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FIRES IN POST-WAR MULTI-STOREY FLATS
IN LONDON 1965

by

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FIRE
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SUMMARY

Records of fires in post-war multi-storey flats attended by the fire brigades in London are examined from time to time to see whether these buildings present exceptional fire risks.

Apart from fires in dust chutes the rate of incidence of fire in the flats is lower than that in dwellings as a whole.

There is no evidence that the fires experienced in the flats are more dangerous than those in other dwellings and the building standards appear to be satisfactory in preventing the spread of fire.

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MINISTRY OF TECHNOLOGY AND FIRE OFFICES' COMMITTEE
JOINT FIRE RESEARCH ORGANIZATION

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INTRODUCTION

Because of the steadily increasing numbers of flats built in large blocks, and the possibility that these might introduce new and unforeseen fire hazards, it has been considered advisable to maintain a continuing surveillance of relevant fire statistics. Comparison with other forms of dwellings requires not only a study of the fires themselves, but also a knowledge of the numbers of flats at risk. This information is not available for the country as a whole, but since 1960 it has been provided for the area previously covered by the County of London. The last detailed report of fires in post-war blocks of flats in this area considered the fire situation in 1962. The present note provides a similar analysis of the fires attended by the London Fire Brigades in 1965.

FIRE INCIDENCE

The Department of Architecture and Civic Design of the Greater London Council provided information in the numbers of flats in blocks of three or more storeys, constructed between 1st January 1946 and 31st December 1965. These have been used to calculate the rates of incidence of fires attended by the London Fire Brigades in the area to which they refer and the results are given in Table 1.

Table 1

Rates of incidence of fires in post-war flats and maisonettes in inner London, 1965

Height of building	Number of flats and maisonettes at risk	Number of fires attended	Incidence rate per 10000 at risk per ann.
3 to 5 storeys	98 546	283	28.7
6 to 8 storeys	28 799	100	34.7
9 or more storeys	26 945	58	21.5
Total	154 290	441	28.6

A peculiarity of these rates of incidence is that the figure for dwellings in six to eight-storey blocks is appreciably higher than that in blocks with either fewer or more storeys, a feature for which no explanation has yet been found. By comparison with the rate of incidence of fires in all dwellings in the United Kingdom the overall rate in the London flats is high. It was found however, that 210 of the 441 fires attended were in dust chutes and these are

largely nuisance fires which appear to present little danger. If these fires are excluded the rate of incidence is much lower than that for all dwellings. A summary of the figures is given in Table 2.

Table 2
Comparison of rates of incidence with
those in all dwellings

	Fires attended	Number at risk	Incidence rate per 10000 at risk per annum
London flats (all fires)	441	154 290	28.6
London flats (excluding fires in rubbish chutes)	231	154 290	15.0
All dwellings in the U.K.	34 549	17.7 x 10 ⁶	19.5

CAUSES OF FIRES

The sources of ignition of the fires are shown in Table 3, together with comparable figures for all fires in dwellings in the United Kingdom.

As in earlier analyses the pattern of fire causes in the London flats differed from that in all dwellings in the United Kingdom, particularly in the proportion of fires attributed to "ashes and soot". In the flats most of these were rubbish chute fires to which reference has already been made. The virtual elimination of the open fire as a source of heat has resulted in a very much smaller proportion of fires associated with the use of solid fuel in the flats than in other dwellings. If the "ashes and soot" fires are discounted the proportions attributed to gas appliances, smoking materials and children with fire are all appreciably higher in the flats than in dwellings as a whole. The difference in gas appliance fires may be no more than a reflection of the pattern of useage; that of fires due to smoking materials could be related to the absence from the flats of open fire-places which has removed one of the points of safe disposal of the materials. There is no obvious explanation of the difference in fires due to "children with fire" unless there is a tendency for children to play indoors more in the flats than in other dwellings.

Table 3

Sources of ignition of fires

Source of ignition	Fires in London post-war flats		Fires in dwellings in the United Kingdom	
	No.	Per cent	No.	Per cent
Ashes, soot	167	37.9	675	2.0
Electrical sources (total):	75	17.0	11 831	34.2
cookers	21	4.8	4 421	12.8
heaters	15	3.4	1 472	4.3
wire and cable	13	2.9	2 774	8.0
radio and T.V.	12	2.7	942	2.7
blankets	8	1.8	1 365	3.9
other	6	1.4	857	2.5
Gas appliances (total):	48	10.9	2 832	8.2
cookers	43	9.8	2 325	6.7
heaters	1	0.2	216	0.6
other	4	0.9	291	0.8
Smoking materials	47	10.7	2 897	8.4
Children with fire	44	10.0	1 587	4.6
Oil appliances (total):	14	3.2	3 112	9.0
heaters	11	2.5	2 341	6.8
blowlamps, etc.	3	0.7	543	1.6
other	-	-	228	0.7
Solid fuel appliances (total):	10	2.3	7 302	21.1
fire in grate	3	0.7	3 361	9.7
slow combustion stove	2	0.5	254	0.7
chimney, flue	5	1.1	3 581	10.4
other	-	-	106	0.3
Cookers (unspecified)	6	1.4	612	1.8
Malicious ignition	6	1.4	324	0.9
Explosives, fireworks	5	1.1	93	0.3
Naked light, paper, etc.	4	0.9	701	2.0
Other	1	0.2	680	2.0
Unknown	14	3.2	1 903	5.5
All sources (Total)	441		34 549	

LOCATION OF FIRES

The areas in which fires started in the London flats are shown in Table 4, together with the equivalent figures for all fires in dwellings in the United Kingdom.

Table 4

Location of fires

Location	Fires in London post-war flats		Fires in dwellings in the United Kingdom	
	No.	Per cent	No.	Per cent
Dust chute, refuse room	210	47.6	804	2.3
Kitchen	81	18.4	9 776	28.3
Bedroom, bed-sitting room	32	7.3	5 752	16.7
Store room (not fuel)	19	4.3	133	0.4
Hall, corridor, stairs	13	2.9	1 158	3.4
Lounge, living-room	5	1.1	3 481	10.8
External structure and fittings	5	1.1	634	1.8
Lift*	4	0.9	-	-
Bathroom, lavatory	3	0.7	474	1.4
Garage	1	0.2	88	0.3
Roof space	1	0.2	2 738	7.9
Boiler room	-	-	89	0.3
Fuel storage	-	-	132	0.4
Not stated, unknown	67	15.2	9 290	26.9
	441		34 549	

*Not recorded separately for "all dwellings".

The high proportion of fires in dust chutes, etc. in the post-war flats is obviously a result of their general provision in these buildings and their absence from dwellings of other types. If these fires are discounted the differences that remain appear to be those to be expected between the two groups of buildings of different design and with different facilities. For example there is a greater provision of store-rooms (such as pram stores) in the blocks of flats than in other dwellings and so a higher proportion of the fires are in store-rooms; there are more fires in the living rooms of dwellings generally than in those of the flats as would be expected from the difference in heating methods; fires occur more frequently in the roof spaces of dwellings in general than in those of the blocks of flats, presumably because of differences in construction.

SPREAD OF FIRE

The extent of the fires is given in Table 5 with comparable figures for all fires in dwellings in the United Kingdom. Again the fires in dust chutes affect the proportions shown in the table, but if these are discounted the proportions "confined to the appliance" and "confined to the floor c. origin" are higher in the

Table 5

Extent of fires

Extent of fire	Fires in London post-war flats		Fires in dwellings in the United Kingdom	
	No.	Per cent	No.	Per cent
Confined to:-				
exterior components	3	0.7	537	1.6
appliance, item from which heat emanated	56	12.7	6 037	17.5
common service space	221*	50.2	1 506	4.4
room of origin	146	33.1	22 884	66.4
floor of origin	13	2.5	1 261	3.7
building of origin (in single storey buildings)	-	-	240	0.7
building of origin (in multi-storey buildings)	2	0.5	1 828	5.3
Spread beyond building	-	-	254	0.7
Not stated, unknown	-	-	2	-
Total	441		34 549	

*Mainly dust chutes.

flats than in dwellings generally. The high standard of floor construction in the flats would be expected to prevent internal upward spread from one flat to another and there were only two examples of vertical spread among the fires in the flats, neither of which spread through the floor. In each of these it appears that the "spread" was minimal and the reports referred to "slight damage" by heat and smoke; in one case this was on the common stairway, in the other the report is not specific but it appears likely that the severe fire in one flat caused smoke damage in the flat above, the avenue of the "spread" being through the windows.

Table 6
Casualties

Floor of origin	Age and sex	Cause of fire	Injuries sustained	Damage
3	22 M	Pan of fat on gas stove over-heated and ignited	Slight burns to hand	Contents of kitchen
3	54 M	Unknown	Burns on arm and body	Room and contents
2	66 F	Fireside chair knocked over in close proximity to electric fire became ignited	Laceration to forehead	Room and contents
Not stated	29 M	Pan of oil on electric cooker boiled over and ignited	Burns to hands and shock	Contents of kitchen
1	54 M	Pan of fat on electric cooker overheated and ignited	Burns to forearm	10% of room and contents
Ground floor	30 M	Children with matches set fire to accumulation of rubbish in pram store	Cuts to wrist	Rubbish only
1	2½ mths M	Children with matches set fire to bedding	Overcome by smoke	20% of contents of room
1	73 M 73 F	Radiated heat from domestic fire ignited clothing on chest of drawers adjacent	Slight burns to face, shock	Room and 10% of contents
2	72 M 57 F	Careless disposal of cigarette ignited upholstery of settee	Burns to hands " "	Room and 50% of contents
Not stated	50 F 24 M	Vapour from petrol being used to clean car parts ignited by gas ring nearby	Slight burns to face. Slight burns to hands and legs.	Kitchen and 70% of contents

CASUALTIES

There were no fatal fire casualties in the post-war London flats in 1965. The 13 non-fatal casualties are listed in Table 6 which also gives information on the injuries and the fires in which they were received. None of these fires was of a type which could be regarded as peculiar to tall buildings.

FIRE FIGHTING

The methods used to extinguish the fires in the flats are shown in Table 7.

Almost a quarter were extinguished before the brigades arrived. The majority of those extinguished by fire brigade action were dealt with either by small means (13 per cent) or by hose reel jets (86 per cent) and in only four incidents was it necessary to use jets from pumps or hydrants.

Table 7

Method of extinction

Method	Fires extinguished before brigade arrived	Fires extinguished by brigade	Total
Removal	18	15	33
Chemicals, chemical extinguishers	2	8	10
Smothering	12	2	14
Water from buckets	58	8	66
Water from hand pump	-	3	3
Other small, non- chemical means	15	7	27
Burned out	2	1	3
Water from garden hose, etc.	1	-	1
Hose reel jets (using water in tank only)	-	275	275
Hose reel jets (more water than in tank)	-	10	10
Jets from pumps or hydrants	-	4	4
Total	108	333	441

