

## Guidance Note OUES/BS/E/GN003 Rev00

### Electrical works in Trunking systems

Written by: R Gregg – Principal Electrical Engineer.  
Approved: S.Pearson – Head of Building Services  
Date: 12/10/2018



### THE DANGERS OF LIVE PARTS IN TRUNKING SYSTEMS.

This document has been generated following several accidents that have arisen through contact with exposed live parts when working in trunkings.

Regulation 4(3) of the Electricity at Work Regulations (1989) requires that every work activity, including operation, use and maintenance of a system and work near a system shall be carried out in such a manner as not to give rise, so far as is reasonably practicable, to danger.

Where electrical work is to be performed on a trunking system or distribution board, all conductors should be made dead. This will normally be accomplished by a safe system of work which includes the secure isolation of all conductors, which will subsequently be proven dead. Such work must be carried out by competent persons only.

Regulations 12, 13, 14 and 16 of the EWR are likely to be relevant. Regulation 12 gives requirements for cutting off the supply and for isolation, regulation 13 gives precautions to be taken for work on equipment which has been made dead and regulation 14 deals with work on or near live conductors. Regulation 16 requires persons working on electrical systems to be competent to prevent danger and injury.

'Absolute' and 'So far as is reasonably practicable'

If the requirement in a regulation is 'absolute', for example if the requirement is not qualified by the words 'so far as is reasonably practicable', the requirement **must be met regardless of cost or any other consideration**. Someone who is required to do something 'so far as is reasonably practicable' must assess, on the one hand, the magnitude of the risks of a particular work activity or environment and, on the other hand, the costs in terms of the physical difficulty, time and trouble and expense which would be involved in taking steps to eliminate or minimise those risks. The greater the degree of risk, the less weight that can be given to the cost of the measures needed to prevent that risk. The risk, in the context of the EWR, is very often that of death by electrocution and where the precautions which can be taken are so very often simple and cheap, the level of duty to prevent that danger approaches that of an absolute duty.

### RISK ASSESSMENT AND SAFE SYSTEM OF WORK

It is foreseeable that when accessing inside a trunking system there may be exposed live parts posing a serious risk of electric shock. The level of risk increases for when the trunking system exceeds its capacity. There are several University buildings that have this issue.

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In a trunking there may be exposed live parts resulting from deficiencies such as damaged cable insulation, defective joints or cut off cable ends. **The deficiencies may not be immediately apparent when the trunking lid is first removed.**

All electrical contractors are required to undertake and **provide a written risk assessment to the Electrical building services team**, which is likely to require a safe system of work to be provided regarding access into trunking system. The risk assessment and safe working procedure shall be supplemented by attention to conditions existing on the particular site. Issues to be resolved include:

- The number, type, condition and state (energized or not) of all conductors and equipment likely to be encountered within the trunking should be established
- All conductors, including live conductors, neutral conductors and any other conductors, and equipment should be made dead and securely isolated before entry
- It should be able to be verified that all conductors and equipment are dead before and immediately after gaining entry and will remain dead during the period of the work
- **If it is not reasonably practicable to make all conductors dead, then the conductors to be worked on should be made and proven dead and adequate control measures put in place to prevent danger from any other live or unknown conductors in the trunking system.**
- Additional risks existing at the particular location such as poor access requiring the need to use steps, a scaffold or ladders; poor lighting requiring additional lighting be provided; or an installation that is not documented and, effectively, unknown requiring careful assessment, probably with all or parts of the installation isolated, by the most experienced and qualified members of staff and with a University Electrical Engineer in attendance.
- Competence of the person performing the work. The Electrical Contractor appointed person should assess the likely scope of the work and then ensure that the operative(s) are suitably experienced, qualified and, if necessary, supervised so that persons, including the operative(s) themselves, **will not be put at risk.**

Other precautions may need to be put in place, such as the provision of personal protective equipment (PPE) to protect against electric shock and flashover burns, the use of non-conducting steps and ladders and insulating matting. **Persons will need to be accompanied** and shall be trained in first aid and resuscitation techniques. All Tools and Test Equipment shall be in serviceable condition and meet the requirement of GS38.

**Use of draw rods shall be only used where permission is given by an OUES Electrical Engineer.**

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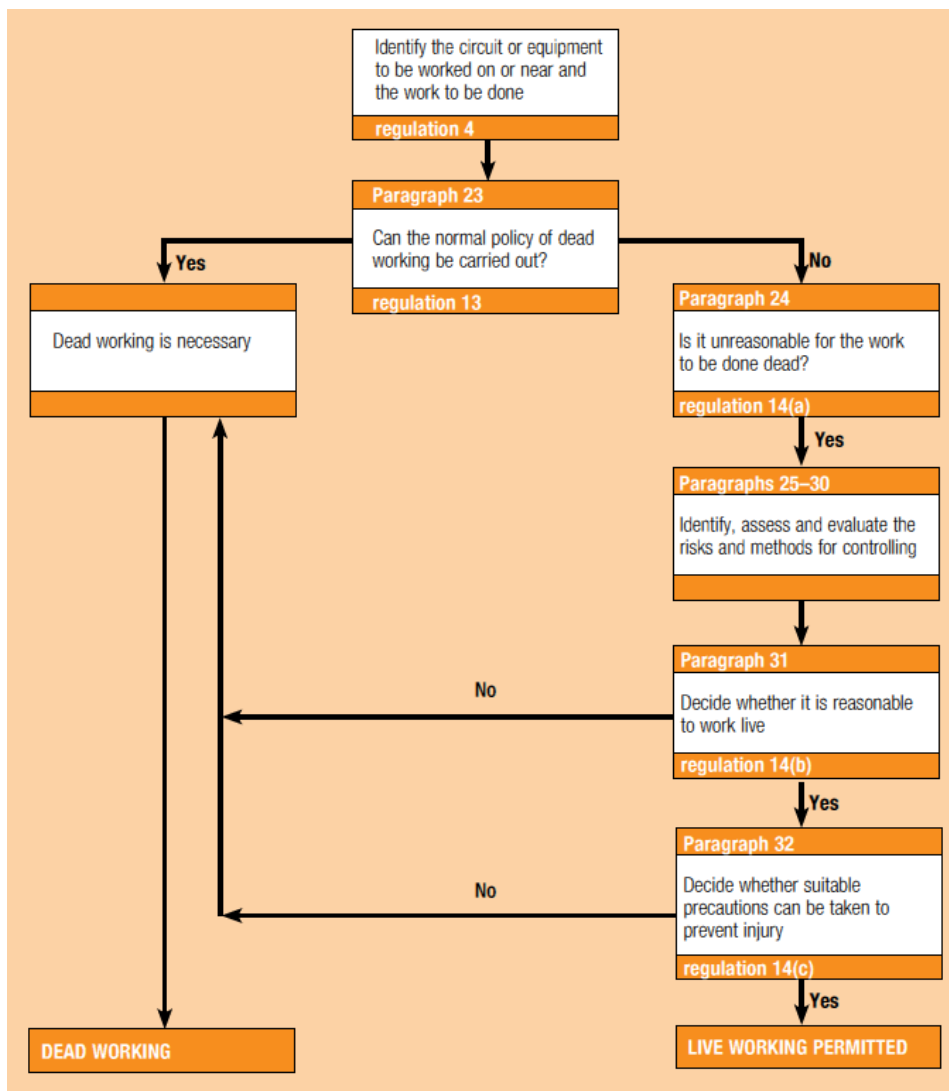
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### Deciding whether to work dead or live



#### NOTES:

- IF ACCESS IS NOT AVAILABLE TO THE TRUNKING SYSTEM SO THAT A VISUAL INSPECTION CAN BE UNDERTAKEN THEN ISOLATION IS REQUIRED.
- IF THERE ARE SIGNS OF POOR WORKMANSHIP I.E THROUGHCRIMPS / CONNECTOR BLOCKS THEN ISOLATION IS REQUIRED.
- DRILLING INTO LIVE TRUNKING SYSTEMS IS STRICTLY PROHIBITED
- IF THE TRUNKING IS OVER CAPACITY – CONTACT OUES ELECTRICAL ENGINEER.
- RISK ASSESSMENT AND METHOD STATEMENT MUST BE **APPROVED IN WRITING** BY AN OUES ELECTRICAL ENGINEER.
- **IF IN DOUBT – STOP WORK AND CONTACT YOUR OUES ELECTRICAL ENGINEER.**