

Tree Care Work: Falls and Falling Object Hazards

There are many serious hazards in tree care work. This Hazard Bulletin focuses on the hazards from falls and falling objects which can result in serious injuries or death. These hazards also account for a high proportion of the tree care fatalities investigated by Federal OSHA.

Fatal Incidents: Two Examples

The following fatal incident descriptions involve the serious hazards of falls and falling objects:

Falling Object Incident

A tree care worker was dragging trimmed branches to a mobile wood chipper. A second worker, a trimmer, was working from a mobile bucket truck. The trimmer was piecing out a large maple tree scheduled for removal from the rear of a residence. The trimmer cut a piece of a limb that was approximately one foot in diameter and 20 inches long. When the limb fell, it struck the tree care worker on the head, killing him. An investigation of this incident determined that ground personnel should not have been in the tree-trimming area, or “drop zone”, while the trimmer was performing overhead work. The employer was required to establish a system of verbal and visual communications that the trimmer could use to inform ground personnel to stand clear when an overhead hazard existed.

Fall Incident

A worker climbed a large hickory tree to remove the top of the tree. After he cut one section off the top of the tree and was roping down a second section, the trunk of the tree he was working from snapped in half. This caused the worker and the entire top of the tree to fall approximately 65 feet to the ground, killing the worker. The employer could have prevented this incident by performing a



Photo courtesy of Altec

preliminary examination of the tree before starting work. A thorough preliminary examination would have shown that the tree could not support the forces resulting from rigging and roping down cut tree sections.

Prevention

Before beginning any tree care operation, employers need to:

- **Assess the work site for fall and falling object hazards.** Assess the sloped ground where ladders or equipment will be used to prevent falls from equipment overturns and ladder slippage; nearby overhead objects or structures; and weather-related hazards.
- **Have a qualified arborist survey the worksite and identify the types of trees involved and possible hazards related to tree structure.** The qualified arborist would identify fall hazards and

falling object hazards due to tree condition. The American National Standard Institute's (ANSI) Z133 consensus standard on tree care work defines "qualified arborist."

- **Determine if rigging is necessary and, if so, that workers can use it safely.** This determination helps prevent sections of the tree from falling while performing tree care work.
- **Determine if workers will need to climb or use aerial lifts.** In making this determination, ensure that:
 - o Ladders are:
 - Well maintained and not defective, such as having missing or broken parts;
 - Kept at least 10 feet away from power lines and other electric equipment. For lines and equipment over 50 kV, the distance should be 10 feet plus 4 inches for every 10 kV over 50 kV.†
 - Inspected before each use, and remove damaged or defective ladders;
 - Secured to avoid slippage; and
 - Used according to the manufacturer's instructions.
 - o Aerial lifts are:
 - Maintained and properly set up for use;
 - Used according to the manufacturer's instructions;
 - Not used as cranes to lift or hoist tree parts or material unless designed for that purpose;
 - Only used with fall protection equipment including tie-off; and
 - Kept at least 10 feet away from power lines and other electric equipment. For lines and equipment over 50 kV, the distance should be 10 feet plus 4 inches for every 10 kV over 50 kV.†
 - o Workers who climb trees are trained on:
 - Climbing techniques;
 - Using climbing spurs with gaffs that are compatible with the tree they will climb;

- Using a second means of fall protection such as a work-positioning lanyard or a second climbing line, in addition to using an arborist climbing line;
 - Lifting and lowering hand tools and equipment; and
 - Carrying only hand tools and equipment that are necessary for climbing.
- **Identify and provide without cost properly fitting personal protective equipment to protect workers from fall and overhead falling object hazards, and ensure that the workers use the equipment and are trained in its proper use.**
 - **Only use climbing equipment approved by the manufacturer for tree care work, including climbing lines, safety lines, personal fall protection equipment, and inspect all equipment for safe operation before starting work; remove damaged, defective, or worn equipment from service.**
 - **Ensure that all workers at a tree care operation are trained in hazard recognition for falls from elevation and falling object hazards, and the use of personal protective equipment, such as hard hats, to protect against injury from overhead falling objects.**
 - **If workers cannot remain at least 10 feet from electric lines to perform tree care operations, contact the utility company to de-energize and ground the lines.†**
 - **Take the following steps to protect workers from falling object hazards:** (1) Establish and mark drop zones with equipment, such as cones, where there is a hazard of objects falling; (2) ensure that all workers receive training on procedures for entering the drop zone; (3) ensure that ground workers maintain a distance away from the tree-felling operations that is at least two times the height of the tree; and (4) when using a rope to fell a tree, workers must be at a distance of at least one-and-a-half times the height of the tree being felled.
 - **Establish a visual or audible communication system between overhead workers and workers on the ground before starting rigging operations for piecing out the tree.** The system must effectively communicate when employees who are beneath overhead tree workers should stand clear of the drop zone, and when it is safe to approach a drop zone. A worker trained in

† This guidance is intended as a general warning for all tree care workers. In situations where employees other than qualified workers, as defined in 29 CFR 1910.269(a)(1)(i)(E)(1), are clearing trees and brush around electrical lines, minimum approach distances are given in 29 CFR 1910.269(r)(1). For further information see the Electric Power eTool at www.osha.gov/SLTC/etools/electric_power/overheadlinework_lineclearance.html.

emergency procedures needs to be within visual or voice communication with the worker climbing and working in a tree above 12 feet in height.

- **Provide traffic and pedestrian traffic control around the jobsite prior to the start of the tree care operation.**
- **Have emergency procedures in place prior to the start of the tree care operation.** Determine if the worksite location has cellular telephone coverage and verify that every worker knows the address of the worksite in case they need to summon emergency services to the site. Establish a retreat path for ground workers so they can escape from falling trees.

Additional Resources for Employers and Workers

OSHA's webpage on the Tree Care Industry, at www.osha.gov/treecare, provides many resources on OSHA standards, hazard recognition, safety and health programs, and additional resources.

Help for Employers

OSHA's On-site Consultation Program offers free and confidential advice to small businesses with fewer than 250 workers at a site (and no more than 500 employees nationwide). This program provides free on-site compliance assistance to help employers identify and correct job hazards as well as improve injury and illness prevention programs. On-site consultation services are separate from enforcement and do not result in penalties or citations. To locate the OSHA consultation office nearest you, visit www.osha.gov or call 1-800-321-OSHA (6742).

OSHA has compliance assistance specialists throughout the nation located in most OSHA offices. Compliance assistance specialists can provide information to employers and workers about OSHA standards, short educational programs on specific hazards or OSHA rights and responsibilities, and information on additional compliance assistance

resources. Contact your local OSHA office for more information by calling 1-800-321-OSHA (6742) or visit OSHA's website at www.osha.gov.

Workers' Rights

Workers have the right to:

- A safe workplace: working conditions that do not pose a risk of serious harm. The law requires employers to provide their employees with working conditions that are free of known dangers. The OSHA law also prohibits employers from retaliating against employees for exercising their rights under the law (including the right to raise a safety or health concern or to report an injury). For more information see www.whistleblowers.gov or [workers' rights](#).
- Working conditions that do not pose a risk of serious harm.
- Receive information and training (in a language and vocabulary they can understand) about workplace hazards, methods to prevent them, and the OSHA standards that apply to their workplace.
- Review records of work-related injuries and illnesses.
- Get copies of test results that find and measure hazards.
- File a complaint asking OSHA to inspect their workplace if they believe there is a serious hazard or that their employer is not following OSHA's rules. When requested, OSHA will keep all identities confidential.
- Exercise their rights under the law without retaliation.

Contact OSHA

For questions or to get information or advice, to report an emergency, report a fatality or catastrophe, order publications, or to file a confidential complaint, contact your nearest OSHA office, visit www.osha.gov, or call OSHA at 1-800-321-OSHA (6742), TTY 1-877-889-5627.

This bulletin is not a standard or regulation, and it creates no new legal obligations. It contains recommendations as well as descriptions of mandatory safety and health standards. The recommendations are advisory in nature, informational in content, and are intended to assist employers in providing a safe and healthful workplace. The Occupational Safety and Health Act requires employers to comply with safety and health standards and regulations promulgated by OSHA or by a state with an OSHA-approved state plan. In addition, the Act's General Duty Clause, Section 5(a)(1), requires employers to provide their employees with a workplace free from recognized hazards likely to cause death or serious physical harm.



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