



KESELAMATAN GAS DI PEPASANGAN DOBI DAN SEKTOR KOMERSIAL

NUR WAHEEDA WAHAB
UNIT PEPASANGAN & PERALATAN GAS
JABATAN KAWAL SELIA KESELAMATAN

28 OGOS 2019 | RABU
HOTEL GRAND RIVERVIEW, KOTA BHARU, KELANTAN

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WHY SAFETY IS IMPORTANT?

01

To ensure **legislative requirements** are being fulfilled.

To ensure **the piping system** are designed according to the relevant standards.

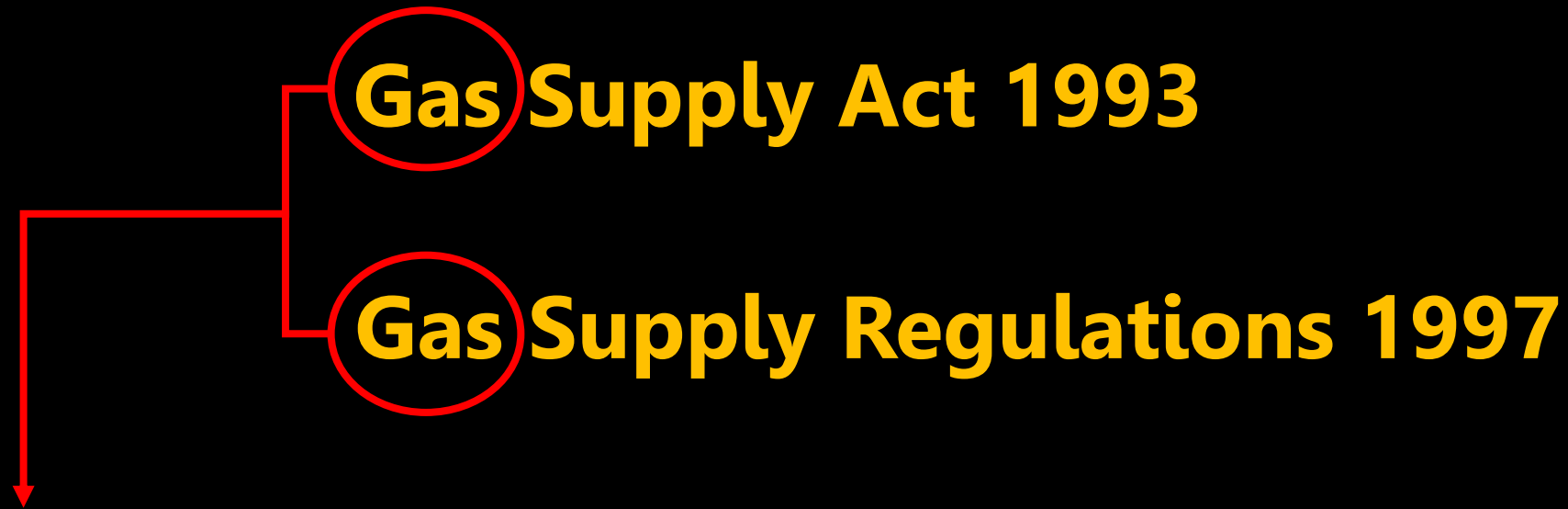
02

03

To minimize or avoid the **risk of accidents i.e. leakage, explosion or other hazards** which could result injuries or death to humans and damages to properties.

A stack of three books with brown covers is the central focus. The top book is smaller and has a yellow bookmark. To the right, a blue pen lies on a white surface. The background is a plain, light-colored wall.

Legislative Requirement



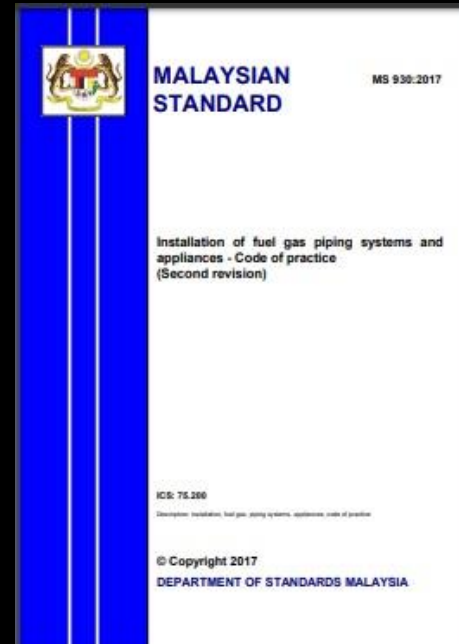
Means

**Natural Gas (NG),
Liquefied Natural Gas (LNG)
or Liquefied Petroleum Gas (LPG).**

DESIGN STANDARDS



**MS 830 : 2013
(LPG Storage)**

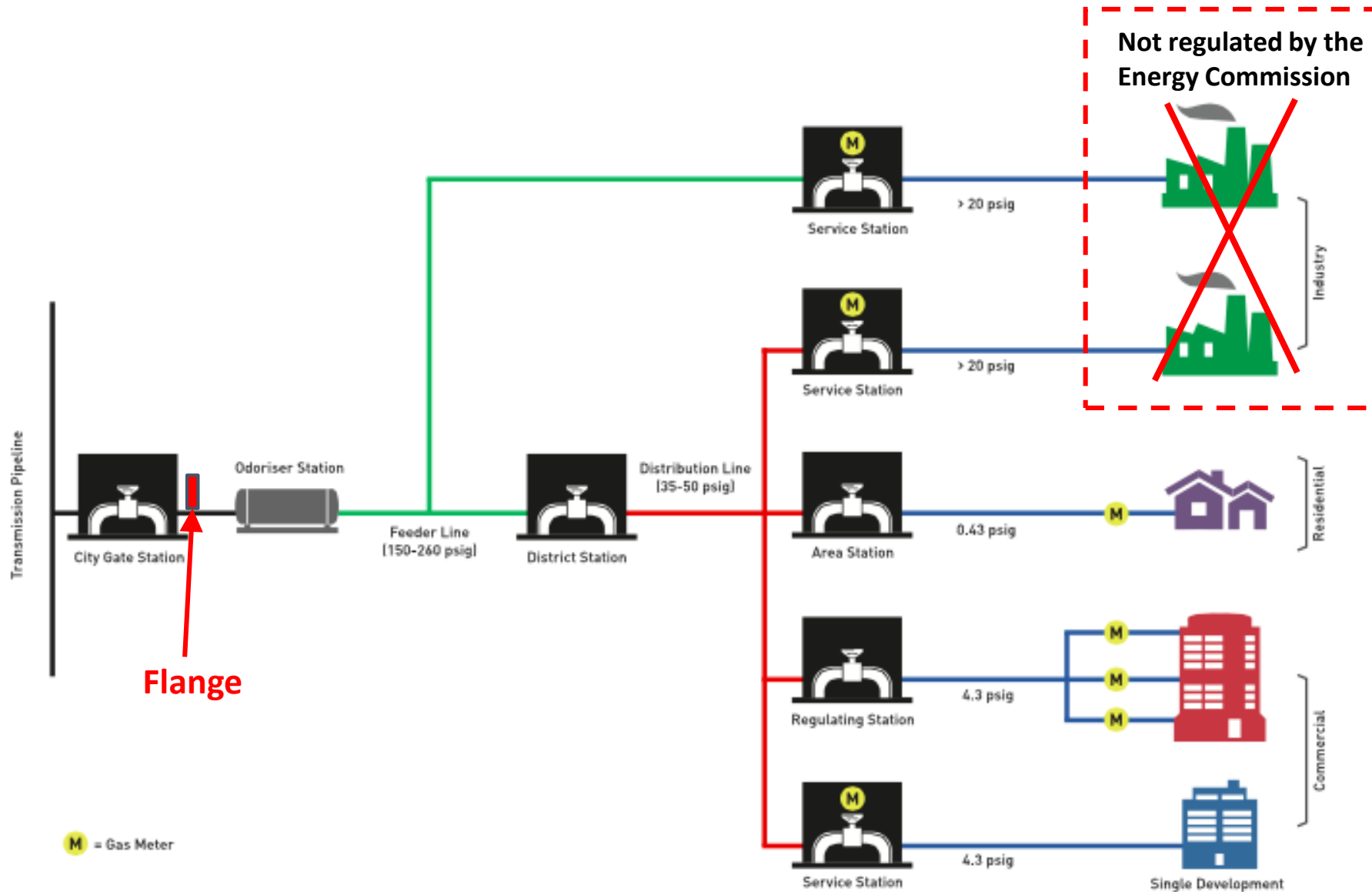


**MS 930 : 2017
(Gas Piping)**

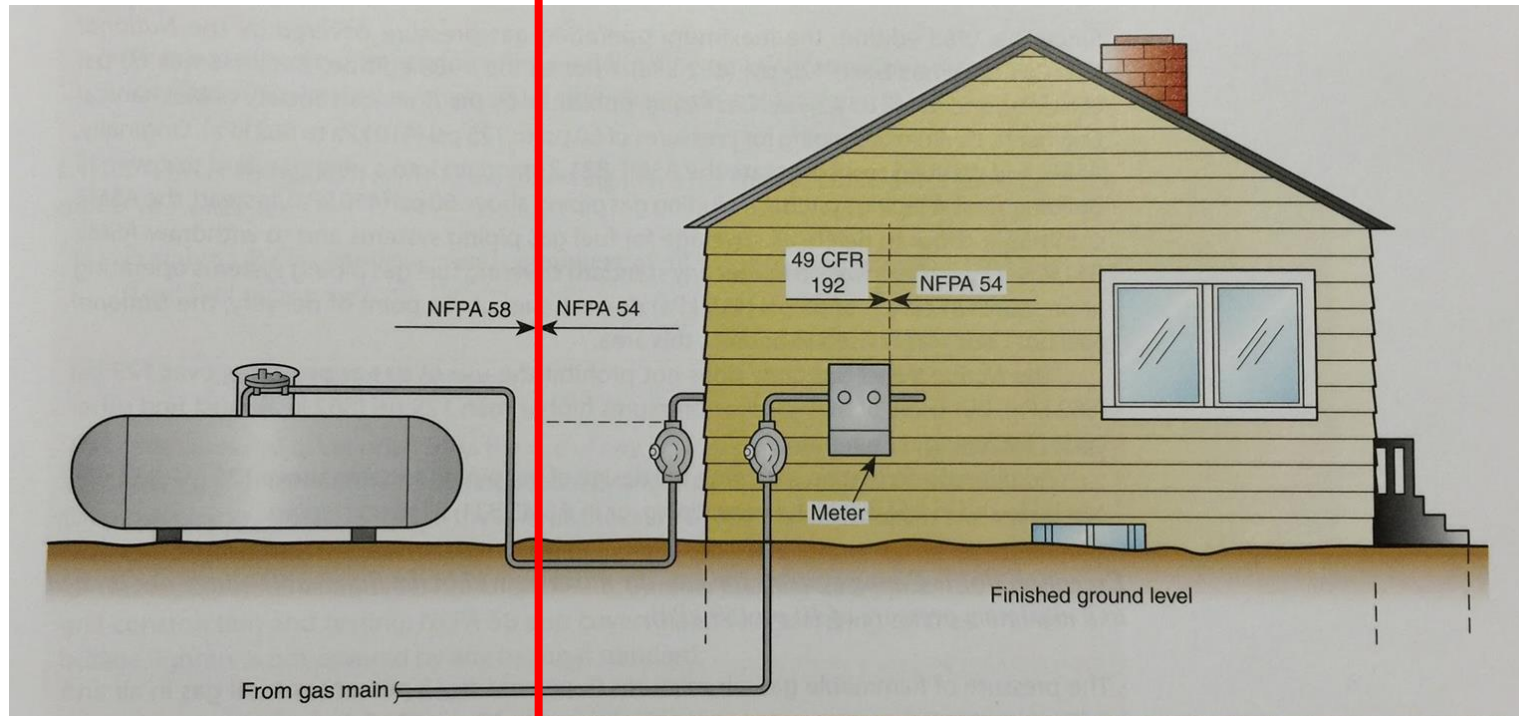
Code & Standards

- MS830 – Storage , Handling & Transportation Of LPG
- MS930 – Installation Of Fuel Gas Piping Systems And Appliances

NATURAL GAS DISTRIBUTION SYSTEM



LPG DISTRIBUTION SYSTEM



**MS 830 : 2013
(LPG Storage)**

**MS 930 : 2017
(Gas Piping)**

GAS PIPING INSTALLATION

**Approval To Install
(ATI)**



**Approval To Operate
(ATO)**



Gas License

**Regulation 15,
Gas Supply Regulations
1997**

Application before
commencing work on a new
installation or gas extension

**Regulation 16,
Gas Supply Regulations
1997**

Application upon
completion of a new gas
installation work

**Section 11,
Gas Supply Act 1993**

License must be granted
before getting gas supply
through piping system

KELULUSAN UNTUK MEMASANG

No. Kelulusan : ST(IP/JG)1P/749.18(ATI/LPG)

Selaras dengan peraturan 15, Peraturan-peraturan Bekalan Gas 1997 dan tertakluk kepada syarat-syarat yang telah ditetapkan (sila lihat muka belakang) dengan ini Suruhanjaya memberi Kelulusan Untuk Memasang Pemasangan Gas seperti berikut :

Kontraktor :
PROFIX ENGINEERING SDN BHD
NO. 12A-1, JALAN BALAKONG JAYA 6
TAMAN BALAKONG JAYA
43300 SERI KEMBANGAN, SELANGOR.
Orang Kompeten : AMIR ASHRAF BIN HAMZAH

Pemunya :
KSC KANG ENTERPRISE
18G, JALAN WAWASAN 2/8,
BANDAR BARU AMPANG
68000 AMPANG, SELANGOR.
Penyelaras : YAP, KOK LEONG

Lokasi :
INSTALLATION OF LPG PIPING SYSTEM AT ECO GREEN LAUNDRY
18G, JALAN WAWASAN 2/8,
BANDAR BARU AMPANG,
68000 AMPANG, SELANGOR.

Skop Kerja :
Gas Petroleum Cecair (LPG)
Sistem Manifold 6 x 50 kg LPG keluaran Wap
Paip utama gas, Paip perkhidmatan gas

No. Pelan :
Seperti di dalam permohonan OAS/JG8/01555/2018



(MOHD ELMI BIN ANAS)
b.p. Suruhanjaya Tenaga

Tarikh : 14 November 2018

*Peringatan:

1. Orang kompeten adalah bertanggungjawab sepenuhnya terhadap pemasangan di atas.
2. Kelulusan ini terbatal sekiranya didapati pemasangan tidak mematuhi Akta Bekalan Gas 1993 & Peraturan - Peraturan Gas 1997, MS 830 (terkini), MS 930 (terkini) dan arahan-arahan Suruhanjaya Tenaga.

APPROVAL TO INSTALL
(ATI)

KELULUSAN UNTUK MENGENDALI

No. Kelulusan : ST(IP/JG)1P/749.18(ATO/LPG)

Selaras dengan peraturan 16, Peraturan-peraturan Bekalan Gas 1997 dan tertakluk kepada syarat-syarat yang telah ditetapkan (sila lihat muka belakang) dengan ini Suruhanjaya memberi Kelulusan Untuk Mengendali Pemasangan Gas seperti berikut :

Kontraktor :
PROFIX ENGINEERING SDN BHD
NO. 12A-1, JALAN BALAKONG JAYA 6
TAMAN BALAKONG JAYA
43300 SERI KEMBANGAN, SELANGOR.
Orang Kompeten : AMIR ASHRAF BIN HAMZAH

Pemunya :
KSC KANG ENTERPRISE
18G, JALAN WAWASAN 2/8,
BANDAR BARU AMPANG
68000 AMPANG, SELANGOR.
Penyelaras : YAP, KOK LEONG

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68000 AMPANG, SELANGOR.

Skop Kerja :
Gas Petroleum Cecair (LPG)
Sistem Manifold 6 x 50 kg LPG keluaran Wap
Paip utama gas, Paip perkhidmatan gas

No. Pelan :
Seperti di dalam permohonan OAS/JG9/01612/2018

Tekanan Operasi Maksimum Yang Dibenarkan :
Sistem Paip Sebelum Pengatur Pertama : 1724.0 KPa (250.0 psi)
Sistem Paip Selepas Pengatur Pertama : 34.5 KPa (5.0 psi)
Sistem Paip Selepas Pengatur Kedua : 3.5 KPa (0.5 psi)



(MOHD ELMI BIN ANAS)
b.p. Suruhanjaya Tenaga

Tarikh : 10 Januari 2019

***Peringatan:**

Adalah menjadi satu kesalahan di bawah Akta Bekalan Gas sekiranya gas dibekalkan melalui talian paip tanpa lesen yang sah. Oleh itu, pemunya, penduduk atau pengguna hendaklah mendapatkan Lesen Gas (Retail Licence or Private Gas Licence) yang sah sebelum gas dibekalkan kepada pemasangan ini (lesen perlu diperbaharui setiap 12 bulan).

APPROVAL TO OPERATE
(ATO)

SALINAN PEJABAT

JADUAL PERTAMA

No : 07886

[Subperaturan 7(3)]

BORANG A

SURUHANJAYA TENAGA

AKTA BEKALAN GAS 1993

LESEN GAS PERSENDIRIAN

No. Lesen: ST(IP/JG)/IP/749.18(ATO/LPG)

Mengikut seksyen 11 Akta Bekalan Gas 1993, lesen ini dikeluarkan kepada _____

KSC KANG ENTERPRISE

(Nama Pemegang Lesen)

di alamat 18G, JALAN WAWASAN 2/8, BANDAR BARU AMPANG

(Alamat Pemegang Lesen)

68000 AMPANG, SELANGOR

untuk membekalkan gas dan mengendalikan, mengikut Peraturan-Peraturan Bekalan Gas 1997,

pepasangan gas di ECO GREEN LAUNDRY @ BANDAR BARU AMPANG

(Lokasi Pemasangan)


18G, JALAN WAWASAN 2/8, BANDAR BARU AMPANG, 68000 AMPANG, SELANGOR

Lesen ini adalah tertakluk kepada kehendak yang berikut:

- (i) Kelas pemasangan KELAS III
- (b) Kapasiti yang dibekalkan (6 X 50KG) MMBTU
- (c) Jenis Gas: GAS PETROLEUM CECAIR
- (d) Tempoh lesen (dari) 22/01/2019 - (hingga) 21/01/2020

Tarikh dikeluarkan 22/01/2019 Tempat dikeluarkan SURUHANJAYA TENAGA

Fee: RM 100.00


Ir. H.J. ROSLEE BIN ESMAN
h.p Suruhanjaya Tenaga

NOTA: 1. Pembaharuan lesen hendaklah dibuat tidak kurang daripada dua (2) bulan sebelum tarikh habis tempoh lesen.
2. Sila patuh pada amaran bertulis yang dikeluarkan oleh Suruhanjaya Tenaga dari semasa ke semasa.

**GAS LICENSE
(PGL)**

A photograph of a storage area for safety equipment. The image shows a grid of yellow metal shelving units. Each unit has several shelves, and the shelves are filled with various types of safety helmets. The helmets are in different colors, including yellow, orange, and white. Some helmets have numbers or text on them, such as '1013016', '699', and 'TA L (PCW)'. The background is dark, and the overall lighting is somewhat dim, giving the scene a warehouse-like appearance. A blue banner with white text is overlaid across the middle of the image.

WHO ARE INVOLVED?

GAS CONTRACTOR

Gas Supply Regulations 1997

Regulation 103: Gas Contractor

(1) No person shall perform or carry out any work in respect of installing, constructing, testing, commissioning, calibrating, maintaining, repairing or operating a gas pipeline or gas installation or part of it unless **he holds a valid Certificate of Registration as a Gas Contractor issued under these Regulations.**

COMPETENT PERSON

Gas Supply Act 1993

Section 35: Competent Person

Unless otherwise exempted, no work in respect of **installing, constructing, maintaining, repairing or operating** any gas pipeline or installation or part thereof shall be carried out except by or under the supervision of **an certified competent person**.

Gas Supply Regulations 1997

Regulation 21: Supervision of work on gas installation by competent person.

Every work on a gas installation **shall be supervised by a competent person** employed by the Gas Contractor who is carrying out the installation work.

Regulation 82: Competent person shall possess a valid Certificate of Competency.

A competent person referred to in these Regulations **shall hold a valid Certificate of Competency** according to the appropriate category, with or without restriction, issued by the Energy Commission under these Regulations.

GAS RESPONSIBLE PERSON

SENARAI TUGAS OB SCOPE OF WORK

- 1 Untuk memastikan bahawa talian paip gas itu kekal boleh dikenalpasti selama ia digunakan untuk menghantar gas. (Peraturan 62(2))

The responsible person or his representative shall ensure that the gas pipeline continues to be identifiable as long as it is used for conveying gas. (Regulation 62(2))

- 2 Sekiranya mengetahui atau mempunyai alasan untuk mengesyaki bahawa gas bocor ke dalam premis, OB hendaklah dengan segera mengambil segala langkah yang munasabah untuk menyebabkan bekalan gas ditutup ditempat yang perlu untuk mencegah gas bocor lebih lanjut. (Peraturan 63(1))

If the responsible person or his representative knows or has reason to suspect that gas is escaping into the premises, he shall immediately take all reasonable steps to cause the supply of gas to be shut off at the necessary place to prevent further escape of gas. (Regulation 63(1))

- 3 Jika gas bocor ke dalam premis selepas bekalan gas ditutup atau jika terdapat bau gas yang berterusan, dan mendapat tahu tentang kebocoran atau bau itu, OB hendaklah dengan segera memberitahu Ketua Pengarah atau pemegang lesen tentang kebocoran atau bau itu. (Peraturan 63(2))

If gas continues to escape into the premises after the supply of gas has been shut off or when a smell of gas persists, the responsible person or his representative who discovers the escape or smell shall immediately inform or cause to be informed the Director General or the licensee of the escape or smell. (Regulation 63(2))

- 4 OB hendaklah bertanggungjawab untuk memastikan semua langkah-langkah keselamatan telah diambil tindakan untuk memastikan tiada membahayakan orang atau harta sebelum bekalan disambung semula. (Peraturan 64(1))

Where the supply of gas is shut off in any premises for safety reasons, it shall not be restored until all necessary steps are taken by the responsible person or his representative to ensure that gas can be resupplied without causing danger to a person or property. (Regulation 64(1))

- 5 OB hendaklah memastikan sistem disenggara dengan baik dan cekap dan standard keselamatan dipatuhi setiap masa bagi mencegah dari berlakunya bahaya. (Peraturan 128(2))

Responsible person must ensure a gas installation shall be maintained in good and efficient working order to ensure safety of persons and safety shall be observed at all times so as to prevent danger from arising. (Regulation 128(2))

DEFINISI OB DEFINITION

"Berhubungan dengan mana-mana premis, ertinya pemegang lesen atau pengguna atau penduduk premis, atau jika tiada pengguna atau penduduk, pemunya premis atau mana-mana orang yang diberikuasa oleh pengguna atau penduduk untuk menjaga talian paip gas atau pemasangan gas di dalam premis itu" (Peraturan-Peraturan Bekalan Gas 1997)

"In relation to any premises, means the licensee or consumer, or an occupier of the premises, or where there is no consumer or occupier, the owner of the premises or any person authorized by the consumer or occupier to be in charge of the gas pipeline or gas installation in the premises" (Gas Supply Regulations 1997)

- 6 OB hendaklah hadir semasa pemeriksaan dibuat dan memberikan apa-apa bantuan sebagaimana yang dikehendaki oleh Ketua Pengarah dalam notis pemeriksaan. (Peraturan 129(2))

The Director General shall require an inspection to be made by sending a notice in writing to the responsible person and that person shall attend the inspection and give any assistance as may be required by the Director General in the notice. (Regulation 129(2))

- 7 OB hendaklah menyimpan buku rekod penyenggaraan yang didalamnya ada menyatakan kerja-kerja penyenggaraan dan pembaikan yang dijalankan atas pemasangan gas. (Peraturan 131(2))

Responsible person shall keep a maintenance record book in which any maintenance and repair work carried out on a gas installation is recorded. (Regulation 131(2))

- 8 OB adalah orang yang perlu diberitahu oleh orang kompeten mengenai perlunya pengubahan dan pembaikan pada sistem bekalan gas. (Peraturan 134)

Where a competent person has reason to believe that there is a need for the alteration of, or the repair of a part of a supply system, the competent person shall immediately notify the responsible person of the matter. (Regulation 134)

- 9 Semasa kecemasan akibat kebocoran, orang kompeten perlu memberitahu OB mengenai kerja-kerja pembaikan kekal yang perlu dibuat. (Peraturan 135)

Where gas is leaking from a part of the gas supply system, a competent person may make necessary emergency repairs and shall notify the responsible person of the permanent repairs that are necessary. (Regulation 135)

- 10 OB hendaklah memastikan orang yang terlibat dalam kerja penyenggaraan yang berkaitan dengan pemasangan gas atau kelengkapan gas hendaklah dilindungi secukupnya dari bahaya. (Peraturan 137(2))

A person engaged in maintenance work in connection with a gas installation or gas equipment shall be adequately protected from danger and the responsibility for such protection shall be on the responsible person, his servant or agent, as the case may be. (Regulation 137(2))

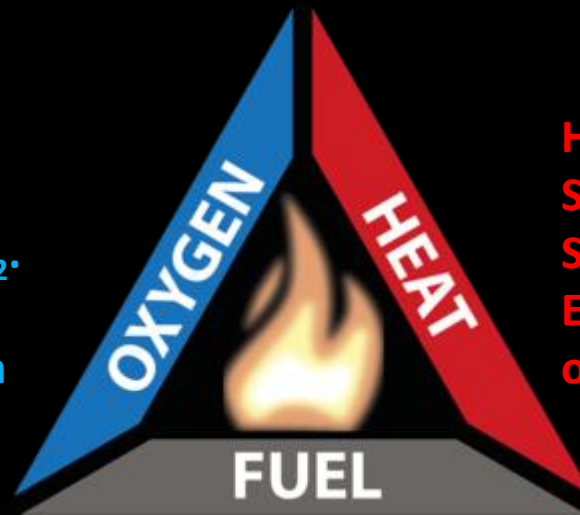


SAFETY REQUIREMENT



FIRE TRIANGLE

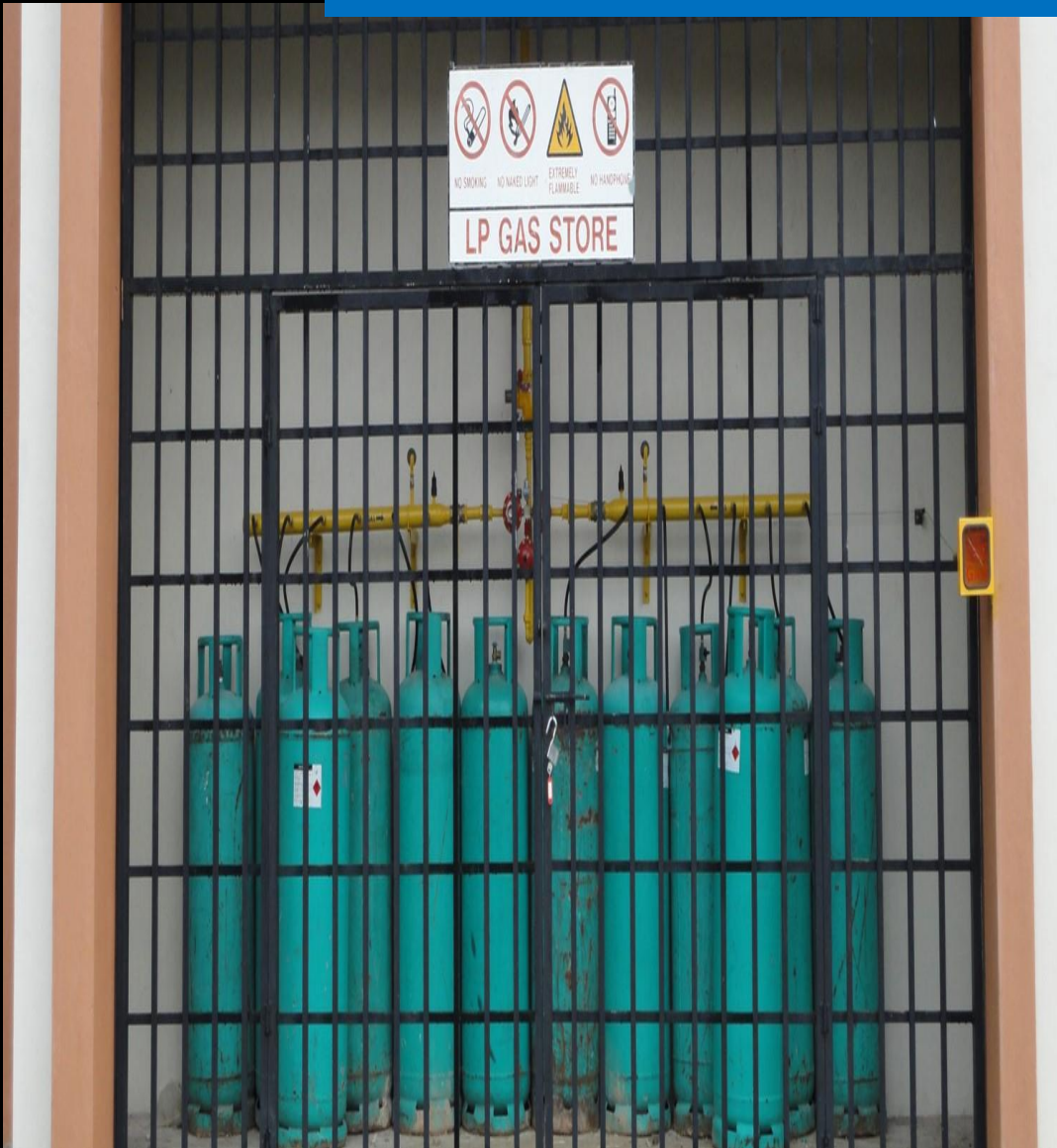
Oxygen source:
Normal air
contains 21% O₂.
Fuel may also
contains oxygen



Heat source:
Sun Hot Surfaces,
Sparks, Friction,
Electrical Energy,
others

Fuel source:
Can be solid, liquid
or gas

STORAGE AREA

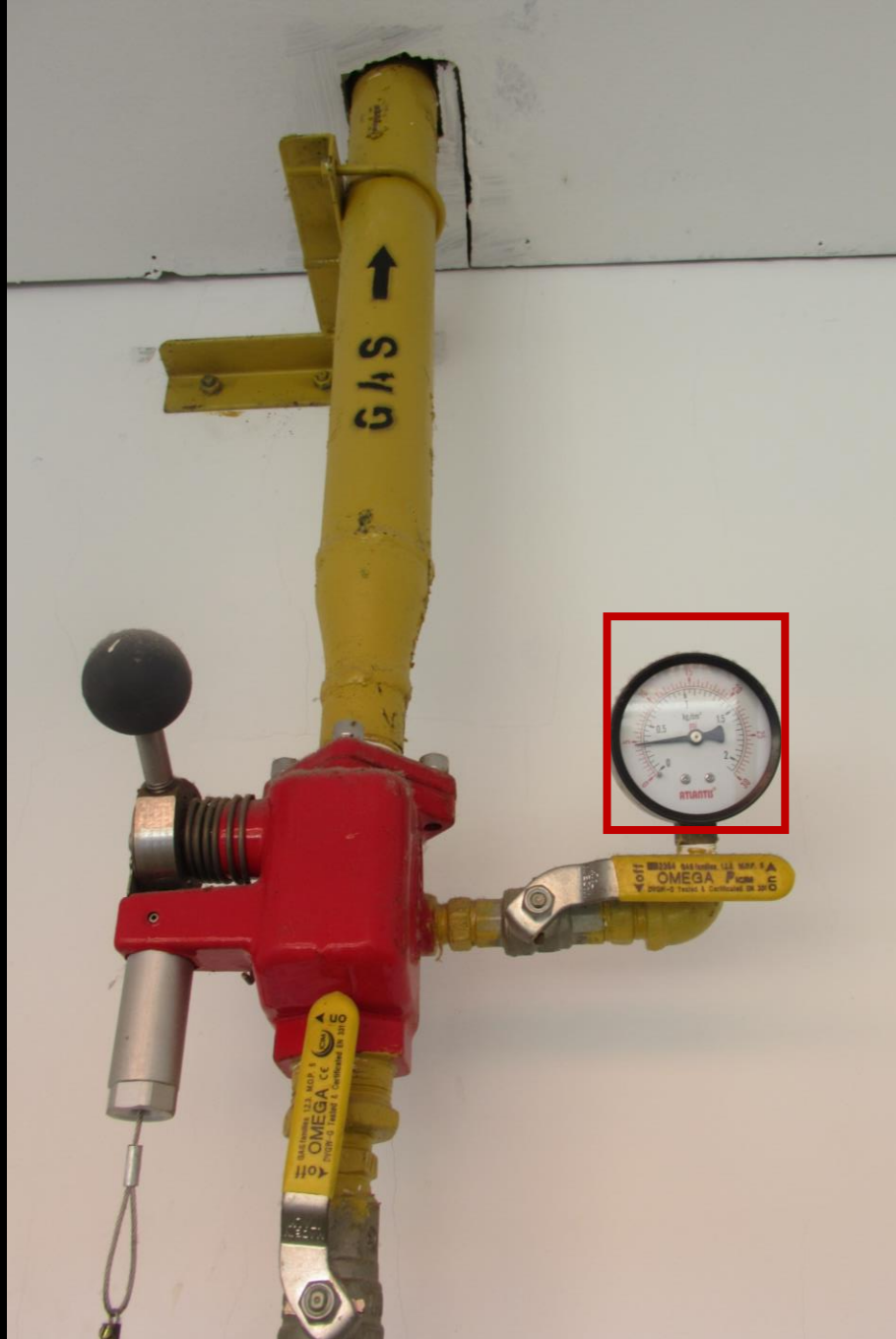


💡 Adequate Ventilation

💡 Safety signage

💡 Facing to the outside of the building

💡 Emergency Shut Off Valve (ESV)



Operating Pressure
maximum 5 psig

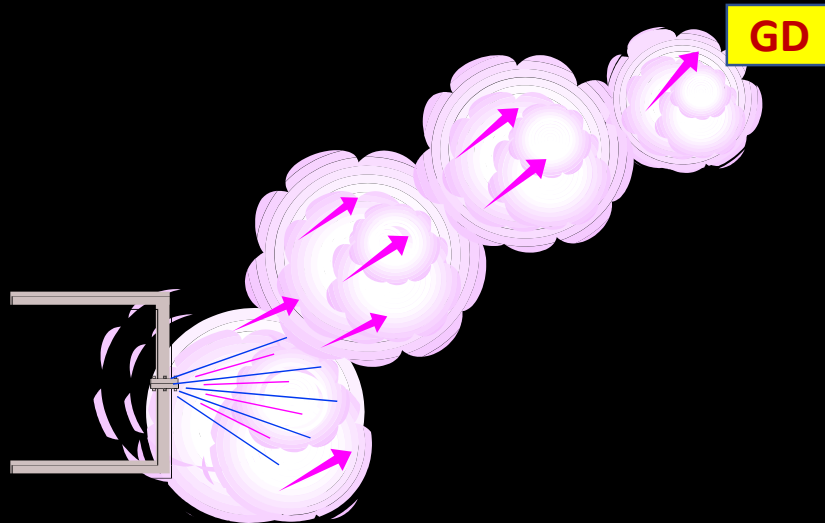


Gas Detector link with Solenoid Valve

How to Install Gas Detector?

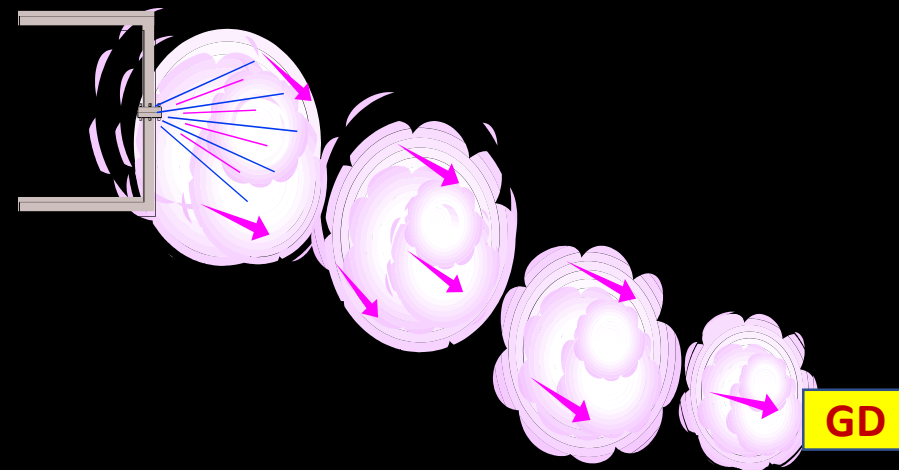
Natural Gas

1. Specific Density = **0.65** < **1.0** (air)
2. Lighter than air
3. Flammability Limits = **4% - 15%**



LPG

1. Specific Density = **1.65** > **1.0** (air)
2. Heavier than air
3. Flammability Limits = **2% - 9.5%**





Gas Valve not more than **2 metre heights** from finish floor level



Sealed Off /
Plug Off
unused points



DANGER

UNSAFE INSTALLATION

STORAGE AREA



STORAGE AREA





Unauthorized connections



INTERNAL PIPING

CORRODED PIPING

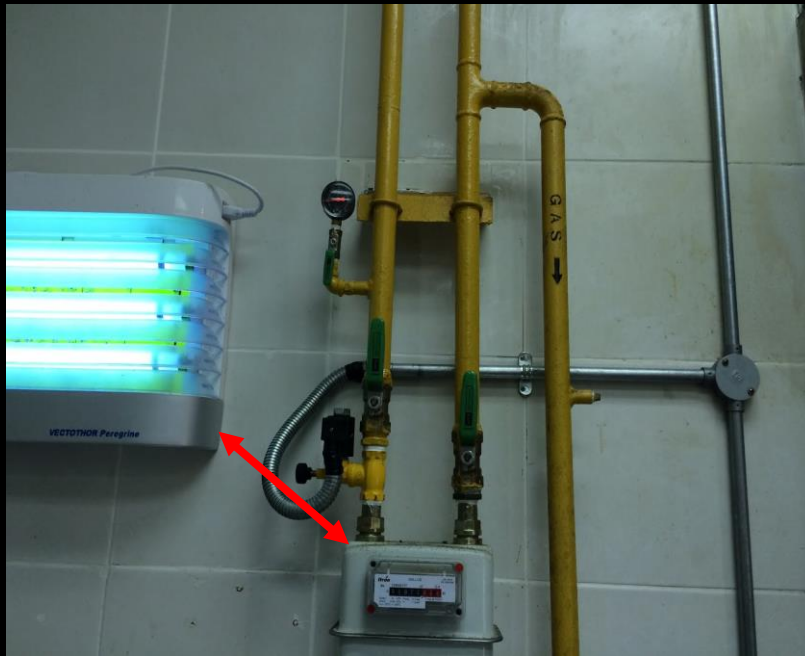


Signs of unsafe piping installation



LEAKED PIPING

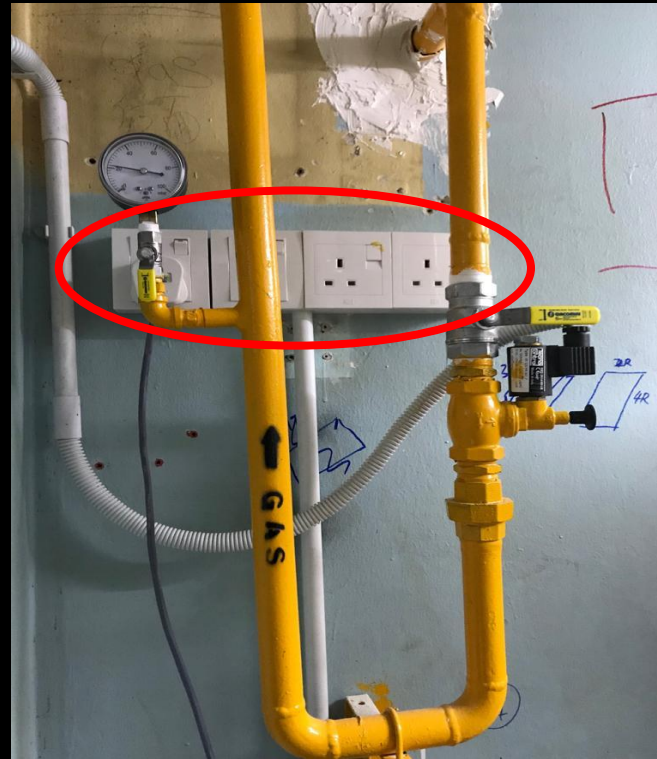
INTERNAL PIPING



Gas Meter **less than 0.9 m** to Source of Ignition



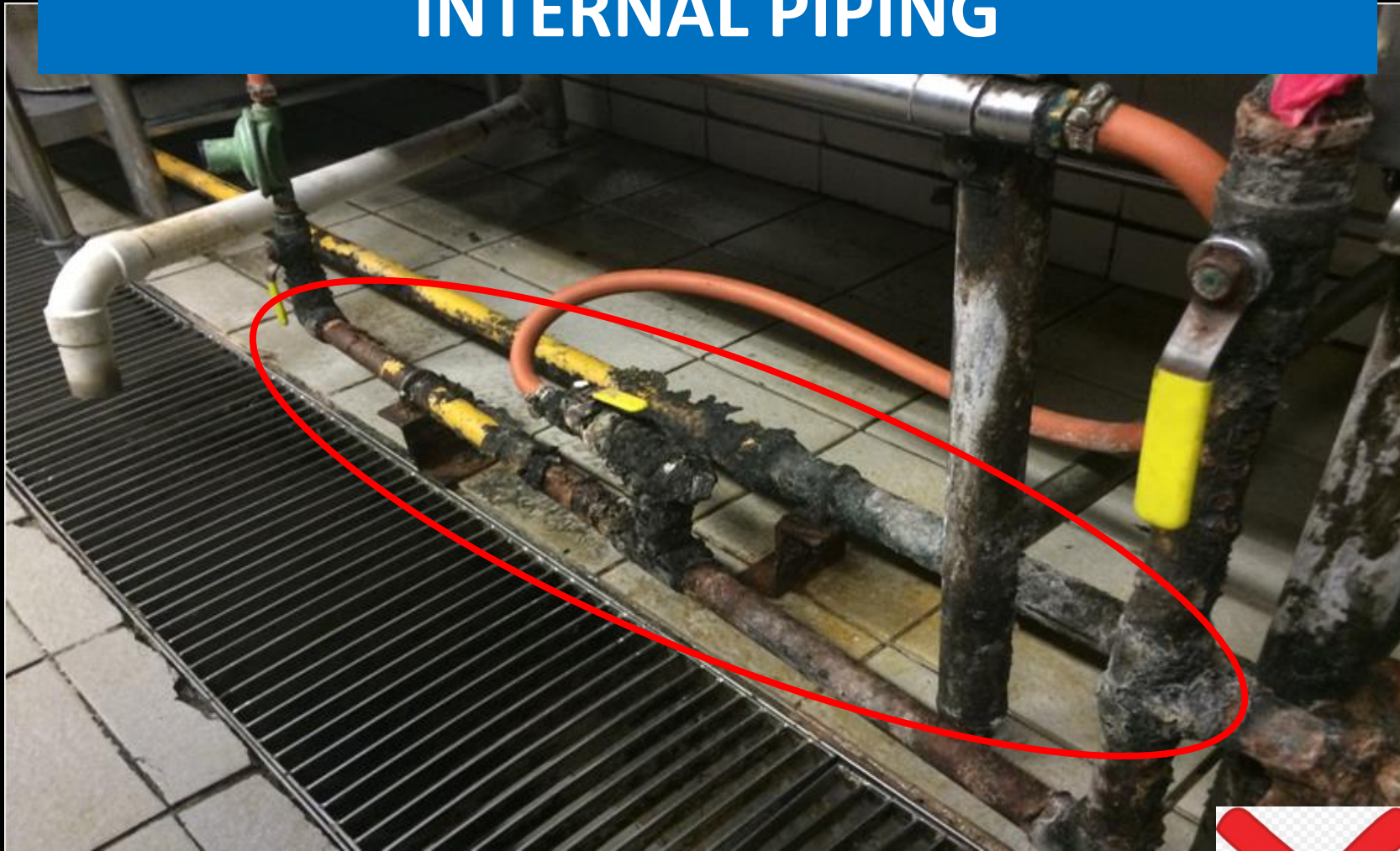
INTERNAL PIPING



Gas Outlet / Threaded Connection
less than 0.3 m to Source of Ignition



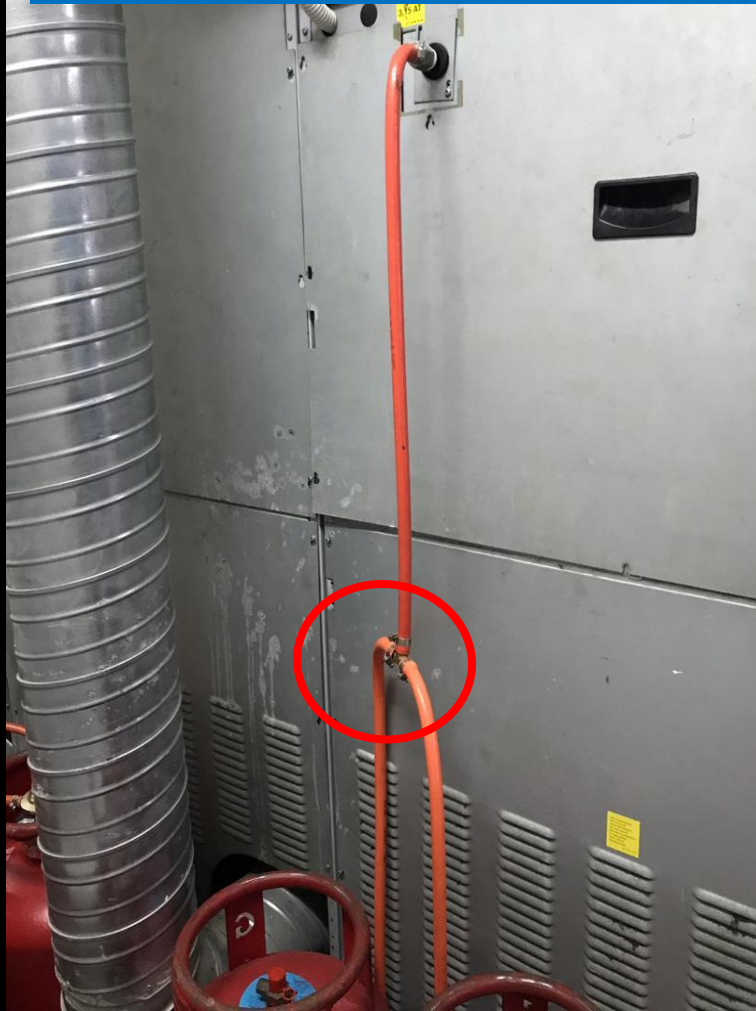
INTERNAL PIPING



Corroded gas piping



INTERNAL PIPING



Tee hose to gas appliances

INTERNAL PIPING



Gas hose is too long
Maximum allowed only 1.5 m length



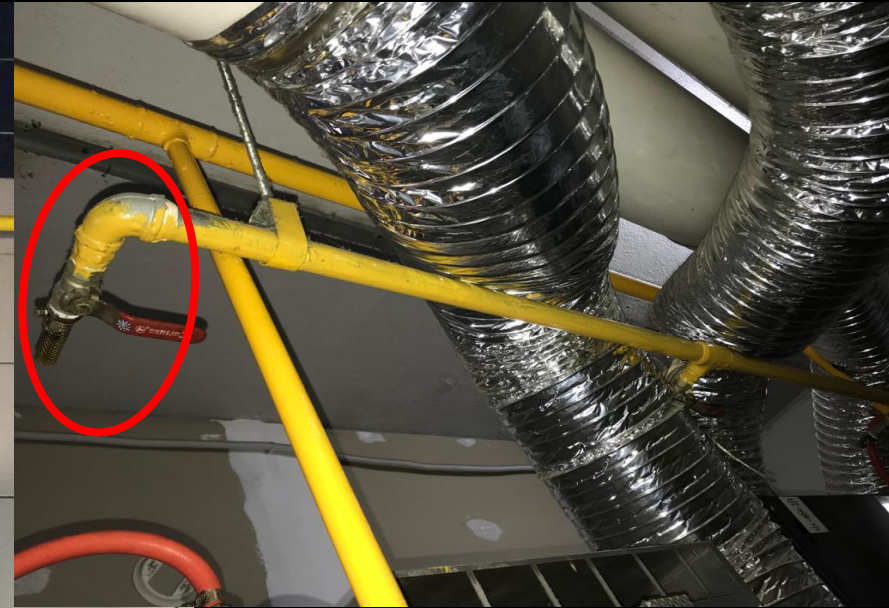
INTERNAL PIPING



Not approved type hose
connect to gas appliances



INTERNAL PIPING

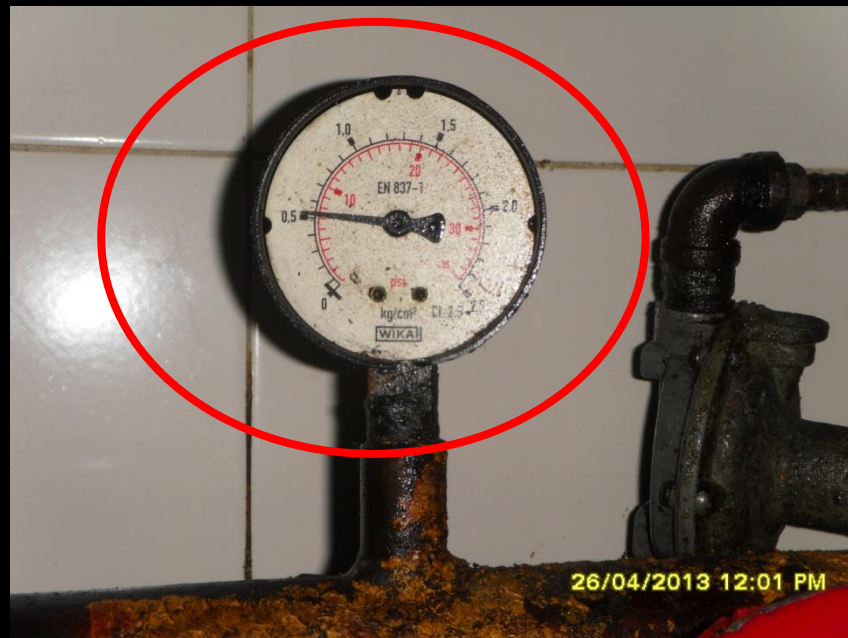


Unused outlet leave **unplugged**

INTERNAL PIPING

Over Pressure

Maximum pressure allowed inside building only 5 psig



How to detect gas leak?



Soapy test



Gas detector

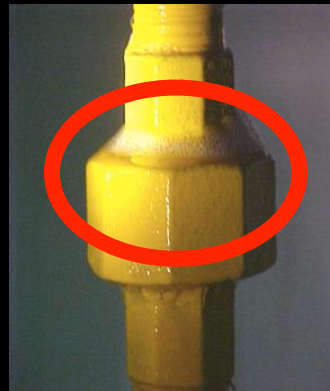


Hissing sound



Pungent smell

Common Gas Leakage Points



The background of the image is a close-up, artistic shot of a jellyfish. The jellyfish's body is a pale, translucent yellowish-brown color, with intricate, branching internal structures visible. The background is a deep, dark blue, creating a strong contrast with the jellyfish. A solid blue horizontal bar is positioned across the middle of the image, containing the text "GAS ACCIDENTS" in white, bold, uppercase letters.

GAS ACCIDENTS

BERITA | MALAYSIA

Kedai dobi meletup, wanita melecur 50 peratus

Astro Awani | April 11, 2018 06:06 MYT



Keadaan di dalam kedai dobi selepas letupan yang mencederakan seorang pelanggan. Foto Astro AWANI

KUALA LUMPUR: Seorang wanita melecur 50 peratus sdalam insiden kebakaran di kedai dobi dan rumah kedai di Taman Jinjang Baru di sini, malam tadi.

Kejadian dilaporkan orang awam kira kira jam 8.05 malam.

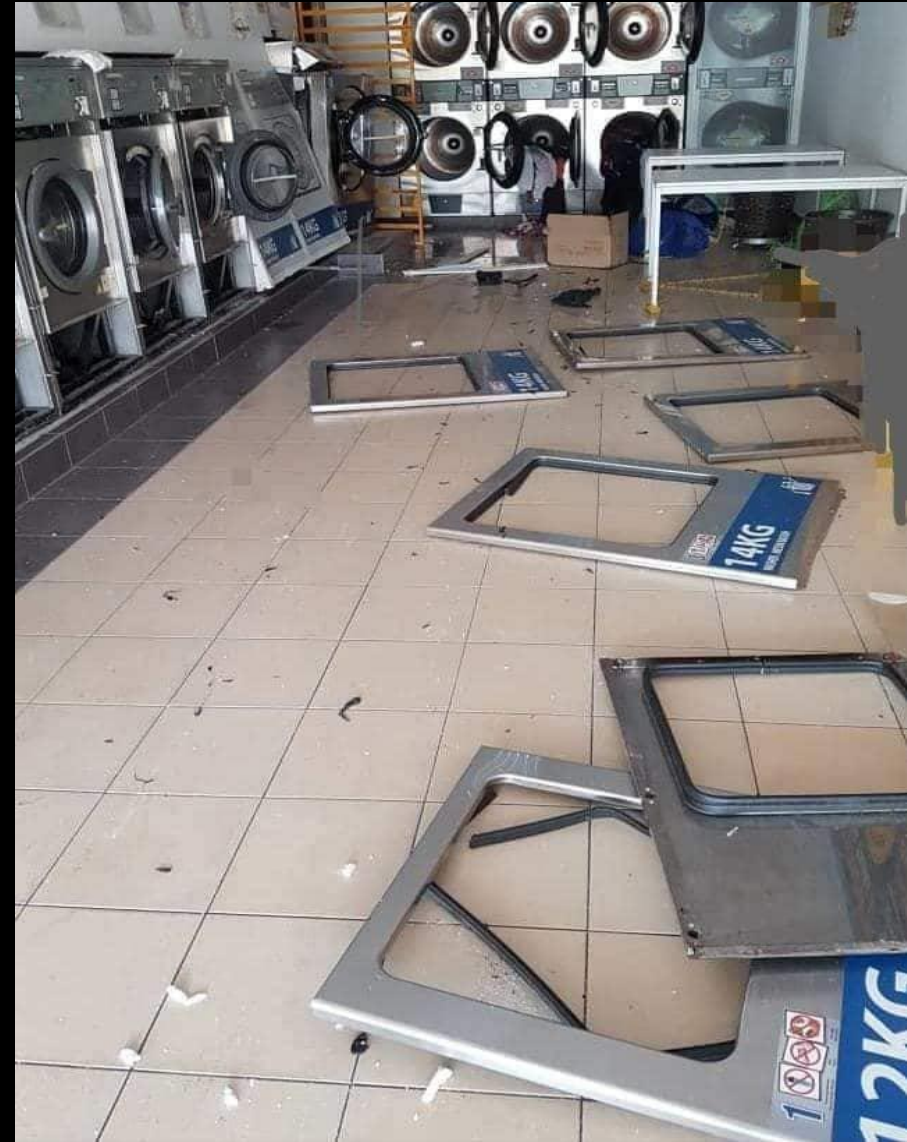
3 buah jentera ~~dan~~ ~~sejumlah~~ ~~AVIS~~ dari Balai

Gas Accidents

Gas Accidents



Gas Accidents



Gas Accidents



Gas Accidents



CONCLUSION



1. Gas piping must be installed by a **qualified Gas Contractor & Gas Competent**.
2. Gas piping system must have approval from ST (**ATI & ATO**) and **valid Gas License**.
3. **Acts & regulations and relevant standards** must be complied to prevent any mishap from happening.
4. **Gas License** must be **renewed every year** and **maintenance** must be conducted by Registered Gas Contractors must be done for **every 2 years**.
5. Incase of **gas accidents** it must be **reported to ST**.

**THANK YOU
FOR YOUR
ATTENTION**