

**PERMIT TO WORK  
&  
PERMIT TO ACCESS  
MANUAL**

January 2016

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## **INTRODUCTION**

The University's Permit to Work (PTW) and Permit to Access (PTA) system is in place to manage all high risk activities and control access into restricted areas. This applies to all contractors across Colchester, Southend and Loughton and is primarily run by the Estate Management team with authorised signatories in the IT Services and Bio-Sciences departments.

The purpose of the Permit to Work system is to maintain a safe working environment within the University and it is mandatory across all elements of the estate. This document captures the working requirements and processes, if there is a need for clarification on any point, please refer to the document owner, the Deputy Director of Estate Management (Maintenance).

A Permit to Work is also a method of communicating hazards and risks to those who will be carrying out the task.

Where there is a reference to Permit in this document rather than explicitly mention PTW or PTA, all permit types are being referred to.

**A Permit does not, by itself, make a job safe.** This can only be achieved by fully preparing for the task, using authorised, skilled and competent people. Only trained, competent and authorised persons, who have considered foreseeable risks, are allowed to issue permits. Permission to undertake work activity will only be allowed when sufficient safety checks have been carried out and necessary precautions are in place to reduce risks as far as reasonably practicable.

For a Permit system to be effective it must be strictly adhered to by those carrying out the work. It requires coordination and cooperation between contractors and those responsible for the area or where permits to work cover adjacent areas.

The University of Essex requires the Main Contractor / recipient to confirm in writing that they have read the Risk Assessments Method Statements (RAMS) provided by their Company and that they agree to the contents, also that they are responsible for their own acts and omissions.

### **Permit to Work or Permit to Access?**

A permit to Work is required in relation to any construction, refurbishment and maintenance (including cleaning activity) of buildings, services and equipment for designated activities and environments.

A permit to Access is necessary for prescribed environments where only inspections, tours etc are required, e.g. annual inspections, visual inspections to price or explain a scope of works.

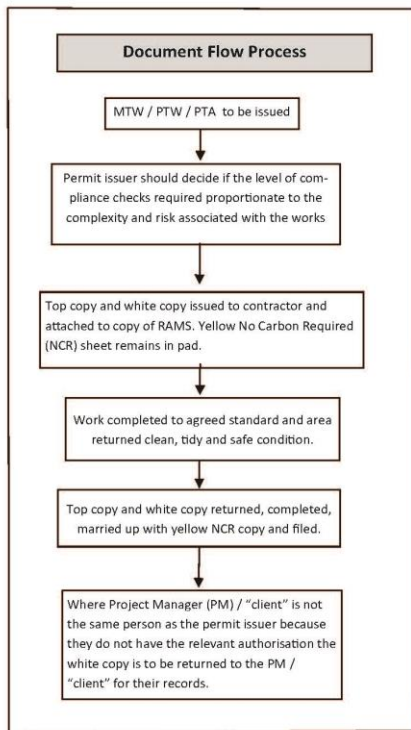
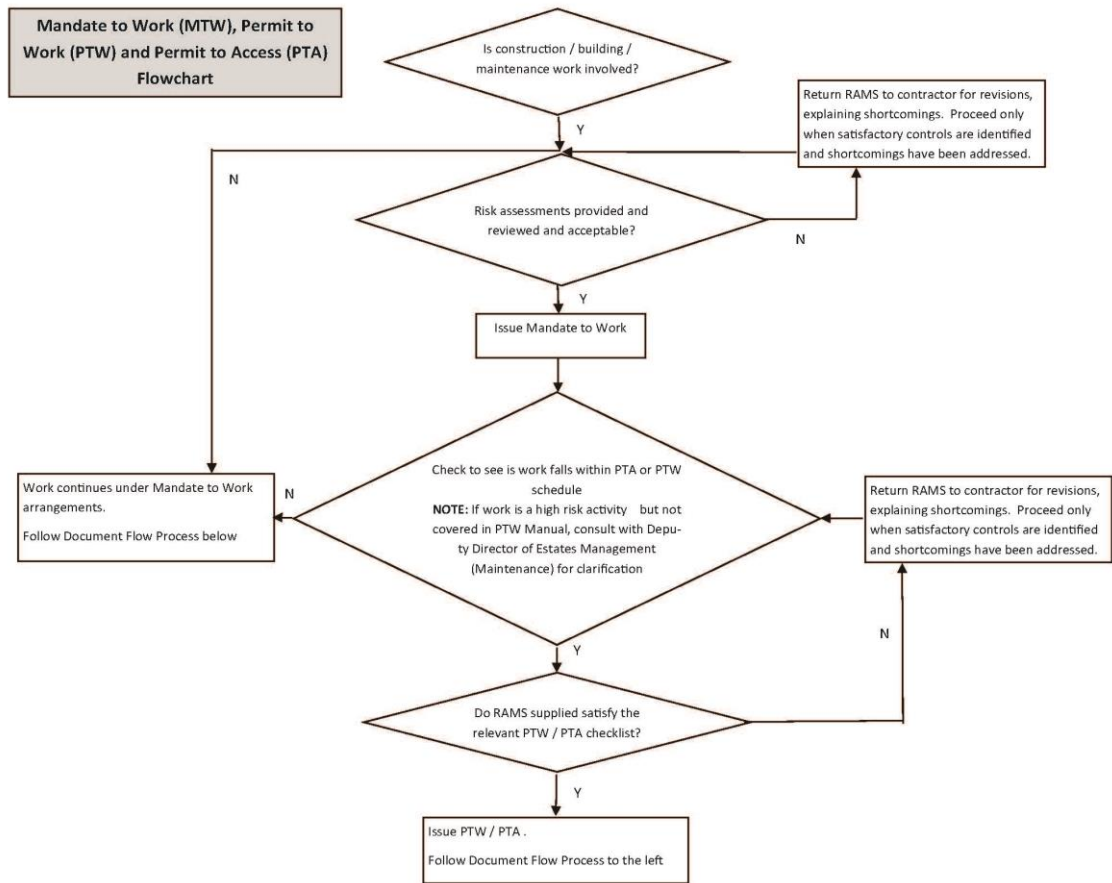
### **Mandate to Work**

A Mandate to Work (MTW) form must be completed before any contractor activity can commence. The flow chart below provides direction as to whether additional Permit to Work or Permit to Access form(s) is required.

The Mandate to Work system is not anticipated to be fully introduced until Spring/Summer 2016 and will be subject to separate guidance until such time as this document is reviewed.

On formal adoption the MTW procedure will be shared with all Approving and Authorised Persons identified within this document.

# Flow chart for Mandate to Work, Permit to Work and Permit to Access



## **SECTION 1**

### CONTROLLED DOCUMENT LIST

A controlled copy of the Permit to Work and Permit to Access Manual is held by the following persons:-

Assistant Building Surveyor, EMS  
Assistant Engineer EMS, Building Services  
Biological Sciences Deputy TSM & Assistant DHSO  
Biological Sciences Technical Services Manager and Department H&S Officer  
Building Supervisor  
Building Surveyor, EMS  
Campus Security Supervisor  
Campus Security Supervisor (Loughton & Southend see FM provider)  
Campus Security Supervisor, EMS (Colchester)  
Clerk of Works, EMS Projects  
Contact Manager, FM Provider (Southend)  
Contracts Manager, EMS  
Deputy Director of Estate Management (Capital & Development)  
Deputy Director of Estate Management (Maintenance)  
Deputy Director of Estate Management (Services)  
Director of IT Services  
Domestic Services Manager, EMS  
Duty Engineer, EMS  
Electrical Supervisor, EMS  
Energy Manager, EMS  
Engineer, EMS Building Services  
Facilities Manager, EMS (Southend)  
Grounds Manager, EMS  
Head of Department Biological Sciences  
Head of Health and Safety  
Information Systems Services Director  
IT Services Health & Safety Coordinator  
IT Services Lab Support Manager  
IT Services Networks Manager  
IT Services Senior Technician (Telecoms)  
IT Services Systems and Networks Manager  
Mechanical Supervisor, EMS  
Project Managers, EMS, Building  
Security Manager, EMS  
Students Union Chief Executive  
Students Union Premises Co-ordinator  
System Engineer, ISS (Colchester Campus)  
System Engineer, ISS (Southend Campus)  
Technician, FM Provider (Loughton)

## **SECTION 2**

### DOCUMENT CHANGE FORM

#### **DATE**

Aug 2015

#### **REASON FOR CHANGE**

Update job roles and titles to reflect current University structure.

Review and rewrite to reflect current legislative requirements and best practice.

Periodic review.

#### **SIGNATURE**

## **SECTION 3**

### **3.1 GUIDE TO THE USE OF PERMIT TO WORK & PERMIT TO ACCESS FORMS**

The Permit to Work and Permit to Access manual is a controlled document, updated as required and reviewed annually or when other significant changes are needed. The Approving Persons and Authorised Persons will hold a manual and any subsequent updates.

Both Permit to Work and Permit to Access forms must be used in conjunction with the appropriate Safety Check List included in this manual. The safety check lists are not exhaustive and have been prepared as an aid memoire and must not be interpreted as a complete list of hazard and safety precautions to be considered. It is unlikely that they will cover all hazardous operations for which a Permit to Work or Permit to Access should be used. Several checklists may be required at one time.

Where items are listed on both Permit to Work and Permit to Access tables within this section, it should be noted that some items only have a permit to work checklist and the Authorising person is expected to use their skills, knowledge and expertise in their given field to make a judgement call on the appropriate level of information required to satisfy the terms of the permit.

There may be occasions where high risk activities have to be undertaken that are not covered on the lists below. In these circumstances a discussion with the Deputy Director of Estate Management must take place as the appropriateness of using this process in managing the risks.

In all cases the Authorising Person must consider if works would impact on access routes and fire compartmentation. Adequate access for fire vehicles and ladders to buildings and a proportion of the external walls is a legal requirement vital for fire safety.

Key fire safety issues to be considered in ANY project or piece of work:

- The agreement of one of the University's Fire Safety Officers must be obtained.
- The Information Centre and Security staff must be informed.
- Compartmentation must be left in a condition that acts as a barrier to prevent fire spread.
- Ensure any dust generated will not activate the fire alarm system.

The PTW and PTA forms have been designed as a one page proforma document. A section has been allocated for the Authorised Persons(s) to fill in details of specific precautions. Authorised Persons(s) will either know the precautions required or will have access to the necessary source of reference.

Sites taken over by contractors are excluded from this process as they will be using their own systems.

#### **Permit to Access Form**

A Permit to Access must be used when accessing an area involving any of the hazards listed below or laboratories and storage areas where radiation may be present. Access activities include inspections, surveys, meter readings etc. but explicitly excludes any maintenance, repair or refurbishment activity where a permit to work would be required for these environments.

HAZARD	SAFETY CHECK LIST	
Excavations	No 1	Page 16
Radiation	No 2	Page 17
Roof work	No 3	Page 19
Entry into plant room/service risers	No 7	Page 28
Entry into confined spaces	No 11	Page 37
Entry into Biological Sciences Laboratories	No 12	Page 39
Under Podia Cable Tray	No 13	Page 41
Entry into IT Services Locations	No 16	Page 45



## **Permit to Work Form**

HAZARD	SAFETY CHECK LIST	
Excavations	No 1	Page 16
Radiation	No 2	Page 17
Roof work	No 3	Page 19
Work on live electricity	No 4	Page 23
Work on moving machinery	No 5	Page 25
Hot Work outside workshop	No 6	Page 26
Working within plant room/service risers	No 7	Page 28
Breaking into pipelines/plant	No 8	Page 30
Tree Felling	No 9	Page 32
Fire alarms and Fire protection infrastructure	No 10	Page 33
Working within /entering into confined spaces	No 11	Page 37
Biological Sciences Laboratories	No 12	Page 39
Under Podia Cable Tray	No 13	Page 41
Work impacting on means of escape/compartmentation	No 14	Page 42
Storage of gas containers, flammable substances & materials or waste	No 15	Page 44
Work in IT Services Locations	No 16	Page 45

A Permit or Mandate form of any description **will not** be required for Emergency Services personnel whilst attending incidents. They will be accompanied by Patrol or Security staff who will make them aware of potential risk present. They will seek further advice from the Health & Safety and Fire Officers as soon as is practical.

**NOTE:** A separate task specific Safe System of Work is required for the specialist area of HIGH VOLTAGE ELECTRICITY, to be used in conjunction with a PTW. The University of Essex treats 440 volts and over as a high voltage activity.

Should access be required into electrical sub-stations up to and including 11 KVA, the permit to access can only be issued by Deputy Director of Estate Management Section (Maintenance), Engineer (Building Services) or Assistant Engineer (Building Services).

### **3.2 DEFINITIONS (roles and responsibilities within PTW / PTA process)**

#### **APPROVING PERSON**

An approving person is defined as the person with overall responsibility for the operation of the Department/Section or work activity. Only the Approving Person can appoint Authorised Persons.

#### **AUTHORISED PERSONS**

An Authorised Person is defined as someone who has the technical knowledge and the practical experience to ensure a safe place of work or access requirements and recognise potential hazards. This person has the authority to raise, issue and cancel Permits. The Authorised Persons have been identified by their job titles, which are listed in a table on page 13 of this document.

It should be noted that there could be a different Authorised Persons for differing hazards but for the same “job” i.e., an Authorised Person capable of issuing a permit for “work on moving machinery” would not automatically be the Authorised Person able to issue a permit for “working on live electricity”.

#### **PERMIT ACCEPTOR**

The Permit Acceptor is defined as the person(s) to whom a Permit is issued and is likely to be a supervisor or skilled operative. The Permit Acceptor must have the relevant competence to interpret the requirements of the permit; they will not only be responsible for their own activity but also for the safety of others who are working on the task specified on the permit. A Permit can have up to four Permit Acceptors who may be engaged in different activities. There may be occasions where more

than four persons are required to work on a particular job or access an area, in this case, the Authorised Person will identify the Permit Acceptor to oversee the supervision and co-ordination of the activities.

### **COMPETENT PERSON**

A competent person is defined as someone who has the technical knowledge, qualifications, training and/or practical experience to recognise potential hazards and controls needed to ensure a safe place of work or access.

### **THE CUSTOMER**

The customer is defined as the person who requests the activity to be carried out. The Customer may be the Authorised Person or someone requesting the work that does not have the authority to sign the permit.

## **3.3 DESCRIPTION OF FORMs**

A Permit form is a triplicate pro-forma document, the top copy of the Permit to Access is fluorescent yellow/green, the top copy of the Permit to Work is fluorescent orange/red, for both documents the middle copy is white and the bottom copy yellow. Permit forms are in sequentially numbered pads and must be retained by the Authorised Person for future reference.

Blank Permit forms will be held by the Estate Management Section's Approved Persons and Authorised Persons.

## **3.4 GUIDE ON COMPLETING THE PERMIT**

Permits can only be raised by an Authorised Person **prior to commencement of activities**. Where a number of Authorised Persons have an input prior to the issue of a Permit, by agreement, only one of the Authorised Persons will assume overall responsibility for the activity.

**The following numbering and headings are as they appear on the Permits.**

**1) Customer** – To be completed by Authorised Person.

On completion this section gives details of the site, department, date and customer and docket number (permit number).

**2) Identified Hazards** – To be completed by Authorised Person.

The Authorised Person will indicate the particular hazards for which the Permit is required, by ticking the boxes in Section 2 of the form. The Authorised Person must read the relevant **Permit – Safety Check List** included in this manual, and where necessary, liaise with other appropriate Authorised Persons(s) should any of the work activity fall outside their field of expertise / competence.

**3) Detail of Work to be Undertaken / Details of Access Requirements** – To be completed by Authorised Person.

This section will describe the activity to be undertaken and any special access requirements e.g., “Alterations to Heating Pipe Work as detailed in sketch EP/ME/123 – Appended”; “ Access restricted ABC Building plant room 3”.

**4) Isolation/Safety Precautions/Required PPE/RPE** – To be completed by the Authorised Person.

The Authorised Person must specify the isolation necessary and the precautions to be taken to ensure the activity is performed in a safe manner.

The respective Authorised Person(s) will print and sign their name in the appropriate boxes only when they have checked the isolation/safety precautions and are satisfied that they are both effective and secure. Where possible, mechanical and electrical isolation should include the use of a “lock-off” system and Authorised Person(s) should where practicable attach their own lock to the isolator.

**5) Permit Validity** – To be completed by the Authorised Person, who has overall responsibility for the work, after consultation and agreement with interested parties and key stake holders.

The Authorised Person who has overall responsibility for the activity will enter the commencement and expiry times and dates, and validate the Permit by printing and signing in the appropriate boxes.

**NOTE: The Permit is not valid and cannot be handed to the Permit Acceptor unless sections 1 to 5 have been fully completed**

The following conditions relating to the validity of a Permit should be noted:-

- 1) No extension beyond the time quoted on the Permit is allowed – a new Permit must be raised if an extension is necessary.
- 2) A Permit cannot be raised retrospectively.
- 3) A Permit Acceptor cannot transfer a Permit to another Permit Acceptor.
- 4) Only an Authorised Person can raise, issue and cancel a Permit.
- 5) A Permit can only transgress shifts or extend beyond normal working hours (08:00 – 17:00) if:-
  - a) A suitable handover has been performed from one Authorised Person to another **AND**
  - b) The Permit Acceptors specified in Section 6 continue to be engaged in the activity **OR**
  - c) The Authorised Person is satisfied that the Permit Acceptors will leave the workplace or area in a safe and secure condition, in order that the Permit may be signed off at the immediate start of the next working day.
  - d) Should the Authorised Person not be available Contractors are to return the Permit to the Information Centre at the end of the working day
- 6) The Permit must be cancelled as soon as possible after **ALL** Permit Acceptors finish their activities.

**6) Permit Acceptance** – Completed by the Permit Acceptor (s) after reading the permit acceptance declaration.

Permit Acceptor(s) have a responsibility for the safety of themselves and of others during the activities and should consult with a fellow Permit Acceptor(s) and/or Authorised Person(s) as the need arises.

The Contractors’ Code of Practice will be pre issued to the contracting company. It must be read and understood by contracting staff attending site, where they will complete an induction and be issued with a Contractors’ Handbook. It is the responsibility of the Project Manager to deal with any shortfalls identified as applicable to the nature of the works and to contact the appropriate Manager as appropriate. The Code of Practice and Contractors’ Handbook can be accessed on the website via the following link: <http://www.essex.ac.uk/estates/campus/contractors.aspx>

The top fluorescent copy and the middle white copy of the Permit form will be removed from the pad and handed to the Permit Acceptor(s). The Permit Acceptor(s) will ensure that the top “Day glow” fluorescent copy (with white copy still attached) is displayed in a prominent position at, or adjacent to the entry/access of the job/site.

The bottom yellow copy will be retained by the Authorised Persons until the activity has been completed.

**NOTE: ONLY NOW CAN ACTIVITIES COMMENCE**

**7) Permit Sign Off** – Completed by the Permit Acceptor(s) after reading the Permit Sign Off declaration.

Prior to signing off the Permit, the Permit Acceptor(s) will removal personal isolation equipment, where appropriate, as well as tools and materials and report the job status to the Authorised Person who has overall responsibility for the activity. They must also confirm that they have left the site in a safe and tidy condition.

Contractors will remove the top “Day glow” fluorescent copy and the middle white copy of the Permit from the display position. All those who had signed to accept the permit should then print and sign the relevant boxes of this section. Both copies must then be handed to the Authorised Person who has overall responsibility for cancellation of the work.

**8) Permit Cancellation** – Completed by the Authorised Person as identified on the permit.

The Permit will be cancelled by the Authorised Person in the event of one of the following:-

- a) on completion of the activity identified in Section 3 of the form
- b) if for any reason the activity identified in Section 3 of the form cannot be completed
- c) if the time specified in Section 5 of the form has elapsed
- d) if an emergency situation has developed and the work has had to stop as a consequence.

**9) Return to Service/Security** - Completed by the Customer after reading the Return to Service declaration.

Dependant on the arrangements for each job it may be the Authorised Person or the Customer (or Deputy) that signs the Return to Service section; this needs to be agreed at the initiation of the process.

The Authorised Person will then marry the top “Day glow” fluorescent copy with the bottom yellow copy of the Permit form and retain both copies for future reference. The Customer (or Deputy) will be given the middle white copy of the Permit form as a record of the work undertaken.

**PLEASE NOTE: In extreme circumstances only, it may be necessary for IT Services to require a permit to work out of hours. In these cases, the Duty Engineer can issue the permit and the Authorised person can update in the morning.**

**(There was an occasion where the whole campus was without the internet for the weekend as no-one could issue a permit).**

# SECTION 4 APPROVING PERSONS AND AUTHORISED PERSONS

(For a list of post holders names identified in this table visit the EMS intranet page)

**APPROVING PERSON** Approving Person is defined as:- The Manager with overall responsibility for the operation of the Department of work activity. Only an Approving Person can appoint an Authorised Person.

**Job Title**

EXCAVATIONS	RADIATION	ROOF WORK & ACCESS	ROOF ACCESS	ACCESS ONTO ROOFS (By other sections / departments not EMS contractors or staff)	WORK ON LIVE ELECTRICITY	HOT WORKS OUTSIDE WORKSHOP	WORK ON MOVING MACHINERY	ACCESS / WORKING IN PLANT ROOM/RISER	ACCESS IN TO PLANT ROOM/RISER (By other departments)	BREAKING INTO PIPELINES/PLANT	TREE FELLING	FIRE ALARMS AND FIRE PROTECTION INFRASTRUCTURE	ACCESS IN TOWORKING IN CONFINED SPACES	BIOLOGICAL SCIENCES LABORATORIES	WORKING ON LIFTS	ACCESS / WORK IN IT SERVICES LOCATIONS
Deputy Director of Estate Management (Services)																
Deputy Director of Estate Management (Maintenance)																
Heads of Departments and Sections																
Director of IT Services																

**AUTHORISED PERSON** Authorised Person is defined as:- Someone who has the technical knowledge and practical experience to ensure a safe place of work and recognise potential hazards and who has the authority to issue and cancel "Permits to Work".

**Job Title**

Assistant Building Surveyor, EMS																
Assistant Engineer EMS, Building Services																
Biological Sciences Deputy TSM & Assistant DHSO																
Biological Sciences Technical Services Manager & Department H&S Officer																
Building Supervisor																
Building Surveyor, EMS																
Campus Security Supervisor																
Campus Security Supervisor (Loughton & Southend see FM provider)																
Campus Security Supervisor, EMS (Colchester)																
Clerk of Works, EMS Projects																
IT Services Network Officer																
Computing & Electronic Systems Safety Officer																
Contact Manager, FM Provider (Southend)																
Contracts Manager, EMS																
Deputy Director of Estate Management (Capital & Development)																
Deputy Director of Estate Management (Maintenance)																
Deputy Director of Estate Management (Services)																
Domestic Services Manager, EMS																
Duty Engineer , EMS																
Electrical Supervisor , EMS (Deputy being the Electrical Charge Hand)																
EMS Health & Safety Advisor																
Energy Manager, EMS																
Engineer, EMS Building Services																
Facilities Manager, EMS (Southend)																
Grounds Manager, EMS																
Head of Department Biological Sciences																
IT Services Networks Manager																
IT Services Senior Technician (Telecoms)																
Mechanical Supervisor, EMS (Deputy being the Mechanical Charge Hand)																
Project Managers, EMS, Building																
Security Manager, EMS																
Students Union Chief Executive																
Students Union Premises Co-ordinator																
System Engineer, ISS (Colchester Campus)																
System Engineer, ISS (Southend Campus)																
Technician, FM Provider (Loughton)																
IT Services Assistant Director (Infrastructure)																
IT Services Assistant Director (Client Services)																

## **EMERGENCY ACTION**

In the event of a serious emergency for the protection of life/serious property damage Senior Management will take control of the situation and action will be authorised by one or more of the following:-

Registrar & Secretary  
Director of Estate Management  
Deputy Director of Estate Management (Maintenance)  
Head of Health & Safety

## **FOR THE ISSUE OF PERMITS IN THE DEPARTMENT OF BIOLOGICAL SCIENCES REFER TO THEIR RISK ASSESSMENTS**

Where a work request is received or planned maintenance is arranged or construction work is planned in a laboratory.

- a) Organise and plan the work with the agreement of the Biological Sciences department before work commences. Prepare risk assessments and work protocols and discuss these with the persons who will be doing the work. Arrange access to the area
- b) Prepare the permit and complete sections 1, 2 & 3
- c) The people carrying out the work will take the permit and work order to the Technical Services Manager, Departmental Ionising Radiation Protection Officer for radiation lab or store or the Deputy Technical Services Manager who will arrange for section 4 to be completed and discuss any controls to be implemented with those undertaking the activity. The person completing section 4 will sign this section
- d) The Technical Services Manager or the Deputy Technician for Biology will complete section 5
- e) The persons carrying out the work will complete section 6 and follow all agreed procedures and safety guidance

## **NOW THE WORK CAN COMMENCE**

- f) After completion, the person doing the work will complete section 7
- g) The permit should then be taken to Technical Services Manager or the Deputy Technician to complete section 8 and section 9 (where applicable).

## **SECTION 5**

This section provides a Safety Check List for the following areas of work as listed on the Permit documents:-

Excavations  
Radiation  
Roof Work  
Work on Live Electricity  
Work on Moving Machinery  
Hot Work outside Workshop  
Entry into Plant Room/Service Riser  
Breaking into Pipelines/Plant  
Tree Felling  
Fire Alarms and Fire Protection Infrastructure  
Entry into confined spaces  
Biological Sciences Laboratories  
Under Podia Cable Tray  
Access / Work in IT Services Locations

Additional information on:

Work impacting Means of Escape / Compartmentation  
Storage of gas containers, flammable substances & materials or waste

## **SECTION 5.1**

### **EXCAVATIONS**

#### **PERMIT TO WORK – SAFETY CHECK LIST**

##### **INTRODUCTION**

Excavations are subject to the Construction (Design and Management) Regulations 2015.

##### **CLARIFYING NOTES**

Excavations fall into two categories:-

- a) trenches - long, narrow and often deep channels used for pipes and cables
- b) mass excavation - found where basements or foundations are being prepared

<b>PRIMARY CONSIDERATIONS</b>
<p><b>1.</b> Reference must be made to up to date site drawings to identify service runs, e.g., electricity, gas, water. Also make use of Cat Scanner on site.</p> <p><i><b>NB: All excavations in close proximity of buried services must be hand dug. Before excavating near drains, ensure the drains do not serve areas where radioactive substances or hazardous chemicals are used. Refer to Safety Check List Radiation for further guidance.</b></i></p>
<p><b>2.</b> The walls of excavation must be shored, sloped or battered back in order to prevent collapse. Continually support the excavation as it is dug. The angle of repose for sloped excavation is dependent upon soil type and water table.</p>
<p><b>3.</b> Ensure adjacent structures and foundations are not undermined – dig well away from them</p>
<p><b>4.</b> Certain excavations must have guard rails and toe boards on the surface – all other excavations must be fenced. Barriers must be strong enough not to collapse if someone falls against them. Further guidance which type of protection is appropriate can be found in the HSE publication; HSG 150, Health and safety in construction.</p>
<p><b>5.</b> Materials and plant must not be deposited within 0.9 metres of the edge.</p>
<p><b>6.</b> Where there is a possibility of adjacent vehicle movements, a barrier must be erected at least 0.9 metres from the edge.</p>
<p><b>7.</b> Access to the excavation should be by the way of ladder, which must be secured and extended at least 1.05 metres above the surface.</p>
<p><b>8.</b> Personnel working in the excavation must wear helmets, safety footwear and where necessary ventilation should be provided.</p>
<p><b>9.</b> Measures must be taken to ensure adequate ventilation in all excavations. Where there is reason to believe that air in any excavation is poisonous or asphyxiating then no entry is permitted until the atmosphere has been tested by a Competent Person and assessed to be safe.</p> <p><i>NB: Only approved breathing apparatus may be used in excavations where the atmosphere will not support life.</i></p>
<p><b>10.</b> Excavations must be inspected by a Competent Person each day before work starts and after any event that may affect its stability i.e. fall of material or poor weather. Records of inspections to be kept and passed to EMS contact on request.</p>
<p><b>11.</b> A risk based approach as to whether an excavation is illuminated at night or not should be applied and must be reflected in the RAMS</p>
<p><b>12.</b> Signage must be in place warning of excavations.</p>



## **SECTION 5.2**

### **RADIATION**

#### **PERMIT TO WORK – SAFETY CHECK LISTS**

##### **IONISING RADIATION**

Significant uncontrolled doses of ionising radiation can cause tissue harm, cancer or reproductive effects. The University has a limited number of radioactive sources which are used for experimental purposes. The Ionising Radiation Regulations and Environmental Permitting Regulations places strict controls over how the University manages and disposes of radioactive substances or items which may be contaminated with radioactivity.

##### **Where ionising radiation sources are located**

All rooms, containers or equipment in which radioactive substances are used or stored, or areas that may potentially be contaminated will be clearly marked with a Trefoil in a yellow triangle (see image right) along with the wording “*Radioactive*”



##### **Where ionising radiation sources are located**

All rooms, containers or equipment in which radioactive substances are used or stored, or areas that may potentially be contaminated will be clearly marked with a Trefoil in a yellow triangle (see picture) along with the wording “*Radioactive.*”

Sources of ionising radiation are present in the following locations:

- Room 3.02: Authorised laboratory for radiation work and storage of sources of ionising radiation
- Room 3.30: Authorised store for accumulation of radioactive waste.
- Biological Sciences store is also authorised for temporary storage of radioactive substances awaiting collection.

The following may also be contaminated with radioactivity and so are labelled with the trefoil as an extra warning to maintenance staff:

- Duct 9
- Plumbing pipework and connecting drains associated with room 3.02
- Plumbing under sinks located in 4.13/4.15 and their connecting drains (as a precaution as the laboratory was used for radiation work in the past).

The following rooms have equipment that contains radioactive sources:

- 3.02 Perkin Elmer TriCarb 2910 counter
- 3.07 GLC Uni Cam 610 Series
- 3.07C GLC Shimadzu

NOTE: If permanent decommissioning or significant modification of the above rooms and areas are planned (for example, for conversion of laboratory to an office) it is *vitaly* important that the UIRPO and DIRPS are informed well in advance of the work. Failure to manage the risk of contamination at the time of decommissioning/modifying areas used for radiation work, might result in costly decontamination surveys and remediation in the future.

### **PRIMARY CONSIDERATIONS**

#### **1. Ionising radiation –**

Approval of the Departmental Ionising Radiation Protection Supervisor (DIRPS)* must have been sought before maintenance work is carried out in the above locations or on the listed potentially contaminated ducts and pipework.
The DIRPS must have arranged for the areas/duct/pipework to be monitored for contamination to ensure that no radiation hazard exists. Permit must not be issued until this is confirmed.
Check whether there are any areas of significant risk. If there is the DIRPS must have arranged for them to be clearly identified with appropriate signs (i.e. the trefoil).
Where the work involves the duct/pipework identified above, check on the integrity of duct/pipework must also be made, as the presence of corrosion may increase the risk of contamination. Advise the DIRPS if corrosion found.
Maintenance workers entering the area must be given clear instructions, in writing of any area they should not enter, equipment which may not be moved and any work which is not permitted. The DIRPS will assist with this. The agreed precautions must be specified on the permit.
Before removal of any materials / plant from the above areas, it will necessary for the DIRPS to arrange for it to be monitored for contamination. If contamination is found decontamination or disposal as radioactive waste will be necessary. The DIRPS will advise on this.
The DIRPS must ensure that records of monitoring and decontamination are kept.

\*Details of the DIRPS can be found at:<http://www.essex.ac.uk/ohsas/contacts/specialistsafetyroles.htm>  
If the DIRPS or his/her deputy is not available, contact the University Ionising Radiation Protection Officer (UIRPO).

## **SECTION 5.3**

### **ROOF WORK**

#### **PERMIT TO WORK – SAFETY CHECK LIST**

##### INTRODUCTION

Roof work is an activity with a high accident rate. Each year 20-30 people are killed due to falls through fragile roofs or from roof edges. Most of these fatalities could have been prevented by the provision and proper use of readily available equipment.

Roof work is subject to the requirement of:-

- a) The Working at Height Regulations 2005
- b) The Construction (Design and Management) Regulations 2015
- c) HSG33 Health and Safety in Roof Work

##### CLARIFYING NOTES

Roof work is defined as the construction, refurbishment and maintenance on roofs and equipment. Permits are required for all roof access, including sloping and fragile roofs.

Red Roofs are defined as those without edge protection and roof rescue plan **MUST** be in place before any work commences, a list/plan of Red Roofs is available from EMS H&S Advisor.

<b>PRIMARY CONSIDERATIONS</b>
<b>1.</b> Roof access is controlled by the EMS risk assessment which also identifies restraint requirements for specified areas as a minimum and must be referred to prior to roof work.
<b>2.</b> If accessing the Biological Sciences building roof, check that there is no planned work involving disposal of radioisotopes via the fume cupboard duct (duct 9). (NB: There will be a noticeboard on the door of 3.02 indicating when these experiments are running).
<b>3.</b> Ladders or scaffold should be inspected prior to use. They should be suitably constructed, in a state of good repair and a record of the inspection must be logged.
<b>4.</b> Ladders should be of the right type, construction and long enough to extend 1.05m above the landing place and be securely fixed.
<b>5.</b> All roofs/working platforms require suitable hand rails and toe boards where appropriate.
<b>6.</b> Before any work commences it is essential to identify any sections with fragile roofs and decide on the precautions to be taken e.g., crawling boards, roof ladders etc.
<b>7.</b> If the work area has fragile areas, has this been identified and addressed on the risk assessment and method statement.
<b>8.</b> Roof work must <b>not</b> be carried out in adverse weather conditions e.g., high winds, ice etc. or if emergency rescue cover is not available. Conditions may be suitable at ground level but not at height. Winds in excess of 23mph (Force 5) will affect a person's balance.
<b>9.</b> Identify and locate as necessary electrical cables, steam pipes, refrigeration piping or any other services that may be hazardous.
<b>10.</b> Precautions must be taken to prevent danger to other persons by falling materials etc.
<b>11.</b> Many forms of roofing materials may be hazardous to health, and contact with them should be strictly controlled, and identified on the risk assessment e.g., asbestos, hot pitch, lead, glass reinforced plastic etc.
<b>12.</b> A suitable and sufficient rescue plan must be in place for all working at height which <b>DOES NOT</b> rely on the emergency services.
<b>13.</b> The risk assessment must give consideration to transporting and removing tools and materials to

and from the roof to prevent manual handling issues and falling objects.

**14.** Prior to work commencing, check whether a latchway or Hadrian rail system is in place and advise accordingly.

## **ROOF ACCESS**

### **1. Access**

All access by University employees, contractors and transmission companies, must be authorised and managed by an Authorised person for roof work permits.

### **2. No permit-No access, exception**

All access to roofs (excepting the following statement) are subject to a permit to work/access procedure. No permit-No access with the exception of the Authorised Persons identified on page 12 who currently hold roof access sub-master keys for **short duration roof access, for inspection purposes only.**

**Those persons will still be required to obtain and use the appropriate safety equipment held at the Information Centre, prior to accessing any roof.**

All other persons requiring access onto any roof will require a permit prior to the issue of keys from works enquiries.

A roof access permit is not necessary for roof plant rooms where access out onto a roof is not required.

### **5. KEY CONTROL (i.e door key)**

Key Control is as follows:-

- a) The Deputy Director of Estate Management (Maintenance) will identify, log and issue a sub master key to those Managers/Supervisors who he sees as requiring access including Security. Each Supervisor to have one extra key for (b) below.
- b) Estate Management Section, Trade Groups – The relevant Supervisor will issue a key to tradesmen at the time of issuing the Permit. Keys shall be returned when permit is presented for signing off, each day.
- c) Other sections/departments – A key will be issued by the Estate Management Section only on production of a current permit to work / permit to access form. Key returned upon completion of the work or permit end date/time.
- d) Contractors/Transmission Companies e.g Vodafone, Ericsson – A key will be issued by the Estate Management Section only on production of a current Permit– Key returned upon completion of the work or permit end date/time.
- e) Out of hours Duty Engineers – The Deputy Director of Estate Management (Maintenance) will identify, log and issue a sub master key to the Duty Engineers.
- f) Out of hours Transmission Companies - Access provided by Senior Patrol Officer/Duty Engineer after issue of Permit to Work by Duty Engineer.
- g) Lift Engineers – The Deputy Director of Estate Management (Maintenance) will issue one sub-master suite key for lift rooms and 2 sub-sub suite keys to pass the 4 differ lock cores onto the main campus roofs to the company supervisor, who is held accountable for their use and his employees.

### **6. EMERGENCY ACCESS**

Is to be co-ordinated by the Campus Security Supervisor, who may require the assistance of the Duty Engineer. Estate Management Section Managers/Supervisors will co-ordinate out of hour's access with Security to reduce any emergency access requirements to a minimum.

### **7. PERSONAL SAFETY**

- a) No person under the age of 18 will be permitted access onto any roof
- b) There is a requirement for all employees to be physically fit when working on University roofs. Any circumstances or concerns relating to physical fitness, bring to the attention of the manager who will liaise with Occupational Health for further advice.

- c) The Project Manager is to ensure he is satisfied the contracting company has given due considerations to the health, safety and wellbeing of their staff.
- d) Any University employee required to work alone will be provided with two way communication equipment. The Manager/Supervisor will maintain regular and frequent contact with the employee including summoning emergency assistance if needed. This equipment is to be checked and issued at the same time as the issue of the Permit and Door Access keys.
- e) All contracting organisations including Transmission Companies/Lift Engineers are to provide a Method Statement to the University on how they will manage the safety of their employees if they are required to work alone.

## **8. PLANNED MAINTENANCE**

The Deputy Director of Estate Management (Maintenance) will maintain the System of Planned Maintenance to ensure that all roof access equipment is maintained to manufacturers, installers and suppliers recommendations and standards, including test certificates.

## **9. THE SIX RESIDENTIAL TOWER ROOFS**

All persons authorised to gain access to the main roof of a tower, are to ensure they have a Permit, Access Door Key and Two Way Communication Equipment if required, a full body harness, lanyard (rope grab line) and transfastner. Rope grab lines to be fitted to the eye bolts of the Latchway System **NOT** onto the wire. The wind speed must be taken into consideration before gaining access to the roof. Prior to opening the Roof Access Door, ensure all instructions fixed to the inside of the door have been understood and carried out. Ensure the rope is securely fixed to the eyebolt adjacent to the roof access door and securely fixed to the body harness.

### ***THE LATCHWAY MANSAFE SYSTEM IS NOT TO BE USED FOR ABSEILING, SCAFFOLD ATTACHMENT ETC***

Any inspection of, or work on, the plant room roof of a tower is not to commence until the mobile man anchor 220kg is in position on the plant room roof and the full body harness and lanyard (rope grab line) is secured.

Allow time for eyesight to adjust to differing glare conditions.

## **10. ALL OTHER ROOFS AND UNDER PODIA CABLE TRAY**

All persons authorised to gain access to roof areas, are to ensure they have a Permit, access door key and two way communication equipment if required, a full body harness and lanyard.

Where guard rails are currently not provided, extreme care is to be taken when walking across the roofs. Walk either on the walkways where provided, or in the middle of each roof line, looking for any possible obstacles such as performed gutters or upstands. Should any work or access be required within 3 metres of the roof edge, ensure use of the mobile man anchor (220kg) full body harness, lanyard (rope grab line).

It is essential that users take the correct equipment to a roof or cable tray.

The PPE equipment for roof access to all roofs on campus is standardised to Latchway and is held in the Information Centre clearly marked on the holdall.

Also the PPE equipment for cable tray working is standardised to Hadrian and is also held in the Information Centre clearly marked on the holdall.

Where access to services near a roof edge is required a rope grab line must be fixed to the harness eye and to an eyebolt in the structure identified.

## **LIST OF ROOF ACCESS DOORS**

### **ACADEMIC BUILDINGS**

Square 1 Building	Opening roof light
Computing Building	Roof Plant Room 16
Social Studies Building	“Maths” Roof door by plant room 24
Social Studies Building	Roof plant room 26 defunct do not use ‘access via maths roof door’
Physics Building Level 6	Roof plant room 5
Physics Building Level 7	Roof plant room 4
Physics Building Level 7	Roof plant room 1
Rab Butler Building	Opening roof light
Lecture Theatre Building	95-50 roof plant room
Albert Sloman Library	Roof plant room 11
Constable Building	First floor by room 051
Network Centre	Access at level 5 then ladder required to level 6
Wivenhoe House Hotel	Hatch – top floor. No access to outer roof area
Essex Business Centre	Ladder access via top floor high level window
Silberrad Student Centre	Via North staircase
Ivor Crewe	Room LH2.03 via ladder to padlocked hatch

### **ACCOMMODATION BUILDINGS**

Rayleigh Residential Tower	Roof plant room
Keynes Residential Tower	Roof plant room
Tawney Residential Tower	Roof plant room
William Morris Residential Tower	Roof plant room
Eddington Residential Tower	Roof plant room
Bertrand Russell Tower	Roof plant room

## **SECTION 5.4**

### **WORK ON LIVE ELECTRICITY**

#### **PERMIT TO WORK – SAFETY CHECK LIST**

##### INTRODUCTION

Each year about 1000 electrical accidents are reported. A third of these results are serious, often resulting in permanent injury, approximately 20 of these are fatal.

Work undertaken on electrical apparatus in all circumstances should be undertaken with **all source supplies isolated or dead**. Where this is not practical, due care must be taken to prevent accidental contact with live parts. In particular, a Skilled Person approved by the Estate Management Section must only carry out work undertaken on live electrical apparatus. The link below will direct you to HSE document HSG85 Electricity at Work which gives guidance on circumstances where it may be considered unreasonable to work on dead electrical systems.

<http://www.hse.gov.uk/pubns/priced/hsg85.pdf>

##### CLARIFYING NOTES

**“Electrical System”** is defined as an electrical network in which all electrical equipment is, or may be, electrically connected to a common source of electrical energy, and includes any equipment plugged into or connected to the system.

**“Live Working”** is defined as any work that involves working on or near to equipment where there is a risk of unintentional contact with **live parts, regardless of the voltage** between conductors or between conductors and earth.

**“Live Parts”** is defined as a conductor or conductive part, which is intended to carry electric current in normal conditions, or to be energised in normal conditions, and includes a neutral conductor. This does not include a conductor provided solely to perform a protective function by connection to earth or other reference point or a combined neutral and earth conductor (PEN system).

**“Testing”** is defined as work to confirm that isolation of an electrical system has been carried out or work to functionally test/calibrate part of a live system. A permit is not required for this type of work; however, a written safe system of work must be used.

Good workmanship by skilled (electrically) or instructed (electrically) persons and proper materials shall be used in the erection of the electrical installation. The installation of electrical equipment shall take account of manufacturers’ instructions.

<b>PRIMARY CONSIDERATIONS</b>
<b>1.</b> Providing the requirements in HSG85 have been met, live working can still only be justified if suitable precautions are taken to prevent injury arising from the hazards identified in the risk assessment
<b>2.</b> Only <b>Skilled Persons</b> approved by management may work on live electrical systems.
<b>3.</b> Refer to up to date electrical drawing and there must be adequate information available about the electrical system and the work to be done.
<b>4.</b> Ensure that electrical apparatus is adequately shielded to prevent accidental contact with live conductors. Take steps to prevent unauthorised entry into electrical enclosures by the use of locks, interlock isolators etc.
<b>5.</b> Identify the circuit or equipment to be worked on or near the work to be done. Only equipment deemed necessary may remain live, all other electrical equipment within the vicinity must be

isolated via a suitable Isolock System.
<b>6.</b> Overall responsibility will reside with the acceptor of the permit who must be a <b>Skilled Person</b> .
<b>7.</b> Only properly insulated tools and equipment in good condition may be used (inspect them).
<b>8.</b> Ensure suitable precautions are taken and that suitable protective equipment is used.
<b>9.</b> Ensure adequate working space, access and lighting. Restrict access to area of live work. Suitable signs, ropes and/or barriers shall be erected to identify apparatus being worked on in a live state.
<b>10.</b> The person undertaking the work must fully understand the hazards likely to be encountered and adopt safe working procedures and have received training in fire extinguisher use.
<b>11.</b> A second person, capable of rendering First Aid or obtaining assistance, and who has the knowledge required to isolate any supplies, in an emergency, must be in attendance. The second person must maintain a safe position.
<b>12.</b> Precautions must be taken to ensure that any easy route to Earth does not exist via the operators, i.e. the use of isolating rubber mats, boots, gloves etc.
<b>13.</b> Adequate precautions must be taken when working, or in the vicinity of, potentially flammable/explosive areas (compressed gas stores, compressor room, service ducts, petroleum, LPG gas stores, paint store, confined spaces etc).
<b>14.</b> No cable may be cut whilst live.
<b>15.</b> All cables must be treated as live, until the relevant procedures have been followed, to ensure they are not, except in live working.
<b>16.</b> No equipment will be put back into service until tested, and details of tests logged by the Estate Management Section.
<b>17.</b> No work will be carried out on the 11 kilo volt supply into the University transformers and switch rooms located in the Mathematics and Physics Buildings, Central Boiler House, Library and Biology by Estate Management employees. Eastern Electricity Contracting is contracted to maintain this supply.
<b>18.</b> A Permit to Work is required for entry into the 11 kilo volt transformers and switches room identified in 15 above for any other reason. Ensure safety interlock is inserted into CO <sub>2</sub> installation to ensure isolation.
<b>19.</b> During any electrical work, consideration must be given to whether any services will be cut or disabled, e.g. fire safety related, emergency lighting etc.



## **SECTION 5.5**

### **WORK ON MOVING MACHINERY**

#### **PERMIT TO WORK – SAFETY CHECK LIST**

##### **INTRODUCTION**

Accidents happen to persons oiling, examining or adjusting moving machinery or belts, or mounting belts when guards have been removed. It is well known that loose articles of clothing, long hair, and dangling articles of jewellery can become entangled in the moving machinery or wrap round a shaft, causing serious or even fatal injury.

##### **CLARIFYING NOTES**

On no account is any work to be carried out on unguarded machinery. For any works requiring guarding to be removed, the machinery must be fully shut down prior to the work commencing; tasks include lubrication of machine parts. Specialist activities are subject to a discussion with the Project Manager and effective measures to prevent accidental access to rotating or moving machine parts must be agreed and in place. Single piece overalls must be worn in the vicinity.

##### **NOTE: Lift Engineers**

On no account can work be carried out on unguarded machinery with the exception of lift maintenance where there is no suitable alternative method.

<b>PRIMARY CONSIDERATIONS</b>
<b>1.</b> Effective measures must be taken to prevent access to dangerous parts of machinery and adequate information and instruction must be provided.
<b>2.</b> Refer to note on lift engineers above.
<b>3.</b> Machinery Attendants shall wear a close fitting, single piece overall suit in good repair. It shall have no external pockets except a hip pocket. It must be worn in such a way that it covers all loose ends of outer clothing. Jewellery must be removed and long hair protected and covered.
<b>4.</b> No guard shall be removed from any part of machinery except when the examination cannot otherwise be carried out and it shall be replaced immediately after the examination and any subsequent lubrication or adjustment, which may be necessary, have been completed. Safe System of Work to be operated.
<b>5.</b> Where it is possible to remove separately sections of the guarding, only that part covering the machinery being examined, lubricated or adjusted may be removed at any one time.
<b>6.</b> Machinery Attendant shall make proper use of any tools/equipment provided for the safe carrying out of any such work.
<b>7.</b> Machinery Attendant shall make sure that any temporary platforms or ladders are securely fitted, tied or footed.
<b>8.</b> While work on unfenced/unguarded moving machinery is being performed, another person, who has been instructed what to do in the case of an emergency (location of stop button/isolator), shall be immediately available within sight or hearing.
<b>9.</b> Where practical suitable signs, ropes or barriers shall be erected to prevent anyone else from being endangered.

## SECTION 5.6

### HOT WORK OUTSIDE WORKSHOPS

#### PERMIT TO WORK – SAFETY CHECK LIST

##### INTRODUCTION

Many fires and injuries occur as a direct result of repairs and alterations carried out to plant and buildings. Hazardous operations include:-

- a) Cutting and welding
- b) Use of blow lamps
- c) Bitumen boilers
- d) Brazing and soldering (using naked flames)
- e) Use of grinders
- f) Consideration should be given to other heat producing operations, such as:
  - Heat shrinking tools, both gas and electric
  - Angle/oblique disc grinding
  - Oil baths/induction heaters or bearing heating
  - Oil baths or heat treatment
  - Cleaning or chipping operations
  - Positioning of extractors

##### CLARIFYING NOTES

Hot work is defined as any activity which uses or generates direct or indirect heat, flames or hot sparks.

<b>PRIMARY CONSIDERATIONS</b>
<b>1.</b> Suitable personal clothing/equipment must be worn/used i.e. flame retardant clothing/gloves and EN169 & EN175 full face visor.
<b>2.</b> Ensure adequate ventilation and extraction is available. Local exhaust ventilation will be essential for certain materials (galvanised and cadmium plating).
<b>3.</b> All equipment used must be inspected prior to commencement of work.
<b>4.</b> Suitable shielding must be provided to contain sparks and artificial optical radiation i.e., Use of free-standing shields where there is good floor or platform access – Drapes for high level work where the platform is not suitable for free standing shields – Suitable translucent strips or shields for Arc Welding.
<b>5.</b> Care must be taken when combustible materials are present within the vicinity. Particular attention should be given to areas above, below and within concealed spaces near the place of work. Check area for fire detection equipment, isolate if necessary <b>See permit guidance on fire alarms</b> – reinstate on completion of job.
<b>6.</b> Fire blankets should be used to protect adjacent areas to prevent hot particles passing through openings in floors, walls cable runs etc. Consider what actions need to be taken to counter the effects of the heat being conducted via metal objects to other areas.
<b>7.</b> A safety person will be present at all times, trained in the use of and armed with suitable firefighting equipment. Warning signs must be in place.
<b>8.</b> Upon completion of work and the removal of shields, the adjacent areas should be thoroughly inspected for burning particles. A second inspection should be undertaken approximately 30 minutes after the first and a third after a further 30 minutes. If burning particles are not discovered after a 60 minute period, the operation can be considered complete.
<b>9.</b> Flame producing or hot equipment must never be left unattended or in a position where materials

could be ignited.
<b>10.</b> Hot work equipment must be sited in well-ventilated areas away from other combustible materials and personnel.
<b>Bitumen Boilers</b>
<b>1.</b> Consideration should be given to alternative forms of working. For example torch on felts rather than hot pour.
<b>2.</b> Where bitumen boilers are used the boiler must be inspected for signs of metal fatigue, particularly in the area of flame contact. Care should be taken to ensure that air and gas are clear of debris
<b>3.</b> Bitumen boilers must be sited in a safe open, well ventilated position away from flammable materials and possible contact, positioned at ground level whenever possible.
<b>4.</b> Bitumen boilers must be mounted on a level flameproof base. This is particularly important when working on sloping/fragile roofs (refer to roof work safety check list 4).
<b>5.</b> Bitumen boilers must stand in a metal tray which at least 1.5 times the diameter of the boiler and will contain any accidental spillages. Any roof mounted boiler to be of the square type, with side tap.
<b>6.</b> Bitumen boilers must not be left unattended.
<b>7.</b> Bitumen boilers must not be moved when charged with hot bitumen.
<b>Welding, brazing and soldering</b>
<b>1.</b> Suitable sheaths must be employed in order to protect hot tools when not in use.
<b>2.</b> Area must be well ventilated at all times
<b>3.</b> Eye protection must be work that will protect eyes from both heat and glare
<b>Grinding</b>
<b>1.</b> All grinders and grinding wheel/discs etc must be checked by user prior to being used to ensure they are fit for purpose
<b>2.</b> Shields must be positioned so that they offer protection to all persons, not just those associated with the work.
<b>3.</b> Personnel using grinders must wear the appropriate protective clothing i.e. flame retardant overalls, EN169 & EN175 full face visor.
<b>4.</b> The direction of sparks must be considered and all flammable materials and liquids removed or protected.

## SECTION 5.7

### ENTRY INTO PLANT ROOMS/SERVICE RISERS

#### PERMIT TO WORK – SAFETY CHECK LIST

**No installations or additions shall be carried out in plant rooms or service risers until they have been agreed with the Building Services Engineer.**

#### INTRODUCTION

Accidents can happen to person examining, repairing, modifying or adjusting plant. Be aware that items of plant may start automatically and must be correctly isolated prior to the commencement of any work. Be aware that more than one trade may be working concurrently in a plant room and care must be exercised to ensure the safety of all persons entering or working in the affected area.

All work will be subject to:-

- a) The Health and Safety at Work Act 1974
- b) The Electricity at Work Regulations 1989
- c) Gas Safety (Installation and Use) Regulations 1998

#### CLARIFYING NOTES

A plant room is defined as any enclosed area managed by the Estate Management Section and containing plant and equipment maintained by the Estate Management Section.

A service riser is normally a vertical shaft that enables electrical, pipe work or ventilation distribution systems to pass through a building,

<b>PRIMARY CONSIDERATIONS</b>
<b>1.</b> Access will only be granted to competent persons or visitors accompanied by a competent person. Consideration must be given to the location of the plant room e.g. if it is on a roof, the roof access checklist must also be referred to. <b>Where location specific risk assessments exist e.g. South Courts plant room, these risk assessments must be referred to.</b>
<b>2.</b> The competent person must ensure that adequate lighting is available for the task in hand.
<b>3.</b> Steps and ladders should be of an approved type, tagged and correctly secured.
<b>4.</b> Before work commences it is essential that any plant involved is electrically isolated and gas supplies turned off. (Refer to Authorised Persons spreadsheet on page 12 for identified isolations).
<b>5.</b> Persons involved should familiarise themselves with escape routes and the position of emergency equipment prior to commencement of work.
<b>6.</b> Portions of boiler flue and boiler casings may remain hot enough to cause contact burns after the items have been isolated and should be treated with caution.
<b>7.</b> Where it is deemed necessary notices should be posted to inform of hazards caused due to the nature of any work taking place within the plant room.
<b>8.</b> If the plant room requiring access is on the roof then roof access protocol must be followed.
<b>9.</b> If a plant room or service riser contains a gas fire extinguishing system or safety system controlled by a fusible link the system should be locked so that it cannot operate whilst the area is occupied. This only applies to HV switch rooms and some server rooms.
<b>10.</b> Attention must be given to the safe access and egress of people in plant rooms/service risers.
<b>11.</b> Risk assessments must give consideration to the manual handling of tools and equipment, particularly around the restrictions associated with access and egress issues i.e. ladders etc.

## **INTERRUPTION OF SERVICES**

Where work in the plant room will cause an interruption of any services to our customers, it is the duty of the Authorising Person to ensure that interruption of services is communicated effectively to relevant parties. The Authorised Person shall consider all eventualities such as, but not limited to:

- Electricity
- Water services
- Telephone
- Heating
- Air conditioning / air handling systems
- Power supplies that affect network equipment
- Fire alarm systems
- Ventilation systems
- Fume cupboards

## **SECTION 5.8**

### **BREAKING INTO PIPELINES/PLANT**

#### **PERMIT TO WORK – SAFETY CHECK LIST**

##### INTRODUCTION

Scalds from pipelines/plant during maintenance/repair can cause serious burns. Each year approximately 5% of all reportable injuries are caused by burns/scalds. Good working practices and effective protective clothing will greatly reduce these accidents.

##### CLARIFYING NOTES

Breaking into pipelines means the uncoupling and/or blanking of lines containing steam, hot water, hypochlorite, acids, alkalis, caustics and pressurised substances. Also included are hazardous materials in bio-sciences waste pipes that are not in labs but run outside and across corridors / offices. Breaking into plant means any work on equipment containing steam, hot water or compressed gases where:-

- a) The pipe is 50mm diameter or above,  
**AND**  
The pressure is 0.5 above atmospheric pressure,  
**OR**  
The temperature of the media exceeds 111C.
- b) The pipeline contains acids, alkalis, caustic or hypochlorites

**NOTE:** For entry into any vessel, tank, chamber or pit, refer to Safety Check – Entry into Confined Space.

<b>PRIMARY CONSIDERATIONS</b>
<b>1.</b> The competency of the engineer / contractor must be relevant to the work activity they are being asked to undertake. * see note below table
<b>2.</b> Refer where possible to up to date drawings of the pipeline/plant system, including substance identification, flow directions, location and type of valves and colour coding.
<b>3.</b> Suitable personal protective clothing/equipment must be worn and identified on risk assessment.
<b>4.</b> Check pipeline/plant for integrity, i.e., weak points due to corrosion, decay or damage.
<b>5.</b> Determine the content of the pipelines/plant being broken into and inform contractor of contents and associated hazards <b>before work commences</b> . If the pipe work contains proprietary branded chemicals, refer to the relevant COSHH literature/MSDS, and ensure the correct safety procedures are adopted.
<b>6.</b> The appropriate detection equipment must be used when working on pipeline/plant containing flammable or toxic substances.
<b>7.</b> Before commencing work check pipeline/plant supports. Ensure adequate temporary support, and fit permanent brackets as required.
<b>8.</b> Check direction of product flow and ensure that the pipeline/plant has been drained before commencement of work.
<b>9.</b> Isolate and lock off all pumps affecting the pipeline/plant being worked on.
<b>10.</b> Isolate and lock off <b>where practical</b> twice between the section to be broken and the supply.
<b>11.</b> Test the pipeline/plant to ensure it is empty (use pressure gauge/drain cocks).
<b>12.</b> When commencing to break into a pipeline/plant the joint should be carefully “cracked” to allow pressure within the pipeline/plant to dissipate. Joints and unions should be cautiously “cracked” by loosening the bottom bolts first and allowing any remaining pressure/media to be released away from the person carrying out the work.
<b>13.</b> Proceed with caution on each and every pipeline/plant break as trapped pools/pockets of liquid or

gas can create a danger.
<b>14.</b> Where practical blanking plates, flange spades or plugs must be used to physically prevent product flow. On completion of the work, care must be taken removing blanking plates, spades or plugs as pressure could have built up behind them.
<b>15.</b> Only asbestos free lagging may be removed, the contractor should raise any questions over the presence of suspected asbestos with Authorised Person.
<b>16.</b> Only materials will be used that are of equal or superior strength to the original specification or current design standard whichever is the greater.
<b>17.</b> All components should be cleaned before installation. Check that no foreign bodies or dirt remain in the pipeline/plant.
<b>18.</b> Spillages from breaking into pipelines/plant should be contained or neutralised, i.e., drip trays, buckets, neutralising agents etc.
<b>19.</b> Where pipeline/plant are electrically or steam traced, ensure that the trace is safe to work on.
<b>20.</b> Where practical suitable signs, ropes, barriers shall be erected to prevent anyone else from being endangered.
<b>21.</b> When working at height ensure that working platforms and ladders are correctly erected, in a safe condition, secured and safeguards taken to prevent falling tools or equipment.

**\* Gas Safety (Installation and Use) Regulations 1998, Regulation 3**

(1) No person shall carry out any work in relation to a gas fitting or gas storage vessel unless he is competent to do so.

(2) The employer of any person carrying out such work for that employer, every other employer and self-employed person who has control to any extent of such work and every employer and self-employed person who has required such work to be carried out at any place of work under his control shall ensure that paragraph (1) above is complied with in relation to such work.

## **SECTION 5.9**

### **TREE FELLING/SURGERY**

#### **PERMIT TO WORK – SAFETY CHECK LIST**

##### **INTRODUCTION**

Arboriculture (Tree Felling / Surgery) activity has within it several inherent risks; working at height, aerial/rope working, use of chainsaws etc. Due to these high risk elements any activity concerning “Tree Work” is subject to a Permit to Work.

##### **CLARIFYING NOTES**

Tree Surgery: The repair of damaged trees, as by the removal of diseased parts, filling of cavities, and prevention of further decay, and by strengthening branches with braces. The pollarding (pruning), lopping off, branches for shaping of superfluous and undesirable branches, twigs and roots.

##### **Site Rules**

- Access work area via normal site routes using arboriculture vehicles.
- No smoking while working by any staff /contractors or within the working area.
- Safe storage of flammable materials on site such as petrol (see attached risk assessment).
- All operatives carrying out tree work must wear the correct PPE: safety hat with full force screen, chain saw boots and trousers, safety glasses – medium energy impact (120m/second).
- Work to cease if any unauthorised persons enter working zone.
- First aid on vehicles.

##### **EMERGENCY ASSISTANCE**

Should contactors require emergency assistance or the attendance of the emergency services, these are to be contacted via the Campus Security Supervisor at the Information Centre in Square 3 on **01206 87222 (Emergency Number)**, **01206 873148** or **01206 872125**, internal extension **2222**.

<b>PRIMARY CONSIDERATION</b>
1. Tree requiring Tree Surgery works to be identified by tree tag number on tree.
2. Tree requiring tree works to be checked on Grounds Sections Tree Database and location of proposed works to be clarified. Location of works to be checked for suitability with any other ongoing events on campus such as Exams, Accommodation, Open Days etc.
3. Check Insurance Details, RAMS and PPE acceptable and in date. Ensuring emergency / rescue arrangements are satisfactory and not reliant on emergency services.
4. Check operatives competency / qualifications
5. Check site set up and cordoning off is suitable for work to be undertaken.
6. Signage placed out around working area to highlight tree works taking place.
7. Clear arisings so site is left clear for public access
8. Final check of works by Contractor and UoE to ensure work has been completed and that the site has been left safe to be reopened for public access.
9. Create report of works including tree tag number and send to Grounds Manager or Grounds Supervisor as PDF for storing in tree Database.



## **SECTION 5.10**

### **FIRE ALARMS and FIRE PROTECTION INFRASTRUCTURE**

#### **PERMIT TO WORK – SAFETY CHECK LIST**

##### **INTRODUCTION**

The potential risk arising from isolation, or failure of, parts of the fire detection and alarm system varies depending on amount of detectors and ancillary equipment off line; Length of time and time of day; single or multiple escape routes available; likelihood of a fire occurring; numbers of people using the affected area; and activities in the area, particularly sleeping. Authorising Officer will need to assess the risk to determine what additional precautions may be required.

##### **Circumstances where additional precautions are unlikely to be required:**

- Unoccupied areas without high fire risk which are not escape routes from other areas.
- Areas occupied by numbers of wakeful people who are not involved in high fire risk activities where there are two directions of escape.
- Single rooms or small areas without high fire risk.
- Where the issue is likely to be rectified within 30mins.

##### **Circumstances where additional precautions are likely to be required:**

- Sleeping accommodation.
- Areas of high fire risk i.e. plant rooms, science labs, kitchens, electronics labs, estates workshops, areas under refurbishment.
- Occupied areas above or below ground level with a single escape route.
- Areas occupied by low numbers of people i.e. academic buildings out of office hours.
- Areas commonly frequented by people unfamiliar with the buildings i.e. Theatres, Ivor Crewe, LTB.

##### **CLARIFYING NOTES**

The isolation of any part of the fire alarm system to enable alterations to be carried out, or the disabling of any device, including “bagging” smoke or heat detectors.

<b>PRIMARY CONSIDERATIONS</b>
<b>1.</b> NO fire alarm and detection system shall be disabled without the agreement of one of the University’s Fire Safety Officers unless it is in an academic building and will be fully functional outside of the normal working day Monday to Friday. If the amount of any system or the duration of isolation is extensive consult the University Fire Safety Officer and at the design stage of any reconfiguration.
<b>2.</b> Only trained, competent personnel should be permitted to isolate any part of the system.
<b>3.</b> Ensure that the Information Centre / Security Officers are informed of the area and extent of the system being isolated. Building or department managers and Evacuation Stewards should also be made aware that part of the system protecting their building is inoperative with a request for extra vigilance.
<b>4.</b> The top copy of the permit shall be affixed to the local fire alarm panel for the duration of the work.
<b>5.</b> For Colchester, the additional form <b>Fire 2</b> shall be completed, discuss with the patrol staff and logged at the desk in the Information Centre prior to starting work.
<b>6.</b> If contractors are involved, e.g. during refurbishment projects, ensure that their site safety plan includes provision for temporary means of raising an alarm and alerting the Information Centre.
<b>7.</b> Final connections into the site system and commissioning must be carried out by the fire alarm

<p>maintenance contractor and certificates of compliance subsequently issued.</p>
<p><b>8.</b> Upon completion of works and the reinstatement of systems, ensure that all equipment including interfaces are operational and that all personnel are informed that the system is live.</p>
<p><b>10.</b> Additional precautions to consider:</p> <ul style="list-style-type: none"> <li>a. Closing down part of the building may be an option but this must take into account the overall fire strategy of the building, in particular the escape routes, fire compartments and fire alarm cause and effect matrix. The Fire Safety Officer should be consulted if this option is being considered.</li> <li>b. Doors with interlinked magnetic locks to be unlocked and interlocked magnetic devices to hold doors open to be disabled.</li> <li>c. Any high fire hazard operations such as those involving welding, cutting and other hot works, the use of flammable liquids and cooking with oil suspended.</li> <li>d. Fire checks 1/2 hr &amp; 1 hr after any activity which could cause a fire (cooking, soldering etc.).</li> <li>e. Fire patrols by Security Staff. Generally 1/2 hourly, more frequent where a high fire risk is present or in sleeping accommodation at night.</li> <li>f. Provision of battery smoke detectors with notification of users of the area to inform the Information Desk on activation.</li> <li>g. Provision of firefighting equipment and trained users (usually Patrol Staff) in the area.</li> <li>h. Manual call points that are inoperative should be masked or taped over "Out of Use". Provision of air horns and instructions to all occupants to notify the Information Desk.</li> </ul>
<p><b>11.</b> Blocked access to dry risers or their outlets is unlikely to be acceptable unless the affected buildings are unoccupied</p>
<p><b>12.</b> Hydrants are fed from the water mains and where pressure is to be reduced or water cut off, alternative arrangements will be required.</p>
<p><b>13.</b> Ensure that escape routes are clear so that anyone working in the vicinity can escape safely if the system is activated.</p>
<p><b>14.</b> In small rooms, make sure the door does not auto-lock behind anyone entering the room. A key should not be required to escape and the door requires a good handle. If this is not the case, the door must be securely wedged open whilst anyone is in the room.</p>
<p><b>15.</b> In large rooms, the system may need to be disabled whilst people are working in the area then re-enabled upon leaving.</p>
<p><b>16.</b> Ensure that "as installed" record drawings are received and a copy supplied to the University's Fire Safety Officer's.</p>

## Form Fire 1

### Estate Management Section

#### Notification of Maintenance / Testing of Fire Alarm System

This form gives notice of work on Fire Alarms which could give rise to false alarm. It is not intended to cover routine testing by Sections (for which special times are laid down).

#### Tick Box to Indicate Work Area

- |  |  |
|--|--|
| <input type="checkbox"/> Bertrand Russell Tower        | <input type="checkbox"/> Hexagon Restaurant/Laundrette |
| <input type="checkbox"/> Eddington Tower               | <input type="checkbox"/> Library/Theatre               |
| <input type="checkbox"/> Keynes Tower                  | <input type="checkbox"/> Link Building/Dance Hall      |
| <input type="checkbox"/> William Morris Tower          | <input type="checkbox"/> LTB                           |
| <input type="checkbox"/> Tawney Tower                  | <input type="checkbox"/> Maths                         |
| <input type="checkbox"/> Wolfson Court                 | <input type="checkbox"/> Physics                       |
| <input type="checkbox"/> Greenwood House/Health Centre | <input type="checkbox"/> Social Studies I              |
| <input type="checkbox"/> Constable Building            | <input type="checkbox"/> Social Studies II             |
| <input type="checkbox"/> Sports Hall                   | <input type="checkbox"/> Square 3 Restaurant           |
| <input type="checkbox"/> Square 5 Building             | <input type="checkbox"/> John Tabor Building           |
| <input type="checkbox"/> Richard Woods House           | <input type="checkbox"/> Richard Butler (IRC)          |
| <input type="checkbox"/> Swaynes                       | <input type="checkbox"/> Josephine Butler              |
| <input type="checkbox"/> Isaac Rebow                   | <input type="checkbox"/> South Courts                  |
| <input type="checkbox"/> Thomas Hopper                 | <input type="checkbox"/> Teaching Centre               |
| <input type="checkbox"/> Square 1 Building             | <input type="checkbox"/> 2001 Building                 |
| <input type="checkbox"/> Day Nursery                   | <input type="checkbox"/> Centre for Brain Sciences     |
| <input type="checkbox"/> Network Centre                | <input type="checkbox"/> Information Centre            |
| <input type="checkbox"/> Computer Building             | <input type="checkbox"/> Biological Sciences           |
| <input type="checkbox"/> Ivor Crew Lecture Hall        | <input type="checkbox"/> SSRC Building                 |
| <input type="checkbox"/> Essex Business Centre         | <input type="checkbox"/> Southend Gateway              |
| <input type="checkbox"/> Southend Cliftown Church      | <input type="checkbox"/> Southend The Forum            |
| <input type="checkbox"/> Southend University Square    | <input type="checkbox"/> Loughton Unit 4               |
| <input type="checkbox"/> Loughton Hatfield House Site  | <input type="checkbox"/> Loughton Roding House         |

**Note:** This document is to be signed in the presence of a member of security staff who will retain it until clearance and collection by the signatory. Document is to then be returned to Electrical Supervisor for retention.

<b>Expected period of work</b>	<b>From:</b> (time)	<b>To:</b> (time)	<b>Date:</b>
<b>Signed:-</b>			<b>Date:</b>
<b>Work completed (Signed) :-</b>			<b>Date:</b>

**SECTION 5.10 cont.**

**Form Fire 2**

**PERMIT TO ISOLATE FIRE ALARM SYSTEM OR DEVICES**

This form must be used for isolations or disconnections of fire safety infrastructure systems.  
For routine maintenance use form fire 1.

<b>Reason for Isolation</b>
<b>Extent of Isolation</b>
<b>Name of Engineer</b>

<b><u>Date of Isolation</u></b>	<b><u>Time</u></b>
---------------------------------	--------------------

<b><u>Date of Reinstatement</u></b>	<b><u>Time</u></b>
-------------------------------------	--------------------

Before work starts, additional precautions agreed by a Fire Safety Officer      **YES**    **NO**    **NA**

<b><u>Information Centre Informed</u></b>	<b>YES</b>	<b>NO</b>
---	------------	-----------

<b><u>Additional Equipment Installed</u></b>	<b>YES</b>	<b>NO</b>
--	------------	-----------

<b><u>If Yes, when will this be commissioned?</u></b>	<b>DATE:-</b>
---	---------------

<b><u>List of additional equipment:-</u></b>
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<b>Isolation Authorised</b>	<b>Print Name</b>	<b>Signature</b>
<b>Time:</b>	<b>Date:</b>	

## SECTION 5.11

### ENTRY INTO CONFINED SPACES

#### PERMIT TO WORK – SAFETY CHECK LIST

##### INTRODUCTION

Serious accidents occur while work is being performed inside confined spaces. A significant number of these accidents prove fatal and multiple fatalities are not uncommon. The greatest risks are associated with toxic and/or flammable gases, fumes and vapours. When accidents occur inside confined spaces it is usually due to neglect or ignorance of necessary precautions.

Hazardous situations may be created under the following circumstances:

- a) Gas or vapour remaining inside the confined space from the previous process.
- b) Gas or vapour entering the confined space from adjoining plant which had not been effectively isolated.
- c) Fumes being emitted when sludge or other deposits are disturbed during cleaning.
- d) Fumes produced by an operation being performed inside the confined space e.g., welding, flame cutting, painting, spraying, applying glass reinforced plastics, use of adhesive or solvents.
- e) Oxygen enrichment of the atmosphere caused by operations which involve an excess of oxygen, e.g., oxy-propane cutting.
- f) Oxygen deficient atmosphere caused by purging with inert gas.
- g) Suffocation, drowning, scalding or burning due to the ingress of substances.
- h) Physical injury caused by contact with moving machinery or agitators, propellers.
- i) Fire and explosion due to ignited gas, vapour or dust.

##### CLARIFYING NOTES

*A confined space* means any place, including chamber, tank, vat, silo, pit, trench, pipe, sewer, flue, well or other similar space in which, by virtue of its enclosed nature, there arises a reasonably foreseeable specified risk. The University of Essex recognises any subterranean work to be a confined space.

##### PRECAUTIONS

*The Project/Authorising officer must try to find a way of carrying out the job without entry into the confined space as the first option*

**If entry is essential:-**

<b>PRIMARY CONSIDERATIONS</b>
<b>1.</b> The Authorised Person compiling the Permit to Work must have fully ready and approved a written Safe System of Work at the time the Permit to Work is issued.
<b>2.</b> Before any person enters a confined space, the atmosphere within must be tested by a <b>Competent Person</b> to establish that there is sufficient oxygen to support life. <i>(Details of this test must be recorded on the Permit to Work form, section 4), entry will not be permitted where flammable or toxic materials exist.</i>
<b>3.</b> Where atmosphere testing reveals oxygen levels not capable of supporting life, entry can only be made by personnel i.e. specialist contractors, who have been trained in the use of, and are wearing air supplied breathing apparatus. <i>NOTE:</i> Filter and canister respirators are not suitable in the above circumstances.
<b>4.</b> Where possible before any person enters a confined space, all machinery and in-feed pipelines must be isolated using lock-off procedures. (Refer to Section's 5.5 and 5.8 of this manual).
<b>5.</b> No lone working in Confined Spaces. Due consideration should be articulated in the RAMS as to

the need for a harness with an attached lifeline or rope held by a safety man outside, the environment a confined space configuration will impact on this decision. The safety man will observe the worker within the confined space at all times and in an emergency, raise the alarm and pull him to safety via the lifeline or rope. Safety equipment such as a winch and tripod is provided, as are safety hats.

**NOTE:** Under no circumstances should the assistant enter the confined space to assist in the rescue, assistance must be summoned immediately.

- |     |  |
|-----|--|
| 6.  | The assistant outside the confined space should have immediately to hand a suitable fire extinguisher (not CO <sub>2</sub> extinguishers), be trained in its use and have means of raising the alarm.  |
| 7.  | No naked lights are permissible in or near any confined space where flammable gas vapour or material may be present. External warning signs shall be erected to indicate this restriction.   |
| 8.  | With the exception of welders, all personnel working in or near a confined space should not carry on their persons matches, smoking materials or automatic lighters.   |
| 9.  | All sources of static sparking must be earthed. The use of uni-potential earth bonding techniques should be fully considered.  |
| 10. | Only non-sparking tools should be used in a confined space where an explosive hazard is present.   |
| 11. | Only 24 volt equipment supplied from an isolation transformer or preferably, battery operated equipment may be used in a confined space. Any electrical apparatus used where flammable and/or explosion hazards are present must comply with BS5345. |
| 12. | While work is proceeding within a confined space, adequate ventilation must be maintained to assist with the dispersal of vapour or fume.  |
| 13. | Pipeline containing oxygen must not be allowed to vent into a confined space, otherwise a hazardous, oxygen enriched atmosphere will be created – such pipeline must be removed when not being used for welding or cutting.                          |
| 14. | All ladders used to gain access to the inside of a confined space, are to be of a construction that does not generate any sparks e.g. fibreglass.  |
| 15. | An ample supply of water/charged hose pipe should be available where there is a possibility of persons receiving chemical burns.   |
| 16. | Disturbing deposits and slurries in a confined space may produce extra vapour, producing a greater risk. Clear these deposits before entry.  |

### **ATMOSPHERE MONITOR**

The atmosphere monitor to verify that the atmosphere within the confined space has oxygen levels capable of supporting life and no flammable or explosive atmosphere is present is held by the Estate Management Sections Mechanical Supervisor.

### **SAFETY HARNESS & HOIST**

Safety harnesses, lifelines and hoists are held by the Estate Management Section.

## SECTION 5.12

### BIOLOGICAL SCIENCES LABORATORIES

#### PERMIT TO WORK – SAFETY CHECK LIST

##### All Biological Sciences laboratories

Additional precautions are needed in these areas because of risk arising from:

- Biohazards: substances that can cause infection (areas of risk shown by the sign below left)
- Hazardous and dangerous chemicals, including compressed gasses
- Specialist equipment (pressure vessels etc.)



Biohazard



Radioactive

Permit issuers must understand the risks associated with Biosciences laboratories. They must have attended the “Working in Biological Sciences” training delivered by Julie Arvidson, Technician and be familiar with the current version of the General Risk Assessment for School of Biological Sciences.

**Two hour face to face “Working in Biological Sciences” training for contractors and permit issuers can be arranged with Julie Arvidson, jarvi, extn 3787.**

The Technical Services Manager (TSM) (extn 3314) or Deputy Technical Services Manager (DTSM) (extn, 3315) must give final confirmation that it is safe to proceed with the work.

##### Medical Microbiology laboratory 3SW4.09

Containment level 2+ and so has more stringent requirements than other laboratories. Additional requirements are given below.

##### Virology suite 3SW.5.16

This area has additional entry restrictions, but following the permit requirements and local rules (given below) will be sufficient.

##### Radiation laboratories / stores etc.

For area where there are radiation hazards also refer to section 5.2

<b>PRIMARY CONSIDERATIONS</b>
The Technical Services Manager (TSM) (extn 3314) or Deputy Technical Services Manager (DTSM) (extn, 3315) must give final confirmation that it is safe to proceed with the work.
Regular contractors must have had “Working in Biological Sciences” training delivered by Julie Arvidson, Technician (records kept by Christine Kerr, EMS admin team).
If has not been possible to arrange training, work should be supervised by a competent laboratory technician.
Contractors must have received a current copy of the General Risk Assessment for School of Biological Sciences.
Laboratory work can only be allowed to continue if either the laboratory work or maintenance work will not put others at risk. (Take account of the laboratory worker needing to move around the laboratory, access water and emergency facilities).
The area must have been cleared of glassware or hazardous material and, where necessary decontaminated before work starts. This must be done by Biological Sciences staff.
Contractors must wear disposable coveralls (boiler suit or lab coat style depending on nature of work). If frequent access is required Biological Sciences can issue a laundered lab coat on loan.

<p>Confirm contractor understands following local rules:</p> <ul style="list-style-type: none"> <li>• Personal items such as mobile phones must not be used in the laboratory, as there is the potential to spread contamination</li> <li>• Cuts covered with waterproof plasters (available if necessary)</li> <li>• No eating and drinking</li> <li>• If there is a splashing risk (e.g. plumbing work or certain laboratory work) wear glasses</li> <li>• Wear disposable nitrile gloves (unless a different type of glove is specified as more suitable for risk arising from the contractors work), which should be disposed of before leaving the laboratory.</li> <li>• Washing hands before leaving laboratory (even if gloves have been worn). Also during the work as necessary.</li> <li>• Laboratory and fire doors must never be left wedged open and unattended. (Wedge briefly to assist with moving equipment only).</li> <li>• Grey contaminated waste boxes must not be touched</li> <li>• Ask Biological Sciences staff to move laboratory equipment</li> <li>• Procedure for sharps (e.g. needles)</li> <li>• If it is believed contamination with biological cultures has occurred coveralls and gloves must be autoclaved. Check that contractor understands the procedure for this.</li> </ul>
<p>Additional requirements for Medical Microbiology laboratory 3SW4.09:</p>
<p>A laboratory technician should normally be present, unless TSM/DTSM has agreed not necessary.</p>
<p>Additional local rules for Check that the contractor understands:</p> <ul style="list-style-type: none"> <li>• Disposable coveralls and gloves must be left in the room after use</li> <li>• Tools must not be placed on the benches</li> <li>• Tools must be disinfected afterwards (wipe over with Virkon solution)</li> </ul>
<p>Refer to section 5.2 if there is a need to access/ work on an area/equipment where there is a radioactivity hazard (shown by above warning sign, top right image)</p>

### Contact information

		Room or Laboratory Number	Extension
Head of Department	Prof C Raines	4.34	3310
Department Health & Safety Officer	David Knight	4.02	3314
Deputy DHSO	Phil Reed	6.03A	3315
Department Biological Safety Officer	Dr Metodi Metodiev	4.20	3154
Department Ionising Radiation Supervisor/Director of Greenhouse Facilities	Dr. Matt Jones	5.45	4740
Department non-ionising radiation supervisor	Dr. Mike Hough	5.15B	3317
University Radiation Safety Advisor	Mr N Higbee	Contact via Claire Saunders or the Information Centre	
Head of Health & Safety	Claire Saunders	4S 6.2	2946
University Biological Safety Advisor	David Knight	4.02	3314
Health & Safety Advisory Service		4S 6.2	2944
Occupational Health Manager	Lara Carmel	3.109	3793
Power failures, flooding etc.	Estate Management Section ext 2959 or out of hours contact Information Centre on 2125		
<b>IN CASE OF SERIOUS ACCIDENT, ring EXT 2222</b>			



**SECTION 5.13**

**UNDER PODIA CABLE TRAY**

**PERMIT TO WORK – SAFETY CHECK LIST**

<b>PRIMARY CONSIDERATIONS</b>
<b>1.</b> Any activity requiring ladder access points to cable trays to be positioned so that they are not at risk of collision with moving traffic.
<b>2.</b> All access equipment is to cordoned off to avoid collision and a safety man must be at road level at all times. Access ladders to be correctly tied.
<b>3.</b> No single person working.
<b>4.</b> Two persons working at all times wearing full body harness and double lanyards with karabiners attached to the Hadrian safety rail.
<b>5.</b> It is to be stored correctly within the Campus Security Supervisor's store.
<b>6.</b> All equipment will be inspected prior to use and damaged equipment will be taken out of use.
<b>7.</b> A mobile phone or radio is required at all times.
<b>8. Note:</b> equipment and Hadrian safety rail to be used for restraint and fall arrest only.
<b>9.</b> Work on adjoining cable tray where there is no Hadrian safety rail will be performed using a mobile elevated work platform (MEWP).
<b>10.</b> PPE to be worn – full body coveralls, safety footwear, safety helmets, gloves Hi-Vis vest and orinasal mask with P3 filters. For any work that produces significant noise, i.e. drilling, EN166 safety goggle and ear defenders to be worn.
<b>11.</b> All materials, tools and equipment will be secured when not in use. Persons working on cable tray will use tool belts and ties when over areas of risk

## SECTION 5.14

### WORK IMPACTING ON MEANS OF ESCAPE / COMPARTMENTATION

#### INTRODUCTION

It is a legal requirement to ensure that there are adequate means of escape for occupants from a building in the event of a fire, adequacy is a complicated judgement affected by various factors requiring justification in a fire risk assessment.

#### CLARIFYING NOTES

Means of escape are the routes within and immediately outside of buildings whereby occupants may escape from a fire. Compartmentation is the means by which the travel of fire is restricted and is not generally apparent without checking the building plans. The constituent parts include:

**Corridors or staircases:** In general, corridors and staircases must be kept free of obstruction, flammable materials and ignition sources whenever the building is in use. Where this is not possible due to the nature of works suitable arrangements will be required.

**Fire doors and internal partitions:** Internal partitions are often required for the protection of escape routes and as part of compartmentation. Fire doors must not be left open when unattended and must be shut immediately an alarm is sounded or a fire discovered.

**Lifts:** Most University lifts have been adapted to be used for evacuation of disabled persons and must be immediately available for use.

**External paths:** Those leading from external doors must be immediately available to allow occupants to escape to a safe distance from buildings.

#### PRIMARY CONSIDERATIONS

- 1. Corridors, staircases and external paths:** **NO route shall be affected unless:**
  - a. No unattended flammable materials or ignition sources will be present and
  - b. Any restriction is such that the minimum available width is no less than that of the door sets on the route or
  - c. The area will be constantly attended and all items can be removed within two minutes of a fire alarm activation or
  - d. No persons other than those involved in the work need to use this route or
  - e. Extra precautions are in place (see below)
- 2. Fire doors and internal partitions:** Additional precautions are likely to be required:
  - f. Where doors cannot be closed immediately or
  - g. Will not be available or
  - h. Internal partitions have to be breached or punctured and cannot be fire stopped at the end of each working day.
- 3. Lifts:** When undergoing maintenance, if lifts can usually be made available within two minutes, then no additional precautions are required. If a lift or access to one may not be immediately available, extra precautions may be required.

**In all cases where extra precautions may be required:**

  - a. Obtain the agreement of one of the University Fire Safety Officers.
  - b. Alternative routes identified must have suitable signage fitted.
  - c. Use of area may need to be restricted.
  - d. Ensure that the Information Centre, security staff, building or department managers and evacuation stewards are informed of the affected area unless the building is not in use at the time of the works.

e. If contractors are involved ensure that their site safety plan includes provision for temporary means of escape.

**4. Emergency lighting:** This is provided to ensure that there is adequate light on escape routes even in the event of a power failure.

If a system isolation may leave a route in the dark in the event of a power failure:

- For high risk areas such as where hot work is undertaken or in sleeping accommodation, give notification to building users and provide battery powered lighting.
- For low risk areas such as normal academic areas, areas where there is sufficient ambient light or where the issue is likely to be rectified within a short timescale, no action may be required.

## SECTION 5.15

### STORING GAS CONTAINERS, FLAMMABLE SUBSTANCES & MATERIALS, WASTE

#### PERMIT TO WORK – SAFETY CHECKLIST

##### INTRODUCTION

All such materials constitute a potential threat to life safety and a target for arson. It is a legal requirement that we take adequate precautions to control the risk.

##### PRIMARY CONSIDERATIONS

- |  |
|--|
| <b>1. Gas containers and quantities of more than 10 litres of flammable liquids inside buildings:</b> <ul style="list-style-type: none"><li>• Quantities inside buildings are restricted as far as possible and removed at the end of each working day.</li><li>• Details must be supplied to the Information Centre or Security and on the permit.</li></ul>  |
| <b>2. Gas containers and quantities of more than 10 litres of flammable liquids outside buildings:</b> <ul style="list-style-type: none"><li>• Must be stored in secure, external areas where any leaks will dissipate to fresh air.</li><li>• Consideration must be given to using existing storage areas.</li><li>• Signage must be in place indicating what is stored</li><li>• Details must be supplied to the Information Centre or Security and on the permit.</li></ul> |
| <b>3. Other flammable materials and waste:</b> <ul style="list-style-type: none"><li>• No storage, not even during the working day, is permitted in corridors or staircases.</li><li>• Waste shall be kept in a room and remove daily as a minimum.</li><li>• No flammable materials or waste, including bins, skips etc., are to be stored within 8 meters of a building without the agreement of the University Fire Safety Officers.</li></ul>                              |

## SECTION 5.16

### ENTRY INTO AND WORK IN IT SERVICES LOCATIONS

#### PERMIT TO WORK – SAFETY CHECK LIST

##### INTRODUCTION

**IT Data Centres and IT Node Rooms are all restricted access due to the safety and security implications.**

**There could be serious reputational, security and safety implications if IT systems/equipment is compromised.**

The main hazards to be aware of in an IT Server or IT Node Room are Electricity, Working in a confined space, Fire and Lone Working. Be aware that more than one trade may be working concurrently in a server/node room and care must be exercised to ensure the safety of all persons entering or working in the affected area.

All work is subject to The Health and Safety at Work Act 1974 and Associated Health and Safety Regulations.

##### CLARIFYING NOTES

A server or node room is a space (often designed with additional/back up power, cooling supply and protective system) that houses computer servers and communications equipment and is managed by IT Services.

A server room or node room could be a small accessible cupboard or a large purpose built room.

Permit to Access is required for all observational work within IT Locations. Permit to Work is required where contact is required with any IT equipment and or systems such as unplugging, replacing, data input etc.

<b>PRIMARY CONSIDERATIONS</b>	<b>PTA</b>	<b>PTW</b>
1. Access will only be granted to competent persons and visitors who undertake relevant business authorised IT Services	✓	✓
2. IT Services reserves the right to accompany all access to server and node rooms at any time	✓	✓
3. No removal of equipment is permitted without specific authority and the signed approval of an IT Services Authorised Person	✓	✓
4. No data to be removed from a server room or node room without specific authority and the signed approval of an IT Services Approved Person	✓	✓
5. Any damage/unexpected events or unexpected hazards must be reported immediately to an IT Services Approved Person	✓	✓
6. Competent persons and visitors must not interfere with any equipment or data that is not relevant to the task in hand	✓	✓
7. The competent person must ensure that adequate lighting is available for the task in hand	✓	✓
8. Steps and ladders should be of an approved type, tagged and correctly secured	✓	✓
9. Before work commences it is essential that any servers/nodes involved are electrically isolated		✓
10. Persons involved should familiarise themselves with escape routes and the position of emergency equipment prior to commencement of work		✓
11. Be aware that other hazardous equipment may be housed within IT locations, such as hot boiler flues and boiler casings that could cause contact burns or other	✓	✓

injuries		
12. Where it is deemed necessary, notices should be posted to inform of hazards caused due to the nature of any work taking place within the server/node room		✓
13. Attention must be given to the safe access and egress of people in server and node rooms	✓	✓
14. Considerations must be given to the manual handling of tools and equipment, particularly around the restrictions associated with access and egress i.e. ladders etc.		✓
15. If the work necessitates Lone Working or out of hours activities, ensure adequate provision is in place to undertake the task in a safe manner		✓

## INTERRUPTION OF SERVICES

Where work in the server or node room will cause an interruption of any services to our customers, it is the duty of the Authorising Person to ensure that interruption of services is communicated effectively to relevant parties. The Authorised Person shall consider all eventualities such as, but not limited to:

- Electricity
- Water services
- Telephone
- Heating
- Air conditioning / air handling systems
- Power supplies that affect network equipment
- Fire alarm systems
- Ventilation systems
- Fume cupboards

Document End