
Overview

This standard is for people who are required to carry out work on electrical supplies and/or circuits for the control of mechanical building services systems which:

- do not require the addition of a circuit to the existing fixed electrical installation
- will only be associated with the disconnection, installation and/or connection of electrical equipment and components associated with the supply and/or control of mechanical services systems

The person performing this work must be able to comply with the correct procedures and practices for disconnecting, installing and/or connecting electrical equipment and components that supply and/or control mechanical building services systems. This work must be in accordance with the current versions of the appropriate industry standards and regulations, the specification, industry recognised working practices, the working and natural environment. It will not involve the testing and commissioning of the fixed electrical installation and its constituent parts. They must know and understand the types, applications and limitations of electrical supplies, safe isolation and control equipment, earthing and overcurrent protection and /cables/wiring associated with mechanical building services systems

Performance criteria

You must be able to:

1. confirm the presence or not of an electrical supply
2. confirm, as necessary, that the electrical supply is suitable for the mechanical building services system
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. verify that job information and documentation is current and relevant and that the plant, instruments, access equipment and tools are fit for purpose
5. select, as required, electrical equipment, cables/wiring, accessories and components and confirm that they are:
 - of the right type and size
 - fit for purpose in accordance with the mechanical building services system's design
6. comply with industry practices and organisational procedures to ensure the co-ordination of site services and the activities of other trades
7. identify the correct means of safe electrical isolation prior to commencing disconnection, installation and/or connection work
8. complete safe isolation as required to ensure the safe disconnection, installation and/or connection of electrical equipment, cables/wiring, accessories and components associated with the electrical supply and/or control of the mechanical building services system
9. disconnect, install and/or connect, as required, electrical equipment, cables/wiring, accessories and components associated with the electrical supply and/or control of the mechanical building services system in accordance with the requirements of:
 - industry recognised methods and procedures
 - manufacturers' instructions
10. check, as necessary, that the electrical equipment, cables/wiring, accessories and components are of proper construction as regards to insulation, mechanical strength and protection, and ensure that they are identified correctly and clearly in accordance with the requirements of

the mechanical building services system

11. undertake, as necessary, functional testing of the electrical equipment, accessories and components associated with the electrical supply and/or control of the mechanical building services system in accordance with:

- industry recognised methods and procedures
- manufacturers' instructions

12. identify and rectify electrical faults in the mechanical building services system in accordance with:

- industry recognised methods and procedures
- manufacturers' instructions

13. confirm with the relevant people:

- those necessary variations to the planned programme of work
- the actions to be taken to ensure that any variations to the planned programme of work will minimise the potential for hazard and risk

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

Knowledge and understanding

You need to know and understand:

1. the limitations of your responsibility when carrying out work on electrical supplies and/or circuits for the control of mechanical building services systems
2. the applications, advantages and limitations of electrical supplies
3. the applications, advantages and limitations of different electrical equipment, cables/wiring, accessories and components in relation to the working environment
4. the appropriate industry standards and regulations relevant to carrying out work on electrical supplies and/or circuits for the control of mechanical building services systems
5. how to verify that job information and documentation is current and relevant and that the plant, instruments, access equipment and tools are fit for purpose
6. 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 mechanical building services system's design
 - the conditions of the working environment
 - organisational procedures
7. the methods for selecting electrical equipment, cables/wiring, accessories and components to ensure that they are fit for purpose
8. how to interpret diagrams and drawings for the mechanical building services system to identify the location of the:
 - site services
 - electrical equipment, accessories and components
9. the methods and techniques for disconnecting, installing and/or connecting electrical equipment, cables/wiring, accessories and components in accordance with:
 - the mechanical building services system's design
 - manufacturers' instructions
 - the correct procedures for safe isolation
10. industry recognised methods and procedures for the functional

testing of the electrical equipment, accessories and components associated with the electrical supply and/or control of the mechanical building services system

11. how to identify and rectify electrical faults in the mechanical building services system in accordance with:

- industry recognised methods
- the limitations of your responsibility

12. the organisational procedures for confirming with the relevant people the appropriate actions to be taken to ensure that any variations to the planned programme of work will not introduce a hazard and have minimum negative impact on the installation work to be undertaken

13. the methods for the safe transport and/or disposal of waste material, substances and liquids in accordance with suppliers' and manufacturers' instructions

**Scope/range related
to performance
criteria**

Mechanical building services systems

- air conditioning
- domestic plumbing and heating
- heating and ventilating
- refrigeration

Working environments (internal and/or external)

- domestic
- non-domestic
 - commercial
 - industrial
 - agricultural
 - horticultural
 - leisure and entertainment
 - residential medical and care facilities
 - public highways and parks
 - public services establishments
 - pre-1919 traditional/historic buildings

Site services and system supply

- electricity
- water
- gas
- oil
- solid fuel
- solar thermal
- heat pumps
- water harvesting
- drainage

Organisation procedures

- information management
- method statement
- 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

Plant

- generators
- transformers for low voltage hand-tools
- lifting equipment
- access equipment

Electrical supply

Extra low voltage and/or low voltage single and/or multi-phase provision for:

- control
- communication
- heating
- lighting
- power

Electrical cables/wiring

- thermosetting insulated cables including flexes
- single and multicore thermoplastic and thermosetting insulated cables
- flat profile cable
- mineral insulated cables
- single wire armoured cables
- armoured/braided flexible cables and cords
- fire resistant cable

Electrical equipment, accessories and components

- isolators
- circuit breakers
- fuses
- switches
- socket-outlets/fused-spurs
- earthing protection
- motor control equipment
- control panels – environmental control
- control devices - electrical; electronic; electro-mechanical
- smart controls

Relevant people

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

Glossary

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Suite	Building Services Engineering Technology and Project Management
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