

PRINTMAKING PROGRAM
SAFETY INSTRUCTIONS & SHOP HAZARDS

Emergency phone located in the FA1-103 classroom
(red box near exit doors)

Additional emergency telephones are located in the exterior corridor to FA4, at the shuttle bus stop by FO4, on the south side of the University Theater & near the library.

Evening Escort Service is available through Campus Security.

ABSOLUTELY NO SMOKING OR OPEN FLAMES IN ALL PRINTMAKING STUDIOS.

NO SMOKING WITHIN 25 FEET OF THE SOLVENT SHED (SOUTH SIDE OF THE FA1 PATIO). NO ALCOHOLIC BEVERAGES OR DRUGS OF ANY KIND WILL BE TOLERATED. DO NOT EAT IN THE PRINT SHOP.

EXTREME HAZARDS EXIST IN THE PRINT SHOP.

Know the locations of fire extinguishers & follow the operating instructions written on them. In an emergency, notify Campus Security — (from campus phones dial X54101, from other phones, dial 985-4101).

- In the event of an evacuation due to an actual emergency or drill, please follow exit signs and proceed to the central quad, the green area on the west side of buildings FA2 and FA3.
- No children in the print shop.
- Do not wear sandals or open-toed shoes in the shop. No bare feet.
- Do not wear billowing shirts or other loose clothing or jewelry that may get caught in machinery. Please remove rings, necklaces & bracelets.
- Always tie back long hair when operating any press or other machinery.
- Do not allow people who are not enrolled in your current printmaking class (and trained on the specific equipment and tools) to assist you in any manner.
- Take care of your skin - wear gloves &/or barrier cream. Use hand lotion regularly to replace lost oils & prevent cracking & chafing. Cover cuts with band-aids.
- If injured, notify any available staff member and the School of Art Office FA4-106. Phone numbers to call 985-7907, 985-7908, 985-7909, 985-4118. There is more info on the Emergency Response form on the red cabinet in FA1-104 and the black cabinet in FA1-101.
- Know your limits! Do not work if you are excessively tired or sick.
- Avoid working alone.
- Use soy solvent/mineral oil/vegetable oil & Simple Green for clean-up when possible. However, no Soy Solv on all rollers & brayers or Estisol on any plastics(especially tympan), rubbers or brayers.
- If you encounter a homeless person or someone seemingly suspicious, even if you're unsure, just call the University Police and let them check it out and sort it out.
- Walk to restrooms with another student outside of regular weekday hours.

PRESSES & EQUIPMENT:

ALL MACHINERY and HAND TOOLS:

Students must receive proper instruction before use.

SHARP INSTRUMENTS:

- Make sure to always be aware of your free hand/limbs and others when using sharp objects.

CRAFT AND UTILITY KNIVES:

- When cutting make sure to use a cutting mat.
- Keep your fingers away from the blade edge. If you use a ruler, this means keeping them away from the edge of that as well.
- **Do not force the cut** when cutting thicker or firmer materials. If you press too hard, the knife could slip and cut your finger or damage the material. Only use light pressure on the blade when cutting.
- Place one hand on the material to stabilize it while you cut. However, make sure to keep your other hand out of the cut path. Press the blade down firmly and keep a grip of three fingers on the handle with your thumb on the other side so it does not slip.

CARVING TOOLS:

- Make sure to use a bench hook on non-slip mat.
- Always carve away from your body and rotate your block when possible to facilitate this.
- Be aware of others in your immediate area.
- Don't force the tool. If you are forcing it you are carving too deep or the tool is dull and you greatly increase the risk of slippage and injury

SANDPAPER AND STEEL WOOL:

- Wear eye protection and a dust/particle mask.
- Wear gloves and wash hands thoroughly after use.
- Clean up any residual material.
- Steel wool may also be used with 3-in-1 oil. Residual oil may be cleaned up with a degreaser.
- Wet/Dry sandpaper may also be used with water or 3-in-1 oil to control particulate spread and prevent fine particles from 'clogging'.

HANDHELD FILES:

- Wear eye protection and a dust/particle mask.
- Wear gloves and wash hands thoroughly after use.
- Clean up any residual material.
- When filing metal be very careful of sharp edges, especially around corners. Be mindful of your grip on the file and ensure that no part of your fingers/hand hangs over the edge of the file where the path of travel is near a sharp corner edge.
- The files that are used with the litho stones may need to be cleaned due to caked on limestone dust. Do this with the steel wire brush over the graining sink wearing eye/dust protection.

SCRAPER AND BURNISHER:

- Eye protection, gloves and dust mask should be used with the scraper.

- Gloves should be worn when using the burnisher.
- Thoroughly wash your hands after using either tool.
- **THE SCRAPER HAS MANY SHARP EDGES AND A SHARP POINT, HANDLE WITH CARE!**
- After using the scraper be sure to clean up any residual material.
- Both tools may be used with 3-in-1 oil to assist the process and extend the life of the tool.

LEVIGATOR:

- Eye protection and gloves should be used when using the levigator to grain litho stones.
- A dust mask/respirator is optionally recommended as well.
- When using the levigator always be aware of the spinning path in relation to your free hand (if using one handed), your body and those of any other student that may be using the graining sink.
- When using the levigator be aware of the path in which it spins and how the center of the spinning is oriented around the handle. This is crucial to maintaining control and keeping the spinning levigator on the stone.
- Failure to do so can lead to the levigator coming off the stone and causing potential harm to yourself or another student using the graining sink.
- When storing the levigator be aware of how you set it down, if you store it resting on the handle be sure to balance it properly so it won't topple over, which could be a pinch/crush risk.

ETCHING PRESSES:

- Do not put fingers past indicated pinch points or under the hand guards.
- Double check that no one else is near any danger points!
- Never force press beds.
- Center the press bed when finished printing.
- Do not adjust presses without micrometer dials.
- Never pull/yank anything that is pinned under the roller, not newsprint, not mylar, not anything!

LITHOGRAPHY PRESSES:

- Do not put your hands near pinch points!
- Always disengage the clutch before moving the press beds!
- **BEWARE OF ROTATING HANDLES!**
- Be careful not to go past your start & stop marks, or the tympan may break, the stone may shift & the stone may break &/or crack.
- On the Fuchs & Lang Press, too much pressure may force the bar to pop up, striking the printer.
- Make sure not to extend the bed too far out, make sure that the stone is always on the bed **OVER THE FRAME**, not on a part of the bed that is extended beyond the frame. With very heavy stones this could cause the press to tip!

HOTPLATES:

- Never put solvents on the hotplates!

- Never put paper on the hotplates! Remember Ray Bradbury? Fahrenheit 451 is the combustion point of paper. Use aluminum foil instead.
- Do not leave objects on the hotplates (Except the high heat surface thermometer)
- Turn down the temperature dials before turning on or off.
- Allow the hotplates to come up to temp in a gradual manner.
- Use the appropriate temperatures for your task.
- Warn others when you turn on the hot plate. Do not leave the hot plate unattended when it is turned on.
- **TURN OFF THE HOTPLATE IF YOU ARE THE LAST PERSON TO USE IT!**

HEAT GUN:

- All users must have attended a demonstration and be instructed on the use of the tool. before using the tool. The tool may only be used in accordance with the demonstrated instruction provided and during periods of approved use in locations approved for its use.
- When setting up the heat gun for use, make sure that the space and counter around the metal grate are clear of any materials, other than the plate being treated. Including flammable materials and gasses.
- Students and all users must always wear PPE based on whatever material is being heated using the heat gun.
- Inspect the heat gun (and extension cord, if used) for any signs of damage or needed maintenance, do not operate if any are detected and seek assistance from a qualified faculty or staff member.
- Turn on heat gun to desired setting and heat material, using caution not to overheat material and that the power cord for the heat gun is not being heated.
- After the heat gun is done being used, make sure that you have placed the switch in the off position, un-plugged from the wall, and allow the tool to cool on the countertop for 10-20 mins, until the tip of the gun is cool. (take care that it cannot be knocked off the work area).
- Place the tool in its designated storage container and in the cabinet below the designated heating area.
- The heat gun should not be used as a hair dryer or used to reheat items intended for human consumption.

BELT SANDER AND WORKSHARP SHARPENER:

- Tie back loose hair!
- Do not wear loose clothing or scarves!
- Wear eye protection!
- Make sure to turn on the small shop vac when using the belt sander to minimize dust/particulate material.
- A dust mask is also recommended.
- Clean up any residual material
- Keep your fingers clear of the moving belt and spinning disk.
- Make sure disks are properly seated and secured tightly on the worksharp.

METAL SHEER (AKA STEP CUTTER OR GUILLOTINE):

- Keep fingers clear of pinch points!

- Be aware of your feet & the feet & hands of others!
- Cut only 16 or 18 gauge metal.

PAPER CUTTER:

- Do not stand behind the blade when in use.
- Cut ONLY paper, no metal plates!
- Keep fingers away from the blade!
- Keep blade in the down position when not in use.
- Do not raise the blade too high.

LAWSON-NOVA LED SCREEN-EXPOSURE UNIT:

- Handle glass with care!
- Make certain the emulsion is dry on your screen before using the machine.
- Your screen must be flat with no risers (coins, cardboard or Snapple caps) or the glass will break!
- Don't look directly at the UV light that is emitted from the seam while unit is exposing.
- **TURN OFF THE UNIT IF YOU ARE THE LAST PERSON TO USE IT!**
- **DO NOT USE BETWEEN 10PM-7AM DUE TO NOISE ORDINANCE.**

OLEC UNIT FOR U.V. EXPOSURE IN THE DARKROOM:

- Do not use objects that can break or scratch the glass.
- Pull the black curtain around the unit & leave the room during exposure times.

DREMEL TOOL:

- Always wear eye protection.
- Make certain that long hair is pulled back & secured.
- Make certain that bits are firmly secured in the shaft/chuck of the tool.
- Do not use electrical tools near water.
- Clean up any residual material

PORTABLE SHOWER-HEAD:

- Always wear eye protection, gloves and water-resistant apron.
- Always store shower-head in the dry storage bucket when done using.
- Clean up any liquid that may have spilled or dripped.

HYDRAULIC LIFT:

- Lifts steer from the back so be careful when navigating the shop and taking corners.
- Make sure the footbrake is engaged when raising/lowering the bed and loading/unloading.
- When loading and unloading stones be aware of pinch points that can be created.
- When loading stones onto the bed try to align the height of the bed just below the stone to prevent any excess dropping of the stone as it transitions onto the lift.
- Make sure stones are loaded onto the bed are centered and pushed against the back guard.

- Stones that are larger than the lift bed should be loaded sideways so excess stone extends equally over the left and right side of the bed. **HAVING THE STONE EXTEND OVER THE FRONT OF THE BED CAN RESULT IN A TIPPING HAZARD.**
- When unloading stones onto the press beds make sure that the stone is being loaded over the frame of the press and not part of the bed that is extended beyond the frame. **THIS CAN RESULT IN A TIPPING HAZARD.**

PRESSURE WASHER:

- Always wear eye protection.
- Wear ear protection.
- Do not touch the red valve. It must stay open.
- Make sure the blue valve is turned to the on position enabling the water source before turning on the machine.
- Be aware & careful not to inhale when using spray emulsion remover.
- Wear gloves.
- Make certain to not allow the machine to run continuously without water flowing — it will burn out the motor.
- Make sure to turn off the water source when finished. If it is lined up with the pipe (near the door, look down) it is open & flowing, if it crosses it, it is closed.
- **DO NOT USE BETWEEN 10PM-7AM DUE TO NOISE ORDINANCE.**

CNC MACHINES:

1. Shapeoko CNC Router

- **NEVER LEAVE THE MACHINE UNATTENDED WHILE CUTTING!**
- Always make sure that the polycarbonate door to the enclosure is closed and latched while the machine is running.
- Make sure that bits are securely fastened in the chuck.
- In case of a severe problem while cutting (the work piece comes loose, the bit gets stuck, the cut overheats, etc) **shut off the power to the whole system immediately** via the switch on the surge protector.
- Never open the door to the enclosure while the router is still moving, always wait for it to return to home or come to a complete stop.
- When using the router always double check your setting and the appropriate RPM for the router before sending the job.
- Only use as you have been trained to use. I.e. If you were trained to use the diamond drag bit for engraving, don't use the cutting bits and router motor and vice versa.

2. AxiDraw Pen Plotter

- Make sure any loose clothing or long hair is tied back when in use.
- Observe the marked out boundary that the arm needs **ON BOTH SIDES** while running and make sure that it is completely clear of objects and body parts.
- Only use in the manner in which you've been demonstrated, If you'd like to use and alternate method or stylus/implement from what you were trained with, please consult faculty/staff ahead of time.

- **IF REPOSITIONING THE MACHINE NEVER GRAB IT BY THE RIBBON CABLES OR ARM, ONLY BY THE CENTRAL BLACK METAL FRAME.**

3. Silhouette Cameo

- Make sure the front and back of the machine have enough clearance for the material or cutting mat that you're using.
- Make sure the front lid of the machine is securely closed before starting a cut job.
- Always double check the blade setting in the software and the blade cartridge.
- Make sure that the blade cartridge is free from dust/debris that may limit it's mobility, especially after longer jobs on softer paper.
- Only use in the manner in which you've been trained, If you want to use a material that's not listed in the software, please consult faculty/staff ahead of time.

4. CNC Vinyl Plotter

- Make sure that the machine is turned off after you are done using.
- Keep hands clear of the moving arm and blade while job is running. If error occurs while the job is being processed. Pause and seek help from instructors and/or Lab technician.
- Only use in the way you've been demonstrated, please consult faculty/staff ahead of time of use of the machine. Do not use the machine if you have not received instruction on proper use.

CHEMICALS:

Students must receive proper instruction before use. While most people can recover quickly from short-term overexposure, consult with physician in case of serious exposure. Pregnant women (or those planning on becoming pregnant) should consult with their physician prior to working with any chemicals. SDS sheets are available upon request.

3-IN-1 OIL: Use with gloves and eye protection. Make sure to wash hands thoroughly after use. Use in a well-ventilated area.

ASCETIC ACID: Use only the diluted solution (1 : 15) and never handle the concentrate. Affects the upper respiratory tract, eyes, skin & causes dental erosion. Do not mix or store with other acids. Wear gloves & eye protection. Flush with water for 15 minutes should you get any on your skin or in your eyes.

AMMONIA: Affects respiratory system, lungs, eyes & causes burns. Wear gloves & eye protection. Flush with water for 15 minutes should you get any on your skin or in your eyes. **NEVER MIX WITH BLEACH!**

ASPHALTUM: Causes skin irritation. Wear gloves. Clean off hands with shop hand cleaner, followed by soap & water.

AJAX &/or COMET CLEASNERS: Contain bleach. **NEVER MIX WITH AMMONIA!** Wash with water.

BRASSO: Use with gloves and eye protection. Make sure to wash hands thoroughly after use. Use in a well-ventilated area. Flammable – store in flammable cabinet.

CAUSTIC ACID (AKA - LYE, EASY-OFF OVEN CLEANER): Actually, a strong base, & not an acid. Wear gloves, goggles & stay out of fumes. For skin or eye contact, flood the area with water for 15 minutes.

CITRASOLV: Use with gloves and eye protection. Make sure to wash hands thoroughly after use. Use in a well-ventilated area. For skin or eye contact, flood the area with water for 15 minutes. Flammable, should be stored in flammable cabinet.

COPPER SULFATE ETCHING BATH: Strong long-sleeved gloves, goggles, and protective clothing (e.g. plastic lab apron) should be worn when handling metal salts and metal salt solutions. Use a dust mask when handling copper sulfate or etching residues. Any splashes in the eyes must be rinsed immediately with plenty of water. Immediately wash off any splashes on skin. (For disposal of any copper sulfate contaminated trash please see next section 'Rules for the Acid Room' (FA1-100))

FERRIC CHLORIDE: CORROSIVE! Hydrolyzes in solution, producing hydrochloric acid. Major skin & eye damage can occur. Wear gloves & eye protection. Avoid skin & eye contact. If contact occurs, flood with water for 15 minutes.

HAZE REMOVER: CAUSTIC! Haze-remover is used by faculty members &/or lab technicians only. Will cause severe burns without initial pain. Wear gloves & face/eye protection. If contact occurs, flood affected area with water for 15 minutes.

LAMP BLACK: Ingredient in many black printing inks. **CARCINOGENIC.** Wear gloves &/or barrier cream. Use hand cleaner & wash well after use.

MAGNESIUM CARBONATE POWDER: An **IRRITANT** to eyes, nose & throat. Wear a dust mask when using large quantities. Wash with water.

NITRIC ACID: HIGHLY CORROSIVE! ALL ACIDS ARE TO BE USED IN DESIGNATED AREAS - NO EXCEPTIONS! If contact occurs, flood affected area with water for 15 minutes. Will cause severe burns to eyes, respiratory passages, skin, & dental erosion. ALWAYS wear protective gloves & GOGGLES. NEVER wear contact lenses when handling acid or near acids!!!! Wear proper protective clothing — aprons are essential.

NITRIC DRIP BOTTLES: Use is restricted to the designated area/s. Fumes will cause extreme burns! Use drip bottles with gloves & double containment. Wear protective goggles. Flood with water for 15 minutes.

PAINT & VARNISH STRIPPER (KLEAN STRIP): Used to strip BIG ground off of etching plates. Wear gloves & eye protection. Wash hands thoroughly after use. If contact occurs, flood affected area with water for 15 minutes.

PHOTO EMULSION REMOVER: Wear gloves & eye goggles/a face shield. If contact occurs, flood affected area with water for 15 minutes.

PHOTOGRAPHIC CHEMICALS: Use ventilation & wear protective nitrite gloves & eye protection/goggles. when mixing. Affects lungs & skin. Flood with water for 15 minutes.

PHOTO-ETCHING DEVELOPER: Affects the central nervous system, blood, skin, respiratory tract, kidneys, liver & eyes. Use protective gloves & a respirator with the proper filters in place. Flood with water. (Seldom used.)

PHOTO-LITHO DEVELOPER: Harmful to the lungs & skin. Use with protective gloves & goggles and plenty of ventilation.

PHOTO SILKSCREEN EMULSION: Contains Diazo which is harmful to the lungs & skin. Wear protective gloves . Rinse well with water if it should get in contact with your skin.

PHOSPHORIC ACID DRIP BOTTLES: Use is restricted to the designated area. Fumes will cause extreme burns! Use drip bottles with gloves & double containment. Flood with water for 15 minutes.

PUTZ POMADE: Use with gloves and eye protection. Make sure to wash hands thoroughly after use. Use in a well-ventilated area. If contact occurs, flood affected area with water for 15 minutes (use eye wash station if contact is with eyes). Don't store near combustible liquids or metals.

SPRAY PAINT/VARNISH/FIXATIVE: Use under the spray booth, with all switches of the unit in the "ON" position. Turn off after five minutes when done using.

WINTERGREEN OIL/METHYL SALICATE: Use ventilation & wear protective nitrile gloves & eye protection/goggles. Wash hands thoroughly with soap and water after use. Flood affected areas with water for 15 minutes. If skin irritation is experienced consult a doctor.

RULES FOR THE ACID ROOM (FA1-100):

- Wear eye protection & gloves
- Wear a waterproof vinyl apron.
- Never wear contact lenses in the acid room.
- Never put your face directly over the acids.
- Always flood affected skin & eyes for 15 minutes with water. Seek medical attention if your eyes are involved.
- Never "drop" or toss plates in the acid baths.
- Remove plate & place in the neutralizing bath.
- Never put anything other than zinc, aluminum or steel in the copper sulfate baths.
- Never place anything but copper in the ferric baths.
- After using Copper Sulfate wash the plate & gloves in the rinse tray to avoid washing any heavy metals down the drain.
- After etching with Ferric Chloride and neutralizing plates rinse the neutralizing solution residue off in the sink.
- Dispose of all trash contaminated with either copper sulfate or ferric chloride in the large drum labeled "Contaminated Trash ONLY"
- Make certain you hear the exhaust ventilation working.

ACID SPLASHES & SPILLS

SKIN CONTACT: Flood with water for 15 minutes under the faucet (or shower for major exposure). Know the location of eye wash stations & shower.

- Remove contaminated clothing or it will continue to burn your skin.
- If affected, rinse eyes in the eyewash station for 15 minutes & seek further evaluation.
- If eyes are affected contact University police for assistance.
- Do not place sodium bi-carbonate (baking soda) or soda ash on skin that has been burned with acid, as this will cause a secondary reaction.

SPILLS: For large spills, clear the room of other occupants; contact the Lab Tech, Professor, or Campus Police. The Police will contact the hazardous materials crew. For a small spill, wearing proper personal protection, use the purple or pink colored "pig" mats & "sausages" that are located in the acid spill bucket (under the sinks) to contain & absorb the spill. The "sausage" or "socks" will prevent the acid from spreading. Once you've treated the spill with soda ash, place the contaminated socks & blanket in clear plastic sealable bags. Fill out the yellow hazardous waste label & adhere it to the bag.

- If you do not know what to do & are alone, contact the University Police & prevent access to the hazardous area until the police arrive.
- Always notify people working in the area that there has been a spill.
- Always notify faculty &/or the lab technician/s if a spill occurs.

DUST:

The following & all other products in the form of powders pose respiratory hazards. Wear a dust mask.

- Rosin
- Talc (AKA: French Chalk)
- Magnesium Powder
- Dull-it Powder
- When sanding wood, it is a good idea to wear a dust mask, as some wood has been treated with formaldehyde & wood fiber dust is not good to breathe in.

SILICON CARBIDE AKA CARBORANDUM:

- Is to be used along with water to grain limestone.
- Is a respiratory risk, contains silica.
- Eye protection and gloves are required during use.
- A dust mask/respirator is optionally recommended.
- Any dry spills should be cleaned up with a damp sponge (rinse in graining sink after)

SOLVENTS:

NEVER PUT ANY SOLVENT DOWN ANY DRAIN FOR ANY REASON!!!

*ALL WASTE SOLVENTS ARE TO BE DISPOSED OF IN THE SOLVENT WASTE CONTAINERS LOCATED IN THE ETCHING & LITHOGRAPHY STUDIOS!

AS A RULE: Keep solvent use to a minimum, substitute soy solvent or mineral oil/vegetable oil & Simple Green for clean up where possible. Use the solvents under the spray hood when possible. Wear eye protection and gloves (make sure gloves are appropriate for the solvent you're handling, not all are) when handling solvents and wash hands thoroughly with soap and water after use. Unless otherwise noted, solvents are flammable and need to be stored in a flammable cabinet.

SOLVENTS USED IN THE PRINTMAKING DEPARTMENT:

- Mineral oil/Baby oil (**not flammable**)
- Goo Gone/Citrasolv
- Lacquer Thinner
- Acetone
- Isopropyl Alcohol

- Estisol 242 (not flammable) & 150, replaced mineral spirits in lithography. However, Estisol damages some plastics (tympan/polycarbonate) and it could eat other plastics (scraper bar) & rubber (composite rollers & brayers) too.
- Kerosene (Rarely used)
- Turpentine (Rarely used)
- Naptha (an ingredient in the Universal Etching Ground), so wear gloves when both applying & removing etching grounds. (Rarely used)
- Mineral Spirits/Paint Thinner/Lithotine (minimal use)

HAZARDS OF SOLVENTS:

- Flammability
- Will cause damage over time to respiratory & nervous systems as well as eyes (when splashed into them), liver, & kidneys.
- Can cause dizziness, nausea & headaches.

METHODS OF PROPER USE OF SOLVENTS:

- Use under ventilation hood or outdoors.
- Wear gloves & eye protection.
- Avoid skin contact. Never use solvent to clean your hands or clothing! Use the orange pumice hand-cleaner.
- Be considerate of others & use solvents very sparingly.
- Warn others who are working if you are about to use the more aromatic solvents.

CONTAINERS AND LABELS:

All containers must have identification labels and appropriate hazard pictograms if required. Do not use any chemicals with no identification, and please alert instructors, the tech and/or other staff members.

All Tupperware or other similar containers used for holding screen printing ink or other art making materials must have a label designating it as an art material and not for human-consumption. Also, no reclaimed food containers or glass jars/vessels may be used. Art making chemicals in printmaking need to be disposed appropriately to keep the lab safe. Solvent soaked paper towel goes into the red, self-closing canister and never in regular trash bins.

Other chemicals may require a hazmat pick up. All food trash must be discarded in outside trash bins to prevent rats and other pests in the shop.