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ESSENTIAL STANDARDS no.36

Electrical Safety at Work (Fixed Equipment)

Thames Water

KEY MESSAGES

The safety of employees and contractors who work on or near electrical equipment is a legal requirement as well as a moral duty.

Poor design, installation or work on electrical installations can result in serious injury or death to Thames Water personnel, contractors and members of the public as well as personnel undertaking any work activities.

No person may work on electrical equipment unless they have been deemed competent to do so. No contracting organisation shall be appointed to undertake electrical work unless approved by Thames Water Electrical Services Team and / or is on a Thames Water Procurement Framework covering electrical work.

Electrical installations shall be designed to the relevant national and Thames Water standards by competent persons.

Electrical equipment shall be fit for purpose and maintained by competent persons in accordance with the relevant national and Thames Water standards.

Work on electrical equipment shall be carried out in accordance with approved procedures, satisfying the Electricity at Work Regulations (1989).

1. Competency of personnel

Personnel carrying out electrical work or design of electrical systems need to have had the relevant training, knowledge and experience. It is important that they are familiar with the types of equipment and systems used in Thames Water so that they are always able to recognise whether it is safe for work to continue.

Thames Water staff undertaking electrical work need to be assessed and appointed as competent to do so by the Electrical Services Team. The Electrical Services Team must also be engaged in the recruitment process for any electrical skilled maintenance technician.

Contractor's staff undertaking electrical work need to be assessed and appointed as competent to do so in accordance with their company procedures for electrical safety.

Where personnel are not yet deemed competent, such as technical trainees, then they must be supervised by someone who is competent.

2. Design and installation

Installation of new equipment and modification of systems can introduce electrical safety risks and increase the likelihood of power failures unless undertaken correctly.

New installations and modifications shall be properly designed in accordance with the Thames Water Asset Standards, specifically F15 (Low Voltage) and F25 (High Voltage). These in turn refer to the following national standards:

- The Requirements for Electrical Installations (BS7671)
- Water Industry Mechanical and Electrical Specifications (WIMES)

Prior to making any change that could increase the electrical load on a system, the impact of that change needs to be assessed to ensure the system and equipment are not overloaded as a result. This includes both Thames Water and electrical supply company equipment and standby generators.

When a change is made records, including drawings, need to be produced or updated.

Systems and equipment need to be tested and commissioned in accordance with the relevant standards and documentary evidence produced.

3. Maintenance

Electrical equipment must be regularly maintained to ensure it remains safe.
Maintenance tasks and frequencies on Thames Water equipment must follow Thames Water Asset Maintenance standards.
Third parties should maintain their electrical equipment in accordance with national standards.

Only personnel competent to carry out electrical maintenance must be allocated these tasks.

Maintenance activities shall be carried out in accordance with safe working procedures.

4. Safe working procedures

Work on electrical equipment must be carried out in accordance with approved procedures.

Thames Water staff must work in accordance with the Thames Water Electrical Safety Rules (HSP24) and the associated Electrical Approved Procedures (EAPs) which are available on the Health and Safety SharePoint site.

There are specific PPE requirements for undertaking electrical work. Arc retardant outerwear must be worn when carrying out electrical installation and maintenance work and by anyone entering a high voltage substation.

Manipulating live uninsulated electrical conductors is not permitted. Live testing may be carried out, but only where a risk assessment has been completed and the necessary controls put in place. A Safe System of Work is required when testing is to be undertaken on conductors which are not shrouded to be at least finger proof (IP2X) and are energised at a voltage greater than 50 Volts AC.

Electrical isolations must be secured with a Safety Lock and a Caution Sign. The name and contact number of the person completing the isolation must be written on the Caution Sign.

Electrical Permits to Work will be required for all work on high voltage conductors and for work on low voltage conductors where complex isolations are required, such as busbars with multiple sources of supply or downstream of Air Circuit Breakers.

Contractors are permitted to work in accordance with their company Electrical Safety Procedures, where these procedures have been assessed and approved by the Thames Water Electrical Services Team. This may permit contractors to carry out their own electrical isolations in specific circumstances.

All work undertaken by contractors shall be covered by a Risk Assessment and Method Statement which should be submitted to the Thames Water Controller of Premises in good time. Risk Assessments and Method Statements for electrical work must be reviewed by someone competent to do so.