Chemistry Department Live Electrical Working procedure for the Electronics Workshop and other areas.

Introduction.
All work must comply with HSE document HSG85 – Electricity at work, Safe working practices.

It is a requirement that all work must be carried out *dead* unless:

- It is unreasonable for the conductor to be dead, AND
- It is reasonable for a member of staff to be at work on or near that conductor while it is live, AND
- Suitable precautions have been taken to prevent harm.

If the work is being carried out *dead* then:

- The circuits must be proved dead before work commences.
- **Secure isolation** of the equipment **must be carried out.**
- If there is a possibility of the equipment being inadvertently turned on by a third person, a warning notice should be attached. The notice should read: "Warning – equipment under test – Do Not Operate".

Hazardous voltages are defined by the Health & Safety Executive as those exceeding 50V a.c. or 120V d.c. in a dry, unconfined, non-conductive location.

Work on electrical equipment with the outer covers removed, but where accessible voltages do not exceed 50V a.c. or 120V d.c. does not constitute 'live electrical work' within the context of this document, and is not subject to the following procedure.

If you are not sure which voltages are present, you must assume them to be greater than the previously specified limits until they have been determined otherwise by a member of staff authorised to carry out live work.

Work on the University mains supply circuits is not allowed and must be referred to Estates and Buildings electrical engineers.

Work on or near 3-phase equipment is not permitted as a matter of course.
The Estates and Buildings electrical engineers must be consulted if required.

Examples of live work include checking, testing, repairing and maintenance of equipment with casings removed when it is connected to the mains supply.

The persons permitted to perform live electrical work in the department are:
Mr. K.Appleby, Dr. B.JDenton, and Mr. O.S.Ekinoglu.

UNDER NO CIRCUMSTANCES SHOULD ANY OTHER PERSON ATTEMPT LIVE WORK.

Procedure For Live Working

Requirements to perform live electrical work:

a) Demonstrable need to work live.
b) Risk assessment for the work scope. This will normally be non-written.
d) Only authorised staff (as above) to perform work.
e) Work to be performed in the electronics workshop (MC009) unless the person instructing the work to be done is able to prove that it is unreasonable for the equipment to be moved there.

Live Working Method

The general precautions to be used to allow work to be performed safely are listed below, however the risk assessment for the task should provide the specific control measures. The choice of further appropriate precautions for a particular activity remains the responsibility of the person carrying out the work, in accordance with their dynamic risk assessment of the task. However these should feed back into the original assessment as part of a review and continual improvement process.

1. Unless impractical, all live work should be performed in the Electrical Workshop.

2. Any necessary information such as manufacturer's instructions and circuit diagrams should be available before work commences.

3. Staff must be familiar with the risk assessment for the particular task and the control measures required.

4. Fully insulated tools designed for live work must be used.

5. Test equipment must be suitable for the task, for example, test prods should comply with HSE guidance note GS38. A calibrated Voltage Detector rather than a multimeter must be used.

6. A residual current device (RCD) must be employed. If one is not fitted to the distribution board that supplies the socket being used, a portable version should be employed.

7. A non-conducting, earth free work area is available in the Electronics Workshop (MC009) and should be used if the initial risk assessment or subsequent dynamic risk assessment deems this necessary.

8. Adequate lighting and access must be provided around the equipment.

9. If appropriate, place suitable barriers on the equipment to prevent accidental contact with live parts.

10. If appropriate, use temporary barriers and clearly displayed warning notices to prevent unauthorised approach whilst live work is taking place.

11. If appropriate, use lockout devices to prevent unauthorised operation of mains switches, or to prevent mains plugs from being inserted into power sockets.

12. A notice of emergency action in the case of electrical shock must be displayed in room MC009.

13. Care must be taken when overriding interlock devices to ensure that this does not allow subsequent energisation of circuits that may produce a dangerous situation.

Bryan Denton

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