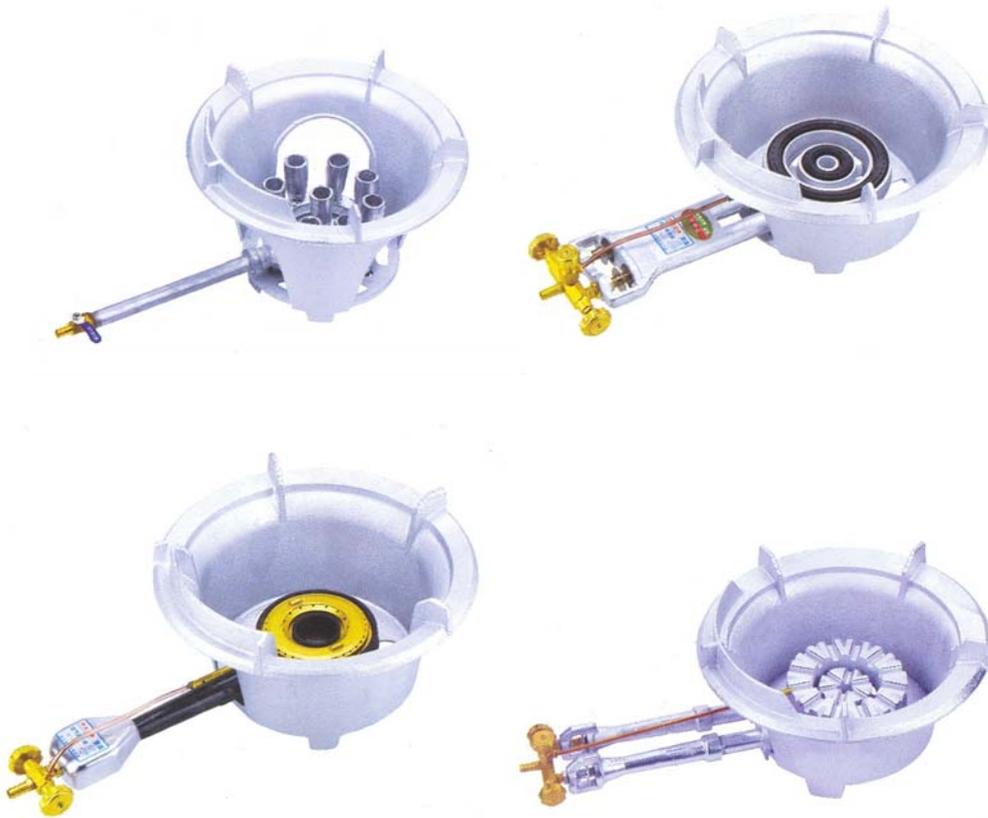


MEDIUM PRESSURE LPG GAS APPLIANCES

GUIDANCE NOTE: GU 16



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SECTION 1. Foreword and Scope

- 1.1. This Guidance Note outlines the minimum safety standards to be followed by Registered Gas Contractors (hereafter abbreviated as RGC) and owners/operators of medium pressure liquefied petroleum gas (LPG) appliances. Medium pressure means a gas pressure at the pressure regulator outlet between 7.5 kPa and 240 kPa.
- 1.2. This Guidance Note is to be read in conjunction with Code of Practice GU06 – “LPG Installations for Catering Purposes in Commercial Premises”, issued by the Gas Authority. This Guidance Note is an extension of GU06 to provide supplementary guidance in the use of medium pressure LPG gas appliances.
- 1.3. Guidance is given on the gas supply, installation and maintenance of medium pressure LPG gas appliances which using cylinder LPG as gas supply. The guidance note, however, is not applicable to piped gas supply, Notifiable Gas Installation (NGI) application as well as low pressure applications; the latter is governed by the Code of Practice GU05 - Approval of Domestic Gas Appliances.
- 1.4. Usage of low pressure gas appliances are recommended for commercial purposes. For catering purposes such as restaurants and food preparation establishments, the Code of Practice GU06 – “LPG Installations for Catering Purposes in Commercial Premises”, issued by the Gas Authority, should be followed.
- 1.5. This Guidance Note should not be regarded as exhaustive. It is not intended to relieve persons from undertaking the work of their statutory responsibilities in accordance with the safety legislation.
- 1.6. This Guidance Note does not purport to address all of the safety concerns, if any, associated with the safety requirements therein. It is the responsibility of the personnel in the gas industry and trade owners/operators to conduct safety and health risks assessment. They should determine the applicability of relevant regulatory requirements and establish the appropriate safety and health practices prior to the use of the guidance note.
- 1.7. All the gas installations shall comply with the Gas Safety Ordinance (Chapter 51). This Guidance Note must be read in conjunction with the relevant manufacturer’s instructions and shall not supersede such instructions unless the latter conflict with statutory provisions. Attention is also drawn to the current edition of the relevant regulations of the Laws of Hong Kong, including but not limited to the following:
 - a. The Buildings Ordinance (Cap. 123);

- b. The Electricity Ordinance (Cap. 406);
 - c. The Electricity (Wiring) Regulations (Cap. 406 sub-legislation);
 - d. Fire Services Ordinance (Cap. 95);
 - e. Factory and Industrial Undertakings Ordinance (Cap. 59);
 - f. The Water Works Regulations (Cap. 102);
 - g. Occupational Safety and Health Ordinance (Cap. 509).
- 1.8. The Registered Gas Contractor shall make reference to the current edition of the following International / National Safety Standards, code of practices or guidelines in relation to gas installations:
- a. Codes of Practice and Guidance Notes issued by the Gas Authority, Government of the Hong Kong special Administrative Region;
 - b. Operating Procedures issued by the Hong Kong & China Gas Company Limited;
 - c. Codes of Practice for Hong Kong LPG Industry;
 - d. Code of Practice for Minimum Fire Services Installations and Equipment and Inspection, issued by the Government of the Hong Kong special Administrative Region;
 - e. Code of Practice for the Electricity (Wiring) Regulations, issued by the Government of the Hong Kong special Administrative Region;
 - f. Standards issued by Recognised Certification Authorities such as: Australian Gas Association (AGA); European Committee for Standardisation (CEN); Japan Gas Appliances Inspection Association (JIA); State Administration of the PRC for Quality Supervision and Inspection and Quarantine (AQSIQ); or equivalent.

SECTION 2. Terminology

Gas Appliance means an appliance which burns gas types defined in Section 2 of the Gas Safety Ordinance Cap. 51 with a gas pressure between 7.5 kPa and 240 kPa to provide lighting, heating or cooling.

Gas Authority for the purpose of this code means the Gas Standards Office (GasSO), Electrical and Mechanical Services Department, Government of the Hong Kong Special Administrative Region, on behalf of the Gas Authority appointed under Section 5 of the Gas Safety Ordinance Cap. 51.

International / National Safety Standards means standards for gas appliance design, construction and safety performance issued by recognised certification authorities such as:

- Australian Gas Association (AGA) – AS standard
- European Committee for Standardisation (CEN) – EN standard
- Japan Gas Appliances Inspection Association (JIA) – JIA standard
- State Administration of the PRC for Quality Supervision and Inspection and Quarantine (AQSIQ) – GB standard

Manufacturer means the maker of medium pressure gas appliances for use in Hong Kong.

Medium Pressure means a gas pressure at the pressure regulator outlet between 7.5 kPa and 240 kPa.

Overheat Protection means a non-adjustable temperature actuated device designed to protect an appliance and its surroundings in the event of failure of the normal means of temperature control.

Flame Failure Device means an integral control device responsive to flame properties which by means of detecting the presence of a nominated flame will cause the gas supply to the appliance burner(s) to shut off safely in the event of ignition failure or inadvertent flame extinction.

Registered Gas Contractor means a person or a company who as a business carries out gas installation work and is registered under the Gas Safety Ordinance, Cap.51.

Registered Gas Installer means an individual who personally carries out gas installation work and is registered under the Gas Safety Ordinance, Cap.51.

SECTION 3. Gas Supply for the Medium Pressure Gas Appliances

3.1. General Requirements

- 3.1.1. This code applies to new gas installations and can be used as reference for existing installation, but does not include specific storage requirements for LPG containers where the aggregate quantity exceeds 130 litres water capacity. If the aggregate water capacity of LPG container(s) exceeds 130 litres, irrespective of whether full of LPG or not, prior approval must be sought from the Gas Authority for construction and use of a Notifiable Gas Installation (NGI) in accordance with Regulation 3 of the Gas Safety (Gas Supply) Regulations.
- 3.1.2. Similarly, liquid draw-off installations (which may incorporate a separate means of vaporisation e.g. electrical vaporiser) are deemed to be NGIs. Therefore prior approval of the Gas Authority must be sought for construction and use in accordance with Regulation 3 of the Gas Safety (Gas Supply) Regulations.
- 3.1.3. LPG shall not be supplied to basement or areas below ground level. The location of installation shall be provided with adequate ventilation.
- 3.1.4. LPG cylinders* should only be installed to supply fixed appliances where a piped gas supply is not available within a premises (* as defined in Section 2 of the Gas Safety Ordinance Cap 51).
- 3.1.5. LPG cylinders shall be of a type approved by the Gas Authority in accordance with Regulation 7 of the Gas Safety (Gas Supply) Regulations

3.2. LPG Cylinder Storage Chamber

- 3.2.1. A chamber shall be designed specifically for the storage of LPG Cylinders as detailed in the Code of Practice GU06. The maximum LPG storage capacity shall not exceed an aggregate water capacity of 130 litres. It should be located outside, in open air where possible, or may be inside a building provided that adequate ventilation is provided.

3.3. LPG Cylinder Supply: Pipework and Control Valves

- 3.3.1 An isolation valve, labelled in Chinese and English characters, shall be provided in the gas supply immediately outside the LPG cylinder chamber.
- 3.3.2 The LPG supply pipe shall be clearly identified with warning labels.

SECTION 4. Installation Requirements

4.1. General Requirements

- 4.1.1. A gas appliance shall be supplied by the manufacturer with installation and servicing instructions. Installation and servicing instructions shall be printed preferably in both Chinese and English languages. If the appliance is a special imported version, the manual in English language would be a minimum requirement.
- 4.1.2. The installation and servicing requirements of gas appliance strictly follow those of the instruction provided by the manufacturer of the gas appliance.
- 4.1.3. A gas appliance shall be supplied by the manufacturer with a document advising the user on how to operate and maintain it safely (Regulation 26 of the Gas Safety (Installation and Use) Regulations Cap. 51). Essential safety information shall be printed in both Chinese and English languages.
- 4.1.4. Gas appliances shall be supplied by manufacturers in packaging which affords maximum protection having due regard to market conditions in Hong Kong. Appliances shall be packed in containers displaying outer markings printed in either Chinese or English language.
- 4.1.5. The installation and servicing of all non-domestic gas installation work including the medium pressure gas appliances shall only be undertaken by Registered Gas Installers (hereafter abbreviated as RGI) having a Classes 6, 7 or 8 registration as appropriate. The RGI shall be employed by a RGC or he/she shall be a RGC.
- 4.1.6. Installation work shall comply with all relevant statutory safety requirements. Where appliances incorporate electrical components operating at mains voltage, work shall be undertaken in accordance with provisions of the Electricity Ordinance. Reference should be made to the Code of Practice for the Electricity (Wiring) Regulations issued by the Government of the Special Administrative Region.
- 4.1.7. Gas appliances shall be installed so as to facilitate servicing in accordance with Regulation 25 of the Gas Safety (Installation and Use) Regulations and shall not be located so as to cause a fire hazard nor impede means of escape from a building.

4.1.8. Gas appliances should not be installed in contact with combustible wall or floor surfaces and a minimum separation distance of 150mm (6 inches) may be allowed. Where it is not possible to achieve this separation distance, shielding with non-combustible material is necessary if temperatures in excess of 65°C are likely to be experienced in the vicinity of the gas appliance.

4.2. Connection to Appliances

4.2.1. The final connection of appliances may be rigid, semi-rigid, or flexible, depending upon appliance type and size.

4.2.2. Rigid metallic pipework shall consist of steel or copper (compression) tubes and fittings to a relevant recognised international standard (e.g. steel tubes and fittings to BS 1387, BS 143 and 1256, EN10255, EN10216-1, EN10217-1, EN10242 or equivalent; copper tubes and fittings to BS 2871, BS 864, EN1057, EN1254 or equivalent).

4.2.3. All medium pressure flexible tubing used for this purpose shall be of a type in accordance with the Code of Practice GU15, issued by the Gas Authority.

4.2.4. For the LPG cylinder with Prest-O-Lite (POL) valve:

- (a) The Registered Gas Contractors and owner/operators of medium pressure LPG appliances shall ensure that the POL valve must be connected to a medium pressure LPG tubing by a trained personnel.
- (b) the valve should be completely closed whenever the regulator are loosed or not connected to the cylinder
- (c) the valve and the regulator connecting to it should be connected tightly and there should be no clearance
- (d) Checking of gas leakage should be done before opening the valve.

4.3. Pressure Regulator

4.3.1. The outlet pressure shall be controlled by means of medium pressure cylinder regulator conformed to International / National Safety Standards, such as BS EN 13785 or its equivalent. The regulator shall be locked or sealed to prevent adjustment by unauthorised person.

4.4. Flame Failure Device (FFD)

4.4.1. Properly function flame failure device (FFD) should preferably be installed in all medium pressure gas appliances.

4.4.2. FFD shall be installed at a location where the FFD can cut off the gas supply to the main burner within 75 seconds after the pilot flame has been extinguished.

4.4.3. FFD shall be cleaned and maintained regularly and shall be tested to prove that it can function properly.

4.4.4. It is not recommended to use hard metallic brush to clean the FFD, which may damage the FFD. If the FFD is damaged, replacement and/or repair must be made by a RGI (see Clause 4.1.5) before use.

4.5. Pilot Burner

4.5.1. The medium pressure gas appliance shall be equipped with pilot burner.

4.5.2. Pilot burner shall be cleaned and maintained regularly in order to ensure all gas supply holes are not blocked by meat oil/fat, food dressing, dirt, etc. It is preferable to use pilot burner with similar height as that of the flame failure device.

4.5.3. It is not recommended to use hard metallic brush to clean the pilot burner, which may potentially damage the surface of the pilot burner. If the pilot burner is damaged, replacement and/or repair must be made by a RGI (see Clause 4.1.5) before use.

4.6. Ventilation for the Gas Appliances

- 4.6.1. Adequate ventilation must be available to ensure ready supply of fresh air for combustion and safe removal of combustion products in accordance with Regulation 23(1) of the Gas Safety (Installation and Use) Regulations. Employer or occupier of premises shall ensure employee safety and health in accordance with Section 6 and Section 7 of Occupational Safety and Health Ordinance.
- 4.6.2. For those installations where natural ventilation is not sufficient, or not available, mechanical ventilation shall be employed. A means shall be provided to ensure that the mechanical ventilation system is always in operation when gas appliances are in use. Mechanical ventilation system shall comply with the Code of Practice GU12, issued by the Gas Authority, where applicable.
- 4.6.3. Ventilation shall be provided in accordance with appliance manufacturer's instructions to a recognised international standard e.g. BS 5440; BS 6644: AS 5601; etc.

For mechanical ventilation systems

1m³ of LPG will require at least 30m³ of fresh air for combustion and will produce approximately 33m³ of products for removal to open air by extract systems

- 4.6.4. In addition to (see Clause 4.6.3) above, adequate ventilation (e.g. 20-40 air change per hour) must be provided to allow comfortable working conditions and the proper removal of odours, grease and steam.

4.7. Safety

- 4.7.1. Medium pressure gas appliance shall be preferably produced in accordance with relevant recognised international or national safety standards (for example, EN, JIA, GB). Manufacturer's own safety standard can be accepted as an alternative only if relevant international or national standards are not available.
- 4.7.2. The gas supply to appliances which incorporate gas/pressurised air pre-mix systems shall be protected by the installation of a non return valve in the inlet supply pipework.

SECTION 5. Maintenance and Inspection Requirements

- 5.1. The maintenance of the gas installation work shall be carried out by RGI having a Class 7 or 8 registration as appropriate.
- 5.2. The owner of the gas appliances shall employ a RGC to conduct annual maintenance, including servicing, cleaning and testing.
- 5.3. The yearly maintenance record shall be kept by the owner/operator for a period of at least two consecutive years.
- 5.4. All gas appliances shall be maintained and serviced according to the written instructions of the gas appliances manufacturer.

SECTION 6. Emergency procedure for handling gas leak

- 6.1 If you smell gas or suspect there is a gas leak, the following emergency procedures shall be followed
- a. To shut off the central emergency shut off main valve or the faulty gas appliance (if known) emergency shut off main valve.
 - b. To open all windows and doors to maintain good ventilation inside the premises.
 - c. To extinguish any naked flames and do not operate electrical switches such as lighting switch, ventilation system ON/OFF switch, telephone or mobile phone.
 - d. Outside the vicinity, call 999 if consider necessary (such as uncontrollable gas leak) and / or contact the responsible RGC for repairing work. The RGC name and contact telephone number shall be clearly displayed.

SECTION 7. Training

- 7.1. The owner of the gas appliance shall provide necessary operation, cleaning, emergency procedure and safety precaution trainings of the medium pressure gas appliances to their operators who involve in the operation of the gas appliances.