

## LPG Storage Cylinders

Where an LPG storage installation consists of a set of cylinders, the installation should be in accordance with the LPGA Code of Practice 24: 'Use of LPG cylinders': Part 1 - 'The Use of Propane in Cylinders at Residential Premises'. Use of cylinders in a domestic installation commonly takes the form of 2 sets of paired cylinders connected to a manifold, with supply provided from one pair of cylinders at any one time. This allows continuous supply to be maintained when changing empty cylinders.

Any installation should enable cylinders to stand upright, secured by straps or chains against a wall outside the *building*. Cylinders should be positioned on a firm, level base such as concrete at least 50 mm thick or paving slabs bedded on mortar. Because LPG is heavier than air, cylinders must not be located in cellars, basements or sunken areas. They should be located in a well ventilated position at ground level, so that the cylinder valves will be:

- at least 1 m horizontally and 300 mm vertically from openings in the *buildings* or from heat source such as *flue* terminals or tumble dryer vents and all potential sources of ignition;
- at least 2 m horizontally from untrapped drains, unsealed gullies or cellar hatches unless an intervening wall not less than 250 mm high is present.
- The cylinders must be a minimum of 3 metres from any corrosive, toxic or oxidising materials unless separated by a fire resistant barrier.

Cylinders should be readily accessible, reasonably protected from physical damage and located where they do not obstruct *exit* routes from the *building*.

Main considerations are the safety of the location and easy access to permit cylinder replacement. Additionally, flammable material (such as grass, sheds and fences) must not be allowed near the gas cylinders. However, provided that free ventilation is not impaired around the cylinders, a nearby arrangement of flowers, shrubs or slatted screens may be acceptable.

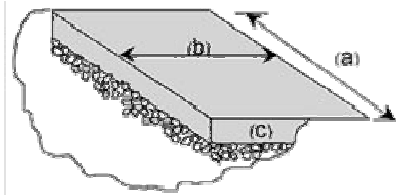
## LPG Bulk Storage Tanks General

A fixed LPG storage tank together with any associated pipework connecting the system providing space, water heating or cooking facilities, should be designed, constructed and installed in accordance with the requirements set out in the LPGA Code of Practice 1: 'Bulk LPG Storage at Fixed Installation'.

### Above Ground LPG Bulk Storage Tanks

To support the weight of the LPG bulk tank including the gas contents, a load bearing concrete base is required. It is important to ensure that the base is adequately sized for the appropriate tank and suitably constructed to ensure stability and correct functioning of the tank valves and fittings.

The base should be sized according to the diagram (right) and table shown below:



Tank size	Length (a) x width (b) x depth (c)
1 x 380 litre	1.7 x 0.65 x 0.15
2 x 380 litre	1.7 x 2.3 x 0.15
1 x 1200 litre	2.0 x 1.0 x 0.15
2 x 1200 litre	2.0 x 3.0 x 0.15
1 x 2000 litre	3.1 x 1.0 x 0.15
2 x 2000 litre	3.1 x 3.0 x 0.15
1 x 3400 litre	3.8 x 1.2 x 0.15
2 x 3400 litre	3.8 x 3.4 x 0.15

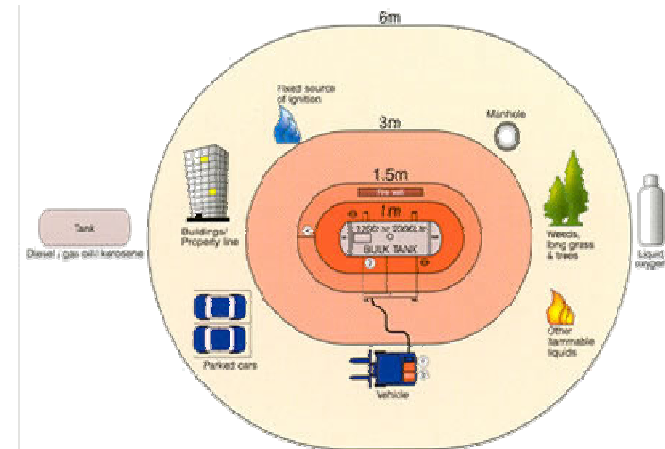
The following measures should also be taken:

- Suitable protection (e.g. crash barriers, bollards and walls) must be provided at least 1.5 metres from the tanks to prevent mechanical damage to the tanks and equipment. Any wall used for this purpose should be no more than 380mm high and non-

- The tank must be located so that a road tanker can get within 25m of the tank fill valve. Whilst standing at the tank, the delivery driver must be able to see his vehicle at all times.
- The tank can only be installed on a suitable concrete base, a minimum of 150mm thick. However, if the area is already made of concrete (not tarmac), no additional base is necessary.
- Tanks must not be sited directly beneath electrical power cables. Where the voltage is below 1kV, the tank must be located 1.5 metres from a plane drawn vertically downwards from the power cables. Where the voltage is 1kV or greater, the distance must be increased to 10 metres. Where there is any doubt as to the cable voltage guidance should be obtained from the local power supply company.
- The LPGA Code of Practice recommends that 2x9kg dry powder fire extinguishers are located near bulk tanks of up to 2000 litre capacity. For 3400 litre tanks the LPGA Code of Practice suggests a 19mm hose reel should also be installed.

LPG bulk tanks must always be located with specific separation distances as illustrated in the diagrams which follow.

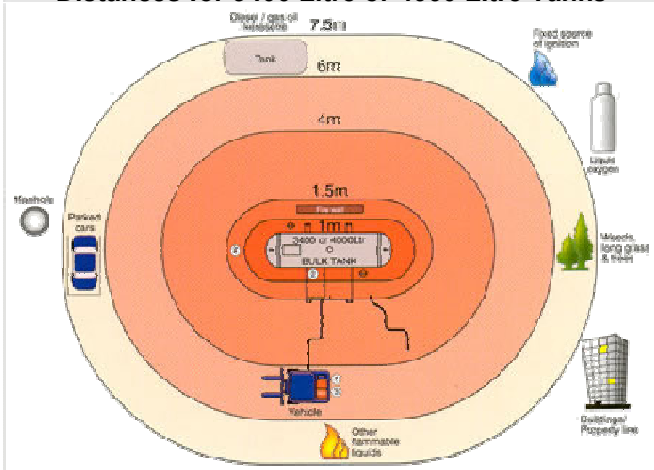
### Distances for 1200 Litre or 2000 Litre Tanks



- The vehicle must be at least 3m from any manhole during filling.
- The pump assembly must be at least 3m from buildings, boundary, property or fixed source of ignition.
- Dispensing hose anchoring point at least 4.1m from buildings, boundary or fixed source of ignition.

- Fire walls should be sited between 1m & 1.5m from the nearest point of the vessel. With the wall in place the distance from the vessel to the buildings, boundary etc. may be reduced from 3m to 1.5m.

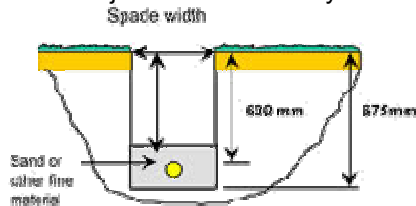
### Distances for 3400 Litre or 4000 Litre Tanks



- The vehicle must be at least 3m from any manhole during filling.
- The pump assembly must be at least 4.5m from buildings, boundary, property or fixed source of ignition.
- Dispensing hose anchoring point at least 4.1m from buildings, boundary or fixed source of ignition.
- Fire walls should be sited between 1m & 1.5m from the nearest point of the vessel. With the wall in place the distance from the vessel to the buildings, boundary etc. may be reduced from 7.5m to 4m.

### Service Pipework

The service pipework between the LPG bulk tank and the building should be installed in a trench a minimum of 600mm deep and the width of an ordinary garden spade as shown in the diagram below. You should ensure that the bottom of the trench and the back fill are free of sharp stones / objects as these may damage the pipe. Extra protection may be necessary if the pipe runs below roadways or garden walls etc.



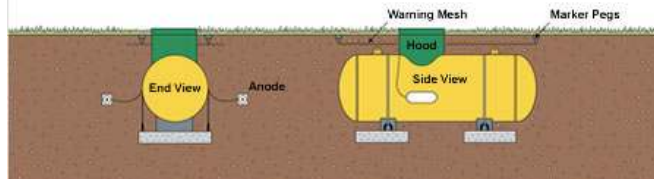
### Underground LPG Bulk Storage Tanks

It is important that an appropriate separation distance is maintained or a fire wall be in place when installing an underground LPG bulk storage tank. It is also recommended that a suitably qualified and experienced engineer be employed to undertake a site survey and provide the appropriate advice on all the groundwork and foundations necessary for the ground conditions.

Before any excavation work commences, ensure that the following safety points are considered:

- No cables or services are permitted within the tank excavation area.
- The site is checked with the local Water or Environmental Agency to ensure there is no risk of flooding.
- The excavation is clear of any foundations that may be at risk from undermining.

Shown below is a diagram showing how an example of how an underground LPG storage tank and the associated works should be installed.



Please note that this leaflet is merely intended to provide supplementary guidance. Should you have any doubts about whether any work requires a building warrant or whether it complies with current regulations then please consult the Building Standards Service at the number shown below.

Information current at time of printing: 31/01/2011.

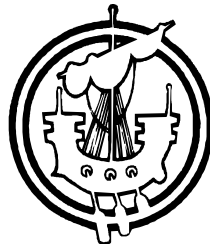
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### Building Standards

### LPG Storage



The purpose of this leaflet is to provide additional guidance on the siting of either LPG storage cylinders or LPG bulk storage tank.

Should you need further assistance then please do not hesitate to contact one of our Building Standards officers.

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