DeRose laboratory safety (updated September, 2019)

Safe Work Procedure

DO NOT use this machine unless you have been instructed in its safe use and operation and have been given permission

PERSONAL PROTECTIVE EQUIPMENT

 Safety glasses must be worn at all times in work areas.

 Long and loose hair must be contained.

 Hearing protection must be worn.

 Sturdy footwear must be worn at all times in work areas.

 Close fitting/protective clothing must be worn.

 Rings and jewelry must not be worn.

- **Unless personally trained by Dr. DeRose, or the lab manager, Ryan Jess, you are not allowed in the lab!**
- **You are only permitted to use pieces of equipment on which you have been personally trained!**
- **Only Ryan or Justin can train individuals to use equipment in the sanding lab.**
- **If you wish to be trained on a piece of equipment, contact Justin DeRose at justin.derose@usu.edu.**
- **If any equipment is not functioning properly contact Ryan Jess, rjess85@gmail.com.**
- **If any supplies (e.g., sanding belts, dust masks) are running low contact Ryan Jess, rjess85@gmail.com.**

1. This lab does not contain any chemicals hazardous or otherwise.

2. Work with Materials that pose a significant Physical Hazard

OSHA defines physical hazards as a chemical for which there is scientifically valid evidence that it is a combustible liquid, a compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable (reactive), or water-reactive.

Other physical hazards include:

- Electric hazards
- Vacuum work
- Cutting, sawing, or grinding

In case of FIRE

1. If you discover a fire, shout FIRE! FIRE! FIRE! „ & activate the nearest fire alarm call point by breaking the glass. Immediately notify occupants of that part of the building to evacuate the building.
2. Inform any neighbouring labs and Justin DeRose, justin.derose@usu.edu
3. If the fire has not spread from its point of origin, attempt to extinguish the fire by using the correct fire extinguisher – ONLY IF YOU HAVE BEEN TRAINED IN ITS SAFE USE. DO NOT PUT YOURSELF AT RISK.
4. Do not re-enter the building for any reason until instructed by the Fire Officer that it is safe to do so.

Fire extinguishers are located in the sanding lab and in the BNR hallway around the corner from the sanding lab.

4. Standard Operating Procedures (SOPs) specific to this laboratory

a. **Aim:** to assure that hazardous operations specific to the lab are conducted in a prudently safe manner.

b. **Content:** Chemical Hygiene SOPs may be incorporated into general lab procedural protocols or may be written up separately. These SOPs contain 1) the major hazards associated with a task and/or chemicals and 2) controls to avoid exposure. Examples of SOPs can be found in Prudent Practices, chapters 1B, 1C and 1D. A guide to preparing Chemical Hygiene SOPs is available from the Campus EH&S Office.

Examples of procedures or tasks that support implementation of SOPs.

4.1 VERTICAL BANDSAW

STANDARD OPERATING PROCEDURE 'S.O.P'

- Ensure the guard doors are closed and the blade is properly adjusted prior to turning on the machine.
- Adjust the upper guard assembly to within 1/4 inch of the stock prior to starting the machine. Set the band saw at the appropriate speed for the type of stock being machined.
- Check to ensure the band saw blade is sharpened.

- Check to ensure the band saw is correct for the type of stock and correct speed being used.
- Allow the saw to reach full set speed prior to cutting stock.
- Do not force stock into the saw blade. Let the speed of the blade cut stock appropriately.
- Make “release” cuts before cutting long curves.
- Plan saw cuts to avoid backing out of curves in the stock.
- Never push a piece of stock with hands in front of the saw blade. Use a push stick. Keep hands at a safe distance on either side of the stock being machined.
- Use a push stick or board to push small or irregular sized stock. Small work pieces can also be secured with a tabletop vise or clamp.
- All round stock must be secured in a tabletop vise or clamp prior to starting the cut.
- Hold the stock flat on the table prior to starting the cut.
- If the saw blade binds on a piece of stock, turn the saw off and wait until it comes to a complete stop before attempting to remove the blade from the stock.
- Do not allow large quantities of chips to accumulate around the work piece or drill press table. After stopping the machine, use a brush or rag to remove all excess chips from the drill press table and stock.

4.2 COMPOUND MITRE SAW

RE-OPERATIONAL SAFETY CHECKS

- ✓ Locate and ensure you are familiar with all machine operations and controls.
- ✓ Ensure all guards are fitted, secure and functional. Do not operate if guards are missing or faulty.
- ✓ Ensure the saw is properly secured to a work table by bolts/clamps at approximately hip height.
- ✓ Ensure the saw is operated on an RCD protected circuit.
- ✓ Check workspaces and walkways to ensure no slip/trip hazards are present.
- ✓ Keep table and work area clear of all tools, off-cut timber and sawdust.
- ✓ Start the dust extraction unit before using the machine.

OPERATIONAL SAFETY CHECKS

- ✓ Ensure all adjustments are secure before making a cut.
- ✓ Use clamps to secure and support the workpiece to a stable platform. Do not use a length stop on the free scrap end of a clamped workpiece.
- ✓ Before turning on the saw, perform a dry run of the cutting operation to ensure no problems will occur when the cut is made.
- ✓ Avoid reaching over the saw line. Do not cross arms when cutting.
- ✓ When pulling the saw down with your right hand, keep the left hand, especially the thumb, well clear of the line of cut.
- ✓ If workpiece is bowed or warped, clamp it with the outside bowed face toward the fence.
- ✓ After finishing the cut, release the switch, hold the saw arm down and wait for blade to stop before removing work or off-cut piece.
- ✓ Before making any adjustments, disconnect the plug from the power source and bring the machine to a complete standstill.

4.3 Down draft air table and air handler

- Air handler and air table should be cleaned before and after each use
- Clean filters with a shop vac in the air table use the handle at the top of the air handler to break dust from filter.
- Both air handler and air table should be used any time that a sander is running.
- Vacuum the top of the air table before sanding cross sections to ensure they don't shift off the table.
- Use pins on the air table to keep cross sections from shifting during sanding.
- Attach hoses as necessary

4.3 CLEANING UP

- ✓ Leave the machine in a safe, clean and tidy state.

POTENTIAL HAZARDS AND INJURIES

ⓘ Saw may grab and ‘kick-back’ toward operator.
ⓘ Flying chips and airborne dust.
ⓘ Contact with rotating blade.
ⓘ Eye injuries.
ⓘ Noise.

DON’T

- ✘ Do not use faulty equipment. Immediately report suspect equipment.
- ✘ Do not exceed the maximum cut for the machine.
- ✘ Do not cut more than one workpiece at a time.
- ✘ Do not start the saw with the blade touching the workpiece. Allow the blade to reach full speed first.
- ✘ Do not cut branches, dowel, or wood with embedded nails or screws.
- ✘ Do not rip solid timber along the grain.
- ✘ Do not cut ferrous or non-ferrous material.

Powered Drill (cord or cordless) for Venture University Staff ONLY (not Junior Councilors or Campers)

Wear hearing, eye and suggest hand protection.

Check the drill prior to commencing work, frayed plugs, correct bit, if there are any defects, do NOT use. Must have CSA approval or ULC and be a three prong plug.

Select the proper drill bit for the material you are drilling. Metal and wood usually can use the same type of drill bit, but masonry bits have a very special design. Make sure the material you are drilling is properly secured on a stable surface.

Make sure the cord is long enough to reach from the electrical outlet to the place where you plan to use the drill.

Use the chuck key that comes with the drill to open the chuck. Do this by pushing the nubbed end of the key into a hole along the chuck and twisting counterclockwise. The teeth on the chuck key should engage the ones on the drill.

Insert the bit into the chuck and tighten it with the chuck key, turning it clockwise this time. Be sure it is very snug.

Plug the drill in. Before drilling, make sure the area is free from hazards and no one is around you that could bump into you. If others are helping, ensure they are following the proper safety procedures and effective communication is maintained.

Press the trigger before you make contact with the work.

Slowly touch the tip of the bit to the work and apply steady but light pressure.

Maintain the pressure on the drill and the trigger until the hole is completed.

Keep the trigger depressed as you slowly back the bit out of the hole.

If the drill is going into wood, you may need to pull the drill out periodically as the drill bit will probably clog. By pulling the drill bit partially out of the work while the bit is turning, it will self clean.

If the drill bit does clog (usually from pressing too hard and drilling too fast) then pull the bit out and clean the clog out with a hard material such as a screwdriver or nail. Be very careful.

When completed, unplug, clean the equipment and store.