Analysis of domestic fires of electrical origin in UK

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Summary:

Many interested parties have made bold qualitative statements about the Part P regime improving the fire safety of electrical installations in dwellings. However in the few cases where any numbers at all are presented they tended to be cherry picked from one or two particular years either side of the introduction of the legislation.

This short document hopes to add proper statistical rigour to this debate, by regressing the trends in the domestic fire statistics available from the ONS, from 1993 to the latest available (2010-2011).

No reduction is seen in incidence of fire, non-fatal injury, or fatality, since the introduction of part P, compared with that which might have been reasonably expected had the pre-part P trends continued unchanged.

In the case of the total number of fires of electrical origin, the data suggests that the averaged incident rates are higher by a statistically significant amount, than they would have been, had the declining trends pre-part P continued unchanged. Less significant changes emerge in the rates of fatal and non fatal injury, but equally there is no evidence at all of the improvements promised by the analysis presented to justify the costs when the legislation was introduced in 2005.

It must be decided whether these modest increases in the fire and fire fatality rates is sufficiently offset by any other benefits of the legislation in terms of the regulation of small businesses and control and monitoring of householder behaviour.

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1 INTRODUCTION

Regulation of domestic wiring under the building control regime ("part P") was introduced in 2005, with the intention of improving the general quality of domestic wiring, and thereby reducing the number of injuries and deaths from electric shock, and the number of fires of an electrical origin.

When the part P legislation was introduced, the author wrote to the then ODPM, to express concerns that if the intention was to reduce incidences of electrocution and other accidents of electrical origin, this was likely to be counter productive. At the time, the example was cited of Australia and New Zealand. These countries have near identical wiring rules, but the electrical accident rate in New Zealand has slowly fallen below that of Australia, since 1993, when New Zealand reversed its near 20 year ban on householder wiring, but Australia did not.

The reasons for this effect may not be immediately obvious. Presumably this is a reflection of complex societal factors, with householders taking more responsibility for looking after their own installations and those of family members less capable, as well as the obvious observation that remedial work is more likely to be postponed if it is more expensive. Equally the legislation is likely to discourage commercial and industrial electricians who might otherwise have done occasional friends and family domestic jobs that might otherwise never have been done at all. Clearly excessive administrative costs will lead to less satisfactory but lower effort measures such as semi-permanent extension leads and multi-way adapters being deployed. These short cuts will however show up in the accident figures.

The number of deaths in the UK per year directly attributable to electrocution is very low, and it is hard to deduce from the published statistics if there is a discernable trend or not, as the variation from year to year is not small enough compared to the absolute numbers involved. It is even harder to deduce what fraction of these deaths would have definitely been avoided had the fixed wiring in the building been to a higher standard.

However, there are enough incidences of fires with electrical cause for which accurate statistics are published, and six years is long enough for statistically significant trends to have begun to emerge from the data. Regrettably the figures support the author's initial fears. It might be that the legislation has other advantages from a government perspective, such as better regulation of small traders in the cash economy, or civil robustness or security implications, which offset the observed modest increases in the fire, injury and fatality rates. However, if this is the case, the author (and many others, no doubt) would like to know exactly what these advantages are.

If not, then the failure of part P to deliver the promised reductions in fires and injuries must be considered, in conjunction with the failure of most local authorities to take responsibility for inspection, and to stay anything like within the cost limits envisaged in the original impact assessment. In the author's opinion these factors combine, to make its continuation under the current model utterly unjustifiable.

2 TRENDS SINCE PART P WAS INTRODUCED

2.1 Total number of domestic fires of electrical origin

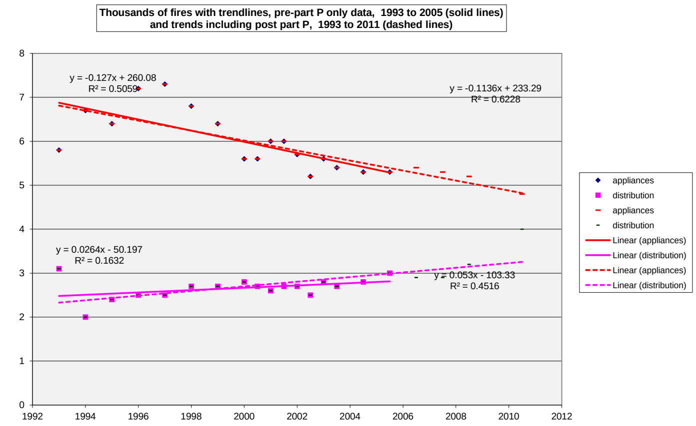

Figure 1 Graph of electrical domestic fires with trend lines

Two data sets are shown on the same graph, fires started by electrical appliances, slowly falling over time, and fires started by the distribution (fixed wiring, plugs sockets, extension leads etc.) which have been rising. On the chart X axis indicates year, and the Y axis, thousands of fires.

The general trends are consistent with improving product safety (much type approval legislation now requires new equipment to turn itself off safely if it overheats for example), but increasing loads on the house wiring.

The interesting observation is to look at the two sets of linear regression lines, the first deduced from the data from 1993 to 2005 is pre part P, and shown in solid lines, the second from the full data-set, from 1993 to the most recent available.

The difference in the two slopes may be used as an estimate for the trends that might have been if part P had not been implemented. Note that as the Y axis is in thousands of fires per year, the slope has to be multiplied to give fires per year, and also these trends are not whole numbers.

data	Trend pre part P	Trend including post part P data	Difference in rate of change
2.1.1 Appliance fires	Falling by 127 fires per annum	Falling at 113.6 fires per annum	An extra 13.4 fires per year, year on year, since 2005
2.1.2 Distribution fires	Rising at fires 26.4 fires per annum	Rising at 53.fires per annum	An extra 26.6 fires per year, year on year, since 2005
2.1.3 Total	Falling at 100.6 fires per annum	Falling at 60.6 fires per annum	An extra 40 fires per year, year on year, since 2005

Figure 2 Linear regression data compared

It should be understood that the addition of one or two years of data could change these gradient numbers by 5-10 fires per year. No great significance should be ascribed to the fantasy precision of the decimal places of the regression results.

However, to reverse the general trend, that the situation is no longer improving so fast since 2005, would require either a single extreme year very different to recent ones or a sustained run of several years with numbers of domestic fires of electrical origin below the current trend. This should be contrasted with the anticipated reduction by ~1500 fires fewer per annum, relative to the then existing trend predicted in the impact assessment prior to the introduction of Part P predicted.

See also section 4 *Invalidity of assumptions in original legislation* for further consideration of this point.

2.2 Reported injuries due to domestic fires of electrical origin

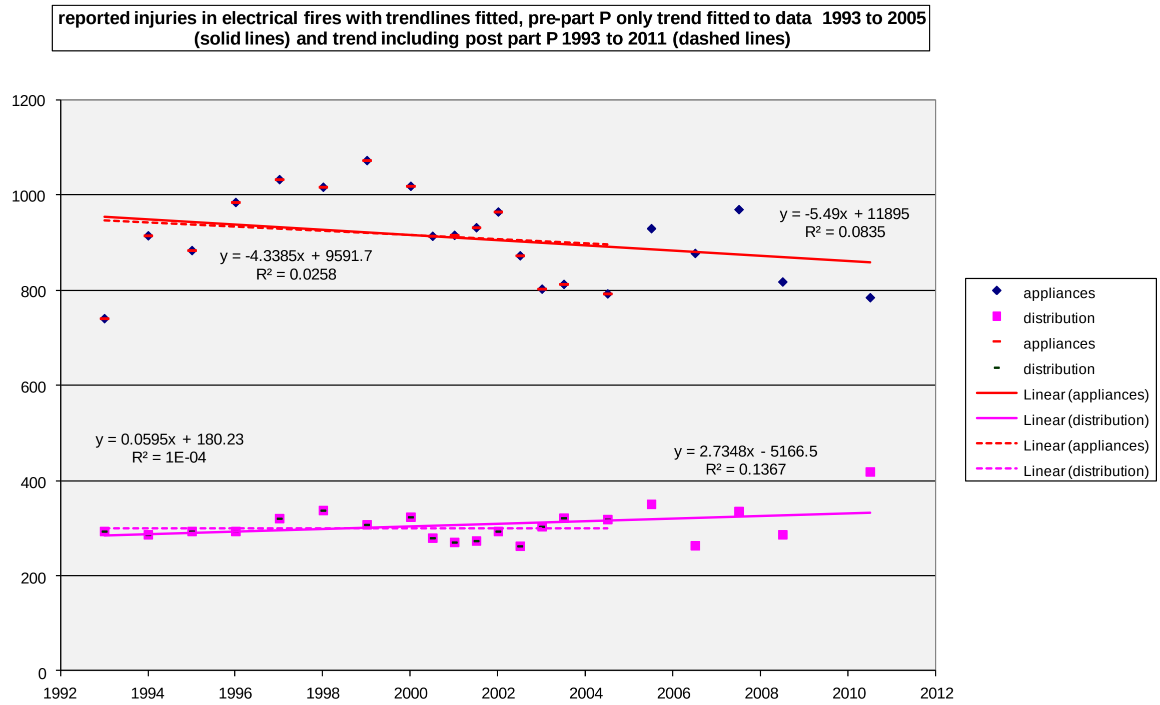

Figure 3 Graph of non fatal injuries in electrical domestic fires with trend lines

Two data sets are shown on the same graph, injuries in fires started by electrical appliances, slowly falling over time, and injuries in fires started by the distribution (fixed wiring, plugs sockets, extension leads etc.) which have been rising. On the X axis year, and on the Y axis, number of persons injured per year.

As with the total number of fires the general trends are consistent with improving product safety (much type approval legislation now requires new equipment to turn itself off safely if it overheats for example), but increasing loads on the house wiring. It is also possible that this is complicated by a general social trend in recent times towards reporting more very minor injuries, that might previously have been handled by the first aid kit at home.

Unlike the total fires figures, the change in slope of the injuries in appliance fires is negligible, and given the scatter of the data, it is unwise to infer a reliable trend, though if anything the rate of injury is dropping ever so slightly faster. The situating with distribution fires shows a more significant change however, being practically level prior to 2005, and now showing an additional rise of ~2.7 injuries every year.

Sadly this more than offsets the decline in appliance fires.

data	Trend pre part P	Trend including post part P data	Difference in rate of change
2.2.1 Appliance fires	Falling by 4.33 reported injuries per annum	Falling by 5.49 reported injuries per annum	~1.1 fewer reported injuries every year
2.2.2 Distribution fires	Constant, changing at ~0.05 injuries per year	Rising at 2.7 reported injuries per annum	An extra 2.7 reported injuries per annum every year since 2005
2.2.3 Total	Falling at 4.28 reported injuries per annum	Falling at 2.79 reported injuries per annum	An extra 1.49 reported injuries per annum every year

Figure 4 Linear regression data compared

2.3 Fatalities due to domestic fires of electrical origin

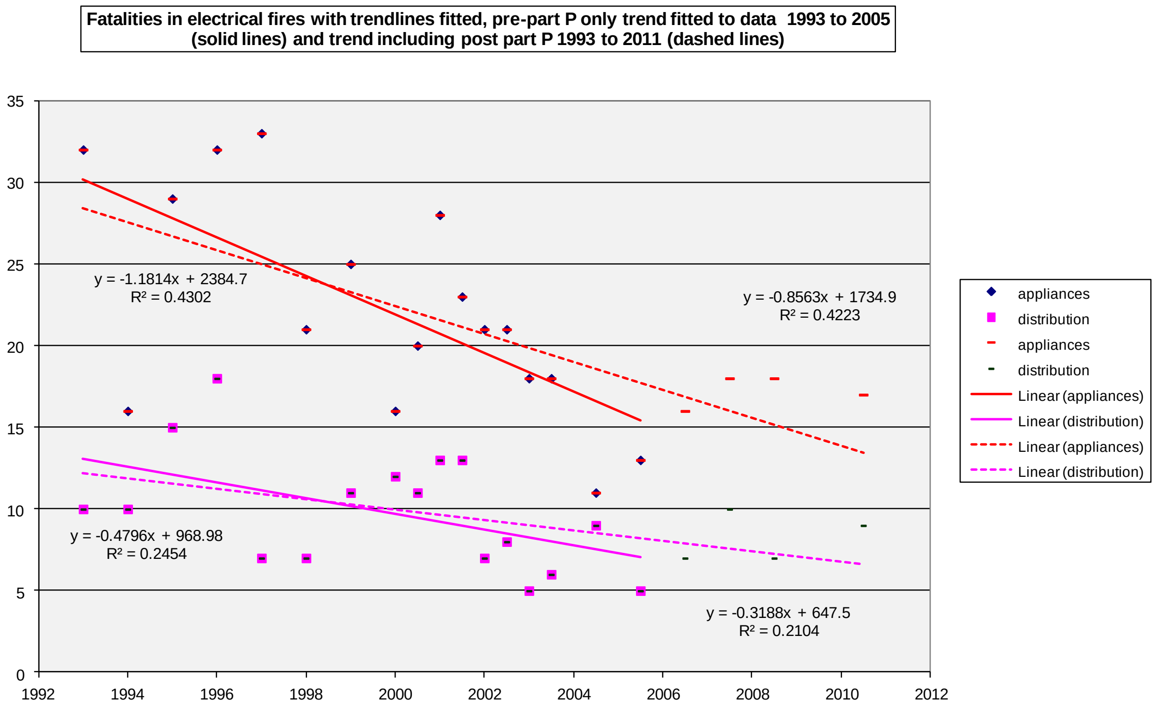

Figure 5 Graph of fatal injuries in electrical domestic fires with trend lines

Two data sets are shown on the same graph, deaths in fires started by electrical appliances, and deaths in fires started by the distribution (fixed wiring, plugs sockets, extension leads etc.) both of which have been slowly falling over time. The X axis of the graphs indicates year, and the Y axis, fatalities per year.

The general trends are as before consistent with improving product safety (much type approval legislation now requires new equipment to turn itself off safely if it overheats for example), and an improved chance of escape due to early warning from the greater prevalence of smoke detectors.

As above there are two sets of linear regression lines, the first deduced from the data from 1993 to 2005 is pre part P, and shown in solid lines, the second from the full data-set, from 1993 to the most recent available.

The difference in the two slopes may be used as an estimate for the trends that might have been if part P had not been implemented. There are really not enough fatalities to get an accurate trend, being single figures per year, and this increases the year to year scatter of the results, and these figures should be treated with greater caution than the preceding.

Data	Trend pre part P	Trend including post part P data	Difference in rate of change
2.3.1 Deaths in Appliance fires	Falling by 1.1814 deaths per annum	Falling at 0.8563 deaths per annum	An extra 0.3277 deaths per year, year on year, since 2005
2.3.2 Deaths in Distribution fires	Falling by 0.4796 deaths per annum	Falling by 0.3188 deaths per annum	An extra 0.1608deaths per year, year on year, since 2005
2.3.3 Total	Falling by 1.661 deaths per annum	Falling at 1.1751 deaths per annum	An extra 0.4885 deaths per year, year on year, since 2005

Figure 6 Linear regression data compared

3 COMPARISON TO CONSIDER POSSIBLE EFFECT OF CHANGING SOCIETAL FACTORS

It is possible that some of the change in the rate of fires, injury and fatalities since 2005 is not totally attributable to Part P, and might be in part due to a general lessening of fire awareness in the home, or other non-electrical effect.

Therefore as a control measure, the total number of fires caused by cooking has been subjected to the same analysis method of regression trend line extraction over the same two periods. This is likely to have been affected by any general trend towards greater or lesser carelessness, better smoke detectors etc, but should be totally free of the influence of part P.

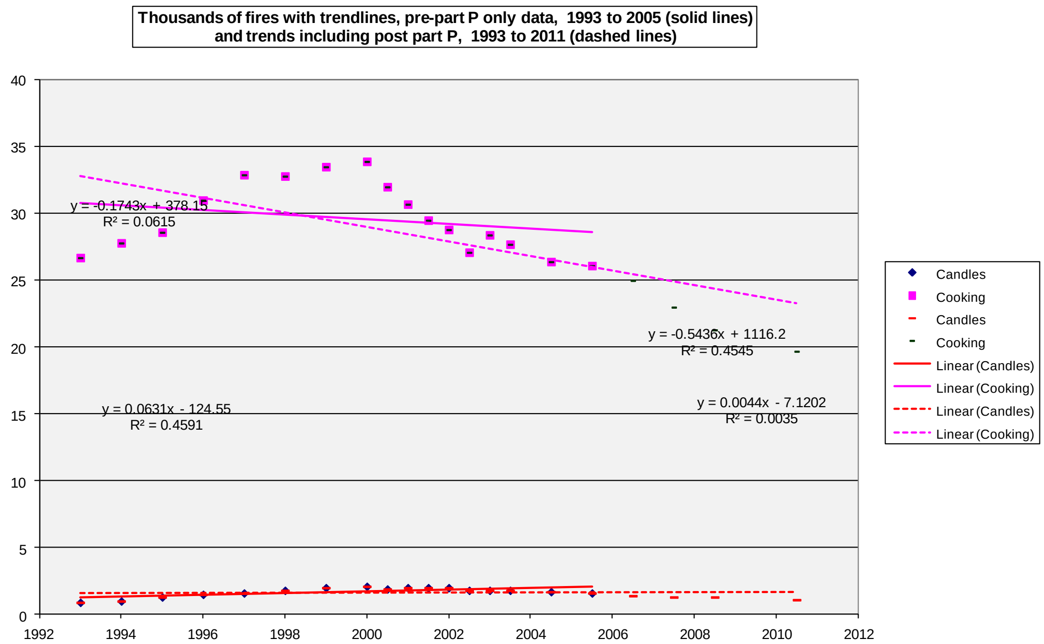

Figure 7 Graph of domestic fires by cooking and use of candles with trend lines

Both fires started by candles and fires started by cooking appliances are shown, with two regression lines. Cooking is the largest single cause of domestic fires, with electrical the next most significant.

Candles might seem an odd choice, when the numbers for fires started by smoking are closer in magnitude to the electrical figures, but it is possible the smoking figures may be distorted by changes of behaviour caused by the smoking ban.

In any case, both cooking fires and candle fires show a downward change of gradient once post 2005 data is included, albeit a statistically less significant one for candles.

data	Trend pre part P	Trend including post part P data	Difference in rate of change
3.1.1 Cooking initiated fires	Falling by 174 fires per annum	Falling at 543 fires per annum	A reduction of 369 fires per year, year on year, since 2005
3.1.2 Candle initiated fires	Rising at 63.1 fires per annum	Rising at 4.4 fires per annum	A reduction of 58.7 fires per year, year on year, since 2005
3.1.3 Total	Falling at 100.6 fires per annum	Falling at 538.6 fires per annum	A reduction of 438.1 fires per year, year on year, since 2005

Figure 8 Linear regression data compared – non electrical

If we consider the cooking fire experience, or indeed candles, we observe an improving trend, once the more recent years are included, perhaps due to a combination of more safety conscious behaviour and better smoke detectors. In the absence of part P we might have expected this trend to be duplicated with the electrical fire statistics, and to have also improved noticeably, rather than worsened slightly as it has.

4 INVALIDITY OF ASSUMPTIONS IN ORIGINAL LEGISLATION

It is sadly clear that when the RIA of 2004 was generated, some of the assumptions were, to be charitable to the authors, who presumably had to make 'guesstimates' for many unknown quantities, somewhat wide of the mark.

4.1 Expected reduction of incidents

The reduction in accidents described in the analysis of the preceding sections is in stark contrast to the predicted – table 1b reproduced verbatim from the 2004 regulatory impact assessment.

Table 1b. Calculated annual average number of electrical incidents avoided in dwellings in E&W

Electrical Installation	Fatalities		Non-fatal injuries		Fire damaged properties
	Shock	Fire	Shock	Fire	
Fixed wiring	0.5	0.3	110	24	441
Fixed appliance	0.9	1.5	63	30	625
Non-portable	0.6	0.04	62	18	277
Portable	1.5	2.8	199	43	193
Total numbers of incidents avoided	3.5	4.6	433	115	1,536

Note: The table assumes a 30% reduction in accident rates associated with fixed wiring and appliances, and a 15% reduction in accident rates associated with non-portable and portable appliances - see paragraph 40

Figure 9 Extract from 2004 impact assessment

This predicted reduction in accidents, in particularly the additional 1,536 fires avoided per year relative to no action is simply completely absent from the measured data.

4.2 Local Authority competence and charges

Consider the level of local authority charges assumed in the impact assessment.

….DIY workers carrying out notifiable work who choose not to employ a member of a competent persons scheme to carry out inspection and testing (see paragraph 71) will also need to use a BCB, almost always a local authority building control department. It is expected that the majority of notifications to BCBs will eventually be by DIY workers.

*61 Based on experience of the 2002 replacement window provisions, the building control fee will **typically be in the region of £50 to £100 per installation**…..*
(my bold text)

Even allowing for inflation, this is hysterically inaccurate. Charges to inspect and test notifiable electrical works vary significantly between authorities, with some of the highest being London authorities
http://www.haringey.gov.uk/haringey_building_control_charges_scheme_6_-_2012.pdf
Haringay for example currently charge **£309** including VAT for a 'wiring only' building notice submission, regardless of the complexity or simplicity of the task, a level tolerable perhaps for a full house rewire, but utterly disproportionate for wiring to one new light fitting in the kitchen.

Some of the charges outside the capital are no lower, but concession is given for installers who can provide certificates, such as industrial electricians who are not domestic installer scheme members– Winchester for example
http://www.winchester.gov.uk/Documents/BuildingControl/fees/Domestic_Extensions_AlterationsDec10.pdf
charge a mere £107 to persons capable of performing their own inspection, and providing their own valid installation certificate, but a hefty **£360** if they are to perform the electrical testing too.

Neighbouring Test Valley only manages marginally better.
http://www.testvalley.gov.uk/resident/planningandbuildingcontrol/buildingcontrol/building-control-fees-1st-april-2012/

The reason that the charging is so far from the original estimates, is that there has generally been no enthusiasm from local authorities to permanently employ electricians or to train up their building inspectors in the skills required for electrical inspection and testing. The late Anne Hemmings' circular letter of June 2005 advising local authorities not to charge extra for testing as part of other works has largely been ignored.

Consequently councils end up subcontracting the inspection work out on an on-call basis to third party electricians who have a monopoly position, and then must charge accordingly.

Equally the Scheme Providers have discouraged their members from adopting the work of others, so many perfectly capable commercial electricians have simply withdrawn altogether from the occasional domestic work they used to perform, or only do non-notifiable jobs.

4.3 Assumptions about testing

It is often assumed that the electrical testing of an installation is some sort of catch-all for potentially dangerous situations, and any installation that passes its earth and insulation tests must be safe. However, there are many situations that arise in practice where the safety of an installation is compromised, that would not be found by electrical testing.

The common nail through the cable for example, will be found if it cuts right through one conductor core, or if it bridges two together (but then that would be found equally quickly, if spectacularly, if the system were energised without testing). However a nail just contacting the live conductor, even if it almost severs it, is most unlikely to show up on insulation test, unless the fabric of the building is wet and provides a leakage to earth path, but depending on what else it connects to, it could 'liven up" unexpected regions of the building fabric.

Earth connections that test out fine at low current, but a blow open and disconnect them selves under full fault current, faster than the fuse or circuit breaker can operate are not uncommon. Furthermore an installation which is fault free at commissioning, can rapidly be compromised by poor maintenance, or load patterns the installers did not envisage.

Placing a greater emphasis on test certificates and an 'audit trail' than on good practice, can result in a blind 'recipe' approach, instead of encouraging intelligent thinking about the installation, and there is a risk of getting just that.

5 CONCLUDING COMMENTS

It is likely that those who benefit from the current situation, namely the competent person scheme providers, will be vehemently opposed to any dilution or relaxation of the part P regime, along with those who act with an erroneous ‘gut instinct’ that more regulation ‘must’ always make things safer.

The emerging evidence is enough to be statistically significant however, and certainly shows that the eagerly anticipated safety benefits are conspicuous by their total absence, and instead the emerging trend is that of a modest increase in fires and injury rates over those rates which would have existed had part P never been implemented.

The opportunity to recognise the errors of the past and make changes is now. It should be taken.

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"The fact that an opinion has been widely held is no evidence whatever that it is not utterly absurd; indeed in view of the silliness of the majority of mankind, a widespread belief is more likely to be foolish than sensible."

Bertrand Russell *Marriage and Morals* (1929) ch. 5
British author, mathematician, & philosopher (1872 - 1970)

APPENDIX - RAW DATA TABLES & SOURCES OF INFORMATION

The raw data from which the charts are compiled has been duplicated for convenience as an appendix.
Fire Statistics, United Kingdom, 2003 an ODPM / DCLG publication contains data from 1993-2003
Fire Statistics, United Kingdom subsequnt years Department for Communities and Local Government
Fire Statistics: Great Britain, 2010 - 2011 PDF , 9619 kb , 75 pages
Fire Statistics: Great Britain, 2010 - 2011 - Tables 1a-16 online supplement MS Excel , 422 kb

Table 11: Casualties from accidental fires in dwellings[1] by source of ignition, 2000/01-2010/11 — Great Britain

Year	Total	Source of ignition											
		Smokers' materials	Cigarette lighters	Matches	Cooking appliances	Space heating appliances	Central and water heating appliances	Blowlamps, welding and cutting equipment	Electrical distribution	Other electrical appliances	Candles	Other	Un-specified
Fatal													
2000/01	363	116	16	15	48	49	1	0	11	20	8	8	71
2001/02	404	144	17	11	75	34	2	0	13	23	15	10	60
2002/03	341	97	13	9	58	33	1	0	8	21	20	8	73
2003/04	359	117	13	13	53	26	1	0	6	18	18	13	81
2004/05	321	125	10	10	56	19	2	0	9	11	12	16	51
2005/06	286	82	7	7	47	27	3	1	5	13	22	12	60
2006/07	249	89	8	2	41	21	2	0	7	16	19	11	33
2007/08	291	108	11	8	37	24	1	0	10	18	13	19	42
2008/09	273	92	7	9	39	27	6	2	7	18	16	7	43
2009/10	275	..	..	..	..	..	..	..	..	..	..	..	..
2010/11	268	96	7	5	28	16	0	0	9	17	13	22	55

Non-fatal Casualties

Year	Total	Source of ignition											
		Smokers' materials	Cigarette lighters	Matches	Cooking appliances	Space heating appliances	Central and water heating appliances	Blowlamps, welding and cutting equipment	Electrical distribution	Other electrical appliances	Candles	Other	Un-specified
2000/01	11,263	1,415	278	225	6,181	531	142	47	280	914	822	204	224
2001/02	11,348	1,440	347	235	6,015	530	133	67	274	932	900	253	222
2002/03	10,200	1,279	263	195	5,570	428	101	44	263	873	742	231	211
2003/04	10,226	1,394	292	198	5,497	390	106	57	322	813	663	280	214
2004/05	9,476	1,138	233	142	5,201	332	144	40	319	793	662	272	200
2005/06	9,323	1,037	163	122	4,958	389	132	42	351	930	643	286	270
2006/07	8,902	1,093	290	84	4,713	329	122	41	264	878	624	282	182
2007/08	8,714	945	208	115	4,625	317	129	44	336	970	546	274	205
2008/09	7,987	872	135	83	4,338	315	122	29	287	818	522	290	176
2009/10	7,244	..	..	..	..	..	..	..	..	..	..	..	..
2010/11	7,776	838	110	79	4,081	403	49	32	419	785	474	343	163

[1] Includes caravans, houseboats and other non-building structures used solely as a permanent dwelling (see explanatory note 24).

Table 3: Accidental fires in dwellings and other buildings by source of ignition, 2000/01-2010/11

Great Britain — Fires (thousands)

Year	Total	Source of ignition											
		Smokers' materials	Cigarette lighters	Matches	Cooking appliances	Space heating appliances	Central and water heating appliances	Blowlamps, welding and cutting equipment	Electrical distribution	Other electrical appliances	Candles	Other	Un-specified
Dwellings[1]													
2000/01	54.1	3.9	0.5	0.7	32.0	2.3	1.3	0.7	2.7	5.6	1.9	1.8	0.7
2001/02	52.2	4.0	0.6	0.7	29.5	2.0	1.3	0.7	2.7	6.0	2.0	2.0	0.8
2002/03	47.1	3.6	0.5	0.4	27.1	1.7	1.2	0.6	2.5	5.2	1.8	1.8	0.7
2003/04	48.5	4.0	0.5	0.5	27.7	1.5	1.3	0.6	2.7	5.4	1.8	2.0	0.6
2004/05	46.1	3.2	0.4	0.4	26.4	1.6	1.1	0.6	2.8	5.3	1.7	1.8	0.7
2005/06	46.1	3.0	0.4	0.4	26.1	1.7	1.2	0.5	3.0	5.3	1.6	1.9	0.9
2006/07	44.2	3.0	0.5	0.3	25.0	1.6	1.0	0.5	2.9	5.4	1.4	2.0	0.8
2007/08	41.8	3.0	0.4	0.3	23.0	1.5	1.0	0.5	2.9	5.3	1.3	1.9	0.8
2008/09	39.6	2.7	0.3	0.3	21.3	1.6	0.9	0.3	3.2	5.2	1.3	1.9	0.7
2009/10	40.3	..	..	..	..	..	..	..	..	..	..	..	..
2010/11	38.5	2.7	0.3	0.3	19.7	1.7	0.5	0.2	4.0	4.8	1.1	2.2	1.1

Other buildings

		Smokers' materials	Cigarette lighters	Matches	Cooking appliances	Space heating appliances	Central and water heating appliances	Blowlamps, welding and cutting equipment	Electrical distribution	Other electrical appliances	Candles	Other	Un-specified
2000/01	22.8	2.0	0.1	0.3	0.8	5.4	0.6	1.1	2.4	5.9	0.3	3.1	0.8
2001/02	22.8	1.9	0.1	0.2	0.9	5.4	0.5	1.1	2.1	5.9	0.2	3.5	1.0
2002/03	21.5	1.9	0.1	0.2	0.7	4.9	0.5	0.8	2.1	5.8	0.2	3.3	1.0
2003/04	22.1	1.9	0.1	0.2	0.7	4.7	0.5	0.7	2.5	5.8	0.2	3.8	1.0
2004/05	21.1	1.5	0.1	0.1	0.6	5.1	0.5	0.7	2.5	6.0	0.2	2.8	0.9
2005/06	20.5	1.3	0.1	0.2	0.7	4.7	0.6	0.6	2.4	5.8	0.2	2.9	1.1
2006/07	19.4	1.2	0.1	0.1	0.5	4.1	0.5	0.6	2.6	5.6	0.1	2.9	1.0
2007/08	18.0	1.1	0.1	0.1	0.6	3.4	0.5	0.7	2.4	5.3	0.2	2.7	1.0
2008/09	16.9	0.7	0.1	0.1	0.5	2.5	0.3	0.5	1.9	4.2	0.1	2.1	3.7
2009/10	..	..	..	..	..	..	..	..	..	..	..	..	..
2010/11	17.5	1.1	0.1	0.2	3.4	0.8	0.2	0.5	3.0	3.3	0.2	3.7	1.3

[4] Includes caravans, houseboats and other non-building structures used solely as a permanent dwelling (see explanatory note 24).

Table 11 Casualties from accidental fires[1] in dwellings[2] by source of ignition, 1992-2002[3]

United Kingdom — Casualties

Year	Total	Source of ignition: Smokers' materials	Matches	Cooking appliances	Space heating appliances	Central and water heating appliances	Blowlamps, welding and cutting equipment	Electrical distribution	Other electrical appliances	Candles	Other	Un-specified
Fatal												
1992	513	208	38	57	73	-	1	8	27	17	17	67
1993	480	177	43	41	77	2	-	10	32	5	15	78
1994[4]	428	143	21	53	55	2	1	10	16	7	19	101
1995	481	166	33	65	73	4	-	15	29	9	11	76
1996	488	186	22	79	51	1	-	18	32	18	11	70
1997	497	173	19	74	50	1	1	7	33	20	22	97
1998[5]	454	169	17	66	46	2	-	7	21	13	16	97
1999	398	129	9	70	43	3	-	11	25	18	12	78
2000	397	152	16	58	47	1	-	12	16	11	10	74
2001	428	158	15	68	54	1	-	13	28	16	11	64
2002[3]	355	136	10	59	33	2	-	7	21	19	5	63
Non-fatal												
1992	9,687	1,930	791	4,262	809	99	56	372	720	179	275	194
1993	9,867	2,037	592	4,579	733	77	51	294	741	223	332	208
1994[4]	10,994	1,895	495	5,506	786	158	75	287	915	456	225	196
1995	11,176	1,932	438	5,683	762	173	64	294	884	467	216	263
1996	12,163	1,995	400	6,364	868	127	65	294	985	587	245	233
1997	12,877	2,080	304	7,096	666	159	47	321	1,033	687	254	230
1998	12,827	1,980	256	7,114	624	131	74	338	1,017	779	284	230
1999	12,556	1,869	250	6,953	610	138	77	308	1,073	810	277	191
2000	12,059	1,838	237	6,565	583	141	46	324	1,019	880	219	207
2001	11,691	1,839	236	6,210	587	151	62	271	916	931	258	230
2002[3]	11,182	1,703	251	5,989	499	106	55	294	965	840	254	226

[1] There were changes in the recording of deliberate and accidental fires, which affect comparisons before and after 1994 (see explanatory note 12).
[2] Includes caravans, houseboats and other non-building structures used solely as a permanent dwelling (see explanatory note 24).
[3] Includes estimates for incidents not recorded in November 2002 during industrial action (see explanatory notes 3 and 4).
[4] From 1994 includes "late" call and heat and smoke damage only incidents, which were not recorded prior to 1994 (see explanatory notes 6 and 7).
[5] Figures for 1998 deaths contain minor revisions to those published in HOSB 20/00 (see explanatory note 9).

Table 3 Accidental fires[1] in dwellings and other buildings by source of ignition, 1992-2002[2]

United Kingdom — Fires (thousands)[3]

Year	Total	Source of ignition: Smokers' materials	Matches	Cooking appliances	Space heating appliances	Central and water heating appliances	Blowlamps, welding and cutting equipment	Electrical distribution	Other electrical appliances	Candles	Other	Un-specified
Dwellings[4]												
1992	54.0	6.1	3.2	25.5	3.4	1.1	1.0	3.1	6.1	0.7	3.1	0.7
1993	54.5	6.2	2.9	26.7	3.1	1.1	0.9	3.1	5.8	0.9	3.3	0.6
1994[5]	52.9	5.8	1.5	27.8	3.1	1.6	1.0	2.0	6.7	1.0	1.9	0.7
1995	54.8	5.6	1.2	28.6	2.9	1.5	1.0	2.4	6.4	1.3	2.0	2.0
1996	57.5	5.6	1.1	31.0	3.3	1.5	0.9	2.5	7.2	1.5	2.2	0.7
1997	58.7	5.5	1.0	32.9	2.6	1.7	0.8	2.5	7.3	1.6	2.0	0.6
1998	57.7	5.5	0.8	32.8	2.6	1.4	0.8	2.7	6.8	1.8	2.0	0.7
1999	58.4	5.4	0.9	33.5	2.4	1.4	0.6	2.7	6.4	2.0	2.3	0.9
2000	56.7	4.5	0.7	33.9	2.4	1.4	0.6	2.8	5.6	2.1	1.9	0.6
2001	54.3	4.8	0.7	30.7	2.3	1.4	0.7	2.6	6.0	2.0	2.2	0.8
2002[2]	50.8	4.4	0.6	28.8	1.9	1.3	0.6	2.8	5.7	2.0	2.0	0.8
Other buildings												
1992	27.2	3.1	2.3	3.2	1.2	0.5	1.8	2.4	3.9	0.1	7.5	1.2
1993	26.5	3.0	2.1	3.4	1.1	0.5	1.5	2.2	3.8	0.2	7.7	1.0
1994[5]	24.1	2.8	0.6	3.9	1.0	0.6	1.5	2.1	6.0	0.2	4.4	0.9
1995	26.0	3.1	0.6	4.4	1.2	0.7	1.6	2.1	5.8	0.2	4.6	1.7
1996	25.7	2.9	0.6	5.0	1.2	0.6	1.3	2.2	6.7	0.2	4.1	0.9
1997	25.5	2.7	0.4	5.6	1.1	0.7	1.3	2.2	6.5	0.2	3.8	0.9
1998	24.7	2.8	0.3	5.5	1.1	0.7	1.2	2.3	6.6	0.2	3.1	1.0
1999	25.7	2.5	0.3	6.6	0.9	0.7	1.1	2.5	6.3	0.2	3.6	1.2
2000	23.8	2.2	0.3	5.8	0.8	0.6	1.2	2.4	6.0	0.2	3.4	0.9
2001	23.8	2.1	0.2	5.5	0.9	0.6	1.1	2.3	6.1	0.2	3.6	1.1
2002[2]	22.7	2.1	0.3	5.1	0.7	0.5	1.0	2.3	6.1	0.2	3.4	1.0

[1] There were changes in the recording of deliberate and accidental fires, which affect comparisons, before and after 1994 (see explanatory note 12).
[2] Includes estimates for incidents not recorded in November 2002 during industrial action (see explanatory notes 3 and 4).
[3] Figures are rounded and the components do not necessarily sum to the independently rounded totals.
[4] Includes caravans, houseboats and other non-building structures used solely as a permanent dwelling (see explanatory note 24).
[5] Figures from 1994 are based on sample data weighted to the brigade totals. They include "late" call and heat and smoke damage only incidents, which were not recorded prior to 1994 (see explanatory notes 6 and 7).