



WOOD CHIPPER BEST PRACTICES

Wood chippers are an important tool for post-storm clean-up and routine tree service. Some agencies use chippers almost daily while other agencies use them infrequently, primarily after severe weather. Both circumstances present hazards beyond the hazards inherent to the chipper. Employees of agencies that use chippers frequently can become complacent with the hazards. Agencies that use a chipper infrequently run the risk of employees forgetting their training over time and becoming unfamiliar with the safeguards for operating the machine. Employers must develop their chipper training program to address the hazards to their particular operations. Best practices suggest developing three levels of training; initial training, pre-season refresher training, and daily briefings.

Initial Training

- Initial training should include the demonstration of the knowledge and skills necessary to inspect, operate and maintain the chipper. It must start with a review of the Owner's Manual. It is a best practice to document initial training with a Skill Sheet. A Skill Sheet lists the critical tasks an employee must be able to perform such as conducting daily inspection and safety checks, properly feeding vegetation into the chipper without violating safety protocols, and proper clearing of a jam.

Refresher Training

- Start with reviewing the first pages of the Owner's Manual where the dangers and warnings are listed.
- Concentrate on the most severe and most common causes of injuries and fatalities from the chipper – NIOSH studied 11 chipper fatalities over 5 years and found seven of the fatalities were caused when the worker was caught by the feed mechanism and pulled into the chipper knives, and the other four were caused by being struck with guards that were thrown from the machine when they were not properly secured.
- Discuss the very significant hazard of working on roadways – Most chipper operations take place on roads and traffic control plays a large role in crew safety. Traffic control for routine and emergency chipping operations must be in accordance with the Manual on Uniform Traffic Control Devices.

Daily Briefings

While initial and refresher training establishes a baseline of employee knowledge and skills, research shows that the proper and consistent application of those knowledge and skills are best reinforced by short and targeted daily conversations by agency leaders. Page 2 of this Bulletin includes several briefing topics to vary your message.

Beyond training, employers need two additional programs in place.

- A comprehensive maintenance program, in accordance with the manufacturer's recommended schedule, should be followed. A best practice is for the maintenance shop to stock a supply of warning labels.
- Employers should also have a plan to continuously investigate new technology available in chipper machines.

SHIFT BRIEFING TOPICS FOR CHIPPING CREW

1. **Take part in the morning chipper inspection.** This is a great strategy to demonstrate your commitment to the importance of performing an effective inspection every day. Review the procedure for testing the proper operation of safety features.
2. **Discuss proper apparel for chipping operations in general and today's weather conditions specifically.** Discuss the hazards of loose-fitting gloves and sleeves. Inspect the crew's gloves and replace those that are worn or not properly fitted. On subsequent briefing, discuss and inspect work boots. Discuss the importance of wearing layers of clothing so adjustments can be made as the temperature rises or falls during the shift.
3. **Discuss the personal protective equipment needed for chipping operations.** Using a chipper requires a certain level of personal protective apparel. Noise levels can reach 100 decibels. Good ear muffs or properly inserted ear plugs are essential. You may wish to demonstrate the proper technique for inserting ear plugs or view a YouTube video. Safety glasses and work boots are required. An ANSI Class 2 or 3 high-visibility outerwear is also required if chipping within 15 feet of a roadway.

Users should wear a protective helmet (29 CFR 1910.135). Helmets purchased after July 5, 1994, must comply with ANSI Z89.1- 1986 (.135(b).8 Also consider using a Forestry Helmet System with a face shield and ear protection built in. Remember that safety glasses must still be worn when using the helmet's face shield.

4. **Discuss temporary traffic control for mobile work zones.** Chipping operations are typically a mobile work zone. Review the two requirements for mobile work zones; amber warning lights that are visible from both front and rear, and high visibility apparel. Discuss when minimum levels of traffic control might not be sufficient, such as curves or immediately after an intersection. Discuss options you want them to consider to increase their safety in difficult situations.
5. **Discuss best practices for feeding branches into the chipper.** Branches should be fed into the chipper cut-end first. Workers should approach the feed chute to the side of the chute, feed the branch from the side, and walk away when the branch is grabbed by the cutting knives. Take the time to make branches as straight as possible by cutting crotches and stubs before feeding them into the chipper. A few extra cuts with a chainsaw equal less resistance at the feed rollers. Beware of long vines and undetected wire fencing that may become an entanglement hazard and cause injury to the operator. Throw small branches and raked material directly into the rear of the vehicle with chipped material. MSI NOW, the manufacturer, and YouTube are resources for videos on the safe use of chippers.
6. **Discuss the Lockout/Tagout procedures for clearing a jam in the feed chute.** The moving parts of the chipper present many severe hazards when the machine jams or otherwise does not operate properly. A chipper's flywheel is very heavy and has the potential to store mechanical energy, especially if it becomes jammed. Refer to the Owner's Manual and review the procedures for common malfunctions of the chipper. Discuss what repairs should be made on the street and when the machine must be returned to the shop for troubleshooting and repairs.
7. **Discuss trailer connections and towing.** Review the procedures to attach the chipper trailer to the tow vehicle. Review how to inspect the connecting devices as they are used. Discuss challenges to hooking up the trailer and methods to test connections. Remind drivers to go slow when leaving to verify the trailer is hooked up properly.
8. **Discuss safety when unloading the chipped materials.** Unloading the chipped material at a remote location presents several hazards; uncoupling and coupling the trailer on uneven surfaces, raised truck bodies, maneuvering the trailer in difficult areas, and using a spotter.
9. **[NIOSH Fatality Assessment and Control Evaluation \(FACE\) Program](#).** NIOSH conducted various fatalities involving chippers. Their reports include a full discussion of the event, often with pictures or diagrams, and ways to avoid the mistakes that were made which can be reviewed with employees.