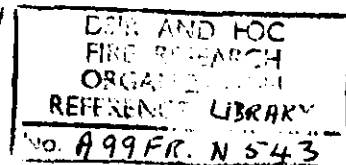


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NO. 543

FIRES IN POST WAR MULTI-STOREY FLATS IN LONDON DURING 1962

by

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FIRES IN POST WAR MULTI-STOREY FLATS IN LONDON DURING 1962

by

J. M. Firth

SUMMARY

An analysis has been made of fires which occurred in blocks of flats of three or more storeys in London during 1962.

Fire incidence in the high flats was significantly greater than that in dwellings generally in the U.K., but if fires due to hot ashes in rubbish chutes are ignored then fire incidence is significantly less than that for all dwellings. The largest single cause of fire was the disposal of hot waste material down the dust chutes of the flats.

There was no evidence of serious problems at fires in tall flats where casualties, means of rescue or escape and means of fire fighting were concerned.

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Introduction

There is interest in the incidence of fire in buildings of three or more storeys used as dwellings, since recent developments in housing have tended towards the construction of multi-storey dwellings. This paper reviews reports of fires during 1962 in such buildings in London, with special reference to casualties, rescues, escapes by emergency means, and fire fighting methods. It was felt that the study should be more detailed than those previously made⁽¹⁾(2), therefore reports of all fires in 1962 in dwellings having three or more storeys and built since 1946 in London were studied.

Fire incidence

The Architects Department of the London County Council have supplied details of the number of flats of three or more storeys in height constructed since 1946. Table 1 shows fire incidence rates for three classes grouped according to numbers of storeys; the groups being related to the types of fire brigade ladders which could be used for rescue purposes.

Table 1 - Incidence rates

	3-5 storeys high (wheeled escape)	6-8 storeys high (turntable ladder)	9 or more storeys high (above ladder height)	No. of floors not stated	All flats
No. of flats at risk	80551	23635	15747	nil	119933
No. of fires	184	47	46	3	280
No. of fires (excluding those in dust chutes)	105	27	25	-	157
Incidence rate per 10000 flats at risk per annum	22.8	19.9	29.2	n/a	23.3
Incidence rate per 10000 flats at risk per annum (excluding dust chute fires)	13.0	11.4	15.9	n/a	13.1

The most frequent single cause of fires was hot refuse in rubbish chutes (see Table 2) but these are largely nuisance fires which appear to give rise to little danger. Allowance has been made for this in Table 1 and incidence rates have been calculated for the remaining fires. When the dust chute fires are excluded there is little difference between the incidence rates in the three groups of buildings.

During 1962⁽³⁾ there were 32510 fires in dwellings in the United Kingdom and it is estimated there were 16.8 million dwellings at risk. For the United Kingdom, therefore, there is an incidence rate of 19.4 fires per 10000 dwellings at risk per annum.

Statistical tests show that the overall fire incidence rate in the London post war flats with three or more storeys is significantly greater than that of other dwellings in the United Kingdom. When the fires due to hot ashes in dust chutes are excluded, however, the fire incidence rate is significantly less in these flats than the other dwellings.

Causes of fire

Causes of fire in these tall flats are shown in Table 2 and are compared with the corresponding causes for all dwellings in the United Kingdom for 1962. Causes of fires in dwellings in general which have not been observed in high flats have been grouped together under the heading "other known causes" so that this table is not strictly comparable with those published in the annual statistics⁽³⁾.

Table 2 - Causes of fires

Causes of fire	London post-war flats		United Kingdom All dwellings	
	No.	%	No.	%
Ashes, soot	123	43.9	616	2.0
Malicious ignition	1	0.4	178	0.5
Matches children with	11	3.9	750	2.3
Smoking materials	25	8.9	2778	8.5
Electric: cookers	21	7.5	3002	9.2
fires, heaters, radiators	7	2.5	1246	3.8
wire & cable (fixed installation)	9	3.2	1970	5.9
radio or television	8	2.9	800	2.5
blanket	10	3.6	1414	4.3
refrigerator	1	0.4	90	0.3
other appliances	3	1.1	644	2.0
Gas				
cooker	27	9.6	1856	5.7
other appliances	3	1.1	224	0.7
Solid fuel: chimney, flue	1	0.4	4462	13.7
Oil : heater	16	5.7	2690	8.3
Unspecified fuel : cooker	5	1.8	402	1.2
Miscellaneous	7	2.5	340	1.0
Other known causes	-	-	7530	23.2
Unknown	2	0.7	1578	4.9
	280		32510	

As already mentioned fires caused by "ashes and soot" make up almost one half of the fires in the post war tall flats compared with only 2 per cent of similar fires in all dwellings, and these occurred in the dust chutes, or rubbish containers. There was only one fire caused by a solid fuel appliance in the blocks of post war flats although this is a frequent cause of fires in other dwellings. This is not unexpected, since the open fire has been largely discarded for heating modern flats. The "hot ashes" reported in rubbish chutes and containers may be largely discarded smoking materials.

The next two largest single causes of fire in the post war flats were gas cookers and smoking materials each accounting for approximately 9 per cent of the total. The proportion of fires due to smoking materials in the post war flats agrees closely with that for all dwellings but the proportion for gas cookers is rather higher than that in all dwellings.

Almost one quarter of the fires in all dwellings arose from causes that did not occur in the flats.

To see what changes are taking place in the pattern, the causes of fire in 1962 can be compared with those of 1960⁽³⁾. Fires due to hot ashes formed the largest single group in each of the years and the number of these has almost doubled. The pattern of the other frequencies in 1962 differed but slightly from that of 1960.

Casualties, escapes and rescues

There were only four casualties in the incidents reported none of which was fatal.

During 1962⁽³⁾ casualties occurred in 6.7 per cent of incidents attended by Fire Brigades in all dwellings, the casualty rate in the post war flats thus compares favourably with that for all dwellings. Principal details of the four incidents involving casualties are set out in table 3; none of these could be attributed to the fact that it occurred in a multi-storey building.

Table 3 - Casualties

Floor of origin	Age and sex of victim	Cause of fire	Injuries sustained	Damage to
2	48 male	Oil heater flared up.	burns to face	Hall and contents
3	34 male	Leaking gas from defective gas cooker ignited by heat of the stove.	shock, fractured patella	25% of kitchen contents
4	81 male	Occupier fell asleep whilst smoking and cigarette ignited the easy chair in which he was seated.	burns to hands and face	10% of room and contents
2	70 female	Gas match being used to light gas cooker ignited cloth on person.	burns to arms and hands	Clothing only

The only person rescued was the man injured in the first incident listed who was carried down an ordinary ladder by a neighbour. There was no necessity for general evacuation of the premises in any of the fires reported.

Use of room where fire occurred.

The frequency of fires according to room is shown in table 4.

Table 4 - Use of room

	No. of fires	Per cent
Bedroom	15	5.4
Living room	6	2.1
Kitchen	63	22.5
Passage, landing or stairway	8	2.9
Lift and associated equipment	4	1.4
Drying room, wash house	1	0.4
Store room, pram store	4	1.4
Rubbish chute or container	130	46.4
Other room (specified)	5	1.8
Undefined room	44	15.7
	280	

The pattern in which the frequencies occurred in the various rooms followed closely that of 1960.

Fire damage

In table 5 details are given of damage and spread of fire in incidents at tall flats.

Table 5 - Damage and fire spread

Fire damage	Number	Per cent of total
Confined to room of origin		
Confined to material ignited first	201	71.8
Involved other objects but less than 25% of total in room	49	17.5
Involved other objects but between 25-50% of total in room	14	5.0
Involved more than 50% of contents of room	12	4.3
Total	276	98.6
Spread beyond room of origin	4	1.4
Total number of fires	280	

In 201 (72 per cent) incidents the fire was confined to the material first ignited, and more than half of these involved only rubbish, and in only 4 incidents (1.4 per cent) did the fire spread beyond the room of origin. During 1962(3) approximately 12 per cent of the fires in all dwellings attended by United Kingdom fire brigades spread beyond the room of origin. It would appear that the record in the post war London flats has been better than that of dwellings in general.

Methods of extinction

An analysis is shown in Table 6 of methods of extinction used both with and without the assistance of fire brigades; where the occupier tackled the fire but extinction was made by the fire brigade the method used by the brigade is shown.

Table 6 - Methods of extinction

Method of extinction	Extinguished before arrival of brigade	Extinguished by brigade	Tackled by occupier but extinguished by brigade	Total
Burned out	7	-	-	7
Removal	11	11	4	26
Smothering	6	1	-	7
Sand, earth etc.	1	-	-	1
Water from buckets	32	5	3	40
Water from stirrup or hand pumps	-	-	1	1
Chemical extinguishers	2	10	6	18
Hose reel jet (using water in tank only)	-	154	20	174
Hose reel jet (using more water than that in tank)	-	2	1	3
Jets from pumps and hydrants	-	2	1	3
	59	185	36	280

No difficulties in extinguishing the fires were reported. The most frequently used extinction method was that of hose reel jet (using water in tank only) at 174 incidents.

Conclusions

On the present information there is no evidence to show that outbreaks of fire in post war flats of three or more storeys present a high life hazard or difficulties in fire fighting.

When all fires are considered there is a significant difference between incidence rates for the flats and all dwellings, in the favour of the latter. If however allowance is made for fires caused by ashes, the largest single cause, then fire incidence rates show a significant difference in favour of the post war flats. Provided that the dust chutes are made of fire-resistant materials and doors serving the chutes are kept closed, the disposal of hot waste material should not present a serious hazard to the occupants of these flats.

Fires caused by solid fuel burning space heating appliances were notably absent in the post war flats and it is possible that this is the main contribution to the difference in fire incidence between these flats and dwellings generally.

There was no evidence to show that the casualties in fires were attributable in any way to their being in tall buildings. It was not possible to draw firm conclusions regarding means of rescue or escape from these flats as only one person was involved. Fire fighting did not present any difficulties peculiar to tall buildings.

Generally the pattern of the outbreaks of fire during 1962 in the London post war flats with three or more storeys was similar to that indicated in previous studies.

Acknowledgements are due to the Architects Department of the London County Council for providing details of the numbers of flats built since the war in their area.

References

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