

**Reported Structure Fires
by Extent of Fire Spread, Occupancy and Loss Rates**

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Abstract

Most structure reported to local fire departments in the U.S. are small, according to data from local fire departments. Three-quarters of reported structure fires are confined to the room of origin. One in five fire deaths and more than half of the civilian injuries resulted from these fires. However, the percentage of fires that stay this small varies by occupancy. This analysis uses data from the U.S. Fire Administration's National Fire Incident Reporting System (NFIRS) and NFPA's annual fire department experience survey to estimate the number of fires and associated losses with different extents of fire spread in different occupancies. Civilian deaths and injuries per 1,000 reported fires and average loss per fire are also shown for the different occupancies and for difference size fires.

Acknowledgements

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We are also grateful to the U.S. Fire Administration for its work in developing, coordinating, and maintaining NFIRS.

Keywords:

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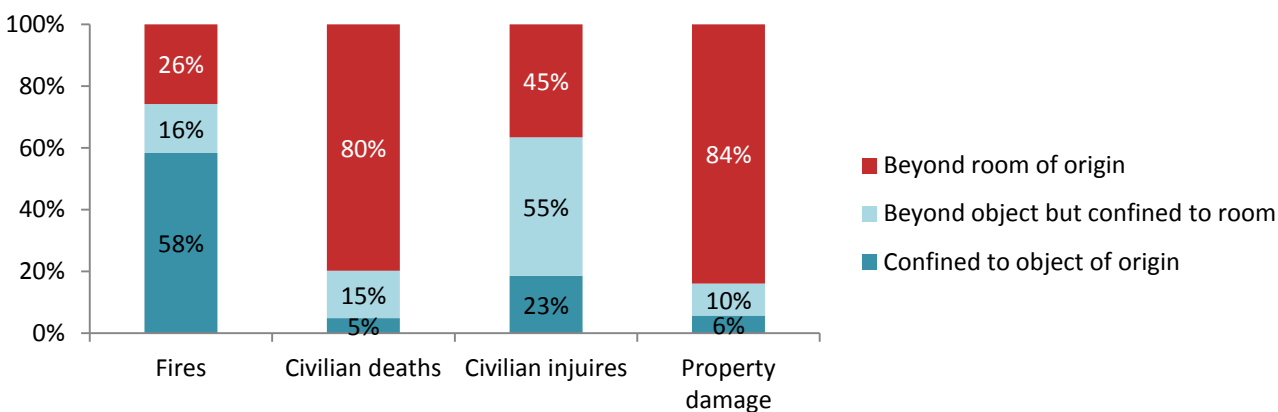
Reported Structure Fires by Extent of Fire Spread, Occupancy Group and Loss Rates

Most structure reported to local fire departments in the U.S. are small, according to data from local fire departments. This analysis uses data from the U.S. Fire Administration's National Fire Incident Reporting System (NFIRS) and NFPA's annual fire department experience survey to estimate the number of fires and associated losses with different extents of fire spread. Different patterns are seen in different occupancies. Civilian deaths and injuries per 1,000 reported fires and average loss per fire are also shown for the different occupancies, and for difference size fires. See "[Structure Fires by Occupancy](#)" for estimates of total fires and losses by specific occupancy.

Figure 1 shows the percentage distribution of reported structure fires that were confined to the object of origin (including all structure fires with NFIRS incident types indicating a confined fire), those that spread beyond the object of origin but were limited to the room of origin, and those that spread beyond the room of origin. NFIRS confined fire incident types are used to describe cooking fires confined to the vessel of origin, confined chimney or flue fires, confined trash fires, confined fuel burner or boiler fires, confined commercial compactor fires, and confined incinerator fires.

Roughly three out of five structure fires were confined to the object of origin, with an additional 16% extending beyond the object but confined to the room of origin. Taken together, three-quarters of reported structure fires are confined to the room of origin. One in five fire deaths and more than half of the civilian injuries resulted from these fires. See [Table 1](#) for more details.

Figure 1. Reported Structure Fires by Extent of Fire Spread: 2007-2011



[Table 2](#) shows the percentage of fires by occupancy group that were confined to the object of origin, [Table 3](#) shows the percentage that were confined to the object or room of origin, and [Table 4](#) shows the percentage in which fire spread beyond the room of origin.

[Figure 2](#) shows the extent of flame spread by broad occupancy category. In institutional properties, 86% of the fires were confined to the object of origin and 96%, in total, were confined to the room of origin. In educational properties, 79% were confined to the object of origin, 92%, in total were confined to the room of origin, and only 8% extended beyond the room of origin. Damage was most likely to spread in storage properties. In these properties, the fire was confined to the object of origin in 22% of the fires, to the room of origin in 9%, but it spread beyond the room of origin in 69%.

Data Sources, Definitions and Conventions Used in this Report

Unless otherwise specified, the statistics in this analysis 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. The 2007-2011 estimates are projections based on the detailed information collected in Version 5.0 of the U.S. Fire Administration's National Fire Incident Reporting System (NFIRS 5.0) and the National Fire Protection Association's (NFPA's) annual fire department experience survey. Except for property use and incident type, fires with unknown or unreported data were allocated proportionally in calculations of national estimates.

In general, any fire that occurs in or on a structure is considered a structure fire, even if the fire was limited to contents and the building itself was not damaged.

What are “confined fires identified by incident type?”

NFIRS 5.0 includes a category of structure fires collectively referred to as “confined fires,” identified by incident type. These include confined cooking fires, confined chimney or flue fires, confined trash fires, confined fuel burner or boiler fires, confined commercial compactor fires, and confined incinerator fires (incident type 113-118). Losses are generally minimal in these fires, which by definition are assumed to have been limited to the object of origin.

Occupancy groups are based on NFIRS.

Tables showing a breakdown by occupancy include one or two digit codes. NFIRS has three digit occupancy code choices that can be grouped into broad categories by the first digit and into subgroups but using the first two digits. Estimates based on the broad categories and subgroups are shown. For the full listing of choices, see the Property Use Codes (Occupancy) in the [National Fire Incident Reporting System 5.0 Complete Reference Guide](#), Section 3, pp. 48-53.

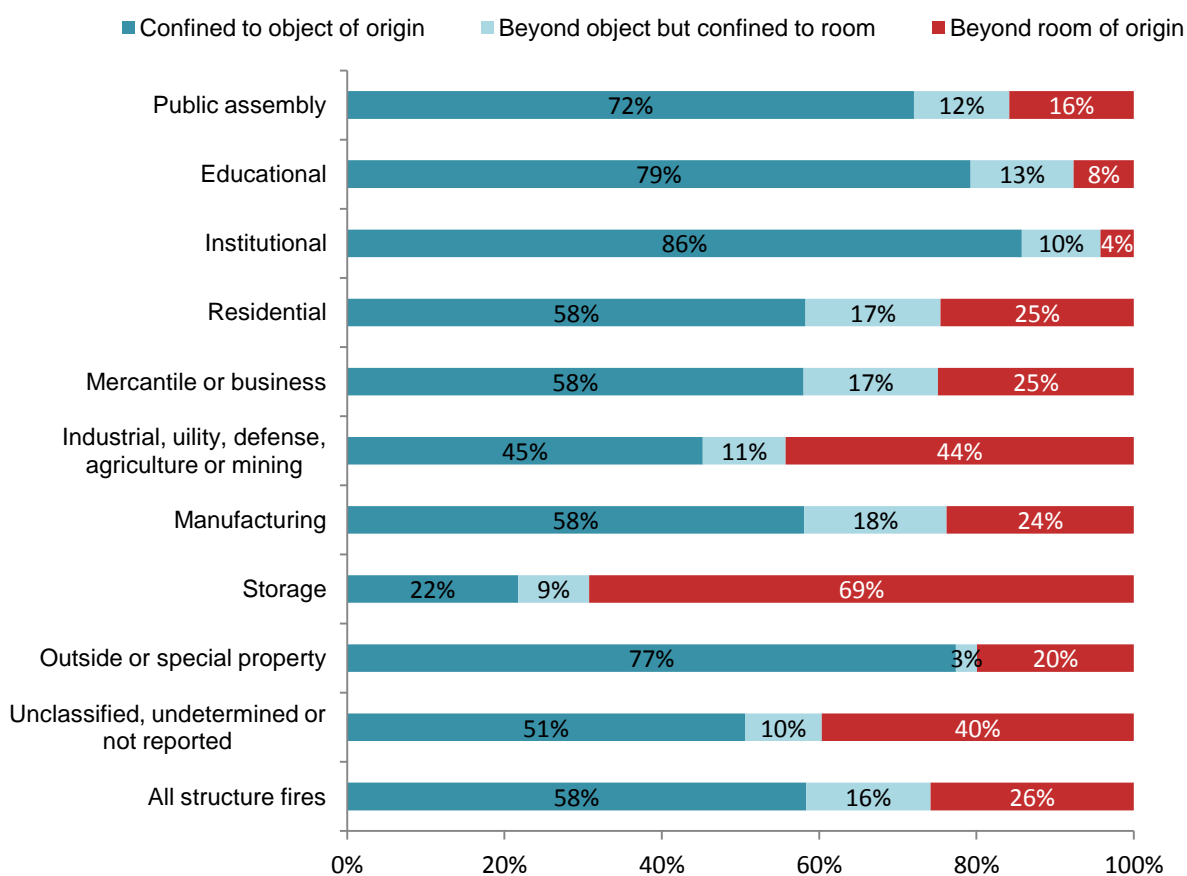
Additional information

Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Property damage has not been adjusted for inflation. Except for loss measures, fires are rounded to the nearest ten, civilian deaths and injuries are rounded to the nearest one, and direct property damage is rounded to the nearest million dollars. Average loss per fire is rounded to the nearest thousand dollars. Additional details on the methodology may be found in [Appendix A](#).

For a variety of reasons, minor fires may be more likely to be reported in some occupancy groups than others. Automatic fire alarms are required in some properties, but not others. Some have policies that encourage fire department notification for the smallest fires. Confined cooking fires are by far the most common type of reported structure fire. Such fires are less common in storage properties.

Note that the extent of fire spread is a more meaningful measure for some properties and some fires than others. Some structures, such as warehouses, sheds or garages, may have large open space or a single room. Fires that begin on the exterior or in concealed spaces are not as easily classified as confined to or extending beyond room of origin.

Figure 2. Reported Structure Fires by Occupancy Category and Extent of Fire Spread 2007-2011



Civilian death and injury rates per 1,000 reported fires are highest in residential fires.

Table A shows that residential properties, including homes (one- or two-family homes [including manufactured housing] and apartments or other multi-family housing), hotels or motels, dormitories or barracks, boarding houses, and assisted living or board and care facilities, had a death rate of 6.9 civilian deaths per 1,000 reported structure fires, the highest rate of any occupancy category. More detail is provided in Table 5, which shows that one-or two family homes had a death rate of 8.3 deaths per 1,000 fires, the highest rate in residential properties. Note that some occupancies shown in Table 5 may have unusually high loss rates due to one serious fire among a comparatively small number of total fires. Also, some occupancies have unusually expensive equipment or contents, resulting in large losses even from comparatively small fires.

Table A.
Civilian Casualty Rates per 1,000 Reported Structure Fires and Average Loss per Fire
By Occupancy 2007-2011 Annual Averages

Occupancy	Deaths per 1,000 fires	Injuries per 1,000 fires	Average loss per fire
Public assembly	0.4	11.8	\$29,000
Educational	0.1	14.9	\$16,000
Institutional	0.8	25.3	\$8,000
Residential	6.9	35.0	\$19,000
Mercantile or business	1.2	18.3	\$46,000
Industrial, utility, defense, agriculture or mining	1.4	18.0	\$81,000
Manufacturing	1.2	32.1	\$112,000
Storage	1.4	13.0	\$28,000
Outside or special property	0.7	5.1	\$4,000
Unclassified or unknown property use	1.5	11.0	\$17,000
Total	5.6	30.5	\$21,000

Source: NFIRS and NFPA survey.

Residential properties had the highest rate of civilian injuries per 1,000 fires, although fires in manufacturing properties were not far behind. Fires in manufacturing properties had the highest average loss per fire.

Table 6 shows the loss rates by occupancy group for fires confined to the object of origin, Table 7 shows comparable rates for fires that were confined to the object *or* room of origin, and Table 8 shows loss rates for fires that spread beyond the room of origin. The civilian death rate per 1,000 structure fires was 0.5 from fires confined to the object of origin, 1.5 from fires that were confined to the object *or* room of origin, and 17.3 for fires that extended beyond the room of origin.

The civilian injury rate per 1,000 reported structure fires was 12.0 from fires confined to the object of origin, 22.7 from fires that were confined to the object *or* room of origin, and 53.1 for fires that extended beyond the room of origin.

The average direct property loss was \$2,000 from fires confined to the object of origin, \$5,000 from fires that were confined to the object *or* room of origin, and \$69,000 for fires that extended beyond the room of origin.

Table 1.
Reported Structure Fires by Extent of Fire Spread
2007-2011 Annual Averages

Extent of Fire Spread	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Confined fire identified by incident type	228,000	(46%)	1	(0%)	2,037	(13%)	\$57	(1%)
Confined to object of origin	62,830	(13%)	138	(5%)	1,440	(9%)	\$551	(5%)
Confined to room of origin	78,870	(16%)	427	(15%)	4,899	(32%)	\$1,105	(10%)
Confined to floor of origin	22,110	(4%)	281	(10%)	1,569	(10%)	\$840	(8%)
Confined to building of origin	88,340	(18%)	1,560	(56%)	4,307	(28%)	\$6,375	(60%)
Extended beyond building of origin	18,360	(4%)	392	(14%)	969	(6%)	\$1,722	(16%)
Total	498,500	(100%)	2,798	(100%)	15,221	(100%)	\$10,650	(100%)
Confined fire or confined to object	290,820	(58%)	138	(5%)	3,477	(23%)	\$608	(6%)
Confined to object or room	369,700	(74%)	565	(20%)	8,376	(55%)	\$1,713	(16%)
Extended beyond room	128,800	(26%)	2,233	(80%)	6,845	(45%)	\$8,937	(84%)

Note: Sums may not equal totals due to rounding errors.

Source: NFIRS and NFPA survey.

Table 2.
Reported Structure Fires Confined to Object of Origin, Including Fires with Confined Fire Incident Types
By Occupancy: 2007-2011 Annual Averages
(Percentages are calculated from total reported structure fires in each occupancy.)

Occupancy	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
1 - Public assembly	10,560	(72%)	0	(6%)	73	(42%)	\$23	(5%)
11 - Fixed use amusement or recreation	350	(64%)	0	(0%)	1	(25%)	\$1	(3%)
12 - Variable use or amusement or recreation	960	(79%)	0	NA	2	(27%)	\$1	(12%)
13 - Place of worship or funeral property	1,100	(62%)	0	(0%)	4	(20%)	\$3	(3%)
14 - Club	1,350	(81%)	0	(0%)	5	(49%)	\$2	(5%)
15 - Library, museum, courthouse or other public property	450	(75%)	0	(100%)	2	(34%)	\$2	(11%)
16 - Eating or drinking establishment	5,260	(70%)	0	(0%)	56	(49%)	\$13	(6%)
17 - Passenger terminal	680	(87%)	0	NA	1	(53%)	\$0	(29%)
18 - Studio or theatre	170	(72%)	0	NA	1	(19%)	\$0	(3%)
10 - Unclassified public assembly property	260	(68%)	0	(0%)	2	(29%)	\$1	(8%)
2 - Educational	4,510	(79%)	0	(0%)	32	(38%)	\$9	(10%)
21 - Preschool through grade 12	3,190	(79%)	0	NA	24	(35%)	\$6	(9%)
24 - Adult education or college classroom	570	(82%)	0	NA	2	(43%)	\$1	(13%)
25 - Day care	480	(82%)	0	(0%)	4	(55%)	\$1	(12%)
20 -Unclassified public educational property	270	(76%)	0	NA	1	(62%)	\$2	(20%)
3 - Institutional	5,850	(86%)	0	(5%)	97	(56%)	\$8	(14%)
31 - Nursing home	2,420	(88%)	0	(6%)	58	(59%)	\$2	(15%)
32 - Developmental disability, mental retardation or substance abuse	1,110	(90%)	0	(0%)	6	(42%)	\$2	(44%)
33 - Hospital or hospice	1,180	(89%)	0	(0%)	16	(51%)	\$2	(26%)
34 - Clinic or doctor's office	460	(69%)	0	NA	1	(24%)	\$1	(4%)
36 - Prison, jail or police station	380	(78%)	0	NA	13	(72%)	\$0	(10%)
30 - Unclassified institutional property	300	(85%)	0	NA	3	(55%)	\$1	(33%)

Table 2.
Reported Structure Fires Confined to Object of Origin, Including Fires with Confined Fire Incident Types
By Occupancy: 2007-2011 Annual Averages
(Percentages are calculated from total reported structure fires in each occupancy.) (Continued)

Occupancy	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
4 - Residential	228,890	(58%)	127	(5%)	3,036	(22%)	\$378	(5%)
41 - One-or-two-family home	130,470	(50%)	97	(5%)	1,678	(19%)	\$297	(5%)
42 - Apartment or multi-family dwelling	80,900	(76%)	19	(5%)	1,190	(28%)	\$56	(4%)
43 - Rooming or boarding house or residential hotel	2,340	(82%)	2	(9%)	27	(31%)	\$2	(5%)
44 - Hotel or motel	2,590	(72%)	2	(17%)	50	(36%)	\$5	(4%)
45 - Residential board and care or assisted living or assisted living	1,650	(89%)	1	(13%)	22	(44%)	\$1	(9%)
46 - Dormitory, fraternity, sorority or barracks	3,510	(92%)	0	(19%)	12	(39%)	\$1	(12%)
40 -Unclassified residential property	7,410	(52%)	6	(7%)	58	(24%)	\$16	(7%)
5 - Mercantile or business	10,290	(58%)	3	(14%)	85	(26%)	\$57	(7%)
51 - Grocery or convenience store	2,660	(68%)	1	(40%)	25	(40%)	\$10	(9%)
52 - Textile or apparel sales	150	(52%)	0	(0%)	2	(23%)	\$1	(4%)
53 - Household goods sales or repairs	160	(51%)	0	(0%)	3	(48%)	\$4	(17%)
54 - Specialty shop	640	(45%)	1	(13%)	2	(10%)	\$4	(4%)
55 - Personal Service, recreational or home repair	330	(47%)	0	(0%)	3	(25%)	\$2	(6%)
56 - Laundry, dry cleaning, professional supplies or services	930	(61%)	0	(0%)	11	(40%)	\$7	(13%)
57 - Service station or vehicle sales, service or repair	850	(42%)	1	(10%)	14	(18%)	\$9	(6%)
58 - Department store or unclassified general retail	700	(61%)	0	(0%)	5	(32%)	\$5	(7%)
59 - Office, bank or mail facility	2,150	(64%)	1	(35%)	12	(27%)	\$10	(9%)
50 - Unclassified mercantile or business property	1,710	(56%)	0	(0%)	9	(18%)	\$7	(5%)
6 - Industrial, utility, defense, agriculture or mining	1,290	(45%)	1	(14%)	14	(27%)	\$33	(14%)
61 - Energy production plant	130	(63%)	0	NA	3	(63%)	\$8	(15%)
62 - Laboratory	100	(69%)	0	NA	3	(34%)	\$1	(5%)
63 - Defense, computer or communications center	80	(54%)	0	NA	0	(0%)	\$1	(27%)
64 - Utility or distribution system	310	(61%)	0	(0%)	2	(26%)	\$7	(16%)

Table 2.
Reported Structure Fires Confined to Object of Origin, Including Fires with Confined Fire Incident Types
By Occupancy: 2007-2011 Annual Averages
(Percentages are calculated from total reported structure fires in each occupancy.) (Continued)

Occupancy	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Millions)
6 - Industrial, utility, defense, agriculture or mining (continued)	1,290 (45%)	1 (14%)	14 (27%)	\$33 (14%)
65 - Agriculture	260 (27%)	0 (35%)	1 (9%)	\$4 (8%)
66 - Forest, timberland or woodland	150 (78%)	0 NA	0 (0%)	\$1 (7%)
67 - Mine or quarry	20 (39%)	0 NA	0 (35%)	\$0 (17%)
60 - Other utility, defense, agriculture or mining	240 (37%)	0 (0%)	4 (40%)	\$11 (21%)
70 - Manufacturing or processing	3,080 (58%)	1 (11%)	67 (39%)	\$45 (8%)
8 - Storage	4,730 (22%)	3 (9%)	30 (11%)	\$37 (6%)
81 - Grain or livestock storage	250 (24%)	0 (17%)	1 (9%)	\$5 (13%)
83 - Refrigerated storage	20 (48%)	0 NA	0 (0%)	\$0 (2%)
84 - Outside storage tank	30 (50%)	0 NA	0 NA	\$0 (5%)
88 - Vehicle storage, garage (including residential) or fire station	1,260 (20%)	1 (14%)	9 (8%)	\$8 (6%)
89 - Warehouse, residential or self-storage	660 (37%)	0 (0%)	9 (30%)	\$7 (3%)
80 - Unclassified storage property	2,530 (20%)	1 (7%)	11 (8%)	\$17 (7%)
9 - Outside or special property	17,280 (77%)	3 (17%)	29 (25%)	\$9 (11%)
91 - Dump or sanitary landfill	230 (89%)	0 NA	2 (67%)	\$0 (2%)
92 - Bridge, tunnel or outbuilding	660 (31%)	0 (6%)	1 (5%)	\$2 (8%)
93 - Open land, beach or campsite	4,400 (83%)	0 (0%)	10 (33%)	\$1 (13%)
94 - Water area	90 (82%)	0 NA	0 NA	\$0 (4%)
95 - Railroad area	260 (83%)	0 (100%)	0 (0%)	\$0 (3%)
96 - Highway, street or parking area	9,510 (84%)	1 (19%)	12 (27%)	\$4 (21%)
97 - Aircraft area	10 (69%)	0 (0%)	0 (0%)	\$0 (1%)
98 - Construction site or oil or gas field	380 (64%)	0 NA	1 (29%)	\$1 (5%)
90 - Unclassified special property	1,750 (76%)	1 (42%)	2 (34%)	\$1 (13%)
Unclassified or unknown property use	4,320 (51%)	2 (14%)	16 (17%)	\$10 (7%)
Total	290,820 (58%)	138 (5%)	3,477 (23%)	\$608 (6%)

NA- Percentages were not applicable because none were reported in this occupancy.

Note: Sums may not equal totals due to rounding errors. Because these are annual averages, estimates of zero may truly be zero or may include estimates that round to zero when calculating averages.

Source: NFIRS and NFPA survey.

Table 3.
Reported Structure Fires that Were Confined to Object or Room of Origin
(Including fires with confined fire incident types)
By Occupancy: 2007-2011 Annual Averages
(Percentages are calculated from total reported structure fires in each property use.)

Occupancy	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
1 - Public assembly	12,330	(84%)	1	(15%)	119	(69%)	\$61	(14%)
11 - Fixed use amusement or recreation	420	(79%)	0	(0%)	4	(86%)	\$1	(9%)
12 - Variable use or amusement or recreation	1,080	(89%)	0	NA	3	(47%)	\$2	(21%)
13 - Place of worship or funeral property	1,360	(76%)	0	(20%)	10	(50%)	\$12	(11%)
14 - Club	1,490	(90%)	0	(0%)	8	(84%)	\$4	(11%)
15 - Library, museum, courthouse or other public property	520	(88%)	0	(100%)	5	(77%)	\$3	(18%)
16 - Eating or drinking establishment	6,270	(84%)	0	(0%)	83	(73%)	\$35	(16%)
17 - Passenger terminal	690	(89%)	0	NA	1	(76%)	\$1	(59%)
18 - Studio or theatre	200	(86%)	0	NA	1	(31%)	\$1	(11%)
10 - Unclassified public assembly property	300	(78%)	0	(47%)	4	(62%)	\$1	(13%)
2 - Educational	5,260	(92%)	0	(0%)	76	(89%)	\$24	(26%)
21 - Preschool through grade 12	3,750	(92%)	0	NA	63	(90%)	\$17	(25%)
24 - Adult education or college classroom	660	(95%)	0	NA	4	(100%)	\$3	(41%)
25 - Day care	530	(91%)	0	(0%)	6	(72%)	\$1	(21%)
20 -Unclassified public educational property	320	(89%)	0	NA	2	(100%)	\$2	(26%)
3 - Institutional	6,530	(96%)	3	(56%)	157	(91%)	\$19	(33%)
31 - Nursing home	2,690	(98%)	3	(57%)	89	(90%)	\$4	(35%)
32 - Developmental disability, mental retardation or substance abuse	1,200	(97%)	0	(0%)	13	(92%)	\$3	(57%)
33 - Hospital or hospice	1,290	(97%)	0	(100%)	31	(97%)	\$6	(84%)
34 - Clinic or doctor's office	560	(85%)	0	NA	4	(84%)	\$4	(14%)
36 - Prison, jail or police station	460	(94%)	0	NA	15	(86%)	\$1	(29%)
30 - Unclassified institutional property	330	(94%)	0	NA	6	(100%)	\$1	(40%)
4 - Residential	296,290	(75%)	540	(20%)	7,560	(55%)	\$1,238	(16%)
41 - One-or-two-family home	179,360	(69%)	356	(16%)	4,473	(50%)	\$942	(16%)
42 - Apartment or multi-family dwelling	96,020	(90%)	151	(37%)	2,740	(64%)	\$229	(18%)
43 - Rooming or boarding house or residential hotel	2,640	(93%)	5	(30%)	58	(67%)	\$5	(15%)

Table 3.
Reported Structure Fires that Were Confined to Object or Room of Origin
(Including fires with confined fire incident types)
By Occupancy: 2007-2011 Annual Averages
(Percentages are calculated from total reported structure fires in each property use.) (continued)

Occupancy	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
4 – Residential (continued)	296,290	(75%)	540	(20%)	7,560	(55%)	\$1,238	(16%)
44 - Hotel or motel	3,270	(91%)	8	(75%)	108	(78%)	\$18	(14%)
45 - Residential board and care or assisted living	1,780	(96%)	4	(72%)	39	(80%)	\$3	(39%)
46 - Dormitory, fraternity, sorority or barracks	3,720	(98%)	2	(82%)	26	(86%)	\$4	(40%)
40 -Unclassified residential property	9,260	(66%)	13	(16%)	113	(47%)	\$37	(17%)
5 - Mercantile or business	13,320	(75%)	7	(31%)	179	(55%)	\$144	(18%)
51 - Grocery or convenience store	3,200	(82%)	1	(40%)	38	(62%)	\$22	(20%)
52 - Textile or apparel sales	220	(74%)	0	(22%)	3	(38%)	\$4	(18%)
53 - Household goods sales or repairs	210	(69%)	0	(100%)	4	(78%)	\$8	(33%)
54 - Specialty shop	920	(65%)	2	(36%)	8	(40%)	\$16	(16%)
55 - Personal Service, recreational or home repair	500	(71%)	0	(0%)	8	(72%)	\$6	(17%)
56 - Laundry, dry cleaning, professional supplies or services	1,240	(81%)	0	(0%)	17	(66%)	\$13	(24%)
57 - Service station or vehicle sales, service or repair	1,250	(61%)	2	(30%)	36	(44%)	\$20	(14%)
58 - Department store or unclassified general retail	900	(79%)	0	(0%)	12	(74%)	\$12	(16%)
59 - Office, bank or mail facility	2,690	(81%)	2	(60%)	28	(65%)	\$26	(24%)
50 - Unclassified mercantile or business property	2,180	(72%)	0	(11%)	24	(47%)	\$18	(12%)
6 - Industrial, utility, defense, agriculture or mining	1,590	(56%)	1	(14%)	26	(50%)	\$49	(21%)
61 - Energy production plant	160	(77%)	0	NA	5	(84%)	\$10	(18%)
62 - Laboratory	140	(91%)	0	NA	7	(79%)	\$7	(51%)
63 - Defense, computer or communications center	90	(64%)	0	NA	1	(74%)	\$2	(38%)
64 - Utility or distribution system	370	(73%)	0	(0%)	3	(33%)	\$12	(28%)
65 - Agriculture	330	(35%)	0	(35%)	4	(27%)	\$5	(10%)
66 - Forest, timberland or woodland	150	(80%)	0	NA	0	(0%)	\$1	(8%)
67 - Mine or quarry	20	(45%)	0	NA	0	(35%)	\$0	(17%)
60 - Other utility, defense, agriculture or mining	320	(48%)	0	(0%)	7	(65%)	\$12	(23%)

Table 3.
Reported Structure Fires that Were Confined to Object or Room of Origin
(Including fires with confined fire incident types)
By Occupancy: 2007-2011 Annual Averages
(Percentages are calculated from total reported structure fires in each property use.) (continued)

Occupancy	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
70 - Manufacturing or processing	4,040	(76%)	2	(34%)	114	(67%)	\$88	(15%)
8 - Storage	6,700	(31%)	4	(12%)	65	(23%)	\$59	(10%)
81 - Grain or livestock storage	320	(31%)	0	(17%)	2	(16%)	\$5	(14%)
83 - Refrigerated storage	30	(70%)	0	NA	0	(0%)	\$0	(9%)
84 - Outside storage tank	30	(57%)	0	NA	0	NA	\$0	(5%)
88 - Vehicle storage, garage (including residential) or fire station	1,910	(30%)	2	(20%)	26	(23%)	\$15	(11%)
89 - Warehouse, residential or self-storage	970	(54%)	0	(4%)	13	(43%)	\$16	(8%)
80 - Unclassified storage property	3,430	(27%)	1	(9%)	24	(19%)	\$22	(10%)
9 - Outside or special property	17,880	(80%)	4	(28%)	45	(40%)	\$13	(16%)
91 - Dump or sanitary landfill	240	(92%)	0	NA	2	(67%)	\$0	(4%)
92 - Bridge, tunnel or outbuilding	820	(39%)	0	(12%)	4	(21%)	\$2	(10%)
93 - Open land, beach or campsite	4,520	(86%)	0	(12%)	14	(45%)	\$2	(22%)
94 - Water area	100	(85%)	0	NA	0	NA	\$0	(21%)
95 - Railroad area	270	(85%)	0	(100%)	0	(11%)	\$0	(5%)
96 - Highway, street or parking area	9,690	(85%)	2	(35%)	19	(44%)	\$6	(30%)
97 - Aircraft area	20	(78%)	0	(0%)	0	(0%)	\$0	(1%)
98 - Construction site or oil or gas field	430	(73%)	0	NA	3	(55%)	\$1	(8%)
90 - Unclassified special property	1,830	(80%)	1	(42%)	3	(38%)	\$2	(20%)
Unclassified or unknown property use	5,150	(60%)	4	(28%)	30	(32%)	\$19	(13%)
Total	369,700	(74%)	565	(20%)	8,376	(55%)	\$1,713	(16%)

NA- Percentages were not applicable because none were reported in this occupancy.

Note: Sums may not equal totals due to rounding errors. Because these are annual averages, estimates of zero may truly be zero or may include estimates that round to zero when calculating averages.

Source: NFIRS and NFPA survey.

Table 4.
Reported Structures with Fire Spread Beyond Room of Origin
By Property Use: 2007-2011 Annual Averages
(Percentages are calculated from total reported structure fires in each property use.)

Occupancy	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
1 - Public assembly	2,320	(16%)	4	(85%)	53	(31%)	\$364	(86%)
11 - Fixed use amusement or recreation	120	(21%)	0	(100%)	1	(14%)	\$15	(91%)
12 - Variable use or amusement or recreation	140	(11%)	0	NA	4	(53%)	\$9	(79%)
13 - Place of worship or funeral property	420	(24%)	1	(80%)	10	(50%)	\$99	(89%)
14 - Club	170	(10%)	0	(100%)	2	(16%)	\$34	(89%)
15 - Library, museum, courthouse or other public property	70	(12%)	0	(0%)	1	(23%)	\$13	(82%)
16 - Eating or drinking establishment	1,210	(16%)	3	(100%)	31	(27%)	\$179	(84%)
17 - Passenger terminal	80	(11%)	0	NA	0	(24%)	\$1	(41%)
18 - Studio or theatre	30	(14%)	0	NA	3	(69%)	\$7	(89%)
10 - Unclassified public assembly property	80	(22%)	0	(53%)	2	(38%)	\$8	(87%)
2 - Educational	440	(8%)	1	(100%)	9	(11%)	\$68	(74%)
21 - Preschool through grade 12	310	(8%)	0	NA	7	(10%)	\$53	(75%)
24 - Adult education or college classroom	40	(5%)	0	NA	0	(0%)	\$4	(59%)
25 - Day care	50	(9%)	1	(100%)	2	(28%)	\$5	(79%)
20 - Unclassified public educational property	40	(11%)	0	NA	0	(0%)	\$7	(74%)
3 - Institutional	290	(4%)	2	(44%)	15	(9%)	\$38	(67%)
31 - Nursing home	60	(2%)	2	(43%)	10	(10%)	\$7	(65%)
32 - Developmental disability, mental retardation or substance abuse	40	(3%)	0	(100%)	1	(8%)	\$2	(43%)
33 - Hospital or hospice	40	(3%)	0	(0%)	1	(3%)	\$1	(16%)
34 - Clinic or doctor's office	100	(15%)	0	NA	1	(16%)	\$24	(86%)
36 - Prison, jail or police station	30	(6%)	0	NA	2	(14%)	\$2	(71%)
30 - Unclassified institutional property	20	(6%)	0	NA	0	(0%)	\$2	(60%)
4 - Residential	96,510	(25%)	2,156	(80%)	6,194	(45%)	\$6,367	(84%)
41 - One-or-two-family home	80,820	(31%)	1,808	(84%)	4,458	(50%)	\$5,017	(84%)
42 - Apartment or multi-family dwelling	10,350	(10%)	259	(63%)	1,536	(36%)	\$1,019	(82%)
43 - Rooming or boarding house or residential hotel	210	(7%)	12	(70%)	29	(33%)	\$28	(85%)
44 - Hotel or motel	340	(9%)	3	(25%)	31	(22%)	\$107	(86%)
45 - Residential board and care or assisted living	70	(4%)	2	(28%)	10	(20%)	\$5	(61%)

Table 4.
Reported Structures with Fire Spread Beyond Room of Origin
by Property Use: 2007-2011 Annual Averages
(Percentages are calculated from total reported structure fires in each property use.)
(continued)

Occupancy	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
4 – Residential (continued)	96,510	(25%)	2,156	(80%)	6,194	(45%)	\$6,367	(84%)
46 – Dormitory, fraternity, sorority or barracks	80	(2%)	0	(18%)	4	(14%)	\$6	(60%)
40 -Unclassified residential property	4,870	(34%)	72	(84%)	128	(53%)	\$184	(83%)
5 – Mercantile or business	4,410	(25%)	15	(69%)	146	(45%)	\$666	(82%)
51 – Grocery or convenience store	700	(18%)	1	(60%)	24	(38%)	\$89	(80%)
52 – Textile, or apparel sales	80	(26%)	1	(78%)	4	(62%)	\$16	(82%)
53 – Household goods sales or repairs	100	(31%)	0	(0%)	1	(22%)	\$16	(67%)
54 – Specialty shop	500	(35%)	3	(64%)	12	(60%)	\$83	(84%)
55 – Personal Service, recreational or home repair	200	(29%)	2	(100%)	3	(28%)	\$27	(83%)
56 – Laundry, drycleaning, professional supplies or services	290	(19%)	1	(100%)	9	(34%)	\$40	(76%)
57 – Service station or vehicle sales, service or repair	800	(39%)	4	(70%)	46	(56%)	\$121	(86%)
58 – Department store or unclassified general retail	250	(21%)	1	(100%)	4	(26%)	\$63	(84%)
59 – Office, bank or mail facility	650	(19%)	1	(40%)	15	(35%)	\$85	(76%)
50 – Unclassified mercantile or business property	870	(28%)	2	(89%)	28	(53%)	\$127	(88%)
6 – Industrial, utility, defense, agriculture or mining	1,260	(44%)	3	(86%)	26	(50%)	\$183	(79%)
61 – Energy production plant	50	(23%)	0	NA	1	(16%)	\$47	(82%)
62 – Laboratory	10	(9%)	0	NA	2	(21%)	\$7	(49%)
63 – Defense, computer or communications center	50	(36%)	0	NA	0	(26%)	\$3	(62%)
64 – Utility or distribution system	140	(27%)	1	(100%)	5	(67%)	\$32	(72%)
65 – Agriculture	610	(65%)	1	(65%)	10	(73%)	\$44	(90%)
66 – Forest, timberland or woodland	40	(20%)	0	NA	2	(100%)	\$9	(92%)
67 – Mine or quarry	30	(55%)	0	NA	1	(65%)	\$2	(83%)
60 – Utility, Defense, Agriculture, Mining, Other	340	(52%)	1	(100%)	4	(35%)	\$40	(77%)
70 – Manufacturing or processing	1,260	(24%)	4	(66%)	57	(33%)	\$505	(85%)

Table 4.
Reported Structures with Fire Spread Beyond Room of Origin
by Property Use: 2007-2011 Annual Averages
(Percentages are calculated from total reported structure fires in each property use.)
(continued)

Occupancy	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
8 - Storage	15,070	(69%)	26	(88%)	218	(77%)	\$555	(90%)
81 - Grain or livestock storage	710	(69%)	1	(83%)	10	(84%)	\$33	(86%)
83 - Refrigerated storage	10	(30%)	0	NA	1	(100%)	\$5	(91%)
84 - Outside storage tank	20	(43%)	0	NA	0	NA	\$1	(95%)
88 - Vehicle storage, garage (including residential) or fire station	4,390	(70%)	8	(80%)	89	(77%)	\$120	(89%)
89 - Warehouse, residential or self-storage	820	(46%)	4	(96%)	18	(57%)	\$189	(92%)
80 - Unclassified storage property	9,130	(73%)	13	(91%)	100	(81%)	\$206	(90%)
9 - Outside or special property	4,450	(20%)	11	(72%)	68	(60%)	\$68	(84%)
91 - Dump or sanitary landfill	20	(8%)	0	NA	1	(33%)	\$2	(96%)
92 - Bridge, tunnel, or outbuilding	1,290	(61%)	4	(88%)	16	(79%)	\$20	(90%)
93 - Open land, beach or campsite	750	(14%)	2	(88%)	17	(55%)	\$7	(78%)
94 - Water area	20	(15%)	0	NA	0	NA	\$1	(79%)
95 - Railroad area	50	(15%)	0	(0%)	3	(89%)	\$1	(95%)
96 - Highway, street or parking area	1,660	(15%)	4	(65%)	24	(56%)	\$13	(70%)
97 - Aircraft area	0	(22%)	0	(100%)	1	(100%)	\$1	(99%)
98 - Construction site or oil or gas field	160	(27%)	0	NA	2	(45%)	\$16	(92%)
90 - Unclassified special property	470	(20%)	1	(58%)	5	(62%)	\$8	(80%)
Unclassified or unknown property use	3,390	(40%)	9	(72%)	64	(68%)	\$123	(87%)
Total	128,800	(26%)	2,233	(80%)	6,845	(45%)	\$8,937	(84%)

NA- Percentages were not applicable because none were reported in this occupancy.

Note: Sums may not equal totals due to rounding errors. Because these are annual averages, estimates of zero may truly be zero or may include estimates that round to zero when calculating averages.

Source: NFIRS and NFPA survey.

Table 5.
Civilian Casualty Rates per 1,000 Reported Structure Fires and Average Loss per Fire
By Occupancy: 2007-2011 Annual Averages

Occupancy	Deaths per 1,000 fires	Injuries per 1,000 fires	Average loss per fire
1 - Public assembly	0.4	11.8	\$29,000
11 - Fixed use amusement or recreation	0.4	9.7	\$31,000
12 - Variable use or amusement or recreation	0.0	5.8	\$9,000
13 - Place of worship or funeral property	0.9	10.8	\$62,000
14 - Club	0.1	6.0	\$23,000
15 - Library, museum, courthouse or other public property	0.5	10.3	\$27,000
16 - Eating or drinking establishment	0.3	15.3	\$29,000
17 - Passenger terminal	0.0	1.7	\$2,000
18 - Studio or theatre	0.0	17.7	\$32,000
10 - Unclassified public assembly property	1.1	15.0	\$24,000
2 - Educational	0.1	14.9	\$16,000
21 - Preschool through grade 12	0.0	17.4	\$17,000
24 - Adult education or college classroom	0.0	6.1	\$9,000
25 - Day care	1.3	13.8	\$10,000
20 -Unclassified public educational property	0.0	6.0	\$25,000
3 - Institutional	0.8	25.3	\$8,000
31 - Nursing home	1.7	35.7	\$4,000
32 - Developmental disability, mental retardation or substance abuse	0.2	11.2	\$4,000
33 - Hospital or hospice	0.2	24.2	\$5,000
34 - Clinic or doctor's office	0.0	7.8	\$42,000
36 - Prison, jail or police station	0.0	35.8	\$6,000
30 - Unclassified institutional property	0.0	16.2	\$10,000
4 - Residential	6.9	35.0	\$19,000
41 - One-or-two-family home	8.3	34.3	\$23,000
42 - Apartment or multi-family dwelling	3.9	40.2	\$12,000
43 - Rooming or boarding house or residential hotel	6.2	30.4	\$12,000
44 - Hotel or motel	3.1	38.7	\$35,000
45 - Residential board and care or assisted living	3.1	26.7	\$5,000
46 - Dormitory, fraternity, sorority or barracks	0.5	7.8	\$2,000
40 -Unclassified residential property	6.0	17.1	\$16,000

Table 5.
Civilian Casualty Rates per 1,000 Reported Structure Fires and Average Loss per Fire
By Occupancy: 2007-2011 Annual Averages
(continued)

Occupancy	Deaths per 1,000 fires	Injuries per 1,000 fires	Average loss per fire
5 - Mercantile or business	1.2	18.3	\$46,000
51 - Grocery or convenience store	0.4	15.8	\$29,000
52 - Textile or apparel sales	3.0	23.2	\$66,000
53 - Household goods sales or repairs	1.6	17.4	\$76,000
54 - Specialty shop	3.0	13.8	\$69,000
55 - Personal Service, recreational or home repair	2.4	16.3	\$46,000
56 - Laundry, dry cleaning, professional supplies or services	0.6	17.2	\$34,000
57 - Service station or vehicle sales, service or repair	2.6	39.7	\$69,000
58 - Department store or unclassified general retail	1.0	14.5	\$65,000
59 - Office, bank or mail facility	1.1	13.1	\$33,000
50 - Unclassified mercantile or business property	0.6	17.1	\$47,000
6 - Industrial, utility, defense, agriculture or mining	1.4	18.0	\$81,000
61 - Energy production plant	0.0	25.8	\$270,000
62 - Laboratory	0.0	59.2	\$91,000
63 - Defense, computer or communications center	0.0	11.2	\$36,000
64 - Utility or distribution system	2.5	15.6	\$86,000
65 - Agriculture	1.5	14.4	\$52,000
66 - Forest, timberland or woodland	0.0	12.6	\$50,000
67 - Mine or quarry	0.0	20.1	\$45,000
60 - Other utility, defense, agriculture or mining	1.8	15.8	\$77,000
70 - Manufacturing or processing	1.2	32.1	\$112,000
8 - Storage	1.4	13.0	\$28,000
81 - Grain or livestock storage	1.6	11.6	\$37,000
83 - Refrigerated storage	0.0	25.9	\$137,000
84 - Outside storage tank	0.0	0.0	\$23,000
88 - Vehicle storage, garage (including residential) or fire station	1.6	18.3	\$22,000
89 - Warehouse, residential or self-storage	2.4	17.5	\$114,000
80 - Unclassified storage property	1.1	9.9	\$18,000

Table 5.
Civilian Casualty Rates per 1,000 Reported Structure Fires and Average Loss per Fire
By Occupancy: 2007-2011 Annual Averages
(continued)

Occupancy	Deaths per 1,000 fires	Injuries per 1,000 fires	Average loss per fire
9 - Outside or special property	0.7	5.1	\$4,000
91 - Dump or sanitary landfill	0.0	8.9	\$8,000
92 - Bridge, tunnel or outbuilding	1.9	9.6	\$10,000
93 - Open land, beach or campsite	0.4	5.9	\$2,000
94 - Water area	0.0	0.0	\$6,000
95 - Railroad area	0.9	10.1	\$5,000
96 - Highway, street or parking area	0.6	3.8	\$2,000
97 - Aircraft area	9.9	36.2	\$44,000
98 - Construction site or oil or gas field	0.0	8.5	\$29,000
90 - Unclassified special property	1.0	3.2	\$4,000
90 - Unclassified special property	1.0	3.2	\$4,000
Unclassified or unknown property use	1.5	11.0	\$17,000
Total	5.6	30.5	\$21,000

NA- Percentages were not applicable because none were reported in this occupancy.

Note: Sums may not equal totals due to rounding errors. Because these are annual averages, estimates of zero may truly be zero or may include estimates that round to zero when calculating averages.

Source: NFIRS and NFPA survey.

Table 6.
Civilian Casualty Rates per 1,000 Reported Structure Fires and Average Loss per Fire
In Fires that Were Confined to Object of Origin, Including Fires with Confined Fire Incident Types
By Occupancy: 2007-2011 Annual Averages

Occupancy	Deaths per 1,000 fires	Injuries per 1,000 fires	Average loss per fire
1 - Public assembly	0.0	6.9	\$2,000
11 - Fixed use amusement or recreation	0.0	3.7	\$1,000
12 - Variable use or amusement or recreation	0.0	2.0	\$1,000
13 - Place of worship or funeral property	0.0	3.5	\$3,000
14 - Club	0.0	3.6	\$1,000
15 - Library, museum, courthouse or other public property	0.7	4.7	\$4,000
16 - Eating or drinking establishment	0.0	10.6	\$2,000
17 - Passenger terminal	0.0	1.0	\$1,000
18 - Studio or theatre	0.0	4.7	\$1,000
10 - Unclassified public assembly property	0.0	6.5	\$3,000
2 - Educational	0.0	7.1	\$2,000
21 - Preschool through grade 12	0.0	7.7	\$2,000
24 - Adult education or college classroom	0.0	3.2	\$1,000
25 - Day care	0.0	9.3	\$1,000
20 -Unclassified public educational property	0.0	4.9	\$6,000
3 - Institutional	0.0	16.6	\$1,000
31 - Nursing home	0.1	23.8	\$1,000
32 - Developmental disability, mental retardation or substance abuse	0.0	5.2	\$2,000
33 - Hospital or hospice	0.0	13.9	\$1,000
34 - Clinic or doctor's office	0.0	2.7	\$3,000
36 - Prison, jail or police station	0.0	32.8	\$1,000
30 - Unclassified institutional property	0.0	10.4	\$4,000
4 - Residential	0.6	13.3	\$2,000
41 - One-or-two-family home	0.7	12.9	\$2,000
42 - Apartment or multi-family dwelling	0.2	14.7	\$1,000
43 - Rooming or boarding house or residential hotel	0.7	11.5	\$1,000
44 - Hotel or motel	0.7	19.5	\$2,000
45 - Residential board and care or assisted living	0.4	13.3	\$0
46 - Dormitory, fraternity, sorority or barracks	0.1	3.3	\$0
40 -Unclassified residential property	0.8	7.8	\$2,000

Table 6.
Civilian Casualty Rates per 1,000 Reported Structure Fires and Average Loss per Fire
In Fires that Were Confined to Object of Origin, Including Fires with Confined Fire Incident Types
By Occupancy: 2007-2011 Annual Averages
(continued)

Occupancy	Deaths per 1,000 fires	Injuries per 1,000 fires	Average loss per fire
5 - Mercantile or business	0.3	8.3	\$6,000
51 - Grocery or convenience store	0.2	9.3	\$4,000
52 - Textile or apparel sales	0.0	10.5	\$5,000
53 - Household goods sales or repairs	0.0	16.5	\$25,000
54 - Specialty shop	0.9	3.0	\$6,000
55 - Personal Service, recreational or home repair	0.0	8.5	\$5,000
56 - Laundry, dry cleaning, professional supplies or services	0.0	11.4	\$7,000
57 - Service station or vehicle sales, service or repair	0.6	16.8	\$10,000
58 - Department store or unclassified general retail	0.0	7.6	\$8,000
59 - Office, bank or mail facility	0.6	5.5	\$4,000
50 - Unclassified mercantile or business property	0.0	5.4	\$4,000
6 - Industrial, utility, defense, agriculture or mining	0.4	10.9	\$25,000
61 - Energy production plant	0.0	25.9	\$63,000
62 - Laboratory	0.0	29.4	\$7,000
63 - Defense, computer or communications center	0.0	0.0	\$18,000
64 - Utility or distribution system	0.0	6.7	\$23,000
65 - Agriculture	1.9	4.6	\$15,000
66 - Forest, timberland or woodland	0.0	0.0	\$5,000
67 - Mine or quarry	0.0	17.7	\$20,000
60 - Other utility, defense, agriculture or mining	0.0	17.3	\$43,000
70 - Manufacturing or processing	0.2	21.7	\$15,000
8 - Storage	0.5	6.4	\$8,000
81 - Grain or livestock storage	1.1	4.6	\$21,000
83 - Refrigerated storage	0.0	0.0	\$7,000
84 - Outside storage tank	0.0	0.0	\$2,000
88 - Vehicle storage, garage (including residential) or fire station	1.1	7.2	\$7,000
89 - Warehouse, residential or self-storage	0.0	14.1	\$10,000
80 - Unclassified storage property	0.4	4.2	\$7,000

Table 6.
Civilian Casualty Rates per 1,000 Reported Structure Fires and Average Loss per Fire
In Fires that Were Confined to Object of Origin, Including Fires with Confined Fire Incident Types
By Occupancy: 2007-2011 Annual Averages
(continued)

Occupancy	Deaths per 1,000 fires	Injuries per 1,000 fires	Average loss per fire
9 - Outside or special property	0.2	1.7	\$1,000
91 - Dump or sanitary landfill	0.0	6.7	\$0
92 - Bridge, tunnel or outbuilding	0.3	1.5	\$3,000
93 - Open land, beach or campsite	0.0	2.3	\$0
94 - Water area	0.0	0.0	\$0
95 - Railroad area	1.1	0.0	\$0
96 - Highway, street or parking area	0.1	1.2	\$0
97 - Aircraft area	0.0	0.0	\$1,000
98 - Construction site or oil or gas field	0.0	3.9	\$2,000
90 - Unclassified special property	0.5	1.4	\$1,000
Unclassified or unknown property use	0.4	3.7	\$2,000
Total	0.5	12.0	\$2,000

Table 7.
Civilian Casualty Rates per 1,000 Reported Structure Fires and Average Loss per Fire
In Reported Structure Fires that Were Confined to Object or Room of Origin
(Including fires with confined fire incident types)
By Occupancy: 2007-2011 Annual Averages

Occupancy	Deaths per 1,000 fires	Injuries per 1,000 fires	Average loss per fire
1 - Public assembly	0.1	9.7	\$5,000
11 - Fixed use amusement or recreation	0.0	10.6	\$3,000
12 - Variable use or amusement or recreation	0.0	3.1	\$2,000
13 - Place of worship or funeral property	0.2	7.1	\$9,000
14 - Club	0.0	5.6	\$3,000
15 - Library, museum, courthouse or other public property	0.6	9.0	\$6,000
16 - Eating or drinking establishment	0.0	13.2	\$6,000
17 - Passenger terminal	0.0	1.5	\$1,000
18 - Studio or theatre	0.0	6.3	\$4,000
10 - Unclassified public assembly property	0.6	11.7	\$4,000
2 - Educational	0.0	14.4	\$5,000
21 - Preschool through grade 12	0.0	16.9	\$5,000
24 - Adult education or college classroom	0.0	6.4	\$4,000
25 - Day care	0.0	10.9	\$2,000
20 -Unclassified public educational property	0.0	6.7	\$7,000
3 - Institutional	0.4	24.1	\$3,000
31 - Nursing home	1.0	32.9	\$1,000
32 - Developmental disability, mental retardation or substance abuse	0.0	10.6	\$2,000
33 - Hospital or hospice	0.2	24.1	\$4,000
34 - Clinic or doctor's office	0.0	7.7	\$7,000
36 - Prison, jail or police station	0.0	32.8	\$2,000
30 - Unclassified institutional property	0.0	17.1	\$4,000
4 - Residential	1.8	25.5	\$4,000
41 - One-or-two-family home	2.0	24.9	\$5,000
42 - Apartment or multi-family dwelling	1.6	28.5	\$2,000
43 - Rooming or boarding house or residential hotel	2.0	21.8	\$2,000
44 - Hotel or motel	2.6	33.1	\$5,000
45 - Residential board and care or assisted living	2.3	22.1	\$2,000
46 - Dormitory, fraternity, sorority or barracks	0.4	6.9	\$1,000
40 -Unclassified residential property	1.4	12.2	\$4,000

Table 7.
Civilian Casualty Rates per 1,000 Reported Structure Fires and Average Loss per Fire
In Reported Structure Fires that Were Confined to Object or Room of Origin
(Including fires with confined fire incident types)
By Occupancy: 2007-2011 Annual Averages
(continued)

Occupancy	Deaths per 1,000 fires	Injuries per 1,000 fires	Average loss per fire
5 - Mercantile or business	0.5	13.4	\$11,000
51 - Grocery or convenience store	0.2	11.9	\$7,000
52 - Textile or apparel sales	0.9	12.0	\$16,000
53 - Household goods sales or repairs	2.3	19.8	\$37,000
54 - Specialty shop	1.7	8.5	\$17,000
55 - Personal Service, recreational or home repair	0.0	16.5	\$11,000
56 - Laundry, dry cleaning, professional supplies or services	0.0	14.0	\$10,000
57 - Service station or vehicle sales, service or repair	1.3	28.5	\$16,000
58 - Department store or unclassified general retail	0.0	13.6	\$13,000
59 - Office, bank or mail facility	0.8	10.5	\$10,000
50 - Unclassified mercantile or business property	0.1	11.2	\$8,000
6 - Industrial, utility, defense, agriculture or mining	0.3	16.0	\$31,000
61 - Energy production plant	0.0	27.9	\$63,000
62 - Laboratory	0.0	51.3	\$51,000
63 - Defense, computer or communications center	0.0	13.0	\$21,000
64 - Utility or distribution system	0.0	7.1	\$32,000
65 - Agriculture	1.5	11.1	\$15,000
66 - Forest, timberland or woodland	0.0	0.0	\$5,000
67 - Mine or quarry	0.0	15.3	\$17,000
60 - Other utility, defense, agriculture or mining	0.0	21.2	\$37,000
70 - Manufacturing or processing	0.6	28.2	\$22,000
8 - Storage	0.6	9.7	\$9,000
81 - Grain or livestock storage	0.9	6.0	\$17,000
83 - Refrigerated storage	0.0	0.0	\$17,000
84 - Outside storage tank	0.0	0.0	\$2,000
88 - Vehicle storage, garage (including residential) or fire station	1.1	13.7	\$8,000
89 - Warehouse, residential or self-storage	0.2	13.8	\$16,000
80 - Unclassified storage property	0.4	6.9	\$6,000

Table 7.
Civilian Casualty Rates per 1,000 Reported Structure Fires and Average Loss per Fire
In Reported Structure Fires that Were Confined to Object or Room of Origin
(Including fires with confined fire incident types)
By Occupancy: 2007-2011 Annual Averages
(continued)

Occupancy	Deaths per 1,000 fires	Injuries per 1,000 fires	Average loss per fire
9 - Outside or special property	0.2	2.5	\$1,000
91 - Dump or sanitary landfill	0.0	6.5	\$0
92 - Bridge, tunnel or outbuilding	0.6	5.1	\$3,000
93 - Open land, beach or campsite	0.1	3.1	\$0
94 - Water area	0.0	0.0	\$2,000
95 - Railroad area	1.0	1.3	\$0
96 - Highway, street or parking area	0.2	2.0	\$1,000
97 - Aircraft area	0.0	0.0	\$1,000
98 - Construction site or oil or gas field	0.0	6.4	\$3,000
90 - Unclassified special property	0.5	1.5	\$1,000
Unclassified or unknown property use	0.7	5.8	\$4,000
Total	1.5	22.7	\$5,000

Table 8.
Civilian Casualty Rates per 1,000 Reported Structure Fires and Average Loss per Fire
In Reported Structure Fires with Fire Spread Beyond Room of Origin
By Occupancy: 2007-2011 Annual Averages

Occupancy	Deaths per 1,000 fires	Injuries per 1,000 fires	Average loss per fire
1 - Public assembly	1.9	23.0	\$157,000
11 - Fixed use amusement or recreation	1.9	6.3	\$134,000
12 - Variable use or amusement or recreation	0.0	27.0	\$62,000
13 - Place of worship or funeral property	3.1	22.9	\$235,000
14 - Club	1.1	9.5	\$199,000
15 - Library, museum, courthouse or other public property	0.0	19.6	\$182,000
16 - Eating or drinking establishment	2.1	25.8	\$148,000
17 - Passenger terminal	0.0	3.7	\$7,000
18 - Studio or theatre	0.0	88.4	\$205,000
10 - Unclassified public assembly property	2.6	26.8	\$97,000
2 - Educational	1.8	21.4	\$156,000
21 - Preschool through grade 12	0.0	22.9	\$172,000
24 - Adult education or college classroom	0.0	0.0	\$105,000
25 - Day care	14.7	43.4	\$89,000
20 -Unclassified public educational property	0.0	0.0	\$168,000
3 - Institutional	8.0	51.8	\$133,000
31 - Nursing home	34.6	163.7	\$127,000
32 - Developmental disability, mental retardation or substance abuse	6.7	27.6	\$46,000
33 - Hospital or hospice	0.0	27.5	\$27,000
34 - Clinic or doctor's office	0.0	8.1	\$234,000
36 - Prison, jail or police station	0.0	85.7	\$77,000
30 - Unclassified institutional property	0.0	0.0	\$105,000
4 - Residential	22.3	64.2	\$66,000
41 - One-or-two-family home	22.4	55.2	\$62,000
42 - Apartment or multi-family dwelling	25.0	148.4	\$98,000
43 - Rooming or boarding house or residential hotel	60.0	139.9	\$137,000
44 - Hotel or motel	8.5	92.7	\$320,000
45 - Residential board and care or assisted living	21.4	137.6	\$71,000
46 - Dormitory, fraternity, sorority or barracks	4.0	51.0	\$67,000
40 -Unclassified residential property	14.8	26.3	\$38,000

Table 8.
Civilian Casualty Rates per 1,000 Reported Structure Fires and Average Loss per Fire
In Reported Structure Fires with Fire Spread Beyond Room of Origin
By Occupancy: 2007-2011 Annual Averages
(continued)

Occupancy	Deaths per 1,000 fires	Injuries per 1,000 fires	Average loss per fire
5 - Mercantile or business	3.4	33.0	\$151,000
51 - Grocery or convenience store	1.4	33.8	\$128,000
52 - Textile or apparel sales	9.1	55.5	\$211,000
53 - Household goods sales or repairs	0.0	12.1	\$163,000
54 - Specialty shop	5.5	23.6	\$166,000
55 - Personal Service, recreational or home repair	8.4	15.7	\$130,000
56 - Laundry, dry cleaning, professional supplies or services	3.4	31.4	\$139,000
57 - Service station or vehicle sales, service or repair	4.6	57.1	\$152,000
58 - Department store or unclassified general retail	4.6	17.7	\$256,000
59 - Office, bank or mail facility	2.3	23.7	\$131,000
50 - Unclassified mercantile or business property	1.8	31.9	\$146,000
6 - Industrial, utility, defense, agriculture or mining	2.6	20.4	\$145,000
61 - Energy production plant	0.0	18.7	\$975,000
62 - Laboratory	0.0	141.7	\$513,000
63 - Defense, computer or communications center	0.0	8.1	\$61,000
64 - Utility or distribution system	9.3	38.7	\$231,000
65 - Agriculture	1.5	16.3	\$72,000
66 - Forest, timberland or woodland	0.0	63.8	\$233,000
67 - Mine or quarry	0.0	24.1	\$68,000
60 - Other utility, defense, agriculture or mining	3.5	10.8	\$115,000
70 - Manufacturing or processing	3.5	44.8	\$400,000
8 - Storage	1.7	14.5	\$37,000
81 - Grain or livestock storage	1.9	14.1	\$47,000
83 - Refrigerated storage	0.0	86.5	\$417,000
84 - Outside storage tank	0.0	0.0	\$51,000
88 - Vehicle storage, garage (including residential) or fire station	1.8	20.3	\$27,000
89 - Warehouse, residential or self-storage	5.0	21.8	\$230,000
80 - Unclassified storage property	1.4	11.0	\$23,000

Table 8.
Civilian Casualty Rates per 1,000 Reported Structure Fires and Average Loss per Fire
In Reported Structure Fires with Fire Spread Beyond Room of Origin
By Occupancy: 2007-2011 Annual Averages
(continued)

Occupancy	Deaths per 1,000 fires	Injuries per 1,000 fires	Average loss per fire
9 - Outside or special property	2.5	15.4	\$15,000
91 - Dump or sanitary landfill	0.0	37.8	\$104,000
92 - Bridge, tunnel or outbuilding	2.8	12.5	\$15,000
93 - Open land, beach or campsite	2.7	22.6	\$9,000
94 - Water area	0.0	0.0	\$31,000
95 - Railroad area	0.0	61.8	\$32,000
96 - Highway, street or parking area	2.5	14.6	\$8,000
97 - Aircraft area	44.8	163.7	\$195,000
98 - Construction site or oil or gas field	0.0	14.2	\$99,000
90 - Unclassified special property	2.9	9.7	\$17,000
Unclassified or unknown property use	2.8	18.9	\$36,000
Total	17.3	53.1	\$69,000

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

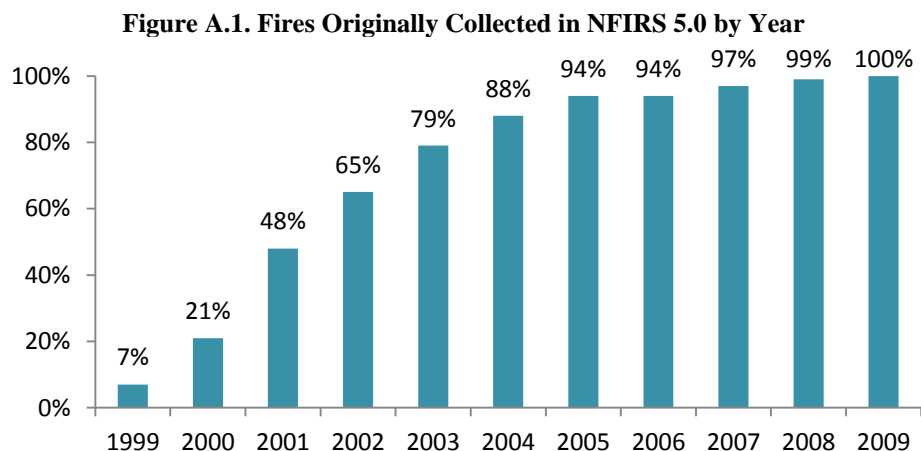
As noted, NFIRS is a voluntary system. Different states and jurisdictions have different reporting requirements and practices. Participation rates in NFIRS are not necessarily uniform across regions and community sizes, both factors correlated with frequency and severity of fires. This means NFIRS may 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.

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:

NFPA survey projections
NFIRS totals (Version 5.0)

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.

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.

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.