Technical Solution Sheet 92.01
92: Gasfitting (Natural Gas Type A Installation)

Allowable Leakage Rate for Existing Fuel Gas Installations

AIM
The aim of this technical solution is to clarify the allowable leakage rate for fuel gas in existing natural gas consumer piping installations.

PLUMBING REGULATIONS 2008
Gasfitting work is regulated plumbing work as defined in the *Plumbing Regulations 2008*. Consumer piping for fuel gases is required to comply with ***AS/NZS 5601.1:2013 Gas installations Part 1: General installations*** which contains a section on, "Testing for gastightness".

INTRODUCTION
AS/NZS 5601.1 requires all existing installations which have been altered, repaired or extended to be tested for leakage, i.e. pressure drop, at their operating pressure before being returned to operation. For standard installations using natural gas, where the metering pressure is nominally 1.13 kPa, the operating pressure is taken to be 1.7 kPa.

Note: Refer to **OTHER GASES AND PRESSURES** overleaf for installations operating at 2.75 kPa or above.

It is also advisable to test all existing gas installation before commencing any new work, such as fitting an additional appliance. If there is a leak found in the existing installation, arrangements can then be made for the fault to be rectified before the new work is connected.

FINDING GAS LEAKS
Gas leaks should be identified using a soapy water solution or leak detection fluid. Sometimes however, slight leakage occurs which is hard to detect. Such leakage is often due to a combination of old appliances, worn gas cocks and weepy pipe joints.

When a reasonable attempt has been made to locate the leak, and there is no smell of gas, there comes a point when a decision has to be made on how much time is spent chasing a slight but very elusive leak?

At that point, an allowable leakage rate assessment can be made, a slight leakage can be deemed acceptable if it is small enough not to cause a problem. However, if there is any smell of gas then the leak must be located and repaired.

To clarify the position regarding allowable leakage, the Victorian Building Authority (VBA) in consultation with Energy Safe Victoria (ESV) has published the following policy.

NEW INSTALLATIONS
There is to be **NO** loss of pressure when any new installation is tested to the requirements of ***AS/NZS 5601.1***. Therefore, there is no allowable leakage rate for any new installation.

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EXISTING INSTALLATIONS

An existing standard installation may be deemed acceptable if the pressure drop, over a 5 minute period, does not exceed the pressure drop stated in the table below related to the pipework volume.

If the allowable pressure drop is exceeded then all faults must be located and rectified otherwise the installation must be made safe by isolating the faulty appliance or section of piping.

ALLOWABLE PRESSURE DROP

Use the following pressure drop table as a guide to establishing gas leaks.

Acceptable pressure drops for existing installations (test period = 5 mins)

Volume of pipework, L	Maximum Pressure drop, kPa
5	1.00
10	0.50
15	0.35
20	0.25
25	0.20
30	0.10

USING A MANOMETER TO DETERMINE THE LEAKAGE RATE

Where an existing standard installation is supplied through a domestic-size meter (6m³ capacity maximum) the leakage rate may be determined using a manometer. The test should be carried out with all appliances connected.

For other meter sizes, or where the meter is not located adjacent to the premises, calculating the leakage rate by manometer or by observing the meter test dial is not acceptable. Contact Energy Safe Victoria if further information is required.

EXPLANATION OF TERMS

Metering Pressure is the pressure of gas as it flows from the meter. Standard metering pressure is 1.13 kPa, which is a nominal figure used for billing purposes. In reality, depending on the amount of gas flowing and slight variations in regulator settings, the pressure can vary between 1.13 kPa and 1.3 kPa.

Flowing Pressure is the pressure in the gas installation measured with appliances operating. The flowing pressure in a standard installation with a nominal metering pressure of 1.13 kPa should not be less than 1.13 kPa at the inlet to any appliance.

Operating pressure, or standing pressure, is the maximum pressure that the installation will be subjected to under normal conditions without any appliances operating. It is taken to be the pressure at which the meter regulator closes off the supply when gas is not flowing (otherwise known as lock-up pressure). The operating pressure should not exceed 1.7 kPa in a standard installation.

OTHER GASES AND PRESSURES

There is **NO** allowable leakage rate for LPG installations or natural gas installations with a metering pressure or operating pressure of 2.75kPa or above.

Such installations, whether new or existing, must have no loss of pressure when tested to the requirements of ***AS/NZS 5601.1.***

Contact the VBA on 1300 815 127 if further technical information is required.