



University
of Glasgow

James Watt
School of
Engineering

School Safety Handbook



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Emergency phone number 4444

Statement from Head of School

The University of Glasgow and the School of Engineering are committed to providing a safe and healthy working environment. The University has a Health, Safety and Wellbeing service that was established to bring together various facets of safe working, namely Occupational Health, Radiation Protection (concerned with for example, x-rays, radio-isotopes and lasers), and the Safety and Environmental Protection Services (SEPS). Their web pages and the links therein contain information on the wide variety of safety issues encountered in the University, advice on how to assess risks and the legal framework that people should operate within e.g. COSHH, DSEAR etc. Below are some selected links that provide more information.

<http://www.gla.ac.uk/myglasgow/health/>

<http://www.gla.ac.uk/myglasgow/occupationalhealthunit/>

<http://www.gla.ac.uk/myglasgow/radiationprotection/>

<http://www.gla.ac.uk/myglasgow/seps/>

<http://www.gla.ac.uk/myglasgow/seps/az/biological%20safety/> (biosafety)

<http://www.gla.ac.uk/myglasgow/seps/az/chemicalsafety/> (chemical safety)

https://www.gla.ac.uk/media/Media_502679_smxx.pdf - (University policy statement on Safety, Health and Wellbeing is also listed under Quick links on the /services/health/ webpage).

As part of the arrangements within the University, every level of management is accountable to their line manager and at the same time responsible for the health, safety and wellbeing of those reporting to them. Supervisors should lead, motivate and encourage their staff and students to report on hazards and to discuss all matters relating to health and safety. In the School of Engineering, we hope to foster an open attitude to health and safety issues, in which people can seek help/guidance from suitably experienced persons, irrespective of the direct line management structure.

To make sure that the School of Engineering is a safe (as well as enjoyable) place to work, it is necessary for everyone studying and working within the School to co-operate in matters relating to Health and Safety. In particular, whilst it is possible for the School to put in place various rules/regulations/procedures, it must be recognised that there is also an onus on those working and studying in the School to make sure that what they do is done safely. Importantly, this manner of safe working, should not only be safe in respect of their own safety, but should also not adversely affect the health, safety and wellbeing of other people.

This School of Engineering Safety Manual contains safety information relevant to all areas of the School giving minimum standards required. This is intended as a general introduction to what people need to know in order to work safely, and be aware of any surrounding risks. However, it does not replace the need to take expert advice, consult relevant literature or to design work in a way that minimises the risk of injury to yourself or others. Notably, within the School of Engineering, the range of activities is probably more diverse than in most departments of Physical or Life Science.

Statement from Head of School

In order that Safety Manual is not too unwieldy to read, detailed and specific information is contained in supplements that cover chemical, biological and laser safety. Codes of Practice associated with working in specific areas/laboratories should be available from your supervisor or local manager. Nevertheless, it may still appear that a number of items are repeated in several places within this handbook – this is merely to ensure that important information is not missed when referring to selected sections of this manual. It is however, a condition of working in the School that people read and understand all safety information relevant to their intended activities before commencing the work.

The Control of Substances Hazardous to Health (COSHH) and Dangerous Substances and Explosive Atmosphere (DSEA) Regulations require that a written risk assessment is completed before work involving potentially hazardous substances or situations is undertaken. These must be reviewed after a five-year period, or if there is a change to (a) the system of work (b) the substances involved (c) the people who carry out the procedure.

The School requires that before postgraduate students, or staff, undertake any practical work they must have:

- (i) read and understood relevant information from the safety manual
- (ii) undergone relevant safety training
- (iii) completed and/or passed relevant safety questionnaires/competence assessments
- (iv) completed or read and understood relevant COSHH or risk assessment forms

At the end of this document are details of the School's Emergency Plan i.e. what to do in the case of an Emergency – do read this!

Finally, please remember the manual sets out minimum standards – wherever possible try to exceed these and make the School an environment that promotes the wellbeing of us all.

Professor Manuel Salmeron-Sanchez
Head of School

Professor Andrew McBride
Assistant Head of School

Part A - Policy and Organisation

Statement of Safety Policy

It is the declared policy of the School to comply with the Health and Safety at Work Act, 1974, the COSHH Regulations (2002), the DSEA Regulations (2002) and GM Regulations, in both spirit and practice.

As working in the School can involve activities that are hazardous, it is the declared intention to take all appropriate steps to prevent injury, ill health, damage or loss arising from work carried out in the School.

Safe working must be regarded as the normal, professional way of working but should include a sense of proportion with regard to the level of safety required as excessively restrictive safety practices can be counterproductive and wasteful. Nevertheless, measures and actions should be taken to reduce risks so far as is reasonably practicable, and if the remaining risk and consequence are too great or severe, then the activity should not be undertaken.

The management and promotion of health and safety in the School is an essential duty incumbent upon all academic and supervisory staff, who are ultimately responsible to the Head of School. However, all staff and students working in the School must recognise that there is a clear duty on them to act responsibly in matters of health and safety and to cooperate with managers in this regard. It is therefore required that all members of staff shall acquaint themselves with relevant safety information before commencing any work. In this context, students and staff should note that there are extensive sets of guidelines and policies covering health, safety and well being on the University's website:

<http://www.gla.ac.uk/myglasgow/seps/>

A discussion of many topics can be found in the A-Z index on that site. In particular, attention is drawn to the University policy that it is expected that new and expectant mothers should contact their supervisors and persons responsible for the laboratories in which they work at the earliest opportunity so that suitable risk assessments and working arrangements can be discussed and put in place.

To implement the above policy, the School will:

- Provide resources and employ means to ensure safe working.
- Provide and maintain an appropriate structure for the implementation and development of safe working to include training in safe working methods and assessment and monitoring of working practices to ensure safe working.

Part A - Policy and Organisation

Organisation and Arrangements

The following is in place to give effect to the above statement of policy:

Head of School

The Head of School is responsible to the University Court for ensuring safe working practices and conditions are adhered to at all times and that the University Safety Policy is implemented. He is also responsible to ensure the School complies with current safety legislation.

Safety Management Structure

In order to do this, a Safety Management Structure covering Teaching Laboratories and Research Laboratories/Workshops has been implemented. A diagrammatic description of the safety management structure is given below, to illustrate the delegated levels of responsibility.

Safety Committee

The safety committee comprises members from each of the divisions within the School, employee and management representatives together with the Safety Co-ordinator and Director of Safety. It acts as a core decision and policy-making group. Details of the current membership are on the School safety website.

Director of Safety

The Safety Director, supported by the Safety Coordinator, will be responsible to the Head of School for ensuring compliance with all current Health and Safety legislation applicable to the full range of activities carried out within the School of Engineering;

Developing and implementing an effective safety management structure that includes suitably knowledgeable, experienced and competent people; Establishing and chairing an effective safety committee; Developing and implementing policies and procedures that promote a good safety culture by making a safe working environment the norm in the School.

Safety Coordinator

The safety coordinator provides a channel for information exchange and distribution and a direct link to the safety committee. He also provides a link to the School Management Group on matters that require urgent consideration and response.

Laboratory Guardians

These are appointed by either relevant Head of Research Discipline, Learning and Teaching or Technical Services, with the approval of the Head of School. For research labs they will normally be a member of the academic staff, and will be responsible for safety matters in the laboratory or suite of laboratories which they oversee, as outlined below:

1. to maintain the Code of Practice (CoP);

Part A - Policy and Organisation

Organisation and Arrangements (continued)

2. to ensure the lab users keep their area in tidy and clean condition;
3. to ensure each activity (experimental rig/equipment) has a Risk Assessment before work commences;
4. to review risk assessments and highlight any concerns, paying particular attention to whether the proposed activities conflict (in a safety context) with other activities in the lab, particularly in multi-user, multi-supervisor labs.
5. to coordinate actions according to the School's Director of Safety or Safety Coordinator's report/instructions following regular or ad hoc laboratory inspections;

A list of laboratory guardians can be found on the School of Engineering website, if you can not find the person responsible for the area in which you wish to work, please contact the School's Director of Safety or the Safety Coordinator.

Safety Personnel

The safety personnel list gives names of individuals who have various levels of delegated responsibility for safety management:

Heads of Division are responsible for ensuring that all academics associated with their division are implementing the School safety policy.

Heads of Discipline and Convener of the Learning and Teaching committee are responsible for ensuring that all members of the teaching staff implement the School safety policy, in particular the provision of Codes of Practice, Risk Assessments and delivery of safety briefings and information to Undergraduate and Master level students.

Academic Supervisors are responsible for ensuring that all students, staff (research and technical) and visitors working under their guidance implement the School safety policy and/or producing risk assessments and codes of practice associated with the work they are undertaking.

Technical Services managers are responsible for ensuring that all technical staff and operational persons (e.g. placement students) working in their areas follow and implement the School safety policy and/or producing risk assessments and codes of practice associated with the work they are undertaking.

Research staff, technicians, students, visitors are responsible for producing risk assessments and codes of practice associated with the work they are undertaking or understanding and following risk assessments and codes of practice that have been prepared by others.

Part A - Policy and Organisation

Organisation and Arrangements

Area fire officers and wardens are responsible for ensuring that in the event of a fire alarm, people in the areas designated to them evacuate the building in an orderly manner (assuming that they are in the area at the time the fire alarm is sounded). They should also make periodic inspections of the areas designated to them to ensure that there are no hazardous materials or impediments to a safe and orderly exit in the event of a fire.

Safety Advisors

Safety Advisors from academic and technical staff with expertise in technology areas within the School have been nominated and will support the safety committee by providing technical advice and guidance.

Laser safety: Zack Manson, Richard Green, Marc Sorel (laser safety officer)

Chemical safety: Phil Dobson, Julie Russell, Elizabeth Palmer, Megan Blaney

Biosafety: Andrew Glidle, Julien Reboud, Jon Cooper, Julie Russell

Machine, Heavy Lifting, Equipment moving: Wilson MacDougall

Electrical and Electronics, Portable Appliance Testing (PAT): Peter Miller

Computing: Ken McColl

Part A - Policy and Organisation

Organisation and Arrangements

Key responsible persons

Head of School: Manuel Salmeron-Sanchez

Assistant Head of School: Andrew McBride

Director of Safety: Julien Reboud

Safety Coordinator: Cyril Pacot

Heads of Research: David Flynn (ASC), Huabing Yin (BME), Hadi Heidari (ENE), Sondipon Adhikari (IRE), Steven Neale (SPE)

Heads of Discipline: Ian Taylor (Aerospace), Henrik Golee (Biomedical), Fiona Bradley (Civil), Euan McGookin (Electronic & Electrical), Phil Dobson (Mechanical)

Staff Representative: Bernie Hoey

Academic Supervisors: see staff list

Laboratory Guardians consult Head of Discipline, Lecture course leader, Director of Safety or list on the safety website

Lecture course leaders: see staff list

Head of Professional Services: Tania Galabova

Head of Technical Services: Cyril Pacot

Technical Services Managers: Brian Robb, Denis Kearns

JWNC Director of Operations: Chris Bennett

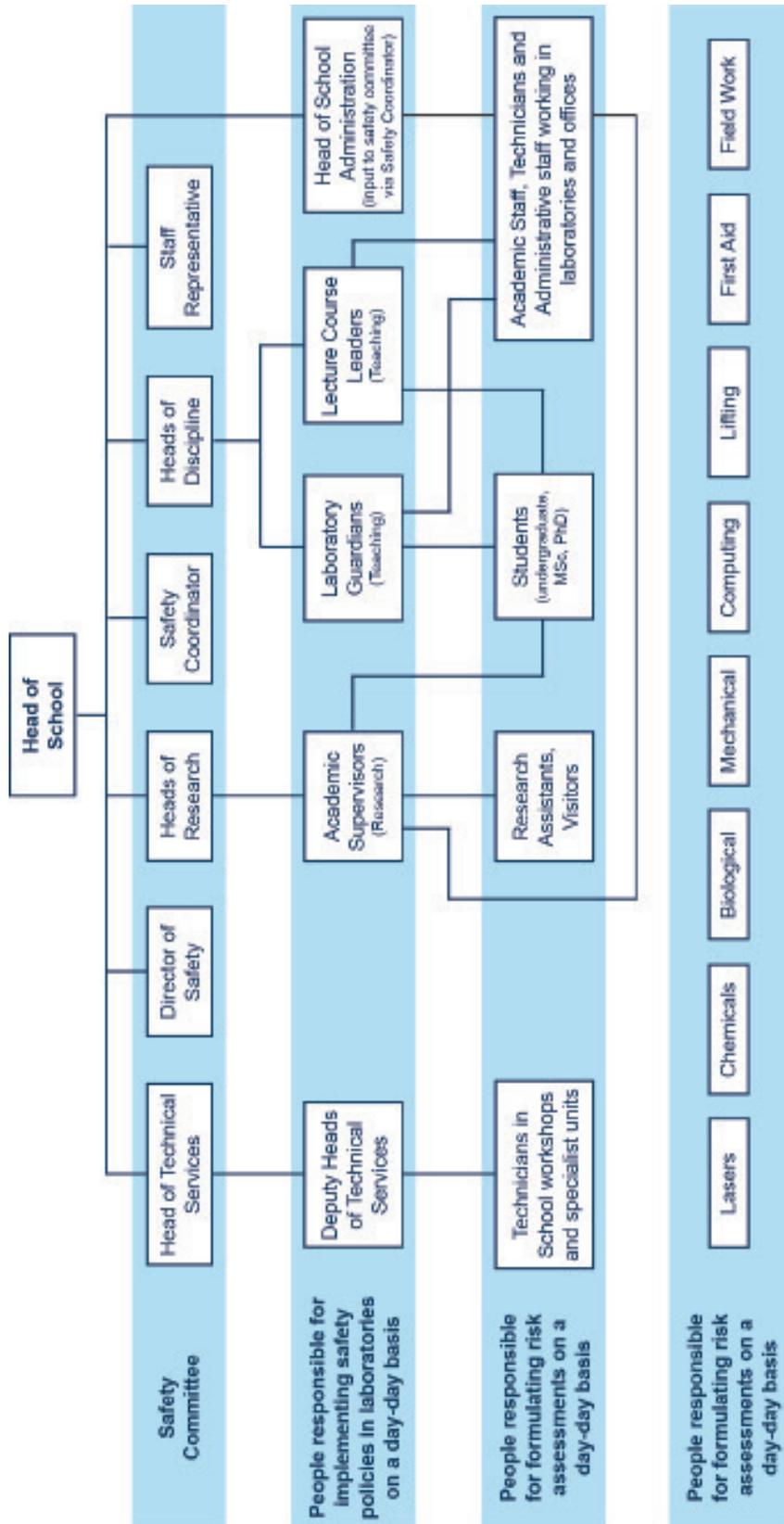
JWNC Technical Services Managers: Linda Pollock, Mark Dragsnes

Primary routes to raise safety issues

Please feel free to raise any issues concerning health and safety with any member of the safety committee, member of staff, your supervisor or, if you prefer, ask for it to be raised at the periodic staff-student liaison committees, through your representative.

Part A - Policy and Organisation

Diagram of safety management structure



Part B - Working safely

General safety

Safety in the workplace is obviously important.

It's not just a matter of avoiding accidents. It requires a safety-conscious attitude, and habitual practice of appropriate procedures.

It's not just a good idea, either. The UK Health and Safety Executive require the University to inform and guide students and employees in these practices. You'll find similar requirements in any company you work for. Some students will be familiar with safety procedures from previous or part-time jobs; for others, "safety culture" may be new. A lot of safety regulations may seem like 'common sense', however common sense accrues with experience and this manual is designed to provide information (and links to information) for people coming from a wide variety of backgrounds.

Accidents by their nature happen, but it is important for everyone working and studying in the School to reduce their likelihood but almost all of them could have been avoided with proper planning and risk management. Understanding safety helps you protect not only yourself against mishaps, but also your friends and colleagues. If you have questions or observations, please mention them to any member of staff and/or members of the School Safety committee.

Safety regulations

There are a wide variety of activities undertaken within the School of Engineering and each type of activity will be governed by its own regulations, the majority of which are overseen by the UK-wide Health and Safety Executive (HSE) (<http://www.hse.gov.uk/>).

The regulations and guidance below cover general safety matters and people working with Chemicals, Materials, Biological species, Lasers, Electrical Equipment, Machine tools, Heavy objects and Gases should read and abide by the details in the appropriate supplements to these regulations. It is the policy of this School that all members of staff, students, and all other persons using the School must comply with the general and supplementary regulations.

Part B - Working safely

Risk assessments

All staff, students and technicians must have the Risk Assessment for the task they are undertaking (including fieldwork), and abide by the control measures prescribed in the assessment and the Code of Practice associated with the laboratory they are working in. If there is no Risk Assessment covering the procedure you wish to do, then you should either complete one yourself, or discuss with your supervisor who should complete it.

Whilst it is preferred that individuals prepare their own Risk Assessment for the activities they are undertaking, where people follow a Risk Assessment prepared by others, they should acknowledge their reading and understanding of the procedures in an online database. Importantly, newly discovered hazards associated with a procedure should be brought to the attention of the supervisor and laboratory guardian.

The completed assessment forms should be authorised by the supervisor (in the case of PhD students or RAs) or line manager in the case of technical staff, in consultation with the person who is responsible for the laboratory or area where the activity is being undertaken (in many cases this will be one in the same person).

On-line risk assessment forms covering either General activities (e.g. Mechanical, Electrical, Laser, etc); predominantly Chemical activities and predominantly Biological activities are available at the following URL:

<https://www.gla.ac.uk/schools/engineering/safety/risk%20assessment/>

If you find that the activity you are undertaking doesn't fall within the scope of one or other of these forms, contact the Safety coordinator or Director for advice. As well as your supervisor and/or other staff associated with providing safety advice, these people can also give guidance on how to complete the Risk Assessment form.

Part B - Working safely

Reporting incidents

The following items should be reported to the Safety coordinator as soon as possible:

<http://www.gla.ac.uk/myglasgow/seps/reportanincident/#d.en.411120>

and the forms on that and this webpage: <http://www.gla.ac.uk/myglasgow/seps/forms/>

- a) Any injury - no matter how trivial.
- b) Any dangerous occurrence - even if it does not result in injury to anyone.
- c) Any existing or potential hazard - so that it can be dealt with before it causes an accident.

When an accident or dangerous occurrence occurs, the causes will be investigated by the School Safety coordinator together with the people involved in the incident and their supervisors, the Safety Director and, if necessary, appropriate specialists. Collectively they will determine what action should be taken to prevent a recurrence of the incident and they will pass this information on to the University Safety and Environmental Protection Service. More information on the University's protocols for reporting incidents can be found at:

<http://www.gla.ac.uk/myglasgow/seps/reportanincident/#d.en.411120>

Fire prevention

Do not smoke inside the building.

Do not store combustible or flammable materials on or near heaters.

Do not leave electrical heaters switched on in unoccupied rooms.

Switch Off all electrical equipment when not in use.

Close all windows at the end of the working day.

Close all doors - including corridor fire doors.

Restrict the use of flammable liquids to the absolute minimum, and ensure that they are stored safely.

Know the location of fire extinguishers and Fire Blankets, and learn how to use them - Do not wait until a fire occurs before reading the instructions!

Part B - Working safely

Fire alarm testing

The fire alarm in the Rankine Building will be tested on Thursday mornings and in the James Watt Building on Thursday afternoons.

Fire safety training

It is a requirement that all new staff and post graduate students complete the online fire safety training.

https://www.gla.ac.uk/media/Media_817930_smxx.pdf

Working outside normal working hours

It is important that you comply with the following instructions when working outside normal working hours (or the rules given in the local codes of practice, if these are more stringent and note, there are special arrangements for year 4 and 5 undergraduate and postgraduate taught students, as detailed in a separate document on the School Safety website):

- 1) Record your arrival and departure in the logbook provided at the entrance of the Rankine Building, the entrance of the JWNC, and the entrance of the James Watt Building. If practical, please use the UofG SafeZone App, to register with your presence.
- 2) Plan what you are doing to reduce the risk of fire to a minimum.
- 3) Acquaint yourself with the whereabouts of the nearest exit, fire extinguisher, and light switches for corridors and stairs leading to the nearest exit.

Potentially dangerous operations must never be undertaken outside normal hours unless a second responsible person is present. If at all practical, such operations should be restricted to normal hours when medical and other services are readily available. When assessing the hazards of an operation, you should bear in mind that a mistake could cost your life, so be very careful when making an assessment.

Part B - Working safely

Working outside normal working hours

The greatest care must be taken to avoid starting a fire. Adopting the following safe working practice can minimize the risk:

- a) Ensure that all equipment is in good working order - especially electrical or high power devices.
- b) Assess the consequences of equipment malfunction, and consider what action is necessary to cope with such an occurrence.
- c) Ensure that fire-fighting equipment is close at hand, and that you know how to use it.
- d) If flammable substances must be used, restrict the quantity to the minimum necessary for the job.

Postgraduate research students who intend to work late must inform a senior member of the group, and give details of the work they intend to do.

Arrangements have been put in place for undergraduate and postgraduate taught students wishing to access the building and work out of hours (i.e. before 8.30 am and after 5 pm). Undergraduate students can get this form from the Teaching Office in James Watt South, level 6. Postgraduate students must get a form detailing the out-of-hours Terms of Access and Safety Regulation from the School HR/Finance office in Rm 720 of the Rankine building, sign it, and get it stamped. This will allow staff to authorise your matriculation card to operate the building entry access systems. These permits will typically cover periods of a semester or the duration of your course, so you should only need to do this once or twice. The buildings must never be used for anything other than study and computer work unless an explicit arrangement has been made with a supervisor and an appropriate risk assessment has been carried out.

It is strongly advised that inexperienced personnel when working late should be accompanied by experienced personnel. (**Note:** The late working arrangements in the JWNC stipulate that two people must be present in the JWNC for all activities, no matter how minor, or experienced the persons involved – see the JWNC website for further details).

Finally, if there is a serious injury, dial 4444 and ask for an ambulance. If no First Aider is available and the injury is not serious but requires first aid, the injured person should go (preferably accompanied by someone) to The Queen Elizabeth University Hospital, 1345 Govan Road, Glasgow, G51 4TF, Tel : 0141 201 1100.

In the event of a serious accident or sudden illness you should dial 4444 (or 2222 if at Acre Rd) and ask for an ambulance - then summon a first-aider. A list of first-aiders is given in the Appendix.

If the accident involves chemicals, full written details should be sent with the patient.

Part B - Working safely

General guidance

This may seem like a very long list and you may find that only some of the rules apply to what you want to do – others are more general e.g.

Always:

Assess the risks inherent to the tasks;

Be alert, gentle, quiet, and observant;

Read instructions, including safety instructions;

Ask when you don't understand something;

Tie your hair back if it's long enough to get caught in the equipment;

Check the location of emergency switches, fire escapes, phones, fire extinguishers, and first-aid boxes.

Don't ever:

Run or fool around in the lab.;

Wear a tie...or any other loose clothing or jewellery that could get caught or touch circuits or chemicals;

Take food or drink into a lab where there are chemicals/biochemicals open electrical or mechanical equipment – you never know what has been spilled on the bench before you get there, and a drink that gets knocked over onto some equipment is likely to cause problems;

Modify or interfere with the correct operation of equipment unless you have properly assessed the risks of doing this;

Remove the earth lead from any instrument or equipment.

Part B - Working safely

Read instructions or protocols thoroughly. If in doubt, ask.

Wear protective glasses and/or protective clothing where necessary. Note: Normal prescription glasses do not offer enough protection in cases where eye protection is necessary, and protective over-goggles must be worn with them.

Be clear what you are going to do, before you do it. For every operation, imagine what consequences would be if it went wrong (this is the fundamental basis of a risk assessment).

Never ever have shafts rotating without safety guards.

Take extreme care with hand tools, especially soldering irons, electric drills, scalpels, knives, clippers etc. We take these tools for granted because they seem so familiar. But many nasty accidents arise with them, so follow proper procedures, and wear safety glasses.

If equipment is getting too hot or starting to smell, switch it off and work out whether this is correct (some things do smell, but most things don't). The maximum touch temperature of most equipment should not exceed about 50°C.

Treat lasers with extreme respect. Special precautions are enforced. Special precautions are also enforced with liquid nitrogen and even more stringent rules with other laboratory gases and chemicals.

If gas cylinders, liquid nitrogen or liquid helium containers, flammable solvents or dangerous chemicals are to be conveyed by lift, they must not be accompanied by passengers except in the case of a well-ventilated lift such as the goods lift. Such items should be placed in the lift, which can then be called from the appropriate floor by an assistant.

Gas cylinders should be supported by a stand or fixed securely when in use. They should be transported on proper trolleys only, and should have the gauge head removed before being transported.

Part B - Working safely

For convenience, this list of guidelines is split into sections, however to save too much repetition in this manual, people should read all sections since many procedures will involve elements in both lists.

Electrical and Mechanical:

Machine tools must not be used unless competence has been agreed and permission has been obtained from the Mechanical Services Manager or his deputy.

Appropriate safety guards must be in place before machines are used.

All persons with long hair must wear a safety hat with hair net before using machine tools or moving equipment in which hair could get caught.

Welding equipment, gas burners, etc., must not be used in the vicinity of flammable liquids or materials.

Personal Electrical Equipment - Anyone who brings personal items of mains-operated equipment (Electric heaters, kettles, radios etc.), into the School, must ensure that they comply with the safety standards of the University, and that they are maintained to these standards. Owners of such items may have them tested by applying to the Electronics Services Manager.

All mains electrical supplies up to and including the outlets are the responsibility of Estates and Buildings. No work may be carried out by School personnel on electrical supplies.

All mains electrical equipment must be correctly wired (brown = live, blue = neutral, yellow/green = earth), and have a correctly rated fuse fitted.

All equipment - except double insulated - must be earthed.

Wiring should be periodically checked for safety in accordance with assessment of risk and tested using a Portable Appliance Tester where appropriate.

Power points must not be overloaded - in many situations the use of multi-socket plug boards may be unavoidable, however care should be taken not to plug heavy duty equipment in to these; this could lead to melting of the plug boards. For example, equipment with high loads (>1 kW) such as ovens, certain types of pump, certain lasers, some types of mechanical equipment should be plugged directly into a wall socket. In general, if several items that are in continuous operation are plugged into a multi-socket board, the overall power should be less than 1 kW (even if the extension boards have a higher rating). To avoid internal heating of plug board or sockets when connecting high load appliances, plug pin contacts should be regularly inspected for tarnishing and users should change plugs if they start to feel warm.

Electrical heaters must not be left switched on in unoccupied rooms.

Protect cables that run across the floor with a suitable cover.

Part B - Working safely

Laboratory equipment must not be run overnight unless a competent member of staff has carried out a risk assessment detailing the unattended risks.

The tubing connecting water supplies to equipment must be connected to both the supply and equipment by proper clips – not wired on. Such tubing should also be inspected regularly for signs of aging/leaks, and renewed with new tubing (rather than patching) when appropriate.

Chemical and Biological:

Spectacles should be worn in preference to contact lenses, which could trap chemicals between the lens and the eye. Soft lens in particular can also absorb solvent vapour.

Do not pour (waste) solvents, toxic or harmful chemicals or biological agents down the drains: If waste solvent drums/chutes and chemical or biohazard bins are not in the laboratory, arrange with your supervisor to install them.

Do not eat, drink, smoke or apply make-up in areas where chemicals or biological agents are used or stored.

Do not sniff unknown chemicals or gases - they may be toxic.

Do not store mercury in unsealed vessels. Mercury spillages should be reported immediately to the Superintendent.

Highly flammable solvents must not be kept in rooms or laboratories in containers greater than 2.5l, unless special permission has been given by the research supervisor. Up to 50 litres may be kept in a properly designed cabinet.

Vessels containing chemicals must be labelled clearly and correctly - this includes waste chemicals.

Broken glass, razor blades, scalpels, sharp objects etc must not be disposed of in wastepaper bins. They should be put in a suitable, labelled container such as waste glass or sharps bins. If they are contaminated in any way with biological agents, they should be placed in a biohazard bin for disposal.

To avoid cuts, and poisoning by contamination, broken glassware should be swept up not picked up.

Part B - Working safely

Electrically powered equipment

No persons should make adaptations to or otherwise interfere with the fixed mains electrical supply. If this needs to be done, Estates Commercial Services should be contacted. Estates Commercial Services personnel will either do this, or arrange for a specialist contractor to do this. All electrical supplies that employ an extension lead connected to the fixed mains supply should only use commercially supplied, pre-configured plug boards with an adequate power rating. If special arrangements are needed for the type or location of electrical sockets or supplies that can not be provided using a simple unmodified plug board, then these should be installed by Estates Commercial Services. In exceptional circumstances, with the approval of the deputy technical service manager (electronics), a custom extension may be provided by staff from one of the electronics workshops after it has been assessed for electrical safety by the deputy technical service manager (electronics) or suitably qualified electronics workshop staff whose job is graded at level five or above.

Any connections to, or adaptations of, the mains circuitry or other circuitry with the potential to cause danger (e.g. high current circuitry) within equipment should only be carried out by suitably trained personnel and all such work must be inspected by a member of the electronics workshop on completion, who will check it for electrical safety and perform a portable appliance test. In general all work on this type of circuitry should be conducted with the equipment disconnected from its power source (e.g. the mains supply or a high capacity battery). See below for the procedure to be employed where the equipment must remain connected to its power source in order to carry out the work.

Any work on exposed electrical circuitry, including its construction, where the maximum potential difference is greater than 50V or where there are high currents with the potential to cause danger, can only be done after a risk assessment has been completed and approved by the deputy technical service manager (electronics) or suitably qualified electronics workshop staff whose job is graded at level five or above. This will require all hazards to be assessed and controls put in place. A minimum control in this situation is the designation of two additional competent persons to be present to monitor your safety and render assistance or raise the alarm should you be injured. Additionally, if mains supply voltage is involved, this must come from an RCD protected socket or isolation transformer. A simple means of supply disconnection in an emergency must be available.

Note, the above requirements for working on exposed electrical circuitry also apply when performing other work, such as mechanical construction, maintenance or repairs to equipment that is powered by an electrical supply. i.e. the work cannot be done with the circuits dead; it is reasonable to carry out the work with live circuits; suitable precautions are in place e.g. protective shielding to cover the circuitry. In general, such work should be performed with the equipment disconnected from its power supply.

Persons inexperienced in the requirements of electrical wiring associated with potentially hazardous supplies or equipment should obtain guidance and training from staff in the electronics workshop or other qualified person before commencing work.

Part B - Working safely

Use of display screen equipment

The Health and Safety (Display Screen Equipment) Regulations 1992 lay down requirements for the use of “display screen equipment”. In the context of the School of Engineering “display screen equipment” can be equated with PCs, Macs, Workstations and VDUs.

The safety problems of using display screen equipment relate mainly to fatigue and strain associated with prolonged use. For the most part symptoms are only temporary.

Equipment

The chair must be safe and adjustable to meet the needs of the user.

The screen must be positioned suitably for the user and must be free of excessive glare and reflections - if necessary by the addition of a hood or a filter to the screen and blinds to the windows. The image size and quality should be comfortable for the user. The keyboard should be independent from the screen and be easy to use.

The desk should be of suitable dimensions to allow comfortable use - perhaps in conjunction with footstools, arm rests, screen stands and document stands.

Environment

The lighting provision in the environment should ensure that reflections from the screen surface and phosphor do not make the image difficult and tiring to view. It is important that there is no excessive difference in light levels between the screen image and the background level from behind the screen e.g. from a window. Furthermore it is best to avoid a large contrast between the illumination of any paper document being read and the light output from the screen image. The noise level, temperature and humidity of the workplace should be satisfactory.

Job Design

The user’s work schedule must include breaks from display screen use. The software must be appropriate to the task and suited to the needs of the user. Training in its use should be provided. The user should receive information about the health and safety aspects of display screen equipment use. Fuller details and advice on the safety aspects of the use of display screen equipment can be found in the booklet Display Screen Equipment (DSE) available at web page

<https://www.gla.ac.uk/myglasgow/seps/az/computersandhomeworking/>

Note: Staff who wish to have an eye test should contact the Safety Coordinator.

Part B - Working safely

Manual handling

Lifting, carrying and handling of loads is one of the most common causes of injury at work resulting, typically, in muscular strains or physical injury. For this reason there are regulations that require every manual handling task to be managed in a way that minimises the risk to those involved. The management process required is, in essence, a risk assessment.

The starting point is to consider whether the manual-handling task is necessary or if the work might be organised differently, or perhaps mechanised. Sometimes major alteration is not possible immediately, but may be identified as a future goal. One of the more common areas of accidents involves people falling off benches and chairs when trying to reach things, or tripping on things that other people have left lying around in a laboratory. To avoid these, people should get assistance from the technical services teams if ladders are needed and keep a look out for things that people might have (improperly) left things on the floor that could present a trip hazard.

Where manual handling is essential a risk assessment of the task(s) must be carried out. Responsibility for this should be assigned to appropriate members of staff who may also require some training in the risk assessment process.

Where the risk is low, assessments can sometimes be done generically, for example, to look at a particular type of handling operation. However, where risks are higher risk assessments that are specific to individual tasks will usually be needed.

Staff members who are regularly involved in manual-handling as part of their work must get formal manual handling training and also receive periodic refresher training. (SEPS can arrange courses on a cost-recovery basis. See “Training Courses” page for details.)

In some cases protective clothing will have to be provided to staff involved in manual handling work. (e.g. safety footwear, gloves). SEPS guidance on manual handling can be accessed from this link:

Guidance notes on Manual Handling:

<http://www.gla.ac.uk/myglasgow/seps/az/manualhandling/>

Part B - Working safely

Emergency plan - What to do in an emergency



James Watt
School of
Engineering

Emergency and First Aid Contact Information

First Aid



For access to a first aid box and support from a first aider in a non-emergency situation, please contact the local facility assistant.

The facility assistant office is located at the building main entrance.

First dial 999

Police Ambulance Fire brigade

From a UofG phone, 999 will put you through to Security who will call emergency services.

From any other phone or mobile, 999 will put you straight through to emergency services.

Then call Security

If you haven't already told Security what's happening, call immediately:

Gilmorehill: 4444 (0141 330 4444)

Garscube: 2222 (0141 330 2222)

Off campus: +44 (0)141 330 4444

Security will monitor the situation and liaise with emergency services.

Remember

Don't try to deal with an emergency on your own.

Try to stay calm.

Make sure you have back-up.

Prioritise your own safety and that of others at the scene.

SafeZone

Puts you in contact with the UofG Security team instantly for an enquiry, first aid or an emergency on campus or worldwide.

Please use the QR code to download the SafeZone app



SafeZone
A FREE SAFETY APP



SAFEZONE IS GDPR COMPLIANT AND YOUR PRIVACY IS RESPECTED AT ALL TIMES



IF THERE IS AN INCIDENT, BE THE FIRST TO KNOW



FOR LONE WORKING, SHARE YOUR POSITION WITH SECURITY PERSONNEL



Part B - Working safely

Fire

On Discovering a Fire

Step 1

Raise the alarm by operating a Fire Alarm Call Point.



Step 2

An electronic sounder will sound continuously.



Step 3

Evacuate the building.



Step 4

Proceed to designated assembly point.



On Hearing a Warning of Fire

- Evacuate the building quickly and calmly
- Proceed to the designated assembly point
- Do not delay your departure by collecting personal belongings
- Where possible close room doors behind you
- Do not use lifts
- Do not re-enter the building until a Fire Brigade Officer has stated that it is safe to do so

Do not fight a fire if:

- It is dangerous to do so
- You are on your own
- There is a possibility of your escape route being cut off by fire or smoke
- The fire continues to grow
- The fire involves hazardous materials

If in doubt get out.

In addition you should familiarise yourself with the escape route from the premises and the position and operation of Fire Alarm Call Points.



Part B - Working safely

The correct method of calling the Fire Brigade (dial 4444 and ask for the fire service)

The evacuation procedure for the premises.

The location of assembly points for the James Watt Building are on the grass nearest the flag pole and for the Rankine Building, on the grass in front of the houses in Oakfield Avenue.



The position and operation of Fire Fighting Equipment.



The position of Fire Resisting Doors and the need to keep such doors closed when not in normal use.



Any necessary rapid shut-down procedures, for experiments or equipment to minimise further risks whilst the building is evacuated.

The position and content of Fire Action Notices

The position and content of Safety Signs

Part B - Working safely

Contact with dangerous chemicals

The following notes apply to most, but not to all, dangerous chemicals. If in doubt consult a First Aider or databases such as those provided by the chemical supplier e.g.

<http://www.sigmaaldrich.com/>

Contact with Skin

Wash off contaminant with a gentle, but copious stream of cold water for at least twenty minutes. Remove contaminated clothing while flooding the injury (use gloves). Obtain medical help for all but very minor burns. Hydrofluoric acid burns must always be considered serious - even if there are no immediate symptoms - and medical aid should be obtained as soon as possible.

Contact with Eyes

If an eye wash bottle, or station, is not available, wash with a very gentle stream of cold water for at least ten minutes. It may be necessary to enlist the aid of a colleague to hold the eyelids open to ensure that the water enters the eye. Be careful that contaminated water does not splash the uninjured eye. Always take eye casualties to hospital.

Ingestion of Chemicals

If chemicals are swallowed and lips and mouth are burned give sips of water or milk to drink, but do not induce vomiting. Call an ambulance.

Electric shock

In the event of an electric shock, switch off the equipment and unplug at the mains before trying to pull the victim clear. If the victim is breathing, send for a first-aider immediately. If the victim is not breathing call an ambulance and then attempt resuscitation.

Burst pipes, electrical faults etc.

For emergencies such as burst pipes, electrical faults etc. which occur during normal working hours, contact one of the following:

Estates & Buildings Office Ext 6000

For emergencies occurring outwith normal working hours contact:

Main Gatehouse Ext 4444 (at Acre Road, Ext 2222 will contact the security services for the Garscube Campus).