FIRE PROCEDURES

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INTRODUCTION

NERC is committed to the provision of safe work places and the protection of its employees. This includes appropriate precautions to prevent fires, detect them if they arise and ensure the safe and swift evacuation of everyone from a building in which a fire has started.

It would be impossible for NERC to issue a set fire procedure for every site; however, this procedure outlines what should be covered under local fire procedures.

In the event of fire, the three most important actions are, in chronological order, to:

- **Raise the alarm**
- **Summon the fire brigade**
- **Evacuate the building**

The preservation of life shall override all other considerations, such as saving property and extinguishing the fire. If a fire is discovered, the alarm shall be raised immediately however small the fire. All staff are empowered to raise a fire alarm if they believe there is a fire; no authority should be sought from any other person.

Responsibility for summoning the fire brigade should be stated clearly in local site procedures.

NERC does not advise staff to attempt to extinguish a fire; **trained staff** may attempt to extinguish **small fires** if they consider it safe to do so.

Staff must not put themselves at risk to fight a fire. NEVER fight fires in laboratories or other areas where highly inflammable materials are held.

Evacuation of the building must start as soon as the alarm sounds. **Staff should be familiar with the procedure through the staging of regular fire drills.** All occupants, on evacuation, should report to pre-determined fire assembly points.

Fire emergency notices must be displayed in every building. Fire exits must be clearly signed and attention drawn to them for visitors and contractors.

All accidents, incidents and near misses, relating to fire or to fire drills must be entered into the local accident reporting system.

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Gee Publications 2001 Ltd, the use of their publications on A to Z of Risk Assessments, Competent Persons Handbook and Legal Health & Safety at Work Brief.

Croner's Publications and the use of their publications on Fire

The Loss Prevention Council

Fire Service College

Nottinghamshire Fire Brigade

OPERATIONAL PROCEDURE

NERC is committed to the provision of safe workplaces, and this includes appropriate fire precautions to prevent fires, detect them if they arise and ensure the safe and swift evacuation of everyone from a building in which a fire has started.

Management involvement: Managers should be aware of the law relating to fire prevention and control (Appendix I).

SENIOR MANAGERS ON SITE ARE RESPONSIBLE FOR:

- **ensuring that there is compliance with the general requirements for good fire protection, including:**
    - **ensuring that fire policy and procedure is part of the local H&S policy**
    - **the maintenance and testing of fire detection and fire fighting equipment (Appendix II)**
    - **the provision of suitable fire exit routes with appropriate signage and maintained and tested emergency lighting (Appendix III)**
    - **appointing a chief fire marshal who will be the a competent person under the law (see Appendix I)**
    - **ensuring that competent persons (Fire Marshals) are appointed to cover all areas of the premises**
    - **ensuring that there is a co-ordinated staff training programme**
    - **ensuring that evacuation exercises are held regularly and the outcomes evaluated with a view to maintaining emergency readiness (Appendix IV)**
    - **preparing an emergency plan as appropriate; ensuring coordination of fire and security emergency planning such as bomb alerts**
    - **ensuring proper storage of flammables (NERC Procedure Number 19 "Control of Substances Hazardous to Health")**

MANAGERS ONSITE:

- are required to ensure that fire risk assessments **(Appendix VI)** are performed for all rooms and areas within their physical area of responsibility,
- are responsible for checking on the local arrangements for fire protection including the maintenance of fire exit routes free from obstructions,
- briefing staff
- co-operating with Fire Marshals and participation in tests and drills.
- ensuring that the fire safety precautions are brought to the attention of any contractors that they manage or appoint.

Note: fire risk assessments need to be done by trained personnel; the technical aspects of fire safety also need to be done by competent persons. Managers may appoint one or more persons as 'fire officers' to perform these functions day-to-day but cannot totally delegate responsibility.

A checklist to aid managers in deciding if current fire precautions are adequate is available at Appendix V. Training requirements are covered in Appendix VII.
Required record-keeping is documented in Appendix VIII.

ROLES AND RESPONSIBILITIES

Chief Fire Marshal:

- The Chief Fire Marshal must be trained as specified in the guidance* on the Regulatory Reform (Fire Safety) Order 2005 and is responsible for selecting and arranging training for Fire Marshals. S/he is responsible for arranging periodic emergency drills and subsequent reviews to identify and rectify any problems encountered.

Fire Marshals:

- Each appointed Fire Marshal shall seek to maintain reasonable awareness amongst staff of the fire precautions within the building
- In the event of an emergency (or drill), check on the effective evacuation of his/her part of the building, assist staff to gather at the external assembly point

Liaise with the Chief Fire Marshal and/or fire brigade in terms of information on the completion of evacuation or the location and type of fire. Fire marshals must be trained as specified in the guidance* on the Regulatory Reform (Fire Safety) Order 2005 . for England & Wales. Similar standards should be followed in Scotland

* The guidance is listed in Appendix IX under “Department for Communities and Local Government

Staff:

- Every staff member is responsible for maintaining fire safety by avoiding creating fire hazards with either flammable materials (careful storage, disposal) or sources of ignition (smoking, electrical equipment). Fire exits and routes must be kept clear and, in the event of an alarm, staff are required to make an orderly exit and assemble at the appointed assembly point. Staff hosting visitors are required to draw their attention to the fire safety arrangements, and to guide them out in the event of an evacuation.

MANAGEMENT, MONITORING AND AUDITING

Management:

The management of fire safety requires:

- Clear lines of responsibility
- The setting of priorities and goals
- Commitment to provide facilities and equipment required for safety
- Provision of accredited training where a need is identified
- Documentary evidence that risks have been identified and assessed
- Records of the assessments and agreed dates of revision
- Written safe systems of work for action in case of fire
- Agreed monitoring and auditing systems
- Provision for staff feedback

Monitoring:

The monitoring of fire safety requires:

- Documentation of the management system
- Written records of the process of assessment
- Documentation of management follow-up after introduction of assessment process
- Recording of accidents, injuries and illness associated with fire
- Recording of any occupational health issues
- Documentation of actions taken as a result of accident reporting
- Assessment of safety attitudes among staff
- Documentation of training undertaken
- Maintenance of fire safety equipment

Auditing:

The auditing of fire safety requires:

- Checking that the above documentation is in place
- Certifying that training is adequate and accredited
- Assessing management and staff attitudes by interview
- Comparing attitudes with observed behaviour
- Assessing the effectiveness of, and level of compliance with, safe systems of work
- Checking compliance with legal standards

Hazards and risks associated with fires

Hazards to staff from fire

There are three hazards to which staff are exposed when a fire arises.

1. The fire itself can cause contact burns, either directly or by heating surfaces with which the employee is subsequently in contact. Burns may also occur from radiant heat.

2. There is the hazard of smoke inhalation which can cause both acute effects and longer-term health effects arising from materials which give off toxic fumes.

3.Evacuation in emergency may lead to injuries: Evacuation should be carried out in a sensible and orderly fashion to avoid staff from tripping over, falling down stairs, colliding with furniture etc.

Who is at risk?

Although a fire may put all persons on site at risk due to smoke inhalation, those in the vicinity of the fire are at greatest risk. People who are not employees but are in the building at the time of a fire are exposed to the same hazards, but the risk may be increased by unfamiliarity with both the building and the fire evacuation procedures. This applies to contractors, members of the public, clients and other visitors, new staff and temporary staff before they have received a fire safety briefing as part of their induction.

APPENDIX I: The law relating to fire

The law on fire safety in England and Wales was simplified when the *Regulatory Reform (Fire Safety) Order 2005* came into force on 1 October 2006.The Orderl repealed the *Fire Precautions Act 1971* and the *Fire Precautions (Workplace) Regulations 1997* to create a single, simplified fire safety regime. Under the order, local fire and rescue authorities (formerly known as fire brigades) enforce the arrangements for NERC premises, and have powers to serve prohibition or improvement notices. The 2005 order adds little to employers' existing duties under the repealed Act and Regulations, but makes enforcement much simpler and removes the need to apply for a fire certificate.

The government expects English and Welsh fire authorities to concentrate their inspection programmes on premises which are most at risk. In most cases this is unlikely to apply to NERC sites. Sites are recommended to obtain the guidance which amplifies the Order itself. This will be available through Technical Indexes at https://www.ihs.com/ using the passwords obtainable from Safety Advisers or direct from the Department for Communities and Local Government – see list in Appendix IX.

Scottish law is slightly different and is governed by the *Fire (Scotland) Act 2005*. The main principles are similar to those in the English/Welsh law, except that there is no specific requirement to appoint "competent persons". However, the idea of appointing people with responsibility for fire evacuation who are more highly trained than the majority of staff is still sound and we recommend that it should also be adopted by Scottish sites.

Basic principles:

- risk assessments for each room must be carried out by competent site staff.
- risk assessments will inform which systems & equipment should be provided
- each site must appoint a responsible person (Chief Fire Marshal)
- the Chief Fire Marshal must appoint competent persons (Fire Marshals)
- there must be written fire safety instructions
- there is a duty to provide fire-detection and fire-fighting equipment including smoke/heat detectors & alarms as identified in the risk assessment
- there is a duty to provide information and training, not only for fire marshals but also for all staff
- there must be emergency arrangements for dangerous substances (their location and quantities should be recorded)
- there must be designated fire routes, exits, lighting & signs
- all equipment and systems provided for fire safety must be maintained in good working order
- there must be collaboration & co-ordination between employers, contractors etc

These arrangements may be simplified for small NERC sites provided that the main principles are still followed.

In practice these changes should make little difference to existing fire procedures, which should already take a risk assessment approach.

Non Statutory Guidance

Home Office publications. Although these are not law, they can be regarded as having the same status as Approved Codes of Practice; they form the basis of uniformity of standards that enforcing authorities are trying to reach. The general enforcing authority for fire protection in the workplace is the same as for other aspects of health and safety but in addition Fire Authorities have a role in inspection and advice.

British Standards. There are a number of British Standards of particular relevance to fire safety and the most relevant ones to risk assessment in the workplace environment are listed in Appendix IX.

APPENDIX II: Fire detection and fire fighting equipment.

Fire detection equipment

Warning Systems

Buildings must have a means for warning persons within the building of a fire. This is usually done by a combination of detectors and manual break-glass call points. Systems should be tested weekly and should be inspected quarterly by a qualified engineer (typically the latter is done under a service agreement).

Fire Alarms and Detectors

In small NERC workplaces, fires would be quickly discovered and staff could give a verbal warning to all present (this would apply particularly to small field site buildings). In larger NERC premises automatic fire detection and warning systems should be in place.

Types of material burning and methods needed to deal with them:

- Wood, paper, textiles, fabrics etc.
  - ✓ Water extinguishers, hose reels, sprinklers
- Burning liquids such as solvents and petroleum fuel
  - ✓ Foam extinguishers
- Burning liquids, electrical fires
  - ✓ Powder extinguishers
- Burning liquids, electrical fires
  - ✓ Carbon Dioxide extinguishers
- Burning liquids, electrical fires
  - ✓ Halon drench system* and non-CFC substitutes

* Note that environmental protection requirements are that halon systems may only be used if already installed and there is a system for capturing emissions. Recharging with halon no longer possible. New systems are based upon non-CFC alternatives (avoiding use of ozone depleters). **This policy recommends that any remaining halon systems should be replaced as soon as practicable.**

- Burning liquids and burning clothes on people
  - ✓ Fire blanket (glass fibre)
- Lithium batteries

i) **Do not use warm or hot water.** Completely drench in cold water; more than is contained in a water extinguisher.

ii) Lith X (class D) is effective on fires involving only a few cells (this is being carried on board NERC ships to deal with lithium)

iii) **Do not use CO2 or Halon**

iv) Dry chemical type extinguishers have limited extinguishing potential.

- Fat fires
  - ✓ Class F fire extinguishers

Portable fire fighting equipment

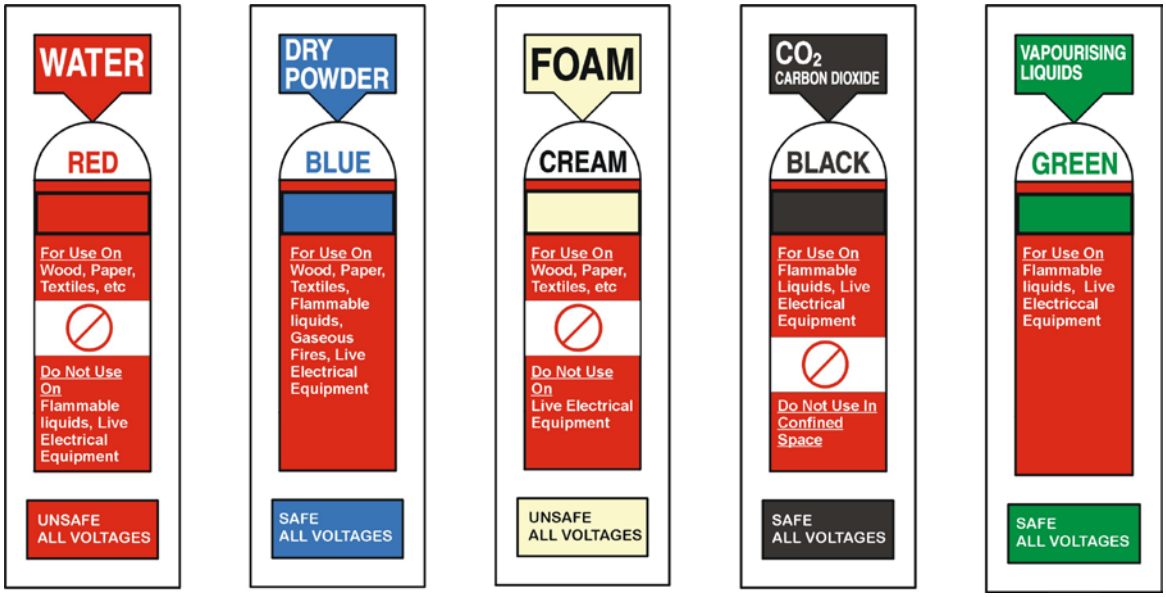
Fire extinguishers

Fire extinguishers should normally be located in conspicuous positions on escape routes, preferably next to exit doors, and should not become a trip hazard. Wherever possible, fire-fighting equipment should be grouped to form fire points. These should be clearly visible and conspicuously indicated so that fire points can be readily identified. Where workplaces are uniform in layout, extinguishers should normally be located at similar positions on each floor. If for any reason extinguishers are placed in a position hidden from direct view, The **Health And Safety Signs (Safety Signs And Signals) Regulations 1996** require that their location should be indicated by signs and, where appropriate, directional arrows. Fire extinguishers should only be used by trained personnel and then not in a way that puts them at harm.

Colour coding of extinguishers

BS EN 3 is the new (1997) standard for portable fire extinguishers. One of the major changes it brought was the colour coding of extinguishers. All new extinguisher bodies must be **red**, and subject to national regulations, an area up to five per cent of the body may be colour coded to assist identification of the extinguishing material it contains.

Graphic symbols are to be used on the extinguisher body to assist identification of the type of fire it can be used on. Old style extinguishers had the entire body colour coded, these must not be painted red to bring them into line with the new ones. Because extinguishers last for up to 20 years, there may be a mixture of old and new in a building. This is acceptable; in these cases and to avoid any confusion, it is advisable to ensure that extinguishers of the same type but with different colour coded markings are not mixed, either at the same location in a single storey building or on the same floor in multi-level buildings.



Hose reels

Hose reels are liked by insurance companies but are not always a formal requirement of the fire authority. The reels should be accessible, checked monthly for valve leaks and fully run out and tested annually. There are two types of hose reel, those that require the operator to turn on the water at the drum reel before running out the hose and those that turn on automatically as the hose is pulled towards the fire.

Note: *Most Fire Brigades would like to see the removal of this equipment on the grounds that:*

- *they do not run out of water, leading to a false sense of security for staff using them in the event of fire*
- *extended hoses are a tripping hazard and block fire doors open during an evacuation*
- *extended hoses are a tripping hazard for Fire Fighters and prevent them moving fire fighting equipment safely down corridors etc*.

Fire blankets

Fire blankets are useful for small discrete fires such as those in kitchens, and for putting out fires on people's clothing in these areas.

Fixed Installations

Sprinklers:
Building Regulations require fire sprinkler systems where there is a floor more than 30 metres above the ground. Additionally, insurance companies may require sprinklers to be installed. Fire Authorities are now permitted to require installation of sprinklers as part of the fire defence system

for the protection of people. These systems are mainly automatic in operation, being activated when the temperature reaches a certain level. The correct choice of system is a specialised skill and is beyond the scope of these procedures. Advice may be sought from Local Authority fire brigades, fire consultants and the British Standards Institution who produce standards relating to the installations.

Tests and inspections

All components of a fire prevention system are typically not in use except in the case of a fire. It is particularly important therefore that the system is tested regularly and inspected for defects. **Recording these tests and inspections is vital to ensure an audit trail exists in the event of a failure during a fire. Insurance companies and Fire Authorities will not accept verbal evidence that fire equipment has been tested.**

A summary of all the tests and inspections that need to be carried out and their frequencies is shown below:

Summary of Fire Tests and Inspections

Action:

Daily:

- Fire alarm indicator panel checked for normal condition. Any defect/fault to be recorded in the log book and action taken to rectify
- The indicator lights in emergency lights are to be checked for operation. Any defect/fault is to be recorded in the log book and action taken to rectify
- Electro-magnetic door holders to be checked for operation. Any defect/fault to be recorded in the log book and action taken to rectify immediately.

Weekly:

- Fire alarm to be tested by actuation from different point each week. Check for operation of related devices. Any defect/faults to be recorded in the log book and action taken to rectify. Ideally the weekly testing should be done while most people are at work, so that they will become familiar with the alarm tones
- Sprinklers, smoke control, pressurisation and other fire suppression systems where installed are to be checked as appropriate in accordance with BS 5306 (Part 2). Any defect/fault to be recorded in the log book and action taken to rectify

Monthly:

- Emergency lighting to be tested by simulation of a mains failure; the test is to include automatic starting of any generator required by the system. Any defect/fault to be recorded in the log book and action taken to rectify
- Fire alarm system to be checked for operation if using generator as secondary source of power. Any defect/fault to be recorded in the log book and action taken to rectify
- Other fire suppression systems to be given monthly test as appropriate to the system installed in accordance with BS 5306. Any defect/fault is to be recorded in the log

book and action taken to rectify

Quarterly:

- Fire training and drills for night staff. The nature of instruction to be recorded in log book
- Fire alarm inspected by competent engineer. Result of inspection to be recorded in log book and any defect/fault rectified
- Other fire suppression systems to be given quarterly test as appropriate to the system installed and in line with BS 5306. Any defect/fault to be recorded in the log book and action taken to rectify

Bi-annually:

- Fire alarm tested and certificate delivered by competent engineer. Any defect/fault to be recorded in the log book and action taken to rectify

Annually:

- Hose reels tested in accordance with BS 5306. Any defect/fault to be recorded in the log book and action taken to rectify
- Fire training and drills for all staff. Nature of instruction to be recorded in log book.
- Fire extinguishers tested in accordance with BS 5306. Any defect/fault to be recorded in the log book and action taken to rectify
- Emergency lighting tested in accordance with BS 5306. Any defect/fault to be recorded in the log book and action taken to rectify

Three-yearly:

- External escapes, stairs, balconies, walkways, guardrails. Test inspection and competent engineer's report
- A full test and inspection should be conducted three years after first installation and thereafter, annually for self-contained sealed battery luminaires.

Five-yearly:

- Fire alarm wiring test. Test inspection and competent engineer's reports.

Reporting of defects

Defects reported in any of the above checks must be rectified promptly, and records kept of inspections, tests, defects and action taken.

APPENDIX III: Escape routes, signage and emergency lighting

The Escape route

- Means of escape should be as short as possible and **dependent on the assessed fire risk**.
- Persons in workplaces where there are two or more ways out should be able to reach a place of safety in about two to three minutes.
- Persons in workplaces where there is a single direction of escape should be able to reach safety in about one minute.
- Consideration should be given to the number of persons using the escape route at one time, the fact that people move more slowly on stairs and the possibility that persons with a disability could be involved in the evacuation.

In addition to the above ensure that you cover as a minimum for means of escape the following with any assessments:

- exits: the type and maintenance standards
- escape routes: their maintenance and housekeeping standards
- travel distances: ensure that they are reasonable and escape can be made as far as practicable within the above time limits
- restrictions or delaying factors across escape routes, for example, doors
- the risk of internal fire spread and its effect on the nominated means of escape
- practical procedures and precautions to be taken for gantries or galleries within the workplace
- any specific areas of special fire risk (as defined in the fire risk assessments).
- escape routes for impaired mobility personnel or disabled personnel

Emergency lighting

Emergency lighting for exit routes should be inspected monthly and fully tested for a minimum of one hour every six months. A full test and inspection should be conducted three years after first installation and thereafter, annually for self-contained sealed battery luminaires.

Fire doors

- Where practicable it is good practice for all doors in the escape route to open in the direction of escape. This is particularly important for doors in high-risk areas, where the doors are at the base of stairs or where more than 50 persons are expected to evacuate.
- Revolving doors not provided with by-pass or hinged segments are not acceptable, but sliding doors may be, provided they are well maintained and the direction of slide is clearly marked.
- **All doors must be able to be opened from the inside without the use of a key or pass card (where security systems are in place, provision must be made for linking to the fire alarms to override locks when alarms are activated)**.
- Fire doors should be self-closing and doors to cupboards on escape routes kept locked.
- Fire doors which close automatically (on alarm) should be checked weekly when the alarm test is carried out.

Safety signs

The type and location of signs and notices may be specified in the fire certificate but, in all cases, the signs should be sited so that they are easily seen and readily distinguishable. Staff with impaired vision may experience difficulty in identifying fire safety signs and should, therefore, be encouraged to familiarise themselves with escape routes, especially those not in general use. Fire safety signs must comply with the relevant requirements of the **Health and Safety (Safety Signs and Signals) Regulations 1996.**

Types of sign relating to fire	
Prohibition signs **Circular red band** and a single diagonal cross bar over the activity to be banned, e.g. No Smoking.	
Mandatory signs **Blue circle** with pictogram or text, as in 'Fire Door Keep Shut'. These signs may be required as a condition of the fire certificate.	
Warning signs **Yellow background** to an equilateral triangle with a black band. A pictogram indicating the nature of the hazard, e.g. compressed gas.	
Safe condition signs **Green background** to rectangle or square with a white pictogram or text. As used to indicate escape routes or as in the case of 'Push bar to open' where there is no pictogram. **All old-style safety signs with the words 'fire exit' have to be replaced or supplemented with the pictorial sign of the running man, and where necessary, with a directional arrow.**	
Fire fighting **Red rectangle** or square with a white pictogram indicating the meaning, e.g. location of fire fighting equipment.	

Fire drills

A fire drill is intended to ensure, by means of training and rehearsal, that in the event of fire:

- The people who may be in danger act in a calm and orderly manner. Where necessary those designated carry out their allocated duties to ensure the safety of all concerned.
- The means of escape are used in accordance with a pre-determined and practised plan.
- If evacuation of the building becomes necessary, staff should be aware of what to do.

Where there are alternative means of escape the drill should be based on the assumption that one or more of the escape routes cannot be used because of a fire. During these drills a member of staff who is told of the supposed outbreak should operate the fire alarm and, thereafter, the fire routine should be rehearsed as circumstances allow. This may raise some difficulties where members of the public are present, but such a procedure is still desirable.

It should also be remembered that regular fire drills test the procedures and training that you have put in place for the safe and effective evacuation of **disabled and infirm employees and visitors**. British Standard 5588 Part 8 Code of Practice for means of escape for disabled people gives guidance on this matter. In cases where there are profoundly deaf people employed, then an alternative alarm may need to be in place. Technical advice on such alarms can be obtained from the Royal National Institute for the Deaf, 105 Gower Street, London WC1E 6AH.

Conducting a Fire drill

Normally advance warning should **not** be given of the fire drill. However, you can individually warn anyone who may need to know in advance, eg somebody conducting an experiment which will last all day and needs staff in attendance all the time. Every opportunity should be taken to learn lessons from the drill and to reinforce staff training where gaps are identified. It is good practise to appoint a small number of people, usually safety representatives or managers to observe the drills and highlight areas of concern. It is important that all managers are aware of the procedures, as employees will naturally look towards them in an emergency.

APPENDIX V: Fire risk assessment

This Procedure addresses the process of assessing fire risks to **people** (staff, visitors and others). Of course in practice if the risk of a fire and the human consequences of such a fire are reduced, this is likely also to reduce the risks of damage to buildings and the contents of buildings. 'Means of Escape' refers to every aspect of each route of exit designated to be used in the event of a fire for people to leave the building, covering hallways and corridors, stairwells, exit doorways. The risk of fire is a combination of factors; there has to be something flammable, a source of ignition and oxygen. In most offices the flammable materials include paper, the furnishings of the office and specialist materials such as chemicals used in printing. In laboratories and workshops, there are likely to be other flammable materials and sources of ignition. The sources of ignition are typically electrical short-circuits, cigarettes, portable heaters and kitchen cooking equipment. Arson has been the cause of fires but illegal activity of this nature is beyond the scope of health and safety risk assessments and a security review is a more appropriate vehicle for dealing with identifiable and significant threats of this type.

Working Environment:	
Area(s) covered by this Fire risk assessment:	Risk Assessment Ref:
Management names/department responsible for implementing, reviewing and communicating this assessment: -	
1. Identifying the fire hazards **What is there to burn?**	
Insulated panels and partitions Are there any composite (sandwich) panels incorporating combustible insulation or areas of timber construction, including partitions?	
Wall & ceilings linings Is more than 20% of the area covered with combustible linings such as timber, hardboard, chipboard, plastic, polystyrene, carpet tiles or flock wallpapers?	
Fixtures, fittings & floor coverings Do the light fittings have plastic diffusers; are there timber shelves and fittings or large notice boards on escape routes with loose papers on them; is the floor or the floor covering combustible?	
Furnishings & fabrics Are large amounts of textiles and furniture (particularly furniture with foam padding) kept in the workplace; is there a lot of timber furniture; are there items of furniture with padding exposed; are there displays involving combustible materials?	

Stored combustibles Is there a system for controlling the amounts of combustible materials such as files, paper, card or fabrics, video and computer tapes, and flammable liquids and gases in the workplace; is the system operating effectively? Is the workplace free of rubbish and combustible waste material; are combustible and flammable materials stored safely and kept away from sources of ignition?	
Paints, thinners, oils & other flammable liquids Are stocks of cooking oils, paints, thinners, petroleum products, motor oils, other lubricants and hydraulic fluids, solvents and degreasing agents or other flammable liquids kept in the workplace; how much is there; are the tops of the containers replaced each time they are used?	
Flammable and stored gases Is natural gas used in the work process or for heating; are gas heaters used; are there cylinders of flammable gases or other forms of compressed gases, such as oxygen, in use or stored on the premises; how much is there; are aerosol cans filled or stored on the premises?	

Other Is there anything else that could burn?	

What could cause it to burn?

Hot processes, naked flames & sparks Are there any items of cooking equipment, ovens, kilns, open hearths, furnaces or incinerators, boilers, engines and other oil/gas burning equipment; are hot air guns or gas flames i.e. propane or welding torches etc, used in the workplace; is there any grinding or cutting abrasive wheels? ("Hot Work Permit-to-Work" system in operation?)	
Electrical installations & equipment Are there any faults on the electrical installation; when was it last inspected by a competent person; is the use of extension leads and multi-point adapters kept to the minimum? Is portable electrical equipment inspected regularly, fitted with the correct fuse and PAT tested; are leads and flexes run in safe places where they will not be damaged?	

Lights & light fittings Are floodlights, light bulbs, spotlights, down lighters and fluorescent tubes located a suitable distance from combustible surfaces and materials?	
Portable heating equipment Is portable gas or electric heating equipment used; are they fitted with suitable guards fixed in position away from combustible surfaces and materials?	
Smoking & Arson Is smoking permitted; is there a designated smoking area provided with adequate ashtrays; is arson a potential problem?	
Other Is there anything else that could cause a fire, friction for example?	

Work Environment:	
Lack of segregation Are stocks of combustible raw materials separated from the workplace by a fire resistant structure; are highly flammable liquids and gases stored externally in suitable enclosures; are unprotected stairways used for emergency routes; are doors ill-fitting?	
Lack of fire stopping Are holes in compartment walls, ceilings and floors around services such as pipes and cables fire stopped; have fire dampers been installed in ductwork where it passes through compartment walls, floors and ceilings? Are holes in the floor and ceiling of vertical service ducts or cupboards fire stopped; are there flues or redundant chimneys?	
Voids Are there undivided voids below the floor or above the ceiling; are there voids behind panelling or other features that could lead to a fire spreading to the floor above?	
Other Is there anything else that could lead to the spread of fire or smoke in case of fire?	
2. Identifying the people at risk	

People at risk - List	
Number of persons identified on this form that are included in this work area; are they familiar with the building; do any have any form of disability; do any people sleep on the premises? Are they all on one floor, how many floors to the external escape door; do people work in remote areas of the premises?	

3. Removal, reduction & control of the fire hazards	
Removal & Reduction Wherever possible, avoid the use of combustible materials or process that uses heat; reduce or remove stored combustible materials and /or flammable liquids; improve housekeeping. Reposition lights and heaters to reduce the risk of contact with combustible materials; have the wiring system checked; install extra electrical sockets; repair or replace furniture. Consider cost-effective measures to prevent the occurrence of arson.	
Control **Where required use a 'hot work permit'** To control flames used in the workplace i.e. propane or welding torches etc.	

4.Risk Evaluation The risk of a fire breaking out in this working Environment.	**LOW**	Escape time & distance 5 minutes (45 – 60 metres) *3 minutes* (12–45 metres*)	There is hardly any risk from fire, few combustible materials, no highly flammable substances
	NORMAL	Escape time & distance 3 minutes(18-45 metres) *1 minute* (*9-25 metres**)	There are sufficient quantities of combustible materials and sources of heat to be greater than low fire risk but where a fire would be likely to remain confined, or to spread slowly.
	HIGH	Escape time & distance 1minute(12-25 metres) 30 seconds (*6-12 metres**)	There is a serious risk to life from fire; there are substantial quantities of combustible materials. There are highly flammable substances, or there exists the likelihood of the rapid spread of fire or smoke.

**Use the second escape time/ distance for 'dead –ends' where escape can only be made in one direction*

5. Adequacy of the existing fire safety provisions	
Escape of the occupants Are 1 metre wide protected routes/stairways provided; are refuges needed for disabled people; is there only one-escape route. Is the alarm response time /overall travel distance to the exit within the above limits and is it no more than 18 metres from any part of the floor to the final exit or the protected route if there is only one escape route. Are there sufficient emergency exits; are they unlocked when the premises are used; do they open outwards at the bottom of stairs or where more than 50 people may use them: are fire doors kept closed?	□
Alarms, signage & lighting Is the fire alarm in working order and tested every week; what is the alarm, bell, siren etc; can it be raised without placing anyone in danger, are the alarm points clearly visible and unobstructed. Can the alarm be heard throughout the work area; are key-people	

trained to call the fire services; are practice fire drills carried out? Are the emergency escapes and fire doors adequately signed; is emergency lighting required and if installed, is it tested and maintained regularly?	

Fire detection & fighting Is there a fixed fire fighting installation or automatic detection system; is it in working order; are an adequate number of suitable fire extinguishers provided (allow 1 per floor or 1 per 200 metre sq., whichever is the larger). Are they located suitably and ready to use; are key-employees trained in their use; does a competent person service extinguishers annually?	
Compartmentalisation Are products, combustible materials, flammable liquids and heat sources segregated; are holes in walls, floors and ceilings fire stopped and voids fitted with fire partitions?	
Additional control measures that are necessary: Have all control measures been covered in this risk assessment? Staff have a duty to comply with all fire procedures.	

This form is based on the six-step method of assessment and the guidance given in the Loss Prevention Council's publication '*Fire Risk Management in the Workplace'.*

Having reviewed the fire hazards and evaluated the risks I believe that if the control measures identified above are applied, the Research Centre will, so far as is reasonably practicable, have met the requirements of this assessment.	Assessment made by: Date prepared:

Whilst completing the fire risk assessment the competent assessor must be aware of any relaxations (variations from the accepted standards) granted by the enforcing authority, (Local Fire Brigade). These relaxations may or may not be granted with additional conditions that set other fire safety requirements deemed necessary at the time by the inspecting officer. In the case of relaxations granted by the local authority, the local fire authority will have been consulted and details of the new requirements and accompanying documentation must be maintained on the premises for inspection purposes.

Fire Risk Assessment

The responsibility to carry out a fire risk assessment requires an evaluation of the premises as low, medium or high risk. Most NERC Research Centres are likely to be low risk but, if there are any elements in terms of flammable materials, structure of the building etc. that raise the risk level, the precautions outlined above require enhancement to achieve safety. Thus a building, which, due to its design, is difficult to evacuate rapidly but is listed and therefore not amenable to

modification, requires more frequent evacuation drills. The basic approach to risk assessment is outlined in NERC Risk Assessment Procedures.

Basic Fire Risk Assessment Form with Risks rated Low to High

Location:

_____

Compiled by: _____ Date: _____

Risk Element:

Risk rating: **Low/Medium/High**

Precautions: (current) Precautions (additional/proposed):

Flammable materials identify:

Sources of ignition identify:

Fire detection detail arrangements:

Fire fighting detail equipment:

Building evacuation arrangements:

Emergency plan contents:

APPENDIX VI: Checklist for carrying out a general assessment for establishing the adequacy of current fire precautions

Check each of the following in each area, any boxes which cannot be ticked represent an opportunity to reduce fire risks:

Materials that can sustain fire - minimising the risk·

- ❑ Are stored materials such as wood, even minimal quantities, securely stored?
- ❑ Is waste removed regularly to avoid a build-up of flammable waste?
- ❑ Are high-risk materials such as flammable chemicals avoided?
- ❑ If high-risk materials are not avoided, are they stored in secure outside areas?
- ❑ Are there high-risk materials in work areas?
- ❑ if so, is the maximum held at any one time sufficient for one working day only?
- ❑ Is low flammability specified on the fixtures and fittings?
- ❑ Oily rags?
- ❑ Any oxidising agents?

Sources of ignition - minimising the risk

- ❑ Are there smoking prohibition/restrictions in force?
- ❑ If smoking is not permitted, are there adequate ashtrays at entry points?
- ❑ Is there an electrical safety programme?
- ❑ Is there adequate site security? (arson or accidental ignition)
- ❑ Chemical reactions that spontaneous cause fire – uncontrolled chemical reactions, fume cupboards, glassware in direct sunlight etc?

Detection of fires - rapid response

- ❑ Are automatic detection devices regularly maintained and tested?
- ❑ Are there sufficient heat and smoke detectors where appropriate?
- ❑ Are staff aware of what to do in case of a fire and raise the alarm?

Fire fighting

- ❑ Are there sufficient and appropriate extinguishers?
- ❑ Are the extinguishers properly maintained?
- ❑ Is there a properly maintained and tested sprinkler system?
- ❑ Is the hose reel properly maintained and tested?
- ❑ Is there access for fire fighting appliances to building and fire mains? (if provided)
- ❑ Are there basement smoke vents? (required when floor area is greater than 200m^2)

Evacuation

- ❑ Is this sufficient, with clear exit routes properly signed?
- ❑ Is the emergency lighting maintained and tested?
- ❑ Are fire doors in good condition and closed, or closed automatically on alarm?
- ❑ Are fire drills conducted with appropriate frequency? (at least annually)

Staff

- ❑ Is there induction training covering the basics?
- ❑ Are staff briefed on personal safety and responsibility in the event of a fire?
- ❑ Are there appointed Fire Marshals, trained for their role?

Emergency procedures plan

- ❑ Is there a documented guide to response in an emergency including key contact numbers such as public utilities, key personnel, emergency glaziers, etc.?

APPENDIX VII: Instruction and Training

Training

The type of training should be based on the particular features of the workplace, and should:

- explain your emergency procedures
- take account of the work activity, the duties and responsibilities of staff
- take account of the findings of the risk assessment
- be easily understandable by your staff
- actively involve and address any specific needs of disabled and infirm staff.

It is important that all staff (and contractors) are told about the evacuation arrangements and are shown the means of escape as soon as possible after attending the premises. Training should be repeated as necessary (usually once or twice a year) so that staff remain familiar with the fire precautions in the workplace and are reminded what to do in an emergency: this includes those who work in the premises outside normal hours i.e. cleaners or security workers (these staff must be separately assessed for risk and, if necessary, covered by lone-working procedures). It is important that staff are told about changes to the emergency procedures before the changes are implemented.

Fire training guide:

- Day staff require training every year, night staff every three months
- New staff should be made aware on their first day at work, as part of their induction, of the location and use of fire exits and the evacuation procedures
- All staff need to know the following:
    - Policy on smoking, electrical equipment (switching off at night) etc
    - Actions on discovering a fire
    - How to raise the alarm
    - How to call the fire brigade (who to contact to do this, security, switchboard etc)
    - Location and use of escape routes
    - Policy and methods on assisting disabled persons, visitors and others during evacuation
- Managers and Fire Marshals require more detailed briefings so that they are both familiar with the above and also able to motivate staff and manage evacuations and their evaluation
- Evacuation drills must take place once a year and must be reviewed afterwards. However, the Local Fire Authority may recommend that this occurs twice a year.

APPENDIX VIII: Record keeping

Legal requirement

The risk assessment must specify matters that require periodic attention and the type of record that is required for each. It is recommended that all records be kept in the form of a logbook, the pages marked to indicate the information required in each use. The logbook must be kept ready for examination should the need arise. Failure to carry out the training/tests/actions required is an offence as is the failure to record these actions.

The record keeping required for compliance and proof of compliance with legal requirements and achievement of best practice is divided into three:

1) records of what has been done

2) audit and check reports

3) communication ensuring that everyone knows what to do and how.

It is a legal requirement for premises to keep records of the frequencies of inspections, fire tests and staff training.

Model records

Other records which should be kept are:

- Risk assessments for activities and areas that constitute a fire risk.
- List of persons responsible for organising evacuations and dealing with fires in each working area. This includes department managers, the Chief Fire Marshal and the Fire Marshals.
- A log of where notices summarising fire procedures are displayed. These notices should be displayed prominently throughout the building and given in the form of individual instructions to each member of staff, including contract staff.
- Records of staff training: details of staff training and instruction should be recorded in a log book kept for that purpose. Separate records itemising date, duration, persons instructed, the nature of the instruction and the instructor should be drawn up for initial fire training, fire drills and quarterly or six monthly training
- A log of fire drills including the date of each drill and how long evacuation took. Any problems or incidents occurring during the drill should be noted and action taken to prevent the problems from happening again (e.g. a filing cabinet in the way of an escape route slowing evacuation).
- Records of false alarms (and, where known, their causes)
- Inspection and test schedule which should list the items that need checking, when the internal tests are due and when the service engineer is due to test them. Each item should then have its own record of when the test took place and what action was taken.

APPENDIX IX: Sources of further information

Health and Safety Executive Publications

Guidance

Assessment of fire hazards from solid material and the precautions required for their safe storage and use: a guide for manufacturers, suppliers, storekeepers and users. HS(G) 64. ISBN0 11 885654 5.

Gaseous fire extinguishing systems: precautions for toxic and asphyxiating hazards. GS 16. 1984. ISBN 0 11 883574 2.

Fire precautions in the workplace: information for employers about the Fire Precautions (Workplaces) Regulations 1997. HMSO, £3.50 ISBN 0 11 341169 3.

Other publications

The following guides can be obtained from the Stationery Office website at http://www.tso.co.uk

Fire safety at work. 1991. ISBN 0 11 340905 2.

Fire safety: an employer's guide. ISBN 0 11 341229 0.

British Standards

There are various British Standards covering fire precautions, including the following:

BS 5588 Fire precautions in the design and construction of buildings

Pt 1 1990 Code of Practice for residential buildings

Pt 2 1985 Code of Practice for shops

Pt 3 1983 Code of Practice for office

Pt 4 1978 Smoke control in protected escape routes using pressurisation (under revision

Pt 5 Code of Practice for fire fighting (stairways and lifts)

Pt 6 1981 Code of Practice for places of assembly

Pt 7 Code of Practice for atrium buildings

Pt 8 1988 Code of Practice for means of escape for disabled persons

Pt 9 1989 Code of Practice for ventilation and air conditioning ductwork

Pt 10 1991 Code of Practice for shopping complexes

Pt 11 Code of Practice for places of work

BS EN 2 Classification of fires

BS EN 671-1 Specification for hose reels (water) for fixed installations

BS 476 Fire tests of building materials and structures

BS 3169 Specification for first aid reel hoses for fire fighting purposes

BS 4790 Method of determination of the effects of a small source of ignition on textile floor coverings

BS 5306 Fire extinguishing installations and equipment on premises

BS 5499 Fire safety signs, notices and graphic symbols

BS 5839 Fire detection and alarm systems for buildings

BS 5852 Fire tests for furniture

BS 7863 Recommendations for portable extinguisher colour coding

BS EN 3 Portable fire extinguishers

BS EN 1125 Panic exit devices

BS EN 1869 Fire blankets

Professional Bodies and associations

Fire Protection Association
Melrose Avenue
Boreham wood
Hertfordshire
WD6 2BJ
Tel: 020 8207 2345
Fax: 020 8236 9701

The national fire safety organisation for the UK, providing FPA members, the general public and business with information and advice through training courses, videos, seminars, leaflets etc

Fire Research Station
Building Research Establishment
Garston
Watford Hertfordshire
WD2 7JR
Tel: 01923 664000
Fax: 01923 664010

Conducts research into how to prevent death, injury and damage from fires, offers a wide range of publications, and can provide client consultancy.

Department for Communities & Local Government
Eland House
Bressenden Place
London
SW1E 5DU
Tel: 020 7944 4400
Website: http://www.communities.gov.uk

The Department issues the following official guidance on fire precautions for England and Wales:

- About the guides - introduction and checklist
- Entry Level Guide - A short guide to making your premises safe from fire
- Guide 1 - Offices and shops
- Guide 2 - Factories and warehouses
- Guide 3 - Sleeping accommodation
- Guide 4 - Residential care premises
- Guide 5 - Educational premises
- Guide 6 - Small and medium places of assembly

- Guide 7 - Large places of assembly
- Guide 8 - Theatres and cinemas
- Guide 9 - Outdoor events
- Guide 10 - Healthcare premises
- Guide 11 - Transport premises and facilities
- Frequently asked questions

For fire precautions in Scotland, see the detailed guide at http://www.infoscotland.com/firelaw/files/Summary_Guide_Full_doc.pdf and more general information at http://www.infoscotland.com/firelaw . The information in the guides listed above may also be helpful in providing more focused information. There is also specific guidance on:

- Factories and storage premises – at http://www.infoscotland.com/firelaw/files/GUIDE-FSP-FULL_DOCUMENT.html
- Offices etc - at http://www.infoscotland.com/firelaw/files/OSG-index.html

Institution of Fire Engineers
148 Upper New Walk
Leicester
LE1 7QB
Tel: 0116 255 3654
Fax: 0116 247 1231

Promotes fire engineering along with fire investigation, protection and technology to the membership and the public.