LONDON FIRE BRIGADE

FIRE SAFETY GUIDANCE NOTE

Number:

Fire Resisting Standards

GN01

The London Fire Commissioner (the Commissioner) is the fire and rescue authority for London. The Commissioner is responsible for enforcing the Regulatory Reform (Fire Safety) Order 2005 (The Order) in London.

This Guidance Note explains what fire resistance means and how it can be achieved in both commercial and residential premises.

This Note is one of a series produced by the Commissioner to provide advice on various aspects of fire safety. If you require any further guidance on the advice given or require advice on another topic please visit your local Fire Safety Office, telephone 020 8555 1200 and ask for the nearest Fire Safety Office, or visit our web site at http://www.london-fire.gov.uk

CONTENTS:

1 INTRODUCTION

1.1 In many cases, the Commissioner asks for an element of structure to have a minimum period of fire resistance. This fire resistance is usually for a period of at least 30 minutes to protect means of escape routes. Sometimes, a period of 60 minutes or more will be required when separating areas of high fire risk from low risk, separating basements from the remainder of the building, or separating two or more differing occupancy groups (types).

NOTE : The periods of fire resistance quoted in this guidance note are when tested in accordance with the relevant part of British Standard 476.

2 OTHER AUTHORITIES

2.1 The periods of fire resistance quoted in Commissioner's requirements/recommendations are minimum standards. It is, however, likely that any alterations to premises will also be subject to Building Regulations approval as administered by the local authority Building Control Office, who may impose a higher standard. There are also other interested parties who have legislative control over certain premises and therefore they may need to be consulted, depending on the use of the premises, before any works are undertaken.

2.2 These are likely to include:

- Health and Safety Executive
- Environmental Health Department (local authority)
- Petroleum Licensing Officers (London Fire Commissioner)
- Licensing Authority (local authority)
- Conservation Department (local authority)
- Insurers of property

3 WHAT IS "FIRE RESISTING"?

3.1 Fire resisting can be defined as: a structure or door which is able to resist the passage of fire, heat and smoke for a minimum period of 30 minutes and meets with the relevant parts of British Standard 476.

4 APPLYING FIRE RESISTANCE

4.1 An 'element of structure' is a construction that normally performs an important function within a building e.g. a load bearing wall, ceiling, separating wall etc. When a requirement or recommendation is made by an authority for an existing 'element of structure' to be made fire resisting, the materials should be applied to the 'risk' side, e.g., if it is recommended or required that a kitchen be separated from the adjoining accommodation, the fire resisting materials should be applied on the kitchen side of the wall. Likewise, if a cupboard under the stairs is to be made fire resisting, the interior of the cupboard should be lined with fire resisting materials.

4.2 Where pipe-work or other services pass through a fire resisting structure, it is essential to ensure that all gaps are sealed with fire resisting material such as plaster, to prevent the passage of fire, smoke and other products of combustion to adjoining rooms or premises. Proprietary methods of sealing pipe openings to maintain adequate fire resistance are available, such as pipe collars and intumescent sealants.

5 WALLS AND DOORS

5.1 Walls that are required to be fire resisting must extend from true floor to true ceiling and be imperforate. Suitable materials for this would be brick, blockwork or studwork partitioning with a 12.5mm thickness of Portland Cement Plaster, or Fire Resisting plasterboard on each face of the

studwork with joints taped, filled and provided with a plaster finish to cover exposed nail or screw heads and jointing material.

5.2 Any door in a fire resisting wall should comprise of a fire resisting doorset.

a) This means a door and its frame fitted as one complete unit conforming to BS 476: Parts 22 and 31.
b) The door, or frame, should be fitted with an intumescent strip and cold smoke seal, normally on all four sides. The gap at the base of the door should not exceed 8mm.
c) The door fixings and furniture are to be suitably fire resisting and the door closure device is to conform to BS EN 1154.

6 FLOOR AND CEILINGS

6.1 Floors and ceilings can be made fire resisting by applying fire resisting materials to either the underside of the ceiling or to the floor above. Materials applies to the ceiling can be a minimum of 12.5mm plasterboard with joints taped, filled and covered with a plaster finish, or a minimum of 9.5mm plasterboard with at least 10mm lightweight gypsum plaster finish.

6.2 An alternative method of Fire resistance is often chosen when an existing ornate lath and plaster ceiling is to be maintained.

6.3 For this to be effective, it is essential for the existing ceiling to be 15 or 22mm plaster on striated (rough) wood or reed lath, and to be in sound condition. To assist in preventing ignition sources from entering the area between the ceiling and the floor above, boarding should be applied to the floor. It should be 3.2mm standard hardboard Type S to BS EN 13501: Part 1 (or 4mm plywood) nailed at not more than 150mm centres on the line of joints. The joints are to coincide with the line of joists. Alternatively a suitable Fire Resisting material may be positioned below the floor boards instead of the hardboard above.

7 GLAZING

7.1 There is glass available that meets the required standards of fire resistance. This glass may be incorporated in walls and doors providing that the construction complies with BS476 part 22. Glass provided in isolation cannot be accredited with any particular level of fire resistance; consideration must be given to the construction as a whole to determine this. Manufacturers of glass and glazed screens can supply details on whether a particular construction i.e. screen or doorset can meet the necessary standard.

7.2 In this regard the Glass and Glazing Federation may also be of assistance. Their address is:

54 Ayres Street,
London
SE1 1EU

(Tel: 020 7939 9101)

(Website: www.ggf.co.uk)

7.3 Fire resisting glass is categorised as ' insulating' or ' non-insulating'. Approved Document 'B' of the Building Regulations limits the use of ' non-insulating' glazing in certain locations. Fire resisting glazing must also meet the requirements for safety when used in critical locations as defined in Approved Document 'N' (impact resistance) of the Building Regulations.

8 GENERAL

8.1 The above methods are given as examples of effective ways of achieving an acceptable level of fire resistance. There are many other ways of achieving a similar standard of fire resistances, which can be obtained from the documents listed in the Bibliography to this note.

9 BIBLIOGRAPHY

9.1 The publications can be obtained from the following addresses:

AVAILABLE FROM	TITLE
Timber Research and Development Association Stocking Lane Hughendon Valley Bucks HP14 4ND Telephone: 01494 569600 Fax: 01494 565487 Web: www.trada.co.uk	Timber Research and Development Wood Information Sheet 1-32 : Fire Resisting Doorsets by Upgrading
Building Research Establishment Fire Research Station Bucknalls Lane Garston, Watford Herts. WD2 7JR Telephone: 1923 664000 Fax: 1923 664910 Web: www.bre.co.uk	Building Research Establishment Increasing the Fire Resistance of Existing Timber Floors
British Standards Institution (Sales) 389 Chiswick High Road London W4 4AL Telephone: 020 8996 9001 Fax: 020 8996 7001 Web: www.bsi.org.uk	BS 476 : Part 20 Method for Determination of the Fire Resistance of Elements of Construction (general principles) BS 476 : Part 21 : Methods For Determination of the Fire Resistance of Load Bearing Elements of Construction BS 476 : Part 22 : Methods For Determination of the Fire Resistance of Non-Load Bearing Elements of Construction BS 476 : Part 23 Methods for Determination of The Contribution of Components To the Fire Resistance of a Structure BS 9999 Code of practice for fire safety in the design, management and use of buildings BS 9991: Fire safety in the design, management and use of residential buildings. Code of practice BS 13501: Part 1 +A1: Classification using data from reaction to fire tests BS 8214Code of Practice for fire doors with non metallic leaves. PD 6512 : Part 3 : Guide to The Performance of Glass

The Stationery Office (Mail, Telephone, Fax & Internet Orders) TSO Orders/Post Cash Dept PO Box 29 Norwich NR3 1GN Telephone: 0870 600 5522 Fax orders: 0870 600 5533 Web: www.tso.co.uk	Building Regulations 2000 Approved Document B and Approved Document N Fire safety in offices and shops ISBN-13: 978 1 85112 815 0 Fire safety in factories and warehouses ISBN-13: 9778 1 85112 816 7 Fire safety in premises providing sleeping accommodation ISBN-13: 978 1 85112 818 1 Fire safety in residential care premises ISBN-13:978 1 85112 818 1 Fire safety in educational premises ISBN-13: 978 1 85112 819 8 Fire safety in small and medium places of assembly ISBN-13: 978 1 85112 820 4 Fire safety in large places of assembly ISBN-13: 978 1 85112 821 1 Fire safety in theatres and cinemas ISBN-13: 978 1 85112 822 8 Fire safety at outdoor events ISBN-13: 978 1 85112 823 5 Fire safety in healthcare premises ISBN-13: 978 1 85112 824 2 Fire safety in the transport network ISBN-13: 978 1 85112 825 9 Fire safety in animal premises and stables ISBN 978 1 85112 884 6 Fire safety – Means of Escape for Disabled people ISBN 978 1 85112 873 7

The "Fire Safety" guides listed above may also be downloaded free of charge from the Fire Safety Law at www.gov.uk/workplace-fire-safety-your-responsibilities

The above publications are current at the time of preparation of this Guidance Note (see date at foot of last page).

If any further clarification on methods of achieving fire resistance is required, or guidance on the Commissioner's interpretation on any of the above documents, do not hesitate to contact the local London Fire Commissioner Office dealing with your premises.