

BRAC (76) P18

DEPARTMENT OF THE ENVIRONMENT

BUILDING REGULATIONS ADVISORY COMMITTEE

FIRE SAFETY IN HIGH RISE FLATS

1. At their meeting on the 24 September 1975 the Committee considered a paper (BRAC (75) P49) which set out the circumstances of a fire at Longlents House, Stonebridge Estate, Brent on the 5 February 1975 in which one man died. They took note of the fact that the Central Fire Brigades Advisory Councils for England and Wales and for Scotland had set up a working group to look into the provision of fire alarms in high rise flats and they decided that, although they were doubtful whether the new powers to make building regulations requiring the installation of fire detection equipment and fire alarms should be used to require this in such building, the question should be deferred until the results of the Home Office study were available. (BRAC (75) M5 paragraph 6.7 refers).

2. A copy of the report which the Working Group are making to the CFBACs is attached as an appendix to this paper and it will be noted from paragraph 17 that, subject to its endorsement by those Councils, it is suggested that the attention of BRAC be drawn to the recommendation at paragraph 10 that a simple and cheap means of summoning assistance should be provided on the ground floor of each block or, if it serves more than one block, within 100m of each.

3. The views of the Committee are requested as to whether consideration should be given to making this a building regulation requirement for new high rise blocks of flats. Such a requirement in building regulations would, of course need to apply to all high rise flats irrespective of ownership.

BRA/823/53

March 1976

CENTRAL FIRE BRIGADES ADVISORY COUNCILS FOR ENGLAND AND WALES
AND FOR SCOTLAND

REPORT OF THE WORKING GROUP ON FIRE SAFETY IN HIGH RISE
BLOCKS OF FLATS

Introduction

1. Following an Answer given by the Home Secretary to a Parliamentary Question of 12 June 1975, we were established as a working group to consider issues arising from a fire which occurred at Longlents House in the London Borough of Brent on 4 February 1975 in which a person died on the balcony of a 13th floor flat. Details of the fire and the background to the establishment of the group were given in FBC 566 (FBC(S)461).
2. In accordance with the last paragraph of FBC 566 the group consisted of representatives from the Joint Fire Prevention Committee and the Joint Committee on Fire Brigades Operations. The list of members is at Appendix A.
3. We held 4 meetings on, respectively, 2 October 1975, 20 November 1975, 21 January 1976, and 18 February 1976, and this final report is unanimously endorsed by all members of the group. The report does not deal with the matters arising from the fire which were referred by the Secretary of State for the Environment to the Building Regulations Advisory Committee, although it should be noted that that Committee has delayed consideration of the question of fire alarm pending our recommendations.
4. We have had in particular to consider 3 issues in relation to high rise blocks of flats, which we have regarded for our purposes as being any block exceeding 6 storeys in height; namely, fire warning arrangements, firefighting and rescue procedures and the question of advice to occupants. We have however also given consideration to fire precautions in general in high rise flats. To help in this task various members have provided material including reports of relevant fires, statistics, and examples of notices that have been issued to occupants of high rise flats in some areas.
5. As explained in FBC 566, Longlents House was built in accordance with British Standard Code of Practice CP3: Chapter IV (1962) Part I (which deals with fire precautions in flats and maisonettes over 80 feet in height.) We shall hereafter in this report refer to the Code of Practice as CP3.

Issues and Recommendations

A. FIRE WARNING SYSTEMS

6. At the Longlents House incident there was undoubtedly delay between the fire starting and the call reaching the fire brigade. Initially this was due to the occupants attempting to put out the fire themselves, but when the fire got out of control they tried to raise the alarm by shouting, having no other means of summoning help. It was however sometime before their plight was realised and the brigade finally called. A neighbour attempted to enter the flat without success, and then searched in vain for means of raising the alarm.
7. CP3 does not contain recommendations regarding alarm systems for alerting all occupants of a high rise block of flats in event of fire. Such recommendations would not be consistent with the basic principles of the Code, which are that a building should be so constructed as to ensure that if fire occurs it will be

confined to its compartment of origin; thus a fire starting in one flat should not mean that the residents of all the other flats should have to do other than remain safely in their homes. Most high rise blocks of flats in this country have been built in accordance with the principles of CP3, and there is no evidence to suggest that the principles do not work in practice; also a study of recent casualty figures undertaken on our behalf by the Fire Research Station indicates that the risk of life loss through fire in high rise flats is of the same order as the risk in more conventional dwellings - incidents such as the Longlotts House fire are thus mercifully rare. In addition to the principles of the Code and the degree of risk of life loss, we have considered the cost of installing and maintaining different types of internal alarm system (such as systems activated from within the flats, or in corridors), the problems that would be presented by misuse and vandalism, and the fact that an alarm system to alert all occupants in event of fire could lead when activated to unnecessary evacuation of all residents possibly to the detriment of fire fighting operations. In view of all these factors, we agree with CP3 as far as internal alarm systems are concerned.

8. More important in our view is the question of means of summoning the fire brigade. Whilst again we do not feel that there is sufficient risk of life loss to justify an expensive system, we feel that a flat dweller without a telephone on an upper floor of a block might well feel justifiably disturbed to know that in the event of a fire in his flat he would have to descend to the ground floor by the staircase to find the nearest public call-box. CP3 in fact recommends that there should be at least one public telephone within the block or a call-box no more than 300m from the building for calling the fire brigade. The disadvantages of such an arrangement are clear, in that someone from a higher storey would have to travel a considerable distance to reach the telephone, and he could then well find that it was out of order. Furthermore, such arrangements are subject to negotiation with the Post Office who are only likely to provide a public telephone if they could be guaranteed sufficient normal demand. We feel therefore that on this point CP3 is inadequate, and that we are obliged, if only in the interests of reassuring occupants, to recommend a system, albeit not too elaborate or expensive, whereby occupants can more reliably and swiftly contact the fire brigade.

9. In this connection we have considered various systems. An alarm point on intermediate floors or each floor above the 6th, in the form of a break glass call point, switch or other suitable device, linked to the nearest fire station, was one suggestion before us. Another possibility would be a telephone with perhaps a limited '999' dialling facility, either at each floor level above the 6th or at fixed distance from each flat, perhaps linked to an indicator board within a single block, or such a board serving a number of blocks close together within a complex, showing the location of the floor on which the alarm had been raised. We also discussed possible connection to a manned commercial alarm control centre using the auto dial system to transmit a call automatically rather than the '999' system, or to a constantly manned location in the block or on the site such as the caretaker's flat. Another idea concerned '999' telephones installed in locked cabinets with each resident having a key. We rejected all these systems since all presented problems, not least with vandalism, aside from the cost factor already discussed in relation to degree of risk.

10. Though the life risk and other factors did not support the need for a fire alarm system above the ground floor, the group considered that the density problems and anxiety fears involved in high rise blocks supported the case for a satisfactory means of calling the brigade. In this connection the group was informed of a system operating in the GLC area, whereby a mobile caretaker facility had been installed in council blocks. The system called "Assistaphone" is usually located on the ground floor of a block but not necessarily in every block where there are a number in close proximity. It provides a means of communicating directly by open Post Office lines to a control manned at all times. The instrument is firmly fixed into the wall of the building and is very robust consisting of a microphone and loud-speaker which enables calls to be made to summon any form of assistance. It has th

advantage, with the control being in communication with the caller, of minimising false alarms. In addition, of course, it is multi-functional. This in our view comes nearest to meeting the need for a readily accessible but comparatively inexpensive means of summoning the fire brigade, although alternatives may be appropriate in some circumstances. WE THEREFORE RECOMMEND that a similar system be conspicuously sited on the ground floor of each block, or, where there are a number of blocks close together, within easy pedestrian access at a distance not greater than 100 metres from each one. Alternatively, a telephone similarly located and with a limited '999' facility would in our view be sufficient.

B. ADVICE TO OCCUPANTS

11. CP3 recommends, inter alia, that in flats in high rise buildings the doors of bedrooms should be nearer to the entrance door of the flat than those of the living-room and kitchen, that there should be no appreciable fire risk in entrance halls, and that doors leading on to the hall-way from the kitchen and living-room should have a fire resistance of half an hour and be self-closing. As stated in FBC 556, the occupants of the flat in question at Longlents House negated the first two of these safeguards by, respectively, sleeping on the night of the fire in their living-room, and by obstructing the passage leading from their living-room with various items including a foam rubber mattress adjacent to the night storage heater. In addition, the door from the living-room into the hall-way was found after the fire in the open position.

12. The tragedy was thus primarily caused by a lack of appreciation of the dangers and in particular of the need to keep exit routes free from fire hazards and obstructions, and in the absence of knowledge as to the action to take once the fire occurred. We have therefore considered whether any further action needs to be taken in respect of advice to occupants, for instance by strengthening the guidance contained in CP3.

13. Fire service experience leaves us in no doubt that the lack of appreciation of the dangers, as evidenced by the Longlents House incident, is widespread amongst the occupants of high rise blocks of flats, and that the problem exists predominant in council owned property. It is after all unrealistic to assume that flats will be used strictly as designed; for example, on occasions the occupants might well have guests sleeping in their living-room, and self-closing devices on doors could be removed (from, say, kitchens, where doors that will not stay open can be a nuisance). Equally it cannot be defensibly assumed that occupants will automatically know the escape route within a flat and all the design considerations involved; indeed, it is pertinent to reflect that flat dwellers could easily regard balconies as places of refuge in the event of fire and will be likely to go to them instead of leaving the flat by the main door (in saying this we do of course appreciate that there are some blocks so designed that interlinking balconies form part of approved means of escape).

14. It has thus taken little to convince us of the need for appropriate advice to occupiers. We have had to accept however that there will always be problems in this area, not least in that there must be a limit to the amount of advice offered and there can never be a guarantee that it will be heeded. Furthermore most ways of disseminating the advice have attendant difficulties. Notices in common areas of buildings (hall-ways and corridors) are subject to vandalism, and notices in the flats themselves will almost certainly be removed, probably in most cases without having been seriously read. It is no longer universal practice for rents to be collected by persons regularly visiting premises, so the scope for reaching occupants in that way is diminishing. In some areas fire brigade personnel occasionally check on arrangements and give advice to occupants. Such activity has to be regarded as an incidental benefit. The responsibility for disseminating advice rests with the housing authorities, or other owners when applicable. In the circumstances we did not feel it would be appropriate to make recommendations regarding means of dissemination, and have instead focused our attention more on the advice itself.

15. We have carefully considered the relevant guidance in CP3, and have also examined the guidance that is given to occupants by various fire brigades. We did not feel that the CP3 guidance was sufficiently clear and emphatic on the points which led to the tragedy at Longlents House; nor did it seem sufficiently flexible to take account of the variations in circumstances between different buildings. WE THEREFORE RECOMMEND that the form of advice to occupants in CP3 be replaced by advice as set out in Appendix B.

C. FIRE FIGHTING AND RESCUE PROCEDURES

16. As explained in paragraph 10 of FBC 566, the brigade at the Longlents House incident followed the standard procedure for high rise buildings in gaining access from within the building and using the dry rising main provided for fire fighting. We are satisfied that these procedures were proper and cannot be held to account for the fatality which occurred. We have also considered details of the practices followed by other brigades throughout the country and are satisfied that their training and equipment is adequate for dealing with fires in high rise buildings. We nevertheless consider that in view of the special factors connected with fire fighting and rescue in such buildings broad lines of guidance should be issued to fire authorities so that a degree of uniformity is established within the Fire Service. WE THEREFORE RECOMMEND that guidance be issued along the lines of Appendix C of this report which to a large extent reflects existing practices in brigades.

Conclusion

17. We propose that the above recommendations be drawn to the attention of the British Standards Institution in respect of amendments to the guidance in CP3, the Building Regulations Advisory Committee as regards the means for calling the fire brigade, and to the Department of the Environment and the Scottish Development Department to consider in relation to housing authorities' responsibilities for existing high rise flats.

FIRE-FIGHTING IN HIGH RISE BLOCKS OF FLATS

Introduction

1. The complexity of fire fighting in tall buildings together with the possibility of rescue work under very difficult conditions makes it imperative that thought be given to strategic and tactical planning. This Appendix is based on an examination of procedures introduced by some fire brigades in the UK for dealing with such incidents.

Pre-planning

2. An important feature of the procedure is an intimate knowledge of the layout of the building - thus the importance of Inspections and Exercises under section 1(1)d of the Fire Services Act 1947 cannot be over-emphasised. Means of ingress for fire appliances should be studied and made known to all personnel as the layouts in some high rise blocks are complicated. Water supplies should be carefully assessed and it is suggested that consideration should be given to the availability on first-attendance appliances of hose specially tested to withstand the high pressure necessary for adequate feeding of a dry rising main. The first attendance should comprise at least two pumps; if the building is considered a special risk, or there are other considerations, additional appliances should be included in the first attendance.

Firefighting facilities (Manual of Firemanship Part 6a - Pages 141-142)

3. The facilities installed within the building have a direct bearing on the tactics to be adopted, the principal equipment being the dry riser and associated inlet box and a lift fitted with special control facilities for use by the Fire Service. Equipment to be taken aloft should be pre-determined, and consideration should be given to the means of communication between the men working on the fire and the control point in the light of the difficulties peculiar to high rise buildings.

Fireground Procedure

4. It is not practicable to lay down a set procedure to provide for all circumstances. The following is suggested for broad guidance:-

The Officer-in-Charge of the first attendance to proceed to the interior of the building and ascertain the location of the fire either by direct contact with the caretaker, or enquiries from residents as appropriate, and endeavour to ascertain if "persons reported"

On determining the floor involved, the Officer-in-Charge to:-

- (a) detail a crew member to proceed to the lift, operate firemen's control switch and take charge of lift. The fireman detailed for lift duty will remain in charge of the lift and await instructions from the Officer-in-Charge.
- (b) order the pump driver to set-in to nearest hydrant, charge dry riser.
- (c) proceed to the floor level immediately below the floor involved, accompanied by not less than two men with BA sets and taking the pre-determined fire equipment, and thence by means of the protected staircase to the scene of the fire.
- (d) initiate any evacuation measures necessary, or commence to tackle the incident by hose line fed by the rising main.

The remainder of the first attendance personnel will:-

- check the water supply for firefighting;
- check landing valves;
- support firefighting crew;
- undertake occupant control;
- check floors above and below fire, and assist with salvage work.

Regard should be paid to possible effects of wind (Manual of Firemanship Part 6a - Pages 143-144).

ACCESS ROADS

It is important that fire service access roads to blocks of dwellings should be kept clear and unobstructed to allow access of the fire brigade and other emergency vehicles at all times.

IN THE EVENT OF A FIRE, HOWEVER SMALL, CALL THE FIRE BRIGADE IMMEDIATELY, as follows:

(insert calling procedure).

FORM OF ADVICE TO OWNERS AND OCCUPIERS

A suggested form of advice to owners and occupiers is given below. The form of advice refers only to specific items as they relate to flats and maisonettes and does not attempt to deal with general fire precautions. If local authorities, other housing agencies, and owners feel that more extensive advice on fire precautions should be made available, this information can be obtained from the fire authority.

This building has been designed and constructed to provide adequate safety for its occupants in the event of fire. It is important to remember, however, that a fire breaks out in your dwelling your safety will depend upon your ability to leave by the front door (unless the dwelling is provided with another route to safety.) The following instructions are therefore VERY IMPORTANT.

AT ALL TIMES

Keep the passages and hall clear of obstructions, particularly of combustible goods and any form of "naked-flame" heating.

Use the rooms only for the purpose for which they were intended, eg sleeping, cooking, etc, not for storage or as workshops.

IF A FIRE BREAKS OUT IN YOUR DWELLING:

1. Leave the affected room at once, together with any other occupants, and close the door.
2. Do not stay behind to put out the fire unless you are sure you can do so safely.
3. Alert occupants of other rooms in the dwelling.
4. Leave the dwelling, closing the front door, and give the alarm (see below). Use the stairs, not the lift. Balconies should not be used unless they form part of an escape route.

IF A FIRE IS EVIDENT OR REPORTED ELSEWHERE:

You will normally be safe to stay within your flat. You should close doors and windows, but in the unlikely event of smoke or heat entering the flat before you are able to do so, leave at once closing doors behind you.

You may have confidence that you will be safe if this is done and it is your responsibility to other occupiers to do so.

SOURCES OF FIRE

Most fires in flats are caused by carelessness or misuse of appliances, usually by one or more of the following:

- Careless use of matches and smoking materials
- Careless use of cooking appliances
- Airing of clothes and other combustible materials close to sources of heat such as radiant, storage and convector heaters
- Absence of adequate fire guards
- Children playing with fire
- Defective and inadequate servicing of domestic appliances including electric blankets
- Use and siting of portable heaters close to furniture and curtains
- Failure to disconnect radio, TV sets and other electrical appliances at night or when away from home
- Unsafe siting or misuse of paraffin heaters (see paragraph below)
- Covering of storage and convector heaters, thus restricting the necessary free circulation of air.

USE OF PORTABLE HEATERS

The entrance, lobby and corridor of a flat or maisonette is the normal escape route in the event of fire and it is therefore most important that portable heaters are not sited in these areas. All types of portable heaters can constitute a fire risk if they are not used correctly and maintained in good working order. Manufacturers instructions should always be followed.

Paraffin heaters should be positioned so that they cannot be knocked over or be subject to draughts, and never filled or carried whilst alight. Special care should be taken in the use of portable heaters using bottled gas particularly when changing gas cylinders.

FIRE-RESISTING, SELF-CLOSING DOORS

Fire resisting, self-closing doors can be found in most parts of this building including the entrance doors to all flats and maisonettes and doors to stairways and corridors, and in most rooms in each flat or maisonette. These doors are provided to arrest the spread of fire and smoke and **THEY MUST BE KEPT CLOSED.**

Make sure that the self-closing mechanisms on doors in your dwelling are effective at all times; if not, report any defects to the Porter, Caretaker, Landlord, or to your local Housing Authority.

Before retiring, or when leaving the dwelling unoccupied, close and latch as many doors in your home as is practicable as this will help to prevent the spread of fire.

ABUSE OF FIRE FIGHTING EQUIPMENT

Fire fighting equipment (in the form of fire mains and outlets) is installed in this building. Make it your business to see that such equipment is not interfered with. If you find it apparently damaged, please report this immediately.

WORKING GROUP ON FIRE SAFETY IN HIGH RISE BLOCKS OF FLATS

MEMBERSHIP

Mr K L Holland, CBE QFSM (Chairman)	HM Chief Inspector of Fire Services
Mr E T Hayward, OBE KPFSM	HM Inspector of Fire Services
Mr P G Robinson	" " "
Mr D S J Evans	Home Office Fire Department
Mr E Boden	" " " "
Mr J Jackson, OBE	HM Inspector of Fire Services (Scotland)
Mr T W Watkins	Chief Fire Officer of Derbyshire, representing Association of County Councils
Mr G E McCoy, QFSM	Chief Fire Officer of South Yorkshire, representing Association of Metropolitan Authorities
Mr W Carter	Greater London Council (from the Department of Architecture and Civic Design).
Mr A Jones, QFSM	Firemaster of Tayside, representing Convention of Scottish Local Authorities
Mr H S Whittaker	Assistant Chief Fire Officer, Greater Manchester representing Chief and Assistant Chief Fire Officers Association
Mr A W Beckett ^b	Assistant Chief Fire Officer, Derbyshire, representing National Association of Fire Officers
Mr F Gledhill	Assistant Divisional Officer, West Yorkshire Fire Service, representing Fire Brigades Union
Mr G K Lockyer, QFSM*	Chief Fire Officer of Leicestershire, representing Institution of Fire Engineers
Mr G M E Cooke	Fire Research Station
Mr F Allday, OBE QFSM	Assistant Chief Fire Officer, representing London Fire Brigade
Mr J McAdam ⁺ (Secretary)	Home Office Fire Department
Retired as Assistant Chief Officer whilst serving on group.	
Succeeded by Mr T E Robinson	Assistant Chief Fire Officer, Hampshire
Succeeded by Mr D J Wood	Home Office Fire Department

In addition the following attended meetings on behalf of certain members:-

Mr D Wilson	(for Mr Jackson)
Mr D Ryde	(for Mr Watkins)
Mr R Dickson	(for Mr McCoy)