SOUTHWEST WASHINGTON MEDICAL CENTER

POLICY ■ PROCEDURE

Title: Safety Policy

Number: 8437.0102

Effective: 07/24/92

Originating Department: Biomedical Instrumentation

Revised: 9/17/07

Reviewed:

Approved by:

GENERAL POLICY STATEMENT:

Safety activities shall extend throughout the total Medical Center. The personnel in the Biomedical Instrumentation Department shall be thoroughly familiar with equipment, devices, controls, machine, and work procedures.

PURPOSE:

That the personnel in the Biomedical Instrumentation Department be thoroughly familiar with equipment, devices, controls, machine, and work procedures.

PROCEDURES:

A. **RESPONSIBILITY**

1. The safety activities will extend throughout the total Medical Center. The personnel in the Biomedical Instrumentation Department shall be thoroughly familiar with equipment, devices, controls, machine, and work procedures. It is a constant responsibility of all concerned to maintain the Medical Center in a clean and safe environment. Each individual shall be on a constant vigil for hazards involving fire, personnel, electrical and mechanical situations which will directly affect the operation of the medical center to meet its mission. Each individual will be qualified in his assigned duties or responsibilities. Each employee is expected to be knowledgeable in the fundamentals of safety and emergency procedures. The primary function is to be of preventative rather than corrective maintenance.

B. **FORMALIZED MAINTENANCE PROGRAMS**

1. The formalized maintenance program consists of specific preventative maintenance, inspections, tests, and requirement in the form of schedules, specifically prepared for the Medical Center equipment.

C. **MAINTENANCE, TESTS AND INSPECTION SCHEDULES**

1. All maintenance, tests, and inspection schedules are prepared for the Medical Center by the Manager of Biomedical Instrumentation Services. These schedules and procedures are listed in detail in the PM System. These are kept in the office of the Manager of the Biomedical Instrumentation Department, and on the hospital intranet.

D. **HAND TOOLS AND EQUIPMENT**

1. Biomedical Services personnel will be instructed in the proper and safe use of hand tools and equipment by Department Manager or manufacturer.

E. **POWER TOOL SAFETY**

1. Power tools will be operated by authorized personnel only. Such tools will be inspected before each use.
2. Any defect, such as a frayed cord or a broken plug, will be reported immediately and repaired as soon as possible. In the interim, the equipment will be posted "DO NOT USE".
3. Never use an ungrounded tool, especially in a wet location or when in contact with metal. (Ungrounded are only permitted if double-insulated under standards of OSHA).

4. Never use ordinary hand tools in explosive or extremely dusty atmospheres; use only nonsparking tools, including explosion proof flashlights.
5. Extension cords will be used in a safe manner (in accordance with OSHA).
6. Cords will be suspended overhead if there is traffic that might cause a hazard, will be yellow in color, and of proper amperage for tool to be used.
7. Guards will be kept in place on portable equipment, such as grinders and saws.
8. Safety glasses will be worn when using portable power equipment as well as when using shop equipment.
9. Power tools will be cleaned with high-flash solvents. When using compressed air, the line will have less than 30 PSI pressure. Wear facial protection.
10. Disconnect the plug from the receptacle when changing guards or accessories on a tool being used.
11. Power tools will be used and maintained in strict accordance with the manufacturer's instructions. The instructions will be maintained on file in the office of the Director of Engineering, and should be referred to as needed. Repairs on equipment will be made only by qualified persons or by the manufacturer.
12. Extra caution will be used when tools of any kind are being used on a ladder or a scaffold. Only wooden UL approved ladders or UL listed ladders which are approved for this use, will be used when doing electrical repairs.
13. When working on electrical systems, the circuit breaker will be de-energized at the source and tagged to prevent re-energizing.
14. Electrical wiring will be accomplished by qualified Engineering electricians who follow recommended codes and use material and techniques approved by Underwriters Laboratory.

F. **LADDER SAFETY**

1. Portable ladders will be equipped with nonslip bases. The bottom should be held, tied or otherwise secured to prevent slipping. If a stepladder is used on a polished floor, a nonslip material should be applied to the front feet.
2. Straight ladders will be placed so that the horizontal distance from the base of the plane of the support is about one-fourth the ladder length between the ground and the top support. A minimum of three feet of ladder should extend above the support, in accordance with OSHA requirements.
3. Ladders will never be used as runways or scaffolds.
4. Ladders will not be placed in front of a door that opens towards the ladder unless the door is locked, blocked, or guarded.
5. Never lean ladders against glass or plastic.
6. Ladders will have solid footing and should be equalized on both sides so that they cannot sink or overturn.
7. Ladders will be climbed with both hands on the rails or rungs. If materials must be handled, they will be hauled up by robe and bucket.
8. The ladder always will be faced by the user. The worker will not lean too far out to the side of the ladder or too far overhead; he will never stand higher than the third highest rung of a single or extension ladder.
9. Routines for ladder inspection will be maintained, and ladders will be inspected before each use. Defective ladders will be tagged for immediate repair or destruction.
10. Short ladders will never be spliced to provide additional length.
11. Loose tools and materials will not be placed on the top step of folding ladders, but on a folding shelf. Screw drivers and small tools can be set in holes drilled into the top of folding ladders, where they are handy but will not roll off.

12. Metal ladders will never be used around electrical circuits or in places where they might come into contact with electricity.
13. Public areas where ladders are being used will have warning signs or be roped off.

G. **MACHINE EQUIPMENT**

1. Proper guarding will be provided for all machines. Equipment should never be operated after guards have been removed.
2. Any rotating part of a machine must be guarded against contact. Even smooth slowly rotation shafts may grip clothing or hair. The danger is increased if collars, keys, or belts are exposed. Rotating mechanisms usually need complete enclosure.
3. Exposed shaft ends will present smooth surfaces. They should not project more than one-half the shaft diameter beyond the bearing or hub unless they are guarded by caps or sleeves.
4. Gears should be enclosed on all sides and have no opening that exceeds one-half inch if the guard is within four inches of the gear. Gear guards will be made of metal.
5. A conventional air-circulating fan on the floor or suspended below seven feet from the floor will have a mesh guard, with a mesh of not more than one-half inch, completely covering the blades. Fans set above floor level should have the bases securely fastened.
6. Circular saws will be guarded by a hood that will cover the teeth at all times. The hood should adjust itself automatically to the thickness of material being cut and remain in contact with the material.
7. Table saws should be equipped with a spreader, splitter, or riving knife to keep material from the back edge of the saw. Material kicked back from the table saws is a frequent cause of serious injury. Also, many injuries occur in the cutting of short lengths of stock.
8. A guard that adjusts itself as the stock strikes against it will cover the table opening on the working side of the cage.
9. Unused parts of sanders will be enclosed. Discs will be enclosed under the table. Plane drums will be fenced behind and partially covered by an exhaust hood. The ends of belt sanding machines will be enclosed with metal guards that should also serve as part of the exhaust system.
10. Grinding and buffing wheels will be provided with exhaust hoods; hood guards will be standard equipment. A transparent shield should be fixed to the grinder to help protect the eyes, and eye protection should be worn. Wheels will be inspected daily for cracks and spalling.
11. All saws planers, lathes, and grinders will have excellent lighting at the point of contact and should conform to ANSI standards A-11.1 1965 - (R-1970), "Practice for Industrial Lighting", and A-85.1 - 1956 - (R-1970), "Practice for Protective Lighting".

H. **SOLDERING**

1. Wear gloves and either goggles or a face shield while soldering; keep sleeves rolled down, shirt collars buttoned, and trouser legs over the shoe tops.
2. Ventilation: use enough ventilation, local exhaust at the arc (or flame) to keep the fumes and gases below TLV (Threshold Limit Value). Train the employee to keep their head out of the fumes.
3. Respiratory Protection: use respirable fume respirator or air supplied respirator when soldering in confined space or where local exhaust or ventilation does not keep exposed below TLV.
4. Place hot irons on racks or holder away from all combustible materials.

5. Disconnect electrical irons immediately after use. Keep the cord and connections in good working condition.
6. Never test the temperature by holding the iron near the face or hands.
7. Never snap or throw solder to get it off a hot iron.
8. Wash hands thoroughly before smoking or eating after using lead bearing solder.
9. Read the Material Safety Data Sheet on solders.

I. **PAINTING AND SPRAYING**

1. A "NO SMOKING" rule must be enforced in paint area and other locations where paints, thinners, lacquers, and turpentine are used or stored.
2. Proper and adequate fire extinguishers must be available in the paint area.
3. All lacquers and thinners should be kept only in safety cans approved by Underwriters' Laboratories. They will be stored in accordance with state and local fire codes.
4. Adequate protective equipment - face masks, goggles, gloves, and so further will be worn by maintenance personnel when they spray paint. Tools should be nonferrous and nonsparking.

J. **ELECTRICAL SAFETY**

1. Before machinery is worked on, the electrical controls will be de-energized, tagged and locked. Tags and one-key locks should be removed only by the person who originated their use. Refer to lockout/tagout policy #8431.2008.
2. Electricians will not repair, service, or perform any operations on energized electrical lines or equipment except for these purposes or under these conditions.
3. Line voltage and current tests shall be performed with suitable instruments.
4. Remove line power when it presents an immediate hazard to life.
5. Replacement of fuses in circuits of 150 volts or less by qualified personnel.
6. After a determination that power cannot be interrupted, work on circuits of more than 440 volts should be performed by a public utility contractor; work on circuits of 440 volts or less may be performed by qualified personnel.
7. If the voltage adjacent to equipment being worked on exceeds 250 volts, two or more personnel should be present.
8. If it is necessary to switch off high-voltage circuit breakers or disconnect switches or other equipment to clear a supply feeder or apparatus, two qualified technicians should be present while switching is in progress.
9. All technicians will be trained in artificial respiration techniques.
10. Panel board circuit identification directories will be kept current.
11. The wattage rating for lamps will be limited to the design value. Bulbs extending past rim of the reflector present hazards of burns, fire and shattering glass.
12. Extension cords used in operating rooms must comply with National Fire Protection Association Standard No. 56-A, Section 3514 (1973). Cord caps (plugs) will be purchased with hand plugs to eliminate strain on the wiring connections. Wiring and all other electrical equipment should bear the Underwriters' Laboratories label.
13. All electrical equipment shall be properly grounded. Power cords must be 3-wire, 3-prong plug type or double insulated. Check for frays, weak insulation, breaks, damage to cords, switches, wall receptacles, etc., and repair. Do not drape cords over radiators or any metal or over traffic lanes. Be sure hands are dry and feet are on dry floor when operating electrical equipment. See that equipment is turned off before plugging it in that it is unplugged when making adjustments or repairs.

14. In portable electrical equipment furnished with power cords, any exposed metal parts not carrying current should be grounded through a special cord and plug. Adapters should be provided until all outlets can be converted to the grounding type. Equipment that is especially critical is:
    a. Equipment used around moisture. This includes water baths, physiotherapy equipment.
    b. Readily movable equipment used with or around moisture. This includes centrifuges, ovens, and hot plates.
    c. An electrical supply or more than 150 volts.
    d. Hand-held, motor operated equipment.

K. **COMPRESSED AIR**

1. When cleaning with compressed air, it may not exceed 30 psi when the nozzle end is obstructed or dead ended. There must be effective chip guarding and worker shall wear protection equipment.

L. **COMPRESSED GAS CYLINDERS**

1. Valve protection caps shall be in place when compressed gas cylinders are being transported, moved or stored. Cylinder valves shall be closed when work is finished and when cylinders are empty or moved. Cylinders shall be secured in an upright position at all times except when cylinder is actually being hoisted or carried. Cylinders shall be kept at a safe distance or shielded from welding or cutting operations, and away from any danger of contact with an electrical circuit. Oxygen and power gas regulators must be checked prior to use for proper working order, and not used when there is doubt during use.

M. **EYE AND FACE PROTECTION**

1. Approved eye and face protection must be used when machines or operations present potential eye or facial injury, and during overhead drilling, cutting or chiseling of any material. The following requires such protection: grinding, drill press operation, power saw operation or lathe operation. Filter lenses of proper shade number must be used by employees involved in welding operations.

N. **FLAMMABLE AND COMBUSTIBLE LIQUIDS**

1. Only approved containers and portable tanks can be used for storage and handling of flammable and combustible liquids.

O. **FOOTWEAR**

1. Appropriate footwear must be worn on all jobs.

P. **RESPIRATORY PROTECTION**

1. Respiratory protective devices (e.g., gas mask, etc.,) appropriate for the hazardous material involved, and the extent and nature of the work performed, must be used. Employees are instructed in their use. Such equipment must be checked prior to use and maintained in good condition.

Q. **STORAGE**

1. Any material stored in tiers must be secured to prevent sliding, or falling, or collapse. Aisles and passageways must be kept clear and in good repair. Exits may not be obstructed by stored materials. Fire potential must be considered in the storage of all materials.

R. **HEAD PROTECTION**

1. Hard hats or similar type protection must be worn in areas where there is danger of head injury from impact, flying or falling objects, or electrical shock and burns, etc. They must be worn when hazardous overhead work is being performed (drilling, chiseling, fastening material, etc.) when any work is being performed on the exterior of buildings (setting up and securing scaffolding, working on ladders or scaffolding, or while working on roof), and when entering any part of a construction or remodeling site.

S. **MECHANIZED EQUIPMENT AND MOTOR VEHICLES**

1. All motor vehicles and mechanized equipment must be thoroughly checked prior to use to assure that they are in safe operating condition. Defects must be corrected before such equipment is used.

T. **PERSONAL PROTECTIVE EQUIPMENT**

1. Includes lifelines, safety belts, lanyards used only for employee safeguards.

U. **MISCELLANEOUS PRECAUTIONS**

1. Equipment that is potentially contaminated (infectious, toxic or radioactive) will be certified as safe by the appropriate branch, laboratory, or department before it is repaired or cleaned. The certification will be in writing on a tag attached to the equipment. This precaution extends to fixed building equipment.
2. When batteries are being charged, open flames or other possible ignition sources will be kept away from them, and smoking will be prohibited in the area. Hydrogen given off during the charging operation is highly flammable and may flash or explode, so a well ventilated space is required.
3. Switches always will be shut off when work is done on electrical systems. Warning tags will be put on switches to keep other employees from operating them.
4. Requests from any personnel to repair unsafe conditions will get as prompt a response as possible.
5. All unsafe conditions or employee practices will be recorded and corrective action taken immediately.
6. Walk, don't run. Approach intersections carefully. Keep to the right in corridors, on stairways. Be sure traffic is clear on other side of swinging doors.
7. Do not overreach. Use only approved step stools or step ladders for climbing. Carry only that which can be safely carried alone. Use proper technique for lifting and carrying.
8. Pick up foreign objects off floors. Do not pick up broken glass with bare hands. Dispose of all sharp objects, broken plastic or glass in puncture-proof containers.
9. Wipe up spills immediately. Warn others of chemical spills. Be careful of inhaling noxious fumes.
10. Read instructions on containers for proper disposal of contents, e.g. aerosol containers, poisons, etc.
11. Do not leave equipment unattended or standing in traffic lanes. Return equipment to its proper location when not in use.
12. All containers must be labeled with contents and precautions. Unlabeled containers should be disposed of. (See Safety Policy 8610.S.205)
13. Heavy bulk containers should be placed on lower shelves in storage areas.
14. Hazardous substances, acids, should be stored on lower shelves and in an area separate from non-poisons or non-hazardous substances.