Overview

This national occupational standard defines the competences required for strength testing, tightness testing and direct purging of small, low pressure industrial and commercial natural gas installations. This standard covers the work activities of planning, de-commissioning and commissioning gas installations.
Performance criteria

You must be able to:

Plan and prepare work activities for strength testing, tightness testing and direct purging - IGE/UP/1A

P1 produce a risk assessment and method statement which incorporates safety provisions in the work site, access to the work site, movement of the workforce, members of the public, and the movement and safe storage of materials, tools and equipment for the job

P2 survey the work site, pre-strength testing, tightness testing and direct purging, for any damage or defects to existing building features and record it

P3 advise the property occupier of any defects found

P4 protect the work site and the building fabric against possible damage being caused during the strength testing, tightness testing and direct purging process

P5 get confirmation from the property occupier before the job starts to ensure that they agree the planned work

P6 confirm the siting of the gas supply and the provision of ventilation meets the requirements for strength testing, tightness testing and direct purging – IGE/UP/1A

P7 check and confirm all materials, tools and test equipment necessary for the de-commissioning, strength testing, tightness testing and direct purging process are available as required and are fit for purpose

P8 confirm that the gas supply, earthing supply and the provision of ventilation meet the industry standards’ requirements for the installation

P9 carry out all necessary checks and tests to confirm the gas supply meets the industry requirements for the installation

P10 check existing installation for any unsafe appliances and system components and apply the gas industry unsafe situations procedures as required

You must be able to:

De-commission gas systems and components to industry standards

P11 check that conditions within the gas system will permit safe de-commissioning

P12 select and use the correct tools and equipment for de-commissioning activities

P13 use designated safe isolation methods, tests, and procedures to de-commission gas systems and components

P14 take precautionary actions to ensure that temporarily de-commissioned appliances, gas systems, or components do not present a safety hazard

P15 permanently remove and disconnect appliances and gas system components as required

P16 measure, calculate and record gas system installation volumes for direct
You must be able to:

**Strength testing, Tightness testing and direct purging of gas systems and components to industry standards - IGE/UP/1A**

- **P17** use purging procedures to confirm the safe permanent de-commissioning of the installed gas system by purging of gas with air

P18 confirm the complete pipework installation complies with the manufacturers’ specification and industry standards

P19 carry out preparatory work for strength testing, tightness testing and direct purging to meet industry standards

P20 check that conditions within the gas system will permit safe strength testing, tightness testing and direct purging

P21 select and use the correct tools and equipment for strength testing, tightness testing and direct purging activities

P22 measure, calculate and record gas system installation volumes for strength testing, tightness testing and direct purging activities

P23 ensure ventilation for strength testing, tightness testing and direct purging activities meets industry standards’ requirements

P24 remove and bypass existing gas appliances and gas components as required

P25 ensure existing gas systems are clean and free of debris

P26 carry out the strength testing, tightness testing and direct purging process minimising damage to customer property and building features

P27 use strength testing procedures – IGE/UP/1A to confirm the integrity of the newly installed gas system

P28 if the installation fails the strength test either; 1) trace and repair the escape and retest, or 2) isolate unsafe gas system and components and apply the gas industry unsafe situations procedure

P29 use tightness testing procedures – IGE/UP/1A to confirm the integrity of the new and existing gas system and, where applicable, new and existing appliances to ensure the installation doesn’t exceed the maximum permissible pressure drop allowed for the installation

P30 use tightness testing procedures – IGE/UP/1A to confirm the integrity of the gas system where the maximum operating

P31 if the installation fails the tightness test either; 1) trace and repair the escape and retest, or 2) isolate unsafe gas appliances, gas system and components and apply the gas industry unsafe situations procedure

P32 replace any gas appliances and components removed from the pipework installation and remove bypasses as required

P33 measure, calculate and record gas system installation volumes for direct purging activities

P34 use purging procedures – IGE/UP/1A to confirm the safe supply of gas to the installed gas system and appliances

P35 if the direct purge fails then carry out indirect purging using nitrogen,
You must be able to:  **Use and communicate data and information to carry out de-commissioning, strength testing, tightness testing and direct purging to industry standards**

P36 identify and rectify the cause of direct purge failure and repeat the purge

P37 instruct the property occupier on the correct operation of the gas system, valves and components and provide them with their copy of the any literature

P38 take precautionary actions to prevent the unauthorised use of un-commissioned gas appliances, gas systems and components by isolation procedures and use of warning notices

You must be able to:  **Resolve problems which could affect de-commissioning, strength testing, tightness testing and direct purging**

P39 liaise with the property occupier and other people who will be affected by the work during the planning, de-commissioning, strength testing, tightness testing and direct purging processes to minimise disturbance to the job

P40 use normative documents, industry standards, British Standards and information from manufacturers’ instructions applicable to the gas system and the appliance to ensure the work is done to the specification

P41 advise of any delays to the work to any persons who are affected by the delay

P42 report any delays in the work schedules to the job supervisor

P43 advise the designated persons of any unsafe situations and actions required to remedy those situations

P44 check that the customer is satisfied with the finished job

P45 complete documentation confirming the safe strength testing, tightness testing and direct purging of gas systems and components

P46 complete gas system de-commissioning records
Knowledge and understanding

You need to know and understand:

**General Knowledge**

K1 regulations and guidance governing health and safety in the workplace, environmental protection and the use of risk assessments

K2 legislation covering the general responsibilities of the operative for their own safety and that of others

**De-commissioning, Strength testing, tightness testing and direct purging**

K3 the health, safety and environmental factors which need to be incorporated in risk assessment for non-domestic strength testing, tightness testing and direct purging process

K4 safe access and working at heights

K5 the tools and equipment necessary to provide safe access to work at heights, or in confined spaces

K6 the methods of working which protect the building décor, customer property and existing systems and components

K7 the tools, equipment, materials and components required for de-commissioning, strength testing, tightness testing and direct purging processes – ordering, supplying, advising, checking and delivery procedures

K8 the care and maintenance requirements of tools and equipment, and checks for safe condition

K9 how to safely secure and store tools, equipment, materials and components to minimise loss or wastage

K10 the potential hazards that could arise from all de-commissioning, strength testing, tightness testing and direct purging activities and the checks to be carried out before work takes place

K11 the steps to take should materials, components, tools and equipment not be available at the site to commence the de-commissioning, strength testing, tightness testing and direct purging activity

K12 how and where to access the required information, i.e. normative documents, industry standards guidance documents, British Standards and manufacturers’ instructions applicable to the gas system and appliance, to ensure the work is done to industry standards

K13 how to read and interpret the information contained in normative documents, industry standards guidance documents, British Standards and manufacturers’ instructions

K14 safe isolation methods, tests, and procedures to de-commission gas systems or components

K15 the procedures for temporary and permanent de-commissioning of gas systems including use of temporary continuity bonds

K16 the precautions to ensure that de-commissioned gas systems do not
Strength testing, gas tightness testing and direct purging - IGE/UP/1A

prove a safety hazard
K17 measures to prevent de-commissioned gas systems being brought into operation utilising safety and warning notices
K18 purging procedures to confirm the safe permanent de-commissioning of the installed gas system by purging of gas with air - IGE/UP/1A
K19 the need to liaise with others whose procedures or routines may be affected by the suspension of the gas system operation
K20 the points in the de-commissioning, strength testing, tightness testing and direct purging process where co-operation and liaison with other trades and property occupier may be required
K21 the industry practices and work standards for fabricating and installing gas pipework, valves, systems and components to comply with the manufacturers’ specification, industry standards, Gas Safety (Installation & Use) Regulations, British Standards and Building Regulations
K22 the types of pipe materials suitable for carrying gas - steel, malleable iron, copper, tracpipe, polyethylene & lead, etc
K23 the types of pipe fittings suitable for carrying gas – capillary, compression, push-fit, union joints & screwed joints
K24 the industry practices and work standards for jointing materials and fittings suitable for carrying gas, including connecting to lead composition pipes
K25 the positioning and fixing requirements for gas pipework, valves, systems and components to comply with the manufacturers’ specification, industry standards, Gas Safety (Installation & Use) Regulations, British Standards and Building Regulations
K26 the procedures and work methods for connecting to input services including; gas, earthing systems and ventilation
K27 the procedures and work methods of connecting pipework, valves and components to both new and existing gas systems and appliances
K28 how to confirm that the gas supply and ventilation are adequate for de-commissioning, strength testing, tightness testing and direct purging of the gas system, appliance(s) and components – IGE/UP/1A
K29 how to measure, calculate and record gas system installation volumes for strength testing, tightness testing and direct purging activities – IGE/UP/1A
K30 the test equipment and legislative requirements for applying strength testing, tightness testing to gas systems, appliances and components – IGE/UP/1A
K31 how to remove or bypass existing gas appliances and components prior to carrying out strength testing, tightness testing and purging activities
K32 strength testing procedures - IGE/UP/1A to confirm the integrity of newly installed gas system and, where applicable, new and existing appliances
K33 tightness testing procedures (IGE/UP/1A) to confirm the integrity of newly installed and existing gas systems and, where applicable, new and existing appliances to ensure the installation doesn’t exceed the
Strength testing, gas tightness testing and direct purging - IGE/UP/1A

maximum permissible pressure drop

K34 recognition of medium pressure regulator sets – IGE/UP/1A where the maximum operating pressure (MOP) at the outlet of the emergency control valve (ECV) is above 75mbar but not exceeding 2bar and, whether a meter inlet valve (MIV) is fitted

K35 tightness testing procedures – IGE/UP/1A to confirm the integrity of gas systems where the maximum operating pressure (MOP) at the outlet of the emergency control valve (ECV) is above 75mbar but not exceeding 2bar and, where a meter inlet valve (MIV) is fitted or, no meter inlet valve is fitted

K36 the process and procedures for tracing and repairing escapes if the installation fails the strength test and tightness test

K37 the process and procedures, equipment and legislative requirements for applying direct purging of gas systems, appliances and components – IGE/UP/1A

K38 the routines and sequences for direct purging of gas systems, appliances and components – IGE/UP/1A

K39 the process and procedures if the direct purge fails – identifying the cause of direct purge failure and carrying out indirect purging using nitrogen

K40 the routines and sequences for commissioning gas systems, valves and components to industry standards

K41 measures to prevent uncommissioned gas systems being brought into operation utilising safety and warning notices

K42 how to complete all strength testing, tightness testing and direct purging documentation and records to be left with the property occupier – IGE/UP/1A i.e., Gas Testing & Purging Certificate, benchmarks, landlord/home owner gas safety record, etc

K43 the system handover procedures and demonstrating the operation of gas systems and components to end users

K44 the steps to take when problems arise in the work activities

K45 job management structures and methods of reporting and recording job progress or problems delaying progress

K46 how to safely collect and dispose of system contents that may be hazardous to health or the environments e.g., waste products such as asbestos, insulation, etc.

K47 how and where to access the required information, i.e. Industry regulations regarding the safe disposal of system contents that may be hazardous to health or the environment e.g., Special Waste Regulations, Hazardous Waste Regulations, Control of Asbestos at Work Regulations, etc.

K48 how to isolate unsafe gas appliances, gas systems and components and application of the gas industry unsafe situations procedure
Additional Information

Behaviours

You work in a manner which
1. Treat people with civility
2. Is receptive to new ways of working
3. Conforms to industry standards, practices and procedures
4. Take pride in delivering high quality work
5. Take personal responsibility for resolving problems in your area of work

Glossary

“Small, low pressure industrial and commercial natural gas installations” refers to Natural Gas Systems and Components downstream of an emergency control valve (ECV). The installation shall have; a volume not exceeding 1.0m³ including any meter and any allowance for fittings, a maximum operating pressure (MOP) not exceeding 40mbar at the outlet of the primary meter regulator, a supply (MOP) not exceeding 75mbar, a nominal bore not exceeding 150mm.

“Work Site” refers to the area where the work will take place and all areas affected by the works