

NON-HOME STRUCTURE FIRES BY EQUIPMENT INVOLVED IN IGNITION

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**Non-Home Structure Fires (Including Fires Coded as Confined Fires), by Equipment Involved in Ignition (EII)
Annual Average of 2007-2011 Structure Fires Reported to U.S. Fire Departments**

EII	Type of Equipment	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Millions)
631-647,	COOKING EQUIPMENT¹	32,272	21	428	\$185
654	<i>Non-confined</i>	5,200	21	238	\$176
	<i>Confined to cooking vessel</i>	27,072	0	190	\$9
647	Range	8,435	13	170	\$61
	<i>Non-confined</i>	2,132	13	137	\$60
	<i>Confined</i>	6,303	0	33	\$1
642	Deep fryer	5,359	0	80	\$44
	<i>Non-confined</i>	927	0	35	\$42
	<i>Confined</i>	4,431	0	45	\$2
644	Microwave oven	3,941	0	27	\$8
	<i>Non-confined</i>	342	0	9	\$5
	<i>Confined</i>	3,599	0	18	\$3
645	Oven or rotisserie	3,651	4	48	\$17
	<i>Non-confined</i>	442	4	15	\$17
	<i>Confined</i>	3,209	0	34	\$1
631-641	Portable cooking or warming device	3,276	4	35	\$26
	<i>Non-confined</i>	652	4	23	\$25
	<i>Confined</i>	2,624	0	12	\$1
637	Toaster or toaster oven	1,390	0	7	\$11
632	Food warmer or hot plate	516	4	10	\$2
639	Wok, frying pan, or skillet	404	0	5	\$1
634	Popcorn popper	258	0	5	\$0
631	Coffee maker or teapot	232	0	6	\$3
638	Waffle iron or griddle	141	0	0	\$4
636	Slow cooker	127	0	0	\$1
633	Kettle	112	0	0	\$3
635	Pressure cooker or canner	53	0	0	\$0
641	Breadmaking machine	44	0	3	\$0
643	Grill, hibachi, or barbecue	2,082	0	18	\$10
	<i>Non-confined</i>	474	0	11	\$10
	<i>Confined</i>	1,608	0	7	\$0

¹ Does not include 817 confined fires reported as involving cooking equipment but not as fire confined to cooking vessel, including 200 range fires, 154 microwave oven fires, 106 grease hood fires, 102 deep fryer fires, and 95 oven fires.

**Non-Home Structure Fires (Including Fires Coded as Confined Fires), by Equipment Involved in Ignition (EII)
Annual Average of 2007-2011 Structure Fires Reported to U.S. Fire Departments**

EII	Type of Equipment	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Millions)
COOKING EQUIPMENT (Continued)					
654	Grease hood or duct exhaust fan	356	0	8	\$14
	<i>Non-confined</i>	173	0	8	\$14
	<i>Confined</i>	183	0	0	\$0
647	Steam table or warming device	254	0	5	\$2
	<i>Non-confined</i>	57	0	0	\$2
	<i>Confined</i>	197	0	5	\$0
	<i>Confined to cooking vessel but coded as equipment other than cooking equipment</i>	2,741	0	20	\$1
	<i>Confined to cooking vessel but coded as no equipment involved</i>	2,177	0	17	\$0
611-623, 651-653, 655-656	KITCHEN EQUIPMENT OTHER THAN COOKING EQUIPMENT²	1,390	0	27	\$74
652, 655-656	Refrigerator, freezer, or ice maker	1,083	0	21	\$66
656	Refrigerator or freezer	791	0	18	\$45
652	Separate freezer	223	0	2	\$13
655	Separate ice maker	70	0	1	\$8
651	Dishwasher	182	0	0	\$4
611	Blender, juicer, or food processor	23	0	2	\$0
612	Coffee grinder	8	0	0	\$0
621	Can opener	4	0	0	\$0
653	Garbage disposer	3	0	0	\$0
622	Knife	0	0	0	\$0
623	Knife sharpener	0	0	0	\$0

² Does not include 206 reported confined fires – 92 confined to cooking vessel; 82 confined to trash; 12 confined to incinerator; 11 confined to fuel burner, boiler, chimney or flue; and 8 confined to compactor.

**Non-Home Structure Fires (Including Fires Coded as Confined Fires), by Equipment Involved in Ignition (EII)
Annual Average of 2007-2011 Structure Fires Reported to U.S. Fire Departments**

EII	Type of Equipment	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Millions)
120-152	HEATING EQUIPMENT³	12,232	37	203	\$329
	<i>Non-confined</i>	6,970	37	181	\$324
	<i>Confined</i>	5,263	0	22	\$5
123-124, Space heater 131, 141-143		4,431	22	137	\$133
	<i>Non-confined</i>	3,758	22	135	\$132
	<i>Confined</i>	672	0	2	\$0
124	Heating stove	1,615	2	46	\$39
141	Heater excluding oil-filled or catalytic	1,437	16	61	\$53
131	Local heating furnace	715	0	11	\$13
143	Oil-filled heater	312	2	5	\$18
123	Fireplace with insert	228	2	7	\$5
142	Catalytic heater	124	0	8	\$4
120-122, Fireplace, chimney, or chimney connector 125-127		2,190	8	4	\$26
	<i>Non-confined</i>	759	8	3	\$25
	<i>Confined</i>	1,432	0	2	\$1
127	Metal chimney, flue or stovepipe	521	0	0	\$8
120	Unclassified fireplace or chimney	423	8	2	\$6
126	Brick or stone chimney	176	0	0	\$1
125	Chimney or vent connector	142	0	0	\$5
121	Masonry fireplace	80	0	0	\$0
122	Factory-built fireplace	75	0	2	\$4
	<i>Confined to chimney or flue with no equipment involved</i>	774	0	0	\$0

³ Does not include 2,089 *heating stove fires confined to cooking vessel* and 89 other confined water heater fires.

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Annual Average of 2007-2011 Structure Fires Reported to U.S. Fire Departments**

EII	Type of Equipment	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Millions)
HEATING EQUIPMENT (Continued)					
132-133	Central heating unit	1,959	5	27	\$130
	<i>Non-confined</i>	861	5	21	\$130
	<i>Confined</i>	1,098	0	6	\$0
132	Central furnace	981	0	6	\$32
133	Boiler	851	5	18	\$98
	<i>Confined to fuel burner or boiler with no equipment involved</i>	127	0	3	\$0
151	Water heater	1,318	0	24	\$24
	<i>Non-confined</i>	928	0	21	\$24
	<i>Confined</i>	390	0	3	\$0
144	Heat lamp	529	2	0	\$7
	<i>Non-confined</i>	524	2	0	\$7
	<i>Confined</i>	5	0	0	\$0
145	Heat tape	119	0	1	\$4
	<i>Non-confined</i>	119	0	1	\$4
	<i>Confined</i>	0	0	0	\$0
152	Steamline, heat pipe or hot air duct	73	0	0	\$1
	<i>Non-confined</i>	46	0	0	\$1
	<i>Confined</i>	27	0	0	\$0
	<i>Confined to fuel burner or boiler but coded as non-heating equipment involved</i>	821	0	6	\$3
	<i>Confined to chimney or flue but coded as non-heating equipment involved</i>	792	0	3	\$1

**Non-Home Structure Fires (Including Fires Coded as Confined Fires), by Equipment Involved in Ignition (EII)
Annual Average of 2007-2011 Structure Fires Reported to U.S. Fire Departments**

EII	Type of Equipment	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Millions)
111-117	AIR CONDITIONING, FAN, OR RELATED EQUIPMENT⁴	3,485	2	78	\$75
113	Fan	1,981	2	46	\$34
111	Air conditioner	1,208	0	26	\$28
112	Heat pump	164	0	5	\$2
117	Evaporative cooler or cooling tower	72	0	2	\$9
116	Dehumidifier	42	0	0	\$2
114	Humidifier	16	0	0	\$1
115	Ionizer	3	0	0	\$0

⁴ Does not include 275 air conditioning, fan and related equipment confined fires – 118 confined to fuel boiler or burner, 70 confined to trash, 34 confined to chimney or flue, 31 confined to incinerator, and 22 confined to cooking vessel.

**Non-Home Structure Fires (Including Fires Coded as Confined Fires), by Equipment Involved in Ignition (EII)
Annual Average of 2007-2011 Structure Fires Reported to U.S. Fire Departments**

EII	Type of Equipment	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Millions)
210-263	ELECTRICAL DISTRIBUTION AND LIGHTING EQUIPMENT⁵	10,152	19	150	\$498
210-219	Fixed wiring and related equipment	5,201	10	67	\$207
210	Unclassified electrical wiring	2,228	6	18	\$103
215	Panelboard or switchboard	609	0	22	\$32
217	Outlet or receptacle	570	0	11	\$21
211	Power (utility) line	523	2	0	\$13
216	Branch circuit wiring	447	2	8	\$13
212	Service supply wiring from utility	377	0	4	\$11
213	Meter or meter box	241	0	2	\$6
214	Wiring from meter box to circuit breaker	139	0	0	\$4
218	Wall switch	57	0	1	\$3
219	Ground fault interruptor (GFCI)	11	0	0	\$0
230-244	Lamp, light bulb, or light fixture	2,790	4	57	\$105
234	Fluorescent light fixture	711	0	7	\$23
230	Unclassified lamp or lighting	585	0	7	\$18
244	Sign	313	0	0	\$9
233	Incandescent light fixture	269	0	4	\$6
238	Light bulb	189	2	2	\$6
235	Halogen light fixture or lamp	183	0	5	\$11
231	Table, floor, or desktop lamp	145	0	5	\$2
242	Decorative light on line voltage	130	0	0	\$3
237	Work light or trouble light	126	2	23	\$18
236	Sodium or mercury vapor light	95	0	0	\$6
243	Decorative or landscape lighting	17	0	0	\$3
232	Lantern or flashlight	15	0	3	\$0
241	Nightlight	12	0	0	\$0

⁵ Does not include 475 confined fires (348 confined to trash).

**Non-Home Structure Fires (Including Fires Coded as Confined Fires), by Equipment Involved in Ignition (EII)
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EII	Type of Equipment	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Millions)
210-263	ELECTRICAL DISTRIBUTION AND LIGHTING EQUIPMENT (Continued)				
220-229	Transformer or power supply	1,404	0	12	\$140
221	Distribution type transformer	487	0	1	\$51
224	Generator	333	0	3	\$58
228	Battery charger or rectifier	159	0	3	\$11
223	Low voltage transformer	109	0	0	\$2
227	Surge protector	108	0	1	\$5
229	Battery	85	0	1	\$4
226	Uninterrupted power supply	54	0	0	\$0
222	Overcurrent or disconnect equipment	51	0	4	\$8
225	Inverter	18	0	0	\$0
260-263	Cord or plug	727	5	13	\$45
263	Extension cord	388	5	11	\$26
262	Permanent power cord or plug	124	0	0	\$3
260	Unclassified cord or plug	113	0	1	\$11
261	Detachable power cord or plug	102	0	0	\$5
251	Electric fence	19	0	0	\$0
253	Lightning rod or arrester	6	0	0	\$0
252	Traffic control device	5	0	0	\$0
300-599, 700-999	OTHER APPLIANCES AND EQUIPMENT				
811, 813, 814	Washer or dryer ⁶	4,354	2	137	\$58
811	Clothes dryer	4,005	2	132	\$45
813	Washer/dryer combination	196	0	1	\$12
814	Washing machine	152	0	4	\$1

⁶ Does not include 927 confined fires, including 825 dryer fires (532 confined to trash, 109 confined to fuel burner or boiler, 85 confined to chimney or flue, 51 confined to cooking vessel, 29 confined to incinerator, and 19 confined to compactor); 76 washing machine fires; and 26 washer/dryer fires.

**Non-Home Structure Fires (Including Fires Coded as Confined Fires), by Equipment Involved in Ignition (EII)
Annual Average of 2007-2011 Structure Fires Reported to U.S. Fire Departments**

EII	Type of Equipment	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Millions)
OTHER APPLIANCES AND EQUIPMENT (Continued)					
331-334	Torch, soldering equipment or burner ⁷	2,260	5	87	\$165
332	Cutting torch	934	5	30	\$81
331	Welding torch	873	0	42	\$59
333	Burner	262	0	6	\$13
334	Soldering equipment	189	0	9	\$12
500-538	Yard or other outdoor equipment ⁸	1,272	0	18	\$58
524	Lawn mower	831	0	9	\$18
512	Hay processing equipment	60	0	0	\$4
514	Silo loader or unloader	58	0	0	\$1
513	Farm elevator or conveyor	48	0	0	\$5
523	Weed burner	42	0	0	\$1
515	Feed grinder, mixer, or blender	36	0	1	\$1
534	Snow blower or thrower	30	0	3	\$19
525	Lawn or landscape trimmer or edger	27	0	0	\$1
533	Mulcher, grinder, or chipper	24	0	1	\$1
511	Combine or threshing machine	24	0	0	\$2
531	Lawn vacuum	24	0	0	\$2
522	Chain saw	21	0	0	\$0
538	Tiller or cultivator	17	0	0	\$1
532	Leaf blower	13	0	1	\$0
521	Farm or garden sprayer	6	0	0	\$2
535	Log splitter	6	0	0	\$0
518	Cream separator	2	0	3	\$0
516	Milking machine	2	0	0	\$0
536	Post-hole auger	2	0	0	\$0
517	Pasteurizer	0	0	0	\$0
537	Post driver or pile driver	0	0	0	\$0

⁷ Does not include 785 confined fires, including 321 welding torch fires (239 confined to trash); 222 confined cutting torch fires (178 confined to trash); 205 burner fires (133 confined to cooking vessel); and 38 soldering equipment fires (all confined to trash).

⁸ Does not include 45 confined fires or any of the typically far more numerous outdoor fires involving this equipment.

**Non-Home Structure Fires (Including Fires Coded as Confined Fires), by Equipment Involved in Ignition (EII)
Annual Average of 2007-2011 Structure Fires Reported to U.S. Fire Departments**

EII	Type of Equipment	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Millions)
OTHER APPLIANCES AND EQUIPMENT (Continued)					
310-318	Power tool ⁹	1,121	2	38	\$73
316	Power sander, grinder, buffer, or polisher	390	2	12	\$19
311	Power saw	225	0	5	\$13
310	Unclassified power tool	185	0	6	\$9
314	Power cutting tool	134	0	8	\$15
312	Power lathe	69	0	3	\$8
313	Power shaper, router, joiner, or planer	60	0	2	\$5
315	Power drill or screwdriver	57	0	2	\$4
317	Power hammer, including jackhammer	2	0	0	\$0
318	Power nail gun, stud driver or stapler	0	0	0	\$0
812	Trash compactor	770	0	1	\$1
	<i>Non-confined</i>	21	0	1	\$0
	<i>Confined to compactor</i>	666	0	0	\$1
	<i>Coded as confined to trash</i> ¹⁰	83	0	0	\$0
710-728	Office equipment ¹¹	632	0	11	\$42
710-716	Computers and related equipment	423	0	4	\$29
711	Computer	228	0	4	\$15
710	Unclassified computer device	94	0	0	\$8
715	Computer printer	50	0	0	\$3
714	Computer monitor	37	0	0	\$0
713	External computer modem	5	0	0	\$0
712	External computer storage device	5	0	0	\$2
716	Computer projection device	5	0	0	\$0

⁹ Does not include 252 confined fires (171 confined to trash).

¹⁰ Also included in total for confined to trash.

¹¹ Does not include 205 confined paper shredder fires (179 confined to trash) and 12 other office equipment confined fires.

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Annual Average of 2007-2011 Structure Fires Reported to U.S. Fire Departments**

EII	Type of Equipment	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Millions)
OTHER APPLIANCES AND EQUIPMENT (Continued)					
720-721, 723-728	Other office equipment excluding computer and telephone	184	0	7	\$12
720	Unclassified office equipment	58	0	2	\$10
726	Paper shredder	54	0	5	\$1
724	Copier	33	0	0	\$0
725	Fax machine	20	0	0	\$0
723	Cash register	17	0	0	\$0
728	Typewriter	2	0	0	\$0
727	Postage or shipping meter equipment	0	0	0	\$0
721	Adding machine or calculator	0	0	0	\$0
722	Telephone or answering machine	25	0	0	\$1
341-342, 344	Pump or compressor ¹²	606	0	12	\$52
341	Air compressor	382	0	5	\$36
344	Pump	202	0	7	\$8
342	Gas compressor	22	0	0	\$8
352	Incinerator	544	0	7	\$2
	<i>Non-confined</i>	37	0	2	\$1
	<i>Confined to incinerator</i>	496	0	4	\$1
	<i>Coded as confined to trash</i> ¹³	11	0	0	\$0
351	Heat treating equipment ¹⁴	404	0	7	\$47

¹² Does not include 20 confined fires.

¹³ Also counted under confined trash fires.

¹⁴ Does not include 250 confined fires.

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Annual Average of 2007-2011 Structure Fires Reported to U.S. Fire Departments**

EII	Type of Equipment	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Millions)
OTHER APPLIANCES AND EQUIPMENT (Continued)					
730-757	Entertainment equipment	429	0	2	\$18
753	Television	117	0	0	\$1
743	Radio	68	0	2	\$2
748	Stereo equipment	52	0	0	\$7
747	Separate audio speakers	51	0	0	\$4
741	Audio CD player	22	0	0	\$0
750	Unclassified video equipment	19	0	0	\$0
740	Sound recording or receiving equipment	18	0	0	\$3
754	VCR or VCR/TV combination	18	0	0	\$0
752	Film, slide or overhead projector	15	0	0	\$0
755	Electronic video game	15	0	0	\$0
732	Piano or organ	14	0	0	\$1
757	Photographic camera and equipment	7	0	0	\$0
730	Unclassified musical instrument	5	0	0	\$0
744	Two-way radio	3	0	0	\$0
749	Tape recorder or player	3	0	0	\$0
733	Musical synthesizer or keyboard	2	0	0	\$0
731	Guitar	0	0	0	\$0
742	Laser disk player	0	0	0	\$0
745	Phonograph, turntable or record player	0	0	0	\$0
751	Cable converter box	0	0	0	\$0
756	Camcorder or video camera	0	0	0	\$0
353	Industrial furnace or kiln ¹⁵	322	0	10	\$33
374	Separate motor ¹⁶	253	3	7	\$46

¹⁵ Does not include 123 confined fires.

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EII	Type of Equipment	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Millions)
OTHER APPLIANCES AND EQUIPMENT (Continued)					
410-419	Biomedical equipment ¹⁷	260	2	19	\$11
410	Unclassified medical equipment	63	0	7	\$3
416	Oxygen administration equipment	41	2	10	\$1
419	Therapeutic equipment	32	0	0	\$1
418	Medical sterilizer	26	0	0	\$1
412	Unclassified dental equipment	26	0	2	\$2
411	Dental, medical, or other powered bed or chair	25	0	0	\$0
414	Medical imaging equipment	24	0	0	\$1
417	X-ray or other radiological equipment	16	0	0	\$2
415	Medical monitoring equipment	7	0	0	\$0
413	Dialysis equipment	0	0	0	\$0
850-855	Portable appliance designed to produced controlled heat ¹⁸	256	3	10	\$11
850	Unclassified portable appliance designed to produce controlled heat	167	3	3	\$9
855	Clothes iron	48	0	7	\$1
852	Electric blanket	19	0	0	\$1
853	Heating pad	15	0	0	\$1
854	Clothes steamer	8	0	0	\$0
851	Baby bottle warmer	0	0	0	\$0

¹⁶ Does not include 24 confined fires.

¹⁷ Does not include 90 confined fires (75 confined to trash).

¹⁸ Does not include 84 confined fires (23 confined to trash).

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Annual Average of 2007-2011 Structure Fires Reported to U.S. Fire Departments**

EII	Type of Equipment	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Millions)
OTHER APPLIANCES AND EQUIPMENT (Continued)					
320-325	Painting or coating equipment ¹⁹	211	0	4	\$38
324	Paint sprayer	51	0	0	\$11
325	Coating machine	51	0	0	\$5
320	Unclassified painting tool	50	0	0	\$9
322	Paint flow coating machine	39	0	9	\$12
323	Paint mixing machine	11	0	0	\$1
321	Paint dipper	9	0	0	\$0
873, 877	Cigarette, pipe or novelty lighter ²⁰	207	5	13	\$4
361	Conveyor ²¹	193	0	8	\$17
433	Elevator or lift	173	0	13	\$3
355	Casting, molding and forging equipment ²²	162	0	11	\$231
358	Extractor or waste recovery machine ²³	129	0	6	\$15
340	Unclassified hydraulic equipment	119	0	4	\$12
450	Unclassified laboratory equipment ²⁴	100	0	6	\$24
376	Printing press	98	0	10	\$7

¹⁹ Does not include 40 confined fires.

²⁰ Does not include 358 confined fires. The cigarette lighter fire problem is more completely captured under Heat Source than under Equipment Involved in Ignition. Based on Heat Source, in 2007-2011, there were an estimated 5,296 reported non-home structure lighter fires per year, with associated losses of 18 civilian deaths, 153 civilian injuries, and \$125 million in direct property damage.

²¹ Does not include 179 confined fires (130 confined to trash).

²² Does not include 31 confined fires.

²³ Does not include 161 confined fires (93 confined to trash).

²⁴ Does not include 87 confined fires.

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EII	Type of Equipment	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Millions)
OTHER APPLIANCES AND EQUIPMENT (Continued)					
830-834	Floor care equipment ²⁵	93	0	1	\$2
834	Vacuum cleaner	34	0	0	\$0
833	Floor buffer, waxer, or cleaner	27	0	1	\$0
830	Unclassified floor care equipment	17	0	0	\$1
832	Carpet cleaning equipment	11	0	0	\$0
831	Electric broom	4	0	0	\$0
373, 861- 864, 866, 868, 876	Control and detection equipment ²⁶	86	0	2	\$17
866	Smoke, fire or heat detection or alarm equipment	16	0	0	\$0
863	Garage door opener	13	0	0	\$0
373	Gas regulator	11	0	0	\$0
868	Thermostat	9	0	0	\$0
876	Timer	8	0	0	\$1
862	Burglar alarm	2	0	0	\$0
864	Gas detector	1	0	0	\$0
861	Automatic door opener other than garage door opener	0	0	0	\$0
375	Internal combustion engine	81	0	0	\$5
443	Vending machine	75	0	0	\$1
346	Hoist or lift	71	0	2	\$6
445	Water fountain or water cooler	61	0	0	\$8
345	Wet/dry or shop vacuum	57	0	2	\$3

²⁵ Does not include 24 confined fires.

²⁶ Does not include 20 confined fires.

**Non-Home Structure Fires (Including Fires Coded as Confined Fires), by Equipment Involved in Ignition (EII)
Annual Average of 2007-2011 Structure Fires Reported to U.S. Fire Departments**

EII	Type of Equipment	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Millions)
OTHER APPLIANCES AND EQUIPMENT (Continued)					
841-849	Personal care devices	55	0	1	\$1
845	Hair dryer	20	0	0	\$0
842	Curling iron	14	0	1	\$0
848	Sun lamp or tanning equipment	13	0	0	\$0
844	Hair curler warmer	5	0	0	\$0
843	Electrolysis equipment	2	0	0	\$0
847	Razor or shaver	1	0	0	\$0
846	Lighted makeup mirror	0	0	0	\$0
841	Comb or hair brush	0	0	0	\$0
849	Electric toothbrush	0	0	0	\$0
348	Drilling machinery or equipment	51	0	2	\$2
365	Bearing or brake	48	0	0	\$6
821	Hot tub, whirlpool, or spa	40	0	0	\$1
354	Tar pot or tar kettle	37	0	3	\$0
377	Car washing equipment	35	0	0	\$2
822	Swimming pool equipment	31	0	0	\$0
372	Testing equipment	26	0	0	\$3
362	Power transfer equipment (rope, cable, and block)	26	0	0	\$1
871	Ashtray	26	0	2	\$15
371	Picking, carding, or weaving machine	22	0	0	\$1
423	TV monitor array	18	0	0	\$1
431	Amusement ride equipment	18	0	0	\$1
343	Atomizing equipment	16	0	2	\$0
872	Charcoal lighter	16	3	2	\$0
442	Photo processing equipment	15	0	0	\$0
882	Powered toy	15	0	1	\$0
357	Digester or reactor	13	0	1	\$1
422	Telephone switching gear	13	0	0	\$1
883	Woodburning kit	12	0	0	\$1
895	Sewing machine	11	0	0	\$0

**Non-Home Structure Fires (Including Fires Coded as Confined Fires), by Equipment Involved in Ignition (EII)
Annual Average of 2007-2011 Structure Fires Reported to U.S. Fire Departments**

EII	Type of Equipment	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Millions)
OTHER APPLIANCES AND EQUIPMENT (Continued)					
356	Distilling equipment	11	0	2	\$0
891	Clock	9	0	0	\$0
881	Model vehicle	8	0	1	\$0
421	Transmitter	7	0	0	\$0
347	Powered jacking equipment	6	0	0	\$0
444	Non-video arcade game	6	0	0	\$0
441	Microfilm or microfiche viewing equipment	6	0	0	\$0
425	Studio type sound recording equipment	4	0	0	\$0
424	Studio type TV camera	4	0	0	\$0
897	Sterilizer	3	0	0	\$0
874	Fire extinguishing equipment	3	0	0	\$0
894	Scissors	2	0	0	\$0
434	Escalator	2	0	0	\$0
896	Shoe polisher	2	0	0	\$0
892	Gun	2	0	0	\$0
426	Radar equipment	2	0	0	\$0
875	Insect trap	1	0	0	\$0
	<i>Contained trash or rubbish fire</i>	<i>25,336</i>	<i>0</i>	<i>36</i>	<i>\$3</i>
000	Unclassified equipment	1,562	7	36	\$192
NNN	Non-confined fires with no equipment involved and non-equipment heat source cited	29,681	112	590	\$1,057
Total		131,947	224	2,014	\$3,442

**Non-Home Structure Fires (Including Fires Coded as Confined Fires), by Equipment Involved in Ignition (EII)
Annual Average of 2007-2011 Structure Fires Reported to U.S. Fire Departments**

EII	Type of Equipment	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Millions)
OTHER APPLIANCES AND EQUIPMENT (Continued)					
Additional equipment with no reported non-home structure fires in 2007-2011					
Equipment Involved in Ignition					
363	Power take-off				
364	Powered video				
432	Ski lift				
446	Telescope				
451	Electron microscope				
893	Jewelry cleaning machine				

Notes on Formats: Types and groups of equipment whose names are indented are parts of the equipment group they are listed under. Equipment types that belong to a listed group are shown with that group, even if they had no reported fires estimated for the period.

Notes on Statistical Methodology: These are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. National estimates are projections. Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Fires and civilian deaths and injuries are rounded to the nearest one, and direct property damage is rounded to the nearest million dollars. Damage has not been adjusted for inflation. Figures reflect a proportional share of home fires with equipment involved in ignition unknown, and partial unknowns have been allocated as indicated below. Fires reported as “no equipment” but lacking a confirming specific heat source (codes 40-99) are also treated as unknown equipment and allocated. Fires reported as “no equipment” and having a confirming specific heat source are not shown on the table. Totals may not equal sums because of rounding error.

Notes on Allocations: Equipment Involved in Ignition 100, 200, 300, 400, 500, 600, 700, and 800 are partial unknowns that are proportionally allocated over the known equipment categories defined by the same initial digit (e.g., EII 100 over 101-199). Incident Type 113 (confined cooking vessel fires) are allocated over all known equipment codes, with the fires allocated to cooking equipment shown with those equipment types and the other fires shown together as fires confined to cooking vessel but coded as non-cooking equipment. Incident Types 114 and 116 (confined chimney and boiler fires) are similarly and separately allocated over all known equipment codes, with the fires allocated to heating equipment shown with those equipment types and the other fires shown together as fires confined to heating equipment but coded as non-heating equipment. Incident Types 115 (confined to incinerator) and 117 (confined to trash compactor) are shown with those two types of equipment. Incident Type 118 (confined trash fire) is shown by itself.

Source: NFIRS Version 5.0 and NFPA survey.

Appendix A.

How National Estimates Statistics Are Calculated

The statistics in this analysis are estimates derived from the U.S. Fire Administration's (USFA's) National Fire Incident Reporting System (NFIRS) and the National Fire Protection Association's (NFPA's) annual survey of U.S. fire departments. NFIRS is a voluntary system by which participating fire departments report detailed factors about the fires to which they respond. Roughly two-thirds of U.S. fire departments participate, although not all of these departments provide data every year. Fires reported to federal or state fire departments or industrial fire brigades are not included in these estimates.

NFIRS provides the most detailed incident information of any national database not limited to large fires. NFIRS is the only database capable of addressing national patterns for fires of all sizes by specific property use and specific fire cause. NFIRS also captures information on the extent of flame spread, and automatic detection and suppression equipment. For more information about NFIRS visit <http://www.nfirs.fema.gov/>. Copies of the paper forms may be downloaded from http://www.nfirs.fema.gov/documentation/design/NFIRS_Paper_Forms_2008.pdf.

NFIRS has a wide variety of data elements and code choices. The NFIRS database contains coded information. Many code choices describe several conditions. These cannot be broken down further. For example, area of origin code 83 captures fires starting in vehicle engine areas, running gear areas or wheel areas. It is impossible to tell the portion of each from the coded data.

Methodology may change slightly from year to year.

NFPA is continually examining its methodology to provide the best possible answers to specific questions, methodological and definitional changes can occur. *Earlier editions of the same report may have used different methodologies to produce the same analysis, meaning that the estimates are not directly comparable from year to year.*

NFPA's fire department experience survey provides estimates of the big picture.

Each year, NFPA conducts an annual survey of fire departments which enables us to capture a summary of fire department experience on a larger scale. Surveys are sent to all municipal departments protecting populations of 50,000 or more and a random sample, stratified by community size, of the smaller departments. Typically, a total of roughly 3,000 surveys are returned, representing about one of every ten U.S. municipal fire departments and about one third of the U.S. population.

The survey is stratified by size of population protected to reduce the uncertainty of the final estimate. Small rural communities have fewer people protected per department and are less likely to respond to the survey. A larger number must be surveyed to obtain an adequate sample of those departments. (NFPA also makes follow-up calls to a sample of the smaller fire departments that do not respond, to confirm that those that did respond are truly representative of fire departments their size.) On the other hand, large city

departments are so few in number and protect such a large proportion of the total U.S. population that it makes sense to survey all of them. Most respond, resulting in excellent precision for their part of the final estimate.

The survey includes the following information: (1) the total number of fire incidents, civilian deaths, and civilian injuries, and the total estimated property damage (in dollars), for each of the major property use classes defined in NFIRS; (2) the number of on-duty firefighter injuries, by type of duty and nature of illness; (3) the number and nature of non-fire incidents; and (4) information on the type of community protected (e.g., county versus township versus city) and the size of the population protected, which is used in the statistical formula for projecting national totals from sample results. The results of the survey are published in the annual report *Fire Loss in the United States*. To download a free copy of the report, visit <http://www.nfpa.org/assets/files/PDF/OS.fireloss.pdf>.

Projecting NFIRS to National Estimates

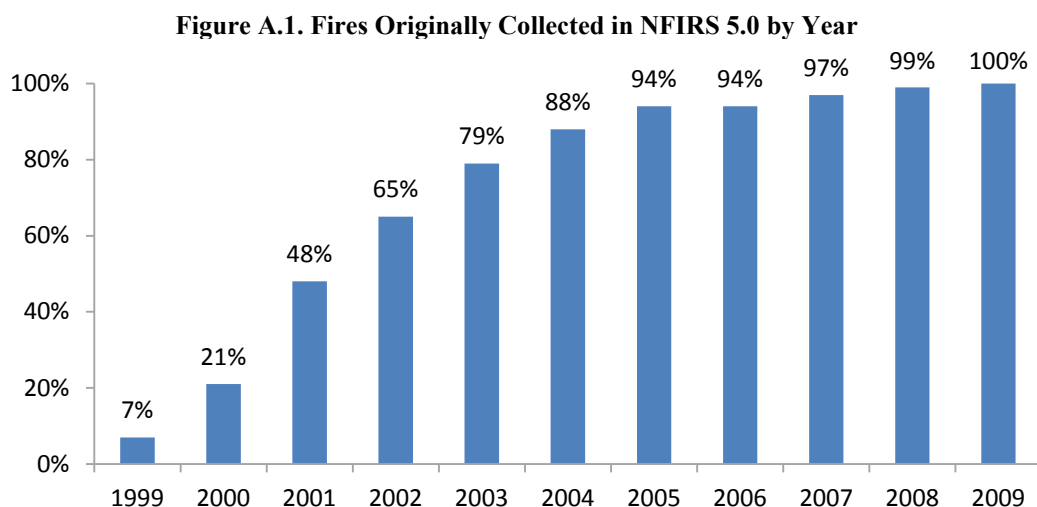
As noted, NFIRS is a voluntary system. Different states and jurisdictions have different reporting requirements and practices. Participation rates in NFIRS are not necessarily uniform across regions and community sizes, both factors correlated with frequency and severity of fires. This means NFIRS may be susceptible to systematic biases. No one at present can quantify the size of these deviations from the ideal, representative sample, so no one can say with confidence that they are or are not serious problems. But there is enough reason for concern so that a second database -- the NFPA survey -- is needed to project NFIRS to national estimates and to project different parts of NFIRS separately. This multiple calibration approach makes use of the annual NFPA survey where its statistical design advantages are strongest.

Scaling ratios are obtained by comparing NFPA's projected totals of residential structure fires, non-residential structure fires, vehicle fires, and outside and other fires, and associated civilian deaths, civilian injuries, and direct property damage with comparable totals in NFIRS. Estimates of specific fire problems and circumstances are obtained by multiplying the NFIRS data by the scaling ratios. Reports for incidents in which mutual aid was given are excluded from NFPA's analyses.

Analysts at the NFPA, the USFA and the Consumer Product Safety Commission developed the specific basic analytical rules used for this procedure. "The National Estimates Approach to U.S. Fire Statistics," by John R. Hall, Jr. and Beatrice Harwood, provides a more detailed explanation of national estimates. A copy of the article is available online at <http://www.nfpa.org/osds> or through NFPA's One-Stop Data Shop.

Version 5.0 of NFIRS, first introduced in 1999, used a different coding structure for many data elements, added some property use codes, and dropped others. The essentials of the approach described by Hall and Harwood are still used, but some modifications have been necessary to accommodate the changes in NFIRS 5.0.

Figure A.1 shows the percentage of fires originally collected in the NFIRS 5.0 system. Each year's release version of NFIRS data also includes data collected in older versions of NFIRS that were converted to NFIRS 5.0 codes.



From 1999 data on, analyses are based on scaling ratios using only data originally collected in NFIRS 5.0:

$$\frac{\text{NFPA survey projections}}{\text{NFIRS totals (Version 5.0)}}$$

For 1999 to 2001, the same rules may be applied, but estimates for these years in this form will be less reliable due to the smaller amount of data originally collected in NFIRS 5.0; they should be viewed with extreme caution.

NFIRS 5.0 introduced six categories of confined structure fires, including:

- cooking fires confined to the cooking vessel,
- confined chimney or flue fires,
- confined incinerator fire,
- confined fuel burner or boiler fire or delayed ignition,
- confined commercial compactor fire, and
- trash or rubbish fires in a structure with no flame damage to the structure or its contents.

Although causal and other detailed information is typically not required for these incidents, it is provided in some cases. Some analyses, particularly those that examine cooking equipment, heating equipment, fires caused by smoking materials, and fires started by playing with fire, may examine the confined fires in greater detail. Because the confined fire incident types describe certain scenarios, the distribution of unknown data differs from that of all fires. Consequently, allocation of unknowns must be done separately.

Some analyses of structure fires show only non-confined fires. In these tables, percentages shown are of non-confined structure fires rather than all structure fires. This approach has the advantage of showing the frequency of specific factors in fire causes, but the disadvantage of possibly overstating the percentage of factors that are seldom seen in the confined fire incident types and of understating the factors specifically associated with the confined fire incident types.

Other analyses include entries for confined fire incident types in the causal tables and show percentages based on total structure fires. In these cases, the confined fire incident type is treated as a general causal factor.

For most fields other than Property Use and Incident Type, NFPA allocates unknown data proportionally among known data. This approach assumes that if the missing data were known, it would be distributed in the same manner as the known data. NFPA makes additional adjustments to several fields. *Casualty and loss projections can be heavily influenced by the inclusion or exclusion of unusually serious fire.*

In the formulas that follow, the term “all fires” refers to all fires in NFIRS on the dimension studied. The percentages of fires with known or unknown data are provided for non-confined fires and associated losses, and for confined fires only.

Cause of Ignition: This field is used chiefly to identify intentional fires. “Unintentional” in this field is a specific entry and does not include other fires that were not intentionally set: failure of equipment or heat source, act of nature, or “other” (unclassified).” The last should be used for exposures but has been used for other situations as well. Fires that were coded as under investigation and those that were coded as undetermined after investigation were treated as unknown.

Factor Contributing to Ignition: In this field, the code “none” is treated as an unknown and allocated proportionally. For Human Factor Contributing to Ignition, NFPA enters a code for “not reported” when no factors are recorded. “Not reported” is treated as an unknown, but the code “none” is treated as a known code and not allocated. Multiple entries are allowed in both of these fields. Percentages are calculated on the total number of fires, not entries, resulting in sums greater than 100%. Although Factor Contributing to Ignition is only required when the cause of ignition was coded as: 2) unintentional, 3) failure of equipment or heat source; or 4) act of nature, data is often present when not required. Consequently, any fire in which no factor contributing to ignition was entered was treated as unknown.

In some analyses, all entries in the category of mechanical failure, malfunction (factor contributing to ignition 20-29) are combined and shown as one entry, “mechanical failure or malfunction.” This category includes:

- 21. Automatic control failure;
- 22. Manual control failure;
- 23. Leak or break. Includes leaks or breaks from containers or pipes. Excludes operational deficiencies and spill mishaps;
- 25. Worn out;

- 26. Backfire. Excludes fires originating as a result of hot catalytic converters;
- 27. Improper fuel used; Includes the use of gasoline in a kerosene heater and the like; and
- 20. Mechanical failure or malfunction, other.

Entries in “electrical failure, malfunction” (factor contributing to ignition 30-39) may also be combined into one entry, “electrical failure or malfunction.” This category includes:

- 31. Water-caused short circuit arc;
- 32. Short-circuit arc from mechanical damage;
- 33. Short-circuit arc from defective or worn insulation;
- 34. Unspecified short circuit arc;
- 35. Arc from faulty contact or broken connector, including broken power lines and loose connections;
- 36. Arc or spark from operating equipment, switch, or electric fence;
- 37. Fluorescent light ballast; and
- 30. Electrical failure or malfunction, other.

Heat Source. In NFIRS 5.0, one grouping of codes encompasses various types of open flames and smoking materials. In the past, these had been two separate groupings. A new code was added to NFIRS 5.0, which is code 60: “Heat from open flame or smoking material, other.” NFPA treats this code as a partial unknown and allocates it proportionally across the codes in the 61-69 range, shown below.

- 61. Cigarette;
- 62. Pipe or cigar;
- 63. Heat from undetermined smoking material;
- 64. Match;
- 65. Lighter: cigarette lighter, cigar lighter;
- 66. Candle;
- 67. Warning or road flare, fuse;
- 68. Backfire from internal combustion engine. Excludes flames and sparks from an exhaust system, (11); and
- 69. Flame/torch used for lighting. Includes gas light and gas-/liquid-fueled lantern.

In addition to the conventional allocation of missing and undetermined fires, NFPA multiplies fires with codes in the 61-69 range by

$$\frac{\text{All fires in range 60-69}}{\text{All fires in range 61-69}}$$

The downside of this approach is that heat sources that are truly a different type of open flame or smoking material are erroneously assigned to other categories. The grouping “smoking materials” includes codes 61-63 (cigarettes, pipes or cigars, and heat from undetermined smoking material, with a proportional share of the code 60s and true unknown data.

Equipment Involved in Ignition (EII). NFIRS 5.0 originally defined EII as the piece of equipment that provided the principal heat source to cause ignition if the equipment malfunctioned or was used improperly. In 2006, the definition was modified to “the piece of equipment that provided the principal heat source to cause ignition.” However, much of the data predates the change. Individuals who have already been trained with the older definition may not change their practices. To compensate, NFPA treats fires in which EII = NNN and heat source is not in the range of 40-99 as an additional unknown.

To allocate unknown data for EII, the known data is multiplied by

$$\frac{\text{All fires}}{(\text{All fires} - \text{blank} - \text{undetermined} - [\text{fires in which EII} = \text{NNN and heat source} \in 40-99])}$$

In addition, the partially unclassified codes for broad equipment groupings (i.e., code 100 - heating, ventilation, and air conditioning, other; code 200 - electrical distribution, lighting and power transfer, other; etc.) were allocated proportionally across the individual code choices in their respective broad groupings (heating, ventilation, and air conditioning; electrical distribution, lighting and power transfer, other; etc.). Equipment that is totally unclassified is not allocated further. This approach has the same downside as the allocation of heat source 60 described above. Equipment that is truly different is erroneously assigned to other categories.

In some analyses, various types of equipment are grouped together.

Code Grouping	EII Code	NFIRS definitions
Central heat	132	Furnace or central heating unit
	133	Boiler (power, process or heating)
Fixed or portable space heater	131	Furnace, local heating unit, built-in
	123	Fireplace with insert or stove
	124	Heating stove
	141	Heater, excluding catalytic and oil-filled
	142	Catalytic heater
	143	Oil-filled heater
Fireplace or chimney	120	Fireplace or chimney
	121	Fireplace, masonry
	122	Fireplace, factory-built
	125	Chimney connector or vent connector
	126	Chimney – brick, stone or masonry
	127	Chimney-metal, including stovepipe or flue
Fixed wiring and related equipment	210	Unclassified electrical wiring
	211	Electrical power or utility line
	212	Electrical service supply wires from utility
	213	Electric meter or meter box
	214	Wiring from meter box to circuit breaker
	215	Panel board, switch board or circuit breaker board
	216	Electrical branch circuit
	217	Outlet or receptacle
	218	Wall switch
	219	Ground fault interrupter

Transformers and power supplies	221	Distribution-type transformer
	222	Overcurrent, disconnect equipment
	223	Low-voltage transformer
	224	Generator
	225	Inverter
	226	Uninterrupted power supply (UPS)
	227	Surge protector
	228	Battery charger or rectifier
	229	Battery (all types)
Lamp, bulb or lighting	230	Unclassified lamp or lighting
	231	Lamp-tabletop, floor or desk
	232	Lantern or flashlight
	233	Incandescent lighting fixture
	234	Fluorescent light fixture or ballast
	235	Halogen light fixture or lamp
	236	Sodium or mercury vapor light fixture or lamp
	237	Work or trouble light
	238	Light bulb
	241	Nightlight
	242	Decorative lights – line voltage
	243	Decorative or landscape lighting – low voltage
	244	Sign
Cord or plug	260	Unclassified cord or plug
	261	Power cord or plug, detachable from appliance
	262	Power cord or plug- permanently attached
	263	Extension cord
Torch, burner or soldering iron	331	Welding torch
	332	Cutting torch
	333	Burner, including Bunsen burners
	334	Soldering equipment
Portable cooking or warming equipment	631	Coffee maker or teapot
	632	Food warmer or hot plate
	633	Kettle
	634	Popcorn popper
	635	Pressure cooker or canner
	636	Slow cooker
	637	Toaster, toaster oven, counter-top broiler
	638	Waffle iron, griddle
	639	Wok, frying pan, skillet
	641	Breadmaking machine

Equipment was not analyzed separately for confined fires. Instead, each confined fire incident type was listed with the equipment or as other known equipment.

Item First Ignited. In most analyses, mattress and pillows (item first ignited 31) and bedding, blankets, sheets, and comforters (item first ignited 32) are combined and shown as “mattresses and bedding.” In many analyses, wearing apparel not on a person (code 34) and wearing apparel on a person (code 35) are combined and shown as “clothing.” In some analyses, flammable and

combustible liquids and gases, piping and filters (item first ignited 60-69) are combined and shown together.

Area of Origin. Two areas of origin: bedroom for more than five people (code 21) and bedroom for less than five people (code 22) are combined and shown as simply “bedroom.” Chimney is no longer a valid area of origin code for non-confined fires.

Rounding and percentages. The data shown are estimates and generally rounded. An entry of zero may be a true zero or it may mean that the value rounds to zero. Percentages are calculated from unrounded values. It is quite possible to have a percentage entry of up to 100% even if the rounded number entry is zero. The same rounded value may account for a slightly different percentage share. Because percentages are expressed in integers and not carried out to several decimal places, percentages that appear identical may be associated with slightly different values.