Hand and Power Tools

INCIDENT

Manitoba addressed a case of a worker for Arne’s Welding Ltd. who was injured while operating a horizontal band saw in June 2017. While making angled cuts, a piece of metal fell into the cutting area and the worker tried to push it away with a brush.

The blade of the saw caught the worker’s glove and pulled his hand in, resulting in a serious injury, the province said.

The employer pleaded guilty to “failing to ensure that a machine or tool was used or operated in accordance with the manufacturer’s specifications,” the release stated, and was ordered to pay $25,000 in fines and penalties, plus $5,000 to the public education fund.

NEED TO KNOW

Hand and power tool injuries send more than 400,000 workers to the emergency room and cause hundreds of deaths every year. The are a broad range of hand and power tools that are involved in this saga.

What’s the Danger?

Using hand and power tools exposes you to hazards like:

- Flying objects
- Harmful dusts
- Gases and fumes
- Unhealthy ergonomic practices, such as working in awkward postures.
- Slips, trips and falls

These hazards regularly cause eye and facial injuries, cuts, bruises, burns, amputations, and back injuries.

Cuts and other hand injuries to the hands are one of the most frequent and common injuries workers face. Hand injuries,

including amputations, can keep workers away from the job for several days and can cost employers big money. These injuries are preventable and available.

BUSINESS / REGULATION

Employers and employees in the 26 states and territories with OSHA-approved state safety and health plans should check with their state agency. Their state may be enforcing standards and other procedures that, while “at least as effective as” federal standards, are not always identical to the federal requirements.

Tools are such a common part of our lives that it is difficult to remember that they may pose hazards. Tragically, a serious incident can occur before steps are taken to identify and avoid or eliminate tool-related hazards.

Employees who use hand and power tools and are exposed to the hazards of falling, flying, abrasive, and splashing objects, or to harmful dusts, fumes, mists, vapors, or gases must be provided with the appropriate personal protective equipment. All electrical connections for these tools must be suitable for the type of tool and the working conditions (wet, dusty, flammable vapors). When a temporary power source is used for construction a ground-fault circuit interrupter should be used.

Employees should be trained in the proper use of all tools. Workers should be able to recognize the hazards associated with the different types of tools and the safety precautions necessary.

STATISTICS

1. Surveys estimate that work tools and power tools cause an average of nearly 400,000 visits to the emergency room each year. Of those injured, more than 200 die.
2. A National Safety Council study reports that the cost of just one disabling hand or finger injury varies from $540 to $26,000 per patient. With a serious upward extremity trauma averaging $730,000 per incident.

3. According to a recent Occupational Safety and Health Administration (OSHA) study, 70.9% of hand and arm injuries could have been prevented with personal protective equipment (PPE), specifically safety gloves.
4. 110,000 lost-time hand injuries annually.
5. Hand injuries send more than one million workers to the emergency room each year.
6. 70 percent of workers who experienced hand injuries were not wearing gloves. The remaining 30 percent of injured workers did wear gloves, but the gloves were inadequate, damaged or the wrong type for the type of hazard present.

WORKERS OPERATING HAND AND POWER TOOLS FACE A WIDE RANGE OF POTENTIAL HAZARDS

1. Nail guns are powerful, easy to operate, and boost productivity for nailing tasks. They are also responsible for an estimated 37,000 emergency room visits each year – 68% of these involve workers and 32% involve consumers. Severe nail gun injuries have led to construction worker deaths. Fortunately, these injuries can be prevented, and more and more contractors are making changes to improve nail gun safety. Research shows that risk of injury is twice as high using “contact” trigger nail guns compared to “sequential” trigger nail guns.
2. Over 32,000 chainsaw injuries happen each year. A lot of these injuries occur when users fail to wear the correct protective gear. According to Anita Gambill at Stihl, one of the world’s leading chain-saw manufacturers, “Chain-saw chaps cost about as much money as one stitch in the emergency room. Unfortunately, if you have an accident with a chain saw, you’re never going to need just one stitch.” The truth is worse than you think. According to the Centers for Disease Control and Prevention, the average chain-saw injury requires 110 stitches.
3. A recent study by the American Journal of Preventative Medicine found that between 1990 and 2005, ladders sent 2.1 million people to the hospital. Ninety-seven percent of those accidents happened in “non-occupational settings”—in

other words, your backyard. These numbers translate into an average of 140,000 injuries a year, or one every 3 minutes and 45 seconds—that's more than twice as many as a table saw. The study goes on to say that the most common injuries are likely to be fractures to the legs and feet.

4. Circular saws have faster blades than table saws, with an outer edge spinning at about 120 mph, and they can cause some serious damage if used incorrectly or recklessly. A study in Australia's Hazard Magazine found that of all reported saw injuries, circular saws make up the largest group at 30 percent. Of the recorded injuries, 56 percent involve DIYers, 99 percent of whom are male, with 68 percent of those blokes in the 20-to-39 age range.
5. Table saw accidents account for about 67,000 recorded injuries every year. While lacerations are the most common injury, around 4,000 accidents with table saws involve amputations because of direct contact with the rotating blade. The medical costs for treating table saw injuries have been estimated at more than $2.1 BILLION EVERY YEAR. The National Electronic Injury Surveillance System says, of the 720,000 injuries in Canada associated with woodworking each year, 42 percent happened at the table saw. Five percent of these patients required hospitalization.
6. Every time you start your mower, you are dealing with a dangerous and potentially deadly piece of equipment. U.S. Consumer Product Safety Commission statistics are shocking: Each year, 800 children are run over by riding mowers or small tractors and more than 600 of those incidents result in amputation; 75 people are killed, and 20,000 injured; one in five deaths involves a child. For children under age 10, major limb loss is most commonly caused by lawn mowers. In Canada, 1161 patients with 1451 injuries were presented between 14 and 16 hospitals across Canada, between 1990 and 2006. Especially shocking is that a total of 48 percent of the patients were 15 years old and younger. This is a high number considering that children should not even be in the yard when it is being mowed.
7. Compared to chain saws, drills seem downright friendly, yet

they put 5,800 people a year in the ER. In one particularly horrible incident, a 25-year-old man fell from a ladder while using a drill to install lights for a New Year's Day celebration. The spinning bit entered through his jaw and skull bones and tore up an artery. He died after inhaling blood.

Workers operating hand and power tools face a wide range of potential hazards throughout the course of any given day. Without the proper training and maintenance, they are at risk of injuries resulting from lacerations, flying objects, harmful dusts, electrical accidents and more.

RECOMMENDATIONS

The following are five recommendations to enhance work place safety in the use of power tools.

Conducting a protocol of the following 5 steps will enhance workplace safety in the use of Hand and Power Tools.

Step 1: Tool Assessment

Take stock of the types of tasks, jobs, and operations that require the use of hand or power tools. Are these available and in good working condition? Are workers using the right tools for the work they are performing? Do they need a different tool? Would a power tool lessen the repetitiveness or force needed to do the job?

Step 2: Hazard Assessment

Conduct a hazard assessment wherever hand or power tools are used. Each hazard assessment will identify hazards, recommend controls, and provide guidance on appropriate personal protective equipment (PPE) selections when a hazard can't be eliminated.

Step 3: Hazard Controls

Remove or eliminate the hazard whenever possible. Ensure power tools are fitted with guards and safety switches. Provide PPE to protect against flying objects, dust, or and enforce its use. Use

caution with gloves and prohibit their use when using powered equipment if there’s a chance the glove could get caught.

Step 4: Establish Inspection Procedures

All tools should be inspected before use. Check hand tools for cracks dings and chips. Don’t use damaged tools. Generally, hand tools cannot be repaired and should be thrown away. Power tools should only be repaired by someone trained and qualified to make repairs.

Step 5: Establish Maintenance and Safe Storage Requirements

Tools must be kept clean, sharp, and well-maintained to be used safely and effectively. Set up areas where tools will be protected from the elements and damage from other tools and equipment.

Other steps:

- Clean tools after use.
- Clean metal surfaces with an approved solution and scrape away any soil and dirt.
- Completely dry the tool with a towel or rag before it is placed in storage.
- Don’t place tools directly on the ground for storage.
- Place small hand and power tools on shelving. Store short-handled tools in a plastic bin or box.
- Tie together long-handled tools in a bin or hand them on the wall.
- Power tools should have all surfaces cleaned and completely dry before storage.

Step: 6 Training

- Ensure employees have been trained and fully understand operations and maintenance procedures and safe tool use.
- Provide employees with the right PPE and train them how to use and care for it.

- Educate workers on the dangers of loose or baggy clothing, long hair, and jewelry.

PREVENTION

1. **Stay alert!**Using tools when you are tired makes an accident or injury more likely. Never use tools while under the influence of medications, drugs or alcohol. Doing so puts you and others in danger.
2. **Always wear required PPE.**

Hardhats, safety glasses, ear plugs and safety shoes are required for most tool work.

3. **Secure your work.** Use clamps or a vise to prevent accidental slipping. Clamps and vises also leave both of your hands free to operate and control the tool.
4. **Put up signs and barriers to keep others away from your work area.**

This measure protects both them and you.

5. **Practice good housekeeping.**To reduce the risk of slips, trips, and falls, keep floors clean and dry and equipment and cords out of walkways and aisles.
6. **Use the correct tool for the job.**

Incorrect use can lead to tools slipping and breaking and cause accidents and injuries.

7. **Don’t take shortcuts.**You don’t save time by taking a shortcut if you are sidelined by injury.
8. **Watch for electrical hazards.**Metal hand tools that come in contact
   with live electrical wires can shock and kill you. Electric power tools should NEVER be used in or around water.
9. **Follow ergonomic work practices.**Stretching, taking rest breaks and alternating tasks can help prevent repetitive motion injuries such as carpal tunnel syndrome.
10. **Inspect**. Maintain. Store. Always inspect your tools before each use. Defective tools, like hammers with mushroomed

heads and power tools with missing guards are dangerous. Keep your tools clean, sharp and well maintained, and store them properly for maximum safe and effective use.

Five basic safety rules can help prevent hazards associated with the use of hand and power tools:

- Keep all tools in good condition with regular maintenance.
- Use the right tool for the job.
- Examine each tool for damage before use and do not use damaged tools.
- Operate tools according to the manufacturers’ instructions.
- Provide and use properly the right personal protective equipment.

Employees and employers should work together to establish safe working procedures. If a hazardous situation is encountered, it should be brought immediately to the attention of the proper individual for hazard abatement.