

Service and maintain environmental technology systems

Overview

This standard is for those who service and maintain environmental technology systems that supply the provision in buildings for heat, power, ventilation, temperature control and/or water

The individual undertaking this work must be able to comply with the procedures and methods for servicing and maintaining environmental technology systems in buildings in accordance with the current versions of the relevant industry standards and regulations, the specification, industry recognised working practices, the working environment and the natural environment. They must have knowledge and understanding of the environmental technology system they are servicing and maintaining and the heat, power, ventilation, temperature control and/or water system in the building that it is supplying.

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Performance criteria

You must be able to:

1. access current information about the environmental technology system and equipment as it applies to the work activity from relevant:
 - sources of information
 - documentation
2. confirm before work commences that the work location and work area can be accessed safely and has been checked for the risk to other personnel on the site, and take the required action if a risk is identified
3. verify that job information and documentation is current and relevant and that the plant, instruments, access equipment and tools are fit for purpose for the job
4. produce a risk assessment and method statement in accordance with organisational procedures for the work to be undertaken, including the identification and use of personal protective equipment
5. confirm a programme of work with in accordance with organisational procedures
6. advise relevant others about the potential disruption and consequences of undertaking the work activity
7. determine and obtain the resources required to undertake the work activity
8. select the associated equipment, tools, accessories and components and confirm that they are:
 - of the correct type and size
 - fit for purpose in accordance with the system design and specification
 - suitable for the working environment in which they are to be installed
9. confirm that the associated equipment, accessories and components are fit for purpose and have a current calibration certificate where required
10. identify the correct means of electrical isolation prior to commencing the work activity
11. complete safe isolation as and when required

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12. comply with industry practices and organisational procedures for the co-ordination of site services and the activities of other trades affected by the work activity
13. perform visual and manual checks to confirm that the equipment, components and accessories have been fixed, fitted and connected in accordance with:
 - the system design and specification
 - the working environment
 - manufacturers' instructions
14. undertake the specified work activity in accordance with service and maintenance schedules
15. service and maintain the equipment, components and accessories, adjusting the control features in accordance with:
 - the system design and specification
 - the working environment
 - manufacturers' instructions
 - service and maintenance schedules
16. repair, remove, replace and/or maintain equipment, accessories and components in accordance with industry practices:
17. use relevant techniques to ensure the safety and integrity of the environmental technology system where the work cannot be completed on time or to specification
18. test the integrity of the system and report on outcome
19. complete the specified work activity in accordance with industry recognised methods and practices
20. provide relevant information to relevant others about the environmental technology system and equipment in terms of:
 - use, safety and control
 - 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
 - relevant documentation being completed and recorded in the appropriate information systems in accordance with organisational procedures
21. complete and safely store all relevant documentation in accordance with organisational requirements
22. deal promptly and effectively with any problems within the scope and limitations of

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your own competence, responsibilities and accountability and report those which cannot be solved

23. implement organisational procedures for the safe transport and/or disposal of waste materials, substances and liquids in accordance with suppliers' and manufacturers' instructions and relevant legislation

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Knowledge and understanding

You need to know and understand:

1. the current legislation, guidelines, policies, procedures and protocols which are relevant to your working practice and to which you must adhere
2. the scope and limitations of your own competence, responsibilities and accountability as it applies to your job role
3. how to access and interpret all relevant work instructions and information
4. specific procedures for reporting issues which are beyond your competence, responsibilities and accountability
5. the duty to report any acts or omissions that could be unsafe/detrimental to you or others
6. the correct use of any equipment and PPE to protect the health and safety of you and others
7. the operation, applications, advantages and limitations of different systems and their associated equipment, components and accessories in relation to:
 - the working environment
 - the building's heat, power, ventilation, temperature control and/or water provision and requirements
8. the industry standards and regulations relevant to the service and maintenance of environmental technology systems
9. how to confirm, as required, that the integrity of the building structure is suitable for the system selected and its associated equipment, accessories and components
10. how to verify that job information and documentation is current and relevant
11. how to produce a risk assessment and method statement for the work to be undertaken, including the identification and use of personal protective equipment, in accordance with:
 - the system design and specification
 - the conditions of the working environment
 - organisational procedures

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12. the different methods for selecting the associated equipment, tools, accessories and components and how to determine they are:

- of the correct type and size
- fit for purpose and have a current calibration certificate where required
- suitable for the work activity

13. how to interpret diagrams and drawings to identify the planned location of the system associated equipment, accessories and components

14. the correct procedures for safe-isolation of electrical supplies

15. the techniques for the maintenance of environmental technology systems and equipment

16. how to repair, remove, replace and maintain, in accordance with industry practices:

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

17. the different methods, techniques and procedures used to:

- service the environmental technology system
- maintain the environmental technology system
- test the integrity of the installed system
- confirm optimum performance of the system and its associated equipment, accessories and components on completion of the work activity

18. the organisational procedures for:

- communicating the use, safety and control of the system to relevant others
- confirming with relevant others those necessary variations to the planned programme of work that may have the potential to introduce a hazard and/or impact on the installation work to be undertaken
- confirming with relevant others the correct actions to be taken to confirm that any variations to the planned programme of work will not introduce a hazard and have minimum impact on the installation work be undertaken
- obtaining customer/client acceptance of the installed system and its associated equipment, accessories and components post work activity and how to deal with cases where acceptance is not received
- the safe transport and/or disposal of any waste material, substances and liquids in accordance with suppliers' and manufacturers' instructions and legislation

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19. how to complete and safely store all relevant documentation in accordance with organisational requirements
20. how to deal promptly and effectively with any problems within the scope and limitations of your own competence, responsibilities and accountability and report those which cannot be solved
21. how to implement organisational procedures for the safe transport and/or disposal of waste materials, substances and liquids in accordance with suppliers' and manufacturers' instructions and relevant legislation

Scope/range

Work activity

- Service
- Maintain

Working environments (internal and/or external)

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

Site

- an existing building or structure (including retro-fit)
- external service environment
- new build construction – building or structure

Plant

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

Equipment, accessories and components

- Hand tools
- Power tools
- Access equipment
- Safety equipment (including PPE)

Environmental Technology Systems

- biomass
- grey water and rain water

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- heat pumps
 - air source
 - ground source
 - water source
- micro combined heat and power (micro-CHP/ domestic CHP)
- micro hydro
- micro-wind turbine
- photovoltaic thermal (PVT)
- solar photo-voltaic
- solar thermal

Equipment, accessories and components

- accelerators
- boilers
- circulating pumps
- cisterns
- drainback vessels
- expansion vessels
- generators
- heat batteries
- heat exchangers
- heat pumps (non-refrigerant)
- inverters
- isolation and control devices
- micro combined heat and power units (micro-CHP/ domestic CHP)
- photovoltaic thermal (PVT)
- purge pumps
- smart controls/technology
- solar thermal collectors
- solar voltaic modules/arrays
- storage vessels
- valves
- water turbines (small scale)

Tests

- electrical continuity
- presence of electrical supply
- polarity
- insulation resistance
- earth-fault loop impedance
- pressure tests for pipework systems
- static pressure tests
- air tests
- system hygiene and charging

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- functional/performance tests
- fluid level and quality checks (e.g. water, brine, glycol)

Organisation procedures

- accident reporting
- communication with relevant others
- customer services
- emergencies
- implementing and monitoring health and safety requirements and issues
- implementing and monitoring issues relating to the natural environment
- information management
- project management
- risk assessment (Health & Safety)
- waste management / recycling

Relevant others

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

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