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NATIONAL RESEARCH COUNCIL CANADA

DIVISION OF BUILDING RESEARCH



FIRE DEATHS IN THE PROVINCE OF ONTARIO, 1954

BY

G. W. SHORTER AND G. WILLIAMS - LEIR

THIS REPORT HAS BEEN PREPARED FOR INFORMATION AND RECORD PURPOSES AND IS NOT TO BE REFERENCED IN ANY PUBLICATION

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OTTAWA

SEPTEMBER 1955

DBR REPORT NO. 72



NATIONAL RESEARCH COUNCIL

CANADA

DIVISION OF BUILDING RESEARCH

FIRE DEATHS IN

THE PROVINCE OF ONTARIO, 1954

by

G. W. Shorter and G. Williams-Leir

Report No. 72 of the Division of Building Research

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Ottawa September 1955

FOREWORD

The Fire Research Section of the Division of Building Research, National Research Council of Canada, began on January 1, 1954, a study into deaths caused by fire in the Province of Ontario. The purpose of this report is to record statistically the information obtained.

This investigation was undertaken with the encouragement and co-operation of Mr. W.J. Scott, O.B.E., Q.C., Fire Marshal of the Province of Ontario. Mr. R.B. Wallace, Deputy Registrar-General of the Province of Ontario, kindly provided the co-operation of his Vital Statistics Section. In addition to these provincial authorities, a great many municipal fire officials supplied information and through Mr. C.R. Magone, Q.C. Deputy Attorney General of Ontario, the co-operation of local coroners and Crown attorneys. For all this assistance the Division of Building Research is grateful.

This study has been confined to the one province in the first instance, in order that it might be properly organized and co-ordinated. The magnitude of the task in Ontario alone is illustrated by the fact that there was, at June 1, 1954, a population of 5,046,000 spread over a land area of 363,282 square miles. (Total area is 412,512 square miles.)

It is not expected that any lessons will be learned from analysis of a relatively small number of cases in the first year of this survey. It is hoped, however, that as more data become available, significant factors will emerge which may lead to measures to help reduce this heavy toll of human lives.

This is the first such report issued by the Division of Building Research and any comments or criticisms would be welcomed.

Ottawa, August 1955.

Robert F. Legget, Director.

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FIRE DEATHS IN

THE PROVINCE OF ONTARIO, 1954

by

G. W. Shorter and G. Williams-Leir

SCOPE OF STUDY

Although this study has been restricted to the Province of Ontario, it was decided at the outset that the terms of reference should be such that future annual studies could, if authorized, be enlarged to cover the whole of Canada. It was also planned to put the survey on such a basis that it would be comparable with similar studies in other parts of the world. Consequently the definition of a fire death chosen was that classified under Code number E916 in the International Statistical Classification (1):

E916 Accident caused by fire and explosion of combustible material.

This title includes injuries resulting from accidents caused by fire and the explosion of combustible material, such as:

Asphyxia or poisoning due to:

conflagration or explosion

Explosion of:

Burning by:

fire forest fire grass fire prairie fire NOS ("not otherwise specified") firework gas gasoline kerosene lamp lantern

Conflagration

The title excludes injuries by:

fire and explosion on any railway-, road-, water- or airtransport vehicle other than a stationary motor vehicle (E800-E866);

firearms and explosives (E919).

In addition to "E" code numbers for the "External Cause of Injury" there are "N" code numbers for the "Nature of Injury". In the latter classification the following categories - 2 -

have been used:

Burns (N940 - N949)

While there are exceptions, we find that most fire deaths result in classification either under:

 $\frac{N948}{\text{trunk and limb}(s)}$ Burn involving face, head, and neck, with

OR

N949 Burn involving other and unspecified parts.

Effects of Poisons (N960 - N979)

- Only two of these categories are applicable to fire deaths:
- N968 Poisoning by carbon monoxide

OR

<u>N969</u> Poisoning by other gases and vapours (which includes asphyxia)

REPORTING OF DATA

The Fire Research Section has been privileged to receive the full co-operation of a great many agencies while carrying out this study. It has been necessary to secure the co-operation of all the appropriate officers, from the smallest outpost to the large urban centres, in the extensive area of Ontario. Members of the Section have personally investigated a number of the fatal fires, and have availed themselves of every opportunity to discuss this work with fire officials. A press clipping service has been subscribed to so that the Fire Research Section may be informed of all fatal fires when they occur, thus enabling the dispatch of a report form to the fire official who covers the appropriate area.

In order to standardize the method of reporting on fire deaths, two forms were prepared, one to be used by fire officials (Fire Fatality Report) and the other to be completed by the Vital Statistics Section of the Registrar-General's office (Fire Fatality Form). Specimens of these forms are included in Appendix A. It was not possible to have the "Fire Fatality Report" available at the start of the study, so that the reporting of the information on the fire itself was not standardized until later in the year. Owing to the fact that the information supplied from the Vital Statistics Section is transcribed from the death certificate, it has been possible to secure complete information for the whole year.

The Ontario Fire Marshal's Office automatically supplied information on all fatal fires which they investigated. In addition, a great many fire chiefs, of both volunteer and permanent departments, supplied information upon request. It is hoped that as this study becomes known it will be possible to make arrangements with the latter officials to supply the information automatically. Obtaining this will always be a difficult problem, for at least two reasons: firstly, a number of these incidents occur in very sparsely populated areas in the northern part of the province, and, secondly, the fire department is not notified in every case (for instance, when clothing is ignited by an electric iron or heater).

FIRE DEATH RATE: DEFINITION

There were 173 deaths by fire (under classification E916) in the Province of Ontario during 1954. They resulted from 132 fires. In the case of two of these deaths another classification was possible, but it was thought that they might logically be included as fire deaths.

To render the data which follow more readily capable of intercomparison, an index will be introduced which will be called the "fire death rate", or FDR; it is defined as the number of fire deaths, per 100,000 of population at risk, per twelve months. For instance, the over-all FDR for Ontario for 1954 was 3.43. "For Ontario, for 1954" should be understood everywhere except when the distribution within the province or the variation between months is being considered. Fire death rate, as defined, is used in Figs. 1, 2, 3, 4, and 7; in the other figures the simple numbers of deaths are used.

FIRE DEATH RATE BY AGE AND SEX

The FDR for males was 3.81 and for females 3.04; 43.9% of the deaths were of females, who formed 49.5% of the population. The variation of the rate with age is shown in Fig.1, where it will be seen that the danger of death by fire is much more serious for the under-fives and rather more serious for those over 55 than it is for the intervening age group. More complete data are in Table I.

- 4 -

FIRE DEATH RATE BY TIME OF FIRE

Figures 2, 3, and 4 show how the fire death rate varies between different months of the year, days of the week, and hours of the day. In each case deaths have been referred to the month (day or hour) in which the fire occurred, even though the victims may have died some time after the fire.

Not surprisingly, the heating season coincides with a period of high FDR; but the dip in the curve for December and January suggests that the worst losses are associated with the beginning and end of the heating season.

The time of day at which fires occurred is unfortunately missing from many of the reports received. Accordingly the curve in Fig.4 has been corrected on the assumption that those fires for which no time is given are distributed through the day in the same way as the others. The graph suggests that the safest time of day is from 10 a.m. to 9 p.m.

CAUSE OF FATAL INJURY

Cause of fatal injury is analysed in Table 2. The classification is according to the immediate cause of the loss of life, as opposed to the cause of the fire. This table shows that:

- 1. 11 males and 1 female died as a result of careless smoking and handling of matches;
- 2. 12 females and 2 males died as a result of their clothing being set on fire by furnaces, stoves, heaters, and electrical appliances;
- 3. 30 of the victims were trapped in burning buildings;
- 4. 40 of the fatalities (i.e. 19 per cent of the total number of fire deaths) were children under 5 years of age, who died because they were unable to escape on their own. (Other young children died for different reasons.) Of the 40, 15 had been left alone. In 18 cases all children over 12 or adults were themselves injured, which would explain their inability to save the victims.

All these hazards have been publicized in repeated fire prevention programs. Possibly this report will make some small contribution to public awareness of the need for continued endeavour in this field.

NATURE OF FATAL INJURY

Deaths are analysed by nature of injury in Fig.5. The classifying of a fire fatality according to nature of injury is often difficult, since the bodies may be so severely burned that it is impossible to determine whether death was due to the burns or to previous poisoning or asphyxia. As Fig.5 shows, burns cause 64 per cent of the deaths; carbonmonoxide poisoning and asphyxia are responsible for 35 per cent. The figure also shows how these proportions vary with victims of different ages. From this it appears that there is no significant variation, 'so that no conclusion can be drawn, for example, on whether old people dying in fires are more or less likely to die from burns, say, than are young ones. The complete data on the nature of injury by age and sex will be found in Table 3.

One reason for seeking more detailed pathological reports in future is that analysis of these may yield information useful in the clinical treatment of fire casualties.

PLACE OF DEATH

The place of death of the fire victims is shown in Fig.6, by ages: 62 per cent died at the fire; the remainder died later in a hospital, etc. It is noteworthy that of those under age 5, 40 out of 48, or 83 per cent died at the fire. The complete data on the place of death by age groups and sex are contained in Table 4.

FIRE DEATHS BY OCCUPANCY

It is of interest to know in what kinds of buildings fatal fires took place. This does not lend itself to graphical treatment; the data are given in Table 5.

Certain **arbitrary** criteria have been adopted to permit grouping of all buildings within a small number of occupancy classes. These are given in Appendix B.

Table 5 shows that 83 per cent of fire deaths occurred in residential properties. In reading the original reports the authors have formed two impressions: firstly, that a high proportion of these occurred in buildings of inferior construction, many of which would never have been built as they were if the local building regulations had been adequate at the time; and secondly, that many fatal fires occur in overcrowded buildings. It is not possible to examine these ideas statistically with the information available in the 1954 reports. However, it is hoped in future years to obtain and tabulate the following particulars of buildings in which fatal fires occur:

- (a) the type of framing;
- (b) the type of interior finish;
- (c) the floor area per person resident in the building.

FIRE DEATHS BY SIZE OF BUILDING AND SIZE OF FIRE

In Table 6 fire deaths are classified by size of building, fire spread, and storey where fatal injury occurred. The following indications emerge from an examination of this table:

- Many lives are lost without any building fire (17 of 173, or 10 per cent);
- 2. Where a building fire occurs, most lives are lost in fires which involve the whole building, rather than just a room or a floor (93 of 115, or 81 per cent);
- 3. Where a building fire occurs, most lives are lost in two-storey buildings, and of the remainder, the great bulk are lost in single-storey buildings (61 and 41 out of 105, or 58 per cent and 39 per cent);
- 4. Of those who die as a result of a fire in a twostorey building, most receive their fatal injuries on the upper floor (38 of 60, or 63 per cent);
- 5. Only one of the fatal fires spread from one building to another.

FIRE DEATH RATE BY POPULATION DENSITY

It was desired to find whether the fire death rate had any relation to density of population. If FDR is plotted against density for each county or district, the resulting points are very widely scattered, and any correlation of the two variables is far from obvious. If by simple methods the data are grouped to obtain a curve, the result is found to vary considerably according to the method of grouping. The curve given in Fig.7 was arrived at by the method described in Appendix C; it is considered to be as accurate as the data permit. The curve suggests that in areas very sparsely populated and consequently very remote from fire services, the fire death rate may be about three times as great as in the larger cities.

It should be noted that all the population densities used were county averages. Populations were supplied by the Deputy Registrar-General's office and areas were taken from the Municipal Directory (2).

ACKNOWLEDGMENTS

Miss N. MacDonald and Mr. R.A. Sterne prepared and manipulated the "Cope-Chat" edge-punched cards used for this survey.

REFERENCES

- Manual of the International Statistical Classification of Diseases, Injuries and Causes of Death, Sixth Revision of the International Lists of Diseases and Causes of Death, Adopted 1948, Volume I, Section XVII, p.263, 305-307, 311.
- (2) 1955 Municipal Directory; Department of Municipal Affairs, Toronto, Ontario.









DEATHS BY AGE AND BY NATURE OF INJURY



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POPULATION AND FIRE DEATHS BY AGES AND BY SEX

Age	Estima sex an 1954 (Male	ted popul d age for in thousa	ation by Ontario nds)	Death Prov: durin Male	ns by fi ince of ng 1954 Fema	re in the Ontario	FIRE DEATH BATE
(1earb) 0- 4	<u>302.5</u>	288.2	<u>100a1</u> 590.7	29	<u>19</u>	<u>10 10081</u> 48	8.13
5-9	246.4	235.0	481.4	7	8	15	3.12
10-14	193.1	185.7	378.8	2	7	- 9	2.38
15-19	169.9	162.3	332.2	2	3	5	1.50
20-24	184.5	176.0	360.5	1	3	4	1.11
25-29	203.5	201.5	405.0	7	3	10	2.47
30-34	190.6	194.6	385.2	6	4	10	2.60
35-39	188.2	184.3	372.5	4	1	5	1.34
40-44	171.9	164.9	336.8	7	2	9	2,67
45-49	152.3	142.4	294.7	1	2	. 3	1.02
50-54	133.5	127.4	260.9	4	l	5	1.92
55-59	113.4	113.1	226.5	5	6	11	4.86
60-64	93.9	96.2	190.1	6	5	11	5.79
65-69	79.6	82.0	161.6	5	3	8	4.95
70-74	60.4	66.0	126.4	5	1	6	
75-79	36.9	43.2	80.1	2	4	6	
80-84	18.0	23.1	41.1	0	0	0	7.43
85-89	6.4	9.6	16.0	2	4	6	
90+	2.0	3.5	5.5	2	0	2)	
		<u></u>					
TOTAL	2,547.0	2,499.0	5,046.0	97	76	173	

FIRE DEATHS BY CAUSE AND NATURE OF INJURY, AND BY SEX

CAU	USE OF FAT	TAL INJU	RY			1	NAT	URE	OF I	JURY					
					-		Car	bon	• • • •		041				-
					Burn	5 j 5 1	Mon	ox.	Aspi	$\frac{\mathbf{nyx}}{\mathbf{n}}$	Uth	er	M	TOTA	.L.
01	() other	tonttod	h.r.	nlowing with motoboo	<u>M.</u>	<u>-</u>	<u>.</u>	<u>r.</u>	<u>P4 .</u>	<u>F.</u>	<u>.</u>	<u>F.</u>	<u>M.</u>	<u>r.</u>	$\frac{AII}{2}$
02	CTOPUTUR	TRUTCED	by:	playing with matches		2							-	2	2
02	11	11			٦	2							5	2	2
03	n	11	11	fumages stores besters	1 .	ົ							î	10	11
04	11	11	н	ampling and matches	·								2	10	<u>-</u>
00	n	11		smoking and machines	ดั	1	٦		1				Ř	1	ă
07	11	11	н	miscellaneous (except flammable liquids) or unknown	ŭ	ŝ	*		-				ŭ	5	q
08	11	n	п	flammable liquids being used for stoves, lamps, torches		·							_	2	-
00	11	н		flammable liquids being used for cleaning purposes									-	-	-
10	!1	н	н	flammable liquids being used for kindling or reviving fires	5	6							5	6	11
ĩĩ	11	H.	11	flammable liquids being used for miscellaneous purposes	á	ž							á	Ž	
12	Children	too vou	ng to	save themselves (4 years and under) alone in dwelling unit	2	-							5	-	-
	or with r	no one l	2 vea	rs old or older present in dwelling unit	7	3			2	3			9	6	15
13	Children	too you	ng to	save themselves (4 years and under) with one or more persons		2				5			-	-	
-0	between a	ages 12	and 1	6 present in dwelling unit and no one 16 or older present (*).											
	All those	e betwee	n age	s 12 and 16 yr. hospitalized or dead	2	1							2	1	3
14	As in 13	except	that	of those between ages 12 and 16 yr., some or all were not											-
	hospital	ized or	dead										-	-	-
15	Children	too you	ng to	save themselves (4 yr. and under) with one or more persons 16 y	r.										
-	old or ov	er pres	ent i	n the dwelling unit. All those 16 yr. or over hospitalized or											
	dead			•••••••••••••••••••••••••••••••••••••••	5	3	3	1	2	1			10	5	15
16	As in 15	except	that,	of those persons 16 yr. old or over, some or all were not	-										
	hospitali	ized or	dead	· · · · · · · · · · · · · · · · · · ·	1	3	1		2				4	3	7
17	Those 5 3	yr. old	or ov	er asleep in burning building (including drunken stupor)	6	3	2	2	4	2			12	7	19
18	Trapped 1	by fire	owing	to fire in any one of the available exits (not incl.windows)	2	2		1		1			2	4	6
19	Trapped 1	by fire	owing	; to attempt to warn or save someone else	_	1			2	1			2	2	4
20	Trapped	by fire	owing	to attempt to save material objects	_				2	1	1		3	1	4
21	Trapped 1	by fire	owing	to delayed warning	_	_			_				-	-	-
22	Trapped	by fire	owing	to loss of judgement arising out of fire (e.g. panic)	_	1			1	2			1	3	4
-23	Trapped	by fire	owing	to loss of judgement from other causes (e.g. liquor, drugs)				1	2				2	1	3
24	Trapped 1	by fire	owing	to being overtaken by rapidly spreading fire					1				1	-	1
25	Trapped	by fire	owing	to other known reasons	1		~		1	•			2	-	2
26	Trapped	by fire	owing	to reasons unknown	1		2	1		2	-		2	্র	Ď,
27	Explosion	n		· · · · · · · · · · · · · · · · · · ·	2	T					T		3	T	4
28	Fire figh	nting (f	ireme	n)	_								-	-	-
29	Fire figh	nting (o	ther	than firemen)	_								-	-	-
30	Injuries	aue to	crowc										1	-	- h
31	Miscellar	neous kn	own c	auses	4	7	٦		6	Ъ			12	1 -	- 4 - 0 2
00	Unknown (causes .		· • • • • • • • • • • • • • • • • • • •	2	1	Т	-	O	4			14	ΤT	23 2

(*) 'Persons between ages 12 and 16' means those who have completed 12 but not 16 years of life; (i.e. 16-year-olds are excluded).

FIRE DEATHS BY NATURE OF INJURY, AND BY AGE AND SEX

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	BUI	RNS													<u>C0</u>		ASI	PHYXI	A			OTHER
	<u>94</u> 2	2	<u>94</u>	5		<u>947</u>	,	<u>948</u>		<u>94</u>	9	Tot	<u>al</u>		968	3	<u>969</u>)	Tot	al		Total
AGE	M	F	M]	F	M	F	M	F	M	F	<u>M</u>	F	M&F	M	F	M	F	<u>M</u>	F	M&F	<u>M</u> F
(Years) 0- 4								14	9	2	3	16	12	28	4	l	9	6	13	7	20	
5-9			1				1	4	1	1	3	6	5	11	1	1		2	1	3	4	
10-14								1	5			1	5	6		1	1	1	l	2	3	
15-19								1	1		1	1	2	3			1	l	l	1	2	
20-24									1		2		3	3			1		1		1	
25-29								5		1		6		6		2	1	1	l	3	4	
30-34								3		1	2	4	2	6	1	1	l	1	2	2	4	
35-39								3	1	1		4	1	5								
40-44								3		3	2	6	2	8			l		1		1	
45-49									2				2	2			1		l		1	
50-54										1		1		1	1		1	1	2	1	3	1(996.8)
55 -5 9									3		2		5	5	1		4	1	5	1	6	
60-64							1	3	2		1	3	4	7	l		1	1	2	l	3	1(996.9)
65-69	1							1		1	1	3	1	4			2	2	2	2	4	
70 +		1						6	5	2	2	8	8	16	1		2	1	3	1	4	
TOTAL _	1	1	1	_0	-	0	2	<u>43</u>	<u>30</u>	<u>13</u>	<u>19</u>	<u>58</u>	52	111	10	6	26	<u>18</u>	<u>36</u>	<u>24</u>	<u>60</u>	2

Age			Place of	Death		
(Years)	At s	scene of fi	re	Later	at hospital	, etc
	Male	Female	Total	Male	Female	Total
0- 4	25	15	40	4	4	8
5-9	5	4	9	2	4	6
10-14	1	7	8	1	0	l
15-19	l	2	3	1	1	2
20-24	1	0	l	0	3	3
25-29	4	3	7	3	0	3
30-34	3	2	5	3	2	5
35-39	1	0	1	3	1	4
40-44	2	0	2	5	2	7
45-49	l	1	2	0	1	1
50-54	4	1	5	0	0	0
55-59	5	2	7	0	4	4
60-64	2	l	3	4	4	8
65-69	2	2	4	3	1	4
70 +	7	3	10	4	6	10
TOTAL	64	43	107	33	33	66

FIRE DEATHS BY PLACE OF DEATH, BY AGE AND SEX

OCCUPANCY

FIRE DEATHS BY OCCUPANCY

INDUSTRIAL	11
MERCANTILE	1
RESIDENTIAL: Separate dwelling (inc. half double) (not shared) 74 Apartment (inc. half duplex) (not shared) 6 Shared dwelling. Shared apartments. One-room dwelling. Boarding house. O Barracks, convent, etc. O Nelling of other known type. Sharel ing of unspecified type. 34 Hotel.	144
INSTITUTIONAL: Hospital (inc. vet.'s home) etc	4
STATIONARY VEHICLE (inc. Trailer)	3
OUTDOORS	2
OTHER	4
NO INFORMATION	4
TOTAL	173

DEATHS

FIRE DEATHS BY SIZE OF BUILDING AND SIZE OF FIRE

Number of storeys in building	Fatal injury occurred on which storey	One room (room of origin)	Fire Confine One floor (Floor of origin)	d to One building (building of origin)	Not con- fined to one bldg.	No infor- mation on fire spread	Sub Total	No Building Fire	Total
1	Basement Ground No info. (Subtotal)	0 2 0 2 2 2	0 0 0 0	$\frac{38}{-0}{-39}$	0 0 0 0		$ \frac{1}{40} \frac{0}{-41} $	$\frac{1}{2}$ $\frac{0}{3}$	2 42 44
1 1 or 2	Basement Ground First No info. (Subtotal)	0 3 2 0 5	0 7 4 0 11	28 31 -1 42		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 20 38 <u>1</u> 61	0 2 0 1 3	22 38 264
3 or more	Basement Ground First 2nd or higher No info. (Subtotal)		0 1 0 0 0 1	$\stackrel{0}{\stackrel{0}{\overset{0}{\scriptstyle 0}}}_{1}$			0 1 2 0 3		0 1 2 0 3
No infor- mation	Basement Ground First 2nd or higher No info. (Subtotal)	$ \begin{array}{c} 1\\0\\0\\0\\0\\-\\1\end{array} $	$\begin{array}{c}1\\0\\0\\0\\0\\0\\1\end{array}$	0 3 0 8 11	0 0 0 0 0	0 2 1 0 <u>35</u> 38	2 5 1 0 <u>43</u> 51		3 5 1 0 <u>53</u> 62
TOTAL		9	13	93	1	40	156	17	173

 $\underline{N.B.}$ that "ground floor" is here used to mean the floor approximately level with the street, and "first floor" to mean the floor above the ground floor.

APPENDIX A

FORMS USED FOR REPORTING ON FIRE DEATHS

It may be noted that besides the two forms referred to in the text, a third, the "Ignited Clothing Report" is included. This is sent out instead of the "Fire Fatality Report" whenever the information received of a fire death indicates that the victim's clothing was the material first ignited, e.g., by touching a stove. A covering note sent with the Ignited Clothing Report asks for a description and, if possible, a sample of the fabric which ignited.

A-2
National Research Council Division of Building Research Ottawa 2, Canada
Fire Research Section
FIRE FATALITY REPORT
(Please return to the above address when complete.)
Name Address (owner or tenant) (number, street, city, etc.)
Date of fire Time of firea.mp.m. (day,month,year)
Major occupancy(clothing factory, hotel, dwelling, etc.)
Origin of fire Cause
Fire confined to: Room of originFloor of originBuilding of origin
Fire extended to: (adjoining buildings, etc.) Structural
Exterior finish frame (brick veneer,wood siding,etc.) (wood,steel,brick,etc.)
Length of buildingWidthNo.of storeys Gross floor area
Gross floor area of room of origin
Interior finish (lath and plaster, wood fibreboard, etc.) on: -
Walls Ceilings Partitions room of origin
other
Any materials which contributed to the rapid spread of fire or hindered escape of occupants
Means of egress from fire area (doorway,hallway,corridor,lobby,stair, ramp,etc.)
No. of exits: (a) from building (b) from fire area
Location of fire exits(front, rear, side of building)
Class of fire exits(exterior, interior, stairway, chute, etc.)

Names of fatalities in or on:	
Basement	Age
Ground floor	Age
First floor	Age
Second floor	Age
Other	Age
No. of occupants normally in building	
No.rescued No.injured No.burned No.burned	
Fire Department: - Paid Volunteer Other	
Estimated fire loss	
Were photographs taken? Yes By whom?	No
If photographs, news clippings available, please include	with report:
Any further information or recommendation	

Please enclose pertinent sketches of affected areas, or location of bodies.

Date of report

Reporting Officer

NRC/DBR 1-12-54

National Research Council D Division of Building Research Ottawa 2, Canada

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FIRE RESEARCH SECTION

IGNITED CLOTHING REPORT

(Please return to the above address when complete.)

NAME			Da	te of Accident		
				(ਰੋ	lay, month, ye	ear)
Male	Female	_ Age	Time	of Accident	MA	PM
Home	Address					
Addr fire	ess where occurred	· · · · · · · · · · · · · · · · · · ·				
1.	General Locale	of acciden outdoors,fi	t replace,e	ŧc.)		
2.	Activity and p clothing ignit	osition of ed (e.g. st	person wh anding, c	en ooking,etc.)		
3.	Type of garmen (e.g. sweater,	t ignited robe, etc.	· ·			
4.	Style of garme (e.g. loose/cl	nt ignited ose fitting	, ease of	removal, etc.)		
5.	Nature and app (e.g., taper c	rox.size of andle, stov	igniting e element	source		
6.	Speed and mann (e.g., surface	er of flame flash, erra	spread tic,etc.)			
7.	Reaction of period of the second seco	rson when c n ground, b	lothing i eat fire	gnited with hands,etc.))	
8.	Extent of burn degree - on ar	s (e.g.,1st ms, etc.)	,2nd,3rd			
9.	If person died	: (a) Dat	e of deat	h (day,month,yea		
		(b) Loc	ation (hos	pital, residence	e,scene of i	fire,etc.
10.	Please give an side if necess	y additiona ary	l informa	tion available,	using reven	rse — — — — —
						
2	Date of Report	•		Reporting Offic		

		A-5
	National Research Council Ottav	Division of Building Research va 2, Canada
	Fire Re	esearch Section
	FIRE I	FATALITY FORM
	(Please return to the	above address when completed.)
	PLACE OF DEATH City, town or village of:	V/S Code
	Street address: (If death occ institution)	curred in hospital or other , state name thereof.)
	Township of:	County/District
	DATE OF DEATH Month by name:I	Day:Year:
	NAME OF DECEASED Surname:	Given names:
	PERMANENT RESIDENCE City, town or village of:	
	Street address:	
	Township of:	County/District
-	SEX:	_6. AGE:
	Cause of death: (a)	
	(b)	
	(c)	
	Was there an autopsy? (yes or no)	State findings:
	Location of fire:	
	Any further particulars in r or inquest (if any) would be	regard to the death e appreciated:
Ċ,	ate of report	Signature:

Revised 18.3.55

APPENDIX B

OCCUPANCY DEFINITIONS

So far as details given in the reports permit, the buildings, etc., where fatal fires took place have been classified according to the following rules:

- 1. <u>A dwelling unit</u> consists of two or more rooms used by one person, or by two or more keeping house together;
- 2. <u>A separate dwelling</u> is a dwelling unit which does not share its front door with other dwelling unit(s);
- 3. <u>An apartment</u> is a dwelling unit which does share the front door;
- 4. <u>A shared dwelling or shared apartment</u> shares its kitchen, or sanitary facilities, or both, between two dwelling units;
- 5. <u>A one-room dwelling</u> is intended for human habitation but has only one room;
- 6. <u>A rooming house</u> lets rooms to four or more people but does not provide meals;
- 7. <u>A boarding house</u> lets rooms to four or more people and provides meals;
- 8. Establishments letting rooms to fewer than four people are treated as shared dwellings or shared apartments.

APPENDIX C

FIRE DEATH RATE AGAINST LOGARITHM OF POPULATION DENSITY

The curve was arrived at as follows: Population density was computed for each county (or district). The counties, etc., were arranged in order of increasing density, in a table showing their respective areas, population, and numbers of fire deaths.

Each of these quantities was cumulated, i.e., a running total from the top of each column was made.

Cumulative population was plotted against cumulative area as abscissa, and cumulative fire deaths against cumulative population as abscissa, and fair curves drawn of each.

The gradients of these two curves gave, respectively, population density and fire death rate. These were plotted against the same abscissae, and fair curves drawn.

The four fair curves then contain all the information needed. To produce the curve which was required each point was obtained as as follows: From even values of cumulative area find the corresponding values of cumulative population and of population density. From the cumulative population find the corresponding fire death rate. Plot fire death rate against logarithm of population density.