

*The purpose of this Safety Alert is to: 1) Highlight an industry's occupational health risks; 2) Share a case study of a recent occupational fatality; and 3) Provide guidance on how to prevent similar incidents.*

## Preventing Fatalities from Falling Limbs in the Tree Care Industry

### BACKGROUND

In the U.S., an average of 140 workers were killed annually by trees, logs, or limbs over the last five years. In Massachusetts alone, there are an estimated 100 injuries per year from being struck by trees, logs, or limbs that result in missed work.<sup>1</sup> These incidents often take place during routine landscaping activities and storm clean up. To reduce the number of these incidents, employers need to institute prevention strategies. Of note, climate change patterns may suggest a future with more frequent and severe storms, which will in turn result in a need for more storm clean-up work, thus increasing the urgency of effective prevention strategies.

### Case Study: Tree Care Worker Fatally Struck by Log

In January of 2020, tree care workers were cutting down several oak trees at a residence in Massachusetts. When one of the trunks fell, it landed on several logs that had been previously cut. One of those logs was struck with such force that it catapulted across the yard and struck a worker who was operating the woodchipper. The log caused severe head trauma to the chipper operator, and he was hospitalized and later pronounced dead. None of the workers were wearing protective helmets.

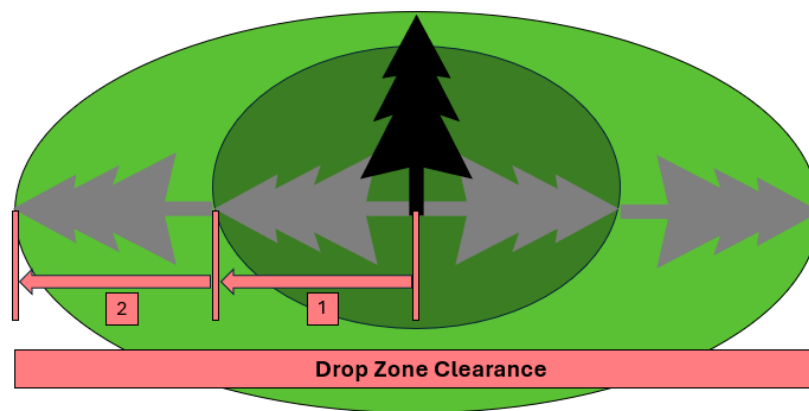
### HOW CAN EMPLOYERS PREVENT INCIDENTS RELATED TO FALLING TREES AND LIMBS?

- 1. Assess the work site for potential falling object hazards.**
  - ▶ Have a qualified arborist survey the worksite to identify damaged or weakened trees or branches that could fall.
- 2. Determine if rigging is necessary, and make sure workers can use it safely.**
  - ▶ Follow guidance from the [ANSI Z133.1 standard](#). It provides detailed guidance on rigging, tree trimming and removal, and other safety measures related to tree care.

<sup>1</sup> Injury data obtained from the Bureau of Labor Statistics [bls.gov/iif/data.htm](https://bls.gov/iif/data.htm).

3. **Establish drop zones where there is a hazard of objects falling.** (See Figure 1)
- ▶ Measure drop zone and mark it with cones or caution barrier tape.
    - **In general**, the drop zone should be a distance of at least *2 times* the height of the tree from the tree-felling operations.
    - **When using a rope to fell a tree**, the drop zone should be a distance of at least *1.5 times* the height of the tree from the tree-felling operations.
  - ▶ Ensure workers and equipment are not in the drop zone, and remove the debris from the drop zone when it is safe to do so.

**Figure 1: Drop Zone Measurement**



This diagram shows how a worker should measure drop zones.

4. **Set up a visual or verbal communication system between overhead workers and ground workers.**
- ▶ Workers should communicate when to stand clear of the drop zone and when it is safe to approach the drop zone.
5. **Provide training to tree care workers on:**
- ▶ Procedures and hazards for entering the drop zone.
  - ▶ Proper personal protective equipment (PPE) use.
  - ▶ Emergency procedures, including the retreat path for ground workers so they can escape from falling trees.
6. **Provide workers with personal protective equipment (PPE), and ensure through training and supervision that they use it properly.**
- ▶ Provide PPE that will protect workers from overhead falling objects, which includes a helmet, eye protection, safety boots, gloves, and hearing protection.

## MORE INFORMATION

### National Resources:

- [OSHA Hazard Bulletin Tree Care Work: Falls and Falling Object Hazards \(osha.gov\)](https://www.osha.gov/publications/bulletin-tree-care-work-falls-and-falling-object-hazards)
- [Solutions for Tree Care Hazards \(osha.gov\)](https://www.osha.gov/publications/solutions-for-tree-care-hazards)
- [Tree Trimming Safety \(osha.gov\)](https://www.osha.gov/publications/tree-trimming-safety)
- [Tree Care Work Know the Hazards: Brochure for Employees \(osha.gov\)](https://www.osha.gov/publications/tree-care-work-know-the-hazards-brochure-for-employees)
- [Tree Care Industry \(osha.gov\)](https://www.osha.gov/publications/tree-care-industry)
- [Fact Sheet: Landing Zone/ Drop Zone Precautions for Tree Trimming & Removal Operations \(tcia.org\)](https://www.tcia.org/fact-sheet-landing-zone-drop-zone-precautions-for-tree-trimming-removal-operations)
- [American National Standards Institute \(ANSI\) Z133 Safety Standard \(isa-arbor.com\)](https://www.isa-arbor.com/ansi-z133-safety-standard)

**If you need help starting a health and safety program, find resources from the Massachusetts Department of Labor Standards:**

[On-Site Consultation Program \(mass.gov\)](https://www.mass.gov/on-site-consultation-program)



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