



The
Loss Prevention
Council

RECOMMENDATIONS FOR SPACE HEATING: HAZARD CLASSIFICATION

SPACE HEATING:
HAZARD
CLASSIFICATION
RC 27

SCOPE

Space heaters are, for the convenience of property insurers, classified into six classes A,B,C,D,E,F, corresponding to their relative hazard, where A (the highest classification) generally presents the least overall hazard and F the greatest overall hazard. Heaters in Class F will give rise to special consideration and certain types of heater may be undesirable in particular circumstances.

Architects and others concerned with the design and installation of heating systems are recommended to seek advice from insurers at the planning stage.

DEFINITIONS

Central heating system. Where the heated medium is delivered to the space to be heated via pipes or ducts, usually from a single heating source.

Fan failure cut-out device. A device fitted to electrical, gas or oil heaters, which is designed automatically to shut down a forced convection heater in the event of air movement failure.

Fire valve. An automatically-operated fast-acting valve to shut off the supply of gas or oil to a heater in the event of fire.

Flame failure device. A device fitted to gas- or oil-fired heaters which is designed automatically to shut off the fuel supply in the event of flame failure.

Forced convection heater. A heater which supplies heated air to the space or spaces to be heated by means of an air-moving device, for example a fan.

Gas. Gaseous fuel, including natural gas and liquefied petroleum gas (LPG).

Overheat cut-out device. A preset and sealed temperature-actuated device (other than a fire valve) fitted to electrical, gas or oil heaters, which is designed automatically to shut down the heater in the event of overheating resulting from, for example, failure of the normal method of temperature control.

Portable or transportable heater. A heater which is not securely fixed in a permanent position.

Remote fuel source. Where gas or oil is fed to the heater through fixed, rigid pipework from either an external gas supply or oil tanks located as specified in *LPC Recommendations for oil fired installations* (reference 1).

Segregated system. Where the heater is segregated from the rest of the building by separating elements of construction providing not less than two hours' fire resistance (including self-closing doors) in accordance with *LPC Code of Practice for the construction of buildings* (reference 2).

CLASSIFICATION

1. GENERAL RECOMMENDATIONS

The classification of specific types of heaters is given in sections 2 to 6. The following recommendations define the general conditions under which the classifications apply.

- 1.1 Heaters should use only the type(s) of fuel for which they are designed.
- 1.2 Where the heater burns fuel of an unconventional nature, for example waste oil, trade waste, etc. special consideration will be required. The most acceptable systems are those with segregated heaters. Any heater or system not conforming with *LPC Recommendations for space heaters burning waste fuel* (reference 3) should automatically be classified F.
- 1.3 All circulation air ducts and lagging components to the heating system should be non-combustible.
- 1.4 Where a flue pipe serving a solid fuel, gas or oil-burning heater passes through a roof, floor, ceiling, wall or partition containing combustible material, the flue pipe should pass through a non-combustible sleeve enclosing an air space of not less than 25 mm around the flue pipe.
Where it passes through an insulated composite panel incorporating a readily-combustible core such as polystyrene or polyurethane, more stringent measures are required (See *LPC Recommendations for insulated composite panels*, reference 4.)
- 1.5 The minimum distance (L) between combustible material (other than as covered in section 1.4) and a flue pipe or chimney

	should not be less than the following:					
	(a) for a flue pipe:		2.1	Segregated systems	Class	
	- for unprotected combustible material, L= three times the external diameter (D) of a flue pipe, unless there is solid non-combustible material at least 200 mm thick between the combustible material and the flue pipe		2.1.1	Indirect fired systems incorporating a heat exchanger, where any products of combustion are exhausted to the open air and do not enter the heated space.		
	- where the combustible material is protected by a non-combustible shield, whose width is at least 3 times D, and there is an air space of at least 12.5 mm between the shield and the combustible material, L = 1.5 D.			- Where hot water or steam enters a system of pipes at a temperature not exceeding 120 °C	A	
	(b) for a brick or blockwork chimney			- Where hot water or steam enters a system of pipes at a temperature which exceeds 120 °C	B	
	- L = 40 mm from the outer surface of the chimney.			- Where heated air reaches the space(s) to be heated via a system of ducts	A	
	For additional information, reference may also be made to Building Regulations, Approved Document J (reference 5).		2.1.2	Direct fired systems that do not incorporate a heat exchanger, where any products of combustion enter the heated space.		
				- Heated by electricity	B	
				- Fired by gas or oil	C	
1.6	Combustible material should not be situated within 1 m of a space heater.		2.2	Non-segregated systems, where the heater is sited other than as in 2.1		
1.7	Any method of heating for use in potentially flammable and/or explosive atmospheres will require special consideration.		2.2.1	Indirect fired systems, as described in 2.1.1	B	
				- Heated by electricity	C	
				- Fired by gas, oil or solid fuel		
1.8	Attention is drawn to the following LPC Recommendations which may apply to the use of the heater:		2.2.2	Direct fired systems, as described in 2.1.2		
	• Oil fired installations (reference 1)			These are classified under sections 3 to 6.	Fixed	
	• The storage, use and filling of liquefied petroleum gas in containers (reference 6)					Portable or Transportable
	• Portable and transportable space heaters (reference 7).					
2.	CENTRAL HEATING SYSTEMS		3.	ELECTRICAL APPLIANCES (EXCLUDING THOSE COVERED BY 2)		
	For central heating systems, the heater should incorporate, where applicable:		3.1	Electric underfloor or ceiling heating with heating elements totally embedded in cement or concrete	A	-
	(i) a remote fuel source and		3.2	Heaters with enclosed elements eg fluid filled radiators and tubular heaters:		
	(ii) a flame failure device, an overheat cut-out device, a fan failure cut-out device and a fire valve.		3.2.1	- incorporating an overheat cutout device	B	C
	With reference to (i), (ii) above and the following classification table:		3.2.2	- other than in 3.2.1	C	D
	- systems incorporating only (i) or (ii) should be downgraded by one class		3.3	Forced convection heaters, eg fan heaters:		
	- systems incorporating neither (i) nor (ii) should be downgraded by two classes.		3.3.1	- incorporating a fan failure cutout device and/ or overheat cutout device	B	C
			3.3.2	- other than in 3.3.1	C	D
			3.4	Thermal storage heaters:		
			3.4.1	- incorporating an overheat cutout device	C	-
			3.4.2	- other than in 3.4.1	D	-
			3.5	Heaters with exposed elements or elements sheathed in ceramic, silica or metal	D	E

	Fixed	Portable or Transportable
4. GAS APPLIANCES AND OIL APPLIANCES (INCLUDING CATALYTIC HEATERS BUT EXCLUDING HEATERS COVERED BY 2)		
4.1 Appliances having both:		
4.1.1 a remote fuel source, and		
4.1.2 a flame failure device, an overheat cutout device, a fire valve and, where relevant, a fan failure cutout device	C	D
4.2 Appliances complying with either 4.1.1 or 4.1.2	D	E
4.3 Other than in 4.1 or 4.2.	E	F
5. SOLID FUEL APPLIANCES (EXCLUDING THOSE COVERED BY 2)		
5.1 Fireplaces and heaters (other than braziers) on a floor or base of concrete or brick not less than 125 mm thick and of adequate area	D	-
5.2 Other than in 5.1	F	F
6. MISCELLANEOUS		
6.1 Any form of heating not specified above and any form of heating not conforming with the above general recommendations (section 1).	F	F

REFERENCES

1. *Recommendations for oil fired installations*, RC 9, Loss Prevention Council, 1990.
2. *LPC Code of Practice for the construction of buildings*, RLS 3, Loss Prevention Council, 1992.
3. *Recommendations for space heaters burning waste fuel*, RC 4, Loss Prevention Council, 1990.
4. *Recommendations for insulated composite panels*, RC 25, Loss Prevention Council, 1994.
5. The Buildings Regulations 1991, Approved Document J, *Heat producing appliances*, amended 1992. HMSO, 1992.
6. *Recommendations for the storage, use and filling of liquefied petroleum gas in containers*, RC 6, Loss Prevention Council, 1989.
7. *Recommendations for portable and transportable space heaters*, RC 15, Loss Prevention Council, 1994.

THE LOSS PREVENTION COUNCIL

The Loss Prevention Council, set up in 1986 by the Association of British Insurers and Lloyd's, has established itself as a leading authority in the field of loss prevention and control. The overall purpose is to achieve a general and progressive improvement in loss prevention practice and the reduction of risk at source.



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