

Accident Prevention Procedures

1. Preamble

- 1.1 Safety inspections shall be carried out regularly by the area supervisor to ensure health and safety standards are maintained.
- 1.2 This task need not be a lengthy process and may consist of a “walk through” using a general health and safety checklist or one designed specifically for the area.
- 1.3 In addition the OH&S Committees or OH&S representatives are also responsible for conducting or coordinating safety inspections to assist managers and supervisors to maintain health and safety standards, and the Biosafety and Radiation Safety Committee (BRSC) is specifically responsible for coordinating and conducting inspections of the Physical Containment 2 (PC2) laboratories.
- 1.4 Additional safety requirements apply to PC2 laboratories and radiation laboratories these requirements can be found at the BRSC web site.

2. Aim

- 2.1 The University of Western Sydney is committed to promoting and maintaining high standards of occupational health and safety. This commitment extends to the implementation of risk management strategies, staff involvement and regular workplace safety inspections.

3. Definition

- 3.1 **Accident:** An unplanned event which has the potential to disrupt normal safe operations, such as a system failure, which results in, for example, a fatality, injury, occupational illness, loss of containment, uncontrolled discharge to the environment, legal claim or any other Occupational Health and Safety non-compliance.

4. Safety Inspection Checklists

- 4.1 Safety inspection checklists can be effectively used to identify hazardous practices and conditions. They need to be relevant to the particular work group or location, cover relevant aspects of health and safety, detail minimum requirements and kept under review.
- 4.2 If you are designing a checklist it is important that the format and layout allow sufficient space for recording observations, comments and for an indication of any follow up action(s) required.
- 4.3. Where departures from accepted standards are noted on checklists they shall be investigated and actioned immediately. Detailed reports of the investigations will indicate what corrective actions are necessary. For example, a checklist may record an unguarded machine. The investigator will advise the supervisor/or technical advisor that the machine must be immediately isolated and not used until an appropriate guard is installed. The supervisor and/or technical adviser will then be responsible for ensuring the corrective action is taken and a follow up report is provided to senior management. Therefore the checklist in this example provides historical evidence of the hazard identifies, the measures recommended to be carried out and can be regarded as a proactive measure to prevent accidents and improve safety in the working environment.
- 4.4 As checklists are designed to provide basic information they are not suitable for use as data in analysing accidents to determine their causes. Safety checklists may cover all types of work areas, e.g. buildings, general offices areas, learning and teaching areas, laboratories, workshops, outside areas etc and be used as a resource for collecting factual information, which can be used to enhance the accident investigation process(es).

5. Using Checklists

- 5.1 Checklists may be used by managers and/or staff in a number of situations, to ensure that health and safety standards are maintained.
- 5.2 When introducing new equipment or material or altering methods or processes, checklists can be used to assess the following:
 - (i) guarding of machine hazards

- (ii) ergonomic design of work processes, machines and controls
 - (iii) compliance with regulations and standards
 - (iv) noise levels
 - (v) physical and chemical properties
 - (vi) flammability
 - (vii) explosive properties
 - (viii) suitable extinguishing agents
 - (ix) reactions with other substances
 - (x) toxicity
 - (xi) chemical corrosiveness
 - (xii) transport and storage requirements
 - (xiii) protective equipment necessary
 - (xiv) handling of spillages and wastes
 - (xv) any legal restrictions applying to the material
- 5.3 Checklists can be used to provide safe installation and modification of plant and equipment by maintenance staff or outside contractors and must form the basis for formal close down, maintenance and start up procedures.
- 5.4 Supervisors shall use checklists to ensure safe practices are carried out in their sections. This process can help maintain the interest of all employees and supervisors in safe procedures.
- 5.5 In addition group discussions can be a valuable means of involving employees in the development of positive awareness towards occupational safety and health. Checklists are a useful aid to supervisors when leading group discussions on safety issues.
- 5.6 Checklists should also be used to formalise housekeeping inspections or tours and to ensure relevant factors are considered.
- 5.7 A typical housekeeping checklist is shown below and another example may be found at Appendix 1 of this section.

6. Housekeeping Checklist

6.1 A tick when all is well. A cross means the item requires attention.

6.2 Floors

- (i) Even surface – no holes?
- (ii) Special attention to areas around machines?
- (iii) Sawdust, shavings, off-cuts etc. swept up?
- (iv) Grease spots and all spills wiped up?
- (v) Loose boards nailed down?
- (vi) Floor openings covered or protected when not in use?
- (vii) Dropped objects picked up?
- (viii) Clean?
- (vix) Stock material out of the way?

6.3 **Aisles**

- (i) Wide enough for goods traffic?
- (ii) Clear of cases, material and rubbish?
- (iii) Adequately lit?
- (iv) Surface free from defects?
- (v) Clear of trolleys hand-trucks etc.?
- (vi) Aisles clean?

6.4 **Machines**

- (i) Adequate workspace?
- (ii) Clean?
- (iii) Provision to store waste off-cuts?
- (iv) Drip-pans to prevent oil on the floor?
- (v) Adequately guarded against accidental or casual contact?

6.6 **Work benches**

- (i) Clear of rubbish, tidy and uncluttered?
- (ii) No damaged tools, efficient system for repair and replacement?
- (iii) Tools not in use kept in place?

6.7 **Lighting**

- (i) Are all parts of the interior adequately lit in accordance with recommendations in the recognized codes?
- (ii) Do any tasks require special treatment, e.g. the provision of a screen of luminous background to make them easy to see?
- (iii) Are the fittings readily accessible for routine maintenance?
- (iv) Are suitable finishes used on the walls, roof and other surfaces?

- (v) Is the type of lamp (incandescent, fluorescent or mercury vapour) the most economical and satisfactory?

- (vi) Is the available natural lighting utilised to best advantage?
- (vii) Have employees complained about the lighting in any way? (Such complaints often help greatly in pin pointing defects in existing installations.)
- (viii) Are the lighting fittings properly placed in relation to the work to minimise unwanted reflections? (This is very important in offices.)
- (ix) No direct or reflected glare?
- (x) Do the lighting fittings adequately control glare and is adequate light reaching the ceiling or roof?
- (xi) Light fittings clean and in good repair?

6.8 **Windows**

- (i) Clean, admitting plenty of daylight?
- (ii) No broken panes?
- (iii) Ledges free of dust, tins or rubbish?

6.9 **Stairs and Landings**

- (i) No worn or broken treads?
- (ii) Handrails in good repair?
- (iii) Clean, free of oil and grease?
- (iv) Landings clear of crates and other obstructions?
- (v) Access to stairs must not be impeded

6.10 **Ladders**

- (i) Rubber safety feet where possible?
- (ii) No broken or missed rungs, or other defects?
- (iii) Stored in proper place?
- (iv) Metal ladders to have labels warning about proximity to electrical cords, fittings etc.
- (v) Stepladders to have labels indicating highest safe run.
- (vi) Are regular ladder inspections conducted and records kept on file?

6.11 **Storage**

- (i) Adequate and convenient racks and bins?
- (ii) Stacks stable with good foundations?
- (ii) Clear of traffic areas?
- (iv) Stack layers cross-tied where possible?
- (vi) Materials stored in racks and bins wherever possible?

- (vi) Floors around stacks and racks clear of rubbish?

- (vii) Shelves free of dust and rubbish?
- (viii) Required materials taken from tops of stacks – not pulled from below?
- (ix) Are correct signs in place for chemical storage, hazardous material, and compatibility of substance signs etc.?

6.12 **Electrical**

- (i) Gear not in use properly stored?
- (ii) No unprotected leads over traffic or access ways?
- (iii) No broken plugs, sockets or switches.
- (iv) Check for frayed leads and replace.
- (v) No electrical cords left where they may cause trips or falls hazards.
- (iv) Isolating transformers in place?
- (vii) Portable power tools in good condition?
- (viii) Are current electrical test tags on leads of all portable electrical equipment and extension leads?
- (ix) All switchboards, circuit boards etc., to be locked with access by key restricted to licensed personnel.

6.13 **Rubbish**

- (i) Bins located at suitable points round plant?
- (ii) Oily rags and combustible refuse in covered metal containers?
- (iii) Bins emptied regularly?

6.14 **Yards**

- (i) Clean and free from rubbish?
- (ii) Satisfactory water drainage?
- (iii) Even surface – no holes?
- (iv) Vehicular traffic ways clearly marked?
- (v) No grease or oil patches?

6.15 **Fire Safety**

- (i) Clear instructions displayed for action in event of fire?
- (ii) Hose reels covering whole of premises and permanently connected to water supply?
- (iii) Display of Fire Brigade telephone number?
- (iv) Are there any risks that require the provision of special equipment?
- (v) Co-ordination with, and efficient method of calling, the Fire Brigade?
- (vi) Access to all fire safety equipment clear and unobstructed?

- (vii) Flammable and explosive material safely stored and handled?
- (viii) Efficient, recently serviced fire-warning system-audible and/or visible as appropriate and regular drills (say every twelve months)?
- (ix) Closable metal containers readily available for storage of flammable waste?
- (x) Clear instructions posted about storage, use and disposal of flammable and explosive materials?
- (xi) Means of escape from building always available and fire doors and emergency exits clear of obstruction and unlocked during occupancy?
- (xii) Adequate training of personnel in fire fighting?
- (xiii) Adequate direction signs for emergency exits, exit doors easily opened from inside?
- (xiv) Provision of adequate fire extinguishers of types appropriate to risk and suitably marked and recently serviced?
- (xv) Building Evacuation Controllers and Wardens trained and building occupants are aware of who they are?
- (xvi) Adequate evacuation drills?
- (xvii) Inspection of tags and logbooks to ensure that maintenance of fire equipment is being carried out at the required intervals?
- (xviii) Correct operation of fire doors. (They should be self-latching and no wedging doors open as it nullifies their use as a fire barrier.)
- (xvix) Strategically placed hydrants for use by works team and/or Fire Brigade, together with sufficient standpipes, keys hose and nozzles?

6.16 **Chemical Safety**

- (i) Adequate ventilation for toxins and dust to open air or collection plant?
- (ii) Provision of antidotes for poisons as appropriate?
- (iii) Provision of fume cupboards for testing and analysis?
- (iv) Provision of monitoring equipment for gases, dust, radiation etc, as appropriate?
- (v) Safe storage, labeling and handling procedures for carcinogenic, radioactive isotopes, toxic and corrosive substances?
- (vi) Are Material Safety Data Sheet Registers in place for all chemicals stored?
- (vii) Provision of appropriate personal protective equipment and clothing?

- (vii) Posting of notices stating maximum allowable concentrations in the atmosphere and the provision of barrier creams or similar preventive treatments?
- (ix) Provision of emergency eyewash?
- (x) Provision of emergency showers?

6.17 Hygiene

- (i) Meal rooms clean and tidy; provision for regular cleaning?
- (ii) Adequate drinkable water and drinking cups for water fountains?
- (ii) Adequate washing facilities with soap substitute and towels; provision for regular cleaning?
- (iv) Adequate facilities for drying storing outdoor clothing?
- (vi) Provision of special clothing for dirty and hazardous processes?
- (vi) Adequate and private toilet facilities and toilet paper; provision for regular cleaning?
- (vii) Lockers and locker rooms clean and tidy?

6.18 Hazard Control

- (i) Materials, equipment safely stored but readily available?
- (ii) Suitable and appropriate protective clothing provided and used?
- (ii) Efficient system for rapid repair or replacement of hand and other tools?
- (iv) Non-insulated electricals adequately guarded and clearly marked?
- (vii) Adequate facilities for materials handling, i.e. lifting and transport of heavy, bulky and multiple loads?
- (vi) Hydraulic and gas pipes and electric cables clearly identified as to purpose and pressure or voltage?

6.19 Personal Protective Equipment (PPE)

- (iii) Ideally occupational hazards should be eliminated wherever possible or the workplace designed so as to minimize the impact of potential hazards on employees and students.
- (ii) Employees, students and visitors while working in laboratories are to use the required personal protective equipment such as safety shoes, lab coats, gloves, safety glasses or hearing protection. (The employer is to supply employees with PPE.)
- (iv) *Eye* damage may result from a chemical splash, from dust or other foreign body, from a sharp object or from a heat or radiation burn.

- (iv) Eye protection must be worn in workshops, laboratories and other work areas where the following processes and hazards exist:

6.20 Process Hazards

- (i) Spray painting vapours.
- (ii) Welding, cutting brazing burns.
- (iii) Grinding, scaling, machining metals flying particles.
- (iv) Sanding, lathing, sawing dusts.
- (v) Cleaning with corrosives, solvents burns, irritation.
- (vi) Students and visitors are also required to wear eye protection when conducting or observing these processes.
- (vii) *Hand* injuries may result from chemicals, lacerations, crushing, extreme heat or cold, electrical hazards and biological hazards.
- (viii) Hand protection must be worn in workshops, laboratories and other work areas where the following hazards and processes exist:
 1. Chemical use burns, irritation, systemic absorption.
 2. Handling extremely hot or cold objects burns, frost-bite.
 3. Handling blood products or pathogenic organisms. Reference to the interim Standard Operating Procedures for Dealing with Specimens of Human Origin and/or Potentially Infectious and/or Hazardous Agents (including animal blood or tissues) and to Interim Standard operating procedures for PC2 facilities.
 4. Cleaning with solvents or corrosives burns, irritation, dermatitis.
 5. Handling meat or food infection.
 6. As well as providing personal protection, gloves may also be required to protect others as in the case of food handling or administering first aid.
 7. Appropriate hand protection *must* be worn at all times when conducting or demonstrating the above listed processes.
 8. Students are also required to wear hand protection when involved in these or other processes where it is deemed necessary.
- (ix) *Foot* injuries may result from falling or rolling objects, cutting machines, chemical hazards extreme heat or cold, electrical hazards and sanitation hazards. Appropriate closed protective footwear *must* be worn in workshops, store areas, laboratories, food preparation areas and on field trips where these hazards and /or slippery floors exist.

- (x) Appropriate *clothing* is required for various work areas to provide both personal protection and protection for clothing and in some cases for identification. Overalls, laboratory coats, dustcoats and uniforms should be worn as appropriate in workshops, laboratories, food preparation areas and when carrying out cleaning or maintenance work.

6.22 **Obtaining Personal Protective Equipment**

- (i) Staff personal protective equipment is provided where required via the area supervisor.
- (ii) Students are to be advised at the commencement of their course what personal protective equipment they will require for entry into specific areas such as laboratories or workshops.

6.23 **Using Personal Protective Equipment**

6.24 It is essential that where it is necessary, appropriate personal protective equipment is used properly. The following precautions should be observed to:

- (i) ensure equipment is appropriate to the need
- (ii) ensure equipment is maintained in good working order
- (iii) ensure employees are instructed in the correct use of PPE
- (iv) ensure employees use PPE when required.

6.25 It is the responsibility of all employees, visitors and students to take care of and use of PPE where required.

APPENDIX 1:

SAMPLE UWSH WORKPLACE ASSESSMENT CHECKLIST

Item No	ITEM	Remarks and action required (identify building, room no., person responsible for this action & phone extn no)	Completion date
1.0	HOUSEKEEPING & MAINTENANCE		
1.1	Tidiness and storage		
1.2	Cleanliness		
1.3	Paintwork		
1.4	Drainage		
1.5	Waste Disposal – frequent removal of combustibles		
3.0	FIRST AID		
3.1	Box appropriately located		
3.2	Details of nearest trained first aider		
3.3	Adequately stocked (see F/A regulations)		
3.4	Emergency contact phone & pager numbers		
4.0	EVACUATION		
4.1	Copy of emergency plan available at accessible location within school/department		
4.2	Floor plan signage indicating location of fire extinguishers, alarm points, exits and nominated wardens		
4.3	Communication system to alert building occupants of evacuation		
4.4	Last evacuation fire drill		
4.5	Evacuation exits – unobstructed - opens from inside - clearly marked		
4.6	Emergency lighting		

Item No	ITEM	Remarks and action required (identify building, room no., person responsible for this action & phone extn no)	Completion date
5.0	FIRE PROTECTION		
5.1	Fire separation – walls & floors - doors & windows - ceilings & ducts		
5.2	Isolation of risk areas		
5.3	Fire detection system		
5.4	Alarm system (including push button alarms)		
5.5	Audibility of alarms		
5.6	Fire extinguisher – type & number - placarding - testing - operator training		
5.7	Fire blankets		
5.8	Fire hose reels		
5.9	Fire hydrants		
5.10	Automatic fire systems		
5.11	Access for fire brigade		
6.0	FLAMMABLE LIQUIDS (AS 1940 compliance)		
6.1	6.1 Flammable materials correctly stored (no more than 5 litres on lab bench tops)		
6.2	6.2 Overall quantities excessive?		
6.3	6.3 Flammables correctly signposted (flammables cabinet doors, lab doors, main entrance to building)		
6.4	6.4 Flammable wastes (rags, paper etc) stored in sealed waste bin		
6.5	6.5 Static electricity control		
6.6	6.6 Class B fire extinguishers		

Item No	ITEM	Remarks and action required (identify building, room no., person responsible for this action & phone extn no)	Completion date
7.0	ELECTRICAL SAFETY		
7.1	Portable electrical equipment checked		
7.2	Condition of plugs and leads		
7.3	Trailing leads		
7.4	Earth leakage protection provided		
7.5	Sufficient power points		
7.6	Switchboards locked, access by authorized persons only and free of rubbish		
7.7	Lock out & tag out procedure for work carried out on electrical systems		
8.0	CHEMICALS (GENERAL) SAFETY		
8.1	Information on safe storage & handling MSDS		
8.2	Register of chemicals regularly updated		
8.3	Containers – suitable type & condition		
8.4	Labelling		
8.5	Overall quantities excessive?		
8.6	Segregation of incompatible classes		
8.7	Carriers for large bottles		
8.8	Fume cupboards – sufficient - AS 2243 (8) compliance - condition		
8.9	Waste disposal arrangements – frequent removal of waste		
8.10	Absorbants & neutralising materials for spills		
8.11	Assessment/monitoring of atmospheres (TLV's)		
8.12	Safety shower operational & unobstructed access		
8.13	Eye wash stations operational & unobstructed		
8.14	Breathing apparatus &/or respirators		
8.15	Special antidotes where applicable		

Item No	ITEM	Remarks and action required (identify building, room no., person responsible for this action & phone extn no)	Completion date
9.0	COMPRESSED GASES		
9.1	Reticulation of special gas services		
9.2	Flashback arrestors on flammable gas cylinders		
9.3	Correct signage on storage depots		
9.4	Segregation of incompatible gases		
9.5	Cryogenic gases – storage & method of use		
9.6	Number of cylinders inside room		
9.7	Cylinder trolley availability		
9.8	Cylinder restraint		
9.9	Compressed air lines & connections in good condition		
10.0	ACIDS & VOLATILE POISONS		
10.1	Separate storage adequately banded		
10.2	Containers		
10.3	Carcinogens, mutagens & teratogens - labelled - handling procedures - listed as haz. chemicals on register		
10.4	Warning signs		
10.5	Neutralising agents		
11.0	BIOLOGICAL HAZARDS		
11.1	High risk specimens isolated		
11.2	Needles & sharps bin –compliance with AS4031		
11.3	Contaminated waste collection		
11.4	No mouth pipetting		
11.5	No smoking or eating		
11.6	No absorbent surfaces		
11.7	Centrifuges –maintenance		
11.8	Laminar Flow cabinets - maintenance		
11.9	Autoclaves - maintenance		
11.10	Disinfectants		
11.11	Protective clothing		
11.12	Staff vaccination		

Item No	ITEM	Remarks and action required (identify building, room no., person responsible for this action & phone extn no)	Completion date
11.13	Animal handling		
12.0	RADIATION HAZARDS		
12.1	Radioactive sources – sealed - unsealed		
12.2	Inventory of quantities and sources used		
12.3	Waste disposal		
12.4	Restricted access		
12.5	Personal monitoring		
12.6	Warning signs		
12.7	Radiation Safety Manual available and procedures explained by lab manager		
13.0	PSNL PROTECTIVE EQUIPMENT (consider correct selection, location, information, warning signs & maintenance)		
13.1	Lab coats/overalls		
13.2	Eye protection		
13.3	Gloves		
13.4	Footwear		
13.5	Respirators		
13.6	Hearing protection		
14.0	MANUAL HANDLING		
14.1	Identification of manual handling hazards (priorities for assessment?)		
14.2	Assessment according to COP		
14.3	Control measures being implemented		

Item No	ITEM	Remarks and action required (identify building, room no., person responsible for this action & phone extn no)	Completion date
15.0	GENERAL WORK PRACTICES		
15.1	Mechanical handling equipment available		
15.2	Confined space procedures		
15.3	Permits – outside contractors - hot work		
15.4	Advice to cleaners & maintenance personnel		
15.5	No working along		
15.6	Fail-safe protection (especially unattended work)		
15.7	Reticulated services colour coded		
15.8	Procedures for working at height		
16.0	MECHANICAL & HEAT HAZARDS		
16.1	Guarding of machines		
16.2	Maintenance of machines		
16.3	Emergency isolation of machines		
16.4	Guard rails		
16.5	Ladders and steps		
16.6	Scaffolds		
16.7	Bays for welding and grinding		
16.8	Ovens & other heating equipment		
17.0	FLOORS		
17.1	Sound flooring		
17.2	Openings protected		
17.3	Floors clear of – waste, oil, water - tripping hazards		
17.4	Adequate work spaces		
17.5	Aisles – sufficient width - unobstructed		
17.6	Mezzanine floors – adequate protection		

Item No	ITEM	Remarks and action required (identify building, room no., person responsible for this action & phone extn no)	Completion date
18.0	GENERAL WORK ENVIRONMENT		
18.1	Ventilation		
18.2	Removal of fumes and dust		
18.3	Temperature & humidity control		
18.4	Noise levels		
18.5	Vibration		
18.6	Lighting – general purpose - for particular tasks - absence of glare - aisles & external		
18.7	Ergonomics – layout of work area - furniture - variation of tasks - correct VDU set-up		
19.0	EMPLOYEE FACILITIES		
19.1	Detailed preliminary studies		
19.2	Special protective equipment		
19.3	Independent assessment		
20.0	HIGH HAZARD PROCESSES		
20.1	Detailed preliminary studies		
20.2	Special Protective Equipment		
20.3	Independent assessment		
21.0	PRESSURED EQUIPMENT		
21.1	Legislation & code compliance		
21.2	Safety devices		
22.0	VACUUM EQUIPMENT		
22.1	Large vessels shielded		

Item No	ITEM	Remarks and action required (identify building, room no., person responsible for this action & phone extn no)	Completion date
23.0	TEACHING AREAS		
23.1	Additional requirements of AS1495		
23.2	Supervision of students		
24.0	TRAINING		
24.1	Induction – general OHS policy - specific work safety - fire & emergency		
24.2	Refresher courses		
25.0	MANAGEMENT		
25.1	OHS Policy for Colleges/School/Sections clearly stated		
25.2	OH&S Committee – representative - regular inclusion of OH&S issues in staff meetings		
25.3	Responsibility defined – senior management		
25.4	Staff aware of their substantive position		
25.6	Consultation before changing duties, training provided as necessary		
25.7	Regular (non-threatening) performance feedback		
25.8	Training needs identified		
25.9	Encouragement to attend staff development training		
25.10	Early management of conflict between co-workers		
25.11	Workloads monitored and corrective action taken as required		
25.12	OHS review of research projects		
25.13	Equipment operators trained & qualified		
25.14	Accident reporting		
25.15	Hazard reporting & follow-up		

Item No	ITEM	Remarks and action required (identify building, room no., person responsible for this action & phone extn no)	Completion date
25.16	Provision for visitors		
25.17	Provision for disabled		
25.18	Monitoring effectiveness of OHS program		