



# INDIANA UNIVERSITY

OFFICE OF THE EXECUTIVE VICE PRESIDENT  
FOR UNIVERSITY ACADEMIC AFFAIRS

University Environmental Health and Safety

## Hand and Power Tool Safety Program

November 18, 2015

### 1. INTRODUCTION

#### 1.1 Purpose

Indiana University Environmental Health and Safety (IUEHS) has developed this Program to ensure the safety of employees working with hand and power tools and other hand-held equipment. This Program is intended to comply with the Occupational Safety and Health Administration (OSHA) Standards contained in 29 CFR 1910.[241](#), [242](#), [243](#), [244](#), and [266](#).

#### 1.2 Scope

This Program applies to all Indiana University employees who may use hand (e.g. screwdrivers, chisels, pliers, etc.) and power tools (e.g. rotating, reciprocating, pneumatic, etc.) and equipment during the course of their work. This Program does not cover the safe use of mowers which is covered by the Mower Safety Program.

### 2. AUTHORITY AND RESPONSIBILITY

#### 2.1 University Environmental Health and Safety (IUEHS) is responsible for:

- 2.1.1 Developing the Hand and Power Tool Safety Program and revising the Program as deemed appropriate;
- 2.1.2 Developing and maintaining a general training program;
- 2.1.3 Maintaining training records; and
- 2.1.4 Periodically auditing Program implementation.

#### 2.2 Departments and Supervisors are responsible for:

- 2.2.1 Ensuring that hand and power tool safety measures are in place according to this Program and the applicable OSHA standards;
- 2.2.2 Ensuring that all hand and power tools and other hand held equipment are free from defects and are working and maintained properly;
- 2.2.3 Ensuring that all affected employees have been trained in accordance to the manufacturer recommendations and to the applicable standards outlined in the appendices of this Program;
- 2.2.4 Taking damaged tools out of service immediately if they are defective;
- 2.2.5 Providing IUEHS for the respective campus with records of training performed by the department; and
- 2.2.6 Conducting periodic inspections of work areas.

#### 2.3 Employees are responsible for:

- 2.3.1 Completing the required training programs;
- 2.3.2 Inspecting hand and power tools and equipment for defects or possible hazards prior to use;
- 2.3.3 Using hand and power tools and equipment safely;
- 2.3.4 Complying with the manufacturer's guidelines;
- 2.3.5 Tagging any defective tools as out of service immediately; and
- 2.3.6 Reporting any defects to their supervisor immediately.

### 3. PROGRAM ELEMENTS

#### 3.1 General Safety Requirements

- 3.1.1 Keep all tools in good condition with regular maintenance;
- 3.1.2 Use the right tool for the job;
- 3.1.3 Inspect each tool for damage before use;
- 3.1.4 Never use damaged (take damaged tools out of service immediately);
- 3.1.5 Operate tools according to the manufacturers' instructions;
- 3.1.6 Use the proper personal protective equipment (PPE); and
- 3.1.7 Compressed air shall not be used for cleaning purposes except where reduced to less than 30 p.s.i. and then only with effective chip guarding and personal protective equipment.

#### 3.2 Guards

- 3.2.1 The exposed moving parts of power tools shall be guarded per [IU's Machine Guarding Program](#), [29 CFR 1910.243](#), and this Program's appendices. Safety guards must never be removed when a tool is being used. Belts, gears, shafts, pulleys, sprockets, spindles, drums, flywheels, chains, or other reciprocating, rotating, or moving parts of equipment must be guarded. Machine guards must be provided to protect the operator and others from the following:
  - 3.2.1.1 Point of operation;
  - 3.2.1.2 In-running nip points;
  - 3.2.1.3 Rotating parts; and
  - 3.2.1.4 Flying chips and sparks.

#### 3.3 Personal Protective Equipment (PPE)

- 3.3.1 Before working with hand and power tools, consult the PPE job hazard assessment for the job you will be conducting to determine if additional PPE will be needed. Refer to IUEHS's [PPE Policy](#) and PPE Programs ([Eye and Face Protection Program](#), and [Foot Protection Program](#)) for specific information regarding the safe use of PPE.

### 4. TRAINING & RECORDKEEPING

#### 4.1 Training Requirements

- 4.1.1 All employees shall be trained in the proper use of tools prior to using hand and power tools and other hand-held equipment. General training is provided by IUEHS through E-Training. Employees shall be trained in the following:
  - 4.1.1.1. Recognition of the hazards associated with different types of tools and the safety precautions necessary for use;
  - 4.1.1.2. The PPE required during use; and
  - 4.1.1.3. The proper use of hand and powers tools and other hand-held equipment.

- 4.1.2 Departments shall conduct training that is specific to the hand and power tools being used.

#### 4.2 Recordkeeping

- 4.2.1 Training records will be maintained by IUEHS.
- 4.2.2 Maintenance and repair records must be documented and kept by the department.

### 6. REFERENCES

- 29 CFR 1910.[241](#)
- 29 CFR 1910.[242](#)

- 29 CFR 1910.[243](#)
- 29 CFR 1910.[244](#)
- 29 CFR 1910.[266](#)
- [OSHA Publication 3080 – Hand and Power Tools](#)
- [OSHA – Safeguarding Equipment and Protecting Employees from Amputations](#)

## **6. REVISIONS**

New Document – November 18, 2015

## APPENDIX A – GLOSSARY

**Fence:** A protective device mounted on a tool that helps locate and guide the work piece through the tool's blade or cutter.

**Ground Fault Circuit Interrupter (GFCI):** A safety device that senses hazardous electrical leakage to ground and quickly shuts off the circuit to help prevent electric shock.

**Guard:** Protective devices that cover power tool blades, grinding heads or other hazardous points of contact. Never use a tool if the required guard has been removed or is not functioning properly.

**Vise:** Equipment used to hold or secure a work piece in one place.

## **APPENDIX B – Manual Hand Tools**

Hand tools are tools that are powered manually. Some examples of hand tools include anvils, axes, chisels, files, hammers, hand boring tools, planes, pliers, punches, saws, industrial scissors, screw drivers, tin snips, and wrenches. Hazards associated with hand tools result from misuse and improper maintenance. To prevent injury, follow the guidelines listed below:

- Hand tools shall be used for their intended purpose;
- Inspect tools for damage prior to use;
- Hand tools shall be maintained in good condition free of damage. For example, wooden handles on tools, such as a hammer or an axe, shall be tight and free from splinters or cracks;
- Bent screwdrivers or screwdrivers with chipped edges shall be replaced;
- Always direct tools such as knives, saw blades, etc. away from aisle areas and away from other employees working in close proximity;
- Dull tools can cause more hazards than sharp ones. Keep blades sharp;
- Cracked saw blades must be removed from service;
- Wrenches must not be used when jaws are sprung to the point that slippage occurs;
- Impact tools such as drift pins, wedges, and chisels must be kept free of mushroomed heads;
- Iron or steel hand tools may produce sparks that can be an ignition source around flammable substances. Spark-resistant tools made of non-ferrous materials should be used where flammable gases, highly volatile liquids, and other explosive substances are stored or used;
- Keep the work area and tools clean. Dirty, greasy tools and floor may cause accidents;
- Tools shall be stored in a dry secure location; and
- Carry and store tools properly. All sharp tools shall be carried and stored with the sharp edge down. Do not carry sharp tools in a pockets.

## **APPENDIX C – Power Tools – General Safety**

Power tools must be equipped with safety switches and guards (if provided by the manufacturer). Types of power tools are determined by their power source: electric, pneumatic, liquid fuel, hydraulic, and powder-actuated. To prevent hazards associated with the use of power tools, workers shall observe the following general precautions:

- Read the owner's manual to understand the tool's proper applications, limitations, operation, and hazards;
- Never carry a tool by the cord or hose;
- Never yank the cord or the hose to disconnect it from the receptacle;
- Keep cords and hoses away from heat, oil, and sharp edges;
- Ensure tools are properly grounded. In wet or damp locations, use Ground Fault Circuit Interrupter (GFCI) outlets or extension cords;
- Disconnect tools when not using them, before servicing and cleaning, and when changing accessories such as blades, bits, and cutters;
- Keep all people not involved with the work at a safe distance from the work area;
- When possible, secure work with clamps or a vise, freeing both hands to operate the tool;
- Avoid accidental starting. Do not hold fingers on the switch button while carrying a plugged-in tool;
- Maintain tools sharp and clean;
- Be sure to keep good footing and maintain good balance when operating power tools;
- Wear proper apparel for the task. Loose clothing, ties, or jewelry can become caught in moving parts;
- Inspect tools for damage before each use. Remove all damaged tools from use and tag them: "Do Not Use";
- Ensure that cords from electric tools do not present a tripping hazard;
- Keep work areas well-lit when operating electric tools;
- Store electric tools in a dry place when not in use; and
- Wear PPE and appropriate footwear when using electric tools.

## **APPENDIX D - Power Saws**

The following are general requirements when working with different types of saws:

### **Circular Saws**

- Powered circular saws having a blade greater than 2 inches in diameter must be equipped at all times with guards. An upper guard must cover the entire blade of the saw. A retractable lower guard must cover the teeth of the saw, except where it makes contact with the work material. The lower guard must automatically return to the covering position when the tool is withdrawn from the work material.
- Make sure the blade is sharp, undamaged, and secured.
- Make sure that all guards are attached and working properly.

### **Table Saws**

- Adjust the blade to project 1/8 inch above the wood.
- Ensure that the work piece does not contact the blade when starting or stopping the saw.
- Keep body away from the saw.
- Use a push stick when cutting narrow pieces.
- When the saw is not in use, make sure the saw blade is lowered below the tabletop.
- Make sure the blade is sharp, undamaged, and secured.
- Make sure that all guards are attached and working properly.

### **Saber Saws**

- Select the proper blade for the job.
- Do not turn on the saw when the blade is in contact with the work piece.
- Hold the saw firmly with one hand and hold the work piece with the other hand.
- Keep hands and other objects clear of the blade.
- Make sure the blade is sharp, undamaged, and secured.
- Make sure that all guards are attached and working properly.

### **Radial Arm Saws:**

- Lay the wood on the table and against the saw's back guide. The blade should rotate downward. Pull the saw with one hand and hold the wood with the other. Never reach across the line of cut. Return the saw to the rear position after completing a cut.
- Make sure the blade is sharp, undamaged, and secured.
- Make sure that all guards are attached and working properly.

### **Miter Saws:**

- Miter saws use a downward cutting motion, so the user must keep hands and fingers away from the blade's path.
- Use only the recommended size and rpm rated blades.
- When installing or changing a blade, make sure that the blade and all fasteners are correctly positioned and secured to the saw.
- Make sure the blade is sharp, undamaged, and secured.
- Make sure that all guards are attached and working properly.

### **Band Saws:**

- Set the saw blade evenly and with the correct tension.
- For large pieces to be cut, push the cutting item through the blade with the hands on both sides of the line of cut.
- For small pieces to be cut, use rip or crosscut fences and a push stick.
- Lower the band guard to just above the piece to be cut.
- Make sure the blade is sharp, undamaged, and secured.
- Make sure that all guards are attached and working properly.

## **APPENDIX E - Drills**

When operating a drill;

- Use the proper size and type of bit for the job. Make sure that it is sharp and not damaged.
- Ensure that the chuck is secured to the spindle.
- Tighten the bit securely as outlined in the owner manual.
- Remove the chuck key prior to starting the drill.
- Ensure that handles are securely attached.
- When drilling clockwise (forward), brace the drill to prevent a counterclockwise reaction.
- Never force a drill. Forcing a drill can cause the motor to overheat and damage the bit.
- Apply the appropriate pressure for the job. If the drill slows, relieve the pressure.
- When operating a drill press, ensure that the quill guard is in place and functioning (if equipped by the manufacturer).



## **APPENDIX F - Abrasive Sanders and Wheels**

### **Belt Sanders**

- Belt sanding machines shall be provided with guards at each nip point where the sanding belt runs onto a pulley.
- The guards shall prevent the hands or fingers of the operator from coming in contact with the nip points.
- The unused run of the sanding belt shall be guarded against accidental contact.

### **Abrasive Wheel Tools**

- Powered abrasive grinding, cutting, polishing, and wire buffing wheels may throw off flying fragments. Abrasive wheel tools must be equipped with guards that:
  - Cover the spindle end, nut, and flange projections;
  - Maintain proper alignment with the wheel; and
  - Do not exceed the strength of the fastenings.
- Before an abrasive wheel is mounted, it must be inspected for damage and should be sound or ring-tested to ensure that it is free from cracks or defects.
- Wheels should be tapped gently with a light, non-metallic instrument. If the wheels sound cracked or dead, they could fly apart during operation and must not be used. A stable and undamaged wheel, when tapped, will give a clear metallic tone or “ring.”
- To prevent an abrasive wheel from cracking, it must fit freely on the spindle. The spindle nut must be tightened to hold the wheel in place without distorting the flange.
- Always follow the manufacturer’s recommendations.
- Ensure that the spindle speed of the machine will not exceed the maximum operating speed marked on the wheel. An abrasive wheel may disintegrate or explode during start-up. Allow the tool to come up to operating speed prior to grinding or cutting.
- The employee should never stand in the plane of rotation of the wheel as it accelerates to full operating speed.
- Powered grinding tools shall be equipped with guards to protect workers from the moving wheel surface and also from flying fragments in case of wheel breakage.
- The work rest shall be within 1/8 inch of the wheel. The adjustable tongue on the top of the grinder must be within 1/4 inch of the wheel.
- When using a power grinders:
  - Always use eye or face protection;
  - Turn off the power when not in use; and
  - Never clamp a hand-held grinder in a vise.

## APPENDIX G – Pneumatic Tools

Pneumatic tools are powered by compressed air and include chippers, drills, hammers, and sanders. Some hazards associated with pneumatic tools include noise, vibration, fatigue, and strains. Additional hazards are described below:

- The greatest hazard is being hit by one of the tool's attachments or by a fastener used with the tool. Eye protection must be worn for employees working with pneumatic tools;
- Pneumatic tools must be checked to ensure that they are fastened securely to the air hose to prevent them from becoming disconnected. A short wire or positive locking device attaching the air hose to the tool must also be used and will serve as an added safeguard;
- If an air hose is more than 1/2-inch in diameter, a safety excess flow valve must be installed at the source of the air supply to shut off the air automatically in case the hose breaks;
- When connecting lengths of high pressure hose together, safety clips or wire shall be used to secure couplings together;
- When using pneumatic tools, a safety clip or retainer must be installed to prevent attachments such as chisels on a chipping hammer from being ejected during tool operation;
- Pneumatic tools that shoot nails, rivets, staples, or similar fasteners and operate at pressures more than 100 pounds per square inch (consult manufacturer's recommendations for proper pressure setting) must be equipped with a special device to keep fasteners from being ejected, unless the muzzle is pressed against the work surface;
- Airless spray guns that atomize paints and fluids at pressures of 1,000 pounds or more per square inch must be equipped with automatic or visible manual safety devices that will prevent pulling the trigger until the safety device is manually released;
- Screens must be set up to protect nearby workers from being struck by flying fragments around chippers, riveting guns, staplers, or air drills; and
- Compressed air guns shall never be pointed toward anyone. Workers shall never "dead-end" them against themselves or anyone else.

## **APPENDIX H - Jacks and Hydraulic Power Tools**

General Requirements for all jacks—including lever and ratchet jacks, screw jacks, and hydraulic jacks):

- Must have a stop indicator and the stop limit must not be exceeded.
- Manufacturer's load limit must be permanently marked in a prominent place on the jack and the load limit must not be exceeded.
- The operator shall make sure that the jack has a rating sufficient to lift and sustain the load.
- A jack shall never be used to support a lifted load. Once the load has been lifted, it must immediately be blocked up. Place a block under the base of the jack when the foundation is not firm, and place a block between the jack capacity and load if the cap might slip.
- To set up a jack:
  - The base of the jack shall rest on a firm, level surface;
  - The jack must be correctly centered;
  - The jack head must bear against a level surface; and
  - The lift force must be applied evenly.
- All jacks must be lubricated regularly.
- Each jack must be inspected according to the following schedule: (1) for jacks used continuously or intermittently at one site—inspected at least once every 6 months, (2) for jacks sent out of the shop for special work—inspected when sent out and inspected when returned, and (3) for jacks subjected to abnormal loads or shock— inspected before use and immediately thereafter. Inspection records shall be maintained within using department and retained for 3 years.
- Jacks which are out of order shall be tagged accordingly, and shall be used until repairs are made.

### **Hydraulic Jacks**

Hydraulic jacks exposed to freezing temperatures shall be supplied with an adequate antifreeze liquid.

### **Hydraulic Power Tools**

- The fluid used in hydraulic power tools must be an approved fire-resistant fluid and must retain its operating characteristics at the most extreme temperatures to which it will be exposed. The exception to fire-resistant fluid involves all hydraulic fluids used for the insulated sections of derrick trucks, aerial lifts, and hydraulic tools that are used on or around energized lines. This hydraulic fluid shall be of the insulating type.
- The manufacturer's recommended safe operating pressure for hoses, valves, pipes, filters, and other fittings must not be exceeded.

## **APPENDIX I - Operating Controls and Switches**

The following hand-held power tools must be equipped with a constant-pressure switch or control that shuts off the power when pressure is released (These tools also may be equipped with a “lock-on” control, if it allows the worker to also shut off the control in a single motion using the same finger or fingers):

- Drills;
- Tappers;
- Fastener drivers;
- Horizontal, vertical, and angle grinders with wheels more than 2 inches in diameter;
- Disc sanders with discs greater than 2 inches;
- Belt sanders;
- Reciprocating saws;
- Saber saws, scroll saws, and jigsaws with blade shanks greater than 1/4-inch wide; and
- Other similar tools.

The following hand-held power tools must be equipped with either a positive “on-off” control switch, a constant pressure switch, or a “lock-on” control (Note: The constant-pressure control switch should be regarded as the preferred device. Other hand-held power tools such as circular saws having a blade diameter greater than 2 inches, chain saws, and percussion tools with no means of holding accessories securely must be equipped with a constant-pressure switch):

- Disc sanders with discs 2 inches or less in diameter;
- Grinders with wheels 2 inches or less in diameter;
- Platen sanders, routers, planers, laminate trimmers, nibblers, shears, and scroll saws; and
- Jigsaws, saber, and scroll saws with blade shanks a nominal 1/4-inch or less in diameter.

## **APPENDIX J - Powder Actuated Tools**

Powder-actuated tools are considered very dangerous, and shall only be operated by employees who have received training. Powder-actuated tools operate very much like a loaded gun and must be treated with such respect. When using powder-actuated tools, the user must:

- Wear ear, eye and face protection.
- Ensure that the muzzle protective shield is in place and centered perpendicular to and concentric with the barrel to confine any projectile fragments that could be launched when the tool is fired.
- Hold the tool in the operation position for at least 30 seconds before trying to re-fire it if misfired.
- Not use in an explosive or flammable atmosphere.
- Inspect the powder-actuated tool before using it, make sure it is clean, that all moving parts operate freely, that the barrel is free from obstruction, and that the barrel has the proper shield, guard, and attachments as recommended by the manufacturer.
- Not load the tool unless it is to be used immediately.
- Not leave a loaded tool unattended.
- Keep hand clear of the barrel end.
- Never point the tool at anyone.
- Not fire fasteners into materials that would allow the fasteners to pass through to the other side.
- Not drive fasteners into brittle materials that might chip or splatter which could cause the fastener to ricochet.
- Always use an alignment guide when shooting fasteners into existing holes.

## **APPENDIX K – Grounds Equipment**

### **Weed Trimmers**

- Wear appropriate protective clothing, long pants, gloves, safety shoes, goggles or safety glasses, and ear plugs. If working in close proximity to vehicular traffic, a visibility vest shall also be worn.
- Ensure that pedestrians are not in the work zone prior to starting work.
- Don't remove protective guards or string guides from the equipment unless you are performing maintenance where removal of the device is necessary.
- Monitor the string length. Automatic-feed and bump-feed trimmers may let out more string than necessary which could cause the string to strike the operator.
- If using an electric trimmer, inspect all extension cords for cuts, nicks, scrapes, and exposed wire that may pose an electrical hazard. Replace damaged cords immediately.
- Don't operate electric trimmers when conditions are wet or working in close proximity to standing water. If work must be performed in wet conditions, a GFCI shall be used.
- Disable electric trimmers and gas-powered trimmers before inspecting, cleaning, adjusting, or replacing string.
- Never leave an electric trimmer plugged in or a gas-powered trimmer running while unattended.
- When refueling gas-powered trimmers, shut the engine off, utilize a funnel or gas can with a nozzle extension that fits into the gas tank opening.
- Remove debris such as glass, limbs, rocks, and trash that could possibly become a projectile before trimming.
- Watch out for exposed electrical wires, communication lines, and extension cords that could be damaged by the trimmer string.
- Follow the manufacturer's guidelines for the equipment you are operating.

### **Lawn Edgers**

- Wear appropriate protective clothing, long pants, gloves, safety shoes, goggles or safety glasses, and ear plugs. If working in close proximity to vehicular traffic, a visibility vest shall also be worn.
- Ensure that pedestrians are not in the work zone prior to starting work.
- Don't start an edger if the blade is touching the ground. It could move causing contact with the operator.
- Don't remove protective guards or shields from the equipment unless you are performing maintenance where removal of the device is necessary.
- Operate the edger blade at full speed.
- When edging along roadways, stay as close to the curb as possible to avoid contact with vehicular traffic.
- Disable electric edgers and gas-powered edgers before inspecting, cleaning, adjusting, or replacing the blade.
- Never leave an electric edger plugged in or a gas-powered edger running while unattended.
- When refueling gas-powered lawn edgers, shut the engine off, utilize a funnel or gas can with a nozzle extension that fits into the gas tank opening.
- Watch out for exposed electrical wires, communication lines, and extension cords that could be damaged by the edger.
- Follow the manufacturer's guidelines for the equipment you are operating.

## Hedge Trimmers

- Wear appropriate protective clothing, long pants, gloves, safety shoes, goggles or safety glasses, and ear plugs. If working in close proximity to vehicular traffic, a visibility vest shall also be worn.
- Ensure that pedestrians are not in the work zone prior to starting work.
- Ensure that all screws, blades, and/or chains are secure. Vibrating equipment can cause screws to loosen which may create a hazard.
- Disable electric trimmers and gas-powered trimmers before inspecting, cleaning, adjusting, or replacing the blade.
- Never leave hedge trimmers unattended.
- When refueling gas-powered hedge trimmers, shut the engine off, utilize a funnel or gas can with a nozzle extension that fits into the gas tank opening.
- Do not use electric hedge trimmers overhead.
- If trimmers become lodged in something, disconnect the power source before attempting to dislodge it.
- With electric hedge trimmers, keep extension cords clear of blades.
- Watch out for exposed electrical wires, communication lines, and extension cords that could be damaged by the trimmer.
- Follow the manufacturer's guidelines for the equipment you are operating.

## Leaf Blowers

- Wear appropriate protective clothing, long pants, gloves, safety shoes, goggles or safety glasses, and ear plugs. If working in close proximity to vehicular traffic, a visibility vest shall also be worn.
- Ensure that pedestrians are not in the work zone prior to starting work.
- If using an electric blower, inspect all extension cords for cuts, nicks, scrapes, and exposed wire that could pose an electrical hazard. Replace damaged cords immediately.
- Don't operate electric blowers when conditions are wet or working in close proximity to standing water. If work must be performed in wet conditions, a GFCI shall be used.
- Disable electric blowers and gas-powered blowers before inspecting, cleaning, or adjusting.
- When refueling gas-powered blowers, shut the engine off, utilize a funnel or gas can with a nozzle extension that fits into the gas tank opening.
- Don't use the blower to clean yourself.
- Follow the manufacturer's guidelines for the equipment you are operating.

## Chain Saw

- **Before starting the chain saw**
  - Wear appropriate protective clothing, gloves, safety shoes, long pants, chaps, goggles or safety glasses, face shield and ear plugs. If working in close proximity to vehicular traffic, a visibility vest shall also be worn.
  - Check controls, chain tension, and all bolts and handles to ensure they are functioning properly and adjusted according to the manufacturer's instructions.
  - Fuel the saw at least 10 feet from sources of ignition.
  - Start the saw at least 10 feet from fueling area, with chain brake engaged, and with the chainsaw on the ground or otherwise firmly supported.
- **While running the chain saw**
  - Keep hands on the handles, and maintain secure footing while operating the chainsaw.
  - If you are retreating from a fall hazard or out of a danger zone, disable the chain saw or release the throttle prior to retreating.
  - Disable or ensure that the chain brake is engaged whenever the saw is carried more

than 50 feet, or if carried on hazardous terrain.

- Disable electric chain saws and gas-powered chain saws before inspecting, cleaning, adjusting, or replacing the chain.
- When refueling gas-powered chain saws, shut the engine off, utilize a funnel or gas can with a nozzle extension that fits into the gas tank opening.
- Clear the area of obstacles that might interfere with cutting the tree or using the retreat path.
- Do not cut directly overhead.
- Follow the manufacturer's guidelines for the equipment you are operating.

## **Snow Thrower**

- Wear appropriate protective clothing, long pants, gloves, safety shoes, goggles or safety glasses, and ear plugs. If working in close proximity to vehicular traffic, a visibility vest shall also be worn.
- Always keep hands and feet away from all moving parts of the machine.
- If the machine clogs while removing snow, shut the machine off and wait for all moving parts to stop. Remove the clogged snow with a stick or suitable instrument. Take caution as the machine may jump once the obstruction has been cleared.
- Never leave a running snow thrower unattended.
- Some machines are capable of throwing snow a distance of 30 feet or greater. These machines can also propel rocks or other objects at great velocity. Operators shall ensure they discharge the snow away from people, buildings, or vehicles.
- If using an electric snow thrower, be aware of the location of the power cord. In addition, power cords shall be GFCI rated and or be plugged into a GFCI outlet.
- Disable electric snow throwers and gas-powered snow throwers before inspecting, cleaning, or adjusting.
- When refueling gas-powered snow throwers, shut the engine off, utilize a funnel or gas can with a nozzle extension that fits into the gas tank opening.
- Follow the manufacturer's guidelines for the equipment you are operating.