

Guidance Note on Gas Supply Installations

(Applicable to Conventional Projects and Projects with Modular Integrated Construction)

1. Introduction

1.1 The purpose of this guidance note is:

- (a) to draw the attention of Authorised Persons (APs) and developers to the Government's piped gas policy and the need to design a gas supply installation at an early stage of a development;
- (b) to give guidance on the location criteria which must be met in the design of the gas supply installation;
- (c) to give guidance on the requirements which must be met in the selection and installation of gas pipes/ fittings;
- (d) to draw the attention of the APs and developers to the requirements on gas installation works in buildings/ developments, including any development with Modular Integrated Construction (MiC);
- (e) to draw the attention of the Registered Gas Supply Companies (RGSCs) / Registered Gas Contractors (RGCs) / Registered Gas Installers (RGIs) to the requirements on gas installation works in buildings / developments, including any development with MiC; and
- (f) to draw the attention of developers to the importance of clearly defining the ownership of gas installations located at the common areas of a premises in order to facilitate future maintenance and repair of the installations. For details of the building maintenance in respect of gas installations, the developer is suggested to make reference to the Building Management Ordinance (Cap. 344) and the Code of Practice on Building Management and Safety which are administered by the Home Affairs Department.

1.2 In some instances, other arrangements may be deemed to be acceptable by the Gas Authority. Each case will be carefully considered on its merits and in the light of any special circumstances to which attention may be drawn.

2. Gas Authority

The Director of Electrical and Mechanical Services is the Gas Authority appointed by the Chief Executive for the purposes of the Gas Safety Ordinance (Cap. 51). The Gas Standards Office, which acts on behalf of the Gas Authority, is responsible for matters relating to gas safety. The address and contact telephone number of the Gas Standards Office are as follows:

Address: 7/F, Electrical and Mechanical Services Department
Headquarters, 3 Kai Shing Street, Kowloon,
Hong Kong

Telephone: 2808 3683

3. Piped Gas Policy

- 3.1 The Government's piped gas policy aims at providing safe gas supply to all domestic buildings as far as possible and discouraging the use of cylinders.
- 3.2 It is important that the choice of fuel gas is decided at an early stage when preparing the design of a development so that sites can be set aside for the equipment associated with a piped gas supply.

4. The Gas Supply Installation

4.1 General

A gas supply installation is considered to be safe and adequate:

- (a) if it has a gas source which can, so far as is reasonably practicable, provide an uninterrupted supply of gas to the consumers; and
- (b) if it is designed and located such that it does not present an undue risk to the health and safety of members of the public residing or working in the vicinity of the installation;

Note: Details of the current Government Risk Guidelines are included in the Hong Kong Planning Standards and Guidelines, Chapter 12: Miscellaneous Planning Standards and Guidelines.

4.2 The Gas Source

4.2.1 The gas source may take the form of either:

- (a) a supply of town gas from the reticulated mains network of the Hong Kong and China Gas Company Limited (HKCG); or
- (b) a supply of Liquefied Petroleum Gas (LPG) from a storage installation located on or adjacent to the development concerned.

4.2.2 If town gas is to be used, the developer should liaise with the HKCG for the design of the pipe routes to and within the development and make provision for the safe siting of any gas control equipment, if necessary.

4.2.3 If LPG is to be used:

- (a) the developer should liaise with the prospective LPG supplier at an early stage for the siting of the LPG storage facility and the design of the pipe routes within the development;
- (b) the LPG should normally be stored in containers of the following types;
 - (i) bulk tank (underground or mounded); or
 - (ii) banks of LPG cylinders.

Note: The maximum number of LPG cylinders which may be used for an LPG cylinder

bank installation is 20. The maximum size of cylinder is 50 kg (118 litres). In general, the total LPG storage capacity of the cylinder banks should not be more than 1 000kg.

- (c) an LPG storage installation where containers are kept with an aggregated nominal water capacity of more than 130 litres is classified as a Notifiable Gas Installation (NGI) under the Gas Safety Ordinance and an application for construction approval and approval of use of the NGI to the Gas Authority is required in accordance with regulations 3 to 6 of the Gas Safety (Gas Supply) Regulations (Cap. 51B);
- (d) an LPG gas main pipeline extension of an NGI is considered to be an addition to the NGI in accordance with regulation 2(2)(b)(ii) of Cap. 51B. For any project that involves a gas main pipeline extension from an existing NGI of an LPG storage installation in a new building or facility, an application to the Gas Authority for construction approval and approval of use in respect of the alteration of the NGI is required; and
- (e) the storage of LPG should normally have an aggregated capacity of four times the average foreseeable daily demand.

5. Design and Siting Criteria

- 5.1 Installations for the supply of gas from the reticulated mains system of the HKCG shall be designed and installed in accordance with the requirements of the Gas Safety Ordinance. Compliance with the Electrical and Mechanical Services Department's and the HKCG's approved codes of practice shall normally be deemed to meet these requirements.
- 5.2 Installations for the supply of LPG shall be designed, located and constructed in accordance with the Gas Safety (Gas Supply) Regulations. The attention of APs and other applicants is drawn particularly to the requirements of regulation 11 on the ventilation of, access to and fire protection measures for LPG installations. Compliance with the Code of Practice for Hong Kong LPG Industry, Module 1 - LPG Compounds and Cylinder Stores shall normally be deemed to meet these requirements.
- 5.3 LPG storage installations should normally be located at ground floor level away from any unventilated voids to prevent accumulation of LPG in the event of gas leakage. Locations in basements, open pits, over voids or above ground level (including podium level) will not be permitted.
- 5.4 Fire services facilities of gas installations shall comply with the requirements of the Director of Fire Services.
- 5.5 For bulk LPG storage installations where replenishment of LPG by road tanker is necessary, careful consideration should be given to the location of the installation. Factors to be considered include the estimated population in the vicinity, the capacity of the storage containers, the arrangements for road tanker access and unloading. A Quantitative Risk Assessment (QRA) report should normally be submitted to the Gas Authority with the application for NGI construction approval, to demonstrate that the installation will not present undue risks to society. It is recommended that the study brief should be discussed with the Gas Authority prior to the appointment of consultant who is responsible for the QRA study.

5.6 The following specific requirements for bulk LPG storage installations should be complied with:

- (a) Installations and associated road tanker unloading points should be sited away from places where people would congregate in order to reduce risk. The Gas Authority should be consulted at an early stage where it is proposed to site the installation within 100 metres of schools, hospitals and homes for the elderly or other sensitive users;
- (b) There should be a concrete paved area surrounding the installation, of 1 metre wide minimum, together with a further area of 2 metres wide to be free of trees and shrubs;
- (c) The minimum safety distance from buildings and the lot boundary shall meet the requirements of the Code of Practice for Hong Kong LPG Industry, Module 1 - LPG Compounds and Cylinder Stores.

Note: The acceptability of the location of any bulk LPG storage installation will be determined by making reference to the QRA. As a general rule, however, for high-rise residential property, a separation distance may be necessary which depends on the quantity of LPG stored and the size of the road tanker used for replenishing stocks of LPG.

5.7 The guidelines below give the requirements on approximate area of LPG storage installations with underground (U/G) bulk tanks:

LPG Storage Quantity (tonnes)	Approximate Area of Compound for U/G LPG tanks (m x m)
4	13 x 12
6	14 x 12
8	15 x 12
10	16 x 13
15	18 x 15
20	25 x 20
40	25 x 25

6. Ownership of Gas Supply Installations

The ownership of gas supply installations, particularly different sections of gas pipes at the common areas of a premises, should be clearly defined at an early stage to facilitate future maintenance and repair of the gas installations.

7. Requirements on Gas Pipes/ Fittings

7.1 According to regulation 17 of the Gas Safety (Gas Supply) Regulations (Cap. 51B), any gas pipes shall be constructed of sound materials and of appropriate size and strength as to safely convey the gas under the corresponding operating pressure. In this regard, any gas pipes and fittings shall be designed and installed in accordance with the requirements of the Gas Safety Ordinance, relevant national and/or international standards and the manufacturer's instructions.

- 7.2 Under regulation 4 of the Gas Safety (Installation and Use) Regulations (Cap. 51C), gas fittings shall be of good construction with sound material and of adequate strength and size to secure safety. Therefore, gas pipes / fittings should be of appropriate materials and construction conforming to relevant national / international standards or equivalent. One should ensure that joining pipes and fittings are compatible for the joints and for the joining process.
- 7.3 Attention is drawn particularly to ensure that the gas pipes and fittings shall be so constructed to resist corrosion and be protected against abnormal loading and deterioration in accordance with regulations 17(3) and 17(5) of the Gas Safety (Gas Supply) Regulations (Cap. 51B). Galvanised gas pipes/ fittings should be protected against corrosion. For any exposed galvanised gas pipes/ fittings, appropriate protective coating should also be applied on top of any coating material subject to Ultraviolet attack.
- 7.4 Under regulations 17(8), 17(9) and 17(10) of the Gas Safety (Gas Supply) Regulations (Cap. 51B), no gas pipe shall be installed in a service duct in any premises unless any other services contained in the duct are compatible with the gas pipe without prejudicing the safety of the occupants in the premises. Meanwhile, gas service pipes, such as gas riser in a building, shall not be installed in an unventilated duct, void and any places without adequate ventilation to ensure that any gas leakage shall not cause any accumulation of flammable gas.
- 7.5 No gas installation pipe supplying gas to a particular consumer shall be installed in an unventilated shaft, duct or void as stipulated in regulation 17(5) of the Gas Safety (Installation and Use) Regulations (Cap. 51C).
- 7.6 Gas pipes installed within premises should be readily identified by attaching to the pipe a yellow tape/stripe/label indicating "Town Gas" / "LPG" or painting with an appropriate colour to BS 4800 where practicable.

8. Requirements on Gas Installation Works

- 8.1 According to the Gas Safety (Registration of Gas Installers and Gas Contractors) Regulations (Cap. 51D), gas installation works refers to the fabrication, connection, disconnection, testing, commissioning, decommissioning, maintenance, repair or replacement of gas fittings, but does not include the disconnection of a cylinder, or the connection of a cylinder in place of another cylinder, where such disconnection or connection is made at the pressure-regulator or adaptor directly connected to the cylinder concerned; or the disconnection or connection of a bunsen burner. "Gas fitting" means a gas pipe, gas meter, gas appliance, gas valve or pressure-regulator which is supplied, or to be supplied, gas through a service pipe, and includes a service riser.
- 8.2 No person shall employ a person other than a Registered Gas Contractor (RGC) to carry out any gas installation works under the Gas Safety (Registration of Gas Installers and Gas Contractors) Regulations (Cap. 51D). All the gas installation works shall be carried out by a Registered Gas Installer (RGI) registered to the appropriate class(es) of gas installation works and employed by an RGC which should have sufficient resources to carry out business and supervision of its RGIs.
- 8.3 All the gas installation works conducted in Hong Kong, including the installation of gas fittings in buildings, installation of gas fittings in MiC modules and assembling of

pre-laid gas pipes in MiC modules, shall be carried out by RGI(s) registered to the appropriate class(es) of gas installation works and employed by RGC(s).

- 8.4 Under regulations 20 and 23 of the Gas Safety (Gas Supply) Regulations (Cap. 51B), gas pipes excluding installation pipes shall be tested and purged to ensure that they are structurally sound and gastight. Meanwhile, installation pipes shall be tested and purged after installation as stipulated in regulation 20 of the Gas Safety (Installation and Use) Regulations (Cap. 51C).
- 8.5 Soundness test and purging for gas pipes should be carried out generally in accordance with relevant national and/or international standards.

9. Obligation of Registered Gas Contractors (RGCs)

- 9.1 The RGC(s) shall ensure that the gas installation works, including the installation of gas fittings in the MiC modules are properly carried out with safe and sound materials that conform to the Gas Safety Ordinance and this Guidance Note. For the gas installations in MiC modules being installed at workshops, the RGC is recommended to liaise with the project owner / MiC contractor / RGSC as early as practicable for the establishment and implementation of a quality control and supervision system so as to ensure that the gas installations are installed, inspected and tested at the workshops with good workmanship and suitable materials.
- 9.2 The RGC(s) shall observe the requirements stipulated in the regulation 22 of the Gas Safety (Registration of Gas Installers and Gas Contractors) Regulations (Cap. 51D) where the RGC(s) shall ensure, so far as is practicable, that his employees do not personally carry out, or supervise any individual personally carrying out gas installation works in contravention of any of the requirements under the Gas Safety Ordinance (Cap. 51) applicable to such work.
- 9.3 After completion of the gas installation works, the RGC(s) shall conduct appropriate pressure tests to verify if the gas installations are gastight and structurally sound as stipulated in regulation 20(1) of the Gas Safety (Gas Supply) Regulations (Cap. 51B).
- 9.4 Prior to supply of gas to the gas installations, soundness test and purging shall be conducted by an RGC. Upon completion of the soundness test with satisfactory result, the RGC(s) shall carry out purging throughout the tested gas installations to remove all air and gas other than the gas to be supplied. The RGC(s) shall ensure that the soundness test and purging are completed before the commissioning of gas installations. Where necessary, the RGC(s) should provide the RGSC with the relevant information such as test results and certificates of their gas installation works for verification prior to the commissioning of gas installations.
- 9.5 Under regulation 23 of the Gas Safety (Registration of Gas Installers and Gas Contractors) Regulations (Cap. 51D), the RGC(s) shall maintain records of all gas installation works carried out by him and shall keep such records for a period of not less than 2 years after the gas installation work concerned was carried out. The RGC(s) shall keep the testing and commissioning records for at least 2 years and submit the records to the relevant parties to review or for retention upon request.

10. Obligation of Registered Gas Supply Companies (RGSCs)

- 10.1 Under regulations 9(1) and 9(2) of the Gas Safety (Registration of Gas Supply Companies) Regulations (Cap. 51E), the RGSC shall conduct its operations in a safe manner so that members of the public are not exposed to undue risk from gas. It shall also be the duty of the RGSC to ensure, so far as is reasonably practicable, the safety and absence of risks to health at work of all its employees in connection with the carrying on of its business as a gas supply company. Prior to the commissioning of gas installations, pressure test and purging of the gas installations shall be completed by the RGC(s) to ensure that the gas installations connected to the gas supply network are safe and sound. In this regard, the RGSC should establish their system of works, as far as is reasonably practicable, to ensure that the gas installations connected to their gas supply network could operate in a safe manner prior to commissioning.

11. Requirements on Gas Appliances

- 11.1 Domestic gas appliances (DGAs) including cookers, water heaters and clothes dryers, for use in Hong Kong, shall be of brands and models approved by the Gas Authority under the "Approval Scheme for Domestic Gas Appliances" (the Scheme) and bear the GU Mark as stipulated in regulation 3B of the Gas Safety (Miscellaneous) Regulations (Cap. 51F).
- 11.2 If an AP or works contractor intends to pre-install a DGA in the MiC module for delivery into Hong Kong for use, he shall engage an importer who has obtained the Gas Authority's approval of that particular brand and model of DGA for importation under the Scheme. Alternatively, the AP or works contractor may apply for the Gas Authority's approval to import any DGA under the Scheme in accordance with the Code of Practice GU05 – Approval of Domestic Gas Appliances.
- 11.3 Under regulation 23A(1) of the Gas Safety (Installation and Use) Regulations (Cap. 51C), no person shall install a DGA in Hong Kong unless the appliance bears the GU mark. The connection, testing and commissioning of DGAs in Hong Kong shall be carried out by RGI(s) registered to the appropriate class(es) of gas installation works and employed by the RGC(s).

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