

Overview

This national occupational standard is about working on gas water heating and wet central heating systems and appliances in domestic settings. Appliances can include instantaneous water heaters and wet central heating boilers and may involve working with unvented cylinders and some electricity systems.

As well as servicing and repairing, this standard covers the work activities of installing, and removing system components and appliances including when required for new installations or when exchanging, replacing or repositioning gas system components and appliances. It includes the disconnection, de-commissioning, testing and commissioning that is involved. It can apply to any type of fuel gas or combinations of fuel gas including, but not restricted to, natural gas, LPG, blended or 100% hydrogen.

This standard should be used in conjunction with:

- EUSDSG5 Prepare to work on gas systems or appliances in domestic settings; and
- EUSDSG15 Carry out gas tightness testing and check system safety in small settings

If applicable, this standard could also be used in conjunction with:

- EUSDSG4 Design and size systems for new installations or conversions in domestic settings.

This standard is for gas engineers who work in domestic settings

Performance criteria

You must be able to:

1. Make sure all required pre-work checks have been carried out prior to starting installation, service, repair or removal activities
2. Survey and record any damage or defects to existing building features, advising the property occupier of any defects found and agreeing planned work
3. Carry out all stages of the work in line with installation, maintenance or removal plans or activities
4. Carry out installation, service, repair, test and removal processes in accordance with manufacturers' specification, industry standards, safety schemes and regulations
5. Carry out installation, service, repair, testing and removal in line with recognised industry practices, work standards routines and sequences
6. Check that conditions within gas and electricity systems will permit safe de-commissioning and commissioning
7. Use designated safe isolation procedures and warning notices to prevent the unauthorised use of un-commissioned or de-commissioned gas appliances, gas systems, electrical systems and components
8. Select and use the correct tools, test equipment and other equipment for each stage of the work being carried out
9. Assemble gas and electricity system components to meet requirements of plans
10. Minimise damage to customer property and building features throughout all stages of the work
11. Confirm position of new, replacement or repositioned appliances meet location, siting and clearances required by manufacturers' instructions, industry standards' specification and building regulations
12. Confirm ventilation for new, replacement or repositioned appliance installations and systems meet industry standards, manufacturers' instructions and building regulations
13. Ensure existing systems are clean and free of debris
14. Fix and connect gas, electricity, central heating and condensate disposal components and all relevant pipes and components to appliances in line with plans
15. Confirm the operation of condensate disposal systems in line with manufacturers' instructions
16. Use tightness testing and purging, safe isolation and electrical testing procedures to confirm the integrity of systems and appliances
17. Use industry standard checks and testing procedures to confirm the integrity of chimney systems and appliance flue seals
18. Check appliance operating pressure and gas rate meet industry standards and manufacturers' requirements
19. Use industry standard visual checks and flue gas combustion analysis with approved test equipment to confirm combustion performance
20. Check gas appliances, systems and components function safely

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- and operate in accordance with manufacturers' instructions
21. Check electrical systems and components function safely and operate in accordance with manufacturers' instructions
 22. Complete and submit all relevant documentation and paperwork in line with industry standards and legislative requirements
 23. Instruct property occupiers on the correct operation of appliances and systems and provide them with their copy of appliance literature
 24. Resolve problems within own area of responsibility and competence in accordance with approved procedures
 25. Advise of any delays to the work, unresolved problems, unsafe situations and required remedial actions to those who require the information

Knowledge and understanding

You need to know and understand:

1. Regulations and guidance governing health and safety in the workplace, environmental protection and the use of risk assessments including safe access and working at heights, substances hazardous to health and building regulations
2. Legislation covering your general responsibilities for your own safety and that of others
3. The limits of your own autonomy and responsibility
4. Gas industry unsafe situations procedures and how to isolate unsafe gas appliances, gas systems and components
5. Potential hazards that could arise from all de-commissioning, installation, service, repair, removal and commissioning activities and checks to be carried out before work takes place
6. How to access and interpret normative documents, industry standards guidance documents, manufacturers' instructions, industry standards, safety schemes and regulations
7. Required pre-work checks including operating pressures and volumes, presence of asbestos
8. Industry practices, work standards routines and sequences for installing, servicing, repairing, exchanging, replacing, testing, connecting, removing, de-commissioning and recommissioning water heating and wet central heating gas appliances, systems and components including condensate drains for condensing boilers
9. Tests and checks to confirm the suitability of gas combustion performance including the use of approved flue gas analysers
10. Tests and checks to confirm the integrity, suitability, performance, operating pressure, gas rate and safe functioning of water heating systems and wet central heating gas appliances including the use of test equipment
11. Tests and checks to confirm the integrity, suitability and performance of chimneys and ventilation systems
12. Procedures for checking hot water performance of water heating gas appliances and combination boilers including pressure, flow rate and temperatures
13. How to measure and record installation and site details for preassembly
14. How to confirm that services and system requirements are adequate for gas system and components
15. Safe isolation methods, tests, and procedures for temporary and permanent de-commissioning of gas and electricity systems, components and appliances including use of temporary continuity bonds, non-contact voltage detectors, voltage indicators, proving units, multimeters
16. Measures to prevent un-commissioned and de-commissioned appliances or systems being brought into operation

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17. Positioning and fixing requirements for water heating and wet central heating gas appliances, systems and components including airing cupboards, compartments, roof spaces and external installations
 18. Methods of working which protect building décor, customer property and existing systems and components
 19. Safe processes and procedures for applying tightness testing and purging, safe isolation and electrical testing to appliances, gas systems and components to ensure safe functioning
 20. How to safely collect and dispose of system contents that may be hazardous to health or the environment
 21. The steps to take when problems arise with work activities
 22. Job management structures and methods of reporting and recording job progress or problems delaying progress
 23. How to complete documentation and records and which statutory body to submit it to including building regulation self certification
 24. System and appliance handover and demonstration procedures

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Originating Organisation	Energy & Utility Skills
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Relevant Occupations	Domestic Gas Engineers
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Suite	Downstream Domestic Gas Installation and Maintenance
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