
Overview

This standard is for those who install, test and commission/decommission **Air and Ground-Source Heat Pumps (AGSHPs)** that supply the provision in buildings for heat, temperature control and/or water.

The individual undertaking this work must be able to comply with the procedures and methods for installing, testing and commissioning AGSHPs 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 AGSHP systems they are installing, testing and commissioning/decommissioning and the requirements of the building that it is supplying.

Performance criteria

You must be able to:

1. access current information about the AGSHPs and equipment as it applies to the work activity from relevant:
 - sources of information
 - documentation
2. confirm that the system selected and its design and specification is suitable for the building heat, power, ventilation, temperature control and/or water requirements
3. 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
4. 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
5. check system design information and make relevant others aware of any concerns or issues
6. confirm with relevant others that the integrity of the building structure is suitable for the system selected and its associated equipment, accessories and components
7. confirm, with relevant others, that the system and its design and specification is compatible with the building existing heat, power, temperature control and/or water supply systems it is to be connected to
8. 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
9. confirm a programme of work in accordance with organisational procedures
10. advise relevant others about the potential disruption and consequences of undertaking the work activity
11. determine and obtain the resources required to undertake the work activity
12. 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
13. confirm that the associated equipment, accessories and components are fit for purpose and have a current calibration certificate where required
14. identify the correct means of electrical isolation prior to commencing the work

activity

15. complete safe isolation as and when required
16. 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
17. 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
 - manufacturer instructions
 - industry standards
18. test the integrity of the system and report on outcome
19. commission/decommission the associated equipment, components and accessories, adjusting the control features in accordance with:
 - the system design and specification
 - the working environment
 - manufacturer instructions
 - industry standards
20. complete appropriate testing procedures in line with industry practices
21. accurately identify the cause of faults and those parts/components that need to be repaired/replaced
22. carry out service and maintenance activities and procedures in accordance with:
 - the plumbing and heating system design
 - the working environment
 - manufacturer instructions
 - industry standards
23. complete repairs/replacements as necessary
24. complete the specified work activity in accordance with industry recognised methods and practices
25. provide relevant information to relevant others about the AGSHPs 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

26. complete and safely store all relevant documentation in accordance with organisational requirements

27. 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

28. implement organisational procedures for the safe transport and/or disposal of waste materials, substances and liquids in accordance with supplier and manufacturer instructions and relevant legislation

29. complete all relevant documentation in accordance with organisational procedures

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. the duty to report any acts or omissions that could be unsafe/detrimental to you or others
4. how to access and interpret all relevant work instructions and information
5. specific procedures for reporting issues which are beyond your competence, responsibilities and accountability
6. the working principles of AGSHPs
7. how to read and interpret AGSHP design specifications and drawings
8. how to carry out and apply relevant calculations including those for heat loss
9. how to check system design information and calculations and make relevant others aware of any concerns
10. the duty to report any acts or omissions that could be unsafe/detrimental to you or others
11. the correct use of any equipment and PPE to protect the health and safety of you and others
12. the operation, applications, advantages and limitations of the different systems and their associated equipment, components and accessories in relation to:
 - the working environment
 - the building heat, power, ventilation, temperature control and/or water provision and requirements
13. the required industry standards and regulations relevant to installing, testing, commissioning and decommissioning AGSHPs
14. 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
15. how to verify that the job information and documentation is current and relevant
16. 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
- 17. the methods for determining the type of size of appliances, components and accessories in accordance with industry recognised organisational procedures
- 18. 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 in accordance with the system design and specification
 - suitable for the working environment in which they are to be installed
 - suitable for the building heat, power, temperature control and/or water provision and requirements
- 19. how to interpret diagrams and drawings to identify the planned location of the system associated equipment, accessories and components
- 20. the correct procedures for safe-isolation of electrical supplies
- 21. the methods, techniques and procedures used to test the integrity of the installed system
- 22. the methods, techniques and procedures used to ensure optimum performance of the system and its associated equipment, accessories and components on completion of the work activity
- 23. the methods, techniques and procedures for commissioning/decommissioning the associated equipment, components and accessories in accordance with:
 - the system design and specification
 - the working environment
 - the manufacturer instructions
- 24. the appropriate testing procedures and how to complete these in line with industry practices
- 25. how to accurately identify the cause of faults and those parts/components that need to be repaired/replaced
- 26. how to carry out service and maintenance activities and procedures in accordance with:
 - the system design
 - the working environment
 - manufacturer instructions
 - industry standards
- 27. how to complete repairs/replacements as necessary
- 28. 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 to 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
29. the safe transport and/or disposal of any waste material, substances and liquids in accordance with supplier and manufacturer instructions and legislation
 30. how to complete and safely store all relevant documentation in accordance with organisational requirements
 31. 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
 32. how to implement organisational procedures for the safe transport and/or disposal of waste materials, substances and liquids in accordance with supplier and manufacturer instructions and relevant legislation
 33. how to complete relevant documentation in accordance with organisational procedures

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