WESTERN School Division
Morden, Manitoba
"Rooted In Caring; Committed to Learning"

# Job Hazard Analysis

**Analysis by:**
**Reviewed by:** **Approved by:**

**Department: Welding Shop**

**Date:** June, 2019

| Possible Hazards or Task | Describe Harm that could occur | Hazard Rating (Low/ Medium/High) | Control Action | Personal Protective Equipment (PPE) | Frequency of Monitoring |
|---|---|---|---|---|---|
| Floor Jack<br>a) Pre-operation walk-around inspection. Clean any clutter surrounding machine and check for visible signs of wear.<br>b) Place vehicle in park.<br>c) Set park brake.<br>d) Align floor jack with jacking point according to vehicle manufacturer's recommendations<br>e) Lever lock on floor jack should be in upright position.<br>f) Press foot lever or pump arm handle to raise vehicle<br>g) Place jack stands in position. | a) Slip, trip or fall in machine area.<br>b) Vehicle may roll.<br>c) Vehicle could drop if jack stands are not used.<br>d) Hand or finger pinch/crush.<br>e) Vehicle could drop if lever is not in the lower position.<br>f) Other co-workers could be crushed. | Low | a) Clean/clear area/surfaces of tools/clutter etc. Use continuous good housekeeping practices.<br>b) Ensure vehicle is on a level surface.<br>c) Place wheel block behind wheels to prevent vehicle from rolling.<br>d) Ensure the proper jack stands are used.<br>e) Hands must be free of machine except lever.<br>f) Slowly lower vehicle onto jack stands to prevent vehicle from falling.<br>g) Be aware of others near the vehicle. | Steel toed work boots, gloves | weekly |

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| Metal Shear<br>a) Lift shear handle up (for large pieces, ask for assistance).<br>b) Insert metal to be cut. (Make sure to cut only 1 piece of metal at a time.)<br>c) Gripping metal, lower the shear handle. (This will lower the cutting blade.)<br>d) Remove cut metal.<br>e) Lift handle and remove waste material. | a) Repetitive motion (muscle strain).<br>b) Plate metal (skin pinch), sharp metal (lacerations).<br>c) Poorly placed hands (cutting off appendages), and sharp edges (and metal cuts).<br>d) Plate metal (skin pinch), sharp metal (lacerations). | High | a) Take breaks every 15 minutes.<br>b) Wear Kevlar gloves.<br>c) Wear Kevlar gloves, place hand away from blade.<br>d) Wear Kevlar gloves. | Safety glasses, steel toed boots, ear plugs, Kevlar Gloves | Daily |

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| Grinder<br>a) Pre-operation walk-around inspection. Clean any clutter surrounding machine and check for visible signs of wear.<br>b) Examine the grinder to see that the tool rest is set at the required height.<br>c) Adjust safety glass shield above grinding wheel.<br>d) Turn switch to "on" position.<br>e) Grind the work by moving the work back and forth across the face of the wheel.<br>f) Turn switch to "off" position.<br>g) Clean shavings from area. | a) Slip, trip or fall in machine area.<br>b) Tool slipping between the wheel and tool rest.<br>c) Injury from flying particles.<br>d) Exceeding max. R.P.M. speed listed on grinding wheel.<br>e) Eye injury from metal shavings or sparks flying from grinding wheel.<br>f) Bodily injury from metal shavings (slivers or lacerations). | Medium | a) Clean/clear work area/surfaces of tools/clutter etc. Use continuous good housekeeping practices.<br>b) Ensure the tool rest is close enough to the wheel to prevent the work from slipping.<br>c) Ensure safety glass shield on the grinder is adjusted to permit clear vision and safety eyewear is worn.<br>d) Wear safety eyewear (helpers/observers/other workers in areas of the machine as well), ear protection and gloves while grinder is in operation.<br>e) Ensure no flammables are in the vicinity.<br>f) Wear leather gloves, safety eyewear (helpers/observers/other workers in area of the machine as well). | Face shield or Safety glasses, Hearing protection, Gloves, Apron | Daily |

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| Oxyacetylene Torch<br>1. Turning torch on<br>a) Wipe down work area with damp cloth (water)<br>b) Uncoil and straighten hoses from cylinders and ensure no kinks.<br>c) Adjust screws on regulators so they are backed off.<br>d) Open cylinder valve slowly by turning counter clockwise.<br>e) Turn adjustment screw clockwise to desired pressure.<br>f) Repeat steps 3, 4, and 5 for Acetylene.<br>g) Crack open acetylene valve on torch body.<br>h) Use striker to ignite torch and hold away from portable unit and personnel.<br>i) Adjust Acetylene torch body valve. | a) Spilling water (could cause slip and fall)<br>b) Loose hose accumulation on floor (unnoticed hose could trip and fall).<br>c) Gas leak (could cause fire)<br>d) Potential gas accumulation (torch could take a while to light, then lights with a ball of flame)<br>e) Spark production (could cause burn or ignite other material)<br>f) Flame adjustment /incorrect adjustment (adjusting the | High | a) Slowly apply small amount of water to cloth and wipe down work area.<br>b) Uncoil hoses from tanks to ensure hose does not become a tripping hazard; examine the condition of the hoses, ensure there are no kinks or cracks. Ensure all torch valves are closed and inspect for possible leaks.<br>c) Make sure adjustment screws on regulators are backed off so no tension is present on adjustment screws for both Acetylene and Oxygen.<br>d) Turn adjustment screw clockwise to desired pressure.<br>e) Quickly, so not to let gas accumulate, hold torch facing away from face, body and portable unit. Using other hand, strike flint approximately 2 inches from tip of torch.<br>f) Adjust Acetylene torch body valve to desired flame.<br>g) Slowly open oxygen valve on torch body to achieve desired flame. | Gloves, Apron, Goggles or Face Shield (#5 lens) | Daily |

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| j) Open oxygen valve on torch body.<br><br>2. Turning Torch Off<br>a) Close Acetylene valve on torch body.<br>b) Close oxygen valve on torch body<br>c) Turn the acetylene valve clockwise.<br>d) Turn the oxygen valve clockwise<br>e) Close adjustment screws on regulator<br>f) Close adjustment screws on regulator for Oxygen<br>g) Slowly open Acetylene valve on the torch body to bleed lines.<br>h) Slowly open Oxygen valve on the torch body to bleed lines.<br>i) Close Acetylene valve on torch body<br>j) Close Oxygen valve on torch body | flame incorrectly producing undesired magnitude)<br>g) Gas (potential inhalations, explosion)<br>h) Gas (potential explosion)<br>i) Valve and Stem (pinch points) | | h) Position fingers on acetylene valve ensuring they do not come in correct with the valve stem. Turn valve clockwise.<br>i) Position torch nozzle away from personnel and any heat source. Open valve on torch body.<br>j) Position fingers on acetylene valve on torch body ensuring they do not come in contact with the valve stem. Turn valve clockwise.<br>k) Position fingers on oxygen valve on torch body ensuring they do not come in contact with the vale stem. Turn valve clockwise. | | |

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| Metal-inert gas (MIG) welding<br>1. Welding<br>a) Clean off object to be welded.<br>b) Spray weld primer onto anything to be welded (zinc spray)<br>c) Open gas until pressure is 25 psi on flow meter.<br>d) Hook grounding clamp on object near welding area.<br>e) Plug in welding machine.<br>f) Put on welding mask.<br>g) Conduct several test welds on scrap metal to achieve the proper wire feed speed.<br>h) Touch wire to metal while moving in a smooth motion. Constantly holding down the torch trigger.<br>i) Adjust the wire feed speed until desired weld is achieved. | a) Sharp edges (lacerations to hands or body).<br>b) Zinc fumes (inhalation of fumes)<br>c) Frayed wire (electrical shock)<br>d) Visor of a wrong grade design for the type of welding being conducted (ultra-violet light (radiation burns, eye damage)<br>e) Welding fumes (lung cancer)<br>f) Fire<br>g) Hot surface, sparks (burns to hands or body). | Medium | a) Wear leather gloves.<br>b) Only use zinc spray in a well ventilated area, always spray away from face.<br>c) Keep fingers and hands firmly on handle of clamp away from object and teeth of the clamp<br>d) Check over electrical wire for any worn insulation.<br>e) Check with manufacturer instruction manual for the types of jobs the visor is designed for.<br>f) Wear leather gloves.<br>g) Wear proper visor of a grade designed for the type of welding you are conducting.<br>h) Weld only in well ventilated areas.<br>i) Have a fire extinguisher on site at all time.<br>j) Wear goggles, coveralls, leather gloves. | Gloves, Leather jacket, welding helmet, Steel toed boots, Ear plugs | Daily |

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| j) Weld actual metal piece.<br>k) Chip away any slag with hammer.<br><br>2. Shutting off the machine.<br>a) Turn off gas.<br>b) Pull trigger to get out all excessive gas.<br>c) Turn off machine.<br>d) Unplug and return welding machine to storage.<br>e) Slowly open Acetylene valve on the torch body to bleed lines.<br>f) Slowly open Oxygen valve on the torch body to bleed lines.<br>g) Close Acetylene valve on torch body. | h) Ultraviolet light (Radiation burns, eye damage)<br>i) Welding fumes (lung cancer), fire.<br>j) Hot surface, sparks (burns to hands or body). Ultraviolet light (Radiation burns, eye damage)<br>k) Flying slag chips (eye injury, burns from hot slag). | | | | |

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| Hydraulic Press<br>Proper Use:<br>The hydraulic press is of a simple double acting hydraulic actuator design employing hydraulic force to get the work done. The most important thing to keep in mind when using this piece of equipment is to ascertain that the piece being worked on is properly blocked. If not, it is very possible that the piece will crack or break under the load or slip out and cause injury to the operator. Remember the load capacity is 50 tons, that's a lot of force. | Crush injury | High | a) Ensure a clean work area.<br>b) Block up/support the piece being worked on in such a manner as to avoid damaging the piece or having it get "spit out" from the pressure applied.<br>c) Use the appropriate personal safety equipment for the task. (protective eyewear, footwear)<br>d) Make sure all safety guards and covers are in place.<br>e) Clear the area of people before starting.<br>f) Align the working piece with the cylinder before using.<br>g) Maintain slack in the winch cable after adjusting the table height, and make sure all the table pins are in position and secure.<br>h) Lock the cylinder carriage before using.<br>i) Do not exert excessive force when using the press, if it feels like it's going to break it probably will. | Safety glasses or Face shield, gloves, Safety boots | Daily |

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| | | | j) Never adjust the relief valve setting on the hydraulic system.<br>k) Before starting the machine make sure the hydraulic lines are in good condition, high pressure hydraulic leaks can easily sever the skin.<br>l) Clean the area of debris after use with a brush. (not bare hands) | | |

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| Drill Press<br>Proper Use:<br>The drill press is commonly used in conjunction with a drill press vice positioned on the table to securely hold the work being drilled, and protect the operator from injury. The use of various types of clamping devices may also be employed when the piece being drilled is too large for the vice. In any event ascertain that the piece being drilled is securely held in position.<br><br>The speed selection is also important and dependent on the style or size of drill bit being used and the type and thickness of the material being drilled. Generally larger diameter bits are turned slower, and harder materials also require a slower rotational speed.<br><br>Various types of cutting fluids | Lacerations, hot metal filings hitting you, item being drilled twists in your hand, item falls on your feet | Medium | a) Ensure a clean work area.<br>b) Remove jewellery or tie back long hair that may be caught by the machine (rings, necklace).<br>c) Use the appropriate bit or cutter for the material being drilled.<br>d) Ascertain the correct rotational speed for the material being cut.<br>e) Secure the material to the drill press table via the vice or use of clamps.<br>f) Remove the chuck key from chuck and secure table friction lock before starting the machine.<br>g) Use the appropriate personal safety equipment for the task (protective eyewear, footwear)<br>h) Make sure all safety guards and covers are in place.<br>i) A dust mask may be required for certain types of materials. (consult MSDS sheets) | Safety glasses, Gloves, Footwear, Dust mask | Daily |

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| may also require slower rotational speed.<br><br>Various types of cutting fluids may also be employed in order to prevent heat build-up. Ask your instructors for more details. | | | j) Do not exert excessive force when drilling; let the bit do the work<br>k) Be aware of heat build-up from the cutting operation.<br>l) Use cutting fluid if required and avoid heat build-up.<br>m) Wait for the drill to come to a complete stop before retrieving your work.<br>n) Clean the area of debris after use with a brush. (not bare hands) | | |

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| Band Saw<br>Proper Use:<br>The band saw is a very versatile piece of shop equipment requiring your full attention during its operation. Always ensure that the piece being cut is being feed with both hands parallel to the cutting blade but never directly in front of the saw blade. This practice will ensure that an inadvertent slip will not bring your fingers into contact with the cutting blade. A slight downward force of the piece against the table will also keep the piece being cut from vibrating on the table.<br><br>Most band saws are equipped with a tilting table enabling angled cuts. Some band saws are also equipped with speed control. Band saw blades come in a variety of sizes and cutting tooth patterns. Smaller thinner blades permit cutting a | Lacerations, falling objects | Medium | a) Ensure a clean work area<br>b) Remove jewellery or tie back long hair that may be caught by the machine (rings, necklace).<br>c) Use appropriate cutting blade for the material being cut.<br>d) Ascertain the correct cutting speed for the material being cut. (if band saw has speed control)<br>e) Make sure the tilting table bed friction lock is secure.<br>f) Use the appropriate personal safety equipment for the task. (protective eyewear, footwear)<br>g) Make sure all safety guards and covers are in place.<br>h) Position the cutting height adjustment guard as close to the material height as practical.<br>i) Ascertain correct tension and centering of the blade on the drive and tensioning wheels. | Safety glasses, Ear Plugs, Safety boots, Dust mask | Weekly |

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| smaller diameter radius, but they also tend to track and wander more. The hook on the cutting teeth should always be pointing down towards the table. If not, do not attempt to use the equipment because the blade has been installed backwards. | | | j) A dust mask may be required for certain types of materials (consult MSDS sheets)<br>k) Do not exert excessive force when cutting; let the blade to the work<br>l) Use cutting fluid if required and avoid heat build-up.<br>m) Wait for the saw blade to come to a complete stop before retrieving your work.<br>n) Clean the area of debris after use with a brush (not bare hands) | | |

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| Metal Chop Saw<br>Proper Use:<br>The metal chop saw is equipped with a replaceable abrasive type cutting wheel or disc. The table of the chop saw is equipped with a clamping fixture, moveable to various angles, to allow for holding the material to be cut in position. | Lacerations, flying debris, sparks, hot metal | High | a) Ensure a clean work area.<br>b) Remove jewellery or tie back long hair that may be caught by the machine (rings, necklace).<br>c) Use the appropriate cutting disc for the material being cut.<br>d) Secure the material at the desired angle to the table via the clamping fixture.<br>e) Remove the cutting disc removal/installation tools before starting the machine.<br>f) If cutting a long length of material make sure it is properly supported at both ends of the material to prevent injury to the operator.<br>g) Never attempt to use the chop saw with damaged, cracked, or broken cut-off disc. Serious injury may be the result.<br>h) Use the appropriate personal safety equipment for the task (protective eyewear, footwear)<br>i) Make sure all safety guards and covers are in place. | Safety glasses or Face shield, Ear plugs, Apron, Proper footwear, Dust mask | Daily |

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| | | | j) A dust mask may be required for certain types of materials. (consult MSDS sheets)<br>k) Be aware of heat build-up from the cutting operation.<br>l) Do not exert excessive force when cutting; let the disc do the work.<br>m) Wait for the chop saw to come to a complete stop before retrieving your work.<br>n) Clean the area of debris after use with a brush. (not bare hands)<br>o) Stow the chop saw in the down position when you are done with the machine. | | |

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| Arc Welding | a) Strain/sprain from heavy and/or awkward work piece<br>b) Foot injury from dropping work piece<br>c) Trip/fall in area around Arc Welding workstation<br>d) Damage to work piece from incorrect set-up<br>e) Hand/finger laceration from edge of work piece<br>f) Hand/finger contusion from tool slippage while tightening fixture<br>g) Electrical shock/burn from electrode rod<br>h) Electrical shock/burn from contact with electrode rod holder | Medium | a) Use mechanical hoist or get assistance from co-worker to set up/adjust work piece<br>b) Wear recommended footwear. Ensure work piece is securely clamped to fixture<br>c) Clean/clear work area/surfaces of unused tools/materials/ Remove dust/debris.<br>d) Work piece should be clean and secure to fixture.<br>e) Wear recommended gloves when handling work pieces with sharp edges<br>f) Ensure Arc Welding machine power to arc is electrically de-energized when changing electrical rod.<br>g) Ensure welding machine is properly grounded. Welder should be insulated from live electrical parts and dry. Inspect and replace cables, plugs and leads that show any signs of defects. Wear recommended gloves and clothing. | Gloves, Safety glasses, Welding Helmut, Ear plugs, Safety Boots, Welding Jacket | Daily |

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| | i) Damage to work piece from incorrect amperage/current<br>j) Damage to work piece from incorrect gas flow rate<br>k) Bodily injury from explosion of compressed gas cylinder<br>l) Eye injury from welding flash and/or spatter<br>m) Burns from welding spatter, UV/infrared radiation and/or electrical contact<br>n) Inhalation of welding fumes or asphyxiation from displaced oxygen<br>o) Bodily injury from condition or type of work piece being welded | | h) Refer to Op Sheet and /or Shop Order for correct amperage/current.<br>i) Consult Op Sheet for correct flow rate.<br>j) Practice caution around compressed gas cylinders. Protect gas cylinders from excessive heat, mechanical shocks and arcs. Ensure cylinder is fastened so it will not fall. Do not use a compressed gas cylinder that appears to be damaged and/or defective.<br>k) Wear welding helmet with proper grade of filter plate. Ensure flash curtains/barriers are used to protect by standers/observers<br>l) Wear recommended protective clothing. Ensure any exposed skin is covered during the welding process. Do not wear metal jewellery and clothing with cuffs and/or pockets. Stay a safe distance away from arc.<br>m) Use local exhaust ventilation and a fan to maintain good air circulation | | |

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| | p) Electric shock hazard<br>q) Hearing loss from chronic exposure to noisy machinery<br>r) Fire due to combustible material in welding area<br>s) Hand/finger contact burn from hot electrode rod | | n) Do not weld work piece unless it is properly cleaned<br>o) Ensure welding machine is properly grounded. Welder should be insulated from live electrical parts and dry. Do not weld when wet. Inspect and replace cables, plugs and leads that show any signs of defect.<br>p) Wear hearing protection<br>q) Remove any combustible material from the immediate welding site. Keep a fire extinguisher readily available.<br>r) Wear leather gloves and use care when working around work piece that was recently welded. | | |

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| Disc Sander Operation Grinder/Handheld | a) Bodily injury and/or damage to work piece from breakage/failure of abrasive disc<br>b) Bodily injury from defective / inadequate/missing guards<br>c) Accidental start-up of Disc Sander<br>d) Bodily injury and/or damage to abrasive disc due to incorrect installation<br>e) Hand/finger contusion due to tool slippage from installing/adjusting abrasive disc<br>f) Hand/finger abrasion from abrasive disc | Low | a) Replace abrasive discs that appear to be defective, cracked, or excessively worn in spots<br>b) Do not operate disc sander unless adequately guarded. Replace/repair guards as necessary<br>c) Disconnect disc sander from its power source and ensure motor switch is off.<br>d) Install an abrasive disc that is the correct size and RPM rating<br>e) Use correct tool for installing/adjusting abrasive disc.<br>f) Wear recommended gloves when handling abrasive disc.<br>g) Work rest spacing should be calibrated to<1/8th (o.125) inches from face of abrasive disc. Ensure work rest is secured to support work piece.<br>h) Use correct tool for adjusting work rest. Wear recommended gloves.<br>i) Wear recommended gloves when handling work piece. | Safety glasses, Ear plugs, gloves, Foot wear, Back support for any heavy lifting | Daily |

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| | g) Incorrect spacing between work rest and abrasive disc causing bodily injury and/or damage to work piece<br>h) Hand/finger contusion due to tool slippage from adjusting work rest<br>i) Hand/finger laceration from edges of work piece<br>j) Strain/sprain from heavy and/or awkward work piece<br>k) Slip/trip/fall in area around disc sander | | j) Use mechanical lifting device or get assistance from co-worker<br>k) Clean/clear work area surfaces of unused tools/material. Remove dust/debris regularly.<br>l) Wear recommended footwear<br>m) Do not have work piece in contact with abrasive disc before pushing start button.<br>n) Ensure no hair, loose clothing, or jewellery is near the point of operation<br>o) Check that keys/wrenches used for adjusting/installing are removed from disc sander before pushing start button.<br>p) Keep hands/fingers at a safe distance from abrasive disc. Use a jig or holding device to sand small work pieces. Avoid awkward operations and hand positions where a sudden slip could cause hands/fingers to move into abrasive disc. Wear recommended gloves.<br>q) Use safety eyewear and/or face shield | | |

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| | l) Foot injury from dropping work piece<br>m) Bodily injury and /or damage to work piece from becoming airborne projectile<br>n) Bodily injury from hair, clothing, or jewellery becoming caught in disc sander<br>o) Bodily injury and/or damage to disc sander from adjusting<br>p) Hand/finger abrasion from contact with abrasive disc<br>q) Eye injury/irritation from dust/debris | | r) Use local exhaust ventilation and/or wear recommended respiratory protection<br>s) Tie hair back. Do not wear loose clothing or jewellery while operating disc sander<br>t) Wear recommended hearing protection<br>u) Feed work piece slowly into abrasive disc. Do not apply too much pressure against abrasive disc when machining work piece<br>v) Ensure work rest spacing is properly calibrated and secure<br>w) Sand work piece on the side of abrasive disc spinning in the downward direction<br>x) Push machine stop button and wait for abrasive disc to stop before removing debris. Use a stick or brush to remove debris.<br>y) Wear recommended gloves and avoid handling work piece by machined end | | |

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| | r) Inhalation of dust/debris<br>s) Hearing loss from chronic exposure to noisy machinery<br>t) Damage/breakage of abrasive disc<br>u) Work piece/hand/fingers becoming caught in space between work rest and abrasive disc<br>v) Bodily injury from work piece and/or debris becoming airborne projectile<br>w) Contact burn from work piece becoming hot<br>x) Leaving disc sander power on | | z) Do not leave disc sander running unattended. Push machine stop button after each use. | | |

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| Hand Power Tool Use | a) Eye injury from debris becoming airborne projectile<br>b) Hand/finger contusion due to improperly striking or missing area to be struck<br>c) Personal injury due to defective and/or damaged hammer<br>d) Personal injury from misuse of hammer<br>e) Personal injury from using incorrect hammer for intended task<br>f) Hearing loss<br>g) Hand/finger injury due to using hand file/rasp with the tang unprotected | Low | a) Wear safety glasses or face shield<br>b) Watch the area you are hitting. Keep opposite hand at a safe distance from area to be struck. Use vice or other holding device as necessary. Do not raise the hammer excessively and strike using massive blows. Strike a hammer blow squarely with the striking face parallel to the surface being struck. Avoid glancing blows and over and under strikes<br>c) Visually inspect hammer before each use. Do not use a hammer with a loose or damaged handle or head.<br>d) Hold hammer with your wrist straight and hand tightly wrapped around the handle. Look behind and above before swinging a hammer. Do not strike with side of the hammer.<br>e) Select and use a hammer according to its intended use<br>f) Wear hearing protection | Face Shield or Safety glasses, Ear plugs, Proper footwear, gloves | Daily |

| Possible Hazards or Task | Describe Harm that could occur | Hazard Rating (Low/ Medium/High) | Control Action | Personal Protective Equipment (PPE) | Frequency of Monitoring |
|---|---|---|---|---|---|
| | h) Personal injury from using the incorrect hand file/rasp for intended task<br>i) Personal injury from using incorrect filing technique.<br>j) Eye injury/irritation from dust and debris discharged during filing.<br>k) Eye injury due to debris being discharged during cutting<br>l) Personal injury from using incorrect hand shears for intended task | | g) Never use a hand file/rasp without the handle. Tap the file/rasp downwards on the bench to make sure the handle is secure.<br>h) Select and use a hand file according to its intended use.<br>i) Hold hand file/rasp firmly in one hand, steadying the other end with the tips of the fingers of the other hand. Use steady even pressure. Do not file with short quick strokes. If face of file/rasp becomes clogged, clean it using a brush. Wear recommended gloves<br>j) Wear safety glasses or a face shield.<br>k) Select and use the right size and type of hand shears for the intended tasks. Avoid springing the blades which results from trying to cut metal that is too thick or heavy<br>l) Wear recommended gloves. Cut so that the waste is on the right if you are right handed, vice versa if you are left handed | | |

| Possible Hazards or Task | Describe Harm that could occur | Hazard Rating (Low/ Medium/High) | Control Action | Personal Protective Equipment (PPE) | Frequency of Monitoring |
|---|---|---|---|---|---|
| | m) Hand/finger laceration from blades of hand shears or cut edges or work piece<br>n) Personal injury due to misuse of hand shears<br>o) Personal injury from using wrench incorrectly<br>p) Personal injury from using incorrect wrench for intended task<br>q) Hand/finger contusion due to wrench slippage<br>r) Personal injury from misuse of wrench | | m) Use hand pressure for cutting never hammer or use other device to exert extra pressure on cutting edges. Do not extend length of handles to secure greater leverage.<br>n) Pull on wrench and do not push. Face an adjustable wrench forward and turn wrench so pressure is against the permanent jaw.<br>o) Select and use a wrench according to its intended use<br>p) Grip wrench so that it does not endanger oneself in case of slippage. Use correct jaw and ensure wrench is adjusted properly and secure to nut/bolt. Wear recommended gloves<br>q) Do not increase the leverage by adding sleeved additions to increase wrench length or strike a wrench with a hammer to gain more force. Do not use wrench on moving machinery. Do not insert a shim in a wrench for better fit. | | |

| Possible Hazards or Task | Describe Harm that could occur | Hazard Rating (Low/ Medium/High) | Control Action | Personal Protective Equipment (PPE) | Frequency of Monitoring |
|---|---|---|---|---|---|
| | s) Personal injury due to defective and/or damaged wrench<br>t) Eye injury from debris becoming airborne projectile<br>u) Hand/finger contusion due to improperly striking or missing head of punch/chisel with hammer<br>v) Personal injury from improper use of chisel for shearing and chipping<br>w) Personal injury due to defective and/or damaged punch/chisel<br>x) Personal injury from using incorrect | | r) Visually inspect wrench before each use. Do not use worn adjustable wrenches<br>s) Wear safety glasses or face shield<br>t) Watch the area you are hitting. Provide hand protection by wearing glove on hand by wearing glove on hand holding punch/chisel. Do not raise hammer excessively and strike using massive blows. Use punch/chisel holder as necessary. Avoid glancing blows over and under strikes.<br>u) Hold the chisel at an angle that permits the bevel of the cutting edge to lie flat against the shearing plane. Hold the chisel at an angle pointing away from self<br>v) Visually inspect punch/chisel with burred or mushroomed heads. Ensure punch/chisel point or cutting edge is properly dressed<br>w) Select and use a punch/chisel according to its attended use | | |

| Possible Hazards or Task | Describe Harm that could occur | Hazard Rating (Low/ Medium/High) | Control Action | Personal Protective Equipment (PPE) | Frequency of Monitoring |
|---|---|---|---|---|---|
| | punch/chisel for intended task<br>y) Hearing loss<br>z) Personal injury from screwdriver slipping<br>aa) Personal injury due to defective and/or damaged screwdriver<br>bb) Personal injury from misuse of screwdriver<br>cc) Personal injury from using incorrect screwdriver for intended task<br>dd) Eye injury/irritation from dust and debris discharged during sawing | | x) Wear hearing protection<br>y) Keep screwdriver handle clean. Do not hold work piece in one hand while using the screwdriver in the other. Do not lean or push on a screwdriver with any more force than necessary to keep contact with screw. Keep the shank directly over the screw being driven.<br>z) Do not use a screwdriver with rounded edges or tips, split or broken handle.<br>aa) Do not use a screwdriver for prying, punching, chiselling, scoring or scraping<br>bb) Select and use a screwdriver according to its intended use<br>cc) Wear safety glasses or face shield<br>dd) Start cut carefully and slowly to prevent glade from jumping. Start with partial cut, then set saw at proper angle. Apply pressure on the down stroke only. Use entire length of blade in each cutting stroke. Hold work piece being cut firmly in place. Use a co-worker, a | | |

| Possible Hazards or Task | Describe Harm that could occur | Hazard Rating (Low/ Medium/High) | Control Action | Personal Protective Equipment (PPE) | Frequency of Monitoring |
|---|---|---|---|---|---|
| | ee) Personal injury due to improper sawing technique<br>ff) Personal injury due to defective or damaged saw and/or blade<br>gg) Personal injury from incorrect maintenance, installation or using wrong saw and/or blade for intended task<br>hh) Hand/finger laceration or amputation from contact with saw blade<br>ii) Foot injury from cut off stock falling<br>jj) Personal injury from saw blade | | supporting bench or vice to secure and/or support work piece if required.<br>ee) Visually inspect saw and blade before each use. Never sue saws with bent, buckled, twisted or cracked blades<br>ff) Select and use a saw and blade according to its intended use. Ensure saw blade is secure and installed with the teeth pointing forward. Keep saws sharp, clean and oiled.<br>gg) Keep hand/fingers at a safe distance from cutting line<br>hh) Wear safety footwear. Use a support bench or get assistance from a co-worker to catch cut off stock<br>ii) Use machine oil on blade if necessary (when cutting metal only)<br>jj) Wear hearing protection<br>kk) Visually inspect clamps and ensure that the swivel the end of the screw turns freely before each use. Do not use any clamp that has a bend frame or bent spindle. | | |

| Possible Hazards or Task | Describe Harm that could occur | Hazard Rating (Low/ Medium/High) | Control Action | Personal Protective Equipment (PPE) | Frequency of Monitoring |
|---|---|---|---|---|---|
| | overheating and breaking<br>kk) Hearing loss<br>ll) Personal due to defective and/or damaged clamp.<br>mm) Personal injury from misuse of clamp<br>nn) Personal injury from using incorrect clamp for intended task<br>oo) Foot injury from work piece falling due to insecure and/or defective clamp<br>pp) Eye injury due to work piece being clamped discharging debris | | ll) Use clamps only as temporary holding devices. Do not use pliers, pipes or hammers to tighten clamps<br>mm) Select and use the right size and type of clamp for the intended task<br>nn) Wear recommended footwear. Ensure work piece is secure in clamp<br>oo) Wear safety glasses or face shield<br>pp) Cut at right angles. Never rock from side to side or vend wire back and forth against the cutting edges of pliers. Pull on pliers – do not push.<br>qq) Select and use pliers according to their intended use<br>rr) Do not use pliers on nuts/bolts. Do not hammer on pliers to cut wire or bolts<br>ss) Wear safety glasses or face shield. Cover knife with rag when snapping off blunt end of blade for new edge. Never twist or gouge with knife blade.<br>tt) Ensure opposite hand/fingers are a safe distance from the path of cut. Do not use excessive pressure while cutting. | | |

| Possible Hazards or Task | Describe Harm that could occur | Hazard Rating (Low/ Medium/High) | Control Action | Personal Protective Equipment (PPE) | Frequency of Monitoring |
|---|---|---|---|---|---|
| | becoming airborne projectile<br>qq) Personal injury due to using pliers/wire cutters incorrectly<br>rr) Personal injury from using incorrect pliers/wire cutters for intended task<br>ss) Personal injury from misuse of pliers/wire cutters<br>tt) Eye injury from breaking blade becoming airborne projectile<br>uu) Hand/finger laceration due to improper cutting technique<br>vv) Personal injury or injury to others from improper | | uu) Visually inspect knife blade before each use. Snap off blunt end or change knife blade as soon as it becomes inefficient.<br>vv) Wrap up and dispose of used knife blades in designated containers<br>ww) Select and use knife blade according to its intended use. Ensure knife blade is secure and installed properly<br>xx) Always retract, cover or remove knife blade when knife is not being used. | | |

| Possible Hazards or Task | Describe Harm that could occur | Hazard Rating (Low/ Medium/High) | Control Action | Personal Protective Equipment (PPE) | Frequency of Monitoring |
|---|---|---|---|---|---|
| | disposal of used knife blades<br>ww) personal injury form incorrect knife blade for intended task<br>xx) personal injury/or injury to others from improper storage of knife | | | | |
| Tig Welding<br>Make sure item to be welded is clean and free from oil.<br>Hook ground cable near welding area.<br>Make sure all welding cables are securely fastened. Wear all safety equipment. | Welding fumes (lung cancer)<br>Fire<br>Hot surface,sparks (burns to hands or body)<br>Ultraviolet light<br>Sharp edges (lacerations to hand or body)<br>Frayed wire (electrical shock) | | Wear proper visor of a grade designed for the type of welding you are conducting. | Gloves, welding helmet, steel toed boots, ear plugs. | Daily |

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# Job Hazard Analysis

**Analysis by:**
**Reviewed by:** **Approved by:**

**Department: Welding Shop**

**Date:** June, 2019

| Possible Hazards or Task | Describe Harm that could occur | Hazard Rating (Low/ Medium/High) | Control Action | Personal Protective Equipment (PPE) | Frequency of Monitoring |
|---|---|---|---|---|---|
| Milling Machine<br>Make sure all guards are in place.<br>Work piece is properly secured in place.<br>Work table is free of stock, tools or other loose material.<br>Tooling and supporting pieces are properly tightened in position.<br>Keep Cutters sharp<br>Keep floor around milling free from oil and grease.<br>Change cutting compounds periodically. | Sharp metal (lacerations)<br>Flying pieces of hot metal (burns) | High | Do not wear gloves, rings or loose clothing.<br>Tie back long hair<br>Do not lean or rest hand on moving table.<br>Do not leave machine unattended while it is running.<br>Do not attempt to mount, measure or adjust work until cutter is completely stopped.<br>Do not reach over or near a revolving cutter. | Steel toed boots, safety glasses, earplugs or ear muffs. | Daily |

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|---|---|---|---|---|---|
| Metal Lathe<br>Guard all power transmission parts.<br>Ensure start/stop button is in easy reach or operator.<br>Inspect chuck for wear and damage.<br>Ensure that chip and coolant are in place.<br>Remove chuck key wrench immediately after adjusting chuck.<br>Keep floor and lathe clean and free from oil and grease.<br>Keep working surface clean of scraps, tools and materials.<br>Follow job specifications for the speed and feed rate.<br>Central drill work deeply enough to provide support for the work piece. | Flying pieces of very hot metal (burns).<br>Very sharp pieces of metal (cuts)<br>Exposure to cutting fluid vapors and smoke.<br>Exposure to cutting fluid vapors and smoke<br>Cutting oil impacting on eyes, face and skin. | High | Do not leave machine unattended while it is running. Do not move the operating levers without knowing what they control. No not wear gloves, rings or loose clothing. Tie back long hair.<br>Do not lean on the lathe. No not use callipers or gauges on a workpiece while the machine is moving. | Steel toed boots<br>Ear plug or ear muffs<br>Safety glasses | Daily |
| Electronic Oven<br>Make sure that the electrical cord is in good condition with no breaks in the outer casing. | Skin burns<br>Hand and forearms<br>Electric shock | Low | Electrodes will be hot, so make sure you use gloves when taking out electrodes. | Gloves | Weekly |

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|---|---|---|---|---|---|
| Plasma Cutter<br>Do an inspection of the plasma cutting machine prior to cutting.<br>Place ground cable on item to be cut.<br>Make sure item is free of oil and grease | Hot sparks (burns)<br>Falling metal<br>Hot surfaces (burns)<br>Ultraviolet light<br>Electrical shock<br>Fumes (lung cancer) | High | Cut in well vented areas<br>Have fire extinguisher on site<br>Wear personal protective equipment<br>Remove all flammable material in the area | Gloves<br>Jacket<br>Steel toed boots<br>Cutting shield<br>Ear plugs | Daily |