BSEHN01	Installing and Testing Heat Network Systems
Overview	This standard is for people who install and test (verify) Heat Network systems and equipment which may include Low Carbon Technology and Smart Technology. The person carrying out this work must be able to comply with the procedures and methods for installing and testing Heat Network systems and equipment in accordance with 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 know and understand the different types of Heat Network systems and equipment their limitations, applications and the safe techniques for their positioning, fitting, fixing and connection.
Performance Criteria	1. verify that job information and documentation is current and relevant and that the plant, instruments and access equipment are fit for purpose 2. confirm before work starts 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 appropriate action if a risk is present 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. remove all existing equipment (e.g. hot water storage) where appropriate and accessories in accordance with organisational requirements 5. inform relevant others about any design issues identified within the scope and limitations of your own competence, responsibilities and accountability 6. identify and select the relevant tools, equipment, accessories and components and confirm that they are: • of the right type and size • fit for purpose in accordance with the system design 7. confirm a programme of work with relevant others in accordance with organisational procedures 8. comply with industry practices and organisational procedures to ensure the co-ordination of site services and the activities of other trades 9. identify the correct means of electrical isolation prior to commencing the work 10. complete safe-isolation[1] as and when required to ensure safe working 11. install, fix, connect, join, terminate and label Heat Network systems and their associated equipment, accessories and components (including all relevant pipework) in accordance with the requirements of: • the system design • industry recognised methods • manufacturer instructions • the building fabrics • thermal considerations 12. test and verify the connections and joints of the Heat Network system to ensure they are of proper construction in terms of insulation, mechanical strength and protection, and ensure

[1] The individual must understand and apply safe isolation procedures, use GS38-compliant test equipment, identify the correct point of isolation, lock off supplies, label isolations, and confirm relevant Heat Network systems and equipment are dead using an approved voltage tester and proving unit. They must also be able to recognise dangerous conditions.

	that they are identified correctly and clearly in accordance with the organisational requirements 13. carry out relevant pressure testing on the system 14. apply filling and flushing techniques in accordance with: • the system design • industry recognised methods • manufacturer instructions • the building fabrics • thermal considerations 15. Insulate all relevant parts of the system and equipment in accordance with the system design • industry recognised methods • manufacturer instructions • the building fabrics • thermal considerations 16. use resources efficiently in accordance with organisational requirements 17. confirm 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 • the correct actions to be taken to ensure that any variations to the planned programme of work will not introduce a hazard and have minimum impact on the installation to be undertaken 18. provide clear and accurate information to relevant others about Heat Network systems and equipment in terms of: • hand over to the customer/client • any variations to the original system and/or its equipment/costs • customer/client acceptance of the completed work in accordance with organisational procedures 19. implement organisational procedures for the safe transport and/or disposal of waste material, substances and liquids in accordance with supplier and manufacturer instructions 20. complete relevant documentation in accordance with organisational procedures
Knowledge and Understanding	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 Heat Network systems and associated equipment, accessories and components 4. the appropriate industry standards, regulations and design requirements relevant to installing and testing Heat Network systems and associated equipment, accessories and components 5. 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 system design • organisational procedures 6. the potential design-related issues that are within the scope and limitations of your own competence, responsibilities and accountability

HNV03

	7. 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 8. the applications, advantages and limitations of types of personal protective equipment 9. the industry recognised methods for determining the type, size and rating of Heat Network systems and associated equipment, accessories and components in relation to the system design and identifying alternatives where required 10. how to interpret diagrams and drawings for the Heat Network systems to locate site services 11. how to interpret diagrams and drawings for the Heat Network systems to identify the planned location of the equipment, accessories and components 12. the methods and techniques for installing, fixing, connecting, joining, terminating and labelling Heat Network systems and equipment, accessories and components in accordance with: • the system design • industry recognised methods • manufacturer instructions • the building fabrics • thermal considerations 13. specific requirements for fitting, jointing and insulating pipework 14. the correct procedures for safe-isolation 15. methods and procedures for testing and verifying Heat Network systems and their associated equipment, accessories and components (including leakage testing) 16. the principles and practice of: • pressure testing • filling and flushing system • insulating 17. how to manage resources effectively 18. how to provide clear and accurate information to relevant others about Heat Network systems and equipment in terms of: • hand over to the customer/client • any variations to the original system and/or its equipment/costs • customer/client acceptance of the completed work in accordance with organisational procedures 19. the organisational procedures for confirming with relevant others 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 work to be undertaken 20. the methods for the safe transport and/or disposal of waste material, substances and liquids in accordance with supplier and manufacturer instructions 21. how to complete relevant documentation in accordance with organisational procedures
Scope	**Working environments (internal and/or external)** • Commercial • Industrial • Residential **Site** • an existing building or structure • new build construction – building or structure

HN V03

Site services

- data transmission
- drainage
- electricity
- telecommunications
- water

Heat Network Equipment

- circulation pumps
- control systems (emitters, sensors etc)
- cooling system (where appropriate)
- expansion vessels and pressurisation units
- heat interface unit (HIU)
- heat meters
- heat sources
- insulated flow and return pipes
- metering systems
- monitoring and remote access
- pipework
- thermal stores and buffer tanks
- valves for isolation and control
- water treatment plant

Filling and flushing of the system

- filling techniques (mains cold water, water bowsers)
- sampling, analysis and recording
- stagnation risk
- types of system (water, depleted water, chemically treated)
- use of flushing bypasses
- use of on-site test equipment
- water quality parameters
- water quality strategy

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
- risk management

Plant

- access equipment
- generators

HN V03

	• lifting equipment • transformers for reduced low voltage hand-tools **Relevant others** • client representatives • customers/clients • designer (or those responsible for the design) • manufacturer • members of the public • other contractors/trades • owner/occupier/landlord • site/contract manager • supervisors • work colleagues **Documentation** • as fitted • design • Operations and Maintenance (O&M) • regulatory requirements • relevant certification

HN V03

BSEHN02	Diagnosing and Rectifying Faults in Heat Network Systems
Overview	This standard is for people who diagnose and rectify faults in Heat Network systems and equipment which may include Low Carbon Technology and Smart Technology. The person carrying out this work must be able to comply with the procedures and methods for diagnosing and rectifying Heat Network systems and equipment in accordance with 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 know and understand the different types of Heat Network systems and equipment their limitations, applications and the safe techniques for diagnosing and rectifying faults.
Performance Criteria	1. verify that job information and documentation is current and relevant and that the plant, instruments and access equipment are fit for purpose 2. confirm before work starts 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 appropriate action if a risk is present 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. inform relevant others about any design issues identified within the scope and limitations of your own competence, responsibilities and accountability 5. identify and select the relevant tools, equipment, accessories and components and confirm that they are: • of the right type and size • fit for purpose in accordance with the system design 6. confirm a programme of work with relevant others in accordance with organisational procedures 7. comply with industry practices and organisational procedures to ensure the co-ordination of site services and the activities of other trades 8. identify the correct means of electrical isolation prior to commencing the work 9. complete safe-isolation[2] as and when required to ensure safe working 10. determine and obtain the resources required, as relevant, to undertake: • the identification and location of the fault(s) • the rectification of the fault(s) 11. select the instruments to be used 12. confirm that the instruments are fit for purpose and have a current calibration certificate 13. comply with industry practices and organisational procedures to ensure the co-ordination of site services and the activities of other trades affected by: • the identification and location of the fault(s) • the rectification of the fault(s) 14. identify, locate, diagnose and rectify faults 15. repair, remove and replace relevant equipment, accessories and components in accordance with industry recognised methods and procedures 16. ensure, if the fault(s) cannot be corrected immediately, the safety of the relevant equipment, accessories and components

HNV03

[2] The individual must understand and apply safe isolation procedures, use GS38-compliant test equipment, identify the correct point of isolation, lock off supplies, label isolations, and confirm relevant Heat Network systems and equipment are dead using an approved voltage tester and proving unit. They must also be able to recognise dangerous conditions.

	17. inspect and test the repaired and/or replaced equipment, accessories and components, as appropriate and in accordance with industry recognised methods and practices 18. use resources efficiently in accordance with organisational requirements 19. confirm 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 • the correct actions to be taken to ensure that any variations to the planned programme of work will not introduce a hazard and have minimum impact on the installation to be undertaken 20. provide clear and accurate information to relevant others about Heat Network systems and equipment in terms of: • hand over to the customer/client • any variations to the original system and/or its equipment/costs • customer/client acceptance of the completed work in accordance with organisational procedures 21. implement organisational procedures for the safe transport and/or disposal of waste material, substances and liquids in accordance with supplier and manufacturer instructions 22. complete relevant documentation in accordance with organisational procedures
Knowledge and Understanding	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 applications, advantages and limitations of different Heat Network systems 4. the applications, advantages and limitations of Heat Network systems, appliances, components and accessories in relation to the working environment 5. the appropriate industry standards, regulations and design requirements relevant to the diagnosing and rectifying faults in Heat Network systems 6. 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 7. 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 system design • organisational procedures 9. the potential design-related issues that are within the scope and limitations of your own competence, responsibilities and accountability 10. the operation, applications, advantages and limitations of different Heat Network systems 11. the organisational procedures and industry practices when carrying out the processes for the identification and rectification of faults for: • advising relevant others about the potential disruption and consequences • confirming a programme of work with relevant others • ensuring the coordination of site services and the activities of other trades affected 12. how to determine and obtain the resources required, as relevant, to undertake: • the identification and location of the fault(s) • the rectification of the fault(s) 13. how to select the instruments to be used

	14. how to confirm that the instruments are fit for purpose and have a current calibration certificate 15. the correct procedures for safe isolation 16. the techniques to identify, locate, diagnose and rectify faults (including leakage testing) 17. how to repair, remove and replace equipment, accessories and components in accordance with industry practices 18. how to ensure, if the fault(s) cannot be corrected immediately, the safety of the relevant equipment, accessories and components 19. the methods and processes to inspect and test the equipment, accessories and components as appropriate and in accordance with industry practices 20. how to manage resources effectively 21. how to provide clear and accurate information to relevant others about Heat Network systems and equipment in terms of: • hand over to the customer/client • any variations to the original system and/or its equipment/costs • customer/client acceptance of the completed work in accordance with organisational procedures 22. the organisational procedures for confirming with relevant others 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 work to be undertaken 23. the methods for the safe transport and/or disposal of waste material, substances and liquids in accordance with supplier and manufacturer instructions 24. how to complete relevant documentation in accordance with organisational procedures
Scope	**Working environments (internal and/or external)** • Commercial • Industrial • Residential **Site** • an existing building or structure • new build construction – building or structure **Site services** • data transmission • drainage • electricity • telecommunications • water **Heat Network Equipment** • circulation pumps • control systems (emitters, sensors etc) • cooling system (where appropriate) • expansion vessels and pressurisation units • heat interface unit (HIU) • heat meters • heat sources • insulated flow and return pipes • metering systems

HNV03

- monitoring and remote access
- pipework
- thermal stores and buffer tanks
- valves for isolation and control
- water treatment plant

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
- risk management

Plant

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

Relevant others

- client representatives
- customers/clients
- designer (or those responsible for the design)
- manufacturer
- members of the public
- other contractors/trades
- owner/occupier/landlord
- site/contract manager
- supervisors
- work colleagues

Documentation

- as fitted
- design
- Operations and Maintenance (O&M)
- pre-test
- post works
- regulatory requirements
- relevant certification

HN V03

BSEHN03	Maintaining Heat Network Systems
Overview	This standard is for people who maintain Heat Network systems and equipment which may include Low Carbon Technology and Smart Technology. The person carrying out this work must be able to comply with the procedures and methods for maintaining Heat Network systems and equipment in accordance with 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 know and understand the different types of Heat Network systems and equipment their limitations, applications and the safe techniques for maintaining them.
Performance Criteria	1. verify that job information and documentation is current and relevant and that the plant, instruments and access equipment are fit for purpose 2. confirm before work starts 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 appropriate action if a risk is present 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. inform relevant others about any design issues identified within the scope and limitations of your own competence, responsibilities and accountability 5. identify and select the relevant tools, equipment, accessories and components and confirm that they are: • of the right type and size • fit for purpose in accordance with the system design 6. confirm a programme of work with relevant others in accordance with organisational procedures 7. comply with industry practices and organisational procedures to ensure the co-ordination of site services and the activities of other trades 8. identify the correct means of electrical isolation prior to commencing the work 9. complete safe-isolation[3] as and when required to ensure safe working 10. determine at the outset, that the plans for maintaining the systems, appliances, components and accessories are in accordance with: • the system design • the working environment • manufacturer instructions • thermal considerations 11. accurately identify the cause of faults and those parts/components that need to be repaired/replaced 12. carry out maintenance activities and procedures in accordance with: • the system design • the working environment • manufacturer instructions 13. complete repairs/replacements as necessary 14. use resources efficiently in accordance with organisational requirements

[3] The individual must understand and apply safe isolation procedures, use GS38-compliant test equipment, identify the correct point of isolation, lock off supplies, label isolations, and confirm relevant Heat Network systems and equipment are dead using an approved voltage tester and proving unit. They must also be able to recognise dangerous conditions.

	15. confirm 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 • the correct actions to be taken to ensure that any variations to the planned programme of work will not introduce a hazard and have minimum impact on the installation to be undertaken 16. provide clear and accurate information to relevant others about Heat Network systems and equipment in terms of: • hand over to the customer/client • any variations to the original system and/or its equipment/costs • 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	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 applications, advantages and limitations of different Heat Network systems 4. the applications, advantages and limitations of Heat Network systems, appliances, components and accessories in relation to the working environment 5. the appropriate industry standards, regulations and design requirements relevant to the maintenance of Heat Network systems 6. 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 7. the correct procedures for safe isolation 8. 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 system design • organisational procedures 9. the potential design-related issues that are within the scope and limitations of your own competence, responsibilities and accountability 10. methods and procedures 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 system design • the conditions of the working environment • organisational procedures 11. the methods for determining the type of size of replacement systems, appliances, components and accessories in accordance with industry recognised organisational procedures 12. how to interpret diagrams and drawings for the system to locate site services and system supply 13. how to interpret diagrams and drawings for system to identify the location of the systems, appliances, components and accessories

HNV03

	14. the organisational procedures for confirming, before work starts, 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 for taking appropriate action if a risk is present 15. the appropriate testing procedures for verifying the system integrity (including leakage testing) 16. basic fault-finding techniques 17. the methods and techniques for servicing and maintaining systems, appliances, components and accessories in accordance with: • the system design • the working environment • manufacturer instructions • thermal considerations 18. the methods and techniques for replacing/repairing the systems, appliances, components and accessories in accordance with: • the system design • the working environment • manufacturer instructions 19. how to manage resources effectively 20. how to provide clear and accurate information to relevant others about Heat Network systems and equipment in terms of: • hand over to the customer/client • any variations to the original system and/or its equipment/costs • customer/client acceptance of the completed work in accordance with organisational procedures 21. the organisational procedures for confirming with relevant others 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 work to be undertaken 22. the methods for the safe transport and/or disposal of waste material, substances and liquids in accordance with supplier and manufacturer instructions 23. how to complete relevant documentation in accordance with organisational procedures
Scope	**Working environments (internal and/or external)** • Commercial • Industrial • Residential **Site** • an existing building or structure • new build construction – building or structure **Site services** • data transmission • drainage • electricity • telecommunications • water **Heat Network Equipment**

HNV03

- circulation pumps
- control systems (emitters, sensors etc)
- cooling system (where appropriate)
- expansion vessels and pressurisation units
- heat interface unit (HIU)
- heat meters
- heat sources
- insulated flow and return pipes
- metering systems
- monitoring and remote access
- pipework
- thermal stores and buffer tanks
- valves for isolation and control
- water treatment plant

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
- risk management

Plant

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

Relevant others

- client representatives
- customers/clients
- designer (or those responsible for the design)
- manufacturer
- members of the public
- other contractors/trades
- owner/occupier/landlord
- site/contract manager
- supervisors
- work colleagues

Documentation

- as fitted
- design
- Operations and Maintenance (O&M)
- regulatory requirements

HN V03

	• relevant certification

HN V03

BSEHN04	Commissioning Heat Network Systems
Overview	This standard is for people who commission Heat Network systems and equipment which may include Low Carbon Technology and Smart Technology. The person carrying out this work must be able to comply with the procedures and methods for commissioning Heat Network systems and equipment in accordance with 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 know and understand the different types of Heat Network systems and equipment their limitations, applications and the safe techniques for commissioning them.
Performance Criteria	1. verify that job information and documentation is current and relevant and that the plant, instruments and access equipment are fit for purpose 2. confirm before work starts 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 appropriate action if a risk is present 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. inform relevant others about any design issues identified within the scope and limitations of your own competence, responsibilities and accountability 5. identify and select the relevant tools, equipment, accessories and components and confirm that they are: • of the right type and size • fit for purpose in accordance with the system design 6. confirm a programme of work with relevant others in accordance with organisational procedures 7. comply with industry practices and organisational procedures to ensure the co-ordination of site services and the activities of other trades 8. identify the correct means of electrical isolation prior to commencing the work 9. complete safe-isolation[4] as and when required to ensure safe working 10. confirm systems, appliances, components and accessories installed are: • correctly installed and functioning properly • of the right type and size • fit for purpose in accordance with the system design • suitable for the working environment in which they are installed • filled, pressure tested, and flushed (with water treatment/conditioning as appropriate) • subjected to the relevant quality assurance activities such as non-destructive testing (NDT) 11. perform visual and manual checks to ensure that the systems, appliances, components and accessories have been fixed, fitted and connected in accordance with: • the system design • the working environment • manufacturer instructions

[4] The individual must understand and apply safe isolation procedures, use GS38-compliant test equipment, identify the correct point of isolation, lock off supplies, label isolations, and confirm relevant Heat Network systems and equipment are dead using an approved voltage tester and proving unit. They must also be able to recognise dangerous conditions.

HNV03

	12. comply with industry practices and organisational procedures to ensure the co-ordination of site services and system supply and the activities of other trades 13. inspect and pre-commission systems, appliances, components and accessories in accordance with: • the system design • the working environment • manufacturer instructions 14. confirm the integrity of the installed system using appropriate testing procedures 15. commission systems, appliances, components and accessories, adjusting safely and effectively the control features in accordance with: • the system design • the working environment • manufacturer instructions • thermal considerations 16. carry out all relevant commissioning checks 17. use resources efficiently in accordance with organisational requirements 18. confirm 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 • the correct actions to be taken to ensure that any variations to the planned programme of work will not introduce a hazard and have minimum impact on the installation to be undertaken 19. provide clear and accurate information to relevant others about Heat Network systems and equipment in terms of: • hand over to the customer/client • any variations to the original system and/or its equipment/costs • customer/client acceptance of the completed work in accordance with organisational procedures 20. implement organisational procedures for the safe transport and/or disposal of waste material, substances and liquids in accordance with supplier and manufacturer instructions 21. complete relevant documentation in accordance with organisational procedures
Knowledge and Understanding	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 applications, advantages and limitations of different Heat Network systems 4. the applications, advantages and limitations of systems, appliances, components and accessories in relation to the working environment 5. the appropriate industry standards, regulations and design requirements relevant to the commissioning of Heat Network systems 6. 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 7. the correct procedures for safe isolation 9. the potential design-related issues that are within the scope and limitations of your own competence, responsibilities and accountability

HN V03

	10. methods and procedures 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 system design • the conditions of the working environment • organisational procedures 11. confirm systems, appliances, components and accessories installed are: • correctly installed and functioning properly • of the right type and size • fit for purpose in accordance with the system design • suitable for the working environment in which they are installed • filled, pressure tested and flushed (with water treatment/conditioning as appropriate • subjected to the relevant quality assurance activities such as non-destructive testing (NDT) 12. the visual and manual checks required to confirm that the systems, appliances, components and accessories have been fixed, fitted and connected in accordance with: • the system design • the working environment • organisational procedures 13. the organisational procedures for confirming, before work starts, 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 for taking appropriate action if a risk is present 14. the methods and techniques for inspecting and pre-commissioning the system in accordance with: • the system design • the working environment • manufacturer instructions 15. the methods and techniques for commissioning the system in accordance with: • the system design • the working environment • manufacturer instructions • thermal considerations 16. the appropriate testing procedures for confirming the system integrity (including leakage testing) 17. the purpose of practice of carrying out all relevant commissioning checks 18. how to manage resources effectively 19. how to provide clear and accurate information to relevant others about Heat Network systems and equipment in terms of: • hand over to the customer/client • any variations to the original system and/or its equipment/costs • customer/client acceptance of the completed work in accordance with organisational procedures

HN V03

	20. the organisational procedures for confirming with relevant others 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 work to be undertaken 21. the methods for the safe transport and/or disposal of waste material, substances and liquids in accordance with supplier and manufacturer instructions 22. how to complete relevant documentation in accordance with organisational procedures
Scope	**Working environments (internal and/or external)** • Commercial • Industrial • Residential **Site** • an existing building or structure • new build construction – building or structure **Site services** • data transmission • drainage • electricity • telecommunications • water **Heat Network Equipment** • circulation pumps • control systems (emitters, sensors etc) • cooling system (where appropriate) • expansion vessels and pressurisation units • heat interface unit (HIU) • heat meters • heat sources • insulated flow and return pipes • metering systems • monitoring and remote access • pipework • thermal stores and buffer tanks • valves for isolation and control • water treatment plant **Relevant commissioning checks** • Acceptance Testing across all Elements on the Heat Network • Automatic and Remote Monitoring System (ARMS) is operating correctly • the condition of the Heat Network including a Condition Audit (and Condition Survey if necessary) • the heat loss from the Heat Network is within thresholds • water quality KPIs for the system water are within their control limits **Organisation procedures** • accident reporting • communication with relevant others • customer services

HN V03

- 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
- risk management

Plant

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

Relevant others

- client representatives
- customers/clients
- designer (or those responsible for the design)
- manufacturer
- members of the public
- other contractors/trades
- owner/occupier/landlord
- site/contract manager
- supervisors
- work colleagues

Appropriate testing procedures

- leakage tests
- performance tests
- pressure tests for pipework systems
- system hygiene
- system charging

Documentation

- as fitted
- commissioning report
- design
- handover report
- Operations and Maintenance (O&M)
- pre-commissioning data
- relevant certification

HN V03

BSEHN05	Decommissioning Heat Network Systems
Overview	This standard is for people who decommission Heat Network systems and equipment which may include Low Carbon Technology and Smart Technology. The person carrying out this work must be able to comply with the procedures and methods for decommissioning Heat Network systems and equipment in accordance with 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 know and understand the different types of Heat Network systems and equipment their limitations, applications and the safe techniques for decommissioning them.
Performance Criteria	1. verify that job information and documentation is current and relevant and that the plant, instruments and access equipment are fit for purpose 2. confirm before work starts 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 appropriate action if a risk is present 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. inform relevant others about any design issues identified within the scope and limitations of your own competence, responsibilities and accountability 5. identify and select the relevant tools, equipment, accessories and components and confirm that they are: • of the right type and size • fit for purpose in accordance with the system design 6. confirm a programme of work with relevant others in accordance with organisational procedures 7. comply with industry practices and organisational procedures to ensure the co-ordination of site services and the activities of other trades 8. identify the correct means of electrical isolation prior to commencing the work 9. complete safe-isolation[5] as and when required to ensure safe working 10. decommission systems, appliances, components and accessories in accordance with industry practices and organisational procedures 11. ensure that the Heat Network system cannot be accidently reactivated or become dangerous 12. use resources efficiently in accordance with organisational requirements 13. confirm 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 • the correct actions to be taken to ensure that any variations to the planned programme of work will not introduce a hazard and have minimum impact on the installation to be undertaken 14. provide clear and accurate information to relevant others about Heat Network systems and equipment in terms of: • hand over to the customer/client • any variations to the original system and/or its equipment/costs

[5] The individual must understand and apply safe isolation procedures, use GS38-compliant test equipment, identify the correct point of isolation, lock off supplies, label isolations, and confirm relevant Heat Network systems and equipment are dead using an approved voltage tester and proving unit. They must also be able to recognise dangerous conditions.

HNV03

	• customer/client acceptance of the completed work in accordance with organisational procedures 15. implement organisational procedures for the safe transport and/or disposal of waste material, substances and liquids in accordance with supplier and manufacturer instructions 16. complete relevant documentation in accordance with organisational procedures
Knowledge and Understanding	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 applications, advantages and limitations of different Heat Network systems 4. the applications, advantages and limitations of systems, appliances, components and accessories in relation to the working environment 5. the appropriate industry standards, regulations and design requirements relevant to the decommissioning of Heat Network systems 6. 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 7. the correct procedures for safe isolation 8. 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 system design • organisational procedures 9. the potential design-related issues that are within the scope and limitations of your own competence, responsibilities and accountability 10. the organisational procedures for confirming, before work starts, 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 for taking appropriate action if a risk is present 11. the methods and techniques for decommissioning the Heat Network system in accordance with: • the system design • the working environment • manufacturer instructions 12. the methods and techniques to ensure the system cannot be accidentally reactivated or become dangerous 13. the appropriate testing procedures for confirming the system integrity 14. how to manage resources effectively 15. how to provide clear and accurate information to relevant others about Heat Network systems and equipment in terms of: • hand over to the customer/client • any variations to the original system and/or its equipment/costs • customer/client acceptance of the completed work in accordance with organisational procedures 16. the organisational procedures for confirming with relevant others 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 work to be undertaken 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

HNV03

Scope	**Working environments (internal and/or external)** • Commercial • Industrial • Residential **Site** • an existing building or structure • new build construction – building or structure **Site services** • data transmission • drainage • electricity • telecommunications • water **Heat Network Equipment** • circulation pumps • control systems (emitters, sensors etc) • cooling system (where appropriate) • expansion vessels and pressurisation units • heat interface unit (HIU) • heat meters • heat sources • insulated flow and return pipes • metering systems • monitoring and remote access • pipework • thermal stores and buffer tanks • valves for isolation and control • water treatment plant **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 • risk management **Plant** • access equipment • generators • lifting equipment • transformers for reduced low voltage hand-tools

HN V03

	Relevant others • client representatives • customers/clients • designer (or those responsible for the design) • manufacturer • members of the public • other contractors/trades • owner/occupier/landlord • site/contract manager • supervisors • work colleagues **Documentation** • as fitted • design • Operations and Maintenance (O&M) • relevant certification

HN V03