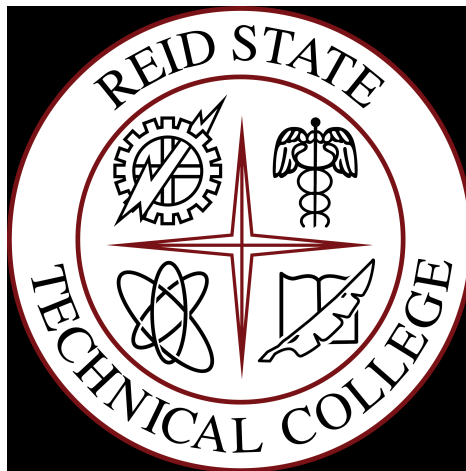


***SAFETY MANUAL  
FOR  
REID STATE TECHNICAL COLLEGE***



**REID STATE TECHNICAL COLLEGE  
P.O. Box 588  
EVERGREEN, AL 36401**

## **FOREWARD**

The publication of this Safety Manual signifies the importance placed on safety at Reid State Technical College. Equally important is the safety in a technical college setting as well as in the workplace. As such, the manual and its contents have been, and will continue to be, integrated into the college's instructional program in the interest of protecting our students, faculty, staff, and visitors from accidents and injury. It is also our hope that the information provided, herein, will provide our students with a strong foundation of safety practices, which will benefit them when they leave Reid State Technical College and enter the workforce.

This manual was developed for Reid State Technical College with input from faculty and staff. Reid State Technical College has produced this manual in the interest of safety and lays no copyright claim to any portion, part, or entity of the contents within.

Mr. David J. Rhodes  
Interim President  
March 2017

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**SECTION A**

## **APPENDIX A: FORMS AND CHARTS**

Reid State Hazard/Incident Form

National Standard School Shop Safety Inspection Checklist

Hazardous Materials Inventory Roster

Safety Color Code



## Reid State Technical College Hazard/Incident Report

### A. Person Completing Report

First Name:	Last Name:	
Job Title:	Telephone:	
Email:	Faculty/Division	

### B. Incident Details

Incident Type:	<input type="checkbox"/> Incident with Injury <input type="checkbox"/> Incident without Injury <input type="checkbox"/> Illness <input type="checkbox"/> Hazard <input type="checkbox"/> Fire <input type="checkbox"/> Auto Accident <input type="checkbox"/> Criminal Act <input type="checkbox"/> Violence <input type="checkbox"/> Fatality <input type="checkbox"/> External Incident <input type="checkbox"/> Equipment Failure <input type="checkbox"/> Other
----------------	---

Description of Incident/Hazard:

Date of Incident/Hazard:		Time of Incident/Hazard:	
Date/Time Reported:		Reported To:	
Campus:		Building:	Room:
Specific Location:			

### C. Injury Detail - Only Complete if Injury Occurred. If No Injury, Move to Section D

Person Type:	<input type="checkbox"/> Faculty/Staff <input type="checkbox"/> Student <input type="checkbox"/> Visitor <input type="checkbox"/> Contractor <input type="checkbox"/> Other
First Name:	Last Name:
Email:	Telephone:
Address:	

Level of Treatment:	<input type="checkbox"/> Report Only <input type="checkbox"/> First Aid <input type="checkbox"/> Medical Treatment <input type="checkbox"/> Emergency Transport
---------------------	--

Name of First Aid or Treatment Provider:

Nature of Injury:	<input type="checkbox"/> Cut <input type="checkbox"/> Bruising <input checked="" type="checkbox"/> Eye Injury <input type="checkbox"/> Burn <input type="checkbox"/> Crush <input type="checkbox"/> Dislocation <input type="checkbox"/> Amputation <input type="checkbox"/> Puncture <input type="checkbox"/> Other
-------------------	---

Body Part/Side/Location:

Description of Illness or Injury:

D. Causal Analysis	
Root Cause	Details
<input type="checkbox"/> Lack of or inadequate equipment	
<input type="checkbox"/> Lack of or inadequate procedures/instructions	
<input type="checkbox"/> Lack of or inadequate training	
<input type="checkbox"/> Lack of or inadequate Management/Supervision	
<input type="checkbox"/> Inappropriate or inadequate work environment	
<input type="checkbox"/> Inappropriate actions and/or behavior	
<input type="checkbox"/> Lack of or inadequate management system	
<input type="checkbox"/> Other	

E. Corrective Actions		
	Completion Date:	
	Completion Date:	
	Completion Date:	
	Completion Date:	
	Completion Date:	
	Completion Date:	
	Completion Date:	

F. Approvals/Signatures			
Person Completing Report:		Date:	
Safety Committee Chair:		Date:	
Division Chair:		Date:	
President:		Date:	

Copies of this report should be made available to safety committee personnel for review and further action if necessary.  
 Reports requiring insurance claim steps must be forwarded to business office.

**Building Safety Inspection**

DATE \_\_\_\_\_

BUILDING NUMBER \_\_\_\_\_

INSPECTOR \_\_\_\_\_

CHECK ITEMS "YES", "NO" or write "NA" in the boxes.

GENERAL BUILDING SAFETY CHECKLIST		YES	NO	ROOM#
1.	Have SAFETY discussions been held? If so, what date?			
2.	Are fire extinguishers readily available, undamaged and inspected?			
3.	Are smoke detectors in place and operating properly?			
4.	Are fire reporting procedures posted?			
5.	Are building evacuation procedures posted?			
6.	Are all exits clearly marked? Is exit hardware operating?			
7.	Are electrical circuits and outlets working properly?			
8.	Are emergency and fire exit lights operating?			
9.	Are electrical panel boxes blocked /obstructed?			
10.	Are wall plugs and switches properly covered?			
11.	Are extension and appliance cords in good condition?			
12.	Are good housekeeping practices observed? Trash emptied?			
13.	Are windows and doors unbroken and operating properly?			
14.	Is lighting adequate and working?			
15.	Are floors, walls, and ceilings in good repair?			
16.	Are all flammables and combustibles removed from building?			
17.	Are MSDS/Chemical inventory list filed properly?			
18.	Is the building fire alarm system operational?			
19.	Are furniture and appliances in good repair?			
20.	Is the first aid kit well stocked?			
21.	Are protective light lenses in place?			
22.	Are ventilation systems operating, and fan protective screens in place?			
23.	Are chemicals properly labeled /sealed /secured?			
24.	Are all wet area electrical outlets "GFCI" protected?			
25.	Are furnace / AC systems adequate / operational?			
26.	Are there adequate cigarette disposal units outside the building?			
27.	Are the exterior grounds neat and free from debris?			
28.	Have YOU taken corrective action on any deficiencies?			

Please complete this form and forward to the Campus Safety Committee Chairperson, and maintain a copy for your files.

## Hazardous Materials Inventory Roster

[illegible]

## Safety Color Code

### 1. RED

- Shows danger
- Labels fire protection equipment and its location
- Labels portable containers of flammable liquids
- Labels emergency stop bars, buttons, and electrical stop switches on machinery

### 2. YELLOW

- Shows caution and physical hazards
- Labels waste container for explosive or combustible materials
- Labels equipment that should not be started, used, or moved
- Shows the starting point or power source for machinery

### 3. ORANGE

- Labels dangerous parts of equipment that could cut, crush, shock, or otherwise injure
- Labels safety starter buttons

### 4. PURPLE (or MAGENTA or BLACK ON YELLOW)

- Labels radiation hazards

### 5. BLUE

- Marks tags that indicate equipment that should not be started, used, or moved

### 6. GREEN

- Labels safety equipment (other than firefighting equipment) and its location
- Labels first-aid equipment and its location

### 7. BLACK AND WHITE

- Shows traffic flow paths
- Labels storage areas
- Labels housekeeping equipment and its location

## **SECTION B - TOOL AND MACHINE SAFETY**

**This section presents suggestions for the safe operation of tools and machines commonly used in technical programs such as those at Reid State Technical College. The equipment is arranged alphabetically.**

## WELDING SAFETY PRACTICES

The use of welding equipment is common throughout the trades. The improper use of this equipment can be extremely dangerous for those performing the work or those in the general vicinity of the activity. Therefore, it is imperative that proper procedures be followed before doing these specialized tasks. Special efforts must be made to evaluate the procedures used while operating the equipment. Consideration should be given to the storage and handling of the specific gases and to the availability and use of personal protective equipment.

### Personal Safety Rules

1. Wear shop clothing appropriate to the instructional activity being performed.
2. Confine long hair before operating rotating equipment.
3. Always wear safety glasses; use suitable helmets and goggles for welding.

### **CAUTION:**

**WELDING AND CUTTING POSE EXTREMELY DANGEROUS HAZARDS TO THE EYES AND FACE IN THE FORM OF FLYING PARTICLES, GLARE AND RADIATION, SPARKS, HEAT, AND MOLTEN METAL. ALWAYS WEAR APPROPRIATE EYE AND FACE PROTECTION.**

4. Eliminate loose clothing when working around machine tools or rotating equipment.
5. Remove jewelry while working in the shop.
6. Conduct yourself in a manner conducive to safe shop practices.
7. Use soap and water frequently as a method of preventing skin diseases.

### General Shop Safety Rules

1. Keep all hand tools sharp, clean, and in safe working order.
2. Report any defective tools, machines, or other equipment to the instructor.
3. Make sure all guards are in place and operating correctly.
4. Operate machines only with instructor's permission and after you have received instructions.
5. Report all accidents to the instructor regardless of nature or severity.
6. Turn off the power before leaving a machine tool.
7. Disconnect the power from machine tools before performing maintenance tasks of oiling or cleaning.
8. Use a solvent only after determining its properties, what kind of work it has to do, and how to use it.
9. Use correct, properly fitting wrenches for nuts, bolts, and objects to be turned or held.
10. Keep the shop or laboratory floor clear of scraps and litter.
11. Clean up any spilled liquids immediately.
12. Store oily rags or oily waste in proper containers.
13. Clean the chips from a machine with a brush, not with a rag or the bare hands.
14. Arrange machinery and equipment to permit safe efficient work practices and ease in cleaning.

15. Store materials and supplies properly.
16. Store tools and accessories safely in cabinets, on racks, or other suitable devices.
17. Keep working areas and workbenches clear and free of debris and other hazards.
18. Keep floors clean and free from obstructions and slippery substances.
19. Keep aisles, traffic areas, and exits free of materials and other debris.
20. Dispose of combustible materials properly or store in approved containers.

### **Safety Rules for all Tools**

1. **KNOW YOUR POWER TOOL.** Read the owner's manual carefully. Learn the tool's applications and limitations, as well as its particular hazards.
2. **KEEP ALL GUARDS IN PLACE** and in working order.
3. **GROUND ALL TOOLS.** If an adapter is used to accommodate a two-prong receptacle, the adapter plug must be attached to a known ground. Never remove the grounding prong.
4. **REMOVE ADJUSTING KEYS AND WRENCHES.** Make it a habit to check that keys and wrenches are removed from the machine before turning it on.
5. **KEEP WORK AREA CLEAN.** Cluttered areas and benches invite accidents.
6. **AVOID DANGEROUS ENVIRONMENTS.** Do not use power tools in damp or wet locations or expose them to rain. Keep your work area well lighted.
7. **KEEP VISITORS AWAY.** All visitors should be kept a safe distance away from your work area.
8. **MAKE WORKSHOP SAFETY-PROOF** with padlocks, master switches, or by removable starter keys.
9. **DO NOT FORCE TOOL.** Tools work better and safer when they are allowed to perform at their own speed.
10. **WEAR PROPER APPAREL.** Do not wear loose clothing, gloves, neckties, or jewelry that can get caught in moving parts. Non-slip footwear must be worn. Long hair should be tied back or wear a hat.
11. **NEVER STAND ON, OR LEAN ON THE TOOL.** Doing so could cause injury.
12. **USE SAFETY GLASSES AND EAR PROTECTION.** Also use a DUST MASK if the operation is dusty.
13. **DO NOT OVERREACH.** Keep proper footing and balance at all times.
14. **MAINTAIN TOOLS IN TOP CONDITION.** Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
15. **DISCONNECT TOOLS FROM POWER** before servicing and when changing accessories.
16. **AVOID ACIDENTAL STARTING.** Make sure the switch is in the "OFF" position before plugging in the cord.
17. **CHECK DAMAGED PARTS.** Do not operate the machine until you are certain it is in perfect running condition.
18. **NEVER LEAVE THE TOOL RUNNING UNATTENDED – TURN POWER OFF.** Do not leave the tool until it comes to a full stop.
19. **DO NOT OPERATE THE TOOL IF USING MEDICATION.**
20. **DO NOT WORK IN HASTE** or operate machine if you are fatigued.

21. IF THERE IS SOMETHING YOU DO NOT KNOW OR UNDERSTAND ABOUT THE TOOL, DO NOT OPERATE IT! Ask your instructor for assistance. Confusion can lead to disaster.
22. BAD HABITS ARE DANGEROUS. Review all safety procedures often.

These safety rules cannot cover every situation in every lab area. Consider your conditions when setting up or operating a tool.

### **General Welding Safety Rules**

1. Wear suitable protective clothing.
2. Keep a safe, clean work area.
3. Make sure there are no flammable materials near.
4. Do not weld in the vicinity of explosive materials or near carbon tetrachloride.
5. Make sure you have enough ventilation to give three or four complete changes of air per hour.
6. Use air exhaust whenever welding lead, cadmium, chromium, manganese, brass, bronze, zinc, or galvanized metals.
7. Do not weld or cut in a confined area without protection.
8. Handle inert gas cylinders with the same care you use with oxyacetylene cylinders.
9. Keep all welding equipment in good condition.
10. Make sure joints are insulated and all electrical connections are tight; if it is necessary to couple lengths of cable together; use no cables with frayed, cracked, or bare spots.
11. Hang electrode holder on welding machine or on a special holder when it is not in use; do not let it touch a gas cylinder.
12. Have welding machine properly grounded.
13. Make sure pedal controls are guarded to prevent accidental starts.
14. Wear rubber boots and/or stand on dry cardboard or wood if it is necessary to weld in damp or wet conditions.
15. Stand only on solid items, floor, or ground.
16. Use safety belt or lifeline when welding in high places without railings.
17. Wear proper eye protection at all times, especially when grinding or cutting.
18. Keep your booth curtains closed to protect the eyes of others.
19. Do not weld or cut directly on a concrete floor.
20. Check for water leakage when using a water-cooled torch.
21. Never use oil or grease on any oxygen or acetylene connections because oil and oxygen will ignite.

#### **CAUTION:**

**OXYGEN UNDER HIGH PRESSURE CAN CAUSE OILS TO EXPLODE. OXYGEN WILL COMBINE WITH MANY COMMON MATERIALS AND, UNDER THE RIGHT CONDITIONS, WILL CAUSE THESE MATERIALS TO BURN VIOLENTLY OR TO EXPLODE.**

22. Do not open tank valves until you are certain that regulator valves are open.

23. Do not open the valves on the cylinders with a hammer.
24. Do not hammer on oxygen or acetylene regulators.
25. Do not light a torch with a match or open flames; use lighter provided.
26. Make sure that hose, tanks, or any flammable material will not be exposed to heat, flame, or sparks before lighting torch.
27. Beware of high acetylene pressure; never use acetylene-gas when the pressure is greater than fifteen pounds per square inch.

**CAUTION:**

**ACETYLENE GAS, WHEN COMPRESSED TO MORE THAN FIFTEEN POUNDS, BECOMES A VERY HIGH EXPLOSIVE.**

28. Do not screw the regulator screw in tight against the regulator because this spoils the diaphragm. If hose pressure drops, check tank pressure at regulator; tank is probably empty.
29. Do not hold welding or cutting tip too close to your work; this will cause a flashback in your torch.
30. Do not use a tip that gets hot.
31. Do not use a torch that leaks.
32. Do not leave your torch burning and unattended.
33. Do not leave torch valve open.
34. Do not use the torch for a hammer, crowbar, wedge, or for any other purpose than welding; do not use a cylinder, even when empty, as a roller.
35. Do not store cylinders in a room where the temperature is more than eighty degrees.
36. Do not adjust, alter, change, build, or do any experimental work on cylinders, regulators, torches, or any other gas equipment.
37. Do not attempt to weld a closed or jacketed tank, vessel, or container without a vent for air. Even with a vent, great care should be used not to get gas in tank. If for any reason you should get gas in the tank, be sure to aerate the tank.

**Safety Rules for Arc Welding**

1. Be aware of the following hazards: electrical shock, fumes, arc rays, fire, and explosion.
2. Make sure you are insulated from live electrical parts.
3. Do not weld when wet or in wet areas.
4. Use proper ventilation. This is especially important when welding galvanized or cadmium-plated materials. Materials that have been cleaned with degreasing agents can also create hazardous fumes when they are welded.
5. Protect your skin from arc rays by using flame-resistant clothing.
6. Protect your face and eyes by using a face shield with a filter lens conforming to ANSI Z87.1 Standards.
7. Use shields or screening devices to protect others around you from arc rays.
8. Remove all fire hazards from the area when welding. If this is not possible, cover them to prevent sparks from starting a fire, and have a fire extinguisher nearby.

9. Be sure that all the proper precautions have been taken before welding closed containers.
10. Always secure gas cylinders properly in the upright position using chains or other securing devices.

**CAUTION:**

**THERE IS AN IMMENSE AMOUNT OF POWER IN EACH CYLINDER.  
CARELESS HANDLING RESULTING IN VALVE OR CYLINDER DAMAGE  
CAN PRODUCE INSTANT DEATH FOR YOU OR YOUR FRIENDS.**

11. Do not allow electrodes or electrode holders to touch gas cylinders.
12. Keep cylinder caps on the cylinders when they are not in use or when they are not connected for use.

**Safety Rules for Oxy-acetylene Welding**

1. Be sure cylinders are secured in the upright position.
2. Do not use a regulator that is damaged or in questionable condition.
3. Wear protective clothing, including gloves, goggles, high-topped boots, and cuff-less trousers.
4. Stand to the side of the regulators when opening the cylinder valves.
5. Open cylinder valves slowly to prevent a rapid buildup of pressure in the regulator.
6. Use the recommended pressure for the tips and equipment to prevent dangerous backfires and flashbacks.
7. Check for leaks on the regulators and hoses before lighting the torch.
8. Keep the hoses clear of falling sparks that could burn through them when cutting.
9. Do not allow oil to come in contact with hoses or equipment, and do not handle the equipment with hands or gloves that have grease on them.
10. Do not cool yourself with oxygen or allow oxygen to saturate your clothing.

**Hazardous Materials Storage and Handling**

1. Make sure any cylinders containing oxygen, fuel, or inert gases are secured at all times.
2. Make sure all cylinders are capped when not in use.
3. Do not refill cylinders from another cylinder. Cylinders should only be refilled by the suppliers.
4. Separate oxygen cylinders in storage from fuel-gas cylinders and combustible materials by at least 20 feet or by a noncombustible barrier at least 5 feet high.
5. Store acetylene cylinders in the upright position at all times. If for any reason they have been laid down, they should be allowed to stand upright for at least two hours before they are used.
6. Do not store compressed gases in unventilated cabinets or confined spaces.
7. Do not store a cylinder where the temperature may rise above 130 degrees Fahrenheit.
8. Store all solvents clear of any welding or cutting operations.

9. Do not weld materials that have been cleaned with chlorinated solvents. Vapors from these solvents can be decomposed by the heat from welding or cutting and form highly toxic phosgene gas.
10. Use adequate ventilation or an air-supplied respirator when welding lead, cadmium, zinc, mercury, and metals coated with these materials. They produce harmful concentrations of toxic fumes when welded.

### **Safety Suggestion for Arc Welder**

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 use proper eye protection.
5. Always wear a welding helmet when welding.
6. Make sure proper ventilation is available.
7. Always wear goggles when chipping slag.
8. Warn others in the area before striking an arc.
9. Wear gloves and proper clothing when welding.
10. Do not weld closed containers without instructor's permission.
11. Do not stand in wet areas while welding.
12. Make sure screens to protect others are in place before welding is started.

### **Safety Suggestions for Grinder**

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 use proper eye protection.
5. Adjust the tool rest to 1/8" from the wheel.
6. Do not grind on the side of the grinding wheel.
7. Make sure spark arrestor or top guard is within 1/8" of wheel.
8. Hold small pieces with "vise grip" type pliers.
9. Discard any wheel that is excessively worn or cracked.
10. Make sure the glass safety shield is clean.
11. Stand to one side when starting the machine.

### **Safety Suggestions for Metal Squaring Shear**

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 use proper eye protection.
5. Check setup and machine before operating.
6. Never surpass the capacity of the machine.
7. Feed and operate from the front or the operator's position.

8. Always keep your fingers away from the pressure bar and blade, at a minimum of 4 inches.
9. Keep the foot that is not being used out from under the treadle.
10. Allow small pieces to drop; do not attempt to catch them.
11. Remove burrs before working; gloves or pads are recommended for handling sheet metal, especially large pieces.
12. Place scraps or trimmings in metal waste container and return machine to normal.

### **Safety Suggestions for Oxy-Acetylene Welder**

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 use proper eye protection.
5. Do not weld galvanized metal without proper ventilation.
6. Do not allow oil to come in contact with hoses or equipment.
7. Keep gas bottles erect and secure at all times.
8. Wear protective goggles and spark-resistant clothing when welding.
9. Do not weld or cut on a closed container without instructor's approval.
10. Confine all cutting and welding to the designated area in the shop.
11. Turn off torch valves when finished with equipment.
12. Keep the cylinder caps on the bottles when not in use.
13. Turn off gas and oxygen at tanks or stations at the end of the class session.
14. Bend the end of long welding rods to identify hot end and to reduce the possibility of eye injury.

### **Safety Suggestions for Portable Disc Sander**

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 use proper eye protection.
5. Before connecting to the power source, be sure the switch is in the off position.
6. Make sure backup pad and disc are securely fastened to the tool. Unplug the sander when changing discs.
7. Do not allow the edge of the disc to touch the edge of the stock.
8. Stand clear of the spark line or spark area.
9. Sand or finish with a stroking motion; do not pause in one spot.
10. Set sander on its back or on rubber stand when not in use and disconnect from power source.

### **Safety Suggestions for Sheet Metal Machines**

1. Operate only with instructor's permission and after you have received instruction.
2. Remove jewelry, eliminate loose clothing, and confine long hair.
3. Always use proper eye protection.

4. Check setup and machine before operating.
5. Never surpass the capacity of the machine.
6. Feed and operate from the front or the operator's position.
7. Whenever two people are needed to operate the machine, one shall be the operator, the other the helper.
8. Keep hands and fingers clear of moving parts.
9. Be sure that fingers are tightened securely on finger leaf.
10. Never work where moving parts or metal strike others.
11. Be careful that moving parts or metal does not strike others.
12. Take care not to place hands in a position that will allow them to slip into the rolls, jaws, etc.

### **Safety Suggestions for TIG and MIG Welder**

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 use proper eye protection.
5. Always wear additional protective welding clothing, including a helmet, long sleeve jacket, and gloves to prevent burns from ultraviolet and infrared rays emitted while arc welding.
6. Use a helmet equipped with a minimum number twelve density shade for TIG and MIG welding.
7. Be certain that the welder equipped with a high frequency stabilizing unit is installed, maintained, and used according to the recommendations of both the manufacturer and the Federal Communication Commission.
8. Never touch the tungsten electrode or MIG wire while the welder is turned on. It is electrically "hot" and can cause a serious shock.
9. Never use the high frequency when performing shield metal arc (stick electrode) welding.
10. Be sure proper ventilation is available or use suitable breathing apparatus.
11. Warn others in the area before beginning to weld.
12. Do not weld on a closed container without instructor's approval.
13. Do not stand in wet areas while welding.
14. Be sure all flammables are removed from the area.
15. Make sure screens are in place to protect others before welding.
16. Take special precautions when wearing contact lens.

### **SECTION C - DEPARTMENTAL SAFETY**

**This section presents suggestions for the safe operation of equipment and procedures commonly used in programs such as those at Reid State Technical College.**

## **COSMETOLOGY DEPARTMENT SAFETY GUIDELINES**

### **Safety Practices for Cosmetology**

#### **INTRODUCTION**

Students in cosmetology are responsible for not only their own safety, but that of their clients as well. Besides following the general safety procedure outlines in this manual, cosmetology students must familiarize themselves with the safety procedures related specifically to cosmetology.

Instructors will distribute safety procedure guidelines to all students, who will indicate understanding of these precautions by signing and dating the safety procedures packet, which will then be filed in the department. By signing the guidelines, students are also agreeing to review the precautions before performing a live service while at Reid State Technical College.

These extensive guidelines distributed within the department cover sanitation, safety color codes, general shop safety, evacuation routes, use of electrical appliances, and procedures for the following services:

1. Hair styling, curling, and waving
2. Cold permanent waving
3. Chemical hair relaxer
4. Hair coloring
5. Care of wigs
6. Facials
7. Hair pressing
8. Thermal waving and curling
9. Electric appliances
10. Temporary hair removal
11. Massage
12. Make up
13. Hair shaping
14. Heat cap – high frequency
15. Pedicuring
16. Manicuring
17. Shampooing and rinsing
18. General Safety Rules

A copy of the guidelines follows.

**Student Safety Pledge Form**

\_\_\_\_\_, WHO IS ENROLLED in Cosmetology courses will, as a part of the Lab experience, operate implements and equipment.

It is understood that each student will be given proper instruction both in use of the equipment and in the correct safety procedures concerning the equipment before being allowed to operate it alone. The student must assume responsibility for following safe practices, and we therefore ask that the student subscribe to the following safety pledge.

1. I PROMISE TO FOLLOW ALL SAFETY RULES FOR THE LAB.
2. I WILL NOT ASK PERMISSION TO USE A PARTICULAR IMPLEMENT UNLESS I HAVE BEEN INSTRUCTED ON ITS USE.
3. I WILL REPORT ANY ACCIDENT OR INJURY TO THE INSTRUCTOR IMMEDIATELY.
4. I AM AWARE THAT THE COSMETOLOGY DEPARTMENT HAS MANY MIRRORS AND GLASS PARTITIONS. AS A STUDENT I WILL TAKE EVERY SAFETY PRECAUTIONS NECESSARY TO AVOID ANY BREAKAGE OF THE MIRRORS OR GLASS.

Date \_\_\_\_\_ Student Signature \_\_\_\_\_

## **Information Sheet**

### I. Terms and definitions

- A. **safety** - State of condition of being safe; freedom from danger, risk, or injury.
- B. **accident** – Any suddenly occurring, unintentional event, which causes injury or property damage.
- C. **first aid** – Immediate, temporary care given the victim of an accident or sudden illness until the services of a physician can be obtained.
- D. **bacteria** – One-Celled vegetable microorganisms; also called *germs* or *microbes*.
- E. **hygiene** – Establishing and maintaining good health.
- F. **sterilize** – Chemical means of keeping salon and equipment as free from germs as possible.
- G. **sanitize** – Chemical means of keeping salon and equipment as free from germs as possible.
- H. **dry sanitizer** – Closed cabinet used to keep implements sanitized until ready for use.
- I. **fumigant** – Substance that disinfects by giving off smoke or fumes.
- J. **contagious** – Ability to be transmitted from one person to another.
- K. **vapor** – Substance used in cabinet sanitizer to keep sterilized implements sanitary.
- L. **germicidal** – Destroys germs
- M. **ultra-violet** – Violet ray having a germicidal action.
- N. **pathogenic** – Harmful bacteria; disease producing.
- O. **non-pathogenic** – Beneficial bacteria; helpful
- P. **disinfect** – Destroy most pathogenic and nonpathogenic bacteria.
- Q. **antiseptic** – Chemical substance used to control bacteria growth.
- R. **physical agent** – Non-chemical method used for sterilization  
Example: Boiling water at 100 degrees C (212 degrees F)
- S. **sepsis** – Poisoning due to pathogenic bacteria
- T. **asepsis** – Freedom from disease germs
- U. **formaldehyde** – Chemical used to kill bacteria
- V. **quaternary ammonium compound** – Chemical used to disinfect  
(Note: Quaternary ammonium compound is often called quats)
- W. **general infection** – Infection that affects entire body  
(Example: Blood Poisoning)
- X. **local infection** – Infection that is concentrated on one area of the body.  
(Example: Boil or pimple)
- Y. **animal parasite** – Small organism that lives off other living matter
- Z. **fungi** – Plant organisms that live on dead and some living matter.
- AA. **merthiolate** - Commercial product used to cleanse wounds
- BB. **boric acid** – Antiseptic; eyewash
- CC. **phenol** – Disinfectant used to cleanse and sanitize
- DD. **toxic** – Poisonous
- EE. **tincture of iodine** – Antiseptic used on small wounds or cuts
- FF. **flagella** – Hair like projections on some bacteria which permits movement
- GG. **virus** – Microscopic pathogenic particles of unknown origin

## II. Colors and application of the safety color code

(Note: The American Standards Association has established a safety color code for marking physical hazards and for identifying certain equipment.)

### A. Federal safety red

1. Fire protection equipment and its location
2. Portable containers of flammable liquids
3. Emergency stop bars, stop buttons, and emergency electrical stop switches on machinery.

### B. Federal safety yellow

1. Caution and for marking physical hazards
2. Waste containers for explosive or combustible materials
3. Caution against starting, using, or moving equipment while under repair
4. Starting point or power source of machinery

### C. Federal safety orange

1. Dangerous parts of equipment
2. Safety starter buttons and parts of equipment that may cause electrical shock
3. Exposed parts (edges only) of pulleys, gears, rollers, cutting devices, and power jaws

### D. Federal safety purple – Radiation hazards

### E. Federal safety green

1. Nameplates and non-critical parts of equipment
  2. Location of first aid equipment
- (Note: This applies to equipment other than fire-fighting equipment)

### F. Federal safety black and white (used individually in combination)

1. Traffic flow
2. Housekeeping purposes
3. Storage areas

## III. Personal safety rules

- A. Conduct yourself in a manner conducive to safe shop practices
- B. Sterilize all implements after use on a client
- C. Wash hands before and after each client
- D. Practice personal hygiene
- E. Learn to recognize diseases and disorders that may be contagious  
(Note: Animal parasites such as head and body lice should be recognized to prevent their spread)
- F. Use clean towels and neck strips on each client
- G. Practice all electrical safety rules

## IV. Sanitation and sterilization rules

- A. Sanitize metal and glass implements using 70% alcohol  
(Note: Implements such as scissors and the glass rake used with high frequency current should be cleansed with cotton saturated in 70% alcohol.)
- B. Sanitize all implements after use on each client.
- C. Disinfect floors, sinks, and toilet bowls with an effective disinfectant.  
Example: Lysol or pine needle oil will sanitize floors, sinks, and toilet bowls.

- D. Place all sterilized implements in a dry sanitizer containing a fumigant until ready for use.
- E. Avoid working on a client having a contagious disease.
- F. Mix the disinfectant solution according to immersion time prescribed for implements.  
Example: 25% solution – combs and brushes may be sanitized after ten minutes; 10% solution – implements must be immersed for twenty minutes; 5% solution is used for minor cuts or abrasion or to sanitize shampoo bowls.
- G. Keep all chemicals clearly labeled.
- H. Avoid smelling a chemical that is unlabeled.  
(CAUTION: Chemical fumes may be harmful to eyes and nose.)
- I. Keep a complete first aid kit in the shop.
- J. Read product label to determine if the product is toxic.
- K. Keep chemicals away from the eyes.
- L. Place soiled towels in a covered container.
- M. Use disposable drinking cups.
- N. Avoid allowing animals in salon. (Note: Seeing-eye dogs are the only exceptions.)

## V. Methods of sterilization

### A. Physical

- 1. Moist heat  
Examples: Boiling water (100° C or 212° F); steaming
- 2. Dry heat  
Examples: Baking
- 3. Ultra-violet rays

### B. Chemical

- 1. Antiseptics
  - a. Tincture of iodine  
(NOTE: Tincture of iodine is used for small wounds or cuts.)
  - b. Merthiolate  
(NOTE: Merthiolate is used for small wounds or cuts.)
  - c. Boric acid  
(NOTE: Boric acid is used as eyewash)
  - d. Alcohol  
(NOTE: Three percent hydrogen peroxide is used for small wounds and cuts.)
- 2. Disinfectants.
  - a. Quaternary ammonium compound (quats)
  - b. Formaldehyde (37% to 40%)
  - c. 70% alcohol
  - d. Cresol  
(NOTE: Cresol is the technical term for Lysol.)
  - e. Phenol

## VI. Steps for using wet sanitizer

- A. Remove all hair from combs and brushes.
- B. Wash implements with soap and hot water.
- C. Rinse away soap traces
- D. Immerse implements in container of disinfectant solution large enough to hold implements.  
(NOTE: Leave implements immersed for the required time, according to the strength of the disinfectant solution.)
- E. Remove implements from wet sanitizer
- F. Rinse clean
- G. Wipe dry using clean towel
- H. Store implements in dry sanitizer until ready to use  
(NOTE: Implements may be stored in wrapped cellophane envelopes instead of in the dry sanitizer.)

## VII. Bacteria as a personal health hazard

- A. Bacteria (germs, microbes) thrive well on skin and hair and in water, decaying matter, and various waste materials.
- B. Some bacteria have hair-like projections called *flagella* or *cilia* which allow them to move about in liquid
- C. Bacteria grow and reproduce in the active stage and thrive in dark, dirty, moist areas.
- D. Some bacteria form spores when food or moisture is lacking, causing them to stop growth and reproduction.  
(NOTE: These spores blow about and can cause a threat because they can become active if conditions are right.)

## VIII. Two types of bacteria

- A. Pathogenic – Disease producing, harmful bacteria that cause infection.  
Example: A virus is an infectious pathogenic particle that causes such disease as polio, chicken pox, measles, and the common cold.
- B. Nonpathogenic – Harmless, beneficial bacteria which decompose dead vegetation and animals and fertilize soil  
Example: Fungi are plant organisms that live off of dead vegetation and may be beneficial.

## IX. Pathogenic bacteria and the diseases they cause

- A. Cocci (round-shaped)
  - 1. Streptococci – Blood poisoning, acute sore throat, scarlet fever, and rheumatic fever.
  - 2. Staphylococci – Boils, abscesses, carbuncles, pustules, and food poisoning.  
(NOTE: Staphylococci are a local infection.)
  - 3. Diplococcic – Measles, influenza, and pneumonia
- B. Bacilli (rod-shaped)

C. Spirilla (corkscrew-shaped) Syphilis

X. General shop safety rules

- A. Clean water, hair, or any spilled liquid off the floor immediately.
- B. Avoid touching two metal appliances at the same time.  
(NOTE: If equipment is properly grounded, an electrical shock should not occur.)
- C. Avoid leaving a client alone when connected to an electrical device.
- D. Do not operate any appliance until you have been properly instructed in its use.
- E. Read manufacturer's directions carefully before using any appliances.
- F. Place appliance cords out of traffic lanes.
- G. Leave safety guard on razor at all times.
- H. Report all accidents to the instructor, regardless of the nature or severity.
- I. Avoid running in the shop area.
- J. Keep the floor free of litter at all times.
- K. Handle sharp instruments, such as scissors, with care.  
(NOTE: Avoid dropping scissors to prevent springing them or dulling the points.)
- L. Avoid all horseplay in the shop.
- M. Disconnect appliances immediately after use.
- N. Return all equipment to its proper place before leaving the shop.

XI. Components of the fire triangle (Transparency 1)

- A. Fuel
- B. Heat
- C. Oxygen

XII. Classes of fire

- A. Class A – Fires that occur in ordinary combustible materials such as wood, rags, and rubbish.
- B. Class B – Fires that occur with flammable liquids such as gasoline, oil, grease, paint, and thinner.
- C. Class C – Fires that occur in or near electrical equipment such as motors, switchboards, and electrical wiring.

XIII. Types of fire extinguishers (Transparency 2)

- A. Pressurized water – Used on Class A fires only
- B. Soda acid – Used on Class A fires only
- C. Carbon dioxide (CO<sub>2</sub>) – Used on Class B and C fires
- D. Dry chemical – Used on Class B, C, and some D fires.  
(NOTE: On Class D fires, dry sand is as effective as any dry chemical other than Purple X. The cost of Purple X chemical places it out of range for most salons.)
- E. Foam – Used on Class A and B fires.

**Hair Styling, Curling, and Waving**

1. Use care when inserting hairpins, bobby pins, or clips in order to avoid damaging or scratching the scalp.
2. Exercise great care in the use of sharp-toothed combs to avoid scratching the scalp.
3. Be careful when brushing hair to prevent scalp irritation.
4. Do not permit clips, bobby pins, hairpins, or any metal aid to touch the skin or scalp. These objects become hot under the dryer and could cause burns if allowed to rest on the skin and scalp.
5. Protect the clients' ears and forehead from the intense heat of the dryer.
6. Excessive drying causes the hair to become dry.
7. Immediately clean up any liquid which may have spilled or dripped on the floor to prevent slipping and falling.

**Cold Permanent Waving**

1. Examine the scalp for abrasions and lesions before giving a cold wave.
2. Analyze the hair before giving a cold wave.
3. Test the hair for elasticity and porosity.
4. Wash your hands before and after serving each client and after lotion has been applied. The strong chemicals may injure the skin.
5. Give at least two test curls to determine the condition of the hair and the type of lotion to use.
6. Use proper strength waving lotion for hair that has been tinted, lightened, or damaged.
7. Wear protective gloves when applying cold wave lotion.
8. Have a small bowl of cold water and cotton on hand in the event the lotion drips on the skin while wrapping. Remove excess lotion immediately.
9. Wrap the hair smoothly and without tension.
10. Use non-metallic bowls or plastic applicator bottles to hold waving lotion and neutralizer.
11. Each manufacturer of cold wave lotion has printed instructions, which must be followed explicitly. Instructions may vary according to hair condition.
12. Hold the hair strand up and away from the head when wrapping. Do not hold the strand down and close to the head, and do not hold the strand too upright. Such positions may cause hair breakage.
13. If cotton placed around the client's neck becomes saturated with lotion it should be removed. If a lotion-saturated towel is allowed to remain in contact with the skin, it may cause irritation.
14. If a towel is placed around the head to protect the client's skin from dripping lotion, it should be removed immediately after saturation.
15. Be sure to block the hair evenly. Uneven blocking may produce irregular waves and hair damage.
16. When applying neutralizer make sure the curls are thoroughly saturated and that it is left on only for the required time.
17. Complete record card carefully and accurately.
18. Observe all rules of saturation and sanitization.

19. If the neutralizing of the hair is not done correctly, thoroughly and completely, the cold wave will be a failure. The hair may be damaged by any mild cold waving lotion remaining on the hair.
20. Observation: Hair treated with strong alkaline soaps or other chemicals make the hair very porous. The cosmetologist should questions the client as to what treatments have been given to her hair. Hair that has been tinted with metallic hair coloring, either at home or in a beauty salon, cannot be given a cold wave or it will discolor and break the hair. Test curls should always be given to reveal the condition of the client's hair.
21. Thoroughly rinse the neutralizer form the hair.
22. Avoid fishhooks when wrapping hair ends.
23. Do not leave the client alone while processing a cold wave.
24. Obtain information concerning the client's cold wave history.
25. Protect clothing of client by proper draping.
26. Have client remove her glasses, ear jewelry and neck jewelry.
27. Do not brush the hair too briskly or rub scalp too hard during the shampoo prior to giving a permanent wave.
28. Blot excess lotion from the scalp.
29. Do not stretch or pull hair during wrapping.
30. Do not stretch rubber bands too tightly over rods when hooking it.
31. Check for complete coverage of client's clothes before shampoo or solutions are applied to the hair.
32. Remove hair from floor as soon as possible, as it is easy to slip on.

### **Chemical Hair Relaxer**

1. Know the texture of the hair to be treated.
2. Check the elasticity of the hair for its ability to stretch.
3. Check the porosity of the hair and its ability to absorb moisture.
4. Do not relax damaged hair. Suggest a series of reconditioning treatments.
5. Always read and follow the manufacturer's instructions before you start the treatment.
6. Never give a chemical hair relaxing treatment to hair which has recently been straightened by a hot pressing comb.
7. Always fill out a record card at the completion of each treatment.
8. Give a patch test before each relaxer treatment.
9. Make a strand test to be sure the relaxer treatment can be safely given.
10. Examine the scalp for abrasions; if any are present, do not give a relaxer treatment.
11. Apply a petroleum base to protect the scalp from the active agents in the relaxer (if required by the manufacturer).
12. If a base is used after the application, check carefully to see that the scalp has been completely and thoroughly covered. Failure to cover the scalp carefully can result in a burn by the chemicals being used.
13. Always use great care and caution when applying the relaxer.
14. Never leave the client alone while the relaxer is on the hair.
15. Wear gloves to apply relaxer to hair.

16. Use extreme care when applying the relaxer to avoid spilling it on the ears, scalp or skin.
17. When rinsing the relaxer from the hair, great care should be taken that the water is not too hot. Use tepid water to avoid scalp irritation.
18. Be sure to thoroughly shampoo the hair. Failure to do so would cause the relaxer to continue to act, resulting in hair damage.
19. When rinsing the shampoo from the hair, always work the fingers from the scalp to ends following the water stream to prevent tangling of the hair.
20. The application of stabilizer to the hair, following the shampoo is important to keep the hair in a relaxed or straight form.
21. Use a wide-tooth comb and avoid pulling when combing the hair.
22. Apply scalp cream to the scalp after the hair is dry and before combing to restore some of the natural oils, which have been removed by the chemicals.
23. When retouching the new growth do not allow the relaxer to overlap onto the already relaxed hair.
24. Avoid scratching the scalp with a comb, brush, or fingernails before or after treatment.
25. Avoid leaving the chemical relaxer on the hair any longer than is necessary to straighten it.
26. Avoid harsh or rough handling of the scalp and hair.
27. Avoid the use of hot irons on the hair.
28. Avoid getting chemicals or rinse water in the eyes.
29. Do not use a vigorous shampoo.
30. Do not use a strong relaxer on fine woolly hair.
31. If hair ends are in damaged condition, trim the hair before relaxing treatment is given.
32. Avoid rubbing the relaxing agent on to the hair.
33. Test the action of the relaxing agent frequently to determine how fast the natural curl is being removed.

### **Hair Coloring**

1. Make a 24-hour patch test before application of the tint or toner.
2. Do not apply tint if abrasions are present on the scalp.
3. Do not brush the hair prior to a tint.
4. Do not apply a tint without reading the manufacturer's directions.
5. Make a strand test to check for condition processing time results.
6. Use an applicator bottle or bowl (plastic or glass) for mixing the tint.
7. Do not mix tint before ready to use. Discard leftover tint.
8. Do not apply aniline derivative tint if a patch test is positive.
9. Do not use an alkaline or harsh shampoo for tint removal.
10. Do not use water that is too hot for removing tint.
11. Protect the client's clothing by proper draping.
12. Do not permit tint to come in contact with the client's eyes.
13. Do not overlap during a tint retouch.
14. Do not neglect to fill out a tint record card.

15. Do not apply hydrogen peroxide or any material containing hydrogen peroxide directly over tints known or suspected of containing a metallic salt.
16. Wear gloves to protect the hands.
17. Do not apply tint prior to patch test. Failure to observe this Federal requirement, followed by sonic allergy reaction, is reason for insurance companies to refuse payment on claims.
18. Do not apply tint to the eyelashes or brows.
19. When using semi-permanent color rinses, read manufacturer's directions regarding a patch test.
20. Always read the manufacturer's directions.
21. For lightened or damaged hair, use a shampoo with low alkalinity.

### **Care of Wigs**

1. Great care must be taken when combing or brushing wigs to avoid matting and loss of hair.
2. When dry cleaning a wig or hairpiece, never rub or wring the cleaning fluid from it.
3. When shaping (cutting) a wig or hairpiece, use great care; once the hair has been cut, it cannot grow back. Place the wig on the client's head for correct shaping.
4. When combing a freshly set wig, use a wide-tooth comb to avoid abuse to the foundation and to gain greater control in combing.
5. When cleaning or working with a wet wig, it must always be mounted on a block the same head size as the wig, to avoid stretching or shrinking.
6. To avoid damage to the foundation, never give a permanent wave to a wig or hairpiece.
7. If hair coloring is necessary, it must be done with great care.
8. Do not tint a wig unless it is constructed of 100% human hair.
9. Do not work the tint into the foundation of the wig. This will cause the foundation to deteriorate.

### **Facials**

1. When applying creams to the face, care should be taken to avoid getting cream into the eyes of the client.
2. Avoid excessive or rough massage.
3. Lotions, creams, or water spilled on the floor should be wiped up immediately.
4. Do not remove blackheads.
5. When applying creams or lotions, clean cotton pads must be used.
6. The cosmetologist should use a sanitized spatula to remove all creams from jars.
7. Cover client's eyes with moistened cotton pads when using a therapeutic light.
8. Do not use very hot towels on the face.
9. Cap each bottle and jar after each use.
10. When giving a facial to a client with dry skin, avoid using any cosmetics containing alcohol.
11. Avoid using facial makeup on a person who has acne.
12. Carefully remove creams from around the eyes.

13. Do not attempt to treat any skin disease.
14. Never dip the fingers into any cosmetic material.

### **Hair Pressing**

1. Examine the scalp and hair before pressing the client's hair.
2. To prevent hair damage, avoid pressing the hair too frequently.
3. Avoid excessive heat and pressure on the hair and scalp.
4. Avoid using too much pressing oil on the hair.
5. Avoid using perfumed pressing oil near the scalp if the client is allergic to it.
6. Avoid overheating the pressing comb.
7. Test the temperature of the pressing comb before applying it to the hair.
8. Adjust the temperature of the pressing comb to the client's hair texture and condition of the hair.
9. Use a moderately warm comb to press short hair on the temples and back of the neck.
10. In case of a scalp or skin burn, immediately apply 1% gentian violet jelly directly to the wound.
11. Avoid excess heat on gray, tinted or lightened hair, as the heat may discolor the hair.
12. When there is any possibility of hair damage due to the condition of the client's hair, the hair cannot be pressed.
13. Never give a hair pressing treatment if the client has a contagious hair or scalp condition.
14. Give reconditioning treatments to damaged hair after it is shampooed.
15. To prevent steam burns, dry the hair completely after it is shampooed.

### **Thermal Waving and Curling**

#### **Marcelling and Iron Waving**

1. Test the temperature of the iron on paper before placing it on the hair. This will prevent the hair from being burned.
2. A hot iron should not be cooled by twirling it. It may slip from the hands and break or cause injury.
3. Place hot irons in a safe place to cool. Do not leave them where someone may accidentally come in contact with them and burn themselves.
4. When heating irons do not place handle too far into the heater, or the hand may be burned.
5. Make sure that the irons are properly balanced in heater or they may fall and injure someone.
6. Celluloid combs may not be used in thermal heat curling. They are flammable. Use hard rubber or non-flammable combs only.
7. Place combs between scalp and hot thermal (Marcel) iron when waving hair to prevent burning the scalp.
8. Never use a hot pressing or Marcel iron on lightened or tinted hair.
9. Do not use metallic combs; they may become hot and burn the client.

### **Electrical Appliances**

1. When high-frequency is to be used in connection with lotion containing alcoholic content, the lotion must be applied after using the current, never before.
2. When a scalp treatment is to be given with high frequency, it should be started with a mild current and gradually increased to the required strength.
3. If a person has a weak heart, fever, inflammation or abscess, a vibrator should never be used.
4. A client must never be left alone when connected to any electrical machine.
5. Therapeutic lamps should be adjusted to a distance that is comfortable for the client.
6. The cosmetologist should be careful in adjusting the dryer so that it does not touch the client's head.
7. Use only one plug in each outlet; overloading may cause fuse to blow out.
8. To disconnect current, grasp and remove plug without pulling cord. Never pull on cord, as the wires may become loosened and cause a short circuit.
9. Examine cords regularly. Repair or replace worn cords to prevent short circuit, shock or fire.
10. Do not touch metal while using any electrical appliance.
11. Do not handle electrical equipment with wet hands.
12. Do not attempt to clean around electrical equipment when it is connected to an electrical current.

### **Temporary Hair Removal**

1. To prevent burns, test temperature of heated wax before applying it to the client's skin.
2. Be careful to avoid letting wax run into eyes or over any area where it is not wanted.
3. Do not use wax depilatory under the arms, nor over any warts, moles, abrasions, or any irritated or inflamed areas.
4. When using chemical depilatories, it is advisable to give a skin test to determine if the individual is sensitive to the action of this type of depilatory.

### **Massage**

1. Do not massage over client's skin without first applying cream or oil. To do so may damage the tissues.
2. Do not employ the use of heavy massage if the client has a heart condition or high blood pressure.
3. Do not massage over swollen joints or glandular swellings.
4. Do not massage over skin abrasions, skin diseases, or broken capillaries.
5. Do not massage with hands that are rough or nails that are too long or not smoothly beveled.
6. Massage in the correct direction of movement, from the insertion of a muscle toward its origin.

7. Do not use the ends of the fingertips for massage movements. Fingertips cannot control the degree of pressure and the free edge of the fingernails may scratch the skin. Use the cushion of the fingertips.
8. Do not use heavy pressure when massaging the underside of the client's forearm, between the shoulder and elbow.
9. Do not use a deep friction movement when massaging the face and neck.
10. Do not attempt to massage until the wrists and fingers have developed flexibility.

### **Makeup**

1. Care should be taken to avoid getting creams or lotions in the eyes.
2. The client's hair should be covered with a towel or headband protector while makeup is being applied.
3. Dust powder over the face, being careful not to get it into the eyes.
4. Usually mascara is applied to upper lashes only.
5. Remove cosmetics from containers with a sanitized spatula.
6. For sanitary reasons, use a disposable lip brush or the client's own lip brush.
7. Discard all used materials.
8. Keep jars and lotion bottles tightly closed.

### **Hair Shaping**

1. Examine the scalp before cutting the client's hair.
2. Wash hands before and after working on the client.
3. Always hand the scissors with handle extended toward person receiving them.
4. Hold scissors firmly when using them to prevent their slipping out of hand and falling to floor. A broken blade or injury to self may result.
5. Use a safety guard on a razor when giving a razor haircut. The guard prevents injury.
6. Close the razor when not in use and place in case.
7. Hold the razor firmly to prevent it from slipping out of hand and falling on the floor.
8. Avoid nipping the skin with the points of the scissors.
9. When trimming the neck, protect the tips of scissor blades with fingertips of the left hand or with the comb.
10. Replace or sharpen the blade of the razor when it becomes dull. A dull razor will pull the hair. Place discarded blades in a closed container.

**Heating Cap – High Frequency**

1. Check cap for working order before using it. Loose wires may cause a short circuit or injury to client.
2. Do not touch electrical appliances with wet hands.
3. Caution should be exercised to avoid scratching client's scalp with the bristles of a brush, teeth of a comb, or the fingernails.
4. Care should be exercised to see that all jars, bottles, etc. are tightly closed and labeled.
5. A sanitized spatula should be used to remove cosmetics from their containers.
6. Use care to avoid getting oil or cream in the client's eyes.
7. All implements to be used in giving a scalp treatment must be sanitized.
8. When high frequency current is to be used in combination with a lotion that has a high alcohol content, the lotion must be applied after using the current, never before.
9. Avoid harsh manipulations as well as lotions and ointments that are too strong.
10. When a scalp treatment is to be given with high frequency current it should be started with a mild current, and gradually increased to the required strength.
11. To prevent irritation and injury to the eyes, the cosmetologist and the client should wear protective goggles during exposure to ultraviolet rays.
12. Avoid giving a scalp treatment if there are scalp abrasions or a scalp disease.
13. When using high frequency current on the scalp, avoid having the client come in contact with metal, such as on chairs.

**Pedicuring**

1. Keep all containers covered and labeled.
2. Use dry hands to hold or move containers.
3. Handle sharp pointed implements carefully and avoid dropping them.
4. Bevel a sharp toenail with an emery board.
5. Don't file deeply into toenail corners.
6. Do not file a sharp pointed implement to clean under the nail.
7. To prevent injury, avoid pushing the cuticle back too far.
8. Avoid too much pressure at the base of the nail.
9. Do not work on a toenail that is diseased or contains pus.
10. Do not give a pedicure to a person with a foot infection. Refer them to a physician for medical help.
11. Do not cut the cuticle.
12. Do not massage over the shin bone or above the knee.

**Manicuring**

1. Always examine the hands and nails for skin abrasions or nail disorders before giving manicure.
2. Do not give a manicure to a person with infected nails.
3. Do not use the steel point of the pusher for cleaning underneath the nails; it may cut or break the skin.
4. Work gently toward the matrix of the nail when using the cuticle pusher to prevent scraping the nail bed.
5. Hold the cuticle pusher lightly when removing cuticle around the matrix. Heavy pressure on the matrix may damage the nail.
6. Keep edge of implements properly sharpened. Place in case when not in use.
7. Place a fresh swab of cotton on end of orangewood stick when cleaning underneath the nail or working around the cuticle.
8. Press orangewood stick lightly against the base of the nail when removing polish or pushing back cuticle.
9. Do not file the nails too short. To do so may cause soreness and possible infection.
10. Use a clean sanitized towel for each client.
11. Wash hands before and after each client.
12. Before and during the manicure, implements should be kept in a sanitizer containing a 70% alcohol solution.
13. Place a piece of cotton on the bottom of the glass jar sanitizer to prevent dulling the implements.
14. Keep all containers covered and labeled.
15. Handle sharp-pointed implements carefully and avoid dropping them.
16. Over-sharpened cutting edges of implements should be dulled with an emery board.
17. Bevel a sharp nail edge with an emery board.
18. Do not file too deeply into nail corners.
19. Avoid excessive friction in nail buffing.
20. When using polish remover, hold bottles properly to avoid spilling and damaging clothing.
21. Use dry hands to hold or move containers.
22. Do not work on a nail that is diseased or contains pus.

**Shampooing and Rinsing**

1. Place a towel or sanek strip around the client's neck before adjusting the cape, to prevent the cape from coming in direct contact with the skin.
2. Examine the client's scalp and hair before shampooing.
3. Wash your hands before and after serving each client.
4. Do not repair a leaky hose with tape. Report it so that it may be replaced.
5. Place spray back in holder so that the water will not drip from hose to the floor.
6. Turn cold water on first to prevent scalding self and client.
7. Test the temperature of the water before applying it to the client's head.
8. If using a reclining shampoo chair, be very careful when adjusting the chair to avoid bumping the client's head on the sink.
9. If water accidentally spills on the floor, wipe it up immediately to prevent accidents.
10. Do not brush the hair or massage the scalp if a permanent wave, tinting, or lighting treatment is to follow; to do so will cause scalp irritation.
11. Do not brush or massage the scalp if the scalp is tender.
12. Clean and sanitize the shampoo bowl after each use.
13. Do not turn the dryer to "hot" if the client has a history of high blood pressure.
14. Do not permit your fingernails to scratch the client's scalp.

**General Safety Rules**

1. Do not smell the contents of a bottle in order to identify it.
2. Carefully read manufacturers' labels before using a product.
3. Remove hair, cotton, oil, or other liquids from the floor to prevent slipping or falling.
4. Keep the room well ventilated, heated, and free from dust.
5. Turn off faucets firmly to prevent water from dripping.
6. Replace covers of jars and bottles securely to avoid spoilage.
7. Have all jars properly labeled as to its contents.
8. Carefully read labels on jars and bottles. Close securely to avoid spoilage.
9. Do not use contents of broken jars or bottles. Place in a paper bag, label as broken glass, and place in trash container.
10. Work only under adequate light. Improper lighting will result in eyestrain. Wear eyeglasses if prescribed.
11. Wipe the cream or oil from the outside of bottles or jars. It will prevent the jars or bottles from slipping out of your hands.
12. Test all hot preparations before applying to client's head or skin.
13. Dispose of broken glass immediately.
14. Prevent burns by using forceps to insert or remove objects from the heat source.
15. Keep a complete first aid kit on hand.

## **COSMETOLOGY**

### **Hazardous Waste Management Plan**

#### **Solvents and Aerosol Cans**

All acetone-soaked cotton and aerosol cans should be placed in an appropriate sealed container and properly labeled "Hazardous Waste." This container is kept closed except when adding or removing waste. This container is housed outside the Cosmetology Department until it is full. At that time the container is moved to the designated storage area until it is picked up by a licensed disposal company and taken to a hazardous waste disposal facility.

## **OFFICE ADMINISTRATION SAFETY PRACTICES**

Although accidental injuries in business and office occupations are usually not as severe as in other areas, a few additional safety practices merit attention.

1. Ensure that the following conditions are met:
  - a. Casters on swivel chairs are securely fixed to the base of the chair.
  - b. Adjustment features on chairs are maintained so that they will work properly.
  - c. Drawers on desk and file cabinets have safety stops.
  - d. Guards are placed on paper cutter.
  - e. Office machines that creep during operation are secured.
  - f. Typewriters on pedestals are fastened to the pedestal.
  - g. Electrical outlets placed on floors are located where they will not be accidentally kicked or used as a footrest.
  - h. Telephone and electrical outlets do not protrude into passages that people use.
  - i. If cords must cross the floor, they are covered with rubber channels.
  - j. Maintenance personnel move desks and files.
  - k. File drawers and typewriter carriages do not jut out into aisles.
2. Office machines are not placed near the edges of table or desks.
3. Keep all chairs pushed up to tables when not in use.
4. Keeps desks in straight line with ample space between each row.
5. Keep all fire lanes open and properly identified.
6. Ensure that all personnel know the location of fire exits and the proper exit procedure.
7. Turn off all machines when they are not in use.
8. Keep machines properly covered when they are not in use.
9. Do not wear jewelry or loose clothing that could get caught in machines.
10. Open only one drawer at a time when using file cabinets.
11. Make sure all filing cabinet drawers are completely closed.
12. Keep card index files, dictionaries, or heavy objects off the top of file cabinets and other furniture.
13. Have all outlets identified.
14. Have all cords properly stored off floors.
15. Turn off power on electrical equipment during electrical storms.
16. Disconnect electrical cords by grasping the plug, not by pulling the cord.
17. Arrange electrical cords of office machines to avoid tripping hazards.
18. Operate multiple-copy duplicating equipment only after it has been properly installed.
19. Do not confine duplicating processes to a separate small room unless it is vented to the outside.
20. Store pointed items like tacks and razorblades with points concealed.
21. Wear rubber finger guards when filing to avoid cuts and injury.
22. Seek immediate first aid attention for cuts or puncture wounds.
23. Have a first aid kit available.
24. Report any loose tiles found on the floors.
25. Promptly clean up all spills.

26. Put all waste paper in trash cans.
27. Do not fill trash cans to overflowing.
28. Open doors with caution.

## **INDUSTRIAL ELECTRONICS TECHNOLOGY AND COMPUTER INFORMATION SYSTEMS**

### **Safety Practices**

Electricity can be dangerous and even fatal to those who do not understand it and practice the simple rules of safety. There are many fatal electrical accidents involving well-trained technicians who, either through over-confidence or carelessness, violate the basic rules of personal safety.

### **Personal Safety Rules**

1. Wear shop clothing appropriate to the instructional activity being performed.
2. Confine long hair before operating rotating equipment.
3. Always wear safety glasses; use suitable helmets and goggles.
4. Eliminate loose clothing when working around machine tools or rotating equipment.
5. Remove jewelry while working in the shop.
6. Conduct yourself in a manner conducive to safe shop practices.
7. Use soap and water frequently as a method of preventing skin disease.

### **General Shop Safety Rules**

1. Keep all hand tools sharp, clean, and in safe working order.
2. Report any defective tools, machines, or other equipment to the instructor.
3. Make sure all guards are in place and operating correctly.
4. Operate machines only with instructor's permission and after you have received instructions.
5. Report all accidents to the instructor regardless of nature or severity.
6. Turn off power before leaving a machine tool.
7. Disconnect the power from machine tools before performing the maintenance tasks of oiling or cleaning.
8. Use a solvent only after determining its properties, what kind of work it has to do, and how to use it.
9. Use correct, properly fitting machine wrenches for nuts, bolts, and objects to be turned or held.
10. Keep the shop or laboratory floor clean of scraps and litter.
11. Clean up any spilled liquids immediately.
12. Store oily rags or oily waste in proper containers.
13. Clean the chips from a machine with a brush, not with a rag or the bare hands.
14. Arrange machinery and equipment to permit safe and efficient work practices and ease in cleaning.
15. Store materials and supplies properly.
16. Store tools and accessories safely in cabinets, on racks, or other suitable devices.
17. Keep working areas and workbenches clear and free of debris and other hazards.
18. Keep floors clean and free from obstructions and slippery substances.
19. Keep aisles, traffic areas, and exits free of materials and other debris.

20. Dispose of combustible materials properly or store in approved containers.

### **Electrical Safety Rules**

There are generally three kinds of accidents which occur too frequently among IEE students and technicians. Workers in this area need to take special precautions to avoid accidents involving electrical shock, electrical burns, and mechanical injury.

#### **Rules for Avoiding Electrical Shock**

##### **CAUTION:**

**ELECTRICAL SHOCK CAN CAUSE DEATH. CONSIDER ALL RULES FOR AVOIDING ELECTRICAL SHOCK AS MANDATORY WHEN WORKING WITH ELECTRICITY.**

1. Be sure of the condition of the equipment and the dangers present **BEFORE** working on a piece of equipment.
2. Do not rely on safety devices such as fuses, relays, and interlock systems to protect you. They may not be working or may fail to protect when most needed.
3. Do not work on a cluttered bench. A disorganized mess of connecting leads, components, and tools only leads to careless thinking, short circuits, shocks, and accidents. Develop habits of systemized and organized procedures of work.
4. Do not work on a cluttered floor. You may stumble and fall and grab a piece of equipment to break your fall. It could be dangerously alive with electricity.
5. **NEVER WORK ON WET FLOORS.** Your contact resistance to ground is substantially reduced. If voltages are high, work on a rubber mat or an insulated platform.
6. Work with one hand behind you or in your pocket. A current between two hands crosses your heart and can be more lethal than a current from hand to foot.
7. Do not work alone. It is just good sense to have someone around to shut off the power, to give artificial respiration, and to call the doctor.
8. Do not talk to anyone while you are working. Do not let yourself be distracted.
9. Do not talk to anyone else who is working on dangerous equipment. Do not be the cause of an accident.
10. Move slowly when working around electrical circuits. Violent and rapid movements lead to accidental shocks and short circuits.

#### **Rules for Avoiding Electrical Burns**

1. Wait for vacuum tubes to cool before attempting to remove them from a chassis.
2. Wait for resistors to cool before touching them. Those that carry high currents get very hot.
3. Be on guard for all capacitors which may still retain a charge. Not only can you get a dangerous and sometimes-fatal shock, you may also get a burn from an electrical discharge.

4. Be careful when using a soldering iron or gun. Do not place it on the bench where your arm might accidentally hit it. Do not store it away while still hot; some unsuspecting student might pick it up.
5. Wait for soldered joints to cool. When de-soldering joints; do not shake hot solder off. You or your neighbor might get hit in the eyes, on the body, or clothes.

### **Rules for Avoiding Mechanical Injury**

1. Choose the proper tool for the job.
2. Operate tools and machinery only with the instructor's permission and after you have received instruction.
3. Remove jewelry, eliminate loose clothing, and confine long hair.
4. Use proper eye protection when grinding, chipping, or working with hot metals which might splatter.
5. Protect your hands and clothes when working with battery acids, etchants, and finishing fluids.
1. File metal corners and sharp edges on chassis and panels until they are smooth.
2. Be sure you know what you want to measure and how you are going to do it before connecting the instrument and turning on the power, which means, read the instruction manual first, ask your instructor to check your work, and be sure you understand the lesson.
3. Check and recheck the polarity of the test leads connected to a circuit before applying power. Save a meter.
4. Check and recheck the range of your meter before applying power to a circuit. Save a meter.
5. Make sure all guards are in place and operating correctly.

### **Safety Suggestions for Drill Press**

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 use proper eye protection.
5. Select properly sharpened drill bit, tighten in chuck, and remove key.
6. Clamp material and check for safety before turning power on.
7. If a piece of work is caught in the drill, turn off power. Do not try to stop by hand.
8. Select speed carefully; the larger the drill, the slower the speed.

### **Safety Suggestions for Electric Grinder**

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 use proper eye protection.
5. Never operate grinder in a wet area.
6. Make sure ground wire is connected.
7. Wear face shield in addition to safety goggles.

8. Make sure a backing plate is used at all times. The backing plate must be the correct size to match the grinding disc.
9. Make sure the disc nut is tight before starting the grinder.
10. Start the grinder off the job and stop it on the job.
11. Never leave the grinder running.
12. Do not direct the spark toward anyone or anything flammable, or anything which could be damaged by the sparks.
13. Do not grind next to metal edges, sharp edges, holes, or anything loose which could catch disc.

#### **Safety Suggestions for Portable Electric Drill**

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 use proper eye protection.
5. Unplug the drill when changing bits.
6. Make sure switch is off and key removed before connecting to power source.
7. Mark hole location with center punch (metal) or awl (wood) before drilling.
8. Be sure work is tightly clamped or secure before drilling.
9. Drill with straight, even, steady pressure.
10. Do not use in damp or wet areas.
11. Be sure the appropriate drill bit is used and properly secured in the chuck.

#### **Safety Suggestions for Solder Gun**

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 use proper eye protection.
5. Work in a well-ventilated area and avoid inhaling soldering fumes.
6. Observe all rules for handling hot materials.
7. Do not flip excess molten solder off the tip of solder gun. Wipe it off with a piece of steel wool.
8. Do not stand in wet areas while using the solder gun.
9. Never leave the solder gun unattended with the electrical cord plugged in.
10. Always disconnect cord when changing soldering tips.
11. Clean up soldering flux immediately; it can cause burns.
12. In case of acid burns, flush immediately with water. (Use baking soda to neutralize acids).
13. Never use solder gun with worn or exposed wiring or a cracked plastic cover/handle.

## INTRODUCTION

The safety mistakes a student/technician/instructor makes could have personal, material, environmental, and financial costs. This manual is designed to help instructors instill safety awareness in their students. It is also intended to alert the school staff to their areas of responsibility and, at the same time, to reduce accidents and exposure to litigation.

Effective safety awareness education leads to safer attitudes and safety consciousness, which in turn lead to safer working practices and accident prevention within the technical college environment. Safety needs to be an ongoing process and a part of each lesson presented to students.

This manual addresses the major and more common concerns of safety in the programs offered at Reid State Technical College. **It is not to be perceived as all-inclusive.** Use it as a safety resource only, not a substitute for comprehensive safety training in each of the areas discussed.

The **GENERAL SAFETY PRACTICES** chapter covers safety issues related to the entire campus. All individual departments should follow the guidelines presented under **GENERAL SAFETY PRACTICES**. The departmental chapters include extra information pertinent to those specific technical areas. **APPENDIX A** contains forms and charts, some of which are referred to in the general or departmental chapters. Safety procedures for the use of specific tools and machines can be found in two places. **APPENDIX B: TOOL AND MACHINE SAFETY** presents equipment in alphabetical order. Identical information on tools and machines used in the particular technical area can be found in pertinent departmental chapter.

The information contained in this manual has been gathered from sources believed to be reliable and to represent current opinion on the subject of safety in the workplace. Some of the material comes from non-copyrighted publications obtained from the National Network for Curriculum Coordination in Vocational and Technical Education. Reid State Technical College assumes no responsibility for the absolute correctness or completeness of the material contained in this book. It cannot be assumed that all acceptable safety measures are presented here, or that other or additional measures may not be required under particular or exceptional circumstances. Safety standards and guidelines may change. It remains your responsibility to understand and follow all current regulations and practices.

## GENERAL SAFETY PRACTICES

### INTRODUCTION

Accidents are normally caused by *unsafe acts* or *unsafe conditions*. An effective safety program for a technical college must provide guidelines for eliminating unsafe conditions and must also provide instruction aimed at avoiding unsafe acts. Staff, faculty, and students need the knowledge and skills that will keep them and their environment safe. An accident-free campus can exist only if all personnel are involved and committed to safety.

Safety practices common to all program areas are presented in these ten categories for the general information of all employees and students.

Safety Instruction

Personal Safety

Body Mechanics

Personal Protective Behavior

Personal Protective Equipment

Facility Safety

Facility Condition

Housekeeping Practices

Energy Source Safety

Gas

Electricity

Equipment Safety

Machines

Hand Tools

Ladders

Scaffolds

Fire Safety

Traffic Safety

Hazardous Materials

First Aid

Record keeping

## **SAFETY INSTRUCTION**

Teach safety as an integral part of each instructional unit or job. These techniques will help you:

1. Include audio-visual aid, posters, a suggestion box, talks by community experts, and departmental safety meetings in your safety instruction.
2. Post safety regulations in areas where dangerous conditions exist.
3. Give printed safety rules to each student.
4. Conduct periodic safety inspections of the laboratories and workplaces. These inspections should be made by industrial personnel, staff, faculty, or other concerned persons.
5. Investigate accidents promptly and thoroughly.
6. Establish a record keeping system for the safety units covered.
7. Instruct all personnel in the location and proper use of appropriate fire equipment for various fires.
8. Make sure machines and dangerous tools are used only under adequate supervision.
9. Evaluate students' safety knowledge and skills through written examinations and classroom observation.
10. Establish a procedure for handling emergency situations, including accident and fire.

## **PERSONAL SAFETY**

### **Body Mechanics**

1. Distribute the workload by using as many muscles as possible.
2. Use both hands to pick up heavier objects.
3. Avoid lifting heavy objects alone. Request help.
4. Push rather than pull, whenever possible.
5. Use leg muscles, rather than back muscles to lift heavy objects.
6. Avoid bending and unnecessary twisting of the body for any length of time.
7. Work at the proper level.
8. Avoid carrying long pieces of material alone. Use at least two people.

### **Personal Protective Behavior**

1. Confine long hair so that it is not exposed to machinery and does not interfere with vision.
2. Wear safety goggles, glasses, or other eye protection when there is danger of eye injury.
3. Use respirators where harmful dusts or fumes exist.
4. Determine the physical handicaps and limitations of all students so that they will not be assigned tasks detrimental to their health or physical condition.
5. Do not wear loose clothing in the laboratory and shop areas.
6. Remove rings and other jewelry while working in the laboratory and shop areas.
7. Wear ear protection where noise levels are excessive over long periods.

8. Wear protective apparel, including safety shoes, aprons, shields, and gloves when the nature of the task requires it.
9. Keep respirators, masks, and goggles clean and sterile.
10. Wear head protection in all areas where there is danger of falling or flying objects.

### **Personal Protective Equipment**

Never use personal protective equipment as your first line of defense against personal injury on the job. It is no substitute for following proper safety rules. Think of it, instead, as an extra safety device when other safety measures fail.

### **Eye Protection**

1. Wear appropriate protective eyewear (safety goggles, safety glasses, or face shields) in all areas where there are activities potentially hazardous to the eye. Alabama law (Act No. 168) requires eye protection devices for students and instructors working with:
  - a. Hot molten metals;
  - b. Milling, sawing, turning, shaping, cutting, or stamping of any solid materials;
  - c. Heat treatment, tempering, or kiln firing of any metal or other materials;
  - d. Gas or electric arc welding;
  - e. Repair or servicing of any vehicle; or
  - f. Caustic or explosive materials.
2. Provide accessibility to eyebaths in areas where chemicals are used that could be hazardous to eyes.
3. Follow all OSHA guidelines when wearing contact lenses with eye and face protection.

### **CAUTION**

**CONTACT LENSES MAY CREATE A HAZARD WITH CERTAIN CHEMICALS AND PARTICLES AND CAN BADLY DAMAGE YOUR EYES IF WORN IN VIOLATION OF OSHA GUIDELINES. CONTACT LENSES ARE NOT A FORM OF EYE PROTECTION.**

### **Ear Protection**

1. Report high noise levels in your work area.
2. Control noise levels in your work area, using such methods as engineering controls, layout of machines, and equipment attachments.
3. Wear proper ear protection when exposed to noise levels of 80dB or above for extended periods.
4. Wear proper ear protection when noise levels exceed 120dB for **any** length of time.

### **Hand and General Body Protection**

1. Use the right equipment for the job (gloves, arm protectors, aprons, coats).
2. Inspect all gloves and body protection equipment before each use.
3. Do not wear gloves around moving machinery.
4. Keep loose aprons and apron strings away from moving machinery.

#### **CAUTION:**

**GLOVES AND LOOSE CLOTHING COULD BE CAUGHT BY A DRILL, SAW, GRINDER, OR OTHER MOVING PART AND BE PULLED INTO THE MACHINE OR TOOL.**

5. Do not wear gloves with metal parts around electrical equipment or electrical hazards.

### **Respiratory Protection**

1. Use the proper respiratory protection in any situation when you are exposed to dangerous contamination from gases or vapors or contamination from particles such as dust, fog, fumes, mists, smoke, or spray.
2. Check your mask for a proper fit before using it.
3. Clean all non-disposable respiratory equipment according to manufacturer's instructions after each use.
4. Inspect all respiratory equipment before and after each use.
5. Store all respiratory equipment properly after each use.

### **FACILITY SAFETY**

#### **Facility Condition**

1. Arrange aisles, machines, benches, and other equipment to conform to good safety practices.
2. Keep stairways, aisles, and floors clean, dry, and unobstructed, with no protruding objects.
3. Keep walls, windows, and ceilings clean, in good repair, and free of protrusions.
4. Provide safe, sufficient, and well-placed lighting.
5. Provide proper ventilation and temperature controls for existing conditions.
6. Select, adequately supply, properly locate, inspect, and periodically recharge appropriate fire extinguishers and other necessary fire equipment.
7. Identify and illuminate exits properly.
8. Keep lockers and drawers clean, free of hazards, and closed.
9. Inform personnel of the procedures for notification of fire and evacuation of premises.
10. Keep laboratories and workplaces free from excessive dust, smoke, and airborne toxic materials.
11. Identify utility lines and shutoffs properly.

12. Guard with rails and toe boards all stairways, floor openings, and overhead storage areas.
13. Ensure stairways have proper clearance.

### **Housekeeping Practices**

1. Remove and properly dispose of all sawdust, shavings, metal cuttings, rags, and other waste materials daily.
2. Use properly marked boxes, bins, or containers for storage of various kinds of scrap stock and rags.
3. Use sturdy racks and bins for material storage, arranged to keep material from falling and to avoid injuries from protruding objects.
4. Use a standard procedure to keep floors free of oil, water, and foreign material.
5. Clean equipment and facilities properly after each use.
6. Provide regular custodial service in addition to end of class cleanup.
7. Never use compressed air to clean clothing, equipment, and work areas.

### **CAUTION:**

**COMPRESSED AIR PROPELS PARTICLES AT VELOCITIES HIGH ENOUGH TO CAUSE SERIOUS PERSONAL INJURY, ESPECIALLY TO THE EYES. DO NOT USE IT FOR ANY UNAUTHORIZED PURPOSES.**

8. Keep walkways and work areas free of all obstructions.
9. Maintain floor surfaces in a “non-skid” condition.
10. Store tools and materials orderly and safely.
11. Ensure that file cabinets and other tall cabinets are properly anchored or fastened as required for safe use.

### **ENERGY SOURCE SAFETY**

#### **Gas**

### **CAUTION:**

**ONLY QUALIFIED, AUTHORIZED PERSONS SHOULD PERFORM ANY SERVICE ON GAS APPLIANCES**

1. Ensure that the following conditions have been met and that the necessary service has been performed by a qualified, authorized person:
  - a. The flow of gas to gas appliances is regulated so that the flame is proper height when the appliance valve is turned on full.
  - b. Gas appliances are properly insulated from tables, benches, adjacent wall, or other flammable materials.
  - c. No gas hose is used where pipe connections can be made, except where authorized.
  - d. Gas appliance valves are adjusted so that they may be lighted and maintained at proper height without undue hazard.

2. Make sure there are no apparent gas leaks or any detectable odor of gas in any part of the shop or laboratory.

**IMPORTANT: REPORT ANY SUSPECTED GAS LEAK IMMEDIATELY  
TO PROPER PERSONNEL.**

### Electricity

**CAUTION:  
ONLY QUALIFIED, AUTHORIZED PERSONS SHOULD PERFORM ANY  
SERVICE ON ELECTRICAL EQUIPMENT**

1. Ensure that the following conditions have been met and that the service has been performed by a qualified, authorized person:
  - a. Equipment shall be properly grounded.
  - b. All switch boxes, junction boxes, wires, and conduits shall be properly covered or closed.
  - c. Defective, inadequate, worn, frayed, wet, oily, or deteriorated insulation should be replaced.
  - d. All stationary and portable electric tools should be properly connected and grounded according to manufacturer's specifications.
  - e. Broken housing and loose or vibrating machine parts should be replaced before equipment is used.
  - f. Hazardous locations should be equipped with explosion-proof or other special wiring methods as defined in the National Electrical Code.
  - g. All equipment or circuits being worked on or repaired should be locked out or otherwise de-energized and tagged.
  - h. All installation or extension of electrical facilities must comply with the National Electrical Code.
  - i. All motors and other electrical equipment should have proper safety switches.
2. Do not use equipment and tools that do not meet the approval of the Underwriters Laboratories.
3. Never clean electrical panels, switch boxes, motors, and other electrical equipment with water or dangerous solvents.

**CAUTION:  
THE COMBINATION OF WATER OR SOLVENTS WITH ANY  
ELECTRICAL SOURCE COULD CAUSE IMMEDIATE ELECTROCUTION.  
SOLVENTS POSE THE ADDED THREAT OF FIRE OR EXPLOSION**

4. Do not overload circuits or over fuse circuits by using the wrong size or type of fuse.
5. Use only heavy-duty, grounded extension cords designed for industrial service.
6. Do not use extension cords to operate stationary equipment or other permanent operations.
7. Maintain clearance of 30 inches and clear access around all electrical panels.

8. Avoid work practices which overload motors, insulation, wires, or electrical accessories.
9. Disconnect electrical cords by pulling on the plug, not the cord.
10. Do not use metal ladders when working on electrical equipment.
11. Label all switch panels, circuits, outlets, and boxes properly.
12. Utilize a master control switch for all electric installations.

### **EQUIPMENT SAFETY**

#### **Machines**

#### **IMPORTANT:**

#### **ANYONE OPERATING MACHINES MUST KNOW OPERATING PROCEDURES AND SAFETY PRECAUTIONS**

1. Operate all machines according to specifications in the owner's manual.
2. Operate machinery only after receiving authorization.
3. Arrange machines so that operators are protected from hazards of other machines or passing individuals.
4. Identify, mark, and guard properly all point of operation zones.
5. Protect all pulley, gears, and belts by permanent enclosure guards.
6. Remove guards only for repair purposes and then replace immediately.

#### **CAUTION:**

#### **NEVER OPERATE EQUIPMENT WITH SAFETY GUARDS REMOVED**

7. Make sure equipment control switches for each machine are easily available to the operator.
8. Make sure all operators know the location of emergency safety switches.
9. Turn off machines when the instructor is out of the room or if the machine is unattended.
10. Use proper cleaning equipment. Avoid using compressed air for cleaning purposes, except as properly authorized.
11. Maintain nonskid areas around dangerous equipment.
12. Establish and follow a preventive maintenance program for all equipment.
13. Guard machines in compliance with manufacturer's safety instructions.
14. Keep cutting tools sharp, clean, and in safe working order.
15. Maintain all hoisting devices in a safe operating condition and provide for easy identification of specified load ratings.
16. Mark clearly and make inoperable by locking out the machine power switch on all machines which are defective or being repaired.
17. Mark machines with proper color code. (See Appendix A)
18. Maintain equipment cords and adapters in a safe working condition.
19. Restrict adjustment and repair of any machine to experienced persons.
20. Securely anchor machines designated for fixed locations.

## **Hand Tools**

1. Select the right tool 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, including safety precautions.
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 safety hazards.
7. Do not put sharp objects or tools in pockets. This could result in cuts or being stabbed.

## **Ladders**

1. Maintain and store ladders properly.
2. Hold on with both hands when going up or down a ladder.
3. Properly use hoisting equipment to hoist material and lower it, if material must be handled.
4. Face the ladder when climbing up or climbing down.
5. Have someone hold the ladder while climbing or working on a ladder.
6. Be sure that your shoes are not greasy, muddy, or slippery before climbing.
7. Do not climb higher than the third rung from the top on straight or extension ladders.
8. Do not climb higher than the second tread from the top on stepladders.
9. Hold onto the ladder with at least one hand at all times.
10. Do not reach or extend your body to a point where your belt buckle is beyond the side rails.
11. Do not use a metal ladder near or while working on electrical equipment or electrical circuits.
12. Take special precautions when erecting and climbing a ladder on a windy day.
13. Place a ladder so that the horizontal distance from the base of the ladder to the vertical plane of the support is approximately  $\frac{1}{4}$  the ladder's length.
14. Do not have more than one person on a ladder, unless the ladder is specifically designed for more than one person.
15. Do not place ladders in front of doors, unless the door is blocked off, locked, or guarded.
16. Do not place ladders on boxes, barrels, or other unsuitable bases to obtain additional height.
17. Do not use a ladder to gain access to a roof or any other elevated position unless the top of the ladder extends at least three feet above the point of support.

## **Scaffolds**

1. Ensure that anyone using scaffolds is aware of safety precautions.
2. Anchor scaffolding so that the footing is sound, rigid, and capable of carrying the maximum intended load without settling or displacement.

3. Do not use unstable objects, such as barrels, boxes, loose bricks, or concrete blocks, to support scaffold or planks.
4. Do not erect, move, dismantle, or alter any scaffold without the supervision of the instructor.
5. Install guard rails and toe boards on all open sides of platforms more than 10 feet above the ground or floor.
6. Install guard rails on all open sides and ends of the platform on scaffolds 4 to 10 feet high which have a minimum horizontal length of less than 45 inches in either direction.
7. Ensure scaffolds and their components are capable of supporting without failure four times the maximum intended load.
8. Overlap all planking of platforms a minimum of 12 inches or secure it from movement.
9. Provide an access ladder or an equivalent safe access.
10. Extend scaffold planking over their end supports not less than 6 inches nor more than 12 inches.
11. Do not use shore or lean-to scaffolds.
12. Ensure that the poles, legs, or uprights of a scaffold are plumb and securely and rigidly braced to prevent swaying and displacement.

### **FIRE SAFETY**

1. Provide and properly mount approved fire extinguishers in all required areas. (Multipurpose dry chemical units are most effective for general use. General purpose fire extinguishers should have at least a 2-A; 10-B, C rating. Water backup for extinguishers is always desirable. Multipurpose dry chemical can damage delicate electrical equipment. Gas type extinguishers eliminate that problem. Halon 1211 is more effective and less costly than CO<sup>2</sup> for extinguishing electrical fires.)
2. Store flammable liquids in approved (Underwriters Laboratories or Factory Mutual labeled) safety containers and cabinets.
3. Provide for the inspection and testing of fire extinguishers at regular intervals to determine that they are fully charged and in proper working condition.
4. Instruct students in the location and proper use of fire extinguishers and other fire-fighting equipment.
5. Provide for the bulk storage of flammable materials in an area removed from the main school building.
6. Segregate oxidizers and oily materials in storage. Do not use oxidizer (peroxide catalyst) containers for other purposes.
7. Do not use flammable liquids for cleaning purposes.
8. Provide Underwriters Laboratories listed oily waste containers for oily and paint soaked rags. Place waste with spontaneous combustion potential in approved containers.
9. Post alarm and evacuation procedures; make sure all personnel are aware of these procedures.

10. Inform students of remote shutoff valve or switch locations for gas or oil-fired equipment and instruct them in how to de-energize electrical equipment in an emergency.
11. Provide deluge showers and fire blankets in all shops and laboratories, especially where there is danger of fire igniting clothing made of synthetic materials.
12. Do not stack materials within 30 inches below a sprinkler head.
13. Conduct fire drills according to established procedures.

### **TRAFFIC SAFETY**

1. Do not exceed 15 mph when driving on campus except with instructor's permission on the driver's training range.
2. Do not drive on the driver's training range without the instructor's permission.
3. Follow one-way directional signs posted on campus.
4. Yield right-of-way to pedestrians.
5. Park only in designated parking zones.

### **HAZARDOUS MATERIALS**

A hazardous material is any material that could cause injury or death to a person or that damage or pollutes land, air, or water. The HAZARD COMMUNICATION REGULATION, commonly referred to as "Right to Know", requires that all personnel be informed about hazardous materials in their work area.

1. Ensure that all students and employees are aware of what hazardous materials they may come into contact with and how to protect themselves from exposure or hazards.
2. Display a HAZARDOUS MATERIALS INVENTORY ROSTER or a MATERIAL SAFETY DATA SHEET (MSDA) roster listing all hazardous materials used in each shop or laboratory.
3. Make sure that a MSDS FOR EACH HAZARDOUS MATERIAL OR HAZARDOUS WASTE is on file in the shop or labs in which the materials are used. All students must have access to the files.
4. Wear personal protective equipment when working with any hazardous material.
5. Do not use or smell the contents of an unmarked container.
6. Do not store any chemical or chemical solution in an unlabeled container or above eye level.
7. Do not work alone in the lab or shop. At least one other person should always be in the same area.
8. Use heat or open flames only in the area set aside for this purpose.
9. Ensure that all equipment operated under pressure has a vented safety diaphragm or safety valve.
10. Use only approved stepstools or ladders with safety feet and place them on the floor so they will not slip when getting materials stored out of reach.
11. Know and follow the rules for disposing of hazardous materials.

12. Keep all chemicals – solids, liquids, or gas – off your skin and away from your eyes.
13. Wash skin immediately if it comes into contact with chemicals or solvents.
14. Read complete label or directions before using any material.
15. Use extreme care when using caustics, acids, solvents, epoxies, and adhesives.
16. Provide eye wash fountains and safety showers in areas where skin and eye irritants are used.
17. Do not underestimate the hazards of lead poisoning involved in working with lead, even though copper tubing, steel, and plastic pipe have largely replaced lead pipe.
18. Change and wash clothing daily if it becomes contaminated with toxic chemicals, dusts, fumes, liquids, etc.
19. Do not eat around toxic chemicals or in contaminated areas.
20. Ensure that personnel are not allergic to dyes and solutions, particularly if they are different from what you have been using before. Have neutralizing agents, for dyes and solutions being used, ready and available for immediate use.
21. Make sure that all materials used (creams, lotions, dyes, etc.) are not toxic or injurious by inhalation or absorption.

### FIRST AID

1. Administer first aid only if you are qualified to do so. It is recommended that every teacher receive instruction in first aid and have a valid first aid certificate.
2. Post a list of the qualified first aid personnel.
3. Do not diagnose illness or prescribe or administer medication of any sort.
4. Disperse crowds if accident is serious and keep the area as quiet as possible.
5. Stick to basic procedures:
  - a. Call for aid
  - b. Stop bleeding
  - c. Treat for shock
  - d. Mouth-to-mouth resuscitation (if breathing has stopped)
  - e. Coronary Pulmonary Resuscitation – **CPR** (if required)

### RECORD KEEPING

1. Report all accidents on the school's accident report form and through the proper channels. (See Appendix A: Forms and Charts)
2. Investigate all accidents for the purpose of corrective action. Use the school's form for accident investigation. (See Appendix A: Forms and Charts). Please ensure **ALL** approvals and signatures are obtained.
3. All forms for all incidents should be submitted to the Safety Committee Chairperson for review by the Safety Committee
4. The Safety Committee will review all Hazard/Incident Forms for Causal Analysis and Corrective Actions. Corrective actions will be communicated to all affected persons by the Safety Committee Chairperson.
5. All Hazards/Incidents requiring the filing of insurance or payment to parties should be copied and forwarded to the Business Office **immediately**. As the paperwork is completed. Any follow up documentation from outside agencies should be submitted

as well. These include accidents requiring medical treatment, accidents involving vehicles, accidents involving outside vendors, students, faculty/staff, and any incidents resulting in property loss.

### **COMMERCIAL TRUCK DRIVING SAFETY PRACTICES**

Commercial vehicle operators face safety decisions and hazards daily. Students preparing for their commercial driver license (CDL) must become familiar with the safety procedures and rules set forth by the regulating government agencies. Students are expected to adhere to these federal and state regulations regarding commercial transportation at all times, whether on the campus driving range or in a road-training situation.

Students should consult the extensive safety procedures and regulations presented in the **ALABAMA COMMERCIAL DRIVER LICENSE MANUAL** from the Alabama Department of Public Safety, and the **FEDERAL MOTOR CARRIER SAFETY REGULATIONS POCKETBOOK** from the U.S. Department of Transportation Federal Highway Administration.

In the state publication they will find instructions for driving safely, transporting cargo safely, transporting passengers, air brakes, combination vehicles, and hazardous materials.

The federal regulations presented in the pocketbook cover: CDL standards, requirements and penalties; minimum levels of financial responsibility for motor carriers; qualifications of drivers; driving of motor vehicles; parts and accessories necessary for safe operation; notification and reporting of accidents; hours of service of drivers; inspection and maintenance; transportation of hazardous materials, including driving and parking rules; transportation of migrant workers; and employee safety and health standards.

## **HEALTH OCCUPATIONS SAFETY PRACTICES**

### **General Safety Precautions**

Safety is an important part of any occupation, but health care providers have a special obligation to be concerned about the safety of the patient. Health field workers must be especially careful to guard against transfer of disease.

Since health occupations training also takes place in a clinical setting, institutional safety standards of the cooperating agency should be used to supplement this list.

Some of the commonly encountered safety procedures are listed below:

1. Ensure that electric cords to electric beds, sterilizers, and other equipment are in good repair and are grounded, if necessary. This includes appliances brought from home by the patient.
2. Ensure that wheels on beds, stretchers, and wheelchairs are equipped with locking devices.
3. Keep solutions used in patient care separate from general cleaning and disinfectant solutions.
4. Keep laboratory facilities clean, orderly, and disinfected at regular intervals.
5. Remove immediately any spilled liquids, broken glass, and other hazards.
6. Lift, move, and transport patients using proper body mechanics.
7. Make provisions to prevent the patient from falling when using a stretcher or wheelchair.
8. Follow these procedures when transporting the patient:
  - a. Grasp the head of the stretcher, or the back of the wheelchair, and move forward.
  - b. Pull the stretcher / wheelchair in an elevator head first, with the patient's feet toward the door;
  - c. Make sure, when going down an incline, the head of the stretcher is first with the assistant walking backwards, holding and pulling the head end of the stretcher while observing the patient;
  - d. Make sure, when the patient is in a wheelchair, the chair is turned around and an assistant walks down the incline backwards while observing the patient, and
  - e. Upon reaching level ground, resume former position and push the stretcher / wheelchair forward.
9. Set wheel-locking devices on any equipment when patient care is involved.
10. Place cranks on adjustable beds under the frame so they are out of the way.
11. Place beds at proper height when doing patient care, and return to lower position for ambulatory patients.
12. Place bedside guardrails in the up position when there is danger of the patient falling out of bed.
13. Use proper medical aseptic techniques to prevent cross contamination.
14. Clean, disinfect, and/or sterilize material and equipment used by one person before being reused.

15. Check labels three times before contents are used and discard all unlabeled bottles.
16. Keep uniforms clean and do not wear uniforms outside the health care facility that were worn during the care of patients.
17. Follow safety precautions for the use of oxygen and radiation.
18. Place furniture and equipment for convenient and safe use.
19. Identify patient accurately and in an appropriate manner.
20. Call patient by name, not by room or bed number.
21. Always check patient identification.
22. Follow established procedures for security of medical supplies.
23. Know and follow narcotic security practices.
24. Follow directions in the application of heat and cold.
25. Apply restraints safely as ordered.
26. Obtain patient and/or family consent for treatment.
27. Adjust height of bed and side rails for patient safety.
28. Account for, sign for, and place patient's possessions in a safe place.
29. Keep stairways and shaft doors closed.
30. Dispose of combustible materials in appropriate containers.
31. Observe equipment, visitor, and patient smoking regulations.
32. Remove spark conducting equipment or materials before beginning procedures using oxygen and other explosive gases.
33. Know how to activate institutional fire alarm systems.
34. Know locations of and how to operate fire systems.
35. Know location of equipment and procedures for carrying out first aid in case of emergency and/or accident in the department.
36. Instruct patient as to safety measures in the use and disposal of ashes and matches.
37. Know institution's routine for fire in patient area and follow procedures for reassuring and aiding patients.
38. Know institution's policy for hazardous weather.
39. Be familiar with and use Universal Precautions for prevention of HIV transmission as recommended by the health facility.
40. The above procedures shall apply for both simulated and reality labs.

**Prevention of HIV Transmission in Health Care Settings**

Because of the prevalence of human immunodeficiency virus (HIV), the virus that causes acquired immunodeficiency syndrome (AIDS), the health care professional must consider all patients as potentially infected and rigorously follow infection control precautions for minimizing the risk of exposure to blood and body fluids of all patients.

The Centers for Disease Control (CDC) has issued recommendations for preventing HIV transmission in health care settings. All health care students must receive copies of these recommendations. They must sign a form accepting their responsibility to read them and to discuss any questions they have with their faculty. A copy of the recommendations is included here.

**MEMORANDUM**

TO: All School of Nursing Students and Faculty

FROM: Reid State Nursing Faculty

DATE: August 29, 1989

RE: Recommendations for Prevention of HIV Transmission in Health Care Settings

Please read and discuss the attached document with your faculty. It was published by the Centers for Disease Control. You have an obligation to protect yourself and others.

Please clip and return this portion to the Nursing Office.

I have received a copy of the:

Centers for Disease Control, Recommendations for Prevention of HIV Transmission in Health Care Settings. MMWR 1987; 36(supp no. 2s): pp.3S, 5S-7S, 9S-12S.

I am responsible for reading the document and discussing it with my faculty.

\_\_\_\_\_  
Signature of Student

\_\_\_\_\_  
Date

Centers for Disease Control. Recommendations for prevention of HIV transmission in health care settings. MMWR 1987;36 (suppl no. 2S): pp.3S,5S-7S,9S-12S.

Centers for Disease Control.....James O. Mason, MD, Ph.D.  
Director

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## INTRODUCTION

Human immunodeficiency virus (HIV), the virus that causes acquired immunodeficiency syndrome (AIDS), is transmitted through sexual contact and exposure to infected blood or blood components and parentally from mother to neonate. HIV has been isolated from blood, semen, vaginal secretions, saliva, tears, breast milk, cerebrospinal fluid, amniotic fluid, and urine and is likely to be isolated from other body fluids, secretions, and excretions. However, epidemiological evidence has implicated only blood, semen, vaginal secretions, and possibly breast milk in transmission.

The increasing prevalence of HIV increases the risk that health care workers will be exposed to blood from patients infected with HIV, especially when blood and body fluid precautions are not followed for all patients. Thus, this document emphasized the need for health care workers to consider all patients as potentially infected with HIV and/or other blood borne pathogens and to adhere rigorously to infection control precautions for minimizing the risk of exposure to blood and body fluids of all patients.

### Precautions to Prevent Transmission of HIV

#### Universal Precautions

Since medical history and examination cannot reliably identify all patients infected with HIV or other blood borne pathogens, blood and body fluid precautions should be consistently used for all patients. This approach, previously recommended by CDC (3,4), and referred to as "universal blood and body fluid precautions" or "universal

precautions”, should be used in the care of all patients, especially those in emergency care setting in which the risk of blood exposure is increased and the infection status of the patient is usually unknown (20).

1. All health care workers should routinely use appropriate barrier precautions to prevent skin and mucous membrane exposure when contact with blood or other body fluids of any patient is anticipated. Gloves should be worn for touching blood and body fluids, mucous membranes, or not-intact skin of all patients, for handling items or surfaced soiled with blood or body fluids, and for performing venipuncture and other vascular access procedures. Gloves should be changed after contact with each patient. Masks and protective eyewear or face shields should be worn during procedures that are likely to generate droplets of blood or other body fluids to prevent exposure of mucous membranes of the mouth, nose, and eyes. Gowns or aprons should be worn during procedures that are likely to generate splashes of blood or other body fluids.
2. Hands and other skin surfaces should be washed immediately and thoroughly if contaminated with blood or other body fluids. Hands should be washed immediately after gloves are removed.
3. All health care workers should take precautions to prevent injuries caused by needles, scalpels, and other sharp instruments or devices during procedures; when cleaning used instruments; during disposal of needles; and when handling sharp instruments after procedures. To prevent needles stick injuries, needles should not be recapped, purposely bent or broken by hand, removed from disposable syringes, or otherwise manipulated by hand. After they are used, disposable syringes and needles, scalpel blades, and other sharp items should be placed in puncture-resistant containers for disposal; the puncture-resistant containers should be located as close as practical to the use area. Large bore, reusable needles should be placed in a puncture-resistant container for transport to the reprocessing area.
4. Although saliva has not been implicated in HIV transmission, to minimize the need for emergency mouth-to-mouth resuscitation, mouthpieces, resuscitation bags, or other ventilation devices should be available for use in areas in which the need for resuscitation is predictable.
5. Health care workers who have exudative lesions or weeping dermatitis should refrain from all direct patient care and from handling patient care equipment until the condition resolves.
6. Pregnant health care workers are not known to be at greater risk of contracting HIV infection than health care workers who are not pregnant; however, if a health care worker develops HIV infection during pregnancy, the infant is at risk of infections resulting from perinatal transmission. Because of the risk, pregnant health care workers should be especially familiar with and strictly adhere to

precautions to minimize the risk of HIV transmission. Implementation of universal blood and body fluid precautions for all patients eliminates the need for use of the isolation category of “Blood and Body Fluid Precautions” previously recommended by CDC (7) for patients known or suspected to be infected with blood borne pathogens. Isolation precautions (e.g. enteric, “AFB” (7) should be used as necessary if associated conditions, such as infectious diarrhea or tuberculosis, are diagnosed or suspected.

### **Precautions for Invasive Procedures**

In this document, an invasive procedure is defined as surgical entry into tissues, cavities, or organs or repair of major traumatic injuries (1) in an operating or delivery room, emergency department, or outpatient setting, including both physicians, and dentists’ offices; (2) cardiac catheterization and angiographic procedures, (3) a vaginal or cesarean delivery or other invasive obstetric procedure during which bleeding may occur; or (4) the manipulation, cutting, or removal of any oral or perioral tissues, including tooth structure, during which bleeding occurs or the potential for bleeding exists. The universal blood and body fluid precautions listed above, combined with the precautions listed below, should be the minimum precautions for all such invasive procedures.

1. All health care workers who participate in invasive procedures must routinely use appropriate barrier precautions to prevent skin and mucous membrane contact with blood and other body fluids of all patients. Gloves and surgical masks must be worn for all invasive procedures. Protective eyewear or face shields should be worn for procedures that commonly result in the generation of droplets, splashing of blood or other body fluids, or the generation of bone chips. Gowns or aprons made of materials that provide an effective barrier should be worn during invasive procedures that are likely to result in the splashing of blood or other body fluids. All health care workers who perform or assist in vaginal or cesarean deliveries should wear gloves when handling the placenta or the infant until blood and amniotic fluid have been removed from the infant’s skin and should wear gloves during post-delivery care of the umbilical cord.
2. If a glove is torn or a needle stick or other injury occurs, the glove should be removed and a new glove used as promptly as patient safety permits; the needle or instrument involved in the incident should also be removed from the sterile field.

### **Implementation of Recommended Precautions**

Employers of health care workers should ensure that policies exist for:

1. Initial orientation and continuing education and training of all health care workers, including students and trainees, on the epidemiology, modes of transmission, and prevention of HIV and other blood borne infections and the need for routine use of universal blood and body fluid precautions for all patients.

2. Provision of equipment and supplies necessary to minimize the risk of infection with HIV and other blood borne pathogens.
3. Monitoring adherence to recommended protective measures. When monitoring reveals a failure to follow recommended precautions, counseling, education, and/or re-training should be provided, and, if necessary, appropriate disciplinary action should be considered.

Professional associations and labor organizations, through continuing education efforts, should emphasize the need for health care workers to follow recommended precautions.

### **Management of Exposures**

If a health care worker has a parenteral (e.g., needle stick or cut) or mucous membrane (e.g., splash to the eye or mouth) exposure to blood or other body fluids or has a cutaneous exposure involving large amounts of blood or prolonged contact with blood, especially when the exposed skin is chapped, abraded or afflicted with dermatitis, the source patient should be informed of the incident and tested for serologic evidence of HIV infection after consent is obtained. Policies should be developed for testing source patients in situations in which consent cannot be obtained (e.g., an unconscious patient).

If the source patient has AIDS, is positive for HIV antibody, or refuses the test, the health care worker should be counseled regarding the risk of infection and evaluated clinically and serologically for evidence of HIV infection as soon as possible after the exposure. The health care worker should be advised to report and seek medical evaluation for any acute febrile illness that occurs within 12 weeks, after the exposure. Such an illness, particularly one characterized by fever, rash, or lymphadenopathy, may be indicative of recent HIV infection. Seronegative health care workers should be re-tested six weeks post exposure to determine whether transmission has occurred. During this follow-up period, especially the first 6-12 weeks after exposure, when most infected persons are expected to seroconvert, exposed health care workers should follow U.S. Public Health Service (PHS) recommendations for preventing transmission of HIV (36,37).

No further follow-up of a health care worker exposed to infection as described above is necessary if the source patient is seronegative unless the source patient is at high risk of HIV infection. In the latter case, a subsequent specimen (e.g., 12 weeks following exposure) may be obtained from the health care worker for antibody testing. If the source patient cannot be identified, decisions regarding appropriate follow-up should be individualized. Serologic testing should be available to all health care workers who are concerned that they may have been infected with HIV.

If a patient has a parenteral or mucous membrane exposure to blood or other body fluid of a health care worker, the patient should be informed of the incident, and the same procedure outlined above for management of exposures should be followed for both the source health care worker and the exposed patient.

### **Environmental Considerations for HIV Transmission**

No environmentally mediated mode of HIV transmission has been documented. Nevertheless, the precautions described below should be taken routinely in the care of all patients.

### **Sterilization and Disinfection**

Standard sterilization and disinfection procedures for patient care equipment currently recommended for use (25, 26) in a variety of health care settings, including hospitals, medical and dental clinics and offices, hemodialysis centers, emergency care facilities, and long-term nursing care facilities, are adequate to sterilize or disinfect instruments, devices, or other items contaminated with blood or other body fluids from persons infected with blood borne pathogens including HIV (21,23).

Instruments or devices that enter sterile tissue or the vascular system of any patient or through which blood flows should be sterilized before reuse. Devices or items that contact intact mucous membranes should be sterilized or receive high-level disinfection, a procedure that kills vegetative organisms and viruses but not necessarily large numbers of bacterial spores. Chemical germicides that are registered with the U.S. Environmental Protection Agency (EPA) as "sterilants" may be used either for sterilization or for high-level disinfection depending on contact time.

Contact lenses used in trial fittings should be disinfected after each fitting by using a hydrogen peroxide contact lens disinfecting system or, if compatible, with heat (78 C – 80 C [172.4F – 176.0F]) for 10 minutes.

Medical devices or instruments that require sterilization or disinfection should be thoroughly cleaned before being exposed to the germicide, and the manufacturer's instructions for the use of the germicide should be followed. Further, it is important that the manufacturer's specifications for compatibility of the medical device with chemical germicides be closely followed. Information on specific label claims of commercial germicides can be obtained by writing to the Disinfectants Branch, Office of Pesticides, Environmental Protection Agency, 401 M. Street, SW, Washington, D. C. 20460.

Studies have shown that HIV is inactivated rapidly after being exposed to commonly used chemical germicides at concentrations that are much lower than those used in practice (27-30). Embalming fluids are similar to the types of chemical germicides that have been tested and found to completely inactivate HIV. In addition to commercially available chemical germicides, a solution of sodium hypochlorite (household bleach) prepared daily is an inexpensive and effective germicide. Concentrations ranging from approximately 500ppm (1:100 dilution of household bleach) sodium hypochlorite to 5,000ppm (1:10 dilution of household bleach) are effective

depending on the amount of organic germicides and may be more compatible with certain medical devices that might be corroded by repeated exposure to sodium hypochlorite, especially to the 1:10 dilution.

### **Survival of HIV in the Environment**

The most extensive study on the survival of HIV after drying involved greatly concentrated HIV samples (i.e., 10 million tissue-culture infectious doses per milliliter) (31). This concentration is at least 100,000 times greater than that typically found in the blood or serum of patients with HIV infection. HIV was detectable by tissue-culture techniques 1-3 days after drying, but the rate of inactivation was rapid. Studies performed at CDC have also shown that drying HIV causes a rapid (within several hours) 1-2 log (90% - 99%) reduction in HIV concentration. In tissue-culture fluid, cell-free HIV could be detected up to 15 days at room temperature, up to 11 days at 37C (98.6F), and up to one day if the HIV was cell associated.

### **Housekeeping**

Environmental surfaces such as wall, floors, and other surfaces are not associated with transmission of infections to patients or health care workers. Therefore, extraordinary attempts to disinfect or sterilize these environmental surfaces are not necessary. However, cleaning and removal of soil should be done routinely.

Cleaning schedules and methods vary according to the area of the hospital or institution, type of surface to be cleaned, and the amount and type of soil present. Horizontal surfaces (e.g., bedside tables and hard-surfaced flooring) in patient care areas are usually cleaned on a regular basis, when soiling or spills occur, and when a patient is discharged. Cleaning of walls, blinds, and curtains is recommended only if they are visibly soiled. Disinfectant fogging is an unsatisfactory method of decontaminating air and surfaces and is not recommended.

Disinfectant/detergent formulations registered by EPA can be used for cleaning environmental surfaces, but the actual physical removal of microorganisms by scrubbing is probably at least as important as any antimicrobial effect of the cleaning agent used. Therefore, cost, safety, and acceptability by housekeepers can be the main criteria for selecting any such registered agent. The manufacturer's instructions for appropriate use should be followed.

### **Cleaning and Decontaminating Spills of Blood or Other Body Fluids**

Chemical germicides that are approved for use as "hospital disinfectants" and are tuberculocidal when used at recommended dilutions can be used to decontaminate spills of blood and other body fluids. Strategies for decontaminating spills of blood and other body fluids in a patient care setting are different than for spills of cultures or other materials in clinical, public health, or research laboratories. In patient care areas, visible material should first be removed and then the area should be decontaminated. With large

spills of cultured or concentrated infectious agents in the laboratory, the contaminated area should be flooded with a liquid germicide before cleaning, and then decontaminated with fresh germicidal chemical. In both settings, gloves should be worn during the cleaning and decontaminating procedures.

### **Laundry**

Although soiled linen has been identified as a source of large numbers of certain pathogenic microorganisms, the risk of actual disease transmission is negligible. Rather than rigid procedures and specifications, hygienic and common sense storage and processing of clean and soiled linen are recommended (26). Soiled linen should be handled as little as possible and with minimum agitation to prevent gross microbial contamination of the air and of person handling the linen. All soiled linen should be bagged at the location where it was used; it should not be sorted or rinsed in patient care areas. Linen soiled with blood or body fluids should be placed and transported in bags that prevent leakage. If hot water is used, linen should be washed with detergent in water at least 71 C (160 F) for 25 minutes. If low temperature (<70 C (158 F) laundry cycles are used, chemicals suitable for low temperature washing at proper use concentration should be used.

### **Infective Waste**

There is no epidemiologic evidence to suggest that most hospital waste is any more infective than residential waste. Moreover, there is no epidemiologic evidence that hospital waste has caused disease in the community as a result of improper disposal. Therefore, identifying wastes for which special precautions are indicated is largely a matter of judgment about the relative risk of disease transmission. The most practical approach to the management of infective waste is to identify those wastes with the potential for causing infection during handling and disposal and for which some special precautions appear prudent. Hospital wastes for which special precautions appear prudent include microbiology laboratory waste, pathology waste, and blood specimens or blood products. While any item that has had contact with blood, exudates, or secretions may be potentially infective, it is not usually considered practical or necessary to treat all such waste as infective (23,26). Infective waste, in general, should either be incinerated or should be autoclaved before disposal in a sanitary landfill. Bulk blood, suctioned fluids, excretions, and secretions may be carefully poured down a drain connected to a sanitary sewer. Sanitary sewers may also be used to dispose of other infectious wastes capable of being ground and flushed into the sewer.

The CDC has recommended the following precautions for health care workers to prevent AIDS infection in the workplace. These precautions apply to preventing transmission of the AIDS virus and other blood borne infections and should be used routinely with all patients:

1. Sharp items should be considered as potentially infective and be handled with extraordinary care to prevent accidental injuries.

2. Disposable syringes and needles, scalpel blades, and other sharp items should be placed in puncture resistant containers located as close as practical to the area in which they were used. To prevent needle stick injuries, needles should not be recapped, purposefully bent, broken, removed from disposable syringes, or otherwise manipulated by hand.
3. When the possibility of exposure to blood or other body fluids exists, routinely recommended precautions should be followed for wearing gloves, gowns, masks, and eye coverings as required to provide adequate protection. Hands should be washed thoroughly and immediately if they accidentally become contaminated with blood.
4. To minimize the need for emergency mouth-to-mouth resuscitation, mouthpieces, resuscitation bags, or other ventilation devices should be strategically located and available for use in areas where the need for resuscitation is predictable.
5. Pregnant health care workers are not known to be at greater risk of contracting AIDS infections than health care worker who are not pregnant. However, an AIDS infection during pregnancy puts the infant at increased risk of infection. Because of this risk, pregnant health care workers should be especially familiar with precautions for preventing transmission of the AIDS virus.
6. To prevent transmission of the AIDS virus from health care workers to patients, all health care workers should wear gloves for direct contact with mucous membranes or non-intact skin of all patients. Health care workers who have exudative lesions or weeping dermatitis should refrain from all direct patient care and from handling patient care equipment until the condition resolves.