

SAFETY SESSION 2: GENERAL SAFETY PRACTICES.

GENERAL SHOP RULES . THESE APPLY TO ALL WORK AREAS:

- No individual music headphones at work. We have a shop radio, a backstage radio, a costume shop radio, and two theater sound systems. Use these, but not at volumes louder than the tool noise; and in the shop, not before 3:00 p.m. There are other classes in Beegle.
- Don't wear loose or baggy clothing to Practicum. Big shirts, cuffs, ties, untied shoes, and other floppy clothing can get caught in moving parts.
- If you have long hair, you must tie it back or up to prevent it from getting caught in moving parts.
- Loose jewelry should be removed; including rings, bracelets, dangling earrings and long necklaces.
- No horseplay; there is a potential for serious injury when roughhousing in an industrial-type shop.
- IF ANY ACCIDENT OCCURS, find and tell the supervisor immediately--either the Production Manager, Don Yanik, or Technical Director, Steve Beatty; and, if there are injuries or fire involved, call Security at x2911. DO NOT CALL 911; city emergency services will not be able to find us.

Personal Protective Equipment (PPE) is equipment designed to reduce your exposure to hazards. The equipment will only protect you if you use it every time, and in the way it is designed to be used. The supervisor will introduce you to this equipment during this class: when you are required to use it, see the supervisor for proper fitting, specific uses, or any other questions.

- EYE PROTECTION.
 - ➔ Glasses. Correctional eyewear (glasses) provide a minimal amount of protection. Those who wear glasses must either purchase side shields to add on when in the shop or use safety goggles and/or a face shield when performing any job where there may be flying chips or splashing liquids.
 - ➔ Goggles. If you don't wear glasses, you must wear safety goggles in the shop and every time you work on a job that may create chips, dusts, flying debris, mists, or anything that could fly into your eye. This means that you must use in class every day a pair of goggles that meet the ANS Z87.1-1989 requirements for impact-resistance. The shop provides several types of approved goggles. If you want your own pair, which we recommend, they cost less about \$10.00 at the bookstore, and considerably less at Eagle, Home Depot, etc.
 - ➔ Face Shields. Full-face shields will protect your face when grinding metal, routing wood, etc., but you must also have eye protection. They are required for any process that produces metal shavings or hot sparks--such as wire brushing metal, grinding, or using the abrasive cutoff saw.
 - ➔ Splash Protection. Even if you're only pouring a small amount of paint, oil, etc., do you want it in your eyes? Spray mists (WD40, paint) and drops of

dangerous liquids can be as harmful as dusts. Goggles with side shields will protect your eyes.

- ➔ Eyewash. If you do get something in your eye, get the eye drops from the First Aid Kit, or for a more serious incidence, use the eyewash in the Paint Area/Drafting Room.
 - ➔ In any incidence where any foreign matter (paint, glue, etc.) gets into your eye, you should flush your eyes for 15 (fifteen) minutes. As soon as possible, tell the supervisor (Technical Director or Production Manager), and get medical attention by calling Security at x2911.
- **EAR PROTECTION.** In Production Practicum, we use tools that produce noise at a volume and frequency that can damage your hearing. It's a gradual, but preventable loss.
 - ➔ Ear Muffs. We stock many pairs of earmuffs. They will all protect your hearing. Use them when you are working with noisy tools--and also when others in the shop are.
 - ➔ Ear Plugs. These are not provided. These are lighter and often more comfortable than muffs, but are disposable (reused unwashed, they may cause ear infections). They are cheap and available at any hardware store.
 - It is easy to wear foam plugs incorrectly, rendering them valueless. If you purchase these, the supervisor can show you how to use them correctly.
 - **RESPIRATORY PROTECTION.** There are different types of dangers to your lungs, and different ways to protect your lungs. There are many issues that limit the use of respirators as protective devices. If you have asthma or pulmonary disease, for example, you cannot wear them; and men, if you have a beard, these masks may not protect you adequately. Tell the supervisor if you have a medical condition, and get reassigned.
 - ➔ Whenever working with power tools in the shop, be sure to turn on the exhaust fan and forced-air filters in the shop.
 - ➔ Nuisance dusts. These include light amount of dusts in the air, and if you are sensitive to them, wear a mask with a blue strap ("Nuisance dusts mask"). The supervisor will show you how to fit the mask properly.
 - ➔ Heavy dusts. If the dust or light mist level at your station is significant, wear a mask with two yellow straps ("NIOSH/MSHA Approved Dust and Mist Mask"). The supervisor will show you how to fit it properly.
 - ➔ Chemical Fumes, Solvents, Organic Vapors. Some products produce vapors or fumes that require special respiratory protection. Examples include spray glue, spray paint, paint thinner, etc. If possible when using these products, perform the task outside or with a fan blowing the fumes outside. If air circulation is not possible or adequate to carry the fumes away, you must wear a half-mask respirator, fitted to your face, with the proper cartridges and filters installed. If you have any doubts about the safety of any product you intend to use, check with your supervisor and read the Material Safety Data Sheet (MSDS) applicable to the product. An "organic vapor" is a common type of chemical composition you should avoid breathing.

- ➔ Welding particulates and fumes. If you are welding, you will receive training to correctly protect yourself from welding fumes and vapors. If you are not welding, do not linger in a room where there is welding occurring; see below, “Welding Safety.”

The mask must be fitted to your face before it will work effectively. The supervisor will fit you with a shop mask before you begin. Fitting includes selecting the proper size of mask, adjusting the straps so they are snug and comfortable, and most importantly, ensuring that there are no leaks with a fit-test, in which the Technical Director will instruct you.

- ➔ Make sure the mask you wear fits snugly each time you use it; if you can smell any of the product in use, you are not being protected and you should get to fresh air until the mask can be fitted properly.
 - ➔ When working with a respirator, take frequent breaks: Get away from the source of fumes or vapors, and remove the mask.
 - ➔ If you feel dizzy or lightheaded at any time during the work session, get to fresh air immediately and remove the mask.
 - ➔ When you are finished using the mask, you must clean it in a basin of water with the disinfectant provided; rinse it thoroughly; dry it; and store it in a sterile bag as provided; and mark your name and the date on the bag.
 - ➔ Store the cartridges in an airtight container, marked with your name and the amount of time you used the cartridge. Activated charcoal-based cartridges have a service life of about six hours of exposure to the air. If they are not stored in an airtight container, their service life will run out. Once they are no longer actively absorbing vapors, they may concentrate them; that is, once they are full, they will do you more harm than good. Thus it is essential that you track the amount of time they are used.
- **HEAD PROTECTION.** There are many situations where there is a “head bump” danger. They include working under a person who is focusing lights, holding a ladder for someone working, the piano storage closet, etc. Use your common sense to know when something may fall on you from above, and make a point of staying away from those “fall zones.”
 - ➔ **Safety Caps.** Wear a bump cap to protect your head from injuries resulting from bumping into things. There are hard hats that will protect your head from injuries resulting from things falling from above as well as bump injuries; use these when there is a falling-stuff hazard onstage.
 - The best protection will include working carefully when overhead, being alert when working below, avoiding areas where things could fall, alerting others of any possible danger, and wearing appropriate safety caps when necessary.
 - **HAND PROTECTION.** There are many possible dangers to your hands and fingers; the likelihood of getting splinters and small cuts is high when working with wood, plastics, wires, metal, etc. Nearly all of the materials we use in Practicum are harder than your skin, and the proper gloves will protect you from them.

- Paints/Glues. Latex paints wash off skin fairly easily and don't require gloves unless you are allergic to them. When using other types of paints (such as oil-based), glues, dyes, etc., you can protect your hands with reusable black vinyl gloves, or with disposable latex gloves.
 - Used materials handling. It is highly recommended that you use leather gloves to carry any used materials (materials with screws, nails, staples, broken ends, etc.) Use gloves when handling those materials, emptying the trash, during strike, or any time that you perceive a risk of cuts, bruises, etc., to your hands.
 - Trash handling. Garbage cans in the shops will often contain a mix of objects, including nails and screws, sharp metal, broken glass, wire, and other items which could easily injure your hand. For this reason, whenever possible, avoid reaching into trashcans.
 - Also, avoid compacting waste in trashcans with your hands or feet. Use something big, like a 2x4, to mush it down.
 - Tool handling. Wear canvas or leather gloves when working with portable power tools (circular saw, router, sander, etc.) to reduce injuries from flying wood and accidental contact with anything which could bruise, cut, or scrape.
 - Steel and metalworking. Any time you perform any operation on metal that produces sparks, shavings or metal dusts such as using the abrasive cut-off saw, angle grinder with grinder wheel, sawzall on metal, or bench grinder, you must wear leather gloves to protect your hands.
- FOOT PROTECTION. Your feet suffer the risk of stubbed toes, crushing injury, etc. Your best protection is wearing leather shoes or boots; but at minimum, you must wear closed-toed shoes to class every day, or you will be sent home to get them, and thus be late to class... No sandals, Birkenstocks, Texas, etc., No exceptions.
 - APRONS AND PAINT SMOCKS. Aprons protect your body and clothes from paint, glue, etc. They do not offer any protection against flying debris such as wood chips, metal slivers, etc.
 - Long pants such as denim jeans are recommended for all shops, and required for operations involving power tools.
 - Welding leathers. This is a special type of body protection, which will be covered in welding instruction.
 - KNEE PROTECTION.
 - Knee pads are provided to protect knees from the metal grating on the catwalks of the lighting grid; for extensive work requiring kneeling on the floor, such as painting; and for any person whose knees get sore easily.
 - If you have knee problems, see the supervisor and get reassigned.

Welding. Specific safety procedures for welding will be part and parcel of welding training. However, follow these guidelines to protect yourself while others are welding in the shop.

- Don't look at the light. The arc from the welder is comparable in brightness and radiation characteristics to the light from the sun. Even looking at it for a short second can temporarily burn the inside of your eyes and extended viewing of the arc can cause

partial or total blindness. If you want to watch, use one of the welding helmets, with a suitable filter, which is provided.

- Don't move the welding shield while welding is being performed. The yellow plastic wall is placed there for your protection from the light and sparks of the welding arc.
- Don't expose bare skin close to the arc. It can quickly cause a painful sunburn.
- Don't help handle or move recently welded pieces without welding gloves, long pants and leather shoes on. The heat quickly spreads to large areas of the work; and the welded areas remain hot for several minutes. Handling hot metal can cause painful burns; and debris from the welding process can fall around you and burn your clothes and skin.

Back Protection and Proper Lifting Techniques. Back injuries are a common type of injury, caused by improper lifting; all are preventable. To lift correctly, follow these guidelines and use cautious judgment.

- Break large loads down into small loads, if practical.
- Clear a pathway for carrying, and a finish point for setting down the object.
- Don't lift more than you are capable of. Judge the weight of the object, and ask for assistance if necessary. When in doubt, don't lift alone.
- Bend your knees. This is very important: your legs must do most of the work. If you bend at the waist, all of the weight of the object is on your lower back.
- Keep your back straight through the whole lift.
- Do not twist your back when lifting. This can damage your spine. Keep your body straight when supporting a load.
- Remember to put down the load as carefully as you picked it up.
- To lift properly, place your feet as close to the object as is practical; get a good grip, keep your back straight, and lift smoothly and without twisting.

Fall Protection. There are situations in the theater where you may be working above floor level. Obviously, one of the greatest dangers is falling. Infrequently, you may be working at or above 10 feet, and you must follow the applicable guidelines in the following four sections: Ladders, Lighting Grid, Genie, Other Fall Hazards. They are good guidelines for any work above grade-level.

- **LADDERS.** Ladders are the most common way of working at heights, when working on or around them, move carefully, and use good judgment.
 - ➔ Ladders must be in good working condition; aluminum and wood ladders must not have bent or cracked or wobbly struts or steps, nor loose hinges. If the ladder is not in good condition, don't use it.
 - ➔ Don't sit or stand on the top two steps.
 - ➔ Make sure A-frame (step) ladders are opened completely and are on level ground.
 - ➔ Never use a stepladder as a straight ladder.
 - ➔ Never use a straight ladder horizontally as a platform, runway, or scaffold. Ladders are not designed to support a side load.
 - ➔ Before ascending, make sure extension ladders are locked securely. The section of an extension ladder must overlap a minimum of three feet to prevent buckling.

- ➔ Make sure straight ladders are at an angle neither too steep nor too low; they should be placed at such an angle that the distance from its base to the vertical support is about 1/4 the supported length of the ladder. (Check the little picture printed on the rail of the ladder.)
 - ➔ A straight ladder that is used to reach another level must extend at least three feet above that level.
 - ➔ You should not be carrying anything in your hands when climbing a ladder, if you need to bring something up with you, wear a tool belt or haul it up some other way.
 - ➔ Do not lean out away from the ladder; move the ladder instead.
 - ➔ Only one person on the ladder at a time!
 - ➔ When working above 10 feet, or in any nonstandard situation, you should have another person hold the ladder.
 - ➔ When working above 10 feet for any length of time, you must secure the top of the ladder, by tying off a high rung to the closest structurally sound position. Use at least 1/2" thick manila rope in good condition, or 1/4" chain or cable with a shackle.
- LIGHTING GRID. The Lighting Grid catwalks are an area of unique hazards, requiring certain fall protection practices. Coupled with safe handling practices for lighting instruments, follow these guidelines.
 - ➔ Do not lean out over the hand railing.
 - ➔ Do not leave the grid floor (i.e. climb onto the railing).
 - ➔ Do not move from ladder or Genie to catwalk, or vice versa (use permanently mounted tower ladders).
 - ➔ Walk carefully. Cabling is often laid out on the catwalks and tied off to the lower handrails, and pipes have been bolted in place around the catwalks, which may trip you. You must watch and step carefully.
 - ➔ If installing pipes, speakers, etc. which may cross pathways, you must mark them as hazards and pad them with foam.
 - ➔ Always use safety cables on hung equipment. Attaching the safety is the first step in hanging an instrument, and the last move when striking (removing) an instrument.
 - ➔ Never hang equipment with persons below you.
 - ➔ Never, ever, leave equipment hung without positive attachment to the grid. This includes tightening C-clamps on instruments (unless stored and reversed on the handrail), stowing loose hardware, tightening Rota-Locks and Cheeseboroughs, etc.
 - ➔ If the lights are out, such as during tech, please don't stumble around in the dark. Use a flashlight.
 - GENIE MANLIFT. This is a special tool, and must be used with caution. It is designed for lifting one person only, with minimal equipment, for a maximum weight of 300 lb.
 - ➔ You must install all four outriggers and tighten them before raising Genie.
 - ➔ Do not overload Genie.

- ➔ Do not lean out of the bucket, especially near maximum height; lower and move Genie instead.
 - ➔ Have one person on the ground monitoring, to keep others away and assist the person in the bucket.
 - ➔ Wear the body belt (yellow safety harness), and clip off with the safety lanyard only, every time you go up in Genie. It only takes a moment to put on and remove.
 - ➔ Do not move Genie with bucket raised.
 - ➔ If hanging lights, you should have only one instrument in the bucket with you at a time.
 - ➔ Four persons are required to move the Genie Manlift to different levels.
- OTHER FALL HAZARDS.
 - ➔ Storage closet above piano storage. When working in the storage room, clip safety rope across the open door(s).
 - ➔ Trap door access to the lighting grid, west and east towers. Keep traps closed at all times when not working on the catwalks.

Flammables Policy/Handling. When using flammable products, you must follow these guidelines.

- The flammables cabinet is in the drafting classroom. It must remain closed and latched at all times, except when actually removing or replacing an item.
- Flammable products are not to be left out in the shop, and not at any time in the metalworking area. Return them to the cabinet immediately after use.
- When using any flammable products, make sure there are no open flames or sparks produced nearby; this includes adjacent rooms. For many heavier-than-air products such as contact cement, fumes can gather and travel along the floor to other rooms, and then ignite.
- Know the locations of fire extinguishers and alarm pulls in the workspace.
 - ➔ The fire extinguisher in the welding garage is specifically for electrical and chemical fires, as well as wood and other common combustibles.
 - ➔ All other extinguishers are limited to wood and paper fires.
- Know the evacuation plan for the building, in case of fire.
- Avoid using solvents. If you must use a solvent for any reason, it is essential that you soak the solvent rag, towels, etc. in water, and place them in the red safety can marked for that purpose in the garage. This can will be emptied daily to avoid spontaneous combustion fires.

Broken/Worn-Out Tools.

- Tools break, through normal wear and tear, and through misuse, including overuse. Use tools properly, for the job for which they were designed, and do not overextend them. See individual tool guidelines.
- If a tool appears broken or in disrepair, tell the supervisor, and don't use it.
- If a power tool fails while using it, turn it off immediately. Learn how to safely and quickly disable each tool; see individual tools. Then, unplug it, and follow Lock Out/Tag Out policy.

Lock-Out/Tag-Out Policy. If an electrical or pneumatic tool malfunctions or for any reason and must be repaired, use the Lock-Out and Tag-Out equipment provided in the kit.

- Before beginning any maintenance of an electrical tool or lighting equipment, lock-out and label the male plug.
- If any shop valves, including water or air, need to be locked-out, tell the supervisor.
- Any repair work on any equipment not specifically theatrical, i.e. circuit breakers, ventilation equipment, water and gas lines, should not be serviced by any theater personnel under any circumstances. If there is a hazard, tell the supervisor and call Security or Plant Services as appropriate.

Electrical Safety/Grounding Policy. This applies to all electrical appliances: including tools, sound and light equipment.

- All tools used in the shop are either marked as double insulated, or have a three-prong grounded plug. Do not under any circumstances disable (cut off) the grounding lug on a tool or on any electric extension cable.
- All lighting cables and fixtures and sound amplifiers and equipment have functioning, securely connected grounding wires. Do not operate any fixture suspected of having a short or defective ground.
- All extension cables and temporary wiring must be compliant with local theatrical standards and electrical code. Any defective electrical equipment including wiring must be repaired or replaced immediately. If you see any dangerous equipment or have any questions about wiring, tell the supervisor.
- When using multiple tools on an extension cord, use a power strip with a circuit breaker so as not to overload (and overheat) the extension cable. The shops stock them. Be sure the extension cord is rated to carry the same or larger current as the power strip (12 gauge is larger than 14).

Housekeeping. Maintaining a clean, obstacle-free workspace is essential for safe and efficient shop operation. This applies to all work areas.

- At the end of the day, cleanup of trash, debris, scrap fabric, dust, etc., and general straightening of the work area (to keep paths clear of trip dangers) is expected. All work in progress should be tidied up, and tied off if there is a fall danger; rack unused materials, and put tools away in the tool crib.
- During the work period, if the work area becomes cluttered, if debris presents a hazard to any person, or could block the operation of a tool, stop and clean it up.
- Empty the trash in your work area regularly, daily if necessary. If you see the trash is full, empty it.
- Each Friday, the shops will stop one half-hour early to do a thorough cleanup.
- Do not block the emergency exit routes--leave a clear path to exit doors when organizing and arranging stuff.

Confined Spaces. OSHA defines a confined space as an area which:

1. is of a size to permit a person to get in and out;
2. has limited means of getting in and out;
3. is not designed for ongoing occupancy.

- We do not have any confined spaces in our theater work areas. Evaluate work areas according to these guidelines, and if you feel a work area constitutes a confined space, tell the supervisor.

Hazardous Materials in the Workplace (“HazMat”). In the theater department, we use many common substances that can be considered hazardous, and must be treated with care and respect. For purposes of hazardous materials training, all chemical substances we use in the department, from white glue to paint thinner, will be considered a hazardous material requiring a specific use practice sufficient to protect the handler from short and long-term physical and health hazards.

- You have the right to know of any hazardous materials present in theater shops. There is a listing of all chemical and possibly hazardous substances in the front of the Material Safety Data Sheet (MSDS) listing book found at the sign-in desk of the wood shop. Individual copies are available from the supervisor.
- Ways that hazardous materials can injure you include:
 1. Skin contact. Contact with especially irritating substances and chemicals which are absorbed into the skin, such as dyes and construction adhesives, must always be avoided. If you have allergies, some otherwise innocuous substances may irritate your skin.
 2. Ingestion. You may contact certain hazardous materials to your mouth by splashing, or by touching with your hand, or other methods; some materials may be toxic. It is important to wash your hands well before eating.
 3. Inhalation. This is the most common and dangerous method of contact with hazardous materials. Smell is the most obvious warning sign of contact; however, many volatile, airborne, toxic compounds are odorless.
 4. Injection. Not by needle, but by cuts: chemicals can enter your body through a nick or splinter in your skin, on the end of a screw, etc.
- See the product MSDS for individual compound hazard information and recommended Personal Protective Equipment (PPE), and see the supervisor for any special handling procedures.

Material Safety Data Sheets (MSDS). These are an essential part of effective hazardous materials use and handling.

- Know where the master list of MSDS sheets is: At the safety center in the Drafting Studio.
- The supervisor will show the class how to read a MSDS sheet, by going over the sample (enclosed). Also, after the demonstration, ask for assistance if there is any part you don’t understand.

Hazard Reporting. Report any safety incident or issue, no matter how small. An important way of improving safety in the laboratories is through student safety suggestions. Students will not be penalized in any way, including grading and employment eligibility, for reporting hazards, or having or reporting accidents.

- Accidents.

- In the case of a severe accident involving student injury, call Campus Security, x2911. DO NOT CALL 911, as they will not know where on campus to respond.
- It is important that students and student employees report any accident, no matter how small, to the supervisor. Depending on the nature and severity of the accident, an incident report may be written, and preventative measures implemented or additional training provided.
- Near Misses.
 - Whether or not there was an injury, it is essential to alert the supervisor. In this way, the hazardous situation can be anticipated and avoided.
- Potential Hazards.
 - If you see or anticipate a potential hazard, or recognize a situation that can be handled more safely, either through changes in procedure, or addition of safety equipment, report it to the supervisor.

Medical Disclosure. In Practicum of Theater, your ability to perform certain tasks may be limited by medical conditions, such as physical disabilities and prescribed medications. It is important that you inform the supervisor of any limiting medical condition.

General Safety in the Shops. Safety in the theater laboratories prevents personal injuries, saves time and money, and contributes to learning smart work practices. Practice and promote safety at all times, and in every part of every job. Some guidelines include:

- Know your limits. Everyone has practical limits to what they can accomplish.
- Know what you're doing. If you don't know the right way to do something, ask. If you don't know what the hazards of a material might be, ask, or look up the MSDS. "The only dumb question is the one unasked." You're here to learn.
- Don't come to class over tired. This means get enough rest, not skip class. When over tired, you're more likely to miss dangers, work carelessly, and cause accidents.
- When working as a pair or on a team, work together. People together often can accomplish more than people working separately. When working with someone, know the plan; watch what they're doing, and make sure they know what you are doing.
- Before moving equipment, scenery, lighting pipes, etc., make sure everyone affected knows of the move. This may mean blocking a door, yelling a warning, or any other way of alerting others.
- Don't rush. Always take the time to follow safety procedures, and the time to think through a job or process. If you rush, you're more likely to have an accident, or to have to do the task twice.
- Don't attempt more than you're realistically capable of. This means asking for help lifting, holding things in place, and other physical assistance; and asking for advice or instruction when unsure of the proper or best way to accomplish a job. Skill level growth and personal growth happen with controlled practice, not by overextension of abilities.