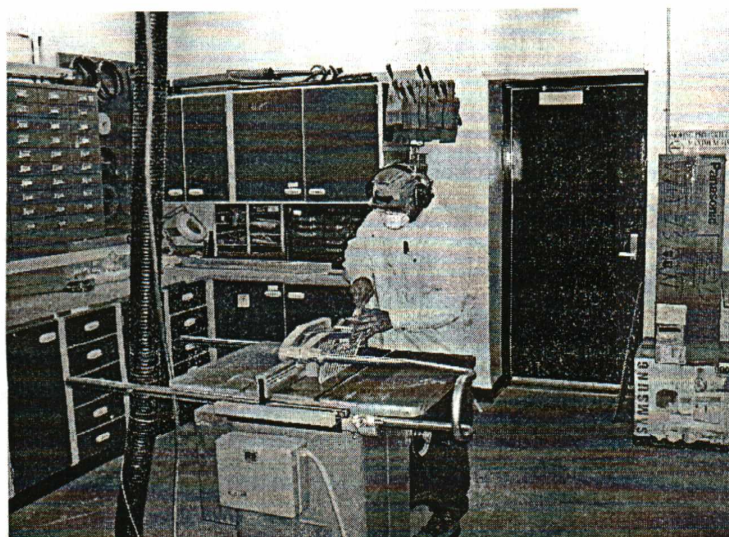


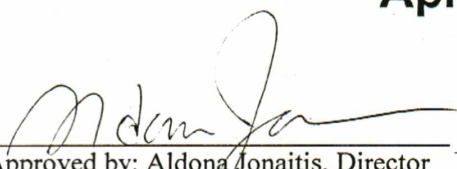


UNIVERSITY OF
ALASKA
MUSEUM

Exhibition Workshop Safety Manual



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Approved by: Aldona Jonaitis, Director
University of Alaska Museum

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1 Introduction

The hazards associated with shop work require special safety considerations. Whether you are working with power tools, carrying a box, or working on a ladder, the potential for personal injury is always present. This manual outlines essential safety practices for working in the University of Alaska Museum Exhibition Workshop.

2 General Considerations for Working Safely

2.1 Due Care:

The most obvious safety rule is to be careful. Pay attention to what you are doing and do not rush. Being careful means being careful all the time. You can be careful for years and then get hurt in two seconds of inattention. This is entirely under your own control. Being careful is your best defense against injury.

2.2 Prevention:

Avoid danger by using common sense. Never accept a greater risk of danger in order to work faster or more conveniently. Do not hurry or cut corners on safety.

2.3 Awareness:

Hands are very susceptible to injury. Watch the cutting edge of any tool, especially power tools. Be aware of where your hands are in relation to it. Pay attention and do not get distracted. This would seem elementary, but the number of bad cuts from matte knives is incredible.

Before beginning a task: 1) Be sure you are authorized to perform the work; 2) Inspect your tools and equipment; 3) Warn fellow workers before starting a power tool or performing a potentially dangerous task; 4) Use warning signs or barriers, as necessary.

Notify your supervisor if you notice any unsafe conditions. Inform other employees and your supervisor if you see an unsafe work practice; however, be careful not to distract a person who is working with power tools.

2.4 Guidelines for General Shop Safety:

Knowledge:

- Know the hazards associated with your work.
- Be fully trained on the proper use and operation of tools before beginning a job.

Personal Protection:

- Wear appropriate personal protective equipment and protective clothing.
- Ensure that there is adequate ventilation to prevent exposure to dust and vapors of adhesives, lacquers, paints.
- Know where the First Aid Kit is located.

Tools:

- Use the right tool to complete a job safely and efficiently.
- Leave tool and equipment guards in place.
- Make sure all tools and equipment are properly grounded and electrical cords are in good condition.

Extension Cords:

- Use extension cords that are large enough for the load and electrical cord length.

3 Proper Attire

3.1 Clothing:

- No loose, long or baggy clothing may be worn in the shop (loose clothing can get caught in moving parts or snagged on splinters etc).
- Do not wear shorts or skirts.
- Wear clothes that will protect you from dust and flying debris.

3.2 Shoes:

- Wear shoes with good, non-slippery soles that cover the whole foot (sandals and dress shoes are not permitted).

3.3 Hair:

- Long hair must be put up or tied back and secured.

3.4 Jewelry:

- Do not wear large or dangling jewelry (jewelry may get caught in moving parts of machines).

4 Use Personal Protective Equipment

Employees are provided with personal protective equipment appropriate for the task being performed. If the task requires personal protective equipment, the employee must wear it!

4.1 Eyes:

- Wear eye-protection when operating power tools and when using hand tools or chemicals.

4.2 Ears:

- Wear hearing protection when operating power tools or performing any high noise job.

4.3 Lungs:

- Employees are provided with the correct type of masks/respirator and instructed in their proper use.
- Wear a dust mask when using a saw, sanding, or performing any task that involves the creation of dust.
- Wear an appropriate respirator when working with chemicals or solvents.

4.4 Hands:

- Both rubber and leather gloves are provided.
- Wear latex or nitrile gloves when working with any chemicals or solvents.
- Wear leather gloves when working with sharp metal and glass.
- Do not wear gloves while using power tools (gloves can get caught in moving parts of machines).

5 Maintain Good House Keeping A clean shop is a safe shop!

5.1 Clean:

- Clean the shop as you go.
- Clean all work areas at the end of your shift.

5.2 Orderly Workplace:

- Put away tools and supplies when finished.
- Do not let your work area become cluttered.
- Keep pathways to fire exits and work areas clear.

5.3 Trash:

- Flatten or remove nails from lumber before disposal.
- Do not place long sticks in trash barrels (they can poke others in the eyes).
- Remove sawdust, wood chips, and metal chips from shop regularly.
- Dispose of used blades in sharps container.

6 Working On Ladders

6.1 Safety:

- Working on a ladder or lift presents the potential for a fall.
- If you must use a ladder, always have someone there to foot and hold the bottom for you.
- Before climbing on a ladder, make sure that all legs are firmly on the floor.
- Do not stand on the top or any steps the safety labels indicate.
- Do not leave tools, hardware or heavy objects on top of a ladder or lift.

6.2 Precautions:

- Be aware of objects overhead (i.e. lighting and exhibits).
- Do not have loose items in pockets.
- Whenever possible, tools should be attached to you.
- Take precautions to keep persons below aware of you and your work.

7 Lifting Heavy Objects

Use proper lifting techniques when lifting heavy objects in order to avoid injury. Your back supports the weight of the entire upper body. When you lift objects or move heavy loads, your back has to support more weight. If you exceed your body's natural limits, your back cannot support the extra load. The excess pressure is transferred to your lower back where injury may occur. Use the muscles in your arms and legs and exercise proper lifting techniques to move loads safely and protect your back from possible injury.

In general, employees should: 1) Seek assistance when lifting objects that weigh 50 pounds or more; 2) Use good judgment to determine if you need assistance, a dolly, or other tool to safely lift an object.

7.1 Avoid back injuries:

- Avoid moving heavy objects manually. Plan jobs and arrange work areas so that heavy items may be moved mechanically.
- Keep in good physical condition. If you are not used to lifting and vigorous exercise, do not attempt difficult lifting tasks.
- Think before you act. Use proper lifting techniques and lifting aides such as dollies or carts.
- Get help if you need it.
- Do not twist the back or bend sideways.
- Do not perform awkward lifts.
- Do not lift objects at arm's length

7.2 Lifting Technique:

- Test the object's weight before handling it. If it seems too heavy or bulky, get assistance.
- Face the object, place one foot behind the object and one foot along its side.
- Bend at the knees.
- Get a firm, balanced grip on the object. Use the palms of your hands and use gloves if necessary.
- Keep the object as close to your body as possible. Pull the load in close before lifting.
- Lift by straightening your legs and slightly unbending your back.

8 Using Power Tools

Each power tool has specific safety rules. They are safe when properly used, but they can cause serious accidents when misused. The shop supervisor will provide training for each power tool before use. Many power tools have rotating parts that can catch and wind on clothes, hair, or jewelry. Power tools can throw debris, so eye or face protection is required. Hearing protection is also often necessary. Make sure the work surface and floors are clear, and get everything ready before you press the ON switch.

Power tools can be extremely dangerous when used improperly. Each year, many people are injured or killed by power tool accidents. Common power tool injuries include abrasions, cuts, lacerations, amputations, burns, electrocution, and broken bones.

Common power tool accidents are caused by:

- Touching the cutting, drilling, or grinding components.
- Getting caught in moving parts.
- Suffering electrical shock due to improper grounding, equipment defects, or operator misuse.
- Being struck by particles that normally eject during operation.
- Touching hot tools or work-pieces.
- Being struck by flying debris or tools.

8.1 Safety Devices:

- Keep all guards in place.
- Never disable or tamper with safety releases or other automatic switches.
- When the chance for operator injury is great, use a push stick to move material through a machine.
- When possible, secure work pieces with a clamp or vise to free your hands and minimize the chance of injury.
- Use a jig for pieces that are small, unstable or do not lie flat.

8.2 Proper Tools/Accessories:

- Use the correct tool for the job.
- Do not use a tool or attachment for something it was not designed to do.
- Select the correct bit, blade, cutter, or grinder wheel for the material (this precaution will reduce the chance for an accident and improve the quality of your work).

8.3 Operation:

- Always operate tools at the correct speed for the job (operating tools too slowly can cause an accident just as easily as operating them too fast).
- Always watch your work when operating power tools (stop working if something distracts you).
- Keep a firm grip on portable power tools. These tools tend to "get away" from operators and can be difficult to control.
- Do not rely on strength to perform an operation. The correct tool, blade, and method should not require excessive strength. If undue force is necessary, you may be using the wrong tool.
- Do not operate power tools when you are sick, fatigued, or taking strong medication.

8.4 Adjustments/Maintenance:

- Disconnect power tools before performing maintenance, changing components, or clearing jams or blockages.
- Do not use your hand to clear jams or blockages, use an appropriate tool.
- Never reach over equipment while it is running.
- Remove chuck keys or adjusting tools prior to operation.

9 Using Hand Tools

Hand tools are non-powered tools. They include axes, wrenches, hammers, chisels, screwdrivers, and other hand-operated mechanisms. Even though hand tool injuries tend to be less severe than power tool injuries, they are more common. Because people take everyday hand tools for granted, they forget to follow simple precautions for safety.

Common hand tool accidents are caused by:

- Failure to use the right tool.
- Failure to use a tool correctly.
- Failure to keep edged tools sharp.
- Failure to replace or repair a defective tool.
- Failure to store tools safely.

9.1 Proper tool:

- Never use a screwdriver as a chisel. The tool can slip and cause a deep puncture wound.
- Never use a chisel as a screwdriver. The tip of the chisel may break and cause an injury.
- Never use a knife as a screwdriver. The blade can snap and injure an eye.
- Use the proper wrench to tighten or loosen nuts (pliers can chew the corners off a nut).
- Iron or steel tools may cause sparks and ignite flammable substances. Use spark-resistant tools made from brass, plastic, aluminum, or wood when working around flammable materials.

9.2 Maintenance/Replace:

- Replace loose, splintered, or cracked handles (loose hammer, axe, or maul heads can fly off defective handles).
- Keep knives, scissors, and chisels sharp (dull tools are more dangerous than sharp tools).
- Never use a wrench if the jaws are sprung.
- Never use an impact tool, such as a chisel, wedge, or drift pin, if its head is mushroomed (the head may shatter upon impact).

9.3 Sharp Tool Use:

- Direct saw blades, knives, and other tools away from aisle areas and other employees.
- Never cut towards yourself.
- Never carry a screwdriver or chisel in your pocket. If you fall, the tool could cause a serious injury.

9.4 Storage:

- Have a specific place for each tool.
- Do not place unguarded cutting tools in a drawer.
- Store knives or chisels in their scabbards.
- Hang saws with the blades away from someone's reach.
- Provide sturdy hooks to hang most tools on.
- Rack heavy tools, such as axes and sledges, with the heavy end down.

10 Fire Prevention

10.1 Ignition Sources:

- Be aware of ignition sources in the shop area (open flames, heat, electrical equipment).
- Shut off all non-explosion proof electrical equipment and burners before working with ether and other flammables (this includes hot plates and electric stirrers, etc.).

10.2 Flammables Storage:

- Purchase and store flammables in the smallest quantities available.
- Store flammable liquids in appropriate safety cabinets and/or safety cans.
- Do not store incompatible chemicals together (e.g. acids with flammables). Lists of incompatible reagents can be found in MSDSs and the Handbook of Reactive Chemical Hazards.

10.3 Sprinklers:

- Keep the area around sprinkler heads clear (minimum of 18 inches below head).

10.4 Compressed Gas:

- All compressed gas cylinders must be securely chained or clamped to a rack or fixed to a stationary piece of laboratory furniture.

10.5 Power Cords/Outlets:

- Use only electrical cords that are in good condition.
- Extension cords are for short-term use only. Permanent installation of extension cords is not permitted.
- All electrical outlets must be grounded and must accommodate a three-pronged plug.
- Never remove the grounding prong or use an adapter to bypass the grounding on an electrical cord.

11 Emergency Procedures

- **CALL 911 IMMEDIATELY!** By calling this number, all necessary emergency response departments are alerted to your needs.

11.1 Chemical Spills:

- Clean up small chemical spills immediately. If a large chemical spill occurs, call the campus emergency phone number, 911. Stop current work or equipment if possible, activate the building fire alarm, exit the building, call 911 to report the emergency and stand by at a safe distance to provide information to emergency response personnel.
- If volatile, flammable, or toxic materials spill, shut off flames and spark-producing equipment at once, evacuate, and call 911.
- In case of chemical spill on your skin and clothing, rinse the area with plenty of water.
- If the eyes become affected by a chemical, immediately flush eyes with water and continue for 10-15 minutes, or until professional assistance is obtained.

11.2 Fire:

- In the event of a fire, activate the building fire alarm, exit the building, call 911 to report the emergency and standby in a safe location to meet emergency responders.
- Remain out of the area of a fire unless it is your responsibility to meet the emergency responders.
- Maintain a clear path to all safety equipment at all times.

11.3 Accidents:

- Report all shop accidents to your supervisor immediately.

11.4 Emergency Preparedness:

- Be familiar with the UAM Emergency Preparedness Plan.

11.5 Injured Personnel/Visitor:

- 1) If a staff member, volunteer or visitor is ill or injured, notify University Dispatch Center immediately at 911. Stay with the ill or injured person until help arrives. Do not attempt to move a person who has fallen and appears to be in pain. Unless it is a life-threatening situation, do not attempt to render first aid yourself.
- 2) University Dispatch Center will send an ambulance with trained personnel to handle the incident.
- 3) Avoid unnecessary conversation with, or about, the ill or injured person. Limit your communication to quiet reassurances.
- 4) When the person's needs have been met and the incident is over, assist the Fire Department and Police Department Officers in completing the Incident Report.
- 5) Avoid exposure to blood and potential blood borne pathogens.

12 Reporting Work Related Injury or Illness

- All work related injuries/illnesses must be reported to the laboratory supervisor/curator immediately.
- The employee must fill out the University of Alaska Fairbanks Department of Codes and Safety **Incident Report** (available at www.safetyservices.uaf.edu/codesweb/incidentreport.pdf).
- The shop supervisor must fill out the University of Alaska Fairbanks Department of Codes and Safety **Supervisor's Accident Investigation Report** (available at www.safetyservices.uaf.edu/codesweb/SupervisorReport.pdf).

13 Workman's Compensation:

An employee who is injured/becomes ill on the job and seeks medical treatment, and/or has time loss from work, may be eligible for **Workman's Compensation** coverage and benefits.

- If this has occurred, the employee must fill out the **Report of Occupational Injury and Illness** (available from UAF Codes and Safety).
- For help in filling out the Report of Occupational Injury and Illness, see the example at

www.safetyservices.uaf.edu/codesweb/workers%20compensation.htm.