

Gas Equipment and Gas Store Checks and Inspections (Control Measure)

Gas supply equipment and gas stores must be regularly inspected and maintained.

1.0 Portable/ Mobile Gas Equipment

1.1 Tagging of Gas Equipment

The owner of portable / mobile gas equipment must contact the Faculty Technical and Operations Team to ensure it is tagged prior to use. This will ensure equipment is added to the inspection schedule and inspected at least annually. Due to the potential for time-related deterioration of internal parts, equipment that has been stored for more than a year must be inspected before use (e.g. this may be the case when new equipment has been purchased).

Suggested labels for tagging are shown below.

Installation number protocol: Building initial / room number / sequential number.

Pass
Installation number:
Owner:
Year of manufacture:
Next inspection due:
Contact:

Due for replacement this year
Installation number:
Owner:
Year of manufacture:
Next inspection due:
Contact:

Unsafe – do not use
Installation number:
Owner:
Year of manufacture:
Next inspection due:
Contact:

Immediate replacement due
Installation number:
Owner:
Year of manufacture:
Next inspection due:
Contact:

1.2 Portable or Mobile Gas Equipment – User Checks

The **owner** of portable or mobile gas supply equipment (e.g. regulators, safety devices, hoses, blowpipes) must ensure that is safe and serviceable throughout its operational life. It must be:

- Suitable for the purpose for which it is being used.
- Installed/ assembled correctly.
- Safe to operate.
- Operated safely, by users who are trained.

For the safe use of portable or mobile cylinder gas supply equipment refer to:

- BCGA CP 47 – the safe use of individual portable or mobile cylinder gas supply equipment.
- BCGA CP 7 – the safe use of oxy-fuel gas equipment (individual portable or mobile cylinder supply).
- Information provided by the University training provider.

Each portable or mobile installation will be assigned a unique installation number. Using the suggested protocol - Building initial / room number / sequential number

The **user** must carry out safety checks following assembly, before use and after use, see Appendix A.

1.3 Inspection of Portable or Mobile Cylinder Gas Supply Equipment

The thorough inspection of portable or mobile gas supply equipment must be carried out by an independent safety inspector (see Compressed Gas Policy).

Gas supply equipment must be inspected at suitable intervals, this is at least annually. The inspector may increase the frequency of inspections considering the time-in-use, adverse events, observed defects, supplier's recommendations, supplier's safety alerts or issues with similar equipment. Equipment stored for more than a year must also be inspected before use (e.g. this may be the case when new equipment has been purchased).

The inspector must determine if the installation has been correctly set up, is working efficiently and safely and is safe for continued use.

The inspection must take place in a designated safe location, away from other work activities and hazardous substances. The process of carrying out the inspection must be risk assessed; appropriate controls shall be identified and implemented. The users risk assessment may be used as a reference document.

In accordance with the inspector training, the inspector should follow a suitable and pre-determined checklist during the inspection. A generic annual maintenance inspection checklist is available in Appendix B. The inspection must also consider any relevant manufacturers'/ suppliers' recommendations.

The Faculty Technical and Operations Team / owner must take immediate action to remove from service and subsequently quarantine, safely dispose and replace items identified as unserviceable.

2.0 Gas Supply and Distribution Systems (Fixed Installations)

2.1 Weekly Checks of Fixed Installations

- Prior to first user, the owner must ensure that a written scheme of examination exists, and that the system has been examined in accordance with this written scheme. This can be checked when the equipment is handed over.
- The Faculty Technical and Operations Team must ensure a weekly inspection of the gas supply and distribution system(s) is carried out and recorded. Appendix C.
- The gas store will also require a monthly gas store inspection, see 3.0 below.

2.2 Annual Inspections of Fixed Installations

This must be carried out by a person with appropriate experience and knowledge. The HS&R Team are responsible for ensuring the thorough examination and testing are carried out by an independent competent person.

A copy of the inspection certificate/record must be forwarded to the Faculty Technical and Operations Team and the owner. Records must be stored for the service lifetime of the equipment.

The external contractor will test and inspect the fixed installation in line with the SFG20 and or agreed industry standard tasks as part of a planned preventative maintenance programme delivered by the Estates Hard FM contract.

Including:

- A full inspection and/or test where applicable of the safety relief valves, pressure gauges, regulator, and high-pressure hoses.
- A pressure decay test of the downstream pipework
- Replacement of any of the above component parts as dictated by the written scheme of examination

3.0 Gas Stores Inspection

The designated gas store “local contact” must carry out a monthly gas store inspection, Appendix D, to ensure that the store remains safe for continued use. A copy of the Gas Store Inspection checklist must be forwarded to the relevant Faculty Technical and Operations Team or equivalent.

Appendix A

Portable or Mobile Gas Equipment – User Checks

These checks must be carried out following assembly, before and after use. Suitable eye protection must be worn.

	Assembly	Before use	After use
Regulators and their integral protective devices.	Check compatible with the gas.	Check body for any signs of soot, oil, grease, or other contamination.	Check for any damage, contamination, defects, or faults.
	Ensure within life for use. See tag.	Check compatible with the gas.	Check that gauges return to zero during the venting process.
	Check the regulator inlet pressure is compatible with the maximum cylinder pressure.	Ensure the Pressure Adjustment control is firmly fixed to the body and operate freely.	
	Ensure the Pressure Adjustment control is firmly fixed to the body and operates freely.	Ensure the regulator gauges start at zero prior to use.	
	Check the inlet and outlet connections sit square to the regulator's body.	Ensure the pressure rises on the high-pressure gauge when opening the cylinder outlet valve.	
	Check condition of threads and sealing surfaces. Ensure no signs of PTFE tape.	Check the low-pressure gauge rises smoothly when setting the gas pressure.	
	Check both gauges on regulator naturally face the front and are undamaged.	Leak test all joints at working pressure.	
	Ensure both gauge needles reset to zero.	Ensure the cylinder key remains attached during use – for rapid closing in an emergency.	
	No oil, grease or other contamination.		
	Leak test all joints at working pressure, using a suitable leak detection solution.		
Flame Arrestors and their integral cut off valves. (Flame arrestors are advisable for use with oxygen and	Check correct type fitted.	Ensure flame arrestors are fitted.	Check for any damage, contamination, defects, or faults.
	Check manufacturing standard.	Leak test all joints at working pressure.	
	Ensure within life for use. See tag.		
	Check condition of threads and sealing surfaces.		
	Check the Direction of Flow is correct.		

flammable gases).	No oil, grease or other contamination.		
	Leak test all joints at working pressure.		
	Check the Pressure sensitive cut-off valve button is not restricted/ damaged/ tied down.		
Hose Assemblies (including non-return valves)	Check the manufacturing standard.		
	Check suitability of hose colour, internal bore size and length.		
	Check threads and sealing surfaces.		
	Check hoses condition for damage (e.g. kinking, twisting, or cracking).		
	Ensure Hose Check Valve and Nut & Tails are fitted using correct ferrules and are located in the correct place. Re-usable worm drive clamps must not be used.		
	Leak test of all joints at working pressure.		
Blowpipes	Check compatible with the gas.	Ensure the blowpipe nozzle is correct for the type of gas being used.	Check for any damage, contamination, defects, or faults.
	Check the condition of the body, head, and pipes.	Check the condition of the body, head, and pipes.	
	Check blowpipe nut is undamaged and is not oval.	Ensure the blowpipe taps are undamaged and operate freely.	
	Ensure the blowpipe taps are undamaged and operate freely.	Check nozzle and inlet seatings for damage.	
	Check nozzle and inlet seatings for damage.	Leak test all joints at working pressure.	
	Leak test all joints at working pressure.		

Appendix B

**Portable or Mobile Gas Equipment
Generic Maintenance Inspection Checklist**

Only the manufacturer is permitted to carry out modification, repair, or refurbishment of gas delivery equipment. If an item is identified as unsafe for further use the inspector must clearly identify the item as “**Unsafe - do not use**” until the issue is resolved, and the item / system is reinspected. Regulators must be replaced 5 years from the date of manufacture, or according to the manufacturer’s recommendations if this is less than 5 years.

Building:		Room Number:		
Owner:		Email:		
Date:				
	Inert	Oxidiser	Flammable	Comments
Gas Name				
Installation reference number				
Regulators				
	Yes	No	Yes	No
Date coded and “in date.”				
Identified to EN ISO 2503 (formerly BS 7650).				
Clean and free of contamination				
Correctly labelled (maximum inlet and outlet pressure + name of gas and supplier)				
Fitted in the correct orientation				
Correct range of capacity for work at hand.				
Bullnose stem straight				
Nut undamaged				
Outlet connection undamaged				
Inlet pressure steady (contents gauge)				
Outlet pressure steady (outlet gauge)				

No creep or build when closing down							
Pressure adjusting screw turns freely							
Pressure adjusting screw captive on regulator							
Any gas leaks on the regulator? Use suitable leak detector liquid.							
Gauges							
BS EN 562 (formerly BS 6752) or BS EN ISO 5171							
Undamaged							
Shatter proof lenses and pop-out back fitted							
Zero error visible (pointers)							
Tick as appropriate:							
The equipment is safe for continued use.							
The equipment is not safe for continued use until the required corrective actions, including subsequent satisfactory inspection and testing, are completed.							
The equipment is not safe for continued use.							
Inspected by:	Print					Date of next Inspection:	
	Signature						
Forwarded to for appropriate action (Name):							

Appendix C

Supply and Distribution System - Weekly Checks

Safety warning: When carrying out this inspection mobile phones and portable electrical equipment **must not** be taken into areas containing flammable gases unless EX or ATEX rated (see sign displayed at the entrance). These checks must be carried out weekly by Faculty Technical and Operations Team.

Location:								
Name:								
Date:								
Gas Type:								
Is the equipment in good order, being correctly used and is all the required equipment fitted?	Yes	No	Yes	No	Yes	No	Yes	No
	Action		Action		Action		Action	
Are the manifold, framework, and chains in good condition?	Yes	No	Yes	No	Yes	No	Yes	No
	Action		Action		Action		Action	
Are pigtailed and flexible hoses corroded or damaged?	Yes	No	Yes	No	Yes	No	Yes	No
	Action		Action		Action		Action	
Are valves shut off and open correctly?	Yes	No	Yes	No	Yes	No	Yes	No
	Action		Action		Action		Action	
Are regulators identified as being suitable for the gas and pressures?	Yes	No	Yes	No	Yes	No	Yes	No
	Action		Action		Action		Action	
Are regulators "in date" and not damaged?	Yes	No	Yes	No	Yes	No	Yes	No
	Action		Action		Action		Action	
Is the system operating normally, i.e. is the system using more gas than normal, is there an unusual drop in pressure or any indication of a malfunction or leak?	Yes	No	Yes	No	Yes	No	Yes	No
	Action		Action		Action		Action	

Is the manifold location free from oil and combustible materials and the area is not used as a general storeroom?	Yes	No	Yes	No	Yes	No	Yes	No
	Action		Action		Action		Action	
Have you identified any other concerns?								
Completed by (print name):								

Appendix D

Monthly Gas Store Inspection Checklist

A copy of this checklist is available on Safety Culture

Safety warning: When carrying out this inspection mobile phones and portable electrical equipment **must not** be taken into areas containing flammable gases unless EX or ATEX rated (see sign displayed at the entrance). A completed copy is to be sent to the Faculty Technical and Operations Team.

Name:					Date of inspection:	
Location:						
Checks		Yes	No	N/A	Actions required	
1	The gas detection system is operating correctly.					
	The gas detection system has been serviced in the last 12 months.					
2	In and around the store, vegetation is being managed (e.g. clearing of long grass, excessive weeds, overhanging branches, leaves etc.)					
3	Physical security arrangements are effective (e.g. store is locked, locks in good working order).					
4	All the lights are working.					
5	Emergency exits are clear and easily opened from the inside only.					
6	Safety signs and warning notices are in place, appropriate and legible.					
7	The store has adequate ventilation/ there have been no changes which may affect the ventilation.					
8	The store is not used as a lay-apart store or as a convenient storage area for other items*.					
9	Stores are kept clean and are subjected to regular housekeeping, free of debris.					
10	Trolleys are maintained and in a safe working order.					
11	There is easy access to the cylinders (e.g. the store is free from obstructions, there is suitable access for trolleys).					
12	There is a suitable fire extinguisher available, where required by the risk assessment (e.g. flammable gases).					

13	People using the gas store are wearing suitable personal protective equipment (see safety sign)				
14	Gas cylinders are handled/ moved safely.				
15 Gas Cylinders:					
a.	Round-bottom cylinders are stored horizontally and restrained individually to prevent movement. They must not rest directly on the floor.				
b.	All cylinders are individually secured to prevent them from falling.				
c.	Cylinders are not standing in pools of water.				
d.	All cylinders are clearly labelled (or placed in quarantine and the owner contacted).				
e.	Cylinders are stored according to their hazard class (see wall signs).				
f.	Empty and full cylinders are separated.				
g.	i) There is a 3m separation distance between oxygen gas control systems and flammable gas storage.				
	ii) There is a 3m separation distance between flammable gas control systems and flammable gas storage.				
	iii) There is a 3m separation distance between flammable and oxidising gas cylinders.				
h.	Cylinders are stored with their valves closed.				
Special Gases – Additional Requirements					
l.	Only personnel authorised to handle/use corrosive, toxic, pyrophoric and medical gases are allowed access to them.				
j.	Valve outlet plugs are in place where required (e.g., toxic / corrosive gases).				
k.	Expiry dates are not exceeded, where required (e.g., corrosive gases, medical gases).				
l.	There is an emergency shower & eyewash station available where corrosive gases are stored.				
m.	Pyrophoric gases are segregated from all other gases.				
16.	Have you identified any other concerns				

Forwarded to for appropriate action: (Name)	
Date Forwarded:	