Systems. 2/13/2015. Little Giant Aerial Safety Cage How-To www.youtube.com/watch?v=6JUO8IDI500 Date accessed: 8/7/2017.
3. OSHA. Code of Federal Regulations. 29 CFR 1926.1060. Training requirements. Washington, DC: U.S. Printing Office, Office of the Federal Register.
4. OSHA. Recommended Practices for Safety and Health Programs. OSHA 3885. 2016. www.osha.gov/shpguidelines/
5. Massachusetts General Laws, Chapter 149: Section 6. Safety devices and means to prevent accidents and diseases generally.

Figure 1 – Incident location



Figure 2 – Incident location and the platform ladder involved in the incident

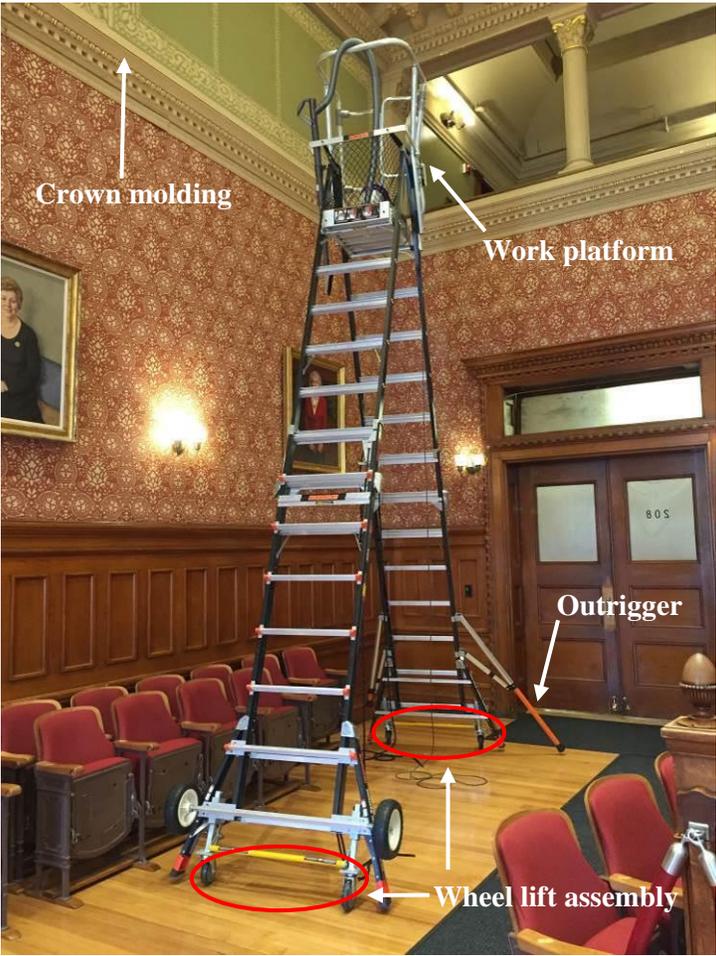


Figure 3 – Platform ladder with one wheel lift assembly engaged and one outrigger deployed



Figure 4 – Warning label on the wheel lift assembly lever.

