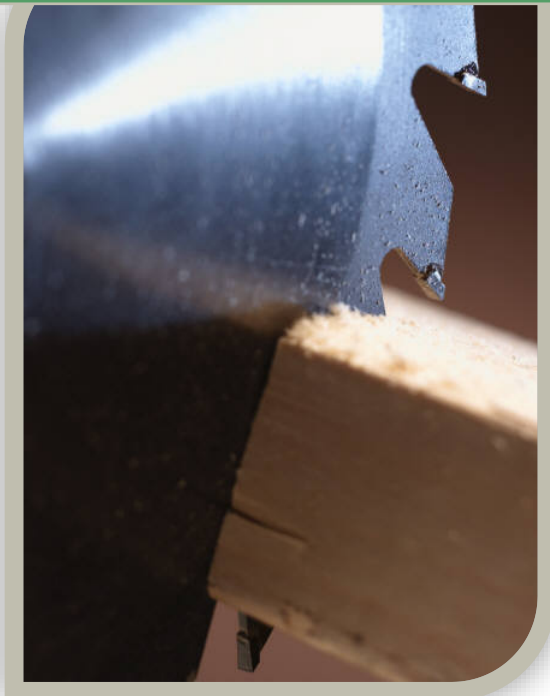


Studio & Shop Safety Guide



UNIVERSITY OF
SOUTH FLORIDA

Environmental Health and Safety

4202 E. Fowler Ave. OPM 100

Tampa, FL 33620

(813) 974-4036

<http://www.usf.edu/eh&s/>

Fall 2017

Contacts and Objectives

http://www.usf.edu/eh&s/	OPM 100	813-974-4036
Occupational Safety	Lab/Shop/Studio Safety	
Property Insurance/Risk Management	Waste Management	
Fire Safety	Industrial Hygiene, Asbestos/Indoor Air Quality	



Training Objectives

- To provide USF safety procedures and guidelines for studios and shops.
- To increase awareness of emergency procedures for studios and shops.

Individual Responsibilities

- Complete tool/equipment specific training before use.
- Follow safety procedures that are outlined in shop-specific rules and Standard Operating Procedures (SOPs) for tool/equipment use.
- Let a supervisor know of any injuries.
- Report unsafe conditions in the shop.

Supervisor/Shop Manager Responsibilities

- Ensure all tools/equipment are in good working order and regularly maintained.
- Determine specific safety procedures to be followed for each tool or machine. These procedures should be written within an SOP and available to everyone.
- Provide tool/equipment specific training for all workers.
- Provide all personal protective equipment that is needed for the staff and students.
- Ensure that all workers have completed safety training for the tool or machine they will be using prior to working in the shop. Document all training.
- Enforce safety rules.
- Correct any hazards that are reported.
- Report all staff/faculty injuries or illnesses to workers' compensation and to EH&S.

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Machine and Tool Safety

- Complete training with an experienced user. Do not use any machine or tool unless you have been trained and are familiar with its use.
- Read and follow the Standard Operating Procedure (SOP). See Appendix 1 for a template.
- Use the appropriate machine or tool for the job.
- Wear Personal Protective Equipment (PPE) appropriate for the machine or tool.
- Perform a start-up check before beginning work:
 - Is the machine well-maintained and in good working order?
 - Is the work area and floor clean and free of slip/trip hazards?
 - Are machine guards in place on machines with moving parts?
 - Are blades at the appropriate height, unbroken, sharp, and secure?
 - Are clamps in position and secure?
 - Are bits secure?
 - Have chuck keys been removed?
 - Do you know where the ON/OFF switch is?
- Do not use any machine or tool if you are overly tired, sick, or otherwise impaired.
- Do not work alone.
- Be aware of the hazards of electricity:
 - Working with electricity presents special hazards related to shock and fire.
 - Do not run wires where they may be damaged.
 - To avoid shock, remove metal rings, bracelets, and watches from hands.
 - Make sure hands, tools, equipment, and floor are dry.
 - Inspect equipment before use and report frayed wires and bent or missing prongs on plugs.
 - Turn off and unplug equipment before performing maintenance on it.
 - Know the location of the emergency power off, or shunt, which is usually a large red button.
 - EH&S Lockout/Tag Out Training is required for anyone servicing or maintaining machines or equipment in which the unexpected energizing or startup of the machines or equipment or the release of stored energy could cause injury to employees.



Table 1: Common Shop Machines

Tool/Machine	Description	PPE	Before Use	Tips During Use
Band Saw	A continuous metal blade with teeth on one edge. Used with wood, metal, and other materials.	Safety glasses. Face shield if material is likely to chip. NO gloves or long sleeves.	Secure saw to floor or bench. Guard should cover entire blade except for working part. Table should be clean. Blade should be tight.	Use a push stick.
Bench Grinder	A machine that spins abrasive wheels. Used to sharpen or clean metal parts.	Face-shield, ear protection, leather gloves and a leather apron.	Tongue guards, side guards, and eye guards must be in place.	Stand off to the side when starting. Do not grind on the side of the wheel. Dip metal in water to cool.
Drill Press	A type of drill where the chuck and spindle are moved vertically using a set of handles in the head. Used with wood, metal, or other materials.	Safety glasses. Face shields are recommended.	Clamp work. Use appropriate drill bit and speed setting. Secure bit and remove chuck key.	For deep holes, raise bit periodically to clear cuttings and cool bit. Free a bound drill bit by first turning off power, then turn chuck backwards by hand.
Lathe	A wood or metalworking machine that shapes materials by rotating the work against a cutting tool.	Safety glasses and hearing protection. NO gloves or long sleeves.	Clamp work. Remove the chuck key before starting machine	Do not reach over the spinning chuck
Milling Machines	A versatile family of machine that uses rotary cutting action to precisely shape parts.	Safety glasses with side shields or goggles and hearing protection.	Clamp work. Make sure spindle is free to rotate. Power off to change cutters and remove tightening wrench after use.	Stay at the machine. Take light cuts and feed slowly.
Router Table	A table with a hole through which the bit of a tool protrudes. Used to hollow out space in wood or plastic	Safety glasses and hearing protection	Cutter should be sharp, clean, and clear to rotate.	Feed work slowly. Use jigs, fixtures, and templates when possible.
Table Saw	A circular saw blade that protrudes through a table supporting the stock being cut. Used with wood.	Safety glasses, goggles, or face shields. NO gloves or long sleeves.	Guards, anti-kick back devices, and spreaders must be in place. Blade should be clean and sharp and height should be no more than ¼” above stock. Area in front of saw should be clean and smooth.	Use push sticks on stock less than six inches wide – do not use a metal push stick. Disconnect power before changing blade. Do not reach behind or over a spinning blade. Stand to the side of the blade, not directly in line with it.

Chemical Safety: Resources

1.) Manufacturer's Label

The manufacturer of a chemical must provide a label that indicates:

- Full name of chemical
- Hazard warnings
- Name and address of manufacturer

* Chemical containers without manufacturer's labels should be returned to the manufacturer.

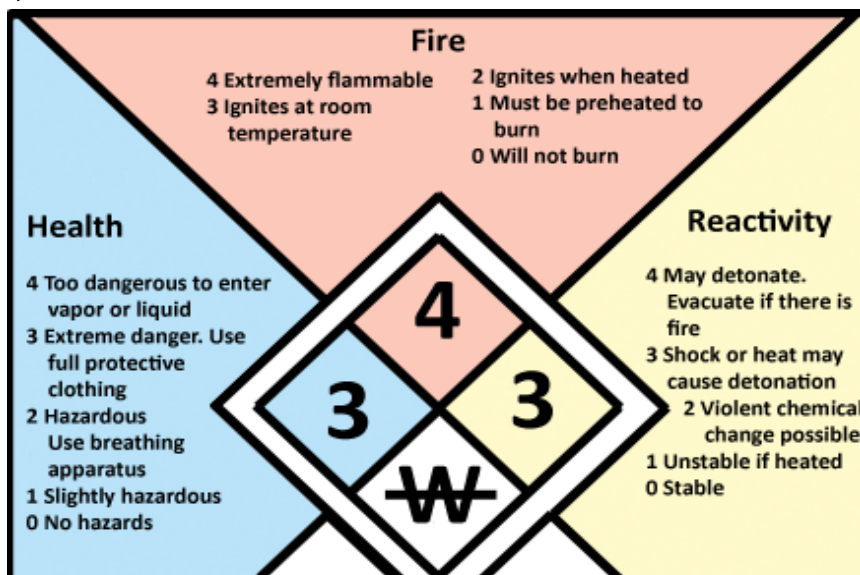
2.) Safety Data Sheets (SDS)

An SDS is a document, prepared by the manufacturer, which contains safety information for materials containing hazardous chemicals. It contains information about:

- Material components
- Dangers
- Safe handling of material

Be sure that you have immediate access to the SDS for chemicals you are working with.

3.) NFPA Label



This label was developed by the National Fire Protection Association to identify and rank a material's hazards. Hazards are rated from 0 (no hazard) to 4 (extremely hazardous).





Fire Hazard – labeled in red

Health Hazard – labeled in blue

Reactivity Hazard – labeled in yellow

Specific Hazard – labeled in white (OX=oxidizer, W=use no water, CORR=corrosive, ALK=alkali)

Chemical Safety: Hazard Classes

<p>FLAMMABLE</p> <ul style="list-style-type: none"> • A material that may catch fire and burn in air • Any liquid having a flashpoint below 100 degrees F (37.8 degrees C). • Flammable vapors are usually heavier than air (vapor density > 1), so it is possible for the vapors to travel along floors and, if an ignition source is present, result in a flashback fire. • Store flammable liquids only in specially designed flammable storage cabinets and refrigerators/freezers or explosion-proof refrigerators/freezers away from ignition sources and oxidizers. 	
<p>OXIDIZER/REACTIVE</p> <ul style="list-style-type: none"> • An unstable material that may ignite, explode, or produce toxic gas under certain conditions • Examples include sodium, t-butyl lithium, aluminum nitrate, perchloric acid, nitric acid, and hydrogen peroxide. • Store away from flammable materials and place in a secondary containment when stored with incompatible materials. 	
<p>CORROSIVE</p> <ul style="list-style-type: none"> • A material that destroys metal and can cause destruction of tissue upon exposure • Has a pH of less than 2 or greater than 12.5 • Examples include strong acids such as hydrochloric acid and sulfuric acid, and strong bases such as potassium hydroxide and sodium hydroxide. 	
<p>POISON/TOXIC</p> <ul style="list-style-type: none"> • A material that is harmful or fatal if ingested or absorbed • Toxic chemicals have an LD50 of 50 - 500 mg/kg, single oral dose for rats. Highly toxic chemicals have an LD50 of < 50 mg/kg, single oral dose for rats. • Store in a secure, sealed container below shoulder level. Use only in designated areas. 	

Chemical Safety: Storage

- Do not store chemicals above eye level, especially corrosive liquids. Do not store chemicals in the fume hoods, on bench tops, or on the floor.
- As a general rule, separate chemicals by hazard class. Some chemicals belong to more than one.
- Flammable liquids must be stored in approved flammable cabinets and flammable-rated refrigerators.
- Acids and bases(caustics) should be stored in chemical resistant cabinets either separately or in secondary containment.
- Store oxidizers and toxics near a fume hood.

Minimizing Hazards: Exposure and Risk

Chemicals can enter the body four different ways:

- Absorption through the skin
- Inhalation
- Ingestion (eating and drinking)

- Injection (needles or sharp pieces of glass, plastic, or metal)

Whether or not an exposure will result in injury depends on:

- Exposure frequency
- Exposure duration
- Age, sex, and genetics

Assess the risk by considering these questions:

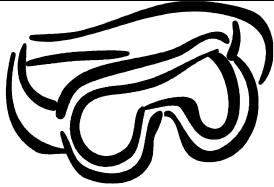
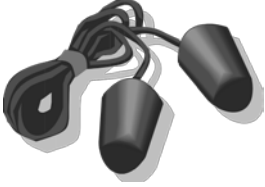

- What are the hazards?
- What is the worst thing that could happen?
- What can be done to prevent this from happening?
- What can be done to protect from these hazards?
- What should be done if something goes wrong?




Injury and exposure risk can be minimized using:

- Substitution of less hazardous materials
- Engineering controls (working under a snorkel)
- Administrative controls (training)
- Personal protective equipment (safety eyewear)

Minimizing Hazards: Personal Protective Equipment (PPE)

Everyone in the shop, including visitors, should wear long pants and sturdy, non-slip shoes that cover the entire foot. Persons working with hazardous chemicals or equipment must have on additional protective equipment.


<p>EYE PROTECTION</p> <ul style="list-style-type: none"> • Safety glasses protect eyes against flying debris • Splash goggles protect eyes against liquid splashes • Full face shields over splash goggles provide extra protection when working with corrosive chemicals 	
<p>HEARING PROTECTION</p> <ul style="list-style-type: none"> • Use when working with or near equipment that is loud or has loud alarms • If you have to raise your voice to be heard to people standing 3 feet away, you probably need hearing protection • Choose from disposable ear plugs, reusable ear plugs, or ear muffs depending on type of protection required and personal preference • EH&S offers a Hearing Conservation training 	
<p>GLOVES</p> <ul style="list-style-type: none"> • Wear when handling hazardous materials, sharp, or very hot or cold items • Do not wear gloves if there is a risk they may become caught in the machine 	

<p>SHOP APRONS</p> <ul style="list-style-type: none"> • Denim and leather aprons protect clothing against spills and dust • Impervious aprons provide extra protection against corrosive liquids 	
<p>RESPIRATOR</p> <ul style="list-style-type: none"> • Consult EH&S before use. Federal regulations prohibit the use of respirators by untrained personnel or students. If EH&S determines use is necessary, the individual must participate in the University's respirator program. This includes an annual medical evaluation, respirator fit test, and training. 	
<p>FUME OR VENTILATION HOOD, SNORKELS</p> <ul style="list-style-type: none"> • Protects against exposure to hazardous mists, fumes, or dusts • Work at least six inches inside sash or position snorkel no more than six inches away from work and avoid sudden movements • If fume hood alarms, contact EH&S at 813-974-4036 	

Emergency Response: Spills

Small spills may be cleaned up by the shop as long as personnel have proper supplies, knowledge, PPE, and are comfortable doing so.

- Consult the SDS of the spilled chemical & put on proper PPE prior to clean-up.
- Spread absorbent around spill site and over liquid's surface and wait 15 minutes.
- Collect wet absorbent & transfer to a plastic bucket or bag using dustpan & brush.
- Dispose of as hazardous waste.




<p>SPILL KIT</p> <ul style="list-style-type: none"> • Store in an accessible location • Absorbent material, goggles, gloves, broom, dustpan, bucket 	
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------

If one of the following conditions occurs, call EH&S:

- Spill is large
- Spill involves extremely hazardous chemicals
- Ventilation is inadequate
- No spill clean-up materials
- Personnel uncomfortable handling clean-up
- If a spilled chemical enters the drain, soil or water body

Emergency Response: Incidents

If there is an emergency, call 911 and be prepared to give detailed information about your location.

<p>EYEWASH</p> <ul style="list-style-type: none"> • If chemicals get into eyes, flush eyes for 15 minutes • Seek medical attention • Shop personnel must flush eyewash weekly and keep a record • Do not block with glassware or equipment 	
<p>SHOWER</p> <ul style="list-style-type: none"> • If chemicals get onto clothes/skin, rinse for 15 minutes, removing contaminated clothing • Seek medical attention • USF tests showers annually • Do not store items under shower 	
<p>FIRST AID KIT</p> <ul style="list-style-type: none"> • Know location • Check completeness and expiration dates • Administer first aid only for minor injuries 	

Emergency Response: Incident Reporting

Fill out an incident report form, available online at <http://www.usf.edu/administrative-services/environmental-health-safety/reporting/index.aspx>

Workers' Compensation (WC) covers faculty, staff, and official volunteers. Teaching and graduate assistants are included as employees.

If you are injured on the job:

- Notify your supervisor
- Supervisor will contact AmeriSys at 800-455-2079
- Proceed to approved medical facility
- Send injury report to WC office within 24 hours
- Forms are available on the Workers' Compensation website, <http://usfweb2.usf.edu/hr/>

Emergency Response: Fire

You are not expected to fight the fire. Follow these emergency procedures to assure your safety:

1. Yell out **FIRE FIRE FIRE!**
2. Alert other building occupants by activating the fire alarm using the manual pull station.
3. Attempt to extinguish fire, if it is small and you know how to use an extinguisher.
4. Close all doors behind you as you evacuate the building.
5. Call 911 as soon as possible outside the building.
6. Give as much information as possible to the emergency dispatcher.
7. Meet in the designated relocation area at least 150 feet from the building.

FIRE EXTINGUISHER

- USF Tests annually
- To use, remember **P.A.S.S.** (**P**ull the pin, **A**im at the base of the fire, **S**queeze the lever, and **S**weep back and forth)
- EH&S offers Fire Prevention Safety training

**Hazardous Waste**

In 1976, Congress passed the Resource Conservation and Recovery Act (RCRA). This law gave the Environmental Protection Agency (EPA) the authority to regulate all individuals who generate and accumulate hazardous wastes. All shops that generate and accumulate hazardous wastes are subject to unannounced inspections from the Florida Department of Environmental Protection and/or EPA and are thus subject to fines.

Universal Waste

These materials are subject to hazardous wastes regulations unless they are managed or recycled according to the universal waste regulations.

- Nickel Cadmium, Lithium Ion, Nickel Metal Hydride, Lead Acid, Mercury or Silver Hydride batteries must be segregated and collected in a container labeled with its contents.
- Fluorescent and High Intensity Device (HID) lamps (either used or broken) must be stored in a plastic lined box or metal container labeled with its contents.
- Mercury thermometers, thermostats, and barometers must be stored in a plastic lined box or metal container labeled with its contents.

Chemical Waste

- At USF, all chemical waste must be treated as hazardous waste and must be collected. Dumping of hazardous wastes, including rags, in the trash or down the drain is not permitted.
- Empty chemical containers can be disposed in the shop trash or reused to store hazardous wastes, EXCEPT for empty containers that stored acutely hazardous wastes (EPA P-listed). These have green warning labels. They cannot go in the trash and must be disposed of through EH&S.
- Before disposal, remove or deface the label with a marker and write "Empty" on the bottle. The lids on empty flammable containers should be removed before disposal.
- Lead solder remnants must be collected and disposed of as hazardous waste.
- Only completely empty spray cans with intact nozzles can be put into regular trash. If the nozzle is missing or the container is not empty, it is hazardous waste.

Metal Waste

- Some metal shavings may be considered hazardous waste due to the presence of heavy metals and must be disposed of appropriately. Check with your supervisor or EH&S before disposing.
- Polishing wheels may also need to be disposed of as hazardous waste due to the presence of heavy metals
- Scrap metal should be recycled if possible or appropriately disposed of

Figure 1: Chemical Waste Handling**Collect Waste**

- Containers for solid or liquid waste, tags, and labels are available through USF's Hazardous Inventory Tracking System (HITS)
- Must be labeled "Hazardous Waste" and include the date, the percent content of each chemical, and a description of its hazard class (for example: toxic)
- Attach a yellow waste tag when waste is first added

Store Waste

- Keep in a Satellite Accumulation Area (SAA)
- Do not use food or drink containers to store waste
- Floor storage must have secondary containment
- Containers must be kept closed, funnels removed

Waste Pick-up

- Log on to HITS at [to request pick-up](#)
- Use the Lab Cleanout form to request pick-up of more than 20 items
- Contact Facilities Management to pick up universal waste lamps and batteries

References

Department Of Labor, Occupational Safety and Health Administration Industry Standards, 29 CFR Part 1910
http://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1910

Emory University Student Machine Shop Safety Guidelines <http://ehso.emory.edu/content-guidelines/StudentMachineShopSafety.pdf>

Ethics Point collects anonymous reporting of activities that may involve misconduct, unsafe conditions, or other violations of USF System policies <https://secure.ethicspoint.com/domain/media/en/gui/14773/index.html>

NIOSH (2005). *Contact Lens Use in a Chemical Environment*. Cincinnati, OH: Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, DHHS (NIOSH) Publication No. 2005–139. <http://www.cdc.gov/niosh/docs/2005-139/pdfs/2005-139.pdf>

Prudent Practices in the Laboratory: Handling and Management of Chemical Hazards, Updated Version 2011. Full text available online at http://www.nap.edu/catalog.php?record_id=12654

RCRA Online is a database of documents covering the management of non-hazardous, hazardous, and medical waste <http://www.epa.gov/rcraonline>

University of North Florida Shop Safety Manual
http://www.unf.edu/uploadedFiles/anf/ehs/Policies/OccupationalSafety_shop_safety.pdf

USF Chemical Hygiene Plan is a broad outline of chemical safety procedures and is required to be read by all Principal Investigators, students, workers, and volunteers <http://www.usf.edu/administrative-services/environmental-health-safety/programs-services/laboratory-safety/lab-reviews.aspx>

USF Hazardous Waste Management Plan outlines the regulations and procedures governing the accumulation and management of hazardous waste <http://www.usf.edu/administrative-services/environmental-health-safety/programs-services/hazardous-waste/index.aspx>

University of Texas Machine Shop Safety Training
http://www.utexas.edu/safety/ehs/training/oh503/machine_shop_safety_training_handout.pdf

Information System for Emergency Responders (WISER) provides information on hazardous substances and is available as a standalone application on computers and mobile devices <https://wiser.nlm.nih.gov/>

Appendix 1: Template Standard Operating Procedure for Machines and Tools

Name of Tool/Machine:		Location:	Prepared By:	Date:
Steps for Use	Potential Hazards	Equipment Needed	Steps to Minimize Hazards	
	<input type="checkbox"/> eye damage	<u>PPE</u>		
	<input type="checkbox"/> hearing loss	<input type="checkbox"/> safety glasses		
	<input type="checkbox"/> respiratory damage	<input type="checkbox"/> safety goggles		
	<input type="checkbox"/> loose or baggy clothing/jewelry can get caught up	<input type="checkbox"/> hearing protection		
	<input type="checkbox"/> loose/long hair could become entangled	<input type="checkbox"/> respirator		
	<input type="checkbox"/> cuts from flying chips/slivers	<input type="checkbox"/> face shield		
	<input type="checkbox"/> cuts from sharp tools	<input type="checkbox"/> shop apron		
	<input type="checkbox"/> crushed fingers/hands from moving machine	<input type="checkbox"/> gloves		
	<input type="checkbox"/> burns	<input type="checkbox"/> welding mask		
	<input type="checkbox"/> chemical hazards	<u>Other</u>		
	<input type="checkbox"/> working alone			

Appendix 2: Machine Shop Tool Risk Assessment

Hazard Class	1	2	3	4	5
Power	Low power hand/small bench tools (2-4 amp @ 120 VAC, <9V cordless)	Medium power tools (1/4 to 1/2 hp; <10 amp @120 VAC; 14-18V cordless; specialized enclosed NC-computer tools)	Powerful portable and small benchtop tools (>1/2 hp; 10-15 amps @ 120 VAC; 24-36V portable, pneumatics, hydraulics)	Light industrial tools (typically benchtop; <1/2 hp, pneumatics, hydraulics)	Large industrial tools (manual and NC-controlled)
Common Examples	<ul style="list-style-type: none"> • Dremel tool • Cordless drill under 18V • Palm Sander • Soldering iron/gun • Heat gun • Hot melt glue gun • Sewing machine • 3D printer 	<ul style="list-style-type: none"> • Jig Saw • 3/8" hand drill • Corded devices < 1/3 hp • 18-24V cordless drill • Laser cutter/engraver • Thermal foam cutter 	<ul style="list-style-type: none"> • Circular saw • Belt sander • Framing nailer • 1/2 hp geared drill • Reciprocating saw • >18V cordless tool • Chop/miter saw • Router • Mini-lathe • Angle grinder • Printing press 	<ul style="list-style-type: none"> • Small bandsaw • Small drill press • Small/benchtop milling machine • Small/benchtop lathe • Belt/disc sander • Horizontal saw • Scroll saw • Planer/jointer • Bench grinder • SawStop style tablesaw 	<ul style="list-style-type: none"> • Full sized milling machine • Full sized metal lathe • Table saw (non-SawStop) • Radial arm saw • Large drill press • Large band saw • Surface grinder • Large jointer/planer • Shaper/moulder • Power shear
Potential Injuries	Cuts Abrasions Minor burns Minor struck-by flying objects Electric shock	<i>As for Class 1, plus:</i> Lacerations Punctures Minor crushing injuries Eye injuries	<i>As for Class 2, plus:</i> Severe bleeding Minor amputations	<i>As for Class 3, plus:</i> Minor entanglement	<i>As for Class 4, plus:</i> Immediately life threatening injury or death
Potential Severity	Low: First Aid	Low: First Aid or minor injury requiring emergency room visit	Medium: Immediate emergency room visit Permanent disability or disfigurement	High: Immediate emergency room visit Permanent disability or disfigurement	Highest: Serious injury or death

Appendix 3: Studio and Shop Safety Checklist



**University of South Florida
Environmental Health & Safety
Shop Inspection Form**



Building/Room No.: _____
Purpose: Routine Follow-up
College: _____

Faculty: _____
Hazards: Chemical Physical
Department: _____

1	Documentation	Yes	No	N/A	Comments
1.1	Emergency information posted and current				
1.2	Updated chemical inventory available				
1.3	Copy of Chemical Hygiene Plan (CHP) available				
1.4	SDS access to all personnel in lab				
1.5	All accidents and spills reported to supervisor and EH&S				
1.6	Document status of training records of faculty, supervisors, and GRA's in pre-inspection				
1.7	List past deficiencies in pre-inspection				
1.8	Identify chemicals in inventories that may raise concerns (e.g. nitric acid, mercury, ethyl ether)				
2	Training				
2.1	Personnel have read and signed CHP				
2.2	All training documentation available				
2.3	Personnel have received safety training on procedures involving exposure hazards				
2.4	Lockout/Tag Out program in place where required				
2.5	Lab-specific SOPs have been read and signed by applicable lab personnel				
2.6	Chemical-specific SOPs are developed for extremely hazardous chemicals				
2.7	Process-specific SOPs include safety procedures for the handling of hazardous materials				
2.8	Equipment specific SOPs are developed for the safe use of machinery				
3	Chemical Storage				
3.1	Chemical containers labeled to identify contents				
3.2	Flammables stored in flammable cabinets and flammable refrigerators				
3.3	Quantity of flammable liquids does not exceed storage limits for daily use				
3.4	Chemicals are segregated by hazard class (acids,bases,etc.)				
3.5	Chemicals not stored on floor, fume hoods, bench tops				
4	Housekeeping				
4.1	Emergency exits unobstructed/36" of clear access width to reach all exits				
4.2	Work areas free of clutter				
4.3	Broken glassware disposed in container labeled "Broken Glass Trash"				
4.4	Razor blades, scalpels and other sharps are not left unattended when not in use				

4.5	Razor blades not contaminated with biomedical material must be disposed of appropriately				
4.6	Personal protective equipment (PPE) available to all personnel				
4.7	All users wear appropriate street clothing and PPE (including suggestions such as confining long hair/ beards and no jewelry)				
4.8	Food, drinks, and applying cosmetics prohibited in studios and shops				
4.9	Sawdust should be cleaned up daily to prevent accumulation				
5	Cylinders				
5.1	Properly labeled, segregated & stored upright				
5.2	Attached to a permanent fixture				
5.3	Empty cylinders are marked, and not be stored in shop				
5.4	Regulators are not obstructed				
5.5	Capped when not in use				
5.6	Only one spare cylinder allowed per operation in the shop				
6	Safety and Emergency				
6.1	Fume hoods, snorkels and ventilation hoods have current inspection/certification				
6.2	Sashes kept closed when not in use				
6.3	Air flow monitor operates appropriately				
6.4	Emergency eyewash/safety shower accessible				
6.5	Eyewashes are flushed weekly				
6.6	Location of first aid & spill kits, fire extinguishers posted (check for expired items in emergency kits, check fire ext. log card for inspection date)				
6.7	Spray painting operations inside approved spray paint booths/filter protocol				
7	Hazardous Waste				
7.1	Containers labeled "Hazardous Waste", include contents, and hazard				
7.2	Hazardous Waste stored in a designated Satellite Accumulation Area (SAA)				
7.3	Hazardous wastes are being stored in compatible containers				
7.4	Hazardous wastes are segregated by hazard class within the SAA				
7.5	Hazardous waste labels and tags are used to identify wastes				
7.6	All hazardous waste containers are closed				
7.7	All lead solder and scrap metal are collected for recycling or disposal as hazardous waste				
7.8	Oily/Solvent soaked rags are managed as hazardous waste in appropriate metal flame proof container with lid				
7.9	Contaminated rags disposed of as hazardous waste				
7.10	Used mercury containing lamps are being managed appropriately				
7.11	Spent lead-acid and recyclable batteries are being recycled				
7.12	All chemical spills have been appropriately decontaminated and surfaces cleaned regularly				
8	Fire Safety				
8.1	Exit signs illuminated & emergency lights operational				
8.2	No permanent use of extension cords				

8.3	All fire safety equipment are accessible with a 36" access in front				
8.4	Electrical cords in good condition				
8.5	All storage kept at least 18" below fire sprinklers				
8.6	All storage must be kept below 24" from ceilings in non sprinklered buildings				
8.7	Appropriate fire extinguisher charged/mounted within 75' of all work stations				
8.9	Flammable dispensing containers bonded to prevent static electricity				
9	Machine Operations				
9.1	Machinery and tools periodically inspected and maintenance/repairs provided as needed				
9.2	All tools returned to appropriate locations at end of the day				
9.3	Machinery has adequate clearance for safe operation				
9.4	Circuits grounded/ground pins on plugs				
9.5	Electrical cords inspected (not frayed, damaged, etc.)				
9.6	Electrical cords across walkways protected				
9.7	Kilns are inspected and managed appropriately				
9.8	Barrier guards on moving machine parts				
9.9	Rotating shafts guarded				
9.10	Anti-restart on wood working machines				
9.11	Fixed machinery anchored to prevent movement				
9.12	Safety zones around shop equipment				
9.13	On/Off switch accessible without reaching across Point of Operations				
Additional Safety Concerns:					

Laboratory Safety Training

Hazardous Waste Refresher

Biomedical Waste Refresher

Hazardous Communication

Personal Protective Equipment

Slips, Trips, and Falls

Hearing Conservation

Golf Cart Training

Asbestos Awareness Training

Fire Prevention Safety Training



Environmental Health and Safety

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