

Overview

This standard is for people who maintain electrotechnical systems (AC/DC) and equipment which may include Renewable Technology, Low Carbon Technology and Smart Technology.

The person carrying out this work must be able to carry out maintenance activities in accordance with procedures and the current versions of the appropriate industry standards and regulations, the specification; industry recognised working practices, the working environment and the natural environment.

They must understand and apply the correct methods and procedures for the maintenance of electrotechnical systems and equipment, including:

- routine and non-routine maintenance
- the identification and use of the correct instruments
- how to identify and locate faults
- how to rectify the faults that are identified, located and diagnosed
- the completion of the relevant documentation
- the recording of relevant data and information.

Performance criteria

You must be able to:

1. obtain clear and detailed information about the electrotechnical system and equipment to be maintained from relevant:
 - sources of information
 - documentation
2. confirm a programme of work with the relevant people in accordance with organisational procedures
3. produce a risk assessment and method statement for the work to be carried out, including the identification and use of personal protective equipment
4. advise the relevant people clearly and accurately about the potential disruption and consequences of carrying out the maintenance activity
5. determine and obtain the resources required, as relevant, to undertake the maintenance activity
6. select the instruments to be used
7. confirm that the instruments are fit for purpose and have a current calibration certificate
8. identify the correct means of electrical isolation prior to commencing the maintenance activity
9. complete safe isolation as and when required to ensure the safe maintenance of electrical cables, conductors and/or wiring system and the associated equipment, accessories and components
10. comply with industry practices and organisational procedures to ensure the co-ordination of site services and the activities of other trades affected by the maintenance activity
11. carry out maintenance activity
12. repair, remove, replace and/or maintain in accordance with industry practices:
 - electrical cables, conductors and/or wiring systems
 - equipment, accessories and components
13. ensure, if the maintenance activity cannot be completed immediately, the safety of the relevant:
 - electrical cables, conductors and/or wiring systems
 - equipment, accessories and components
14. complete the specified maintenance activity in accordance with industry recognised methods and practices

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15. inspect and test, as appropriate and in accordance with industry recognised methods and practices the repaired, replaced and/or maintained:

- electrical cables, conductors and/or wiring system
- equipment, accessories and components

16. provide clear and accurate information to relevant people about the electrotechnical system and equipment in terms of:

- hand over to the customer/client
- any variations to the original system and/or its equipment
- customer/client acceptance of the completed work in accordance with organisational procedures

17. implement organisational procedures for the safe transport and/or disposal of waste material, substances and liquids in accordance with supplier and manufacturer instructions

18. complete relevant documentation in accordance with organisational procedures

Knowledge and understanding

You need to know and understand:

1. the scope and limitations of your own competence, responsibilities and accountability as it applies to your job role
2. the duty to report any acts or omissions that could be unsafe/detrimental to you or others
3. the operation, applications, advantages and limitations of different electrotechnical systems
4. how to produce a risk assessment and method statement for the work to be carried out, including the identification and use of personal protective equipment, in accordance with:
 - the electrotechnical system design
 - organisational procedures
5. how to obtain clear and detailed information about the electrotechnical system and equipment to be maintained from relevant:
 - sources of information
 - documentation
6. the organisational procedures and industry practices when carrying out the maintenance activity for:
 - advising the relevant people about the potential disruption and consequences
 - confirming a programme of work with the relevant people
7. ensuring the coordination of site services and the activities of other trades affected
8. how to determine and obtain the resources required to undertake the maintenance activity
9. how to select the instruments to be used
10. how to confirm that the instruments are fit for purpose and have a current calibration certificate
11. the correct procedures for safe isolation
12. the techniques for the maintenance of electrotechnical systems and equipment including how to identify, locate, diagnose and rectify faults
13. how to repair, remove, replace and maintain, in accordance with industry practices:
 - electrical cables, conductors and/or wiring system
 - equipment, accessories and components
14. how to ensure, if the maintenance activity cannot be completed immediately, the

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safety of the relevant:

- electrical cables, conductors and/or wiring system
- equipment, accessories and components

15. the methods and processes to inspect and test, as appropriate and in accordance with industry practices the repaired, replaced and/or maintained:

- electrical cables, conductors and/or wiring system
- equipment, accessories and components

16. how to provide clear and accurate information to relevant people about the electrotechnical system and equipment in terms of:

- hand over to the customer/client
- any variations to the original system and/or its equipment
- customer/client acceptance of the completed work in accordance with

organisational procedures

17. the methods for the safe transport and/or disposal of waste material, substances and liquids in accordance with supplier and manufacturer instructions

18. how to complete relevant documentation in accordance with organisational procedures

Scope/range

Working environments (internal and/or external)

- Residential
- Commercial
- Industrial

Electrotechnical system

An electrotechnical system (AC and /or DC), internal and/or external, in a building/structure that has an extra low voltage and/or low voltage single and/or multi-phase supply, circuits, equipment and components to provide:

- control
- communication
- heating
- lighting
- power

Organisation procedures

- information management
- project management
- risk assessment
- risk management
- implementing and monitoring health and safety requirements and issues
- implementing and monitoring issues relating to the natural environment
- customer services
- accident reporting
- emergencies
- communication with relevant people

Resources

- labour
- plant and equipment
- instruments
- finance
- IT
- materials and other consumables

Site services

- electricity
- water
- gas
- oil
- drainage
- telecommunications
- data transmission

Relevant people

- customers/clients
- client representatives
- site/contract manager
- other contractors/trades
- members of the public
- work colleagues

Documentation

- electrical installation certificates
- electrical installation condition reports
- minor electrical installation works certificates
- schedules of inspections
- schedules of circuit details and test results
- operational instructions
- manufacturer instructions
- handover agreements

Electrical cable, conductors and wiring systems

- thermosetting insulated cables including flexes
- single and multicore thermoplastic and thermosetting insulated cables
- flat profile cable
- mineral insulated cables
- earthed metallic cable
- steel wire armoured cables
- screened flexible cables and cords

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- data cables
- pre-fabricated conductor, cable and wiring systems
- fibre optic cable
- fire resistant cable
- bus-bar trunking

Equipment, accessories and components

- consumer units
- distribution boards and/or panels
- isolators
- circuit breakers
- fuses
- switches
- socket-outlets
- earthing protection
- luminaires
- motor control equipment
- control panels – alarms; emergency lighting; environmental control
- control devices – electrical; electronic; electro-mechanical
- cable glands
- other including Renewable Technology, Low Carbon Technology and Smart Technology.

Enclosures for cables, conductors and wiring systems

- PVC and steel conduit
- PVC and steel trunking
- cable tray
- basket and ladder systems
- ducting systems
- bus-bar trunking
- pre-fabricated conductor, cable and wiring systems

Information

- technical – design documentation; plans; installation specifications; equipment specifications; manufacturer data; manufacturer instructions; BIM data
- functional – operational instructions

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- customer/client information – drawings; diagrams; user instructions; specifications
- contractual
- statutory consents
- health and safety
- environmental considerations

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