1. STATEM

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1 The policy of the Department is to promote, through active management of its hazards and activities, the safety, health and welfare of all its staff, students*, visitors, contractors and members of the public on the Department's premises and engaged with departmental activities off premises, to protect them from any adverse effect on their health and safety arising from the activities of the Department.

2 The Department seeks continual improvement of its occupational health and safety systems through processes of measurement and review in order to achieve or maintain best practice standards.

3 The Department agrees to commit to and implement the UCL Health and Safety Policy.

In this document, the term student applies to undergraduate (UG, including MEng), postgraduate-taught (PGT i.e. MSc and postgraduate-research (PGR i.e. PhD) students.

4 The Department recognises the importance of establishing clear lines of management accountability for controlling the risks of its work activities and these are set out in _____.

5 The Department recognises that commitment and involvement by senior managers plays a significant part in promoting health and safety in the Department.

6 The Department will ensure that staff and students are kept informed of matters which may affect their health and safety including the dissemination of this Policy Statement.

7 Senior Departmental management will take the lead in consulting with staff, safety representatives and students on matters of health and safety and will seek their involvement in the development and improvement of safety in the Department.

8 The Department will ensure that health and safety considerations are integrated into the planning of Departmental work activities.

9 The Department will consider its overall health and safety policy in parallel with other corporate policies that are designed to promote the wellbeing of staff and students such as policies on equal opportunity, harassment and bullying, disability, age and racial discrimination.

Managers within the Department have responsibility for ensuring the management of health and safety. Safety Officers have responsibility for monitoring the implementation of the Health and Safety policy and reporting their findings to the Head of Department.
The following have Health and Safety responsibilities in the Department:

Roberts Building, South Wing Wilkins Building, 40 Bernard Street and Marshgate Building
The Department is organised into 1 unit. Below are the details of that unit.

Head of Department and Safety Committee Chair Prof E. Sorensen
Departmental Safety Officer

UCL and external contractors carrying out maintenance or refurbishment in the Department must work under the safety rules and guidelines of the Department. It is the responsibility of the UCL Project Officer to ensure that the contractors have been given the relevant information.

Visitors in the Department from outreach activities, such as summer schools or work shadowing, must abide by the rules and guidelines of the Department. An itinerary and risk assessment must be in place before any activities takes place. There should be one point of contact as the outreach organiser, referred to as the Work Organiser. This Work Organiser in the Department must liaise with the school/ sixth form/ college to ensure both the itinerary and risk assessment are complete and distributed to all involved in the visit. This cannot be delegated to the DSO/DDSO, Facilities Manager, or Safeguarding Officer.

Where the external students may have the potential to work in close proximity or alone with researchers and staff, please refer to _____.

- There must be a second person (co-researcher) in the same or adjacent room (within shouting distance) with the researcher conducting the experiment. No lone lab work is permitted outside normal hours. The second person must be a member of the Department (PGR student or member of staff) who have completed all mandatory safety training and is aware of the safety aspects of the undergoing experiment.
- A full risk assessment of the proposed experiment, which covers the additional risks of working out of hours must be submitted on RiskNET and authorised by the supervisor. Note that if the experiment changes to an extent that the risks change then the original assessment is no longer valid, and a new assessment must be prepared and authorised to continue working.
- For urgent out of hours work where there is a danger of hazards or significant loss of experimental data, please call the supervisor responsible for the work to request permission at least 2 hours before. If the supervisor does not respond, the work must not go ahead.

- Lifting heavy loads.
- Using highly toxic compounds.
- Large quantity cryogenic decanting.
- Using unguarded power tools.
- Working with individuals under 18 years of age without a valid DBS certificate.

To work with hazards unsupervised, competence with the hazard must be determined by the supervisor of the person

More available training is listed on the UCL Safety Services training page below. If you feel you have additional training requirements, speak to your supervisor or area safety representative and arrange via the staff training system.

All PGT and Year 4 UG students must complete the following courses:

- Local Fire Induction (Guided Tour Manager/Area Safety Rep)
- Fire Safety (UCL LearnUpon)
- UCL Safety Induction (UCL LearnUp0 0 1 RG[Lea)-2(r)9(n)-4(Up)7(on)5595.

- Training certificates should be sent to chemeng.safety@ucl.ac.uk for their records. Random inspections will take place in labs to check that all PGT students working alone have the requisite laboratory training.
- All lab-based PGT and Year 4 UG students must carry out a written risk assessment for their project before starting work which must be approved by their academic supervisor before the work starts.
- The risk assessment must be filed on RiskNET with the academic supervisor of the work as the final approver for the assessment. Other co-approvers (e.g. a researcher supervisor) may be included.
- The approved (signed and dated) risk assessment must also be available in the lab in a designated place. Normally this would be in a wall mounted document holder labelled "risk assessments".
- Lone working is never permitted for Year 4 UG students.
- For PGT students, lone working must be minimised and should be restricted to low-risk tasks that the particular student is competent to do. Lone working by PGT students may only be permitted during normal working hours. The risk assessment must define which activities the PGT student may carry out without supervision when they are judged competent to do so, and which activities must always be supervised.
- Tasks which are considered high risk, and therefore always require supervision include the following: working with hazardous compressed gases (e.g. hydrogen, oxygen), working with liquid nitrogen, working with highly corrosive or toxic substances (e.g. aqua regia), and high temperature work (e.g. removing hot items from a furnace).
  Low risk tasks would include synthesising low hazard chemicals, using furnaces on or off, and using low risk commercial and analytical equipment.
- Supervision in this case means having assigned PDRA or PGR student advisor in the lab as they carry out the task. Advisors must have read/been involved in the risk assessment of the individual(s) they are supervising.
- PGR students may only supervise PGT/UG students if they are suitably experienced with the type of work the student will do and are deemed competent by their academic supervisor.
- Competence of the PGR student or PDRA must be judged by the academic supervisor. The academic supervisor should have evidence of the PGR student's/ PDRA's competency as part of their staff training records.
- Academic supervisors are at liberty to choose not to allow any unsupervised working by their PGT/UG students.
- The PGT/UG students, and PGR advisor, must understand the risks involved in the project and emergency action specific to the project (e.g. location of the spill cleanup kit) as set out in the risk assessment.
- Work for PGT/UG students should be scheduled by consultation with the supervisor and the PGR/PDRA advisor, sand should be scheduled across the academic year rather than leaving all the lab work to the last moment. Accidents are more likely to occur when pressed for time.
- UG students will not be issued lab keys. PGT students may be issued a key if the academic supervisor wishes, and the student gives a £10 deposit (to be returned to them on return of their key).

Young persons are defined as aged 16-17 years old. Guidance for Young Persons undertaking work experience (e.g.as A-level students or as apprentices) in the Department is presented below:

Local induction and familiarization for the Young Persons guided by the Work Organiser responsible for the Young Persons' placement should be carried out.

The Head of Department must give permission by email to the Work Organiser for anyone under the age of 18 to work in the Department and ensure that the UCL'

- Wear appropriate gloves if necessary to protect against burns or contamination.
- Avoid working alone.
- Dispose of waste according to the MSDS sheet and departmental waste policy.
- Carry out all work likely to involve release of gases/vapours in a fume cupboard.
- Do not eat, drink, smoke, vape, or chew gum.
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- Large deliveries should be booked in using the online system. Please contact the Facilities Manager for details.

The delivery of large heavy items via the loading ramp at the ground floor exit from Roberts can be hazardous due to the slope and there have been near misses in the past. The following conditions apply to deliveries at the ramp:

- The maximum height clearance for vehicles wishing to unload on flat ground, under the archway, is 2.8 m.
- The length of the flat section is 8.5 m.
- Vehicles higher than 2.8 m may unload on the ramp providing they have the correct equipment to do so, such as a forklift truck, tailgate etc., and that they have taken into account the slope of the ramp. Maximum slope towards the archway is 9 °.

The person requesting the delivery and ensure that appropriate arrangements are in place for unloading.

When transporting chemicals and substances around the building and campus there are a number of precautions that must take place.

- Remove gloves – gloves should not be worn outside of the laboratories. Chemicals and other hazardous substances should be well contained in their packaging for safe transport whether the distance is between adjoining labs or between buildings.
- Samples must be fully sealed. Caps must be finger tight. Consider using an extra wrap (e.g. Parafilm) to ensure that they do not leak

UKCA mark. A route for the disposal of the item must also be available and appropriate PPE to handle the item must be available before work starts.

No controlled drugs may be purchased by anyone in the Department without first consulting with the department

- A risk assessment for any work being carried out in the lab.
- Awareness of the other hazards in the lab.

In addition to formal lab inspections carried out by the DSO, supervisors must also arrange for short monthly inspections of their labs (carried out by the Area Safety Representative (ASR)), with the results and corrective actions recorded in the lab. A suggested check list can be obtained by ASRs from here.

Task change software is available which will bring up a reminder to take a break (free from http://www.workrave.org/download).

There is no evidence that disease or permanent damage to eyes or eyesight can be caused by DSE use. However, any uncorrected visual defects may lead to temporary eye strain when using DSE, so UCL offers free eye tests to all employees (not research students) under the Eye Care Scheme. (https://www.ucl.ac.uk/humanresources/eyecarebenefits).

For more information see:
https://www.ucl.ac.uk/safetyservices/policies/2020/may/practicalguidancedse

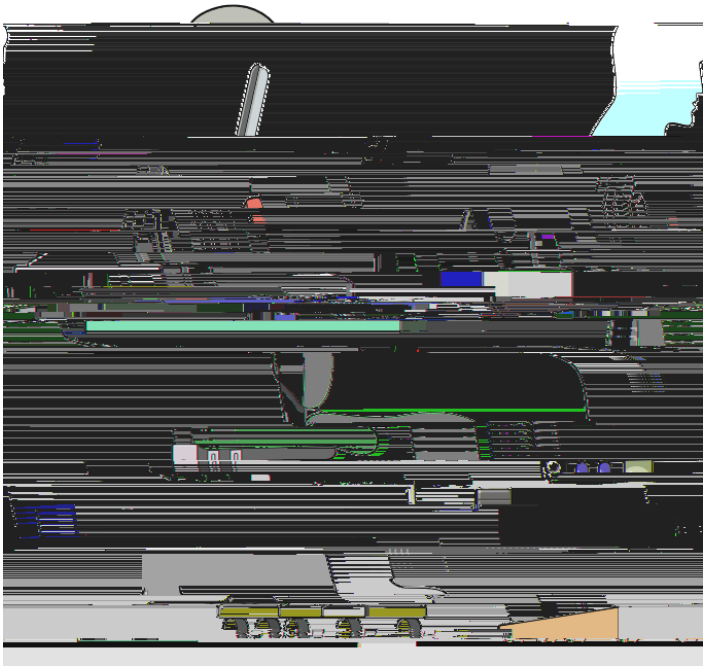

Figure 1: Diagram indicating good posture (Source: HSE)

- All portable electrical appliances should be maintained by a competent person and periodically inspected. Each piece of equipment will be labelled with an identifying number and the date of last inspection. This information should also be documented.
- All new electrical equipment coming into the department must be checked, as soon as it arrives, by the Computing and Electronics Support Group. This is especially important for used equipment either bought second hand or brought in from home.
- All electrical equipment purchased should be of an approved standard e.g. Kitemarked, BSI, CE, or UKCA approved. Any electrical equipment bought from a UK or EU supplier will be constructed to the appropriate standard. If specialised equipment is only available direct from overseas, please consult with the DSO and electronics technician before purchase.
- Students are not trained to do this work, are usually not aware of how to design safe equipment, and mistakes made can lead to fire or electric shock.
- Consider using a residual current device (RCD) to reduce the risk of a severe electric shock, particularly if the equipment will be used around water. Ensure that the RCD switching current is no more than 30mA.
- When equipment is not in use it should be switched off at the mains for safety and to conserve energy.

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- All extension leads must be PAT tested before being used within the department.
- There must be no daisy chaining (plugging one into another) performed.
- Extension leads must not be overloaded by plugging in high Amp appliances. Examples of high Amp devices include anything that heats or cools, e.g. ovens, water baths, and conditioners. These must be plugged in directly to the wall.
- Do not use multi socket extensions with more than six sockets.
- Do not use square mains plug/ cuboid electric adaptors.
- Do not store extension leads on the floor, if possible, mount them to walls.
- If a cable crosses a pathway, cable covers or cable protectors must be used.
- Cables must be tied up to avoid trailing.
- Only CE or UKCA extension cables may be used.
- Extension cables are not a permanent solution. Contact the Facilities Manager if more sockets are required in a room.
- User must check extension leads for damage, e.g. corrosion or breaks, before use.
- All extension cables must be fused.
- Areas next to water must be avoided.
- Areas with a lot of dust should be avoided, however if they must be used, plug socket covers

- Heaters must not be covered or in contact with combustible material (e.g. clothing) or positioned near water while in use.
- Heaters must be plugged directly into a wall mains socket (not via an extension lead), used only when vertical, and the usual rules for safe use and inspection of electrical equipment explained in the safety handbook apply.

Only if safe to do so, turn off the power to the affected area/equipment. Do not touch anyone who has suffered an electric shock unless you are sure they are no longer in contact with the live object, or the power has been switched off. If it is not immediately possible to switch off the power and they are still in contact with the object, try to pull them away from it using something nonconductive (e.g. wooden broom or an extension cable).

Contact your nearest First Aider (.00000q042.1W* nBT/F1 12 Tf1 0 0 1 257.81 602.86 Tm0 g0 G 0.03

6. Protect floor drains or other means for environmental release. Spill socks and absorbents may be placed around drains, as needed.
7. Contain and cleanup the spill according to type of substance spilt and information on handling spillages of specific hazardous chemicals included in your laboratory risk assessments and MSDS information sheets.
8. When spilled materials have been absorbed, use brush and scoop to place materials in an appropriate container. Polyethylene bags may be used for small spills.
9. Identify the material as Spill Debris identifying name of chemical(s) and affix a label to the container. Dispose of contaminated waste chemicals safely.
10. Report all spills using the online the Incident/Accident report form and inform the DSO.

Visit
https://www.ucl.ac.uk/safetyservices/policies/2023/nov/respondingchemicalspills#Spill%20drills
for more information on handling chemical spills.

- Researchers should refer to MSDS sheets and the EH40 Workplace Exposure Limits list published by the HSE as part of their risk assessment before working with toxic chemicals: http://www.hse.gov.uk/pUbns/priced/eh40.pdf
- A substance not listed in the EH40 document is not necessarily safe.
- In determining the control measures required remember that PPE is a last resort and only protects the individual.
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- Any worker asked to carry out any operation in the department that brings them into contact

Exchange a flammable substance for a less flammable one or eliminate flammable substances from the process altogether.

Only order what you need for the near future. Dispose of old chemicals which are no longer being used.

- If the flash point of the liquid is near or below room temperature the risk of ignition is significantly higher. This applies to the majority of common organic solvents.

Fine flammable dusts dispersed in the workplace atmosphere can, if ignited, explode violently and

students permitted to use the equipment should abide by Biochemical Engineering Workshop Safety Rules under the supervision of the workshop manager.

The use of Workshop machines is only permitted under the supervision of a responsible member of the Workshop staff.

- Only research students who have completed a workshop safety course and judged competent may use the powered workshop machines.
- Machines must not be used unless there is at least one other person present in the area.
- Eye protection must be worn.
- You should ensure that you know the positions of emergency stop buttons.
- Machines must not be operated unless relevant guards are in position.

The fitting and condition of abrasive wheels and other rotating abrasive tools is the responsibility of the Workshop Manager. The use of any such equipment should only be carried out by, or under the supervision of, a member of the Workshop staff.

All welding and soldering operations should be carried out in the areas designated. Where this is not practical, suitable ventilation and or screening should be used. Welding operations must only be carried out by trained members of the technical staff. There must be risk assessments, including a COSHH risk assessment for all welding and soldering activities.

- External contractors should contact the Facilities Manager before starting any work in the Department and where necessary obtain a permit to work.
- Laboratories must be safe for cleaners to enter and a 'safe to clean' sign displayed. This must be removed if any foreseeable hazards that would be a danger for the cleaners become present in the lab.
- Any person carrying out such work should comply with the safety regulations as defined in the UCL Safety Policy and this document.
- Any

Water systems that are operated from 20 – 45 °C, have stagnant water, or are in containers that have a buildup of rust / scale are at risk of developing Legionella. Legionella can cause Legionnaires' disease, so the growth of Legionella needs to be controlled. A risk assessment must be completed for each piece of water containing equipment detailing controls to prevent the growth of Legionella. Control measures include emptying the tank periodically, ensuring the water is always flowing, avoiding the buildup of scale / rust, and avoiding operating the equipment at 20 – 45 °C.

Eye baths in labs must be flushed every week for 30 seconds to prevent the growth of Legionella. Lab managers are responsible for ensuring this is done.

Annual testing of all LEV systems is arranged by the department. Copies of the reports are recorded on a technical staff network drive (T:Drive) or on the department's SharePoint pages and each LEV has a safety label to mark their inspection test date.

Fume hoods are tested annually by the UCL Estates and have safety labels to mark their inspection test date. If you notice that a test label is missing or a fume cupboard has not been tested in the last year, please inform the DSO.

Testing of laminar flow hoods or recirculating safety cabinets is arranged annually by the Facilities Manager.

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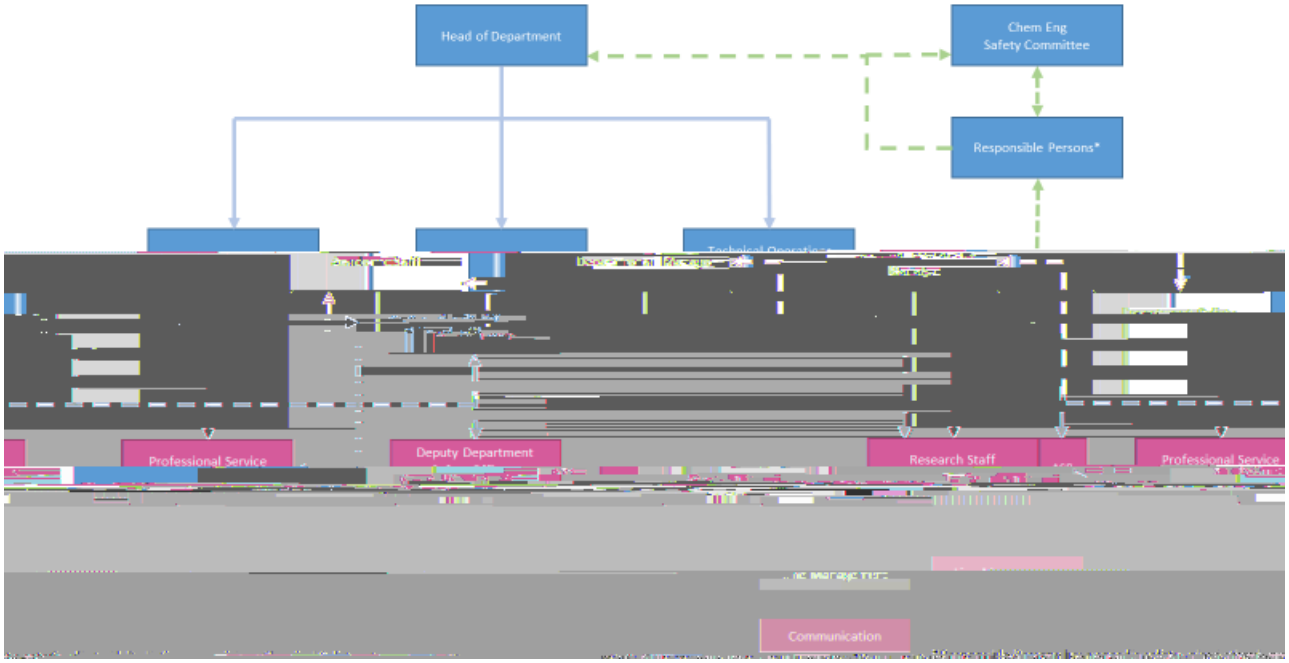


In accordance with the UCL Statement of Safety and Health Policy, it is the policy of the Department to take all reasonably practicable steps to promote the safety, health and welfare of all UCL personnel, students and members of the public on Departmental premises. The Head of Department (HoD) is responsible to the Provost for safety in connection with all work done in the Department and for the carrying out of those duties of Heads of Departments specified in the Policy Statement.

A Departmental Safety Officer (DSO) and a deputy DSO have been appointed to advise the Head of Department of the standards of safety in the Department and to indicate areas where action needs to be taken.

The duties of the DSOs are to:

- Monitor and regularly review, the Department's organisation and arrangements for safe working.
- Compile, disseminate and update the departmental arrangements for safe working.
- Bring to the attention of the HoD or departmental management, at an appropriate level, any noncompliance with departmental arrangements for safe working.
- Report to the HoD on a regular basis any shortfalls in departmental, arrangements for safe working or any issues concerning the management of safety within the department.

- Monitor the implementation of changes to departmental arrangements for safe working.
- Ensure records are maintained of training received by individuals who are appointed to carry out specific safety roles and for mandatory UCL safety training requirements.
- Check that all accidents and incidents involving members of staff, students and visitors are reported using the RiskNET online incident reporting system and investigate to determine the causes or allocate to relevant personnel.
- Assist departmental management, Safety Services or any outside authority in the investigation of accidents and incidents.
- Act as a point of contact for receiving and disseminating changes and updates from Safety Services in relation to legislation or UCL policy, objectives and guidance.

- Ensuring that they have appointed a suitable deputy to maintain appropriate supervision of the work under their control in their absence from the Department

Note: Under the arrangements between the Departments of Biochemical Engineering and Chemical Engineering, the mechanical workshop comes under the control of the Department of Biochemical Engineering with respect to their management structure and safety arrangements.

It is the responsibility and right of everyone in the department, including safety personnel, to intervene if they see something that could be potentially hazardous. Everyone also has an obligation to others to report issues that may be hazardous using the UCL reporting system or to the DSO. Reporting potentially hazardous items means these can be dealt with properly, with the risk of future accidents being reduced. There will be no repercussions for intervening or reporting in these circumstances.

Examples of when to intervene if someone is doing work that could be potentially hazardous::

- Seeing someone work with flammable gases next to an ignition source
- Seeing someone working with asphyxiants in a small nonventilated space
- Seeing someone working at height without the proper equipment
- Seeing someone open up electrical equipment to make modifications without those with specialist knowledge, e.g. the Electronics Technician, present.

Examples of reporting someone or something may include Departmental or UCL Estates matters:

- Seeing hazardous waste build up in or out of the building
- Seeing broken, corroded, or burnt electrical sockets or plugs
- Seeing people working without the correct PPE (estates personnel included)
- Seeing fire exits blocked or fire doors propped open
- Noticing fire extinguishers are missing

Head of Department	Prof Eva Sorensen	e.sorensen@ucl.ac.uk	020 7679 3802
Technical Operations Manager	Dr Toby Neville	t.neville@ucl.ac.uk	02081387793
Departmental Safety Officer (DSO)/ Technical H&S Manager (TSM)	Ms Natalie Burnham	natalie.burnham@ucl.ac.uk	020 3987 2013
Deputy DSO (Bloomsbury)	Miss Ami Shah	ami.r.shah@ucl.ac.uk	020 3108 5339
Deputy DSO (UCLE)	Dr Rosalie Hamil	r.hamill@ucl.ac.uk	
Senior Fire Evacuation Marshal	Dr Simon Barrass	s.barrass@ucl.ac.uk	020 7679 3111
Facilities manager	Dr Simon Barrass	s.barrass@ucl.ac.uk	020 7679 3111
Chair of Safety Committee	Prof Eva Sorensen	e.sorensen@ucl.ac.uk	020 7679 3802
Safeguarding Officer	Dr Isobel Mackay	i.mackay@ucl.ac.uk	020 8138 7841
Radiation Protection Supervisor (RPS)	Dr Simon Barrass	s.barrass@ucl.ac.uk	020 7679 3111
Laser Safety Officer (LSO)	Dr Simon Barrass	s.barrass@ucl.ac.uk	020 7679 3111
Nuclear Materials Inventory Coordinator (NMIC)	Dr Mateen Mirza	m.mirza.17@ucl.ac.uk	
Appointed Person (Flammable Gases)	Dr Simon Barrass	s.barrass@ucl.ac.uk	020 7679 3111
Appointed Person (Statutory Testing)	Dr Simon Barrass	s.barrass@ucl.ac.uk	020 7679 3111
Appointed Person (Controlled Materials)	TBC		

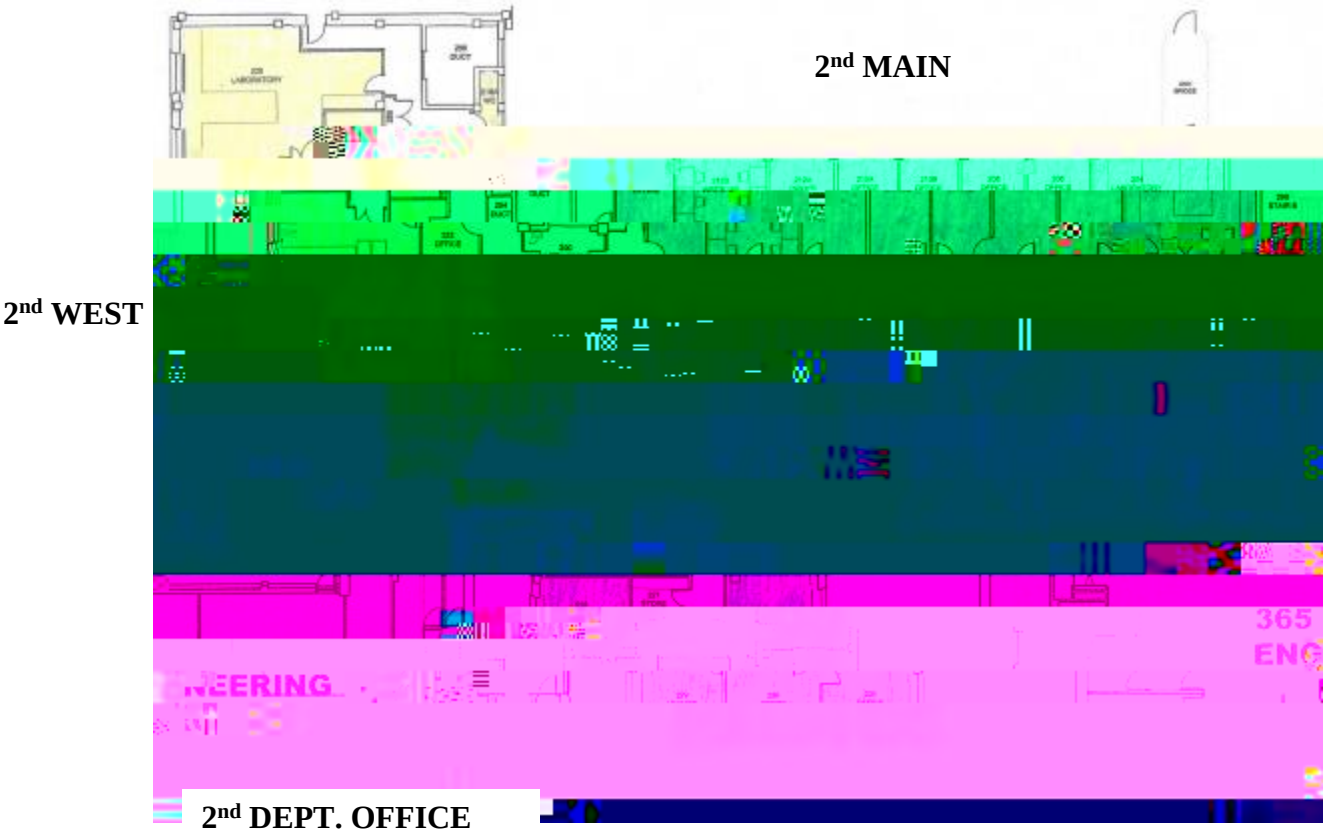
The following persons have been appointed Fire Marshals. shows the respective zones which Fire Evacuation Marshals cover.

Albert Corredera	(045) 3rd Main / West
David Ellis	(045) 3rd Main / West

Lower Basement FEM Area

Upper Basement FEM Area

2nd Floor FEM Areas



3rd Floor FEM Areas

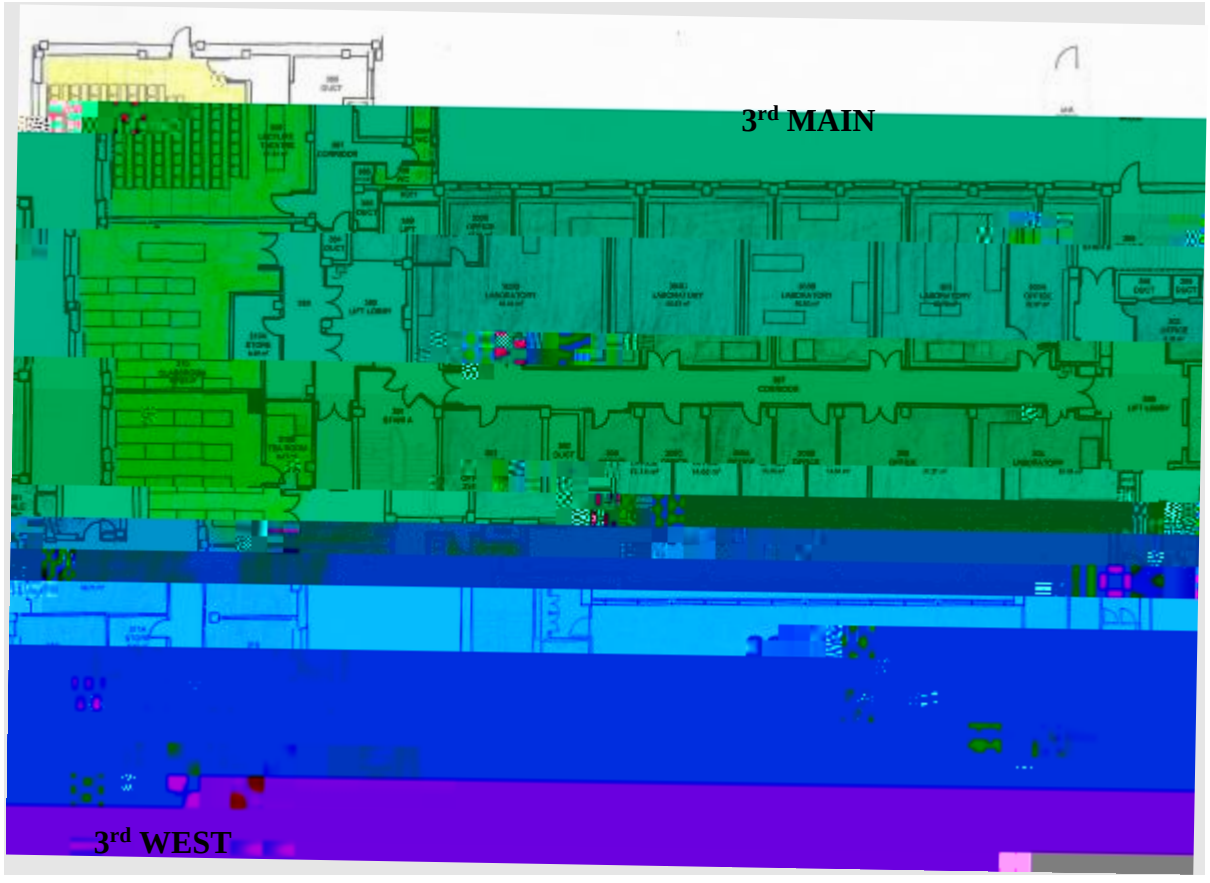


Figure 2: Fire Marshal Zones in the Roberts Building

Escape Routes

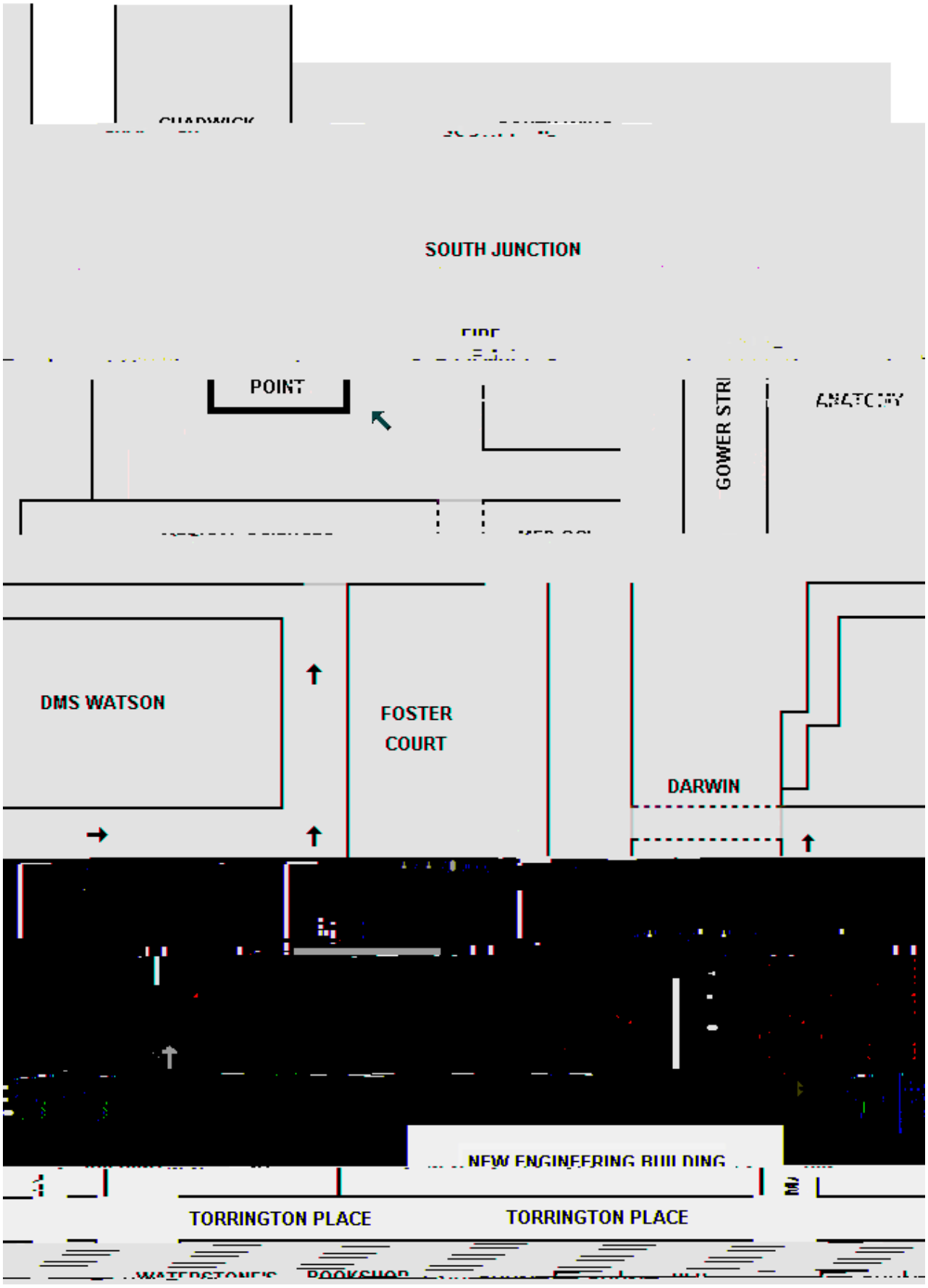


Figure 3: The fire evacutaion route from the Roberts building.