



**EXHIBITIONS AND INSTALLATIONS  
ON UNIVERSITY PREMISES  
ADVICE FOR STAFF AND STUDENTS**

---

## **1 INTRODUCTION**

This guidance document relates to student exhibitions and installations within the University estate.

Degree shows, information stands and receptions/events are examples of activities which are within the scope of this guidance. Please note, fire safety guidance on permanent installation of notice boards is given in the University document 'Health and Safety – Fire Precautions and Notice boards'

## **2 RESPONSIBILITIES**

Full details of duties and responsibilities are in the University Health and Safety Policy.

All persons who use the University facilities and resources have a duty to take reasonable care to ensure that they do not endanger themselves or anyone else who may be affected by their acts or omissions. They must co-operate with the University on health and safety and not interfere or misuse anything provided for their health, safety and welfare.

The health and safety of students and their exhibitions is primarily the responsibility of the member of academic staff timetabled to be responsible for their teaching and learning or project work. To this end the member of academic staff should ensure in conjunction with the student owner of the exhibition that it meets the minimum standards and is inspected and tested in accordance with the requirements of this document.

## **3 GENERAL HAZARDS**

Exhibits and displays must be secure in order to prevent them falling and injuring persons or falling and obstructing escape routes if stumbled into.

Where loads are suspended or involve the use of lifting equipment an inspection and test by Estate Planning Services is required as part of the commissioning of the exhibit. Where a structure is created and its integrity is by means of welds or other joints the failure of which could cause injury these must be inspected prior to commissioning by a suitably qualified person.

Cool and hot surfaces and sharp objects should be guarded (possibly by erection of a barrier) this is especially important to protect visually impaired persons and children.

Where stroboscopic lights are in use a sign to this effect must be prominently displayed at the entrance door.

Where lasers are in use HSE guidance 'The Use of Lasers for Display Purposes' must be followed.

Where chemicals, microbes or biological substances are used a COSHH risk assessment is required to be written and signed by the assessor and Head of

---

Department. A COSHH assessment must identify the hazards of the substances, the persons at risk and it must make a conclusion regarding whether the control measures which are adopted sufficiently control the risk. Further guidance is available in the University document 'COSHH – Guidance Notes on Risk Assessment' and from reference books in the Health and Safety Unit.

Where food products are used the risk of food poisoning must be prevented. A prominently displayed warning sign to the effect of 'DO NOT EAT' will be necessary except in the case of low risk products such as chocolate and cereal. Please contact the Health and Safety Unit for further guidance if exhibitions are intended to be edible.

Estate Planning Services must inspect exhibitions with moving parts such as robots or machines before commissioning. Contact your tutor to arrange this. When designing such exhibits you must prevent access to dangerous parts. Use the following hierarchy of preferred guarding methods in your design: fixed guard, fixed distance guard such as a barrier of sufficient height, interlocking guard, automatic guard, trip device, adjustable guard, self adjusting guard, two handed control device.

Exhibitions from which people may fall to the ground or into a tank (of water for example) must be guarded to prevent falls. Handrails are required on stairs and on platforms. On platforms and stairs with open sides they should consist of two robust guard rails, the top one being at least 1100mm above the surface from which it is possible to fall.

Exhibitions which involve entry into confined spaces such as a tank or into a space where there may be a lack of oxygen are prohibited unless designed after consultation with the Health and Safety Unit.

No modifications or interference with the fabric structure or finishes of any part of the building or its fittings shall be carried out by staff, students or contractors without first obtaining permission from Estate Planning Services.

Access to first aid must be such that if a person becomes ill or injured they can be given first aid within a reasonable time. A green and white first aid poster should be displayed to assist in locating the nearest available first aider.

#### **4 ELECTRICAL SAFETY**

Faulty wiring or appliances are dangerous and potentially lethal.

Wiring supplying socket outlets and the socket outlets themselves are only to be worked upon by staff or contractors who have the permission of Estate Planning Services. This does not of course prevent persons from plugging/unplugging or switching appliances on or off at the socket.

Electrical supplies to exhibitions must be capable of being switched off or unplugged during periods when a building is unattended.

---

Electrical appliances used in exhibitions, whether proprietary or self constructed must be tested for electrical safety and labelled accordingly before use.

Electrical testing is carried out by Estate Planning Services.

Electrical appliances commonly rely on either earthing of exposed metalwork or double insulation of parts to prevent injury. Double insulated appliances do not require an earth connection and are indicated by the following symbol:



When wiring plugs make sure you know the wiring convention (green and yellow – earth, brown – live, blue – neutral). Also make sure that the correct fuse is fitted. Fuses are safety devices. Use the following method to determine what kind of fuse or flex is safe:

Less than 720 Watts - use 3 amp fuse

More than 720 Watts - use 13 amp fuse

Maximum wattage for use with 13 amp socket 3000 Watts (3kW)

Never use any other wire or metal strip in place of a fuse wire.

Use the correct screwdrivers to wire plugs, make sure that the flex is held securely by the cord grip and that the conductors are securely held in the terminals without exposed copper wires in the plug. Conductors should lie neatly in the plug.

When inspecting appliances for safety look for signs of overheating, loose cables in the plug or at the appliance. Look for frayed cables, damaged plug cases or plugs with un-insulated 'pins' – these are no longer acceptable for use. Inspect the cases or covers of appliances for cracks or incorrect fitting which may expose live conductors or metal parts.

When constructing exhibits which use electricity additional safeguards are required – consult a qualified electrician and bear in mind the following additional points. Flexes or cables must be secured and bushed on entry to an appliance. The appliance must be effectively earthed or double insulated. The correct type of flex must be used (note that manufacturers commonly fit 1.25 mm<sup>2</sup> cable to appliances of less than 3000w). The correct type of flex must be used (unkinkable, coiled or circular sheathed is necessary for portable items), do not use flat twin and earth solid core cable for connecting with a plug.

#### **4.1 Extension Cables**

Always fully unwind an extension cable when using it to supply appliances rated at 1000w or more, this is to avoid overheating.

---

Make sure you are using a correctly rated extension cable for the job. In general it is easiest to use a 13 amp cable for all tasks to avoid overloading.

If you construct an extension lead or decide to increase the length of an existing one bear in mind the following points:

- use plugs and sockets with unbreakable rubber casings;
- use a flex connector or in-line switch to allow an increase in length;
- where cable will be subject to pulling forces fit a two-part 3 pin flex connector such as is common on electrical gardening equipment (these components split when pulled apart);
- when wiring a two-part flex connector never wire the male part with the exposed pins to the plug end as it will become live and exposed when plugged in;
- remember not to overload sockets or extension cables (use the previous equation for fuse rating to determine whether you will overload a 13 amp cable or socket);
- run or cover cables so that they are not a trip hazard.

#### **4.2 Electricity in Wet or Dusty Environments**

Special socket outlets are needed in very dusty or wet environments. Use a safety plug (r.c.d) to increase your safety factor if using appliances outdoors. When working outside only use appliances which are well insulated against water ingress. Use appliances and extension cables with orange 'high visibility' flex.

#### **4.3 Lighting**

Tungsten incandescent lamps operate at high temperature. Combustible materials (particularly fabric) should be kept at a safe distance from the lamps. Similarly spotlights concentrate the heat and combustible materials should be kept at a safe distance from the lamps.

### **5 FIRE SAFETY**

In the UK buildings are compartmentalised to prevent the spread of fire and smoke. There are maximum travel distances to protected areas and the fabric of buildings is resistant to or protected from combustion.

The creation of a display comprising large amounts of paper, textiles or flimsy material particularly in circulation areas such as lobbies and corridors can cause fire to spread rapidly and negate the advantages of suitable wall and ceiling linings.

---

Displays or installations which include hot surfaces, naked flames, steam, smoke or dust generation require special precautions and must be inspected before use by Estate Planning Services. Controlled isolation of part of the automatic fire detection system and the provision of additional fire extinguishers may be required in the area with close supervision at all times by a person competent to raise the alarm and use a fire extinguisher.

## **Locations:**

### **5.1 Corridors**

It is unlikely that corridors are suitable for anything other than notice boards. For dead end corridors (where travel is possible in one direction only) displays and notice boards should be class 0. In practice this means that a metal framed glass fronted cabinet is necessary. For corridors with alternative means of escape (where travel is possible in more than one direction) up to 20% of the total wall and ceiling surface may contain material of a class 1 combustibility (e.g. paper on a notice board).

The width of the escape route as provided by the doors on the corridor must be maintained at all times.

### **5.2 Circulation Areas, Open Galleries (Mezzanines and Balconies) and Atria**

Where an office or workroom (not storeroom) has only one escape route into an exhibition area, itself having only one escape route, the combined areas are a dead end. Display of high risk items such as paper, textiles and cellular foams must be in class 0 display cabinets unless otherwise advised by the Fire Brigade or the Health and Safety Unit.

Where offices or other work rooms open onto an exhibition area; and occupants have no alternative but to pass through the area; but the area has escape in more than one direction (>45° apart) then the risk is lower. In these areas display of high risk items is acceptable if they are fire retardant or have been treated with fire retardant. Temporary use of fire retardant display boards or similar items to display paper is permitted.

In exhibition spaces where there are no rooms opening onto the space or where all rooms opening onto the space have an alternative means of escape and do not need to pass through the exhibition space to escape the risk is lower. It is acceptable to display high risk items in such a space.

Where rooms open onto exhibition spaces, vision panels in the doors or an automatic fire detection and alarm system in the display area is required.

Risks are increased if the display or exhibition will be attended by a large number of people (>120), if alcohol is available or if a large number of people need to escape through the exhibition area. In such cases these guidelines may not reduce risk sufficiently. Please consult the Health and Safety Unit in such cases.

---

### **5.3 Escape from Exhibition Areas**

Where more than 60 persons will attend at any one time there must be more than one exit door. Exit doors must have a sign which is either self illuminated or illuminated by a nearby light. Exit signs or route signs must be visible from all points in the room.

Where exhibition areas are large or form part of an escape route they may need emergency lighting to illuminate exit doors or routes.

Corridors through exhibition areas should not normally be less than 800mm wide and where possible should not be convoluted.

## **6 USE OF LPG OR CALOR GAS**

### **6.1 General principles**

This advice is concerned only with the temporary use of portable liquefied petroleum gas (LPG) powered appliances such as heaters and lights in exhibitions and displays. There are fire, explosion and toxic risks in using LPG. Circumstances have to be considered individually because conditions in individual areas can vary enormously. This advice therefore is of a general nature.

Before LPG appliances are used they must be inspected for safety by Estate Planning Services, contact your tutor about making arrangements for this.

Factors to be taken into account when deciding whether it is reasonable to use LPG are: adequacy of the ventilation, the extent of usage of individual rooms, the existing fire hazard of the building and separate rooms within it and the availability of suitable means of escape. Additional fire fighting equipment may also be required.

Equipment should be bought only from reputable firms. Where equipment is hired it should only be hired from a reputable supplier who has adequate facilities to ensure proper maintenance. Equipment, whether purchased or hired, should conform to British Standards. The manufacturers or suppliers instructions should be taken into account and should be made available to the users of the equipment.

Storage and maintenance of the equipment must be considered if it is purchased rather than hired. Flame failure devices, atmosphere sensitive devices and gas pressure regulators can deteriorate and should be examined annually by a specialist engineer.

Where practicable appliances must be fitted with flame failure devices.

In general appliances fuelled by butane rather than propane are preferred for indoor use as butane has a lower pressure. Large industrial mobile heaters, for example those fuelled by 47kg propane cylinders should not normally be used. Even when heaters designed for use with cylinders of no larger than

---

15kg capacity are used the possibility of persons tampering with the equipment should be realised. Close supervision may be necessary.

## **6.2 Storage of cylinders**

All cylinders (including empty ones) not connected to an appliance and heating appliances containing an LPG cylinder which are not intended for use immediately should be stored outside in a well ventilated and secure place, at least 3 metres from cellars and drains. It is not essential to remove a cylinder from an appliance for short term storage purposes provided the valves on the appliance and on the cylinder have been turned off. One reason for this is because repeated making and breaking of connections may increase the possibility of a faulty connection being made.

## **6.3 Keeping of heaters and appliances in rooms**

Heaters and appliances should be brought into a room only when required for immediate use and should be removed when no longer needed.

The number of heaters and appliances per room, and where applicable, in fire separated sections of the premises, should be kept to a minimum.

Each heater and appliance brought into a room should:

- a) Be located so as not to affect the means of escape (e.g. it should be placed away from room exits and not in corridors or circulation spaces forming part of the means of escape) and should not be exposed to draughts.
- b) Be placed in its allocated position with at least one metre clear space around it except that the heater may be placed adjacent to a wall provided the hot surface faces away from the wall and there are no curtains or other combustible materials within the metre space.

Special consideration may need to be given to the location of heaters in art rooms or workrooms where highly flammable materials may be used and where a safe location cannot be identified an LPG heater should not be used.

There should be clear instructions that when a suitable location has been identified the heater should not be moved without the authorisation of a competent person.

## **6.4 Toxic risks and ventilation requirements**

The use of LPG heaters and appliances has resulted in some complaints of nausea, headache and excessive humidity. There is also the possibility of fatigue, dizziness and, in extreme cases, unconsciousness and death from a build-up of carbon monoxide in poorly ventilated rooms. All gas fired appliances produce as combustion products water vapour, carbon dioxide and, usually, trace concentrations of carbon monoxide. The amount of carbon monoxide produced depends upon the quality of the input air and on burner design and efficiency. Atmosphere sensitive devices required by BS 5258 are

---

designed to shut off the gas supply to an appliance before the carbon dioxide content of the surrounding atmosphere exceeds a given level. However, they are not sensitive to carbon monoxide but their operation is such that they should prevent most acute gassings and fatal accidents.

It is essential that adequate ventilation is provided and maintained in rooms in which heaters are used. This may require windows to be kept open even in cold weather if adjacent fixed open vents are not available. Consult Estate Planning Services and the Health and Safety Unit if in doubt.

## **6.5 Operation and maintenance**

Many heaters have surfaces capable of causing burns. Suitable fire guards may be necessary, especially where members of the public are invited to an area.

Heaters should be lit and controlled only by a trained and authorised person. Each heater should be checked for leaks and damage before it is lit each morning and when turned off at the end of the day. The check should include a visual examination of the hose, that the cylinder and valves do not appear to be damaged or tampered with, that the connection between hose and cylinder is properly made and that the cylinder is not leaking. At the end of the day it is most important to ensure that the valve is turned off and to check that the cylinder is not leaking.

Only a trained and authorised person should change the cylinder. Before connecting it is essential to check that the connections are compatible and correct for the equipment. Connections should be tightened firmly but should not be over-tightened as this can lead to damage of threads. Where spanners are used for tightening and undoing connections they should be of the correct size.

The cylinder should be changed only in a well ventilated place, preferable in the open air, but where it is not reasonably practicable to do so, all naked flames and other sources of ignition, e.g. cigarettes and any other heaters in the room should be extinguished.

## **6.6 Emergency procedures**

### **6.6.1 Leakage without fire:**

If an appliance or cylinder is found to be leaking without the gas igniting, the action taken should include the following, providing, where appropriate, it is safe to do so:

- a) The main valve on the cylinder should be closed to cut off the gas supply.
- b) All possible sources of ignition should be extinguished.
- c) The room should be evacuated other than persons involved in the emergency procedures.

- 
- d) The area should be ventilated.
  - e) The appliance/cylinder should be removed to a well ventilated place in the open air away from sources of ignition.
  - f) Unauthorised approach to the appliance/cylinder should be prevented.
  - g) If the leak persists the fire brigade should be called and informed that LPG is involved.

#### **6.6.2 Leakage with fire:**

The gas from a leaking appliance/cylinder may catch alight. The action taken should include the following:

- a) Anyone who discovers a fire should sound the fire alarm
- b) Persons not connected with the emergency procedures should be evacuated from the building.
- c) The fire brigade should be called and informed that an LPG cylinder is involved.
- d) The flame should be extinguished IF IT IS SAFE TO DO SO by turning off the valve.
- e) If the flame from the leak is extinguished but vapour continues to escape, action should be taken as outlined in paragraph 6.2 above.
- f) If the flame cannot be extinguished, fire fighting should be left to the fire brigade and the building should be evacuated immediately.

Fire in the vicinity of an LPG heater: Action should include the following:

- a) Fire and emergency procedures should be initiated.
- b) IF IT IS SAFE TO DO SO the gas supply should be shut off by closing the main valve.
- c) IF IT IS SAFE TO DO SO the appliance/cylinder should be removed to a well ventilated place, in the open air away from sources of ignition.

---

## **Appendix – Contact Names and Telephone Numbers**

<b>Title</b>	<b>Role for the Purposes of this Document</b>	<b>Name</b>	<b>E-mail</b>	<b>Telephone</b>
University Health and Safety Adviser	Health and safety advice	Alan Gibb	a.gibb@mmu.ac.uk	0161 247 3309
Assistant University Health and Safety Adviser	Health and safety advice	Richard Cuthbertson	r.Cuthbertson@mmu.ac.uk	0161 247 3314
Assistant University Health and Safety Adviser	Health and safety advice (Crewe + Alsager Faculty)	Brian Rowe	b.rowe@mmu.ac.uk	0161 247 5489
Head of TESU, Estate Planning Services	Management of inspection and testing	Dennis Farr	d.farr@mmu.ac.uk	0161 247 1275
Zone Surveyor, Estate Planning Services	Authorisation of modifications to the fabric of the building and surfaces finishes etc	Contact Yvonne Davison		0161 247 1238