

NJ FACE INVESTIGATION REPORT



Fatality Assessment & Control Evaluation Project

FACE 12-NJ-021

September 3, 2013

Laborer Killed after being Struck by a Slab of Concrete that had been Lifted

A 19-year-old male Hispanic laborer was killed after a 58- x 48- x 5-inch, 1200-pound slab of concrete struck his head. The incident occurred at a residential, northern NJ neighborhood sidewalk. On the day of the incident, a four-member crew was attempting to re-grade the ground beneath a concrete sidewalk. To access the area for grading, the sidewalk slab was connected by a chain to the bucket of a skid-steer loader in order to lift it. According to the crew, the victim had knelt down while the slab was being moved. The slab swung and struck the victim in the head. The victim suffered massive blunt force trauma injuries, including a fractured skull. He died minutes after the injury.

Contributing Factors

- No personal protective equipment
- Training/work practices
- Unsecured suspended load

NJ FACE investigators recommend that these safety guidelines be followed to prevent similar incidents:

- **Utilize an alternative method of moving concrete slabs when attempting to re-grade ground underneath**
- **Workers should be provided and wear appropriate personal protective equipment at all times.**
- **A safety and health plan based on a job hazard analysis should be developed by the employer and followed where workers are assigned tasks.**



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INTRODUCTION

In spring 2012, NJ FACE staff was notified of the death of a 19-year-old male Hispanic immigrant from Guatemala after being struck by a slab of concrete that had been hoisted by a skid-steer loader. The incident occurred on a sidewalk in a northern NJ suburb. The victim had worked for this small landscaping and construction company for approximately two weeks. The company had verbal on-the-job training only.

A NJ FACE investigator contacted the OSHA Area Office and conducted a concurrent investigation. Additional information was obtained from the medical examiner's report, death certificate, police report, and the news media.

INVESTIGATION

The incident occurred on a clear, calm spring day (approximately 66°F at the time of the incident, wind speed up to about seven mph), with no significant precipitation recorded. The incident site was a sidewalk in a heavily treed residential neighborhood in northern NJ (Figure 1). The area had experienced a snowstorm approximately six months earlier which caused trees to be uprooted, damaging sidewalks. A homeowner hired the small landscaping and construction company (less than five employees), that the victim worked for, to fix a sidewalk that had sustained damage.

On the day of the incident, the victim and three co-workers arrived at the work site in the morning. The assigned task was to lift the sidewalk slabs and re-grade the soil underneath (rather than breaking up and replacing the concrete). In order to lift a slab, the four-worker crew would pry it up slightly (using a pry bar) and place large stones underneath to hold it in place (Figure 2). The crew would then connect a 40-foot-long chain to the bucket hook of a skid-steer loader and wrap the other end around the slab, connecting it to itself with a 2" pelican hook (Figures 3 and 4). The chained slab would then be lifted via the skid-steer loader and moved away, allowing the ground underneath the slab to be properly graded.

The slab that was lifted at the time of the incident was approximately 58" long x 48" wide x 5" deep, and weighed approximately 1200 lbs (assuming 150 lbs/cubic foot¹). According to the crew, the slab was unstable, so three workers (including the victim) helped walk the slab away by holding it at three different places, guiding it, and keeping it balanced. The slab was then placed on the ground and the

crew began to re-grade the soil. When finished, the slab was being walked back into place by the victim and lowered. During this time, for an unknown reason the victim knelt down, perhaps to fix part of the re-grade, and asked the skid-steer operator to raise the slab back up. As the slab was lifted, it swung and hit him in the head. The victim sustained blunt force trauma injuries, including a fractured skull. The victim died minutes after the injury. A crewman called 9-1-1 and the police arrived on the scene immediately.

FIGURE 1. Incident site, a heavily treed residential neighborhood in NJ.



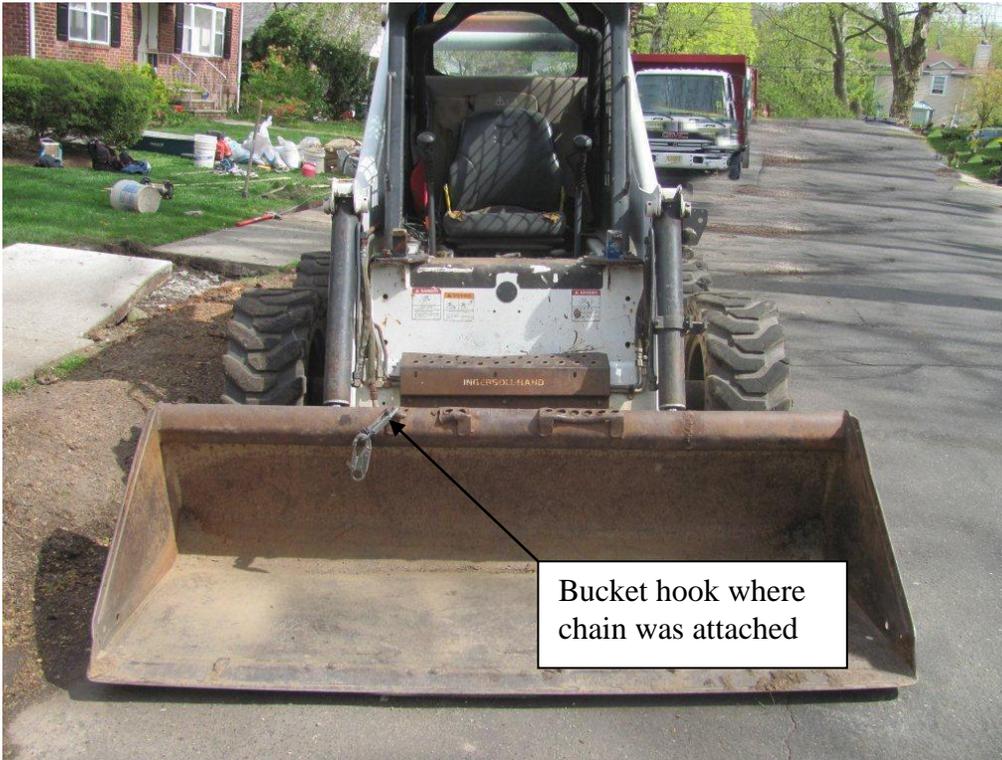
FIGURE 2: Sidewalk slab propped-up by stones.



FIGURE 3. Chain with two-inch pelican hook used to lift the slab.



FIGURE 4. Skid-steer loader; note bucket hook where chain was connected.



RECOMMENDATIONS/DISCUSSIONS

Recommendation #1: Utilize an alternative method of moving concrete slabs when attempting to re-grade ground underneath.

Discussion:

Many safer alternatives exist for re-grading the ground beneath concrete slabs. The important commonality between them is that the slab is never suspended off the ground. One alternative is to raise the concrete by cutting/jacking and filling (also known as slabjacking or mudjacking). This process is accomplished by drilling small holes into the concrete (or lifting the concrete using specialized jacks or pry bars) then pressure injecting (or hand-filling) material underneath the slab to fill the gaps, leveling the concrete.²⁻³ Another method is to pry the concrete up and place metal rollers between wood boards underneath; the slab can then carefully rolled away, the soil re-graded, and the slab rolled back into place.⁴

If the method utilized during this incident continues to be used, NJ FACE makes the following additional recommendations: 1) use wood or small cement blocks in good condition to prop-up the slab; 2) ensure that the chain and hooks can handle the approximate load of the slab; 3) employ tag lines when moving the slab to keep workers clear of the hazard; 4) take extra care when using a skid-steer loader to lift and move heavy objects (according to onsite interviews, the skid-steer loader made “jerky” movements and it was difficult to move the slab smoothly).

Recommendation #2: Workers should be provided and wear appropriate personal protective equipment at all times.

Discussion:

None of the four-worker crew wore any personal protective equipment (PPE) on the day of the incident. It is unclear if a hard hat or safety goggles would have saved the victim. However, PPE may have lessened the injury. When lifting and moving concrete slabs, hard hats, eye protection, and steel-toe shoes should be worn.

Recommendation #3: A safety and health plan based on a job hazard analysis should be developed by the employer and followed where workers are assigned tasks.

Discussion: Employers should conduct a job hazard analysis, with the participation of employees, of all work areas and job tasks. A job hazard analysis should begin by reviewing the work activities for which the employee is responsible and the equipment that is needed. Each task is further examined for mechanical, electrical, chemical, or any other hazard the worker may encounter. A source of information on conducting a job hazard analysis can be obtained from the US Department of Labor.⁵

APPENDIX

RECOMMENDED RESOURCES

It is essential that employers obtain accurate information on health, safety, and applicable OSHA standards. NJ FACE recommends the following sources of information which can help both employers and employees:

U.S. Department of Labor, Occupational Safety & Health Administration (OSHA)

Federal OSHA can provide information on safety and health standards on request. OSHA has several offices in New Jersey that cover the following counties:

- ☎ Hunterdon, Middlesex, Somerset, Union, and Warren counties.....732-750-3270
- ☎ Essex, Hudson, Morris, and Sussex counties.....973-263-1003
- ☎ Bergen and Passaic counties.....201-288-1700
- ☎ Atlantic, Burlington, Cape May, Camden, Cumberland, Gloucester,
Mercer, Monmouth, Ocean, and Salem counties.....856-757-5181
- 💻 Web site: www.osha.gov

New Jersey Public Employees Occupational Safety and Health (PEOSH) Program

The PEOSH Act covers all NJ state, county, and municipal employees. Two state departments administer the Act; the NJ Department of Labor and Workforce Development (NJDLWD), which investigates safety hazards, and the NJ Department of Health (NJDOH) which investigates health hazards. PEOSH has information that may also benefit private employers.

NJDLWD, Office of Public Employees Safety

- ☎ Telephone: 609-633-3896
- 💻 Web site: www.nj.gov/labor/lsse/lspeosh.html

NJDOH, Public Employees Occupational Safety & Health Program

- ☎ Telephone: 609-984-1863
- 💻 Web site: www.nj.gov/health/peosh

On-site Consultation for Public Employers

- ☎ Telephone: 609-984-1863 (health) or 609-633-2587 (safety)
- 💻 Web site: www.state.nj.us/health/eoh/peoshweb/peoshcon.htm

New Jersey Department of Labor and Workforce Development, Occupational Safety and Health On-Site Consultation Program

This program provides free advice to private businesses on improving safety and health in the workplace and complying with OSHA standards.

☎ Telephone: 609-984-0785

💻 Web site: www.nj.gov/labor/lsse/lsonsite.html

New Jersey State Safety Council

The New Jersey State Safety Council provides a variety of courses on work-related safety. There is a charge for the seminars.

☎ Telephone: 908-272-7712.

💻 Web site: www.njsafety.org

Internet Resources

Other useful Internet sites for occupational safety and health information:

- CDC/NIOSH – www.cdc.gov/niosh
- USDOL Employment Laws Assistance for Workers and Small Businesses – www.dol.gov/elaws
- National Safety Council – www.nsc.org
- NJDOH FACE reports – www.nj.gov/health/surv/face/index.shtml
- CDC/NIOSH FACE – www.cdc.gov/niosh/face/faceweb.html
- OSHA – www.osha.gov
- ANSI – www.ansi.org

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3. Sidewalk Leveling. Available at: http://www.heightslibrary.org/materials/hrrc/11-Asphalt_Concrete/CONCRETE/SIDEWALK_LEVELING.pdf. Accessed, August, 2013
4. Leveling a sidewalk slab [modified]. Available at: <http://www.nytimes.com/1990/08/19/nyregion/home-clinic-leveling-a-sidewalk-slab.html>.

Accessed, August 2013.

5. *Job Hazard Analysis*. US Department of Labor Publication # OSHA-3071, 1998 (revised). USDOL, OSHA Publications, PO Box 37535, Washington DC 20013-7535

Fatality Assessment and Control Evaluation (FACE) Project
Investigation # 12-NJ-21

This report was prepared by staff members of the New Jersey Department of Health's Occupational Health Surveillance Unit. The goal of FACE is to prevent fatal work-related injuries by studying the work environment, the worker, the task, the tools the worker was using, the energy exchange resulting in the fatal injury, and the role of management in controlling how these factors interact. FACE gathers information from multiple sources that may include interviews of employers, workers, and other investigators; examination of the fatality site and related equipment; and reviewing OSHA, police, and medical examiner reports, employer safety procedures, and training plans. The FACE program does not determine fault or place blame on employers or individual workers. Findings are summarized in narrative investigation reports that include recommendations for preventing similar events. All names and other identifiers are removed from FACE reports and other data to protect the confidentiality of those who participate in the program.

NIOSH-funded state-based FACE Programs include: California, Iowa, Kentucky, Massachusetts, Michigan, New Jersey, New York, Oregon, and Washington. Please visit the NJ FACE Web site at www.nj.gov/health/surv/face/index.shtml or the CDC/NIOSH FACE Web site at www.cdc.gov/niosh/face/faceweb.html for more information.

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