

## Fire protection & separation distances for Oil Tanks (England)

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*Oil and LPG Fuel Storage installations including the pipework connecting them to the combustion appliances in the buildings they serve should be located and constructed so that they are reasonably protected from fires which may occur in buildings or beyond boundaries or any other potential source of fire. Fire risk structures are not always defined as a building nor does it mean the building has to be made of combustible material, they can include garages, garden sheds, greenhouses, summerhouses, outbuildings, cars, vans, mobile homes and caravans, static caravans, childrens playhouses, log stores and fixed position barbeques etc. In other words, anywhere a fire may start and spread to the Oil Storage Tank. See interpretation of a building or structure and the definition of a boundary in Fact Sheet 15 Warnings and Non-Compliance to Building Regulations.*

Any combustible material, screening, foliage etc. around an above ground oil tank located outside and not within a building or structure should be kept a minimum of 600mm away from the oil tank regardless of whether it is a Domestic or Non-Domestic installation. The area around the Oil tank installation should not be used for storage or allowed to become overgrown.

BS 5410 part 1:2019 which came into effect on 30<sup>th</sup> June 2019 states that secondary containment fitted to storage tanks (the bund of an enclosed/integrally banded tank) are required to be vented to atmosphere. (To prevent the build-up of flammable (and carcinogenic) gasses within the bund, which otherwise could create an explosive atmosphere).

### **1. Domestic Oil Tank installed underground:**

Underground Oil Storage does not require additional measures for Protection against fire as they are buried; but they should be installed in accordance with Prevention of Pollution Guidelines Document PPG27. Although if the vent of the oil tank terminates above ground and less than 3m from ground level, a flame arrestor device should be fitted to the vent. In addition, the vent should be positioned with the same requirements for fire separation distances as an above ground oil tank.

### **2. Above ground Oil tanks located inside a building or structure**

**a. If a Domestic Oil tank of 3500 Litres or less** is located inside a building it must be fully enclosed in a chamber with structural walls (including a floor, ceiling or roof), with a 60 minute fire resistance, be either integrally banded or incorporate a masonry bund to CIRIA Report 163. It must have a 60 minute fire resistant self-closing door which opens outwards and is readily openable from inside the chamber without the need of a key. The chamber should be ventilated (preferably by natural means) to the open air to prevent stagnation and there must be sufficient access around the tank for inspection and maintenance. Any electrical lighting provided within the chamber should be of the bulkhead or well glass type and the switches should be outside the chamber. Fire rated Oil tanks are only licensed for installation external to the building the appliance is installed, not internally.

**b. If a Domestic Oil tank of 3501 Litres or more, or a Non-Domestic Oil tank of any size is installed within a building, independent advice from the Local Authority and Fire Brigade should be sought due to the complexity of Commercial Fire Regulations.**

### **3. Domestic Oil Tank Installation of 3500 Litres or less installed above ground and not within a building or structure.**

The Oil tank should be positioned at least 1.8m away from a flue terminal, a window or door or the wall of a building or structure that does not incorporate a method of fire protection rated to 30 minutes, or any other potential source of fire. If a tank cannot be positioned as above, a radiation barrier (with a 30 minute fire resistance) extending at least 300mm above and to each side of the tank could be used. The Oil tank should be positioned at least 760mm from a non-fire-rated boundary or 760mm from any part of the boundary that could be combustible e.g. hedges and foliage. If a tank cannot be positioned as above, a radiation barrier (with a 30 minute fire resistance) extending at least 300mm above and to each side of the tank could be used. The Oil tank cannot be located closer than 1.8m from the eaves of a building if they are not fire-rated to a minimum of 30 minutes otherwise the eaves of the building will also require a radiation barrier to the requirements above. The Installation should incorporate a Solid Non-combustible base (of either 100mm poured concrete or paving slabs with a minimum thickness of 50mm) extending a minimum of 300mm each side of the Oil tank. No surface of the Oil tank should be closer than 300mm from a building, wall or other structure to allow for correct inspection. Additional distances may be required if specified by the manufacturer, or if maintenance is required (presumably for painting of steel tanks).

### **4. Non-Domestic Oil Tank Installation of 3500 Litres or less installed above ground and not within a building.**

The Oil tank should be positioned at least 2m away from a flue terminal, a window or door or the wall of a building or structure that does not incorporate a method of fire protection rated to 60 minutes, or any other potential source of fire. If a tank cannot be positioned as above, a radiation barrier (with a 60 minute fire resistance) extending at least 900mm above and to each side of the tank could be used. The Oil tank should be positioned at least 2m from a non-fire-rated boundary or 2m from any part of the boundary that could be combustible e.g. hedges and foliage. If a tank cannot be positioned as above, a radiation barrier (with a 60 minute fire resistance) extending at least 900mm above and to each side of the tank could be used. The Oil tank cannot be located closer than 2.0m from the eaves of a building if they are not fire-rated to a

minimum of 60 minutes otherwise the eaves of the building will also require a radiation barrier to the requirements above. The Installation should incorporate a Solid Non-combustible base (of either 100mm poured concrete or paving slabs with a minimum thickness of 50mm) extending a minimum of 300mm each side of the Oil tank. No surface of the Oil tank should be closer than 300mm from a building, wall or other structure to allow for correct inspection. Additional distances may be required if specified by the manufacturer, or if maintenance is required (presumably for painting of steel tanks).

#### **5. Domestic and Non-Domestic Oil Tank Installations of 3501 Litres and above installed above ground and not within a building.**

The Oil tank should be positioned at least 6m away from a flue terminal, a window or door or the wall of a building that does not incorporate a method of fire protection rated to 120 minutes, or any other potential source of fire. If a tank cannot be positioned as above, a radiation barrier (with a 120 minute fire resistance) extending at least 900mm above and to each side of the tank could be used. The Oil tank should be positioned at least 6m from a non-fire-rated boundary or 6m from any part of the boundary that could be combustible e.g. hedges and foliage. If a tank cannot be positioned as above, a radiation barrier (with a 120 minute fire resistance) extending at least 900mm above and to each side of the tank could be used. The Oil tank cannot be located closer than 6.0m from the eaves of a building if they are not fire-rated to a minimum of 120 minutes otherwise the eaves of the building will also require a radiation barrier to the requirements above.

The Installation should incorporate a solid Non-combustible base (of either 100mm poured concrete or paving slabs a minimum thickness of 50mm) extending a minimum of 300mm each side of the Oil tank. No surface of the Oil tank should be closer than 300mm from a building, wall or other structure to allow for correct inspection. Additional distances may be required if specified by the manufacturer, or if maintenance is required (presumably for painting of steel tanks).

#### **6. Where Oil tanks storing kerosene are installed on a site supplying a Non-Domestic property.**

The tank(s) should be fitted with "Drop fill pipes" and have the facility for earthing and should comply with the provisions detailed in the Health and Safety Executive publication HSG 176- "The storage of flammable liquids in tanks". Also if they have a capacity exceeding 10,000 Litres they should preferably be constructed from Steel.

**Note.** BS5410 part 2:2018 calls for static earthing to be provided with adequate electrical conductivity in accordance with BS 7430.

#### **7. Multiple Oil tanks on communal land or a tank(s) located away from the property on land belonging to a property.**

Where multiple Oil tanks are sited on communal land serving different dwellings the installation is deemed Non-Domestic with regards to fire protection. See Factsheet 18 *Domestic or Non-Domestic Installation* for more detailed Fire Separation Distances for this or for a tank(s) located away from the property on land specified within the deeds as belonging to a property.

#### **8. SEPARATION DISTANCES BETWEEN LPG CYLINDERS AND TANKS AND DOMESTIC OIL TANKS**

Just like the regulations relating to Oil storage with regards to protection against fire, there are fire separation distance relating to LPG storage distances from Oil tanks and flue terminals; strangely the oil regulations only refer back to the LPG regulations for information! So:

##### **UK LPG User Information Sheet 010**

**Formerly LPGA Technical Memorandum NO.78 – November 2004**

##### **Cylinders**

Both Code of Practice 24 part 1 and British Standard 5482 part 1 specify a distance from LPG cylinders and "readily ignitable materials" which should not be less than 1m.

"Readily ignitable" in terms of oil tanks means those containing products having a flash point of 65 °C or less. This includes most domestic heating oils.

In view of the difficulty of establishing the flash point at domestic premises, the possible change to a fuel having a lower flash point, the risk of obstruction of the oil filling process and the risk of oil spillage over cylinders the separation distance of 1m should be maintained even if the flash point is understood to be above 65°C.

##### **Bulk LPG Vessels**

The separation distance between bulk LPG tanks and oil tanks/tank bunds is given in Code of Practice 1 part 1: Table 2.

For oil tanks containing up to 3000 litres of product having a flash point of 65 °C or less and LPG tanks up to 60 tonnes this distance is 3m.

To allow access and ventilation to the LPG tank the separation distance between bulk LPG tanks and oil tanks containing products having a flash point of more than 65 °C should not be less 1m.

**Therefore, Bulk LPG storage tanks should be sited at least 3 meters from an Oil storage tank with a volume of up to 3000 Litres or vice versa (if the Oil tank is above this capacity independent advice should be sought from the Local Authority and Fire Brigade).**

**LPG bottles/cylinders should be kept a minimum of 1 meter from Oil storage tanks or vice versa.**

**Any flue terminal should be a minimum of 300mm above the bottles/cylinder and 1 meter horizontally.**

**This regulation is from the LPG side of the Industry and is giving distances from an LPG boiler flue and is very confusing as there is no mention of distances from an Oil boiler flue (which is 1.8/2.0 or 6m from an oil tank depending whether the installation is Domestic or Non-Domestic) and no one seems to be able to clarify what distance an oil boiler flue should be from an LPG cylinder!**