Section 5: Provisions for liquid fuel storage and supply

Performance

5.1 In the Secretary of State's view requirements J5 and J6 will be met if:

a. oil and LPG fuel storage installations including the pipework connecting them to the *combustion appliances* in the buildings they serve are located and constructed so that they are reasonably protected from fires which may occur in buildings or beyond *boundaries*;

b. oil storage tanks, their ancillary equipment and the pipework connecting them to *combustion appliances* in buildings used wholly or mainly for private dwellings:

   i. are reasonably resistant to physical damage and corrosion and are designed and installed so as to minimise the risk of oil escaping during the filling or maintenance of the tank; and

   ii. incorporate secondary containment when there is a significant risk of pollution; and

   iii. are labelled with information on how to respond to a leak.

Heating oil storage installations

5.2 Guidance is given in this Approved Document on ways of meeting requirements J5 and J6 when proposing to construct oil storage systems with above-ground or semi-buried tanks of 3500 litres *capacity* or less, used exclusively for heating oil. Heating oils comprise Class C2 oil (kerosene) or Class D oil (gas oil) as specified in BS 2869:1998, liquid biofuel conforming to EN 14213:2003 and blends of mineral oil and liquid biofuel. A way of meeting requirements J5 and J6 for such installations would be to follow the relevant recommendations in BS 5410-1:1997, whilst also adopting the guidance in paragraphs 5.4 to 5.12.

5.3 Requirement J6 does not apply to oil storage systems where the *capacity* of the tank exceeds 3500 litres, or where the tank is fully buried or where the building served is not wholly or mainly used as one or more private dwellings. However, requirement J5 applies to oil storage systems serving buildings of all descriptions, where the capacity of the tank exceeds 90 litres, with no upper *capacity* limit on application, and including cases where the tank is buried. For tanks with capacities in excess of 3500 litres, advice on ways of complying with requirements J5 and any other fire precautions legislation may be sought from the Fire Authority. In England tanks serving buildings which are not wholly or mainly used as private dwellings are likely to be subject to the Control of Pollution (Oil Storage) (England) Regulations 2001 (see paragraph 5.7).

Protective measures against fire

5.4 A way of achieving compliance with requirement J5 would be to adopt the guidance given in Table 10, which also offers advice on reducing the risk of fuel storage system fires igniting buildings and to make provision against the installation becoming overgrown. This can be achieved with a hard surface beneath the tank such as concrete, or paving slabs at least 42mm thick, extending out at least 300mm beyond the perimeter of the tank (or its external skin if it is of the integrally bunded type).

Table 10 Fire protection for oil storage tanks

Location of tank	Protection usually satisfactory
Within a building	Locate tanks in a place of special fire hazard which should be directly ventilated to outside. Without prejudice to the need for compliance with all the requirements in Schedule 1, the need to comply with Part B should particularly be taken into account.
Less than 1800mm from any part of a building	a) Make building walls imperforate (1) within 1800mm of tanks with at least 30 minutes fire resistance (2) to internal fire and construct eaves. b) Provide a fire wall (3) between the tank and any part of the building within 1800mm of the tank and construct eaves as in (a) above. The fire wall should extend at least 300mm higher and wider than the affected parts of the tank.
Less than 760mm from a boundary	Provide a fire wall between the tank and the boundary or a boundary wall having at least 30 minutes fire resistance to fire on either side. The fire wall or the boundary wall should extend at least 300mm higher and wider than the top and sides of the tank.
At least 1800mm from the building and at least 760mm from a boundary	No further provisions necessary.

Notes:

1. Excluding small openings such as air bricks etc.
2. Fire resistance in terms of insulation, integrity and stability as determined by testing to the relevant parts of BS 476 or BS EN 1363 or BS EN 1364.
3. Fire walls are imperforate non-combustible walls or screens, such as masonry walls or fire-rated composite panel screens.

5.5 *Fire walls* should be built to be stable so as not to pose a danger to people around them. A way of achieving this when constructing masonry walls would be to follow the guidance on wall thickness in relation to height given in *Your garden walls: Better to be safe than sorry* (See 'Other Publications referred to').

Oil supply pipe systems: means of automatic isolation

5.6 A way of meeting the requirement would be to install fuel pipework which is resistant to the effects of fire and to fit a proprietary fire valve system in accordance with the relevant recommendations in BS 5410-1:1997, Sections 8.2 and 8.3.

Provisions where there is a risk of oil pollution

5.7 The Control of Pollution (Oil Storage) (England) Regulations 2001 (SI 2001/2954) came into force on 1 March 2002. They apply to a wide range of oil storage installations in England, but they do not apply to the storage of oil on any premises used wholly or mainly as one or more private dwellings, if the *capacity* of the tank is 3500 litres or less. Advice on the construction of above-ground oil storage tanks that may be subject to these Regulations is contained in *Above Ground Oil Storage Tanks: PPG2 (2004).*

Note: Below ground oil storage is not recommended where other options are available as underground tanks are difficult to inspect and leaks may not be immediately obvious. Some guidance and further sources of reference are contained in *installation, decommissioning and removal of underground storage tanks: PPG27(2002).*

5.8 Requirement J6 applies to oil storage tanks of 3500 litres or less serving *combustion appliances* in buildings used wholly or mainly as private dwellings. In such cases, secondary containment should be provided where there is a significant risk of oil pollution. For the purposes of requirement J6, there is a significant risk of pollution if the oil storage installation:

a. has a total *capacity* of more than 2500 litres; or
b. is located within 10m of inland freshwaters or coastal waters; or
c. is located where spillage could run into an open drain or to a loose-fitting manhole cover; or
d. is located within 50m of sources of potable water, such as wells, bore-holes or springs; or
e. is located where oil spilled from the installation could reach the waters listed above by running across hard ground; or
f. is located where tank vent pipe outlets cannot be seen from the intended filling point.
g. is located within Zone 1 (inner protection zone) of an Environment Agency Groundwater Source Protection Zone (SPZ).

Note: The location of SPZs is shown on the Environment Agency›s Groundwater Sources map available online at www.environment-agency.gov.uk/research/library/maps.

5.9 Inland freshwaters include streams, rivers, reservoirs and lakes, as well as ditches and ground drainage (including perforated drainage pipes) that feed into them.

5.10 When secondary containment is considered necessary, a way of meeting the requirement would be to:

a. provide an integrally bunded prefabricated tank; or
b. construct a bund from masonry or concrete in accordance with the general guidance in Above Ground Oil Storage Tanks: PPG2 (2004) and the specific advice in Masonry Bunds for Oil Storage Tanks or Concrete Bunds for Oil Storage Tanks, as appropriate. However:
c. where the bund walls are part of the walls of a chamber or building enclosing the tank, any door through such walls should be above bund level; and
d. specialist advice should be sought where the bund has a structural role as part of a building.

5.11 Bunds, whether part of prefabricated tank systems or constructed on site, should have a *capacity* of at least 110 per cent of the largest tank they contain. Integrally bunded oil tanks that comply with the following standards will meet this provision:

i. OFS T100 Oil Firing Equipment Standard – Polyethylene Oil Storage Tanks for Distillate Fuels (2008);
ii. OFS T100 Oil Firing Equipment Standard – Steel Oil Storage Tanks and Tank Bunds for use with Distillate Fuels, Lubrication Oils and Waste Oils (2008).

5.12 An oil storage installation should carry a label in a prominent position giving advice on what to do if an oil spill occurs and the telephone number of the Environment Agency's Emergency Hotline (see Appendix F).

LPG storage installations

5.13 LPG installations are controlled by legislation enforced by the HSE or their agents. Factors which determine the amount of building work necessary for a LPG storage installation to comply include its *capacity*, whether tanks are installed above or below ground and the nature of the premises they serve. A storage installation may be shown to comply with the legislation by constructing it in accordance with an appropriate industry Code of Practice, prepared in