Detailed Health & Safety Information

Health and Safety for students on Work Placements

1. Action to be taken in an emergency

Due to the wide variety of work that is carried out and the possible complex layout of the various buildings, it is not possible to produce a set of valid and detailed emergency instructions to cover every situation that may arise. For this reason, each employer has its own emergency instructions relating to particular buildings. There should be in every building a notice setting out the procedure to be adopted in case of fire.

This instruction should be studied and committed to memory.

There are certain points that apply to all emergency situations:

- you should commit to memory the standing orders for emergency action. You will have no time to read them in an emergency;
- remember you are expected to act in the spirit of the instructions. There is no substitute for common sense;
- the most important consideration at all times is human safety;
- remember if you become a casualty someone must rescue you, possibly at personal risk to themselves;
- you should act quietly and methodically. You should not rush or attempt to pass others when leaving the scene of an emergency;
- the senior person present should assume control of the situation, ensuring the safe evacuation from the premises of all persons present and be prepared to warn the Emergency Services, etc, of known specific hazards.

If you have to telephone for assistance in an emergency, the following information must always be given:

- who you are;
- where you are: i.e. the location and telephone extension from which you are telephoning;
- the nature of the emergency and what services are required ;
- the exact location where assistance is required.

You should ensure that the message has been correctly received by asking for it to be repeated back to you.

It is essential that the location is clearly defined. Local terminology should not be used because for instance, 'the research site' means very little to the Emergency Services.

It is important always to give the correct name for the building and the street where it is located. If the postcode is known that should also by provided.

2. The Health and Safety at Work Act 1974 (HASWA)

The Act is based upon the concept of a general duty of care for most people associated with work activities. The specific aims are to:

- secure the health, safety and welfare of persons at work;
- protect persons other than persons at work against risks to health or safety arising out of, or in connection with, the activities of persons at work;
- control the keeping and use of explosive or highly flammable or otherwise dangerous substances, and generally prevent the unlawful acquisition, possession and use of such substances;
- control the emission into the atmosphere of noxious or offensive substances.

Main provisions of HASWA
There have been a number of Regulations, etc, since HASWA but fundamentally they only amplify the basic concepts contained within HASWA. Those provisions applicable to people place various duties upon employers, employees and others. In brief, these are:

General duties of employers
Employers are required, as far as reasonably practicable, to:
- ensure the health and safety and welfare of employees;
- provides safe plant and systems of work;
- ensure safe use, handling, storage and transport of articles and substances;
- provide information, instruction, training and supervision;
- maintain a safe place of work and safe means of access and egress.

General duties of employers to employees
The effect is to make criminally enforceable the common law duty to take reasonable care for the safety of employees. This includes the requirement, as far as reasonably practicable, to ensure:
- employees know the risks;
- employees know the precautions ;
- the precautions are available;
- employees know the precautions available.

General duties of employers to persons other than employees
Employers have a general duty to protect anyone affected by the undertaking, eg the general public. Regulations:
- require information to be given to persons affected, eg living near the plant;
- prescribe situations regarding emission of fumes, smoke, etc.;
- place duties on persons in control of premises in relation to harmful emissions into the atmosphere.

Duties towards the customer
Duties of those who design, manufacture, import or supply and install articles or substances are to:
- ensure that they are safe and without risk to health;
- carry out tests, examination and research (or have it done on their behalf);
- provide adequate information regarding proper use, maintenance, etc.;
- install erect plant and equipment safely.

The duties can be relieved by a written undertaking from the supplier that he/she will take the steps to ensure that the article or substance will be safe in use or while being cleaned, maintained, etc

Duties of employees
No levy on employees is permitted for the provision of statutory protective equipment.
Employees must:
- take reasonable care for themselves and others;
- co-operate with the employer and use safety appliances;
- not recklessly and wilfully interfere with safety appliances;

Written safety policies
Companies must prepare and revise, when necessary, a written statement of their general policy towards health and safety at work setting out:
- the organisation - i.e. who is responsible;
- the arrangements - i.e. what is to be done.

Safety representatives and committees
Trade Unions may, in accordance with Regulations, appoint safety representatives and ask for a safety committee.

There is a duty on an employer to enter into consultation with representatives, whose functions and rights are prescribed by Regulations.

Disclosure of information
Inspectors may tell safety representatives what they ask the firm to do.

Powers of inspectors
Inspectors have wide powers of:

- entry;
- inspection ;
- interview of persons;
- collections of information;
- photographing and recording;
- taking samples;
- seizing dangerous substances or plant;
- taking written statements.

Enforcement

- **Improvement Notice**

This requires an organisation to take remedial action within a specified period. Failure to comply incurs a large fine (or an unlimited fine on indictment).

- **Prohibition Notice**

Activities giving rise to imminent danger must cease on the date stated - which may be immediate. Failure to comply incurs a large fine (or an unlimited fine on indictment).

- **Codes of Practice**

These are admissible as evidence in determining practicable, reasonably practicable and by practical means.

- **Other Offences**

These can incur a large fine on summary conviction or, on indictment, an unlimited fine and up to two years' imprisonment.

- **Appeals**

Employers may appeal to an Industrial Tribunal within 21 days against Improvement and Prohibition Notices. Improvement Notices are suspended until the appeal is heard, but not Prohibition Notices.

Prosecution is the ultimate deterrent. Prosecutions can be taken out against corporate bodies or individuals but in all cases the onus of proof lies with the accused ie an organisation or individual is deemed to be guilty and must prove they exercised all due diligence or took all reasonable precautions to prevent the incident happening.

3. General safety

INTRODUCTION

The prevention of accidents in laboratories, stores, workshops and all other places of work is a duty of every individual using or entering them. Ensuring the safety of others is as important as the avoidance of personal injury.

Everyone should make it his or her first task to become familiar with any special instructions issued for dealing with emergencies peculiar to the place in which he of she is working.

GENERAL SAFETY RULES

Eating, drinking, smoking and the application of make-up in laboratories or when handling or working with chemicals is prohibited. Smoking may also be prohibited in many other areas as well.

You should familiarise yourself with:

- the layout of the building;
- the location of fire-fighting appliances and how they work;
- ways to get out of the building in an emergency, which may be different to the way you came in;
- the siting of telephones; and
- first aid arrangements.

Remember: it may be too late to find out the appropriate action to take when an emergency actually happens.

If you have any queries on safety matters: consult your supervisor or safety representative.

4. Specific Topics

FIRE

General information
Most fires can be prevented by applying routine precautions, some of which are set out below. When a fire occurs, the principal hazard to people is the smoke that is generated and most deaths at fires are due to asphyxia by smoke. Double doors in corridors and doors leading from kitchens, for example, are designed to retain the smoke to allow the remaining corridors to be used for evacuating the building. The walls of corridors have a specified fire resistance so that the fire can be contained in a small section of the building.

Means of escape
Ensure that rooms, passages, corridors and stairways are not obstructed and that corridor fire doors are kept closed. If a room contains an emergency exit, make sure that it is unobstructed so that it is immediately available for use in an emergency.

Fire extinguishers
Do not attempt to use an extinguisher unless you have received appropriate instruction and training and if it is safe to do so.

Discretion is essential in deciding the lengths to which fire-fighting is pursued. Portable fire-fighting equipment is not designed to cope with extensive fires and it is important that fire-fighting should cease and the location should be evacuated as soon as the effects of fire threaten the means of escape, the building structure, or otherwise indicate that it is out of control.

Although further action might reduce material losses no such saving can compare in importance with human safety.

Before attempting to fight a fire: always ensure the alarm has been raised and you are able to leave the area if the fire escalates out of control.

Ensure you know: the correct fire extinguisher to use and have received instruction in its use. For example, in a laboratory situation, use of the wrong choice of extinguisher can turn a minor incident into a major disaster.

Use carbon dioxide extinguishers with care: they can reduce the oxygen content of the atmosphere in a confined space to a dangerously low level.

There are many kinds of fire-fighting equipment in the workplace: it is the duty of everyone to know where they are located, and for what types of fire each one is intended. Whenever fire-fighting equipment has been used an immediate report should be made to the supervisor so that the equipment may be recharged or replaced.

Use of fire extinguishers

- **Carbon Dioxide** (usually black in colour) extinguishers are the type most generally used for electrical fires or in laboratories, and have several advantages in dealing with small fires. No mess is made and there is little danger of apparatus nearby being knocked over or damaged. They can be used where live electrical circuits are involved. However, they have little cooling effect and until the extinguished material has cooled below the ignition temperature care must be taken that the fire does not re-ignite.
- **Water** (usually red) extinguishers discharging water under pressure from a carbon dioxide cartridge are recommended for use on fires involving paper, wood, etc. They must not be used on fires where there are live electrical circuits. They may be used for solvents miscible with water. It should be noted that the strong jet of water can itself cause damage.
- **AFFF (Aqueous Film Forming Foam** - usually cream) multi-purpose extinguishers are suitable for most types of fires (materials, etc) and are ideal for dealing with the majority of fires involving flammable liquids. The aqueous film prevents re-ignition of the fire with limited cooling properties. Foam extinguishers may be used on immiscible liquids that are lighter than water, eg petrol and most oils. They must not be used where live electrical circuits are involved.
- **Hose reels** are usually sited in corridors or in large rooms, for use where extinguishers discharging water may be inadequate for the risk involved. They are intended to be used on fires involving wood structures, paper, fabrics etc. The hoses are usually of 22mm diameter and from 25-40 metres in length. Where a control valve is fitted, it is important to ensure that it is fully open before the hose is run out. Hoses fitted with automatic valves operate when between 1 to 3 metres of hose has been run off the wheel.

Fire/smoke-stop doors

Fire/smoke-stop doors may be installed throughout buildings so as to prevent smoke and hot toxic gases circulating along routes to safety. These doors must not be wedged or propped open. They must be kept closed at all times after access and egress has been effected.

Fire instructions

These appear in the Emergency Procedures for the organisation and possibly in the internal telephone directory. They should be displayed on notices in all buildings.

Fire detection systems

Fire detectors give an early earning of a fire, particularly if the fire starts in an unoccupied area. There are generally two types of detector used.

- **Heat detectors** contain either a bimetallic or thermistor device and operate when a rapid increase in temperature occurs. They are fitted in some kitchens, laboratories and corridors. Other heat detectors operate when a fixed temperature, normally 60-70°C, is exceeded and they are used when a rapid rise in temperature can be anticipated in normal operation, eg oven rooms and kitchens.
- **Smoke detectors** contain an ion-chamber and detect the products of combustion. They are the most sensitive of the automatic detectors. Because of their high sensitivity, larger areas can be protected by a single detector and these systems are found in most buildings.

All fire detectors are necessarily sensitive devices and can be easily activated to give a false alarm. Smoke detectors for instance can be activated by dust, steam, or exhaust from petrol or diesel engines. Misuse of fire-fighting equipment, eg hose-reels, fire-extinguishers and fire-alarms, may render it inoperable when required in an emergency and could even result in loss of life. Moreover it is a criminal offence that may result in the imposition of severe penalties by the Courts and disciplinary action by the employer.

PRECAUTIONS IN OFFICES, LIBRARIES ETC

A recent nation-wide survey has revealed that offices are the scene of a substantial number of serious accidents every year. Most of these are avoidable. There is an increasing use of machinery in offices, eg paper-guillotines, duplicators etc, which should be operated only according to the makers' instructions. Only maintenance personnel should remove the enclosing panels of machines.

All portable electric appliances should carry a current Portable Appliance Test label. Leads should not be allowed to trail in a manner likely to cause persons to trip over them or to pull over the item. You should not leave appliances in precarious positions not use waste-paper baskets as ashtrays.

Care must be taken to avoid spillage of water in rooms in which there are electric power points set in the floors. It is possible in some circumstances for a person standing on such a wet floor to receive a severe, possibly fatal, electric shock.

When carrying files, you should not carry so many that your vision is obscured. Filing cabinet drawers should always be closed as soon as you have found what you want. The corner of a metal drawer can inflict a very painful injury. Open only one drawer at a time because more than one drawer open may cause a filing cabinet to tip forward.

You must never stand on revolving stools or chairs and should avoid using any chair or stool where steps are provided. A fall on to the end of a desk or an open drawer can cause a very serious injury.

You should not leave stacks of boxes, kit bags or files on the floor near doorways for people to fall over. Polished floors, particularly if waxed or wet, offer a hazard. You should never run on the polished floors of corridors or common rooms.

WORK OUTSIDE NORMAL HOURS

Many companies have their own rules with regard to work outside normal hours, eg 0800 to 1800 hrs, Mondays to Fridays. Saturdays, Sundays, Bank Holidays and other official holidays are usually regarded as outside normal hours.

Extreme care should be exercised when working outside these times and then only with the explicit authority of the management of that organisation. It should be forbidden to perform operations deemed hazardous by the employer, or his/her nominee, unless some other person is within calling distance, and only after prior permission has been given by the Head of the Section or his/her nominee for the particular work involved.

ELECTRICAL HAZARDS

Two of the worst electrical hazards are careless or unskilled workmanship and faulty or worn out equipment. Neither of these hazards need arise. Electric and electronic supplies and equipment, including batteries and electrolytic capacitors can be responsible for personal injury and even death. They can also cause fires and explosions. Remember, some foreign colour coding of electrical leads differs from British practice. If in doubt, ask.

Electricity and fire

All portable electrical appliances should have a current PAT Certificate. This involves mechanical and visual check that all sockets outlets, switches, flexible leads and electrical appliances are in good condition. In case of fire involving electrical equipment, the first action to take must be to switch off the power supply to that equipment. You should extinguish and electrical fire with carbon dioxide, never with water or foam.

Use of electric points and equipment

Lead length should be adequate for the particular job for which the equipment is currently being used. In no circumstances should you interfere with the wiring or connections of any

electric point or appliance. All necessary adjustments or modifications to wiring will be carried out by a duly authorised, competent person.

NOISE

Noise can cause damage to hearing, reduce efficiency or merely annoy. Damage to hearing can result from a sudden violent sound producing an effect as dramatic as the rupture of an eardrum. Continuous exposure to lower noise levels can, however, produce deafness. In the latter case the impairment to hearing may pass unrecognised for a long period of time due to the insidiousness of the effect. For advice on noise problems you should consult the organisation's Safety Officer.

FIRST AID

It is a legal requirement to report all accidents in the workplace. Medical advice should always be sought, however serious the injury. Initially, simple first aid measures may be applied.

Minor cuts
Cuts and grazes are best treated by cleansing under running water and then dried. A dry dressing or plaster should then be applied.

Severe bleeding
Bleeding will be stopped by applying direct pressure on a dressing covering the wound and if possible elevating the affected part.

Burns and scalds
The affected parts should be immersed under running cold water for at least 10 minutes and then a dry dressing only applied.

Chemical spillage
All chemicals must be washed off the body with copious amounts of water. Some laboratories have emergency showers and these should always be used when available.

Needle stick injuries
Allow all puncture injuries to bleed freely and then wash under running water using soap or a hand cleanser. The injury should be reported immediately to the Medical Centre or First Aider.

Eye injuries
All eye injuries must be irrigated thoroughly then treated at the Medical Centre or local hospital. You should never attempt to remove foreign objects from the eye. Always seek medical assistance.

It must also be remembered that any sudden illnesses, bouts of ill health and injuries, should be reported to the Medical Centre or First Aider, as soon as possible.

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* Reproduced from the Placement Tutor's Handbook. National Council of Work Experience.