

# A Code of Practice for Ensuring the Health and Safety of Visitors to the Department of Physics

## Scope

This code of practice deals with the health and safety issues arising from members of the public entering the department. It does not cover the situation where employees from another employer come to the department to do a job of work (such as maintenance or repair work).

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## 1. The Duty of Care

We have a duty of care to ensure, so far as is reasonably practicable, the health and safety of people who are not our employees when they come to our premises. The word 'ensure' is a pro-active word, meaning that we extend the care to the member of the public; they do not have to ask for it. The words 'so far as is reasonably practicable' allow a degree of weighing up the cost in time, trouble and expense of the preventive and protective measures against the level of harm that we are trying to prevent. We should not be aiming at a standard any lower than for an employee. In some cases, the standards of care extended to members of the public are higher by law - for example the limits for exposure to ionising radiation are much lower for members of the public than for employees.

Children are a special case, due to their inexperience and lack of training, and since the duty of care is owed to the individual in recognition of his/her need, they attract a greater level of care. A young person is defined as anyone under the age of 18 years, and a child is anyone who has not reached the statutory school leaving age (so a child is also a young person). There are prohibitions on exposure of young people to many chemicals, noise, radiation, lead, etc.

## **2. Small Numbers of Visitors Meeting Individual Members of the Cavendish**

It is the responsibility of the visitor's supervisor or contact to ensure:

- That the visitor is appraised of the fire arrangements
- That, if the visitor is to be in the Department to undertake experimental work, he/she is given the results of any existing risk assessments, advised of the control measures and systems of work, and informed of any residual hazards known to the supervisor.
- That the visitor is provided with any personal protective equipment that is needed, and shown how to use it
- That the visitor uses the personal protective equipment correctly and maintains it in efficient working order.
- That the supervisor or contact ensures that the visitor conducts his/her business in a safe manner in compliance with any University, department or local rules (and this may include assisting a visiting Academic to undertake risk assessments, where they are unfamiliar with the technique).

The visitor's supervisor or contact should ascertain whether the visitor needs any additional assistance - e.g. due to difficulties in mobility, which will require additional measures to be taken, particularly in emergency situations. Any such problems should be communicated to the Department Safety Officer. If they are to be on the top floor of the Mott, for example, can they get down unaided without using the lift? If not, then someone will need to take responsibility for getting them down in one of the 'Evac chairs' - this needs to be planned BEFORE the emergency.

Short-term visitors to the department are given a leaflet at reception, when they sign in for their visitor's badge (Appendix B). This gives them a brief description of what to do in an emergency.

Ensure that you scan through the rest of this code of practice, with particular reference to the sections on risk assessment, live demonstrations and accident reporting.

## **3 Large Numbers of Visitors - e.g. Public Lectures**

### **3.1 Risk Assessment**

A risk assessment will need to be carried out before the event to define the measures to be taken to ensure the health and safety of the visitors and the employees. This will need to consider the following items (some of which will apply to all events, and some to only a few)

- Numbers of visitors
- Age distribution of visitors, and any known disabilities
- Degree of supervision required (particularly of young people)
- Location of the event
- Live demonstrations
- Public participation in live demonstrations
- Catering arrangements
- First aid cover
- Marshalling
- Fire arrangements
- Security of University property
- Nuisance
- Parking
- Arrangements for reporting accidents/ill-health

For a worked example see Appendix C.

Where a number of contributors are cooperating to produce an event (such as Science Week) each must produce a risk assessment appropriate to their contribution. These must be collated and checked, and it is left to the overall organiser to choose whether to do this, or to ask the Safety Officer to take on all the safety aspects of the event. Do not leave this decision to the last minute.

Note that in many areas of the laboratory, spacing of stair rails, etc, was not specifically designed for children, and the degree of supervision may therefore need to be much greater.

A person needs to be designated to act as the focal point to deal with any illnesses or injuries during the event. For large events it is preferable to have trained first aiders in attendance, but for small events a designated person, with access to a telephone, who knows how to summon assistance may be sufficient. The designated person should ensure that any incident is recorded and reported to the department Safety Officer.

### **3.2 The Capacity of Meeting Rooms**

All the major meeting rooms have a nominal capacity, which is related to their size and the ease with which they can be evacuated in the event of fire. These numbers must not be exceeded, and if it appears likely that more people may attend the event than can be accommodated, then the organiser should set up a ticket system to ensure that the numbers are not exceeded.

Capacities of the major rooms are as follows:

<b>Room</b>	<b>Number</b>	<b>Hearing loop?</b>
Pippard Lecture Theatre	453 total (fewer if wheelchair users are present in the front rows)	yes
Small Lecture Theatre	160	yes
Mott Seminar Room	50	
Committee room	25	
Link meeting room	16	

### **3.3 The Control of Risk in Live Demonstrations**

It is imperative that the public are protected from the following:

- Something flying out of the demonstration towards them (e.g. broken pieces of frozen rubber)
- Fumes or gases that could cause irritation, are toxic or could cause breathing difficulties such as asthma (look up the manufacturer's safety data sheet, the MSDS!!)
- Liquids splashing over them that are harmful to health (look up the MSDS again!!)
- Noise of 140 dB or more (absolutely prohibited for both employees and others). Noise in excess of 85 dB(A) is subject to special measures.
- Being able to touch something that is very hot or very cold
- Access to bare electrical wires/terminals at a voltage that could cause danger
- Things that could fall on them and injure them
- Things that could splash in their faces
- Laser light and strobe lighting (do not forget that children are not as tall as adults, so that a bench demonstration with a beam below eye height in an adult will almost certainly be unsuitable for children.)
- Slips, trips and falls
- Unguarded machinery and sharp edges

Therefore, in setting up your demonstration your risk assessment will need to address what you would like to do, how you will do it safely, and how you will ensure that the public are protected. The best

method will be the one that is most universal - i.e. a shield around the experiment is preferred to issuing individuals with goggles.

Do not forget that children are innately curious, and have a very poor understanding of hazard and risk. The actions of a group of children will generally be less sensible than the actions of a single individual and may result in one individual taking a high risk. If you invite them to come close to your demonstration, special care will be needed in planning the layout and accessibility of, for example, cryogenics. Do not rely on telling children what to do and what not to do - some of them will always do the opposite. Members of staff with children will, of course, know this - but research students may not.

Make sure that all the demonstrators adopt good practices - they are acting as the ambassadors of the Cavendish, and it is not good to be seen to flaunt simple safety rules such as not wearing goggles, gloves, etc. It is also extremely embarrassing to need the services of a First Aider while you are demonstrating to the public!

The public shall be given prior warning of any strobe lighting, since a significant number of people are at risk. If the rate is kept below 4 Hz, only approximately 5% of the sensitive population are at risk.

If you wish to invite members of the public to participate in the demonstration, you need to assess to what degree they require special skill, knowledge or attribute such as strength. You should undertake a 'what if' analysis to explore the possibility of their getting something wrong, and its consequences. This will determine the design of the experiment, and the degree of explanation and training required. For a worked example see Appendix D.

There are a few demonstrations for which special arrangements may be needed for the fire detection equipment. Any demonstration liable to produce smoke or dust should be discussed with the Fire Manager (Safety Officer) or Laboratory Superintendent well in advance of the event.

Before the public are admitted, check over the arrangements one last time to see that there are no trailing leads for them (or you) to trip over, and that you have tidied away anything they should not touch.

### ***3.4 The Control of Risk of Fire, and Mitigating Measures***

Exhibitions etc. must be laid out with emergency evacuation in mind. Doors and routes to exits must not be obstructed at any time, and the evacuation signs, fire extinguishers and emergency call points must not be obscured.

The packaging material that exhibitors bring with them could be a fire hazard. Ensure that it is stowed away, and not left under curtains, in corridors, etc. Ensure that exhibitors understand that the whole site is 'NO-SMOKING', and ensure that they have been shown the emergency exits, given instructions as to how to raise the alarm, and know where the assembly points are.

Ensure that you have sufficient helpers to enforce the no-smoking rule with the visiting public.

Where there are large numbers of members of the public, you should pay particular attention to the evacuation time of your area. ALL marked fire exits must be fully available. If there are more than 100 people at an event, then both leaves of every double exit door to the lecture theatre or meeting room must be unbolted. Likewise, both leaves of all the final exit doors from the area must also be unfastened.

The fire evacuation overheads should be shown on the OHP at the start, so that the public can see the escape routes from the auditorium while they are making themselves comfortable. The location of the doors should be brought to their attention by a short address before the presentation starts. It is essential to check that all exit routes are clear, unobstructed and well lit.

The fire alarm in the Lecture Theatres are a two-tone siren and red strobe light. The sirens are loud, and are likely to render a speaker unable to be heard. An overhead bearing the words 'Please leave immediately by the nearest exit. Go to an assembly area outside to await instructions' is provided in the event that the alarm goes off. The speaker and/or a member of Cavendish staff or other designated person should be instructed to use this overhead in this event. Do not delay, if the alarm is real there is no time for waste.

**IF THE FIRE ALARM HAS SOUNDED, NO-ONE SHOULD RE-ENTER THE BUILDING UNLESS AUTHORISED TO DO SO.** It is therefore important that the senior organiser or representative should go to the front of the Bragg Building to meet the fire brigade or emergency team and take instructions from them. The information can then be relayed to the marshals and the public at the assembly areas.

Queuing both inside and outside the buildings needs to be planned with care. A queue should never obstruct doors to laboratories or offices that might be in use. It should always be possible to walk down the corridor past the queue. The presence of a queue in a corridor may compromise the fire evacuation arrangements. The organiser should calculate the number of people in the area, plan exit routes and brief the marshals. To give a guide, 220 people need a doorway of width at least 1100 mm. A queue outside the building can make it difficult to evacuate, if a group of people collects around the exit.

### ***3.5 Information to be Given to the Public***

There is no general duty to give information to the public, but it is clear that there are specific items that we need to tell them in order to fulfil our duty of care.

Information that should be given to the public includes:

- What to do in the event of a fire or a fire alarm
- What the fire alarm sounds like
- Our no-smoking policy
- What to do in the event of an emergency - e.g. if they find a fire, or if there is an accident or sudden illness.
- Where they need to wear protective clothing
- Any areas that they must not enter

Certain members of the public are more at risk than others, for example those with certain types of pacemaker, those with impaired senses such as vision, hearing or smell, and those with mobility problems. Consideration should be given at the risk assessment stage for special needs, and this may necessitate special instructions and training for the marshals (e.g. if there is a need to use the 'Evac' chairs).

The public should be told to contact a marshal as soon as possible if there is an emergency.

### ***3.6 Marshalling Large Numbers of People***

If marshals are to be employed, it is recommended that they are clearly identified. This can be done by means such as a prominent badge or a jacket (such as the fire warden jacket). It is important to realise that when we have members of the public, guest marshals and our staff all present together, each will have difficulty in identifying the others. Making those who have been given a specific job to do easily identified could be of enormous value to everyone.

It is important for the organiser to discuss the arrangements with the marshals, so that everyone is sure what is expected of them. The actions to be taken in the event of foreseeable difficulties should be discussed before the event (e.g. what if it starts raining and everyone wants to come indoors). If the marshals are not from the department, and the event is taking place during the day, it is good practice to liaise with the Cavendish personnel in the area so that they are aware of what to expect. If a change of plan becomes necessary, it is important to maintain a single point of authority, so that all

marshals are working towards the same goal. Visitors without information, or given contradictory information, can become frustrated and aggressive.

Marshals should be briefed so that they know the location of all the exit routes in the area of the event, and the relevant assembly areas. They should be told what the fire alarm sounds like, and how to raise the alarm. They should know that they must enforce the no-smoking rule. They should be instructed to assist evacuation by encouraging the public to leave quickly and quietly, and to collect in an assembly area. The marshals will then receive further instructions from the Fire Manager (in the daytime) or the Fire Brigade (at night).

The emergency exits from the lecture theatres all lead to very unfamiliar areas, and to avoid disorientation and delay it is strongly recommended that some of the marshals are given specific responsibilities to usher people from these doors to the relevant final exit from the building. They will need to get there before the public, so should be strategically placed in the auditorium. If the event is taking place after hours, either the external doors to all the likely exit routes need to be unlocked, or the marshals need to be shown how to open the door in an emergency by breaking the glass on the green boxes.

In the event of an emergency, individuals will tend to try to leave via a familiar route, which will often be the way that they came in. If they have been admitted to the Cavendish through a relatively restricted entrance, they will probably try to leave that way in an emergency. It is essential to use the marshals to help them to find the larger exits in the event that evacuation becomes necessary. Marshals should be encouraged to be assertive as well as polite, where the situation demands it.

In most cases, evacuation is the result of a false alarm. Organisers might wish to make a contingency plan to cover this eventuality, to decide whether to abandon the event or wait to be allowed to re-enter (this is likely to be after approximately 20 minutes). It is important that the organiser should make this decision and keep the marshals and the public informed.

Marshals should be briefed regarding how to get help in the event of an accident or illness. This may be by a combination of contacting the local first aider or dialling 1-999 from any internal telephone. Marshals should be aware of the reporting arrangements in the event of someone having an accident, near-miss, or being taken ill (see section 5).

#### **4 Trespassers**

We are liable for injuries to trespassers if

- We know there is a risk because of the state of the premises,
- We know that trespassers will be on the premises,
- The risks for injury were those against which we might reasonably be expected to provide some protection.

This is enshrined in the principles of 'common humanity'. The position regarding children is slightly different from adults. We can normally discharge our duties of care towards adults by using warning notices such as 'keep out', 'danger electricity'. This is not generally the case for children who are less experienced than adults, and for whom warning notices are less effective. The legal system recognises that children are attracted by 'allurements', and that the definition of what constitutes an allurement is pretty much down to the child. It is fairly obvious that railways and building sites appear to children to be adventure playgrounds. Hence to discharge the duty of care of the occupier in these two cases requires quite strong measures, such as fencing and locked gates.

In organising events for the public, we need to consider what might happen if children who are not in the care of a responsible adult wander off.

## **5 Accident/Illness Involving a Visitor**

The first priority is the care of the casualty. Call a first aider, or the designated person in charge of first aid arrangements. If a casualty has been unconscious, is suffering from severe chest pain, or has a lower limb injury rendering them unable to walk, then an ambulance is needed to transport them to hospital. This can be summoned by dialling 1-999 from any telephone.

You may make an exception for a known epileptic, who recovers consciousness within ten minutes, and whose episode matches their normal pattern. These individuals do not need to be transported to hospital every time!

All accidents, near misses and cases of ill health must be reported. It will be necessary to record the name, address, occupation and age of the injured person where practicable, along with a brief description of what happened and the outcome. This report will need to be entered in the accident book for the department. This is absolutely essential if the incident results in someone needing to go to hospital as a result of an accident. The names and addresses of any witnesses to such an event should also be recorded, since their testimony may be needed later.

Where an unconscious casualty has left the site to go to hospital, ensure that sufficient information is recorded so that the incident can be followed up later. At the very least try to establish the name of the person, and a personal contact telephone number or address.

In the event of an accident where a member of staff or a visitor is injured so seriously that they are likely to be detained in hospital, please contact the safety officer as soon as possible. This can be done by calling her mobile phone, 0781760 2858, which is the number printed on all the Department Emergency notices.

The phone is normally on, day and night but, if there is no response, the Safety Officer may have had to switch off the phone for personal reasons. She will pick up the message on her return. Leave a message in her mailbox opposite stores, giving as much information as you can (including who you are!!).

## **Appendix A: Legal Sources**

### **Duty of Care**

The duty of care towards members of the public arises from Section 3 of the Health and Safety at Work Act, 1974:

*'3(1) It shall be the duty of every employer to conduct his undertaking in such a way as to ensure, so far as is reasonably practicable, that persons not in his employment who may be affected thereby are not thereby exposed to risks to their health or safety.'*

While I am not aware of any case law directly relating to Universities, it is virtually certain that a court would define events such as public lectures, open days, science week, etc as falling within our 'undertaking', since our undertaking is education in its many senses.

### **Risk Assessment**

A specific instruction appears in the Management of Health and Safety at Work Regulations:

*'Reg 3(1) Every employer shall make a suitable and sufficient assessment of (b) the risks to the health and safety of persons not in his employment arising out of or in connection with the conduct by him of his undertaking, **for the purpose of identifying the measures he needs to take to comply with the requirements and prohibitions imposed upon him by or under the relevant statutory provisions and by part II of the Fire Precautions (Workplace) Regulations 1997**.'*

*(my emboldening)*

*Note that the Fire Precautions Regulations have been replaced by the Regulatory Reform Fire Safety Order, 2005, which reinforces the requirement for risk assessment.*

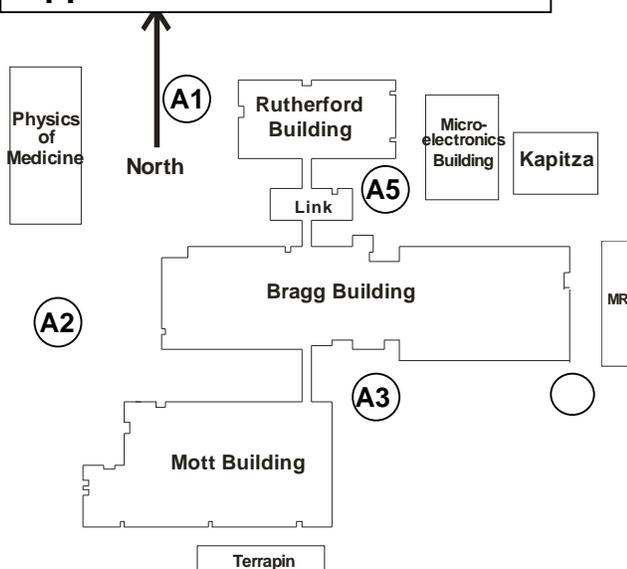
### **Occupier's Liability Act, 1984**

This placed a statutory duty of care on occupiers in relation to visitors and trespassers by reason of the state of the premises and the activities carried on there. The duty is to take such care as in all the circumstances of the case is reasonable to see that the visitor will be reasonably safe in using the premises for the purposes for which he is invited or permitted by the occupier to be there.

The occupier must be prepared for children to be less careful than adults.

As regards trespassers, the occupier is only liable if he knows or has reasonable grounds to believe that the trespasser is in the vicinity. The duty of care is discharged by giving warnings of the danger.

## Appendix B: Visitors' card



(A) Assembly area (look for the numbered posts)

### The Cavendish Site

Welcome to the Cavendish Laboratory. Founded in 1874, these laboratories have housed 24 Nobel prizewinners.

We hope you will find the laboratories interesting. Please wear your visitor's badge at all times while you are here, and hand it in when you leave.

Your safety is our concern. These are active research laboratories, and much of the equipment may be unfamiliar to you. Please

- Do not enter laboratory areas without asking a member of the department.
- Do not touch the equipment
- Obey any warning signs

If you wish to get a closer look at a piece of equipment, then ask your host.

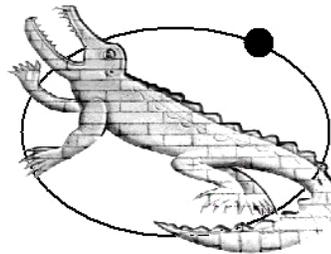
**\*\*N.B. Some areas should not be entered by those wearing pacemakers – please inform your host if this applies to you.**

#### SMOKING:

The whole of the site is non-smoking. Please DO NOT smoke inside the buildings.



UNIVERSITY OF  
CAMBRIDGE



DEPARTMENT OF PHYSICS  
THE CAVENDISH LABORATORY

## SAFETY INFORMATION FOR SHORT-TERM VISITS

Emergency No. 37499

### Emergencies:

#### FIRE:

The laboratories have automatic fire alarms. If a continuous two tone siren or bell sounds, please leave the building by the nearest exit and go to an assembly area – see the plan on the reverse.

If you find a fire, raise the alarm by breaking the glass at a call point, call 37499 and leave the building.

**Mobility:** *If you need help in descending stairs in an emergency, we can assist as we have 'Evac' chairs – ensure that you make your need known to your host.*

#### FIRST AID:

The Cavendish Laboratory has a fully trained team of First Aiders. If you feel unwell, or are injured, please ask a member of the Cavendish to call for a First Aider. The emergency number is 37499.

Thank you  
Jane Blunt, Department Safety Officer.  
Tel 37397

## Appendix C

### Risk Assessment Worked Example

<p><b>Department of Physics</b></p> <p><b>Risk Assessment</b></p> 	
<p><b>Group/location of activity</b> ...Public Lecture in the Pippard LT, for approx 400</p>	
<p><b>Description of Activity/Workplace</b></p> <p>Public lecture and practical demonstrations by J Bloggs to approximately 400 people in the Pippard LT.</p> <p>Time: 6pm, Wednesday 20<sup>th</sup> Nov 2000</p>	<p><b>Identified Hazards</b></p> <p>Live demonstration - at present undefined, but will probably require the fire detection to be disabled in the LT.</p> <p>Fire</p> <p>Trespass into unauthorised areas</p>
<p><b>Who those hazards affect</b></p> <p>The visiting public</p> <p>The staff assisting</p> <p>The department members at large</p> <p>The speaker</p>	<p><b>Reasonably foreseeable outcome</b></p> <p>Fire: serious injuries, death</p> <p>Trespass – possibility of serious injury</p> <p>Theft of property from the department</p> <p>Injury to the speaker</p>
<p><b>Standards that should be achieved</b></p> <p>Maintain the 'no-smoking' status of the premises</p> <p>Ensure the public know how they will be told if there is an emergency situation, and how to leave</p> <p>Ensure any members of the public who require emergency assistance get it and that the incidents are recorded</p> <p>Ensure the public do not go where they are not allowed, and that expensive equipment is not visible.</p> <p>Ensure the live demonstration is conducted in a safe manner – finalise the risk assessment for this before the event.</p> <p>Ensure the speaker lays out his demonstration so as to avoid accidents.</p>	

