

# Maintenance Shop Hazards

Maintenance shops are used for various jobs, including woodworking, equipment repairs and painting. Work procedures expose employees to significant hazards such as; toxic chemicals, fire, electrical, compressed air/gas, excessive noise levels, manual materials handling, elevated storage area fall hazards, powered hand tools and equipment. These hazards have resulted in building fires, electric shock injuries, fractures and head injuries from falls, lacerations/amputations, back strains and bodily contact injuries.



**Safe Work Practices**—A knowledgeable worker is a safe worker. Maintenance supervisors must read and become familiar with the manufacturers safety guidance on all power tools (mowers, edgers, pressure washers, generators, etc.) and training employees on safe work procedures is fundamentally important. Having the skills and tools to perform the job right is always important.

**Shop Environment Housekeeping**—Is your maintenance shop a dungeon or a castle? Is it dark and dingy, greasy and dirty? Or is it kept neat and clean, with occasional fresh coats of paint and a floor that is cleaned regularly?

- Cleanliness is the first order of business. It includes neatness. It requires persistence to ensure that regular overall cleaning of the workplace is accomplished. Keeping the workplace neat and clean sends a message

of commitment for a healthy and safe environment. It also sets a tone for expected behaviors of shop workers. The attitude of “getting the job done” and worrying about the shop later gives way to an understanding that the condition of the shop leads to getting the job done correctly and safely.

- Slip/trip/fall injuries and fires are a common result of improper housekeeping practices. If you have used it in a year, get rid of it. Don’t turn your shop into a museum of parts and pieces.
- Floors, machine, and other surfaces must be kept free of dirt and debris. Wood, metal chips, sawdust and other debris must be routinely removed, if collection systems are not used or operating.
- Non-slip floors. There are a variety of floor treatments to provide improved slip resistance, good wear resistance and easy maintenance. Most of these safety products are low-cost and easy to apply. It’s worth the time and effort. Clean-up spills immediately and maintain a clean shop.

**Material Storage and Handling**—Stock materials must be stored in a manner to prevent falling, slipping or rolling. Material should not be stored on the floor and may not be stored where they will impede emergency exit from the area. Use shelves or cabinets to store items. Back injury prevention methods should be incorporated in your work routine.

- Warm-up and conduct stretching exercises before doing any lifting.
- Push, don’t pull carts or hand trucks.
- Do not twist or over-reach while lifting.
- Use caution when approaching corners and doorways with carts or hand trucks.
- Use commercial heavy duty Type II or I ladders. Type III ladders are for household use only.
- Ladders should be maintained in good condition at all times. The joint between the steps and side rails should be tight, all hardware fittings should be securely attached and all moveable parts should operate freely without binding or undue play.
- Do not use ladders with broken or missing rungs or steps, broken or split side rails or other defective construction.
- When defective ladders are discovered they should be immediately withdrawn from service and tagged “Dangerous, Do Not Use”.

## Hand and Power Tools—Cuts, Abrasions, Burns

- Never operate powered equipment or tools without first reviewing the owner's manual and the safety precautions contained therein.
- Do not use broken or damaged tools.
- Hand tools should be inspected routinely for damaged electrical cords, kept clean, sharp and dressed.
- Wooden handles for axes, hammers, hatchets and other tools should be replaced when needed.
- Wear gloves, safety glasses and other personal protection devices based on job hazards.

**Machine Safety & Guarding**—Data from the U.S. Bureau of Labor Statistics indicate approximately 155 people die every year from being caught in, crushed by or injured from contact with machinery.

- Only qualified and authorized employees may use machinery or equipment.
- Appropriate personal protective equipment (PPE) should be properly used and maintained.
- Tie back or secure hair under a cap before operating machinery.
- Do not wear loose clothing or jewelry.
- Before using, always inspect the equipment to ensure the presence, proper condition and alignment of guards. Ensure machinery (e.g. grinder, table saw) is properly secured. Be alert for any unusual noises, motion or operation. Do not attempt to use the machinery until a qualified person has returned the unit to service.
- Before operating equipment, look around to ensure the operating area is clear of other operators, materials or debris. Good housekeeping is important!
- Always make sure machinery or equipment is completely stopped and secured when going for lunch, conducting repairs or adjustments or at the end of the day.
- Never work on machinery or equipment that is electrically energized or capable of inadvertent movement.

## Hazardous Chemicals

The knowledge of chemicals that are used in your workplace, their possible effects and how to mitigate those effects is important to the health and safety of your workers. Read containers labels on the proper use, storage and health affects prior to use. All manufacturers of hazardous materials are required to publish information on each material, its hazards, how to store it, how to handle it, what to do if it is accidentally released and if someone comes in contact with it.

- Post a hazardous chemical Material Safety Data Sheet (MSDS) and review it prior to use. Read and follow MSDS and label directions.
- Do not store incompatible chemicals together.

- Carbon Monoxide (CO)—Carbon monoxide is produced by burning fuel. When cooking or heating appliances are kept in good working order, they produce little CO. Improperly operating appliances can produce fatal CO airborne concentrations. Running a car, generator or other combustion engine indoors or in a confined space can cause fatal CO poisoning. Burning charcoal or using outdoor cookers inside can produce the same effect.

## Personal Protective Equipment

Part of the commitment to safety is to modify behavior of shop employees to use PPE at all times, based on job hazards. Evaluate and specify the equipment to be used, provide training and information on its use and benefits and then require its use. For example, the use of latex gloves during almost any service operation is very worthwhile; in some cases, a heavier work glove is appropriate. Steel-toed shoes can minimize and, in some cases, eliminate toe and foot injuries resulting from contact with heavy objects.

- Eye Protection—One accident can cost you your eyesight and potentially your ability to earn a living. Wear proper eye protection at all times in hazardous areas. Safety glasses should be worn when working with power tools or around machinery with moving parts. The same applies to situations involving potentially damaging chemicals. Welding requires special eye protection. Wear eye protection when grinding, chipping, sawing, sanding, etc.
- Hearing Protection—Prolonged exposure to loud noise levels can result in long-term and permanent hearing loss. The noise from motors, air-impact tools and other common shop sources may be adversely affecting your hearing. Foam earplugs are the easiest and least expensive for most sounds. High-intensity sound requires greater protection.

## Fire Safety—Flammable and Combustible Liquids

Flammable and combustible liquids include, but are not limited to, materials such as gasoline, oils, some paints, lacquers, thinners, cleaners and solvents. To determine if a product is flammable or combustible, review the Safety Data Sheet (SDS) and read the manufacturers label on the product.

- Only approved portable containers with self-closing spouts should be used for the storage and handling of flammable liquids. Flammable liquids must be kept in closed containers when being stored. As a general rule, do not store more than twenty five (25) gallons in a flammable liquids storage cabinet. Properly label containers.
- Install conspicuous and legible “no smoking” signs in areas where flammable and combustible liquids are dispensed or used. Keep flammable liquids away from all sources of heat.

- Store rags or material that has been saturated with flammable or combustible liquids in an approved metal can with a tight-fitting lid. These materials should be removed on a daily basis.
- Always remove and replace clothing that has become saturated with a flammable or combustible liquid, even if it is just a little.

### Electrical Safety Tips

Electrical current exposes workers to serious hazards and practically all members of the workforce are exposed to electrical energy during the performance of their daily duties. Electrocutions occur to workers in widespread and various jobs. Many workers are unaware of the potential electrical hazards present in their work environment, which makes them more vulnerable. Working with electricity is dangerous and you need to take all necessary precautions.

Electrical injuries consist of four main types: electrocution (fatal), electric shock, burns and falls caused as a result of contact with electrical energy. Injury prevention methods include items such as; outsourcing electrical repairs to qualified contractors or ensure workers are qualified to complete technical repairs. The power should be off and the switch secured from being accidentally turned on through lock-out/tag-out procedures when performing mechanical or electrical repairs.

**Layout/Egress**—Aisles and walkways must be kept free of debris and obstructions and a clear path must be maintained to the exit. Machinery should be placed so that a clear and safe operating area is maintained and securely anchored in place as not to move while operating. Maintain adequate fire extinguishers and emergency exit lighting.

**Environment**—The shop area must have adequate lighting, sufficient ventilation and noise control to limit exposure to harmful dusts, mists, fumes, chemicals or noise.

**Shop Guidelines**—The maintenance supervisor should establish shop specific information such as, shop access control, operating and general housekeeping rules. No person should work in a shop area alone. Hours of operation should be established. Emergency communication and contact numbers must be readily available. Shop guidelines and rules must be clearly posted near the shop entrance.