**RHODES UNIVERSITY**

**DEPARTMENT OF FINE ART**

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| **SAFETY MANUAL** |

**2013**

1. **INTRODUCTION:**

Safety at the work place is regulated and governed by the stipulations of the Occupational Health and Safety Act and Regulations. The State Department responsible for implementation and control is the Department of Labour who are staffed by on-site inspectors. Adherence to these regulations is now expanded to encompass related areas such as university campuses, where there is exposure to physical harm. It is of benefit to both the individuals concerned and the country at large.

Accidents are very expensive and have a direct bearing on national productivity. The penalties imposed for non-compliance are substantial and every responsible organisation and party sees the important role they must play in the area of safety. Rhodes University is no exception and has a commitment to protect the life and limb of every student and this manual forms just a part of the University’s overall strategy in this regard.

1. **SAFETY EQUIPMENT AND CLOTHING:**

Equipment:

This category includes items such as face shields/hoods for welding, fire extinguishers, first-aid boxes, heat shields, machine guards etc and all must be well maintained and should not be abused. Every student has a responsibility to report any defect or deviation to the departmental technician.

(NB: Technician equipment is for the exclusive use of the incumbent of that post. Tools and equipment for the use of the students is stored in a tool cage within the wood shop).

 Personal Clothing and Protective Gear:

 Switch the lights on!

 Open the windows!

 Switch the dust extraction system on [if applicable]

Every student, as required, will be issued with a list of relevant items which can be purchased from the stock room in the Administration building situated in Somerset Street and the Sculpture building.

The wearing and use thereof is compulsory whenever machinery is used or potentially hazardous tasks performed. Note therefore that students must bring these items along whenever practical work is undertaken. No sharing will be allowed as each student must use their own.

Items include: **Safety shoes / Goggles / Respirators / Ear-plugs / Gloves / Dust coats / overalls**

1. **TYPES OF EQUIPMENT:**

Metal Shop:

The metal shop is equipped with the following:

* Steel cutting band-saw
* HOBART arc welder
* AEG pedestal grinder
* MILLER ECONOTIG AC/DC Tungsten inert gas welder (Not presently for use by students : incorporates fume extraction equipment)
* EURO TECHNICS guillotine (Manual operation only)
* Cut-off saw
* Mig Welder {wire feed }
* Plasma cutter
* Sand blasting Cabinet

Wood Shop:

The wood shop is equipped with the following:

* TOOLMATE dual-purpose sander
* ELEKTRA BECKUM Type BAS 450 WN band saw
* SUPREME MOULDINGS mitre cutter
* ROCKWELL Model 14 band saw
* WADKIN BURSGREEN planer/thicknesser
* DELTA RE13 panel saw
* Drill press
* Compressor 11/7 (for cleaning purposes by students only)
* Compound mitre saw

Portable Power Tools:

The Sculpture section has a number of portable power tools stored either in the cage in the wood shop, or in the lecturers office (other sections such as Painting and Graphics also have some power tools). They are generally powered from a 15A plug top and include power files, sanders, routers, planers, saws, drills, angle grinders etc. The latter is worthy of special mention as the angle grinder must always be handled with care. The cutting wheel is extremely sharp and rotates at high revolutions. It is mostly used for the cutting of steel and often utilized in confined spaces where due care it vital.

1. **SAFE WORK PROCEDURES:**

**General:**

The high-risk areas are the metal shop and the wood shop. However there are certain thing to avoid which are relevant to all areas and these are high-lighted under this sub-section. The subsequent sub-sections cover the safe work procedures relating to specific machines and equipment.

* Keep well clear of all hot substance and surfaces.
* Beware of slippery surfaces.
* Maintain a good body balance at all times, particularly close to moving machinery.
* Tie up long hair so that it remains at the back of the body.
* Do not wear loose clothing including wide, hanging sleeves.
* Ensure that all body extremities eg. Fingers do not approach any closer to exposed blades or cutting devices than is absolutely necessary for the execution of the task.
* Safety gloves obviously protect against sharp edges, but are not to be worn when working with bladed machinery as they do not in fact protect and reduce grip, dexterity and the ‘feel’ on the work piece or push-stick for instance.
* Do not wear exposed jewellery eg. rings or neck chains.
* Bare feet, open shoes or sandals are not allowed in the workshop. The wearing of safety shoes protects the feet against sharp, falling or protruding objects, nails, tacks, electrical shock to a degree and they provide a better grip on slippery surfaces.
* Fooling around near moving machinery is highly dangerous.
* Never touch any moving part of any machine.
* Never leave a machine running unattended.

**Metal Shop:**

Specific precautions to be taken are:

* TIG Welder only for use of technician or under supervision.
* Arc welding

An arc welder generates a relatively high electrical current for heating purposes at a relatively low voltage to ensure passage of the heating current through the sacrificial electrode and the base metal to be welded.

The main risks are eye damage (so-called ‘arc eyes’), hot sparks, skin burns and electrical shock. The wearing of leather gloves and an apron are recommended and the wearing of safety shoes and the use of the correct darkened face shield/hood are compulsory. If the current setting on the welding machine is incorrect, the electrode rod tends to stick to the base metal. The correct choice of electrode material is vital and it is essential to first clean the metal surfaces to be welded and to chip away the slag that forms. Proper preparation of the two surfaces to be mated ensures a good weld and this may involve both cleaning of surfaces and ‘v-ing’.

Another potential hazard are the trailing cables which could be tripped over e.g. that connected to the earth clamp which is attached to the steel section or plate to be welded.

Pedestal / bench grinder

This grinder is equipped with two wheels rotating at high revolutions which is normally displayed at the unit. The grindstone materials do vary and some are very brittle and are inclined to chip. Sparks are a hazard and the wearing of goggles is compulsory.

The work piece to be ground must rest on the small pedestal support provided for this purpose. As the grindstone wears away, the gap between stone and pedestal opens up to an unacceptable degree and if this occurs rapidly, it should be drawn to the attention of the Departmental Technician.

**Wood Shop:**

Specific precautions to be taken are:

*Band Saw*

With the band saw, the blade is of necessity exposed and the work piece is forced by hand towards the cutting edge of the blade rotating at high revolutions. Always adjust the blade guard and top guides as close as possible to the work piece. Do not feed work with your thumbs, fingers or any part of your body, directly in line with the blade. Use a push stick to feed a narrow workpiece. To avoid pulling the moving blade off the band wheels, never back out of a deep cut without switching off first. Should a blade break or slip from the band wheels while you are using the saw, switch off immediately and stand back. Do not open the blade access doors until the machine has come to a stop. Ask the technician to replace blunt or damaged blades before you find you are having to feed the work with excess force.

*Panel Saw*

In its basic form, a table or panel saw comprises a rotary saw protruding through the centre of a flat worktable or bench. Fitted with fences and guides, it is primarily used to cut solid timber and man-made boards to size.

* Use sound and sharp cutters or blades only
* Use only guards as provided
* No adjustments to be made while blade is moving
* Check work piece for nails, screws and loose knots
* Wear a respirator / dust mask
* Check that there are no loose items on the table before use.
* Feed the work against the direction of the blade.
* Support the work properly when passing it over or through the machine.
* Use a push stick when your fingers might get too close to the blade.
* Never reach over a blade to remove waste or off-cuts.
* Do not attempt to free a stalled blade before switching off.
* Do not attempt to stop the blade with a piece of wood.
* If interrupted, complete the process, switch off and then give attention elsewhere.
* NEVER LEAVE ANY RUNNING MACHINE UNATTENDED.

*Planer / Thicknesser*

* Inspect the machine before you switch on to make sure there is nothing to foul the cutter block.
* Make sure the guard is properly adjusted and in position.
* Never attempt to plane a piece of wood less than 6mm in thickness or length.
* Use a push block with a thin work piece.
* The work piece must be long enough to be held firmly in both hands.
* Never trail your fingers or thumb behind a work piece.
* Always feed work against the direction of the cutter block.
* When surface planning, pass the work from in feed to out feed, but the opposite when thicknessing.
* Feed only one work piece at a time when thicknessing.
* Do not try to force a work piece.
* Never put your hand in to retrieve or clean out anything.

*Drill Press*

The work piece must be clamped to the table or firmly gripped in the jaws of a vise, which in turn must be clamped to the table. No attempt must be made to change speed while the drill is turning. Goggles must be worn to protect against splinters. If the work piece begins to rotate while in the chuck, not attempt must be made to grab it with the hands. The drill must be switched off and the work piece allowed to come to rest. **Never grab swarf ie. Loose material from the drilled hole.**

1. **ROUTINE MONTHLY INSPECTION / CHECKLIST :**

The University has appointed safety representatives for all buildings and geographical areas on the campus. The Departmental Technician is the representative responsible for the Fine Art Department. It is his responsibility to conduct a monthly inspection in accordance with a check-list and to ensure that all safety deviations receive the necessary attention. Students can assist by drawing his attention to any hazard or risk which comes to their notice.

Typically the following receive special attention:

* First aid boxes in all buildings, properly equipped with a known trained first-aider taking responsibility.
* Properly maintained fire protection equipment
* Signage e.g. exits
* General housekeeping
* Machine guarding
* Good maintenance of tools and equipment
* Acceptable lighting levels
* Unsafe practices and unsafe conditions
* Up-to-date statutory equipment inspections, duly recorded in a register
* Electrical wiring and installation
* Racking and stacking i.e. safe storage
* Proper storage of organic material and flammable or toxic substances
* Ladders and lifting equipment
* Condition of floors, corridors and stairways
* Ventilation
1. **CONCLUSION:**

Careful study of this document will give you an introduction to the hazards associated with working in the Fine Art workshops and help to ensure that you do not expose yourself to unnecessary risk or physical harm. For further information or clarity, please contact the Departmental Technician in the Sculpture building or the Sculpture lecturer.

We wish you all a happy, safe and productive year!