

City & Guilds Level 2 Certificate in Domestic Natural Gas Installation and Maintenance

6132

Unit Handbook

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Level 2 Certificate in Domestic Natural Gas Installation and Maintenance

Award Standards and Units

Award 6132

6132 Knowledge Units and numbers

6132-22 Level 2 Gas Certificate Domestic Natural Gas Installation & Maintenance

- 201 Common basic gas processes
- 202 Maintaining safety in natural gas
- 203 Applying core gas safety measures
- 204 Effective working relationships in the gas industry
- 205 Electrical supply and earth continuity
- 206 Installation and maintenance of cookers and laundry appliances
- 207 Installation and maintenance of central heating and hot water heating appliances
- 208 Install, commission, decommission, service and maintain meters
- 209 Install, commission, decommission, service and maintain pipework
- 210 Install, comm', decomm', service & maintain warm air & water heating appliances
- 211 Install, commission, decommission, service and maintain space heaters appliances

Certificate in Domestic Natural Gas Installation and Maintenance

Unit 201 Common basic gas processes

Introductory notes

This Gas Certificate unit has been designed to assess knowledge competences which are detailed in the Domestic Natural Gas Installation and Maintenance NVQ Standards and linked to Scheme 6012 NVQs in gas.

The assessment content of each Gas Certificate unit is expressed as a number of knowledge outcomes derived from the NVQ Standards, which are cross referenced to the appropriate NVQ unit and element titles, PCs and range.

These knowledge outcomes in this document provide the basis for the assessment specification for this Gas Certificate Unit 201 Common basic gas processes.

Rationale and unit content:

This unit covers the following knowledge and understanding areas:

Knowledge items common to the basic gas activities for the installation and maintenance of

Gas appliances within the Level Two range

- Cookers and Laundry
- Central Heating and Hot Water Heating
- Meters
- Warm Air and Water Heating
- Space Heating and Leisure

Gas pipework systems including pipework and controls, and flues

Unit 201 contains the following **8 outcomes**

The candidate will be able to:

- 1 prepare work locations for the installation of systems and components
- 2 carry out the installation of systems and components
- 3 carry out pre-commissioning checks and tests on systems
- 4 commission systems
- 5 decommission systems
- 6 establish service and maintenance requirements for systems and components
- 7 establish maintenance requirements for systems and components
- 8 diagnose the cause and rectify faults in systems and components

Connection with other awards

This gas certificate unit- 201 is linked to the NVQ scheme 6012-02 Level 2 Gas Service Installation and Maintenance and the following units:

Unit 004 Install Natural Gas Systems and Components

Unit 005 Commission and De-commission Natural Gas Systems

Unit 006 Service and Maintain Natural Gas Systems and Components

Unit 201	NVQ Element	NVQ PCs	NVQ Range
Outcome			
1	004.1	004.1.1 - 1.9	1 - 9
2	004.2	004.2.1 - .2.9	1 - 6, 8, 9
3	005.1	005.1.1, 1.3, 1.4	1, 2, 4
4	005.2	005.2.1, 2.2, 2.4, 2.5	1 - 4
5	005.3	005.3.1 - 3.4	1 - 4
6	006.1	006.1.1 - 1.5	1 - 4
7	006.2	006.2.1, 2.3	1, 3
8	006.3	006.3.2, 3.4	2, 4, 5

Assessment

The outcomes from this Gas certificate unit 201 will be assessed by multiple choice question paper covering the eight outcomes

Outcome 1

Prepare Work Locations for the Installation of Systems and Components

The candidate will be able to state:

- 1 the sources of information on the preparatory work necessary for the system or component installation
 - a sources of information on the layout of buildings, including their construction details and materials, and provisions for systems components, including incoming services
 - b the sources of information on the requirements of health and safety legislation governing safety in work locations
 - c that information for smaller installations, or additions or amendments to systems, may be in the form of verbal instructions from the customer, and the importance of confirming such instructions.
 - d methods of accommodating system components within the building structure
 - e the preparatory work to be carried out by other trades (when in attendance)
- 2 the regulations recommendations governing safety in the workplace general responsibilities of the operative for his/her own safety and that of others
 - a the general requirements of health and safety legislation for the safety of work locations
 - b general responsibilities of operatives for their own safety and the safety of others
 - c requirements of health and safety legislation for the safe movement of the workforce, materials, site visitors, and members of the public
- 3 the equipment necessary to provide safe access to work at heights, or in confined spaces
 - a the equipment necessary to provide safe access to work at heights, including ladders, trestles, fixed and mobile scaffolds, checks for safe condition, erection, dismantling, and safe and secure storage, appropriate warning notices, and barriers
 - b checking the safety of temporary walkways for access to work locations, and the movement of materials and system components
 - c ensuring the provision of adequate lighting levels within work locations
- 4 how to protect customer's property or the building fabric prior to the work commencing
 - a the importance of checking work locations to identify any existing damage to customer's property, including building fabric, furnishings and fittings, ornaments and accessories
 - b the importance of recording and reporting any existing damage to the customer's property, before commencing any work
 - c the importance of taking appropriate measures to protect customer's property including the use of protective sheeting and the removal and safe storage of items that might be damaged during installation work
 - d the importance of liaising with the customer on temporary storage arrangements for property that could be damaged by work activities
 - e the importance of liaising with other trades on measures to protect work in progress, or materials ready to be fitted
- 5 the persons to whom deficiencies in system supply should be reported and procedures for isolating input services
 - a the persons to whom deficiencies in system supply should be reported, including the customer, co-contractors, or other building users
 - b the importance of ensuring that appropriate actions are taken to remedy deficiencies in system supply before the connection of the appliance

- 6 the tools, equipment, materials and components required for the system installation – order and supply advice, delivery and checking procedures
 - a procedures for ordering materials and components
 - b the purpose of supply and delivery documents
 - c the importance of checking deliveries of materials and components for compliance with the supply order, and noting and reporting any deficiencies or damage
 - d the importance of ensuring that material orders and supply dates will meet the job schedule
- 7 the actions to be taken should materials not be available at site to commence the installation activity
 - a the importance of checking that tools, equipment, materials and components will be on site before job commencement
 - b the importance of reporting promptly to the appropriate persons any anticipated delays in deliveries of tools, equipment, materials, and components
 - c the importance of liaising with other trades whose work may be affected by delays in tools, equipment, material or component delivery
- 8 secure storage procedures for tools, equipment, materials and components–basic stores procedures to ensure security and to minimise loss or wastage
 - a the types of secure storage provision that may be required for tools, equipment, materials, and components for installation and maintenance
 - b the importance of arranging storage provision before deliveries
- 9 how to ensure that the customer is fully briefed on all aspects of the installation programme
 - a the persons whose activities may be affected by the appliance installation work
 - b the types of industrial or commercial process that may be interrupted by work on Cookers and Laundry appliances
 - c the types of information that it is appropriate to pass to the customer, or other persons, including work schedules and operating instructions for systems and components
 - d the importance of ensuring that information is passed to the customer, or other person at the appropriate time

Outcome 2

Carry out the Installation of Systems and Components

The candidate will be able to state:

- 1 how to measure and record installation and site details for prefabrication purposes
 - a how to interpret drawings of installations to establish positions of appliances, fixings, controls
 - b methods of measuring locations into which appliances are to be installed and recording dimensions, angles, and sizes of pipework for prefabrication purposes
- 2 the industry practices and work standards for fabricating and installing system components
 - a methods of installing all materials used for appliance installations
 - b the industry standards of workmanship for appliance installations
 - c the safety practices appropriate to fabrication and installation work on appliances
 - d how to interpret system design information on the positioning requirements for appliances
- 3 the care and maintenance requirements of tools and equipment, and checks for safe condition
 - a the maintenance requirements for hand and power tools used for the installation of system components
 - b the checks for safe condition for hand and power tools used for the installation of systems and component
 - c the maintenance requirements for access equipment, including steps, ladders, trestles
 - d the checks for safe condition of access equipment, including steps, ladders, trestles
- 4 methods of working which protect the building décor, customer property and existing systems or components
 - a the importance of liaising with the customer on measures to protect property during work operations
 - b the importance of taking appropriate measures to protect customer's property including the use of protective sheeting and the removal and safe storage of items that might be damaged during installation work
 - c the importance of checking and reporting any existing damage to customer's property before commencing work activities
 - d the importance of keeping work locations clean and tidy
- 5 job management structures and methods of reporting and recording job progress or problems delaying progress
 - a typical job management structures in gas companies
 - b reporting procedures within gas companies
 - c reporting procedures when the gas company is sub-contracted to a main contractor
- 6 the range of tests used to confirm the soundness of systems and components and how to use the range of soundness test equipment
 - a the different types of test used for cookers and laundry appliance installations and procedures and work sequences for each type of test
 - b the hygiene and charging procedures for newly installed, cookers and laundry appliances
 - c methods of preventing the unauthorised/inadvertent use of cookers and laundry appliance installations that are not ready for use, including sealing all open ends on pipework, securing controls on incoming service or supply, placing warning notices on controls, advising customers or other trades
 - d the importance of advising customers or line managers when testing is about to take place, when testing has been completed, and when the system is ready for use

Outcome 3

Carry out Pre-commissioning Checks and Tests on Systems

The candidate will be able to state:

- 1 the procedures, equipment and legislative requirements for applying soundness tests to systems
 - a the industry procedures for applying soundness tests to appliances
 - b the sequences of actions for carrying out soundness tests appliances
 - c the tests and checks to be carried out before testing of appliances
 - d the equipment required to carry out soundness tests on appliances
 - e the requirements of current legislation on soundness testing of appliances
- 2 the methods of connecting components to systems
 - a how to check that appliances are correctly connected to systems pipework
 - b how to check that appliances are correctly connected to system supply
- 3 how to complete commissioning documentation confirming the safe commissioning of systems and components
 - a situations in which it may be necessary to complete records of pre-commissioning tests and checks
 - b the details that a record of pre-commissioning tests and checks should contain

Outcome 4

Commission Systems

The candidate will be able to state:

- 1 the sources of information on the performance of systems or components
 - a the sources of information on appliances performance, including job specifications, manufacturers' specifications or catalogues, contract specifications for commissioning larger installations
 - b the minimum requirements for appliance compliance with industry requirements when a formal specification is not available
- 2 the routines and sequences for commissioning systems or components
 - a the sequence of actions to be followed when commissioning appliances
 - b differences in procedures for testing appliances within dwellings, and small commercial or industrial buildings
 - c commissioning procedures for appliances which may affect supplies to industrial or commercial processes
- 3 the points in the commissioning process where co-operation and liaison with other trades and customers may be required
 - a situations in which the commissioning process may affect the activities of other customers or systems users
 - b the points within the commissioning activities where it might be necessary to liaise with other persons including customers and other trades
- 4 where to access user information appropriate to different systems and components
 - a the importance of ensuring that system or component information is in a format that can be understood by the non-technical person
- 5 system handover procedures and demonstrating the operation of systems and components to end users
 - a the importance of ensuring that handover procedures provide the customer, or other system users with all the necessary information on the operation of the system or component
 - b the types of information that a customer or other system user will need to ensure that they can operate the system or component correctly
- 6 the actions to take when components being commissioned do not meet design requirements
 - a the actions to take when systems or components do not meet the design specification
 - b the persons to be advised on jobs where the gas fitter is the sole contractor, and where the gas fitter is sub-contractor to a main contractor

Outcome 5

Decommission Systems

The candidate will be able to state:

- 1 de-commissioning procedures for temporary and permanent de-commissioning of systems
 - a identify the differences between the tests and procedures for temporary and permanent decommissioning of appliances
- 2 the importance of confirming the system design, specification, functions and outcomes of suspending the operation of the system
 - a the importance of interpreting information on appliances, including information gained from site inspection, to confirm the outcomes of decommissioning the appliance
 - b the persons with whom liaison should take place before, during and after the decommissioning process, including customers, other appropriate trades, line manager
 - c the industry requirements, standards, and tests and procedures used for decommissioning appliances
- 3 the potential hazards that could arise from de-commissioning activities and the checks to be carried out before de-commissioning takes place
 - a the potential safety hazards that could arise from the decommissioning of cookers and laundry appliances
 - b the checks to be carried out in advance of cookers and laundry appliance decommissioning to ensure that any potential hazards that could arise, have been removed
- 4 the precautions to ensure that de-commissioned systems do not prove a safety hazard – measures to prevent systems being brought into operation – safety and warning notices
 - a the precautionary actions including liaison with customer or other system or building users, sealing of open pipework, labelling of controls, to ensure that decommissioned cookers and laundry appliances do not become a hazard
 - b the types of warning notices that are appropriate for use on temporarily or permanently decommissioned cookers and laundry appliances
- 5 how to safely collect and dispose of system contents that may be hazardous to health or the environment
 - a the types of appliance materials that could prove hazardous to health or the environment
 - b how to ensure that appliance materials are disposed of safely
- 6 the need to liaise with others whose procedures or routines may be affected by the suspension of the system operation
 - a how to identify other persons, including customers, and other trades whose work or routines may be affected by the decommissioning procedures for cookers and laundry appliances
 - b liaise with other persons to minimise disruption to their work or routines

Outcome 6

Establish Service and Maintenance Requirements for Systems and Components

The candidate will be able to state:

- 1 the range of information that should be available on the routine and non-routine service and maintenance requirements of systems and components
 - a the range of information that should be available on appliances including specifications and schedules, manufacturers' information, services and maintenance schedules
 - b the details that may be obtained from the different information sources
- 2 how to plan service and maintenance procedures to minimise interference with system operation and customer routines
 - a the other persons, including the customer and co-contractors whose work or routines may be affected by maintenance activities on appliances
 - b the types of commercial or industrial operations that may be affected by maintenance activities on appliances
 - c how to plan the maintenance of appliances to minimise system downtime
 - d the importance of ensuring that all tools, equipment, and materials will be available as required and the costs of delays
- 3 how and when to liaise with others during service and maintenance activities
 - a how to identify other users of Cookers and Laundry appliances, with whom it would be appropriate to liaise, including customers and other trades
 - b the points within the maintenance activities at which it would be appropriate to liaise with others
- 4 the materials required for routine maintenance and sources of information on the materials required for routine maintenance operations
 - a the consumable materials required for the maintenance appliances, including replacement parts for controls, gland packings, washers
 - b the sources of information on the materials required for routine maintenance of appliances
- 5 the tools and equipment required for routine maintenance operations
 - a the tools and equipment required for maintenance operations, including hand and powered tools
 - b the access equipment used for routine maintenance operations on cookers and laundry appliances including stand steps, ladders, and trestle

Outcome 7

Establish Maintenance Requirements for Systems and Components

The candidate will be able to state:

- 1 how to use performance specifications for systems and components, and maintenance procedures necessary to restore or maintain the continued performance of systems and components
 - a the appliances that require routine maintenance
 - b how to interpret the required performance of appliances using performance specifications, manufacturer's technical data, codes of practice and BS Recommendations
 - c the routine service and maintenance procedures necessary to maintain cooker and laundry appliance component performance
- 2 how to complete records and reports of the maintenance of systems and components
 - a the types of service and maintenance activities for which it will be necessary to complete records of maintenance work
 - b the information that should be included on a service or maintenance record
- 3 the action to take when the system or component does not work to full performance specification
 - a procedures for reporting the continued failure of appliances
 - b the persons to whom it would be necessary to report continued failure of appliances
 - c circumstances in which it might be necessary to implement emergency or temporary provisions for cooking or laundry facilities due to delay in correcting faults

Outcome 8

Diagnose the Cause and Rectify Faults in Systems and Components

The candidate will be able to state:

- 1 the work procedures for the rectification of faults in systems or components which will ensure minimum disruption to customers and routines
 - a the persons, including customers, co-workers, other system users, with whom it may be necessary to liaise when carrying out routine service and maintenance on appliances
 - b the points within the maintenance process when liaison with others will be necessary
 - c the types of commercial or industrial processes whose continuation may be affected by service or maintenance operations
 - d the importance of advising appropriate persons of the completion of service or maintenance activities, and the intention to re-activate systems
- 2 how to liaise with others to ensure co-operation in the fault rectification process
 - a methods of communication appropriate to liaising with customers, co-contractors, other system users
 - b the actions to take if others are not co-operative
- 3 the measures to ensure that systems do not present a safety hazard to potential users, or the workforce, when carrying out rectification procedures
 - a the importance of ensuring that appropriate liaison has taken place before, during, and after maintenance activities
 - b the measures to be taken to prevent the unauthorised use of appliances on which service or maintenance work is being carried out, including safe isolation of the appliance

Certificate in Domestic Natural Gas Installation and Maintenance

Unit 202 Maintaining safety in natural gas work

Introductory notes

This Gas Certificate unit has been designed to assess knowledge competences which are detailed in the Domestic Natural Gas Installation and Maintenance NVQ Standards and linked to Scheme 6012 NVQs in gas.

The assessment content of each Gas Certificate unit is expressed as a number of knowledge outcomes derived from the NVQ Standards, which are cross referenced to the appropriate NVQ unit and element titles, PCs and range.

These knowledge outcomes in this document provide the basis for the assessment specification for this Gas Certificate Unit 202 Maintaining safety in natural gas work.

Rationale and unit content:

This unit covers the following knowledge and understanding areas:

Knowledge items covering general safety in gas work operations, aimed at maintaining the safety of the working environment when installing, commissioning or decommissioning, or servicing or maintaining systems and appliances for

- Cooking and Laundry
- Space heating and Leisure
- Central Heating and Water Heating
- Warm Air and Water Heating
- Meters
- Pipework

Unit 202 contains the following **2 outcomes**

The candidate will be able to:

- 1 use safe procedures when working with others
- 2 use safe practices

Connection with other awards

This gas certificate unit-002 is linked to the NVQ scheme 6012-02 Level 2 Gas Service Installation and Maintenance and the following unit:

Unit 007 Maintain the Safe Working Environment for Natural Gas Related Work

Unit 202	NVQ Element	NVQ PCs	NVQ Range
Outcome			
1	007.1	007.1.1, 1.2	1-4
2	007.2	007.2.1, 2.3-2.7	1-6

Assessment

The outcomes from this Gas certificate unit 202 will be assessed by a multiple choice question paper covering the two outcomes

Outcome 1

Use Safe Procedures when Working with Others

The candidate will be able to state:

- 1 the general responsibilities of the employer and employee for ensuring safety in the work place
 - a the general requirements of health and safety legislation for the employer's responsibilities for safety in the workplace
 - b the employee's responsibilities for his/her own and other's safety at work
 - c the employer's responsibilities for the provision of personal protective equipment
- 2 the requirements of current safety legislation for the range of work operations
 - a the general requirements of construction safety legislation for safety in work locations where gas work operations may be carried out
 - b the general requirements of safety legislation for the safe handling and lifting of materials and components
 - c the general requirements of current legislation regarding safe working with electrically operated tools and equipment, including temporary electrical supplies in work locations
 - d the general requirements of current legislation regarding safe working with hazardous materials
- 3 the potential hazards or risks associated with the range of work locations in which work on systems is undertaken, the measures to be taken to reduce risk
 - a the particular risks associated with different types of work location, including new building sites, occupied buildings, service and maintenance sites, working at heights, in excavations and confined spaces, with hazardous materials
 - b the types of personal protective equipment used in gas work
 - c the safety signs and notices used in work locations in which gas work is carried out
 - d the typical measures used to prevent accidents in gas work locations
 - e the measures used in and around gas work locations to protect the workforce and the public
 - f the measures to be taken to protect the workforce when working with lead
 - g the measures to be taken to protect the workforce and property when using heating gases/heating appliances
 - h the essential personal hygiene procedures to protect the health of the workforce – minimum provisions for toilet and washing facilities in the workplace
 - i the minimum provisions for first aid facilities in the workplace
 - j the types of fire fighting equipment appropriate for use in gas work – correct methods of use
 - k the measures to be taken within work locations to provide safe access routes for the movement of the workforce and materials
 - l correct handling and lifting techniques to be employed for the range of materials and equipment used in gas work
- 4 general measures to be taken to create safety awareness – company on site policies – applying and supervising site safety practices including measures to report potential safety hazards
 - a the purpose and content of company safety policies
 - b the range of safety signs and notices used in construction locations
 - c the importance of reporting to an appropriate person any defects in safety equipment, or potential hazards in the workplace
- 5 accident reporting procedures
 - a the statutory requirements for reporting accidents in the workplace
 - b methods of reporting and recording accidents
 - c the importance of safe keeping of accident records

- 6 basic first aid procedures
 - a the basic first aid procedures for minor injuries in the workplace
 - b the immediate actions to take in the event of serious injury to persons in the workplace, resulting from cuts, contact with heat source, contact with electrical supply, falls, foreign substances in the eye

Outcome 2

Use Safe Practices

The candidate will be able to state

- 1 how to work from general risk assessments and how to apply them in the workplace
 - a the purpose of a risk assessment – levels of risk – the importance of complying with the requirements of a risk assessment
 - b the general risks associated with work locations, tools and equipment, hazardous materials hazardous processes
- 2 safe practices when carrying out work on the range of systems and components
 - a the sources of information on safety in installation and maintenance work for the range of systems and appliances
- 3 the range of tools and equipment for installation or maintenance work – their safe use maintenance requirements – safety equipment
 - a the maintenance requirements for the range of tools required for installation and maintenance of gas systems and appliances, including hand tools, power operated tools, test equipment
 - b the care and maintenance requirements for access equipment used in gas work operations
 - c the care and maintenance requirements for safety equipment used in the installation and maintenance of gas systems and appliances
- 4 the range of tools and equipment whose use is controlled by legislation
 - a the tools and equipment whose use is controlled by legislation, including cartridge operated fixing tools
 - b the tools and equipment whose maintenance is controlled by legislation, including abrasive wheels
- 5 the range of potentially hazardous materials used for system installation or maintenance work
 - a the potential hazards arising from the incorrect assembly and use of LPG or other gas fired heating equipment
 - b the potential hazards arising from the use of cleaning agents
 - c the potential hazards which could arise from the presence of asbestos
 - d the main requirements of COSHH Regulations
- 6 the methods of identifying potentially hazardous materials and level of risk including asbestos
 - a how to identify the hazardous substances that may commonly be encountered in the workplace, the level of risk that each presents, including cleaning agents, asbestos
 - b the physical properties/characteristics of commonly occurring hazardous materials

- 7 safety precautions including the use of personal protective equipment
 - a the range of safety checks for the presence of hazardous materials, and precautions that should be undertaken in a typical work location
 - b the importance of selecting the types of PPE, checking for safe condition at each occasion of use, and wearing at all times when there is a risk
 - c the importance of handling potentially hazardous materials in an appropriate and safe manner
- 8 the legislation or recommendations governing the safe use or disposal of hazardous materials
 - a the hazardous materials used in gas systems, including materials that could provide a threat to the environment
 - b the recommendations of safety directives for the safe disposal of hazardous materials
- 9 how to liaise with the customer, pre-work inspection, reporting existing damage or identifying damage arising from work operations
 - a the importance of liaising with the customer at the appropriate times, on measures to be taken to protect property
 - b the importance of carrying out an inspection of any customer's property in the work location and recording and reporting any existing damage, before gas work operations commence
 - c the importance of promptly recording and reporting any damage that occurs during work operations
- 10 the procedures for summoning the different emergency services the information required by the emergency services to permit them to respond promptly
 - a the responsibilities of the three emergency services – typical situations when each may be required
 - b procedures for summoning the emergency services and the types of information that each will require to permit them to respond promptly
 - c any actions that could be taken while awaiting the arrival of the emergency services to assist their actions on arrival
- 11 the range of fire extinguishers used for different types of fire and how to extinguish small fires in a safe manner
 - a the different classes of fire and their fuel sources
 - b the types of fire extinguisher and their uses for the different classes of fire
 - c circumstance when it would be appropriate to fight a fire, and circumstances when it would not
- 12 typical evacuation procedures for work locations in which system installation or maintenance work may be carried out
 - a the reasons why it may become necessary to evacuate a building in which work is being carried out including fire, and toxic atmosphere
 - b typical evacuation procedures and the precautions to be observed during evacuation
 - c the purpose of an assembly point for building evacuation, and the importance of complying with any instructions relating to assembly upon the evacuation of a building

Certificate in Domestic Natural Gas Installation and Maintenance

Unit 203 Applying core gas safety measures

Introductory notes

This Gas Certificate unit has been designed to assess knowledge competences which are detailed in the Domestic Natural Gas Installation and Maintenance NVQ Standards and linked to Scheme 6012 NVQs in gas.

The assessment content of each Gas Certificate unit is expressed as a number of knowledge outcomes derived from the NVQ Standards, which are cross referenced to the appropriate NVQ unit and element titles, PCs and range.

These knowledge outcomes in this document provide the basis for the assessment specification for this Gas Certificate Unit 203 Applying core gas safety measures.

Rationale and unit content:

This unit covers the following knowledge and understanding areas:

Knowledge items covering specific gas safety in work operations on domestic natural gas systems, aimed at maintaining gas safety when installing, commissioning or decommissioning, or servicing or maintaining systems and appliances for

- Cooking and Laundry
- Space heating and Leisure
- Central Heating and Water Heating
- Warm Air and Water Heating
- Meters
- Pipework

Unit 203 contains the following **4 outcomes**

The candidate will be able to:

- 1 inspect work locations for the installation of systems and components
- 2 carry out the installation of systems and components
- 3 carry out pre-commissioning checks and tests on systems
- 4 commission systems

Connection with other awards

This gas certificate unit-203 is linked to the NVQ scheme 6012-02 Level 2 Gas Service Installation and Maintenance and the following unit:

Unit 10 Apply gas safety measures to domestic natural gas work activities

Unit 203	NVQ Element	NVQ PCs	NVQ Range
Outcome			
1	010.1	010.1, 3 & 9	1, 3, 6, 7
2	010.2	010.1, 2, 3 & 4	1, 2
3	010.3	010.1 & 2	1, 2
4	010.4	010.1-6	1-6

Assessment

The outcomes from this Gas certificate unit 003 will be assessed by multiple choice question papers covering the four outcomes

Outcome 1

Inspect Work Locations for the Installation of Systems and Components

The candidate will be able to state

- 1 the sources of information on the preparatory work necessary for the system or component installation
 - a the sources of legislation governing the positioning of appliances including pipe materials, fittings, controls, and incoming services
 - b sources of information on the fixing and installation requirements for appliances
 - c sizes and locations of appliances that have to be accommodated within the building structure
- 2 the input services or supplies required for new systems or components, or for extending systems or adding components to existing systems: - how to confirm that input services are adequate
 - a methods of identifying the gas or water supply or flue requirements of appliances
 - b methods of confirming that the system supply or flue provision meets the requirements of the system or appliances

Outcome 2

Carry out the Installation of Systems and Components

The candidate will be able to state

- 1 the positioning and fixing requirements for system components to conform to the system design and intended functions
 - a positioning of systems pipework and appliances to conform to legislative requirements and recommendations
 - b the positioning of systems pipework and appliances to conform to industry standards and system design requirements
 - c how to fix systems pipework and appliances to conform to industry standards and system design requirements
- 2 the procedures required for connecting to input services or connecting pipework into existing systems
 - a how to connect systems pipework and appliances to supply systems using methods that conform to industry requirements, including positioning of control valves
 - b how to connect systems pipework and appliances to existing systems pipework using methods that conform to industry requirements
 - c how to connect appliances to flues
 - d the jointing methods and materials approved for use on systems pipework and appliance connections
- 3 the industry practices and work standards for fabricating and installing system components
 - a methods of installing all materials used for systems pipework and appliance installations
 - b the industry standards of workmanship for systems pipework and appliance installations
 - c the safety practices appropriate to fabrication and installation work on systems pipework and appliances
 - d how to interpret system design information on the positioning requirements for systems pipework and appliances
 - e how to interpret information on the fixing requirements of systems pipework and appliances

Outcome 3

Carry Out Pre-commissioning Checks and Tests on Systems

The candidate will be able to state

- 1 the procedures, equipment and legislative requirements for applying soundness tests to systems
 - a the industry procedures for applying soundness tests to systems pipework and appliance installations
 - b the sequences of actions for carrying out soundness tests on systems pipework and appliance installations
 - c the tests and checks to be carried out before testing of systems pipework and appliance installations
 - d the equipment required to carry out soundness tests on systems pipework and appliance installations
 - e requirements of current legislation on soundness testing of systems pipework and appliance installations
- 2 the methods of establishing that input services adequately supply all components within the system
 - a how to check that input supply to systems pipework and appliance installations meet the requirements of the system component or system specification
 - b how to check that supply controls for systems pipework and appliance installations are correctly set
 - c how to check that systems pipework and appliance installations connections meet the system component or system specification
- 3 the methods of connecting components to systems
 - a how to check that systems pipework and appliance installations are correctly connected
 - b how to check that systems pipework and appliance installations are correctly connected to system supply
- 4 the actions to take where pre-commissioning checks or tests reveal system or component defects
 - a the actions to take when systems pipework and appliance installations do not comply with the specification
 - b the persons to be advised when corrective actions to systems pipework and appliance installations are ineffective
- 5 the range of tests used to confirm the soundness of systems and components, and how to use the range of soundness testing equipment
 - a the different types of test used for systems pipework and appliance installations and procedures and work sequences for each type of test
 - b the hygiene and charging procedures for newly installed systems pipework and appliance installations
 - c methods of preventing the unauthorised/inadvertent use of systems pipework and appliance installations that are not ready for use, including sealing all open ends on pipework, securing controls on incoming service or supply, placing warning notices on controls, advising customers or other trades
 - d the importance of advising customers or line managers when testing is about to take place, when testing has been completed, and when the system is ready for use

Outcome 4

Commission Systems

The candidate will be able to state

- 1 the sources of information on the performance of systems or components
 - a the sources of information on systems pipework and appliance installation performance, including job specifications, manufacturers' specifications or catalogues, contract specifications for commissioning larger installations
 - b the minimum requirements for systems pipework and appliance installation compliance with industry requirements when a formal specification is not available
- 2 the procedures for establishing correct system or component performance and checking against the design specification
 - a the procedures for checking and making adjustments to systems pipework and appliance installation controls to establish correct system performance
- 3 the routines and sequences for commissioning systems or components
 - a the sequence of actions to be followed when systems pipework and appliance installations
 - b appliance installations within dwellings, and small commercial or industrial buildings
 - c commissioning procedures for systems pipework and appliance installations which may affect supplies to industrial or commercial processes
- 4 how to interpret information on system or component performance, including advice from users, visual inspections or checks or diagnosis tests to locate faults
 - a the types of information sources on systems pipework and appliance installations performance
 - b how to carry out visual inspections of systems pipework and appliance installations to check their performance against specifications
 - c how to obtain information on systems pipework and appliance installations performance from customers or system users
 - d how to carry out diagnostic tests to determine the causes of faults in systems pipework and appliance installations
 - e the causes of faults in systems pipework and appliance installations including inadequate gas or air supply, leaks in system components, control malfunction, corrosion of system components, flue malfunction
- 5 the measures to ensure that systems do not present a safety hazard to potential users, or the workforce, when carrying out rectification procedures
 - a the importance of ensuring that appropriate liaison has taken place before, during, and after maintenance activities
 - b the measures to be taken to prevent the unauthorised use of systems pipework and appliance installations on which service or maintenance work is being carried out, including safe isolation of the appliance

- 6 how to isolate unsafe systems and components
 - a how to interpret information, including that gained by visual inspection, and information given by customers or persons in authority, to determine systems pipework and appliance installation layouts, including the positions of supplies to appliances
 - b methods of ensuring that unsafe systems pipework and appliance installations cannot be used, including securing of controls, labelling controls, isolating from electrical supply, posting warning notices, informing appliance users

Certificate in Domestic Natural Gas Installation and Maintenance

Unit 204 Effective working relationships in the Gas Industry

Introductory notes

This Gas Certificate unit has been designed to assess knowledge competences which are detailed in the Domestic Natural Gas Installation and Maintenance NVQ Standards and linked to Scheme 6012 NVQs in gas.

The assessment content of each Gas Certificate unit is expressed as a number of knowledge outcomes derived from the NVQ Standards, which are cross referenced to the appropriate NVQ unit and element titles, PCs and range.

These knowledge outcomes in this document provide the basis for the assessment specification for this Gas Certificate Unit 204 Effective working relationships in the Gas Industry

Rationale and unit content:

This unit covers the following knowledge and understanding areas:

Knowledge items covering the development and maintenance of effective working relationships while engaged on work activities for the installation, commissioning and decommissioning, servicing and maintenance of natural gas systems and appliances for

- Cooking and Laundry
- Space heating and Leisure
- Central Heating and Water Heating
- Warm Air and Water Heating
- Meters
- Systems Pipework

Unit 204 contains the following **1 outcome**

The candidate will be able to:

- 1 establish, maintain, and develop effective working relationships with others

Connection with other awards

This gas certificate unit-204 is linked to the NVQ scheme 6012-02 Level 2 Gas Service Installation and Maintenance and the following unit:

Unit 008 Maintain Effective Working Relationships

Unit 208	NVQ Element	NVQ PCs	NVQ Range
Outcome			
1	008.1	all	all

Assessment

The outcomes from this Gas certificate unit 204 will be assessed by a multiple choice question paper covering the one outcome

Outcome 1

Establish, Maintain, and Develop Effective Working Relationships with others

The candidate will be able to state

- 1 the range of other people encountered within the work environment with whom it may be necessary to establish working relationships
 - a the general range of other people likely to be encountered on a large building site, where the gas installation work is sub-contracted
 - b the other people likely to be encountered on domestic installation or maintenance work where the gas company employer is the main contractor
- 2 the different types of management structures for organisations employing M.E.S labour– the roles and responsibilities of the different individuals within the structure
 - a typical management structures for a large building company – main roles and responsibilities
 - b typical management structures for a small gas company – main roles and responsibilities
 - c typical management structures for a large building site – main roles and responsibilities, including responsibilities of sub-contractors
- 3 other persons' expectations of a good working relationship
 - a the different expectations of the range of person within the work situation
- 4 the actions that are necessary to begin to develop, and maintain good working relationships, or restore working relationships
 - a the initial actions necessary to begin the development of good working relationships, including being helpful to others, co-operating with other trades , listening to others, using appropriate forms of communication
- 5 the principles of good working relationships and reasons why relationships may break down
 - a the ongoing actions necessary to continue good relationships
 - b recognising the signs of a potential breakdown in working relationships
- 6 the actions to take to restore working relationships where a breakdown occurs
 - a how to establish the underlying reasons for the other person's discontent
 - b when and how to seek the help of a third party as intermediary
- 7 the types of job information that may be requested by others in the workplace – sources of information – methods of accessing information and possible restrictions on passing information to others
 - a the range of job information
 - b the range of job information that may be requested by other trades
 - c the range of job information that may be requested by the immediate supervisor/site management
- 8 the forms of communication used for the range of job or company information best suited to its purpose – using the key principles of good communication in work situations, including methods of confirming that the communication has been understood
 - a the different forms of communication, including oral, written, diagrams and sketches
 - b the most appropriate form of communication for passing detailed technical information
 - c the importance of confirming that the information has been understood

Certificate in Domestic Natural Gas Installation and Maintenance

Unit 205 Electrical supply and earth continuity

Introductory notes

This Gas Certificate unit has been designed to assess knowledge competences which are detailed in the Domestic Natural Gas Installation and Maintenance NVQ Standards and linked to Scheme 6012 NVQs in gas.

The assessment content of each Gas Certificate unit is expressed as a number of knowledge outcomes derived from the NVQ Standards, which are cross referenced to the appropriate NVQ unit and element titles, PCs and range.

These knowledge outcomes in this document provide the basis for the assessment specification for this Gas Certificate Unit 205 Electrical supply and earth continuity.

Rationale and unit content:

This unit covers the following knowledge and understanding areas:

Knowledge items related to the electrical supply and earth continuity requirements for the installation, commissioning and decommissioning and service and maintenance of

- Cookers and Laundry appliances
- Central Heating and Water Heating appliances
- Warm Air and Water Heating appliances
- Space Heating and Leisure appliances
- Meters
- Gas pipework systems

Unit 205 contains the following **8 outcomes**

The candidate will be able to:

- 1 prepare work locations for the installation of systems and components
- 2 carry out the installation of systems and components
- 3 carry out pre-commissioning checks and tests on systems
- 4 commission systems
- 5 decommission systems
- 6 establish service and maintenance requirements for systems and components
- 7 establish maintenance requirements for systems and components
- 8 diagnose the cause and rectify faults in systems and components

Connection with other awards

This gas certificate unit-205 is linked to the NVQ scheme 6012-02 Level 2 Gas Service Installation and Maintenance and the following units:

- | | |
|----------|---|
| Unit 004 | Install Natural Gas Systems and Components – Electrical Supply and Earth Continuity |
| Unit 005 | Commission and De-commission Natural Gas Systems |
| Unit 006 | Service and Maintain Natural Gas Systems and Components |

Unit 205	NVQ Element	NVQ PCs	NVQ Range
Outcome			
1	004.1	004.1.1, 1.5, 1.7, 1.9	1, 5, 7, 8, 9
2	004.2	004.2.2-2.5, 2.9, 1.8	2-5, 8, 9
3	005.1	005.1.1-1.3	all
4	005.2	005.2.2-2.5	1-4
5	005.3	005.3.1, 3.3, 3.4	1-4
6	006.1	006.1.2, 1.4-1.6	2-5
7	006.2	006.2.1, 2.2	1,2
8	006.3	006.3.1-3.4	1-5

Assessment

The outcomes from this Gas certificate unit 205 will be assessed by a multiple choice question paper covering the eight outcomes

Outcome 1

Prepare Work Locations for the Installation of Systems and Components

The candidate will be able to state

- 1 the sources of information on the preparatory work necessary for the system or component installation
 - a the sources of legislation governing the layout and positioning of Electrical Supply and Earth Continuity components including cables, controls, consumer units, earthing provisions
 - b sources of information on the fixing and installation requirements for Electrical Supply and Earth Continuity components
 - c sizes and locations of Electrical Supply and Earth Continuity components that have to be accommodated within the building structure
 - d methods of accommodating Electrical Supply and Earth Continuity components within the building structure
- 2 the input supplies or earthing provisions required for new systems or components, or for extending systems or adding components to existing systems: - how to confirm that input services are adequate
 - a methods of identifying the electrical supply and earthing requirements of gas systems or components
 - b methods of confirming that the electrical supply and earthing provision meets the requirements of the installation
- 3 the tools, equipment, materials and components required for the system installation – order and supply advice, delivery and checking procedures
 - a the range of tools and equipment required for the installation of Electrical Supply and Earth Continuity system components
 - b the range of materials and components required for the installation of Electrical Supply and Earth Continuity, including cables, fixings, controls, jointing components

Outcome 2

Carry out the Installation of Systems and Components

The candidate will be able to state

- 1 the positioning and fixing requirements for system components to conform to the system design and intended functions
 - a layouts and positioning of Electrical Supply and Earth Continuity components to conform to legislative requirements and recommendations
 - b layouts and positioning of Electrical Supply and Earth Continuity components to conform to industry standards and system design requirements
 - c how to fix Electrical Supply and Earth Continuity components to conform to industry standards and system design requirements, including the fixing of cables, fixings, controls, jointing components
- 2 the procedures required for connecting to input services or connecting pipework into existing systems
 - a how to connect Electrical Supply and Earth Continuity components input services using methods that conform to industry requirements, including positioning of controls
 - b how to connect Electrical Supply and Earth Continuity to existing systems using methods that conform to industry requirements
 - c the jointing methods and materials approved for use on Electrical Supply and Earth Continuity connections
- 3 how to measure and record installation and site details for prefabrication purposes
 - a how to interpret drawings of Electrical Supply and Earth Continuity installations to establish positions of cables, fixings, controls, jointing components
 - b methods of measuring locations into which Electrical Supply and Earth Continuity components are to be installed and recording dimensions, angles, and sizes of cables/conduit for prefabrication purposes
- 4 the industry practices and work standards for fabricating and installing system components
 - a methods of cutting, bending, jointing, installing all materials used for Electrical Supply and Earth Continuity installations
 - b the industry standards of workmanship for Electrical Supply and Earth Continuity installations
 - c the safety practices appropriate to fabrication and installation work on Electrical Supply and Earth Continuity
 - d how to interpret system design information on the positioning requirements for Electrical Supply and Earth Continuity components
 - e how to interpret information on the fixing requirements of Electrical Supply and Earth Continuity components
- 5 how to use the range of soundness test equipment
 - a the different types of test used for Electrical Supply and Earth Continuity installations including resistance, polarity, insulation resistance, rcd test, and procedures and work sequences for each type of test
 - b methods of preventing the unauthorised/inadvertent use Electrical Supply and Earth Continuity installations that are not ready for use, including removal and retention of fuses, securing controls, placing warning notices on controls, advising customers and other users
 - c the importance of advising customers or line managers when testing is about to take place, when testing has been completed, and when the system is ready for use

Outcome 3

Carry out Pre-commissioning Checks and Tests on Systems

The candidate will be able to state

- 1 the procedures, equipment and legislative requirements for applying soundness tests to systems
 - a the industry procedures for applying the range of tests to Electrical Supply and Earth Continuity installations
 - b the sequences of actions for carrying out the range of tests on Electrical Supply and Earth Continuity
 - c the checks to be carried out before testing of Electrical Supply and Earth Continuity installations
 - d the equipment required to carry out the range of tests on Electrical Supply and Earth Continuity installations
 - e requirements of current legislation for the range of tests of Electrical Supply and Earth Continuity installations
- 2 the methods of establishing that input services adequately supply all components within the system
 - a how to check that input supplies/earth provisions to Electrical Supply and Earth Continuity installations meet the requirements of the system or system specification
 - b how to check that controls for Electrical Supply and Earth Continuity installations are correctly set
 - c how to check that Electrical Supply and Earth Continuity connections meet the system component or system specification
- 3 the methods of connecting components to systems
 - a how to check that Electrical Supply and Earth Continuity components are correctly connected to electrical supply and earth continuity provisions
- 4 the actions to take where pre-commissioning checks or tests reveal system or component defects
 - a the actions to take when Electrical Supply and Earth Continuity installations do not comply with the specification
 - b the persons to be advised when corrective actions to Electrical Supply and Earth Continuity components are ineffective

Outcome 4

Commission Systems

The candidate will be able to state

- 1 the procedures for establishing correct system or component performance and checking against the design specification
 - a the procedures for checking and making adjustments Electrical Supply and Earth Continuity controls to establish correct system performance
- 2 the routines and sequences for commissioning systems or components
 - a the sequence of actions to be followed when commissioning Electrical Supply and Earth Continuity installations
 - b differences in procedures for testing Electrical Supply and Earth Continuity installations within dwellings, and small commercial or industrial buildings
 - c commissioning procedures for Electrical Supply and Earth Continuity installations which may affect supplies to industrial or commercial processes
- 3 system handover procedures and demonstrating the operation of systems and components to end users
 - a Electrical Supply and Earth Continuity installations for which it might be appropriate to demonstrate the correct operation for a customer or other systems user

Outcome 5

Decommission Systems

The candidate will be able to state

- 3 de-commissioning procedures for temporary and permanent de-commissioning of systems
 - a identify the differences between the tests and procedures for temporary and permanent decommissioning of Electrical Supply and Earth Continuity installations
- 2 the importance of confirming the system design, specification, functions and outcomes of suspending the operation of the system
 - a the importance of interpreting information on Electrical Supply and Earth Continuity installations, including information gained from site inspection, to confirm the outcomes of decommissioning the appliance
 - b the persons with whom liaison should take place before, during and after the decommissioning process, including customers, other appropriate trades, line manager
 - c the industry requirements, standards, and tests and procedures used for decommissioning Electrical Supply and Earth Continuity installations
- 3 the potential hazards that could arise from de-commissioning activities and the checks to be carried out before de-commissioning takes place
 - a the potential safety hazards that could arise from the decommissioning of Electrical Supply and Earth Continuity installations
 - b the checks to be carried out in advance of Electrical Supply and Earth Continuity installation de-commissioning to ensure that any potential hazards that could arise, have been removed
- 4 the precautions to ensure that de-commissioned systems do not prove a safety hazard – measures to prevent systems being brought into operation – safety and warning notices
 - a the precautionary actions including liaison with customer or other system or building users, removal and retention of fuses, securing and labelling controls to ensure that decommissioned Electrical Supply and Earth Continuity installations do not become a hazard
 - b the types of warning notices that are appropriate for use on temporarily or permanently decommissioned Electrical Supply and Earth Continuity installations

Outcome 6

Establish Service and Maintenance Requirements for Systems and Components

The candidate will be able to state

- 1 the service and maintenance procedures across the range of systems and components
 - a the activities that make up routine maintenance schedules for Electrical Supply and Earth Continuity installations
 - b the industry standards for routine maintenance of Electrical Supply and Earth Continuity installations including compliance with Codes of Practice, BS Recommendations, Manufacturers' specifications
 - c the requirements of health and safety legislation for safety in the routine maintenance of Electrical Supply and Earth Continuity installations
- 2 the materials required for routine maintenance and sources of information on the materials required for routine maintenance operations
 - a the consumable materials required for the maintenance of Electrical Supply and Earth Continuity, installations including replacement parts for controls, gland packings, washers
 - b the sources of information on the materials required for routine maintenance of Electrical Supply and Earth Continuity installations
- 3 the tools and equipment required for routine maintenance operations
 - a the tools and equipment required for maintenance operations, including hand and powered tools
 - b the access equipment used for routine maintenance operations on Electrical Supply and Earth Continuity installations including stand steps, ladders, and trestle

Outcome 7

Establish Maintenance Requirements for Systems and Components

The candidate will be able to state

- 1 how to use performance specifications for systems and components, and maintenance procedures necessary to restore or maintain the continued performance of systems and components
 - a the Electrical Supply and Earth Continuity installations that require routine maintenance
 - b how to interpret the required performance of Electrical Supply and Earth Continuity installations using performance specifications, manufacturer's technical data, codes of practice and BS Recommendations
 - c the routine service and maintenance procedures necessary to maintain Electrical Supply and Earth Continuity installation performance

- 2 the service and maintenance procedures necessary to ensure compliance with industry requirements for routine and non-routine service and maintenance activities
 - a the industry requirements for routine maintenance of Electrical Supply and Earth Continuity installations including compliance with specifications, manufacturer's technical data, codes of practice and BS Recommendations
 - b how to ensure compliance with the requirements of safety legislation in carrying out routine maintenance of Electrical Supply and Earth Continuity installations

- 3 the action to take when the system or component does not work to full performance specification
 - a procedures for reporting the continued failure of Electrical Supply and Earth Continuity components
 - b the persons to whom it would be necessary to report continued failure of a Electrical Supply and Earth Continuity component
 - c circumstances in which it might be necessary to implement emergency or temporary provisions for Electrical Supply and Earth Continuity arrangements due to delay in correcting faults

Outcome 8

Diagnose the Cause and Rectify Faults in Systems and Components

The candidate will be able to state

- 1 how to interpret information on system or component performance, including advice from users, visual inspections or checks or diagnosis tests to locate faults
 - a the types of information sources on Electrical Supply and Earth Continuity installation performance
 - b how to carry out visual inspections of Electrical Supply and Earth Continuity installations to check their performance against specifications
 - c how to obtain information on Electrical Supply and Earth Continuity installation performance from customers or system users
 - d how to carry out diagnostic tests to determine the causes of faults in Electrical Supply and Earth Continuity components
 - e the causes of faults in Electrical Supply and Earth Continuity installations including inadequate supply, or earthing provision
- 2 the work procedures for the rectification of faults in systems or components which will ensure minimum disruption to customers and routines
 - a the persons, including customers, co-workers, other system users, with whom it may be necessary to liaise when carrying out routine service and maintenance on Electrical Supply and Earth Continuity installations
 - b the points within the maintenance process when liaison with others will be necessary
 - c the types of commercial or industrial processes whose continuation may be affected by service or maintenance operations
 - d the importance of advising appropriate persons of the completion of service or maintenance activities, and the intention to re-activate systems
- 3 the work action and sequences required to rectify faults in systems and components
 - a work sequences required to rectify faults in Electrical Supply and Earth Continuity installations, including inadequate supply or earthing provision control malfunction, corrosion of system components
- 4 the measures to ensure that systems do not present a safety hazard to potential users, or the workforce, when carrying out rectification procedures
 - a the importance of ensuring that appropriate liaison has taken place before, during, and after maintenance activities
 - b the measures to be taken to prevent the unauthorised use of Electrical Supply and Earth Continuity installations on which service or maintenance work is being carried out, including safe isolation of the components

Certificate in Domestic Natural Gas Installation and Maintenance

Unit 206 Installation and maintenance of cookers and laundry appliances

Introductory notes

This Gas Certificate unit has been designed to assess knowledge competences which are detailed in the Domestic Natural Gas Installation and Maintenance NVQ Standards and linked to Scheme 6012 NVQs in gas.

The assessment content of each Gas Certificate unit is expressed as a number of knowledge outcomes derived from the NVQ Standards, which are cross referenced to the appropriate NVQ unit and element titles, PCs and range.

These knowledge outcomes in this document provide the basis for the assessment specification for this Gas Certificate Unit 206 Installation and maintenance of cookers and laundry appliances.

Rationale and unit content:

This unit covers the following knowledge and understanding areas:

Knowledge items common to the basic gas activities for the installation and maintenance of

Knowledge items related to activities for the installation and maintenance of

- Cookers – freestanding cookers – built-in ovens, grills, hobs – combination (dual fuel) appliances
- Gas laundry appliances

Unit 206 contains the following **1 outcome**

The candidate will be able to:

- 1 prepare work locations for the installation of systems and components
- 2 carry out the installation of systems and components
- 3 carry out pre-commissioning checks and tests on systems
- 4 commission systems
- 5 establish service and maintenance requirements for systems and components
- 6 establish maintenance requirements for systems and components
- 7 diagnose the cause and rectify faults in systems and components

Connection with other awards

This gas certificate unit-206 is linked to the NVQ scheme 6012-02 Level 2 Gas Service Installation and Maintenance and the following unit:

Unit 004	Install Natural Gas Systems and Components – Cookers and Laundry Appliances
Unit 005	Commission and De-commission Natural Gas Systems
Unit 006	Service and Maintain Natural Gas Systems and Components

Unit 206	NVQ Element	NVQ PCs	NVQ Range
Outcome			
1	004.1	004.1.5	5
2	004.2	004.2.3-2.5	2, 3, 4
3	005.1	005.1.3	1, 2
4	005.2	005.2.3, 2.4	2, 4
5	006.1	006.1.2, 1.5, 1.6	2, 4, 5
6	006.2	006.2.1	1
7	006.3	006.3.1	1, 2, 3

Assessment

The outcomes from this Gas certificate unit 206 will be assessed by a multiple choice question paper covering the seven outcomes

Outcome 1

Prepare Work Locations for the Installation of Systems and Components

The candidate will be able to state

- 1 the input services or supplies required for new systems or components, or for extending systems or adding components to existing systems:-how to confirm that input services are adequate
 - a methods of identifying the gas supply, water supply, flue, ventilation requirements of cookers and laundry appliances
 - b methods of confirming that the system supply or provisions meet the requirements of the appliances

Outcome 2

Carry out the Installation of Systems and Components

The candidate will be able to state

- 1 the positioning and fixing requirements for system components to conform to the system design and intended functions
 - a positioning of cookers and laundry appliances to conform to legislative requirements and recommendations
 - b standards and system design requirements
 - c how to fix cookers and laundry appliances to conform to industry standards and system design requirements, including the fixing of pipework, and controls
- 2 the procedures required for connecting to input services or connecting pipework into existing systems
 - a how to connect cookers and laundry appliances to supply systems using methods that conform to industry requirements, including positioning of control valves
 - b how to connect cookers and laundry appliances to existing systems pipework using methods that conform to industry requirements
 - c how to connect cookers and laundry appliances to flues
 - d the jointing methods and materials approved for use on cookers and laundry appliance connections

Outcome 3

Carry Out Pre-commissioning Checks and Tests on Systems

The candidate will be able to state

- 1 the procedures, equipment and legislative requirements for applying soundness tests to systems
 - a the industry procedures for applying soundness tests to cookers and laundry appliances
 - b the sequences of actions for carrying out soundness tests on cookers and laundry appliances
 - c the tests and checks to be carried out before testing of cookers and laundry appliances
 - d the equipment required to carry out soundness tests on cookers and laundry appliances
 - e requirements of current legislation on soundness testing of cookers and laundry appliances

Outcome 4

Commission Systems

The candidate will be able to state

- 1 the procedures for establishing correct system or component performance and checking against the design specification
 - a the procedures for checking and making adjustments to cookers and laundry appliance controls to establish correct system performance

Outcome 5

Establish Service and Maintenance Requirements for Systems and Components

The candidate will be able to state

- 1 the service and maintenance procedures across the range of systems and components
 - a the activities that make up routine maintenance schedules for cookers and laundry appliances
 - b the industry standards for routine maintenance of cookers and laundry appliances including compliance with Codes of Practice, BS Recommendations, Manufacturers' specifications
 - c the requirements of health and safety legislation for safety in the routine maintenance of cookers and laundry appliances

Outcome 6

Establish Maintenance Requirements for Systems and Components

The candidate will be able to state

- 1 the action to take when the system or component does not work to full performance specification
 - a procedures for reporting the continued failure of cookers and laundry appliances
 - b the persons to whom it would be necessary to report continued failure of cookers and laundry appliances
 - c circumstances in which it might be necessary to implement emergency or temporary provisions for cooking or laundry facilities due to delay in correcting faults

Outcome 7

Diagnose the Cause and Rectify Faults in Systems and Components

The candidate will be able to state

- 1 how to interpret information on system or component performance, including advice from users, visual inspections or checks or diagnosis tests to locate faults
 - a the types of information sources on cookers and laundry appliances performance
 - b how to carry out visual inspections of cookers and laundry appliances to check their performance against specifications
 - c how to obtain information on cookers and laundry appliances performance from customers or system users
 - d how to carry out diagnostic tests to determine the causes of faults in cookers and laundry appliances
 - e the causes of faults in cookers and laundry appliances including inadequate gas or air supply, leaks in system components, control malfunction, corrosion of system components, flue malfunction
- 2 the work action and sequences required to rectify faults in systems and components
 - a work sequences required to rectify faults in cookers and laundry appliances, including inadequate service or supply, air locks, noise, leaks in system components, control malfunction, corrosion of system components, flue malfunction

Certificate in Domestic Natural Gas Installation and Maintenance

Unit 207 Installation and maintenance of central heating and hot water heating appliances

Introductory notes

This Gas Certificate unit has been designed to assess knowledge competences which are detailed in the Domestic Natural Gas Installation and Maintenance NVQ Standards and linked to Scheme 6012 NVQs in gas.

The assessment content of each Gas Certificate unit is expressed as a number of knowledge outcomes derived from the NVQ Standards, which are cross referenced to the appropriate NVQ unit and element titles, PCs and range.

These knowledge outcomes in this document provide the basis for the assessment specification for this Gas Certificate Unit 207 Installation and maintenance of central heating and hot water heating appliances.

Rationale and unit content:

This unit covers the following knowledge and understanding areas:

Knowledge items related to activities for the installation and maintenance of

- Central Heating Systems and Appliances – Gas Central Heating Boilers – Conventional boilers – Combination boilers – Condensing boilers – System Controls – Pumps – Pipework layouts
- Gas Water Heating Appliances and pipework layouts – including instantaneous and storage water heaters

Unit 207 contains the following **7 outcomes**

The candidate will be able to:

- 1 prepare work locations for the installation of systems and components
- 2 carry out the installation of systems and components
- 3 carry out pre-commissioning checks and tests on systems
- 4 commission systems
- 5 establish service and maintenance requirements for systems and components
- 6 establish maintenance requirements for systems and components
- 7 diagnose the cause and rectify faults in systems and components

Connection with other awards

This gas certificate unit-207 is linked to the NVQ scheme 6012-02 Level 2 Gas Service Installation and Maintenance and the following units:

Unit 004 Install Natural Gas Systems and Components – Central heating and hot water

Unit 005 Commission and De-commission Natural Gas Systems

Unit 006 Service and Maintain Natural Gas Systems and Components

Unit 207	NVQ Element	NVQ PCs	NVQ Range
Outcome			
1	004.1	004.1.5	5
2	004.2	004.2.3-2.5	2, 3, 4
3	005.1	005.1.3	1, 2
4	005.2	005.2.3, 2.4	2, 4
5	006.1	006.1.2, 1.5, 1.6	2, 4, 5
6	006.2	006.2.1	1
7	006.3	006.3.1	1, 2, 3

Assessment

The outcomes from this Gas certificate unit 207 will be assessed by a multiple choice question paper covering the seven outcomes

Outcome 1

Prepare Work Locations for the Installation of Systems and Components

The candidate will be able to state

- 1 the input services or supplies required for new systems or components, or for extending systems or adding components to existing systems:-how to confirm that input services are adequate
 - a methods of identifying the gas supply, water supply, flue, ventilation requirements of central heating and hot water heating appliances
 - b methods of confirming that the system supply or provisions meet the requirements of the appliances

Outcome 2

Carry Out the Installation of Systems and Components

The candidate will be able to state

- 1 the positioning and fixing requirements for system components to conform to the system design and intended functions
 - a positioning of central heating and hot water heating appliances to conform to legislative requirements and recommendations
 - b positioning of central heating and hot water heating appliances standards and system design requirements
 - c how to fix central heating and hot water heating appliances to conform to industry standards and system design requirements, including the fixing of pipework, and controls
- 2 the procedures required for connecting to input services or connecting pipework into existing systems
 - a how to connect central heating and hot water heating appliances to supply systems using methods that conform to industry requirements, including positioning of control valves
 - b how to connect central heating and hot water heating appliances to existing systems pipework using methods that conform to industry requirements
 - c how to connect central heating and hot water heating appliances to flues
 - d the jointing methods and materials approved for use on central heating and hot water heating appliance connections

Outcome 3

Carry Out Pre-commissioning Checks and Tests on Systems

The candidate will be able to state

- 1 the methods of establishing that input services adequately supply all components within the system
 - a how to check that input supplies to central heating and hot water heating appliances meet the requirements of the system component or system specification
 - b how to check that supply controls for central heating and hot water heating appliances are correctly set
 - c how to check that central heating and hot water Heating appliance connections meet the system component or system specification

Outcome 4

Commission Systems

The candidate will be able to state

- 1 the procedures for establishing correct system or component performance and checking against the design specification
 - a the procedures for checking and making adjustments to central heating and hot water heating appliance controls to establish correct system performance

Outcome 5

Establish Service and Maintenance Requirements for Systems and Components

The candidate will be able to state

- 1 the service and maintenance procedures across the range of systems and components
 - a the activities that make up routine maintenance schedules for central heating and hot water heating appliances
 - b the industry standards for routine maintenance of central heating and hot water heating appliances including compliance with Codes of Practice, BS Recommendations, Manufacturers' specifications
 - c the requirements of health and safety legislation for safety in the routine maintenance of central heating and hot water heating appliances

Outcome 6

Establish Maintenance Requirements for Systems and Components

The candidate will be able to state

- 1 the action to take when the system or component does not work to full performance specification
 - a procedures for reporting the continued failure of central heating and hot water heating appliances
 - b the persons to whom it would be necessary to report continued failure of central heating and hot water heating appliances
 - c circumstances in which it might be necessary to implement emergency or temporary provisions for central heating or hot water heating facilities due to delay in correcting faults

Outcome 7

Diagnose the Cause and Rectify Faults in Systems and Components

The candidate will be able to state

- 1 how to interpret information on system or component performance, including advice from users, visual inspections or checks or diagnosis tests to locate faults
 - a the types of information sources on central heating and hot water heating appliance performance
 - b how to carry out visual inspections of central heating and hot water heating appliances to check their performance against specifications
 - c how to obtain information on central heating and hot water heating appliances performance from customers or system users
 - d how to carry out diagnostic tests to determine the causes of faults in central heating and hot water heating appliances
 - e the causes of faults in central heating and hot water heating appliances including inadequate gas or air supply, leaks in system components, control malfunction, corrosion of system components, flue malfunction
- 2 the work procedures for the rectification of faults in systems or components which will ensure minimum disruption to customers and routines
 - a the persons, including customers, co-workers, other system users, with whom it may be necessary to liaise when carrying out routine service and maintenance on central heating and hot water heating appliances
 - b the points within the maintenance process when liaison with others will be necessary
 - c the types of commercial or industrial processes whose continuation may be affected by service or maintenance operations
 - d the importance of advising appropriate persons of the completion of service or maintenance activities, and the intention to re-activate systems

Certificate in Domestic Natural Gas Installation and Maintenance

Unit 208 Install, commission, decommission, service and maintain meters

Introductory notes

This Gas Certificate unit has been designed to assess knowledge competences which are detailed in the Domestic Natural Gas Installation and Maintenance NVQ Standards and linked to Scheme 6012 NVQs in gas.

The assessment content of each Gas Certificate unit is expressed as a number of knowledge outcomes derived from the NVQ Standards, which are cross referenced to the appropriate NVQ unit and element titles, PCs and range.

These knowledge outcomes in this document provide the basis for the assessment specification for this Gas Certificate Unit 208 Installation, commission, decommission, service and maintain meters

Rationale and unit content:

This unit covers the following knowledge and understanding areas:

Knowledge items related to activities for the:

- Installation
- Commissioning and decommissioning
- Service and maintenance

Of Meters for Domestic Natural Gas Installations

Unit 208 contains the following **7 outcomes**

The candidate will be able to:

- 1 prepare work locations for the installation of systems and components
- 2 carry out the installation of systems and components
- 3 carry out pre-commissioning checks and tests on systems
- 4 commission systems
- 5 establish service and maintenance requirements for systems and components
- 6 establish maintenance requirements for systems and components
- 7 diagnose the cause and rectify faults in systems and components

Connection with other awards

This gas certificate unit-208 is linked to the NVQ scheme 6012-02 Level 2 Gas Service Installation and Maintenance and the following units:

Unit 004 Install Natural Gas Systems and Components – Meters

Unit 005 Commission and De-commission Natural Gas Systems

Unit 006 Service and Maintain Natural Gas Systems and Components

Unit 208	NVQ Element	NVQ PCs	NVQ Range
Outcome			
1	004.1	004.1.5	5
2	004.2	004.2.3-2.5	2, 3, 4
3	005.1	005.1.3	1, 2
4	005.2	005.2.3, 2.4	2, 4
5	006.1	006.1.2, 1.5, 1.6	2, 4, 5
6	006.2	006.2.1	1
7	006.3	006.3.1	1, 2, 3

Assessment

The outcomes from this Gas certificate unit 208 will be assessed by a multiple choice question paper covering the seven outcomes

Outcome 1

Prepare Work Locations for the Installation of Systems and Components

The candidate will be able to state

- 1 the input services or supplies required for new systems or components, or for extending systems or adding components to existing systems:-how to confirm that input services are adequate
 - a methods of identifying the gas supply requirements of meters
 - b methods of confirming that the system supply meets the requirements of the appliances

Outcome 2

Carry out the Installation of Systems and Components

The candidate will be able to state

- 1 the positioning and fixing requirements for system components to conform to the system design and intended functions
 - a positioning of meters to conform to legislative requirements and recommendations
 - b positioning of meters to conform to industry standards and system design requirements
 - c how to fix meters to conform to industry standards and system design requirements, including the fixing of pipework, and controls
- 2 the procedures required for connecting to input services or connecting pipework into existing systems
 - a how to connect meters to supply systems using methods that conform to industry requirements, including positioning of control valves
 - b how to connect meters to existing systems pipework using methods that conform to industry requirements
 - c the jointing methods and materials approved for use on Meter connections

Outcome 3

Carry Out Pre-commissioning Checks and Tests on Systems

The candidate will be able to state

- 1 the methods of establishing that input services adequately supply all components within the system
 - a how to check that input supplies to meters meet the requirements of the system component or system specification
 - b how to check that supply controls for meters are correctly set
 - c how to check that meter connections meet the system component or system specification

Outcome 4

Commission Systems

The candidate will be able to state

- 1 the procedures for establishing correct system or component performance and checking against the design specification
 - a the procedures for checking and making adjustments meter controls to establish correct system performance

Outcome 5

Establish Service and Maintenance Requirements for Systems and Components

The candidate will be able to state

- 1 the service and maintenance procedures across the range of systems and components
 - a the activities that make up routine maintenance schedules for meters
 - b the industry standards for routine maintenance of meters including compliance with Codes of Practice, BS Recommendations, manufacturers' specifications
 - c the requirements of health and safety legislation for safety in the routine maintenance of meters

Outcome 6

Establish Maintenance Requirements for Systems and Components

The candidate will be able to state

- 1 the action to take when the system or component does not work to full performance specification
 - a procedures for reporting the continued failure of meters
 - b the persons to whom it would be necessary to report continued failure of meters
 - c circumstances in which it might be necessary to implement emergency or temporary provisions for central heating or hot water heating facilities due to delay in correcting faults

Outcome 7

Diagnose the Cause and Rectify Faults in Systems and Components

The candidate will be able to state

- 1 how to interpret information on system or component performance, including advice from users, visual inspections or checks or diagnosis tests to locate faults
 - a the types of information sources on meter performance
 - b how to carry out visual inspections of meters to check their performance against specifications
 - c how to obtain information on meters performance from customers or system users
 - d how to carry out diagnostic tests to determine the causes of faults in meters
 - e the causes of faults in meters including inadequate gas or air supply, leaks in system components, control malfunction, corrosion of system components, flue malfunction

- 2 the work procedures for the rectification of faults in systems or components which will ensure minimum disruption to customers and routines
 - a the persons, including customers, co-workers, other system users, with whom it may be necessary to liaise when carrying out routine service and maintenance on meters
 - b the points within the maintenance process when liaison with others will be necessary
 - c the types of commercial or industrial processes whose continuation may be affected by service or maintenance operations
 - d the importance of advising appropriate persons of the completion of service or maintenance activities, and the intention to re-activate systems

Certificate in Domestic Natural Gas Installation and Maintenance

Unit 209 Install, commission, decommission, service and maintain pipework

Introductory notes

This Gas Certificate unit has been designed to assess knowledge competences which are detailed in the Domestic Natural Gas Installation and Maintenance NVQ Standards and linked to Scheme 6012 NVQs in gas.

The assessment content of each Gas Certificate unit is expressed as a number of knowledge outcomes derived from the NVQ Standards, which are cross referenced to the appropriate NVQ unit and element titles, PCs and range.

These knowledge outcomes in this document provide the basis for the assessment specification for this Gas Certificate Unit 209 Installation, commission, decommission, service and maintain pipework.

Rationale and unit content:

This unit covers the following knowledge and understanding areas:

Knowledge items related to activities for the:

- Installation
- Commissioning and decommissioning
- Service and maintenance

Of Systems pipework installations for domestic natural gas, including pipework materials, control, fittings, and fixings

Unit 209 contains the following **7 outcomes**

The candidate will be able to:

- 1 prepare work locations for the installation of systems and components
- 2 carry out the installation of systems and components
- 3 carry out pre-commissioning checks and tests on systems
- 4 commission systems
- 5 establish service and maintenance requirements for systems and components
- 6 establish maintenance requirements for systems and components
- 7 diagnose the cause and rectify faults in systems and components

Connection with other awards

This gas certificate unit-209 is linked to the NVQ scheme 6012-02 Level 2 Gas Service Installation and Maintenance and the following units:

Unit 004 Install Natural Gas Systems and Components – Systems pipework

Unit 005 Commission and De-commission Natural Gas Systems

Unit 006 Service and Maintain Natural Gas Systems and Components

Unit 209	NVQ Element	NVQ PCs	NVQ Range
Outcome			
1	004.1	004.1.5	5
2	004.2	004.2.3-004.2.5	2, 3, 4
3	005.1	005.1.3	1, 2
4	005.2	005.2.3, 005.2.4	2, 4
5	006.1	006.1.2, 006.1.5, 006.1.6	2, 4, 5
6	006.2	006.2.1	1
7	006.3	006.3.1	1, 2, 3

Assessment

The outcomes from this Gas certificate unit 209 will be assessed by a multiple choice question paper covering the seven outcomes

Outcome 1

Prepare Work Locations for the Installation of Systems and Components

The candidate will be able to state

- 1 the input services or supplies required for new systems or components, or for extending systems or adding components to existing systems:- how to confirm that input services are adequate
 - a methods of identifying the gas supply requirements of systems pipework installations
 - b methods of confirming that the system supply meets the requirements of the installation

Outcome 2

Carry out the Installation of Systems and Components

The candidate will be able to state

- 1 the positioning and fixing requirements for system components to conform to the system design and intended functions
 - a positioning of systems pipework components to conform to legislative requirements and recommendations
 - b positioning of systems pipework components to conform to industry standards and system design requirements
 - c how to fix systems pipework components to conform to industry standards and system design requirements, including the fixing of pipework, and controls

- 2 the procedures required for connecting to input services or connecting pipework into existing systems
 - a how to connect Systems Pipework to supply systems using methods that conform to industry requirements, including positioning of control valves.
 - b how to connect Systems Pipework to existing systems pipework using methods that conform to industry requirements
 - c how to connect Systems Pipework to flues
 - d the jointing methods and materials approved for use on Systems Pipework connections

Outcome 3

Carry out Pre-commissioning Checks and Tests on Systems

The candidate will be able to state

- 1 the methods of establishing that input services adequately supply all components within the system
 - a how to check that input supplies to systems pipework installations meet the requirements of the system or system specification
 - b how to check that supply controls for systems pipework installations are correctly set
 - c how to check that systems pipework connections meet the system component or system specification

Outcome 4

Commission Systems

The candidate will be able to state

- 1 the procedures for establishing correct system or component performance and checking against the design specification
 - a the procedures for checking and making adjustments systems pipework controls to establish correct system performance

Outcome 5

Diagnose the Cause and Rectify Faults in Systems and Components

The candidate will be able to state

- 1 how to interpret information on system or component performance, including advice from users, visual inspections or checks or diagnosis tests to locate faults
 - a the types of information sources on systems pipework installation performance
 - b how to carry out visual inspections of systems pipework installations to check their performance against specifications
 - c how to obtain information on systems pipework installation performance from customers or system users
 - d how to carry out diagnostic tests to determine the causes of faults in systems pipework components
 - e the causes of faults in systems pipework installations including inadequate gas supply, leaks in system components, control malfunction, corrosion of system components
- 2 the work procedures for the rectification of faults in systems or components which will ensure minimum disruption to customers and routines
 - a the persons, including customers, co-workers, other system users, with whom it may be necessary to liaise when carrying out routine service and maintenance on systems pipework installations
 - b the points within the maintenance process when liaison with others will be necessary
 - c the types of commercial or industrial processes whose continuation may be affected by service or maintenance operations
 - d the importance of advising appropriate persons of the completion of service or maintenance activities, and the intention to re-activate systems

Certificate in Domestic Natural Gas Installation and Maintenance

Unit 210 Install, commission, decommission, service and maintain warm air and water heating appliances

Introductory notes

This Gas Certificate unit has been designed to assess knowledge competences which are detailed in the Domestic Natural Gas Installation and Maintenance NVQ Standards and linked to Scheme 6012 NVQs in gas.

The assessment content of each Gas Certificate unit is expressed as a number of knowledge outcomes derived from the NVQ Standards, which are cross referenced to the appropriate NVQ unit and element titles, PCs and range.

These knowledge outcomes in this document provide the basis for the assessment specification for this Gas Certificate Unit 210 Install, commission, decommission, service and maintain warm air and water heating appliances

Rationale and unit content:

This unit covers the following knowledge and understanding areas:

Knowledge items related to activities for the:

- Installation
- Commissioning and decommissioning
- Service and maintenance

Of Warm Air – Domestic Warm Air systems and appliances for natural gas

and

Domestic Natural Gas Water Heating appliances

Unit 210 contains the following **7 outcomes**

The candidate will be able to:

- 1 prepare work locations for the installation of systems and components
- 2 carry out the installation of systems and components
- 3 carry out pre-commissioning checks and tests on systems
- 4 commission systems
- 5 establish service and maintenance requirements for systems and components
- 6 establish maintenance requirements for systems and components
- 7 diagnose the cause and rectify faults in systems and components

Connection with other awards

This gas certificate unit-210 is linked to the NVQ scheme 6012-02 Level 2 Gas Service Installation and Maintenance and the following units:

Unit 004 Install Natural Gas Systems and Components – Warm Air and Water Heating Appliances

Unit 005 Commission and De-commission Natural Gas Systems

Unit 006 Service and Maintain Natural Gas Systems and Components

Unit 210	NVQ Element	NVQ PCs	NVQ Range
Outcome			
1	004.1	004.1.5	5
2	004.2	004.2.3-2.5	2, 3, 4
3	005.1	005.1.3	1, 2
4	005.2	005.2.3, 2.4	2, 4
5	006.1	006.1.2, 1.5, 1.6	2, 4, 5
6	006.2	006.2.1	1
7	006.3	006.3.1	1, 2, 3

Assessment

The outcomes from this Gas certificate unit 210 will be assessed by a multiple choice question paper covering the seven outcomes

Outcome 1

Prepare Work Locations for the Installation of Systems and Components

The candidate will be able to state

- 1 the input services or supplies required for new systems or components, or for extending systems or adding components to existing systems: how to confirm that input services are adequate
 - a methods of identifying the gas supply, water supply, flue, ventilation requirements of warm air and water heating appliances
 - b methods of confirming that the system supply or provisions meet the requirements of the appliances

Outcome 2

Carry out the Installation of Systems and Components

The candidate will be able to state

- 1 the positioning and fixing requirements for system components to conform to the system design and intended functions
 - a positioning of warm air and water heating appliances to conform to legislative requirements and recommendations
 - b positioning of warm air and water heating appliances to conform to industry standards and system design requirements
 - c how to fix warm air and water heating appliances to conform to industry standards and system design requirements, including the fixing of pipework, and controls
- 2 the procedures required for connecting to input services or connecting pipework into existing systems
 - a how to connect warm air and water heating appliances to supply systems using methods that conform to industry requirements, including positioning of control valves
 - b how to connect warm air and water heating appliances to existing systems pipework using methods that conform to industry requirements
 - c how to connect warm air and water heating appliances to flues
 - d the jointing methods and materials approved for use on warm air and water heating appliance connections

Outcome 3

Carry out Pre-commissioning Checks and Tests on Systems

The candidate will be able to state

- 1 the methods of establishing that input services adequately supply all components within the system
 - a how to check that input supplies to warm air and water heating appliances meet the requirements of the system component or system specification
 - b how to check that supply controls for warm air and water heating appliances are correctly set
 - c how to check that warm air and water heating appliance connections meet the system component or system specification

Outcome 4

Commission Systems

The candidate will be able to state

- 1 the procedures for establishing correct system or component performance and checking against the design specification
 - a the procedures for checking and making adjustments to warm air and water heating appliance controls to establish correct system performance

Outcome 5

Establish Service and Maintenance Requirements for Systems and Components

The candidate will be able to state

- 1 the service and maintenance procedures across the range of systems and components
 - a the activities that make up routine maintenance schedules for warm air and water heating appliances
 - b the industry standards for routine maintenance of warm air and water heating appliances including compliance with Codes of Practice, BS Recommendations, Manufacturers' specifications
 - c the requirements of health and safety legislation for safety in the routine maintenance of warm air and water heating appliances

Outcome 6

Establish Maintenance Requirements for Systems and Components

The candidate will be able to state

- 1 the action to take when the system or component does not work to full performance specification
 - a procedures for reporting the continued failure of warm air and water heating appliances
 - b the persons to whom it would be necessary to report continued failure of warm air and water heating appliances
 - c circumstances in which it might be necessary to implement emergency or temporary provisions for warm air or water heating arrangements due to delay in correcting faults

Outcome 7

Diagnose the Cause and Rectify Faults in Systems and Components

The candidate will be able to state

- 1 how to interpret information on system or component performance, including advice from users, visual inspections or checks or diagnosis tests to locate faults
 - a the types of information sources on warm air and water heating appliances performance
 - b how to carry out visual inspections of warm air and water heating appliances to check their performance against specifications
 - c how to obtain information on warm air and water heating appliances performance from customers or system users
 - d how to carry out diagnostic tests to determine the causes of faults in warm air and water heating appliances
 - e the causes of faults in warm air and water heating appliances including inadequate gas or air supply, leaks in system components, control malfunction, corrosion of system components, flue malfunction
- 2 the work procedures for the rectification of faults in systems or components which will ensure minimum disruption to customers and routines
 - a the persons, including customers, co-workers, other system users, with whom it may be necessary to liaise when carrying out routine service and maintenance on warm air and water heating appliances
 - b the points within the maintenance process when liaison with others will be necessary
 - c the types of commercial or industrial processes whose continuation may be affected by service or maintenance operations
 - d the importance of advising appropriate persons of the completion of service or maintenance activities, and the intention to re-activate systems

Certificate in Domestic Natural Gas Installation and Maintenance

Unit 211 Install, commission, decommission, service and maintain space heaters appliances

Introductory notes

This Gas Certificate unit has been designed to assess knowledge competences which are detailed in the Domestic Natural Gas Installation and Maintenance NVQ Standards and linked to Scheme 6012 NVQs in gas.

The assessment content of each Gas Certificate unit is expressed as a number of knowledge outcomes derived from the NVQ Standards, which are cross referenced to the appropriate NVQ unit and element titles, PCs and range.

These knowledge outcomes in this document provide the basis for the assessment specification for this Gas Certificate Unit 211 Install, commission, decommission, service and maintain space heaters appliances.

Rationale and unit content:

This unit covers the following knowledge and understanding areas:

Knowledge items related to activities for the:

- Installation
- Commissioning and decommissioning
- Service and maintenance

Of Domestic Natural Gas Space Heating and Leisure appliances

Unit 211 contains the following **7 outcomes**

The candidate will be able to:

- 1 prepare work locations for the installation of systems and components
- 2 carry out the installation of systems and components
- 3 carry out pre-commissioning checks and tests on systems
- 4 commission systems
- 5 establish service and maintenance requirements for systems and components
- 6 establish maintenance requirements for systems and components
- 7 diagnose the cause and rectify faults in systems and components

Connection with other awards

This gas certificate unit-211 is linked to the NVQ scheme 6012-02 Level 2 Gas Service Installation and Maintenance and the following units:

Unit 004 Install Natural Gas Systems and Components – Space Heating and Leisure Appliances

Unit 005 Commission and De-commission Natural Gas Systems

Unit 006 Service and Maintain Natural Gas Systems and Components

Unit 211	NVQ Element	NVQ PCs	NVQ Range
Outcome			
1	004.1	004.1.5	5
2	004.2	004.2.3-2.5	2, 3, 4
3	005.1	005.1.3	1, 2
4	005.2	005.2.3, 2.4	2, 4
5	006.1	006.1.2, 1.5, 1.6	2, 4, 5
6	006.2	006.2.1	1
7	006.3	006.3.1	1, 2, 3

Assessment

The outcomes from this Gas certificate unit 211 will be assessed by a multiple choice question paper covering the seven outcomes

Outcome 1

Prepare Work Locations for the Installation of Systems and Components

The candidate will be able to state:

- 1 the input services or supplies required for new systems or components, or for extending systems or adding components to existing systems: how to confirm that input services are adequate
 - a methods of identifying the gas supply, flue, ventilation requirements of space heating and leisure appliances
 - b methods of confirming that the system supply or provisions meet the requirements of the appliances

Outcome 2

Carry Out the Installation of Systems and Components

The candidate will be able to state:

- 1 the positioning and fixing requirements for system components to conform to the system design and intended functions
 - a positioning of space heating and leisure appliances to conform to legislative requirements and recommendations
 - b positioning of space heating and leisure appliances to conform to industry standards and system design requirements
 - c how to fix space heating and leisure appliances to conform to industry standards and system design requirements, including the fixing of pipework, and controls
- 2 the procedures required for connecting to input services or connecting pipework into existing systems
 - a how to connect space heating and leisure appliances to supply systems using methods that conform to industry requirements, including positioning of control valves
 - b how to connect space heating and leisure appliances to existing systems pipework using methods that conform to industry requirements
 - c how to connect space heating and leisure appliances to flues
 - d the jointing methods and materials approved for use on space heating and leisure appliance connections

Outcome 3

Carry Out Pre-commissioning Checks and Tests on Systems

The candidate will be able to state

- 1 the methods of establishing that input services adequately supply all components within the system
 - a how to check that input supplies to space heating and leisure appliances meet the requirements of the system component or system specification
 - b how to check that supply controls for space heating and leisure appliances are correctly set
 - c how to check that space heating and leisure appliance connections meet the system component or system specification

Outcome 4

Commission Systems

The candidate will be able to state

- 1 the procedures for establishing correct system or component performance and checking against the design specification
 - a the procedures for checking and making adjustments to space heating and leisure appliance controls to establish correct system performance

Outcome 5

Establish Service and Maintenance Requirements for Systems and Components

The candidate will be able to state

- 1 the service and maintenance procedures across the range of systems and components
 - a the activities that make up routine maintenance schedules for space heating and leisure appliances
 - b the industry standards for routine maintenance of space heating and leisure appliances including compliance with Codes of Practice, BS Recommendations, Manufacturers' specifications
 - c the requirements of health and safety legislation for safety in the routine maintenance of space heating and leisure appliances

Outcome 6

Establish Maintenance Requirements for Systems and Components

The candidate will be able to state

- 1 the action to take when the system or component does not work to full performance specification
 - a procedures for reporting the continued failure of space heating and leisure appliances
 - b the persons to whom it would be necessary to report continued failure of space heating and leisure appliances
- 2 circumstances in which it might be necessary to implement emergency or temporary provisions for space heating and leisure facilities due to delay in correcting faults

Outcome 7

Diagnose the Cause and Rectify Faults in Systems and Components

The candidate will be able to state

- 1 how to interpret information on system or component performance, including advice from users, visual inspections or checks or diagnosis tests to locate faults
 - a the types of information sources on space heating and leisure appliances performance
 - b how to carry out visual inspections of space heating and leisure appliances to check their performance against specifications
 - c how to obtain information on space heating and leisure appliances performance from customers or system users
 - d how to carry out diagnostic tests to determine the causes of faults in space heating and leisure appliances
 - e the causes of faults in space heating and leisure appliances including inadequate gas or air supply, leaks in system components, control malfunction, corrosion of system components, flue malfunction
- 2 the work action and sequences required to rectify faults in systems and components
 - a work sequences required to rectify faults in space heating and leisure appliances, including inadequate supply, noise, leaks in system components, control malfunction, corrosion of system components, flue malfunction