

NJ FACE INVESTIGATION REPORT



Fatality Assessment & Control Evaluation Project

FACE 03-NJ-043

November 30, 2004

Hispanic Arborist's Helper Struck and Killed by A Falling Tree

On June 13, 2003, a 39-year-old Hispanic male arborist's helper was killed when he was struck by a tree that was being cut down. The incident occurred at a private residence as a tree-trimming crew was finishing the removal of 12 trees from the front yard. The owner of the company had placed the bucket of a front-end loader against the tree to help direct its fall. He then made the cuts near the bottom of the tree trunk. The tree fell approximately 90 degrees left of where he had planned, towards the helper who was standing near the front of the home to load debris into a wood chipper. The owner shouted a warning to the workers, but the victim apparently did not hear it due to the noise from the chipper. The top of the tree struck him on the head as it fell to the ground. NJ FACE investigators recommend following these safety guidelines to prevent similar incidents:

- **Employees should use proper tree removal and communication methods as outlined in the ANSI Standard Z133.1-2000.**
- **All employers and employees involved in tree work should receive training in arborist methods and equipment use.**
- **Employers should conduct a job hazard analysis of all work activities with the participation of the workers.**



NJ Department of Health & Senior Services
Occupational Health Service
PO Box 360, Trenton NJ 08625-0360
(609) 984-1863



INTRODUCTION

On June 12, 2003, a county Medical Examiner's office informed NJ FACE staff of a worker killed in a work-related incident. A FACE investigator contacted the company owner on June 20, 2003, and mailed him information on the NJ FACE Project. The owner responded and was later interviewed on August 23, 2003, after arranging an appointment that would not interfere with his work. On October 28, 2003, the FACE investigator traveled to the incident site to photograph the area and briefly interview the homeowner. Additional information was obtained from the police report, the medical examiner's report, and the OSHA investigation file.

The victim's employer was a small, family-owned tree-trimming company that had been operating since 1972. The company had four employees at the time of the incident: the owner, his partner (wife), and two helpers. The owner started the business when he was 17 years old by doing part-time lawn work for neighbors. His work increased and he expanded the business, buying more equipment and hiring employees to help him. He later started doing tree-trimming work. The owner stated that he was mostly self-taught, learning the business through trial-and-error and by asking colleagues that were more experienced. He stated that he always did all of the climbing and cutting. Later, his wife became an active partner who operated the equipment and vehicles.

The victim was a 39-year-old Hispanic laborer who was originally from Mexico. His roommate, who had worked for the company in the past, had referred him to the job. The employer stated that the victim had prior landscaping experience but did not have any experience with tree trimming. The owner, who did not speak Spanish, stated that that the victim spoke limited English. Hired as a helper, the victim was on his third day of work when the incident occurred. His wife in Mexico survived him.

INVESTIGATION

The site of the incident was a private home located in a wooded suburban area. The homeowner had contracted with the company to remove 12 trees from the front yard of the house. This was being done because the home owner wanted to thin out the pine trees to give the other trees room to grow.

The incident occurred on Friday, June 12, 2003. On that morning, the crew met at another site to complete a job begun the previous day to finish the removal of approximately 115 trees. The crew then traveled to the incident site, arriving at approximately 10:00 a.m. The crew consisted of the company owner, who did all the cutting, his partner (wife) who drove the company truck and operated the front-end loader, and two helpers. The victim was working for his third day as a helper; the other helper was a new employee working his first day on the job.

Once on site, the owner set up a truck-mounted aerial lift (cherry-picker) and raised himself into the trees, where he cut down the branches. The helpers collected the fallen branches and fed them into a wood chipper set up by the front of the house. Once the branches were removed, the owner and his wife cut down the tree. They used a front-end loader with the bucket raised and forced against the tree, intending to apply lateral force to help direct the fall of the tree. After positioning the loader, the owner cut the tree close to the ground with a chainsaw. The felled trees were then cut into sections for disposal.



Photo 1
Incident Site

The morning passed without incident as the crew cut down the trees. At about 12:30 p.m., the owner began work on cutting down the last tree. His wife had left the site earlier to empty a truck load of wood chips. The two helpers were busy clearing branches and feeding them into the chipper near the front of the house.

Without his wife to help him, the owner set the front-end loader against the tree by himself. The tree was located near the center of the yard and was about 30 feet tall and 12 inches in diameter. After setting the loader, the owner checked the site and cut the tree. As it fell, he saw that it was falling about 90 degrees in the wrong direction, towards the helpers. The owner shouted a warning but was not heard over the noise of the chipper. He yelled a second warning and said that the victim saw the tree, but it was too late. It struck him on the back of the head, knocking him to the ground. The homeowner, a nurse, heard the noise and called 911 for

help. She then went to help the victim, who was having trouble breathing. Police and EMS paramedics arrived and transported the victim to a Level II Trauma Center, where he was admitted to the trauma unit with severe head injuries. His condition deteriorated, and he was pronounced dead the following day at 2:50 p.m. The victim was returned to Mexico for burial by his family.

The federal OSHA investigation of the incident found that the owner had used a single straight cut (no notch or backcut) to fell the first 11 trees. He did use a notch and backcut to cut the final tree that struck the victim. However, he made the backcut in line with the notch cut, cutting through the hingewood that connects the stump and the tree trunk long enough to control the tree's fall to the ground (see Figure 1). Another potential factor was the use of the front-end loader to push the tree in the direction of the fall. During a typical cut, the owner's wife would push the tree with the front-end loader as he made the cut. In this case, the operator was not available, so he set the loader himself. Without the active push from the loader, the tree may not have received enough force to push it in the desired direction.

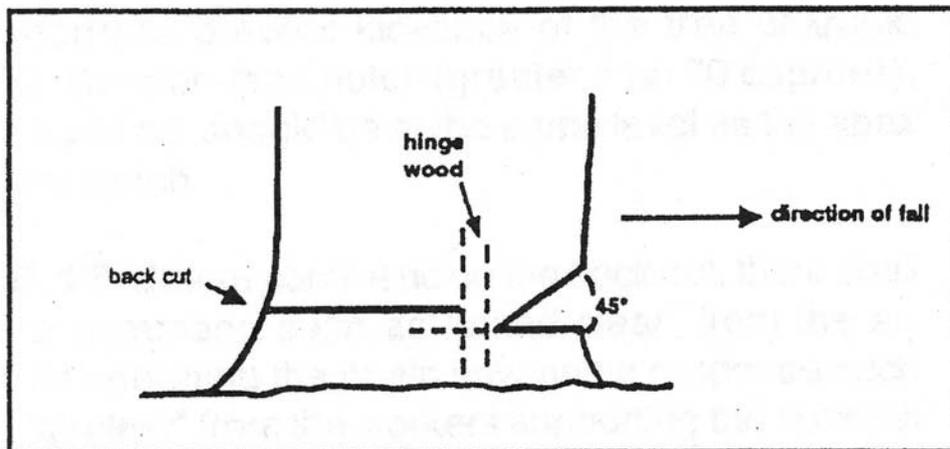


Figure 1
Illustration showing a proper backcut
and hingewood

RECOMMENDATIONS/DISCUSSIONS

Recommendation #1: Employees should use proper tree removal and communication methods as outlined in the ANSI Standard Z133.1-2000.

Discussion: In this case, the tree was improperly cut, causing it to unexpectedly fall in the wrong direction. To prevent these types of incidents, NJ FACE recommends that employers follow the guidelines set by the American National Standards Institute (ANSI) in ANSI Z133.1-2000, *Pruning, Repairing, Maintaining, and Removing Trees, and Cutting Brush- Safety Requirements*. This standard requires that employees not involved in removal operations stay clear of the work area by at least two tree lengths, and that a warning is given and acknowledged before making the final cut to the tree. The standard also outlines safety practices for climbing, pruning, cabling, chipping, and bucking. A copy of this standard can be purchased by contacting ANSI.

Recommendation #2: All employers and employees involved in tree work should receive training in arborist methods and equipment use.

Discussion: The employer was largely self-taught in tree-trimming and landscaping operations, having learned from observation, asking questions, and trial-and-error. He then passed on his experience to his employees. Tree trimming is a high-risk business, given the many uncontrolled situations and complex equipment used in the field. To reduce risks, NJ FACE recommends that all arborists receive training specific to their field. This includes climbing, tree removal techniques, landscaping, equipment operation, electrical hazards, and other related subjects. Employers should contact one of the professional arborists associations (see Recommended Resources) for more information.

Recommendation #3: Employers should conduct a job hazard analysis of all work activities with the participation of the workers.

Discussion: To prevent incidents such as this, NJ FACE recommends that employers conduct a job hazard analysis of all work areas and job tasks with the employees. A job hazard analysis should begin by reviewing the work activities that the employee is responsible for and the equipment that is needed. Each task is further examined for mechanical, electrical, chemical, or any other hazard the worker may encounter. The results of the analysis can be used to design or

modify written operating procedures. Additional information on conducting a job hazard analysis is included in the appendix.

RECOMMENDED RESOURCES

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

Professional Arborist Organizations

National Arborist Association (NAA)

P.O. Box 1094, Amherst, NH 03031-1094 Phone (800) 733-2622

Website *www.natlarb.com*

International Society of Arboriculture / Society of Commercial Arboriculture

P.O. Box 3129, Champaign, IL 61826-3129, Phone (217) 355-3516

Website *www.isa-arbor.com*

Committee for the Advancement of Arboriculture, Monmouth County Shade Tree Commission

P.O. Box 1255, Freehold, NJ 07728-1255, Phone (732) 431-7903

ACRT, Inc., Utility Forestry Specialist

P.O. Box 401, 2545 Bailey Road, Cuyahoga Falls, OH 44221-0401, (800) 622-2562

Shigo and Trees Association

4 Denbow Road, Durham, NH 03824, Phone (603) 868-7459

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

Federal OSHA will 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

 Federal OSHA Website: *www.osha.gov*

NJ 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 and Senior Services (NJDHSS) which investigates health hazards. PEOSH has information that may benefit private employers.

NJDLWD, Office of Public Employees Safety

☎ Telephone: (609) 292-7036

🌐 Website: www.state.nj.us/labor/mainpages/safety.html

NJDHSS, Public Employees Occupational Safety & Health Program

☎ Telephone: (609) 984-1863

🌐 Website: www.state.nj.us/health/eoh/peoshweb

NJDLWD Occupational Safety and Health On-Site Consultation Program

Located in the NJ Department of Labor and Workforce Development, 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 or (609) 292-0104

🌐 Website: www.state.nj.us/labor/wps/psosh/onsite/onsite.htm

New Jersey State Safety Council

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

☎ Telephone: (908) 272-7712. 🌐 Website: www.njsafety.org

Internet Resources

Other useful internet sites for occupational safety and health information:

www.cdc.gov/niosh - The CDC/NIOSH website.

www.dol.gov/elaws -USDOL Employment Laws Assistance for Workers and Small Businesses.

www.nsc.org - National Safety Council.

www.state.nj.us/health/eoh/survweb/face.htm - NJDHSS FACE reports.

www.cdc.gov/niosh/face/faceweb.html - CDC/NIOSH FACE website.

REFERENCES

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

DISTRIBUTION LIST

NIOSH

Employer

Incident Site Owner

NJ State Medical Examiner

County Medical Examiner

Local Health Officer

NJDHSS Occupational Health Service Internet Site

NJDHSS Census of Fatal Occupational Injuries (CFOI) Project

Fatality Assessment and Control Evaluation (FACE) Project
Investigation # 03-NJ-043

Staff members of the New Jersey Department of Health and Senior Services, Occupational Health Service, perform FACE investigations when there is a report of a targeted work-related fatal injury. The goal of FACE is to prevent fatal work injuries by studying the work environment, the worker, the task and tools the worker was using, the energy exchange resulting in 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 review of OSHA, police, and medical examiner reports, employer safety procedures, and training plans. The FACE program does not seek to determine fault or place blame on companies 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: Alaska, California, Iowa, Kentucky, Massachusetts, Michigan, Minnesota, Nebraska, New Jersey, New York, Oklahoma, Oregon, Washington, West Virginia, and Wisconsin. Please visit the NJ FACE website at www.state.nj.us/health/eoh/survweb/face.htm or the CDC/NIOSH FACE website at www.cdc.gov/niosh/face/faceweb.html for more information.

This NJ FACE report was supported by Cooperative Agreement # 1 U60 OH0345-01 from the Centers for Disease Control and Prevention (CDC). Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the CDC.

Patrick Bost, M.S.
FACE Principal Investigator
Occupational Health Surveillance Program

Emily O'Hagan, R.N., M.P.H.
FACE Investigator
Occupational Health Surveillance Program

Daniel Lefkowitz, Ph.D.
FACE Investigator
Occupational Health Surveillance Program

Barbara Gerwel, M.D.
Project Coordinator
Occupational Health Surveillance Program

Donald Schill, M.S., CIH
Research Scientist
Occupational Health Surveillance Program

David Valiante, M.S., CIH
Program Manager
Occupational Health Surveillance Program

Gary Ludwig, M.S.
Director
Occupational Health Service

Eddy A. Bresnitz, M.D., M.S.
State Epidemiologist/ Senior Assistant
Commissioner
Division of Epidemiology, Environmental,
and Occupational Health

