



## COLLEGE of CENTRAL FLORIDA

### ADMINISTRATIVE PROCEDURE

**Title: Theater & Set Design Safety Program**

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**Implementing Procedure for Policy 8.05**

**Date Approved/Revised:**  
11/26/03, 5/03/10

**Division: Academic Affairs**

#### **1.1 PURPOSE:**

The purpose of this procedure is to establish guidelines and provide information for the establishment of a safe working environment for students in vocational and technical training classes. Consult the CF Safety Management Manual for further information.

#### **1.2 PROCEDURE:**

##### **Safety Training**

Safety Training should be conducted at the beginning of each semester or prior to the individual using a specific piece of equipment. The training should be documented on the enclosed Training Record (Attachment 1). These records should be maintained for a period of 3 years and are subject to inspection and audit by the CF Public Safety Department or State of Florida Department of Education or other agencies.

It is reasonable and prudent for an instructor to provide all students with adequate safety training. This could include, but it not limited to:

- Safety demonstrations – attentively watched by all
- Safety videos
- The proper and adequate wearing of personal protective equipment (PPE) appropriate to the industry or program area.
- Safety quizzes and tests, etc.
- Students demonstrate proficiency in facility, tool, and equipment safety to the instructor, who uses his or her professional assessment in allowing the student to utilize shop facilities.

## **GENERAL SAFETY PRACTICES**

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### **BODY MECHANICS**

1. Use proper muscle groups and distribute any weight.
2. Both hands should be used to pick up heavier objects.
3. Lifting heavy objects alone should be avoided. Help is requested.
4. Pushing should be preferred to pulling.
5. Leg muscles should be used to lift heavy objects rather than back muscles.
6. Bending and unnecessary twisting of the body for any length of time should be avoided.
7. Work should be done at the proper level.
8. Two people should carry long pieces of equipment.
9. Do not lift heavy loads above shoulder level.

### **PERSONAL PROTECTION**

1. Confine long hair so that it is not exposed to machinery and does not interfere with vision.
2. Require the wearing of safety goggles, glasses, or other eye protection when there is a danger of eye injury.
3. Provide dust masks for use where dusts or fumes which may be classified as irritants are present.
4. Determine the physical defects and limitations of all students so that they will not be assigned tasks detrimental to their health or physical condition.
5. Prohibit the wearing of loose clothing in the shop areas.
6. Require students to remove rings and other jewelry while working in the shop areas.
7. Where noise levels are excessive over long periods of time, ear protection should be worn.
8. Protective apparel, including safety shoes, aprons, shields, and gloves, are worn properly as required by the nature of the task.
9. Provisions are made for cleaning and sterilizing respirators, masks, and goggles.
10. Head protection is worn in all areas where there is danger of falling and/or flying objects.

### **FACILITY CONDITION**

1. Aisles, machines, benches, and other equipment should be arranged to conform to good safety practices.
2. Stairways, aisles, and floors should be maintained, clean, dry, and unobstructed with no protruding objects.
3. Walls, windows, and ceilings should be clean, maintained in good repair, and free of protrusions.
4. Illumination should be safe, sufficient, and well placed.
5. Ventilation and temperature controls should be proper for conditions.
6. Fire extinguishers and other necessary fire equipment should be properly selected, adequately supplied, properly located, inspected, and periodically recharged as required.
7. Exits should be properly identified and illuminated.
8. Lockers and drawers should be clean, free of hazards, and doors kept closed.
9. Personnel should know the procedures for notification of fire and evaluation of premises.
10. Laboratories and workplaces should be free from excessive dust, smoke, and airborne toxic materials.
11. Utility lines and shutoffs should be properly identified.
12. Stairways, floor openings, and overhead storage areas should be properly guarded with rails and toe boards and have the proper clearances.

### **HOUSEKEEPING PRACTICES**

1. Provide for the storage and daily removal of all sawdust, metal cuttings, rags, and other waste materials.
2. Provide properly marked boxes, bins, or containers for various kinds of scrap stock and rags.
3. Utilize sturdy racks and bins for material storage, arranged to keep material from falling on students and to avoid injuries from protruding objects.
4. Employ a standard procedure to keep floors free of oil, water, and foreign material.
5. Provide for the cleaning of equipment and facilities after each use.
6. Provide regular custodial service in addition to end of class cleanup.
7. Keep walkways and work areas free of all obstructions.
8. Tools and materials are stored orderly and safely.
9. File cabinets and other tall cabinets are required to be anchored.

### **EQUIPMENT**

1. All equipment should be operated in accordance with specifications as stated in the owner's manual.
2. Machines and apparatus should be arranged so that operators are protected from hazards of other machines or passing individuals.
3. Point of operation zones should be properly identified and guarded.
4. Permanent enclosure guards properly protect pulleys, gears, and belts.
5. Guards should be removed only for repair purposes and then replaced immediately.
6. Equipment control switches for each machine should be easily available to the operator.
7. Machines are turned off when the instructor should be out of the room and/or if the machine is unattended.
8. Proper cleaning equipment should be used (avoid air for cleaning purposes).
9. Nonskid areas should be maintained around dangerous equipment.
10. A preventive maintenance program should be established for all equipment.
11. Cutting tools should be kept sharp, clean, and in safe working order.
12. All hoisting devices should be maintained in a safe operating condition and specified load ratings are easily identified.
13. Machines that should be defective or being repaired are clearly marked and made inoperable by locking out the machine power switch.
14. Equipment cords and adapters should be maintained in a safe working condition.
15. Adjustment and repair of any machine should be restricted to experienced persons.
16. Ladders should be maintained and stored properly.
17. Machines designated for fixed location should be securely anchored.

### **HAND TOOLS**

1. Instruct students to select the right tools for each job.
2. Establish regular tool inspection procedures to ensure tools are maintained in safe condition.
3. Instruct students in the correct use of tools for each job.
4. Provide proper storage facilities.
5. Do not lay tools on operating machinery or equipment.
6. Keep tools out of aisles and working spaces where they may become tripping hazards.
7. Do not put sharp objects or tools in pockets. This could result in cuts or being stabbed.

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### **GENERAL USE OF TOOLS**

1. Keep cutting edges sharp and carry in a sheath or holster made for that purpose.
2. Report defective (worn, damaged and etc.) tools promptly to your supervisor for repair or replacement.
3. Keep tool handles free from splinters, burrs, etc. Handles must be tight on the head and free of cracks or splits.
4. When handing a tool to another person, direct sharp points and cutting edges away from both you and the other person.
5. Use only insulated tools when working around energized electrical circuits or equipment.
6. When using a knife, pliers, or other cutting tools, avoid directing the blade toward you. Cut away from your body and stand clear of others.
7. Do not carry hand tools in your pockets, such as screwdrivers, scribes, aviation snips, scrapers, chisels, files, etc.

### **Files/Rasps**

1. Never use a file as a pry.
2. When using a file or rasp, grasp the handle of the file or rasp in one hand and the toe in the other.

### **Hammers**

1. Do not use hammer with cracked, broken, splintered or loose handle. It must be securely set in the head. Replace loose or damaged wooden handles and discard hammers with damaged metal or fiberglass handles.
2. Do not use hammer with oily, greasy or wet hands.
3. Use the claw for pulling nails. Do not use as a pry or wedge, or for pulling spikes.

4. Never use a hammer with a hardened face on tempered, machined or hardened surfaces. Rawhide, plastic, rubber, lead, brass or copper hammers will prevent damage to parts and also eliminate the danger of flying chips of metal.

### **Knives**

1. Do not place the hand or fingers over the back of a knife blade while it is in use.
2. Do not try to catch a falling knife. Move out of its path, allow it to fall, and then pick it up.
3. Always cut away from the body.
4. Keep knives sharp.
5. Replace knives with worn handles.
6. Use knives with retractable blades when available.
7. When handing any tool or knife with an open blade ask the other person if they have control of the object before releasing.

### **Pliers**

1. Never cut through live wires; turn off the current first. Use insulated pliers for electrical work.
2. When using diagonal cutting pliers, place the free hand over the ends of cotter pin, safety wire or whatever is being cut; this will prevent the loose ends from flying and causing possible eye injury.

### **Saws/Hacksaw**

1. Adjust blade (hacksaw) so that it is taut in the frame before using.
2. Keep saw blades sharp.

### **Screwdrivers**

1. Select the correct size and type of screwdriver to fit the job.
2. Never use a screwdriver as a chisel or as a substitute for a pinch bar or pry bar. (Exceptions are dry point and impact screwdriver).
3. Do not put fingers near blade when tightening a screw.
4. For electrical work, use only screwdrivers that have insulated handles of nonflammable material.
5. Do not use screwdrivers to tighten/loosen screws on hand-held objects.

## **Wrenches**

1. Do not use a makeshift wrench.
2. Do not use a wrench if the jaws are cracked or worn.
3. Always use box or socket wrenches on hexagon nuts and bolts as a first choice, and open-end wrenches as a second choice.
4. When using an adjustable wrench, always place it on the nut so that the pulling force is applied to the stationary jaw side of the handle.
5. Never use a piece of pipe, tubing or another wrench to extend the handle of the wrench in order to secure additional leverage.
6. Do not use wrench with oily, greasy or wet hands.

## **Machines/Power Tools (General)**

1. Operate a machine only after you have received thorough instructions and advised by your supervisor that you are qualified to operate that machine.
2. When working around machinery, do not wear loose clothing, torn sleeves, ties, key chains, rings, watches or any item that could become entangled in the machinery.
3. Use a hair net, rubber band, cap, clamp or other mechanism approved by your supervisor to contain long hair when working around machinery such as drills, grinders, power saws and other machinery with exposed rotating parts.
4. Make all adjustments with the power off.
5. Never attempt repair on live circuits, electrical appliances, power tools, cables or wiring unless you are licensed/certified and authorized by your supervisor.
6. Inspect all portable power tools before operating, including power cables, extension cords and adapters. Do not use if defective or damaged.
7. Use "ground fault circuit interrupter" (GFCI) protected circuits to operate all portable power tools.
8. When using any power tool/machine, make sure to use proper eye protection.
9. If using a large mobile tool, make sure the footing is secure and it is immobile before plugging in and activating machinery.

## **Drills**

1. Adjust the table or depth stop to avoid drilling into the table.
2. Securely lock drill bit or cutting tool into chuck.

3. Always wear eye protection (safety glasses or a face shield) when using drills.
4. Always keep finger on the portable drill switch so that power may be shut off instantly.
5. Do not use distorted or bent drill bit.
6. Disconnect extension cord before attempting to loosen a chuck on portable drills.
7. Discontinue using a drill, which overheats. (Hot to the touch or smells of burning wire.)
8. Secure work piece before drilling.

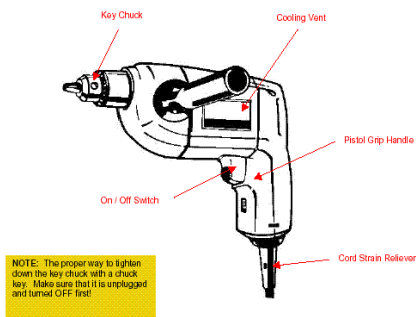
### ***Portable Drill Notes***

#### **Requirements:**

Proper eye protection must be worn—operate only with instructor's permission and after proper instructions have been received.

1. Select the correct drill bit just like you would for the drill press.
2. Secure a piece of scrap wood and the good wood to the table so that it will not move around while drilling.
3. Make sure that the switch is OFF, the chuck key is removed, and that your work area is clean and dry BEFORE you plug the drill in and turn it ON!
4. Drill with straight, even, and steady pressure.
5. When drilling deep holes, withdraw the drill bit several times to clear the area. This helps to provide a SAFE and even drilling process.
6. As with any machine DO NOT PANIC if something "goes wrong." Turn it OFF, unplug it, and tell a teacher.

#### ***Portable Drill Parts***



**NOTE:** The correct and SAFE way to drill.



### ***Soldering Station/Pencil Notes***

#### **Requirements:**

Proper eye protection must be worn—operate only with instructor's permission and after proper instructions have been received.

1. Operate only with instructor's permission and after you have received instruction.
2. Remove jewelry, eliminate loose clothing, and confine long hair.
3. Make sure all guards are in place and operating correctly.
4. Always wear eye protection.
5. Avoid serious burns by treating all soldering equipment as though it was hot.
6. Always place equipment back in holder after use. Never lay it on the bench.
7. Handle all soldering equipment with caution.
8. Solder over the bench top to prevent hot solder from dropping on the operator's legs.
9. Never attempt to melt anything other than solder, as it may cause fires.

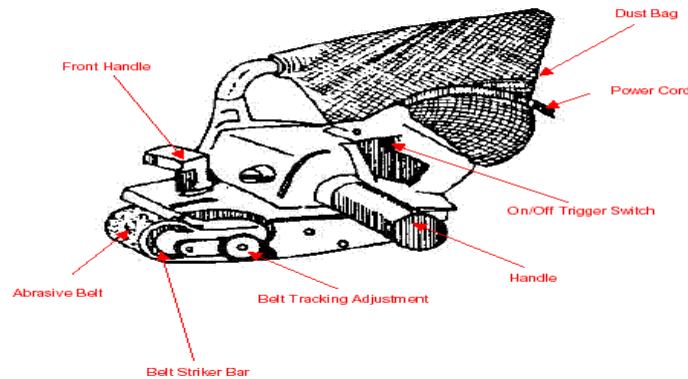
### ***Portable Belt Sander Notes***

#### **Requirements:**

Proper eye protection must be worn—operate only with instructor's permission and after proper instructions have been received.

1. Check to see if the belt is worn or torn, tracking properly, and is the correct grit size for the job.
2. Before connecting to a power source, make sure the switch is "OFF."
3. Start sander above the work, let rear of belt touch first then level the tool.
4. Keep the sander moving back and forth in the direction of the grain. Do not pause in one spot.
5. Lift the sander off the stock when stopping.
6. Always allow the sander to come to a complete stop before placing the sander on the table.
7. Keep electrical cord and dust bag away from working area
8. When changing belts, make sure the new belt runs as the arrow indicates.

**Portable Belt Sander Parts**



**Grinders**

1. Adjust tool rests to within 1/8" of the abrasive wheel and thoroughly tighten it in place.
2. Adjust movable tongue guard to within 1/4 inch of the abrasive wheel.
3. Inspect the wheels for chips, cracks or grooves on the face or side before turning on grinder. Do not use wheels if any of these problems are recognized.
4. Dress grinding wheels on the face only.
5. When grinding, use the face of the wheel only.
6. If the grinding wheel vibrates, do not use it. Tag it out of service and report it to your supervisor.
7. Do not touch ground portion of work piece until you are sure work piece has cooled.
8. When finished using the grinder, shut off the power and do not leave until the wheel has come to a complete stop and the work area is clean.
9. Do not operate grinders near flammable containers or where gasoline fumes are present.

**Saws (Power)**

1. Do not operate any power saw unless your supervisor or other qualified trainer has trained you.
2. Do not operate saws unless safety guards are in place and operational before use.
3. Always keep hands and fingers away from the saw blade.
4. Disconnect machine from power source when making adjustments.

5. Shut off power and clean the saw and work area before leaving.
6. When operating scroll saws, stop the machine before removing scrap pieces from the table.
7. Turn off the machine if the material is to be backed out of an uncompleted cut or jammed cut.
8. Clamp work when using hole saw or cutting tools larger than 1/2" diameter.
9. On band saws, adjust the upper blade guide about 1/8" above the material being cut.
10. On band saws, make adjustments for taut blade tension and centered blade tracking.
11. Hold work piece firmly against the table.
12. Use push sticks when operating power table saws.
13. Make sure the cutting guide is either in place, locked, or in proper stowed position.
14. All persons using saw must be wearing eye protection.
15. If cutting against the grain on a piece of wood, be aware of possible kickback and take necessary precautions.

## **THEATER & SET DESIGN**

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### **General Safety Concerns in Theater & Set Design**

For basic theater safety, many accidents can be lessened by the use of safety equipment. Always wear hard-toed shoes when using materials or tools that could cause foot injury. Eye and body protection are important when handling or using materials that could cause bodily injury. And lastly always pay attention to your surroundings, knowing where your co-workers are at any time can reduce unexpected injuries.

The following equipment safety sheets and tests represent some of these areas of concern. However, most accidents in the theater design lab occur when students are using simple hand tools or handling paper, plates, chemicals, and other materials that they use every day.

Some important areas of GENERAL SAFETY CONCERN are:

#### Hand tools

- X-ACTO knives and razor blades
- Felt pens (toxic)
- Hand paper cutters
- Compasses
- Scissors
- T-squares and triangles
- Scribing tools

#### Furniture

- Stools
- Glass light tables
- Carts/hand truck/dollies

#### General

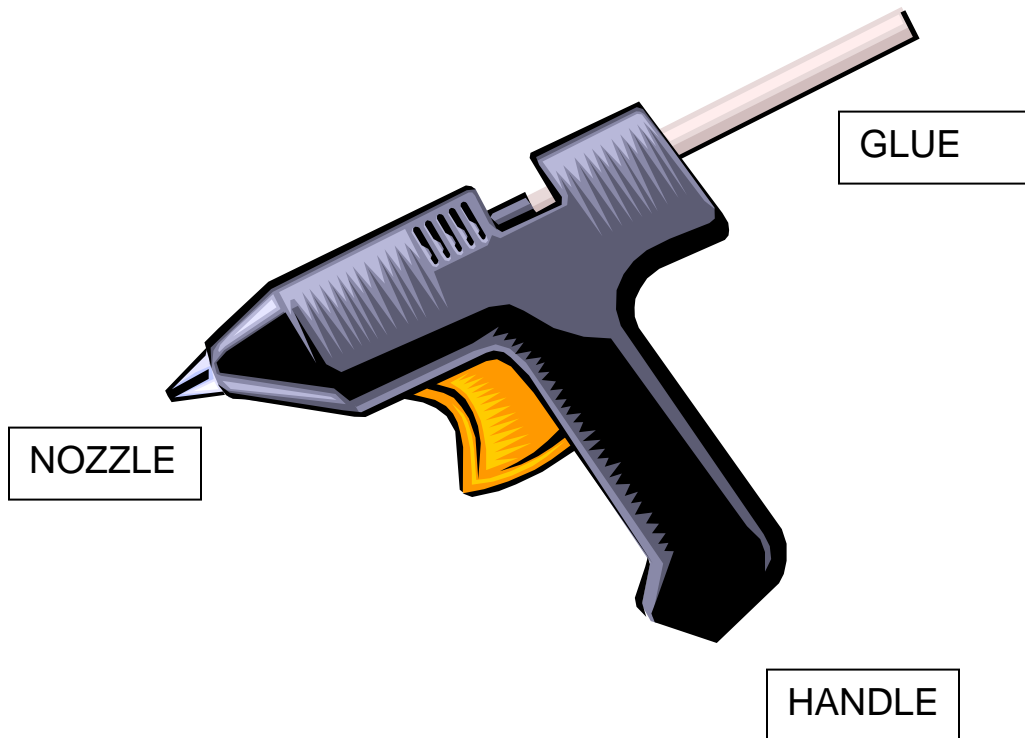
- Toxic chemicals
- Flammable materials and chemicals
- Skin irritants
- Wax (hot)
- Paper (sharp)
- Metal plates (sharp)
- Oily rags and other fire hazards
- Electrical hazards
- Lifting hazards
- Storage hazards
- Roller, gears, cylinders

### ***HOT GLUE GUN SAFETY NOTES***

You will use a hot glue gun on some activities or projects. A HOT glue gun provides melted glue that dries quickly and provides a very strong bond.

Because the HOT glue can cause burns, you must follow these SAFETY rules when using the gun.

1. Never touch the melted glue or the nozzle of the glue gun
2. Do not put anything except glue sticks into the glue gun.
3. Use the correct size glue sticks in the glue gun. Do not try to trim a glue stick that is too big.
4. Wait until the glue has melted completely before using it on your project. Test the glue by squirting a small amount on a piece of scrap material. It should be runny and soft.
5. Be careful when holding glued pieces together. Melted glue can soak through thin or porous material and cause burns.
6. Never place an active hot glue gun on a surface which cannot handle heat. Also if the glue gun has a resting clip – make sure it is active before placing it down.



### **Theatrical Lighting Equipment**

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1. Make sure all lighting instruments have yolk and adjustable lens unit in a locked and tightened position before moving lights.
2. Be sure that all electrical cords and connectors are in good condition before connecting them to the source of power. Notify the technical director or theater manager if frayed cords are found.
3. Edison (otherwise known as household circuits) should not exceed 1500 watts of lighting instruments plugged into them.
4. Bates Pin (Stage Pins) should not exceed 2400 watts of lighting instruments plugged into a single circuit. As some circuits on the catwalks are doubled, keep in mind not to over circuit. If you are in doubt as to cabling/circuiting please consult the theater manager.
5. Do not move or focus lights when directly above any performer or technical personnel.
6. If cables for lighting instruments are in pathways of movement, tape all exposed cable to remove tripping hazards.
7. When working on boom lights, make sure the boom stand is securely in place and placed on a level surface.
8. All sidearms on booms are to be securely tightened and should carry no more than four lights per full beam, and one light per single side beam.
9. When working with or focusing lighting instruments, please keep away from the barrel of the instrument as these areas get extremely hot after a period of use and can cause burns. Only focus and adjust instruments wearing gloves and using selected adjustment locations.
10. When using color gel or gobos in a lighting instrument be certain that the frame or gobo holder is securely in place, and the gel or gobo is securely locked into the apparatus.
11. If the manager gives permission for you to change bulbs make sure to use the correct bulb type as well as wattage.
12. When changing a bulb – do not ever touch the glass portion of the bulb.
13. When changing a bulb – always make sure the instrument is unplugged.
14. Never use the lightboard unless properly trained.
15. When hanging lights make sure that all bolts are securely in place to hold position as well as to avoid equipment damage.
16. Specialty lighting effects can come in many shapes and sizes, make sure to use all proper setup conditions before utilizing special instruments or effect.

17. Make sure to run cables lines as efficiently as possible in order to reduce fire and tripping hazards.
18. Do not hang a lighting instrument in such a manner where it will be brought into contact with any surface (Special circumstances are allowed in accordance with theater manager or instructor).
19. Working on theatrical lighting is only permitted with the permission of the theater manager due to the training needed in this field.

### **Strobe lights**

1. Know how to operate strobe equipment before using it.
2. Be extremely careful not to touch any hot parts.
3. Do not operate strobe lights with a frayed or damaged cord. If an extension cord is necessary, be sure it has suitable amperage rating.
4. Let the equipment cool completely before storing it away.

### **Theatrical Pyrotechnics**

Theatrical Pyrotechnics are used for effects purposes in various types of shows. They require a licenses technician to oversee the usage of these effects. Pyrotechnics differ from normal fireworks, as they do not use black powder as part of the composition.

Listed below are a basic rule set for use and firing of pyrotechnics:

1. Never work alone on a pyrotechnics display. In case of an emergency, someone needs to be able to call for help.
2. Use safety equipment whenever possible.
3. Never use non-commercial effects – non-standardized production can cause unwanted problems.
4. Keep people, animals, and flammable object at a safe distance from effects.
5. Research local laws concerning the use of special effects.
6. Store pyrotechnics in a cool dry area under secured conditions.
7. Transport pyrotechnics in a wood lined box or manufacturer's shipping container.
8. Never mix of load pyrotechnics near heat or open flame.

10. Never fire a pyrotechnic device unless the operator is in full of the effect at all times.
11. The person firing the effect has the final say over whether an effect is fired, not a director or stage manager. Final responsibility rests with the pyrotechnic operator.

### **General Theater Equipment**

#### **Hand-Operated Paper Cutter**

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1. Operate only with the teacher's permission and after instructions have been received.
2. Use the paper cutter with great care as it can cause serious cuts and pinches.
3. When operating the paper cutter, keep the fingers behind the safety guard and never remove the guard.
4. Place a ruler, not the fingers, next to the blade to hold the paper flat.
5. When using a paper cutter, cut only one sheet of paper or film at a time. Do not use the paper cutter to cut anything except paper or film.
6. When finished, always close the cutting blade and fasten it with the safety lock.

### **CUTTING TOOLS**

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1. Use all cutting tools (scissors, X-ACTO knives, matte knife, etc.) very carefully.
2. Keep all cutting tools sharp since dull blades can be dangerous.
3. To prevent serious cuts, never try to catch a dropped cutting tool.

### **SPRAY ADHESIVES AND PAINT**

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1. Get instructions on how to use these materials properly and safely before proceeding.
2. Use spray adhesives and paint in a well-ventilated place. They are flammable.
3. Avoid breathing the fumes. There is evidence that these fumes can seriously damage one's health.
4. Do not use these materials in areas where others will have to breathe the fumes.
5. Treat these substances just like any other flammable material would be treated.



### **RECORDKEEPING**

1. Always keep an adequate record of accidents and report it through proper channels.
2. An analysis of accidents should be made for the purpose of corrective action.

### **1.3 RESPONSIBILITY**

It is the responsibility of each instructor and student to maintain a safe environment is maintained in their area and that this policy is adhered to.

Vice President, Academic Affairs		Date:
Approved by President		Date:

# SAFETY TRAINING RECORD

THIS TRAINING IS BEING CONDUCTED IN COMPLIANCE WITH THE STATE OF FLORIDA STATUTES TITLE XLVIII 1006.65, AND APPLICABLE FEDERAL REGULATIONS.

DATE: \_\_\_\_\_

INSTRUCTOR: \_\_\_\_\_

PROGRAM: \_\_\_\_\_

NAME	SIGNATURE	NAME	SIGNATURE