

**Area of Origin in Reported Apartment or Multi-Family Housing Fires
Excluding Properties under Construction**

**Marty Ahrens
Fire Analysis and Research Division
National Fire Protection Association**

May 2013



**National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471
www.nfpa.org**

Acknowledgements

The National Fire Protection Association thanks all the fire departments and state fire authorities who participate in the National Fire Incident Reporting System (NFIRS) and the annual NFPA fire experience survey. These firefighters are the original sources of the detailed data that make this analysis possible. Their contributions allow us to estimate the size of the fire problem.

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

For more information about the National Fire Protection Association, visit www.nfpa.org or call 617-770-3000. To learn more about the One-Stop Data Shop go to www.nfpa.org/osds or call 617-984-7443.

Copies of this analysis are available from:

National Fire Protection Association
One-Stop Data Shop
1 Batterymarch Park
Quincy, MA 02169-7471
www.nfpa.org
e-mail: osds@nfpa.org
phone: 617-984-7443

NFPA Index No. 1853

Copyright © 2013, National Fire Protection Association, Quincy, MA

This custom analysis is prepared by and copyright is held by the National Fire Protection Association. Notwithstanding the custom nature of this analysis, the NFPA retains all rights to utilize all or any part of this analysis, including any information, text, charts, tables or diagrams developed or produced as part hereof in any manner whatsoever as it deems appropriate, including but not limited to the further commercial dissemination hereof by any means or media to any party.

Tables

Apartment Fires or Multi-Family Housing Fires 2007-2011 Annual Averages	
Table 1.	By Presence of Automatic Extinguishing Equipment
Table 2.	By Type of Automatic Extinguishing Equipment
Table 3.	Sprinklers Were Present, by Area of Origin
Table 4.	Sprinklers Were Present, by Extent of Flame Damage
Table 5.	Sprinklers Were Present Even if Not in Fire Area and Flame Damage Spread beyond the Room of Origin, by Area of Origin
Table 6.	No Automatic Extinguishing Equipment Was Present, by Area of Origin
Table 7.	No Automatic Extinguishing Equipment Was Present, by Extent of Flame Damage
Table 8.	No Automatic Extinguishing Equipment Was Present and Flame Damage Spread beyond the Room of Origin, by Area of Origin
Table 9.	By Number of Stories
Table 10.	Fires in Apartment Buildings of One to Four Stories, by Presence of Automatic Extinguishing Equipment
Table 11.	One to Four Stories, by Type of Automatic Extinguishing Equipment
Table 12.	One to Four Stories in which Sprinklers Were Present, by Area of Origin
Table 13.	One to Four Stories in which Sprinklers Were Present Even if Not in Fire Area, by Extent of Flame Damage
Table 14.	One to Four Stories in which Sprinklers Were Present Even if Not in Fire Area and Flame Damage Spread beyond the Room of Origin, by Area of Origin
Table 150.	One to Four Stories in which No Automatic Extinguishing Equipment Was Present, by Area of Origin
Table 16.	One to Four Stories in which No Automatic Extinguishing Equipment Was Present, by Extent of Flame Damage
Table 17.	One to Four Stories in which No Automatic Extinguishing Equipment Was Present and Flame Damage Spread beyond the Room of Origin, by Area of Origin
Table 18.	Five or More Stories, by Presence of Automatic Extinguishing Equipment
Table 19.	Five or More Stories, by Type of Automatic Extinguishing Equipment
Table 20.	Five or More Stories in which Sprinklers Were Present, by Area of Origin
Table 21.	Five or More Stories in which Sprinklers Were Present Even if Not in Fire Area, by Extent of Flame Damage
Table 22.	Five or More Stories in which Sprinklers Were Present Even if Not in Fire Area and Flame Damage Spread beyond the Room of Origin, by Area of Origin
Table 23.	Five or More Stories in which No Automatic Extinguishing Equipment Was Present, by Area of Origin
Table 24.	Five or More Stories in which No Automatic Extinguishing Equipment Was Present, by Extent of Flame Damage
Table 25.	Five or More Stories in which No Automatic Extinguishing Equipment Was Present and Flame Damage Spread beyond the Room of Origin, by Area of Origin

Area of Origin in Reported Apartment or Multi-Family Housing Fires Excluding Properties under Construction

The following collection of tables was prepared for a task group associated with NFPA 13R. Fires occurring in properties under construction were excluded from the analysis. The tables contain national estimates of apartment or multi-family housing fires reported to local fire departments and of resulting civilian deaths and injuries, and direct property damage. These estimates were derived from the detailed data collected by the U.S. Fire Administration's National Fire Incident Reporting System (NFIRS) and NFPA's annual fire department experience survey.

According to the *NFIRS 5.0 Complete Reference Guide*, multi-family housing includes apartments, condominiums, town houses, row houses and tenements. Two-family homes are grouped with single-family homes and not captured here.

Reading the tables

Many tables build on elements from earlier tables. A later table, based on a subset of the data in an earlier one, may show less rounding than the earlier table. Most tables have entries of non-confined and confined fires. NFIRS has six structure fire incident types that indicate specific types of minor fires that were confined or contained to the object or container of origin, including 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. Information about structure status, automatic extinguishment and area of origin is not required for these fires, but is sometimes provided. Consequently, these fires have far more unknown data. Structure with other incident types are considered "non-confined."

The first group of tables focuses on apartments or multi-family housing of all heights. [Table 1](#) provides estimates of the number of fires in properties without any automatic extinguishing equipment, those in which such equipment was present, those in which it was present but failed to operate because it was outside of the fire area, and fires in properties with partial systems. Although code compliance cannot be ascertained from the NFIRS data, it is safe to assume that partial systems were not compliant with current NFPA codes. Partial systems were omitted from further analysis. "Present" in NFIRS is defined to mean "the existence of an automatic extinguishing system (AES) within the AES's designed range of fire. It possible that in some cases in which the system failed to operate because it was outside the fire area that the system was actually a partial system. In other cases, the fire may have been in an area that was not required to have sprinklers.

[Table 2](#) shows the type of automatic extinguishing equipment present in the remaining fires in which such equipment was present, including those in which sprinklers were present but failed to operate because they were not in the fire area. Estimates of fires with sprinklers present were calculated by summing those with wet pipe, dry pipe, and unclassified sprinkler systems. [Tables 3 and 4](#) are based on the estimates of fires with sprinklers present from [Table 2](#). Note that NFIRS 5.0 has no separate area of origin code for chimney fires. In this analysis, all fires with confined structure fire incident types were analyzed together.

How the Estimates Were Calculated

The statistics shown are estimates derived from Version 5.0 of the U.S. Fire Administration's National Fire Incident Reporting System (NFIRS) and NFPA's annual fire department experience survey and show the average number of reported fires and associated losses per year for the five-year period of 2007-2011. Estimates include a proportional share of fires in which data for construction status, presence, or type of automatic extinguishing equipment, area of origin, extent of flame damage, or number of stories was unknown or not reported. The number of stories was considered unknown if greater than 100. Only stories above ground were counted.

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 flame damage limited to the object of origin. Although causal data is not required for these fires, it is sometimes present. The percentage of unknown data is much higher for confined fires than non-confined fires, making the estimates more volatile. Non-confined and confined fires were analyzed separately and then summed.

Property damage has not been adjusted for inflation. Note that NFIRS 5.0 has no separate area of origin code for chimney fires. During 2007-2011, 530 confined chimney or flue fires in apartments or other multi-family housing were reported per year. In this analysis, all fires with confined structure fire incident types were analyzed together. In NFPA's home fires report, confined chimney fires were treated separately for analyses of area of origin.

Rounding of fire estimates was done based on totals. When the total exceeded 10,000, fires were rounded to the nearest hundred. When the total is more than 1,000 but less than 10,000, fires were rounded to the nearest 10. When total fires were less than 1,000, they were rounded to the nearest one, as were all casualties.

Property damage was rounded to the nearest million. Note that an entry of zero may mean that the estimated average rounded to zero. When the number of fires for a particular category falls rounds to less than 1% or zero, the category is generally grouped into "other known."

Fires with confined fire incident types were assumed to be confined to the object of origin. [Table 5](#) shows the area of origin for fires in sprinklered apartments or multi-family housing that extended beyond the room of origin. This total was calculated by summing the fires that were confined to the floor of origin, were confined to the building of origin, or extended beyond the building of origin.

The basic pattern is repeated in [Tables 6-8](#) for fires identified in [Table 1](#) that had no automatic extinguishing equipment.

[Table 9](#) shows the number of reported apartment or multi-family housing fires in properties of one to four stories and in those of five or more stories above ground. [Tables 10-17](#) essentially repeat [Tables 1-8](#) for fires in structures of one to four stories, while [Tables 18-25](#) repeat the tables for fires in properties with five or more stories.

Putting the data into context

Our estimates are based on what is reported. Reporting practices and policies vary from state to state. In some, all incidents are mandatory. In others, reporting is completely voluntary. NFIRS was not designed as a statistical sample. NFPA's survey is based on a statistical sample. We divide the estimated totals from the survey by the reported totals in NFIRS and then multiply the totals in NFIRS to get estimates of specific fire problems and circumstances. Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire.

Fires in buildings with the best fire protection may be more likely to be reported to the fire department. In apartment fires with smoke detection that were reported in 2005-2009, hardwired devices were present in 52% of the non-confined apartment fires compared to 64% of the confined apartment fires.¹ It is possible that in some of these fires, the fire department was notified automatically when the detection system operated.

Data from [Table 1](#) of this analysis show that automatic extinguishing equipment was present (even if not in fire area, but excluding partial systems) in 11% of (3,700 of 33,800) reported non-confined apartment or multifamily housing fires (excluding properties under construction) but 23% (16,800 of 72,000) of the confined fires. Sprinkler operation was not considered in this analysis.

One of the challenges in measuring code effectiveness is the lack of clear “before” and “after” dates. The earliest date is the code year in which NFPA adopted a particular requirement. However, our codes do not have teeth until they are adopted by the authorities having jurisdiction (AHJs). There is typically some delay between the time of adoption and the date the provisions take effect. In addition, most code provisions apply only to new construction or properties under substantial renovation. For many years after the provisions take effect, the majority of properties in the area will have been built before the new code requirement.

We have little information on how fires spread. Anecdotal data suggest that attic fires can be a major factor in fire spread.

Our statistics cannot provide complete answers to every single question. They can, and do, provide a broad outline of the patterns seen and suggest areas that should be explored further.

¹ Marty Ahrens. *Smoke Alarms in U.S. Home Fires*, Quincy, MA. September 2011, p. 45.
Area of Origin in Reported Apartment or Multi-Family Housing Fires, Excluding Properties under Construction, 5/13, 4

Table1.
Apartment or Multi-Family Housing Fires, by Presence of Automatic Extinguishing Equipment
2007-2011 Annual Averages
(Properties under Construction Were Excluded)

Type of Automatic Extinguishing Equipment Present	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Present	20,500	(19%)	23	(6%)	490	(11%)	\$99	(8%)
Non-confined fire	3,500	(3%)	23	(6%)	299	(7%)	\$95	(8%)
Confined fire	17,000	(16%)	0	(0%)	191	(4%)	\$4	(0%)
System not in fire area and did not operate	400	(0%)	1	(0%)	10	(0%)	\$18	(1%)
Non-confined fire	100	(0%)	1	(0%)	10	(0%)	\$18	(1%)
Confined fire	300	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Partial system	700	(1%)	4	(1%)	36	(1%)	\$12	(1%)
Non-confined fire	200	(0%)	4	(1%)	25	(1%)	\$12	(1%)
Confined fire	500	(1%)	0	(0%)	11	(0%)	\$0	(0%)
None present	84,200	(80%)	381	(93%)	3,729	(87%)	\$1,082	(89%)
Non-confined fire	30,000	(28%)	381	(93%)	3,079	(72%)	\$1,072	(89%)
Confined fire	54,200	(51%)	0	(0%)	650	(15%)	\$9	(1%)
Total	105,800	(100%)	409	(100%)	4,266	(100%)	\$1,210	(100%)
Non-confined fire	33,800	(32%)	409	(100%)	3,414	(80%)	\$1,196	(99%)
Confined fire	72,000	(68%)	0	(0%)	852	(20%)	\$14	(1%)

Source: NFIRS and NFPA survey.

Table 2.
Apartment or Multi-Family Housing Fires, by Type of Automatic Extinguishing Equipment
2007-2011 Annual Averages
(Properties under Construction Were Excluded)

Type of Automatic Extinguishing Equipment Present	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Wet pipe sprinkler	18,100	(86%)	22	(91%)	450	(90%)	\$106	(91%)
Non-confined fire	3,300	(16%)	22	(91%)	281	(56%)	\$102	(88%)
Confined fire	14,800	(70%)	0	(0%)	169	(34%)	\$4	(3%)
Dry pipe sprinkler	1,900	(9%)	0	(0%)	37	(7%)	\$ 9	(8%)
Non-confined fire	200	(1%)	0	(0%)	17	(3%)	\$9	(7%)
Confined fire	1,700	(8%)	0	(0%)	20	(4%)	\$0	(0%)
Unclassified sprinkler system	400	(2%)	0	(0%)	4	(1%)	\$1	(1%)
Non-confined fire	100	(0%)	0	(0%)	4	(1%)	\$1	(1%)
Confined fire	400	(2%)	0	(0%)	0	(0%)	\$0	(0%)
Unclassified or other know automatic extinguishing system	600	(3%)	2	(9%)	11	(2%)	\$1	(1%)
Non-confined fire	100	(0%)	2	(9%)	8	(2%)	\$1	(1%)
Confined fire	500	(2%)	0	(0%)	2	(0%)	\$0	(0%)
Total	20,900	(100%)	24	(100%)	501	(100%)	\$117	(100%)
Non-confined fire	3,700	(17%)	24	(100%)	309	(62%)	\$113	(96%)
Confined fire	17,300	(83%)	0	(0%)	191	(38%)	\$4	(4%)
Sprinklers present even if not in fire area	20,300	(97%)	22	(91%)	490	(98%)	\$116	(99%)
Non-confined fire	3,600	(17%)	22	(91%)	301	(60%)	\$112	(96%)
Confined fire	16,800	(80%)	0	(0%)	189	(38%)	\$ 4	(4%)

Source: NFIRS and NFPA survey.

Table 3.
Apartment or Multi-Family Housing Fires in Which Sprinklers were Present Even if Not in Fire Area
by Area of Origin,
2007-2011 Annual Averages
(Properties under Construction Were Excluded)

Area of Origin	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Kitchen or cooking area	16,300	(80%)	9	(42%)	311	(63%)	\$29	(25%)
Non-confined	1,600	(8%)	9	(42%)	134	(27%)	\$26	(22%)
Confined	14,700	(72%)	0	(0%)	177	(36%)	\$4	(3%)
Trash or rubbish chute, area or container	800	(4%)	0	(0%)	12	(2%)	\$0	(0%)
Non-confined	100	(0%)	0	(0%)	2	(0%)	\$0	(0%)
Confined	700	(4%)	0	(0%)	10	(2%)	\$0	(0%)
Bedroom	400	(2%)	5	(22%)	54	(11%)	\$8	(7%)
Non-confined	400	(2%)	5	(22%)	52	(11%)	\$8	(7%)
Confined	100	(0%)	0	(0%)	2	(0%)	\$0	(0%)
Living room, family room, den or common room	300	(2%)	6	(28%)	33	(7%)	\$4	(4%)
Non-confined	200	(1%)	6	(28%)	33	(7%)	\$4	(4%)
Confined	100	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Exterior balcony or unenclosed porch	300	(1%)	0	(0%)	9	(2%)	\$31	(27%)
Non-confined	200	(1%)	0	(0%)	9	(2%)	\$31	(27%)
Confined	100	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Laundry room or area	200	(1%)	0	(0%)	4	(1%)	\$2	(1%)
Non-confined	200	(1%)	0	(0%)	4	(1%)	\$2	(1%)
Confined	100	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Bathroom or lavatory	200	(1%)	0	(0%)	10	(2%)	\$2	(2%)
Non-confined	100	(1%)	0	(0%)	10	(2%)	\$2	(2%)
Confined	100	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Unclassified area of origin	200	(1%)	0	(0%)	2	(0%)	\$1	(1%)
Non-confined	0	(0%)	0	(0%)	2	(0%)	\$1	(1%)
Confined	200	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Unclassified function area	100	(1%)	1	(5%)	10	(2%)	\$5	(4%)
Non-confined	100	(0%)	1	(5%)	10	(2%)	\$5	(4%)
Confined	100	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Heating equipment room	100	(1%)	0	(0%)	2	(0%)	\$1	(0%)
Non-confined	0	(0%)	0	(0%)	2	(0%)	\$1	(0%)
Confined	100	(0%)	0	(0%)	0	(0%)	\$0	(0%)

Table 3. (continued)
Apartment or Multi-Family Housing Fires in Which Sprinklers were Present Even if Not in Fire Area
by Area of Origin,
2007-2011 Annual Averages
(Properties under Construction Were Excluded)

Area of Origin	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Other known area of origin	1,300	(6%)	0	(2%)	44	(9%)	\$33	(28%)
Non-confined	700	(3%)	0	(2%)	44	(9%)	\$32	(28%)
Confined	600	(3%)	0	(0%)	0	(0%)	\$0	(0%)
Total	20,300	(100%)	22	(100%)	490	(100%)	\$116	(100%)
Non-confined	3,600	(17%)	22	(100%)	301	(61%)	\$112	(96%)
Confined	16,800	(83%)	0	(0%)	189	(39%)	\$4	(4%)

Source: NFIRS and NFPA survey.

Table 4.
Apartment or Multi-Family Housing Fires in which Sprinklers Were Present Even if Not in Fire Area
by Extent of Flame Damage
2007-2011 Annual Averages
(Properties under Construction Were Excluded)

Extent of Fire Spread	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Confined fire identified by incident type	16,800	(83%)	0	(0%)	189	(63%)	\$ 4	(4%)
Confined to object of origin	1,100	(6%)	3	(14%)	57	(19%)	\$9	(8%)
Confined to room of origin	2,000	(10%)	13	(61%)	191	(63%)	\$32	(28%)
Confined to floor of origin	200	(1%)	2	(9%)	26	(9%)	\$9	(8%)
Confined to building of origin	300	(1%)	4	(16%)	26	(9%)	\$52	(45%)
Extended beyond building of origin	0	(0%)	0	(0%)	1	(0%)	\$10	(8%)
Total	20,300	(100%)	22	(100%)	301	(100%)	\$116	(100%)
Extended beyond room of origin	400	(2%)	5	(25%)	53	(18%)	\$70	(61%)

Source: NFIRS and NFPA survey.

Table 5.
Apartment or Multi-Family Housing Fires in which Sprinklers Were Present Even if Not in Fire Area
and Flame Damage Spread beyond the Room of Origin, by Area of Origin
2007-2011 Annual Averages
(Properties under Construction Were Excluded)

Area of Origin	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Exterior balcony or unenclosed porch	83	(19%)	0	(0%)	6	(11%)	\$30	(42%)
Kitchen or cooking area	59	(13%)	3	(49%)	15	(28%)	\$4	(5%)
Bedroom	36	(8%)	2	(31%)	7	(13%)	\$3	(4%)
Living room, family room, den or common room	22	(5%)	1	(20%)	5	(9%)	\$1	(1%)
Courtyard, terrace, or patio	19	(4%)	0	(0%)	7	(13%)	\$8	(11%)
Attic or ceiling/roof assembly or concealed space	18	(4%)	0	(0%)	1	(2%)	\$5	(8%)
Exterior roof surface	14	(3%)	0	(0%)	1	(2%)	\$2	(3%)
Exterior wall surface	14	(3%)	0	(0%)	0	(0%)	\$3	(5%)
Trash or rubbish chute, area or container	13	(3%)	0	(0%)	0	(0%)	\$0	(0%)
Unclassified outside area	12	(3%)	0	(0%)	0	(0%)	\$4	(5%)
Bathroom or lavatory	12	(3%)	0	(0%)	0	(1%)	\$1	(1%)
Wall assembly or concealed space	11	(3%)	0	(0%)	0	(1%)	\$1	(1%)
Laundry room or area	11	(3%)	0	(0%)	0	(0%)	\$1	(1%)
Unclassified function area	11	(2%)	0	(0%)	3	(5%)	\$3	(4%)
Interior stairway or ramp	10	(2%)	0	(0%)	0	(1%)	\$0	(0%)
Hallway, corridor, or mall	9	(2%)	0	(0%)	2	(4%)	\$0	(0%)
Exterior stairway, ramp, or fire escape	8	(2%)	0	(0%)	0	(1%)	\$1	(1%)
Ceiling/floor assembly or concealed space	8	(2%)	0	(0%)	0	(0%)	\$0	(1%)
Unclassified area of origin	7	(2%)	0	(0%)	1	(2%)	\$1	(1%)
Closet	7	(2%)	0	(0%)	0	(1%)	\$0	(0%)
Lobby or entrance way	6	(1%)	0	(0%)	2	(4%)	\$0	(0%)
Unclassified structural area	5	(1%)	0	(0%)	1	(2%)	\$1	(2%)
Unclassified means of egress	5	(1%)	0	(0%)	2	(3%)	\$0	(0%)
Heating equipment room	5	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Unclassified storage area	4	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Exterior surface of vehicle	3	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Garage or vehicle storage area*	3	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Duct for HVAC, cable, exhaust, heating, or AC	2	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Conduit, pipe, utility, or ventilation shaft	2	(1%)	0	(0%)	0	(0%)	\$0	(0%)

Table 5. (continued)
Apartment or Multi-Family Housing Fires in which Sprinklers Were Present Even if Not in Fire Area
and Flame Damage Spread beyond the Room of Origin, by Area of Origin
2007-2011 Annual Averages
(Properties under Construction Were Excluded)

Area of Origin	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Multiple areas of origin	2	(1%)	0	(0%)	0	(0%)	\$0	(\$0)
Other known area of origin	16	(4%)	0	(0%)	0	(0%)	\$1	(1%)
Total	437	(100%)	5	(100%)	53	(100%)	\$70	(100%)

* Does not include fires with property use coded as residential garage

Source: NFIRS and NFPA survey.

Table 6.
Apartment Multi-Family Housing Fires in which No Automatic Extinguishing Equipment Was Present
by Area of Origin
2007-2011 Annual Averages
(Properties under Construction Were Excluded)

Area of Origin	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Kitchen or cooking area	57,200	(68%)	72	(19%)	1,721	(46%)	\$204	(19%)
Non-confined	9,600	(11%)	72	(19%)	1,116	(30%)	\$195	(18%)
Confined	47,600	(57%)	0	(0%)	605	(16%)	\$8	(1%)
Bedroom	4,700	(6%)	116	(30%)	802	(22%)	\$199	(18%)
Non-confined	4,500	(5%)	116	(30%)	802	(22%)	\$199	(18%)
Confined	200	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Living room, family room, den or common room	2,400	(3%)	85	(22%)	391	(10%)	\$97	(9%)
Non-confined	2,100	(2%)	85	(22%)	389	(10%)	\$97	(9%)
Confined	300	(0%)	0	(0%)	2	(0%)	\$0	(0%)
Laundry room or area	1,700	(2%)	0	(0%)	64	(2%)	\$19	(2%)
Non-confined	1,300	(2%)	0	(0%)	52	(1%)	\$19	(2%)
Confined	400	(1%)	0	(0%)	12	(0%)	\$0	(0%)
Bathroom or lavatory	1,600	(2%)	4	(1%)	83	(2%)	\$24	(2%)
Non-confined	1,300	(2%)	4	(1%)	81	(2%)	\$24	(2%)
Confined	300	(0%)	0	(0%)	2	(0%)	\$0	(0%)
Exterior balcony or unenclosed porch	1,600	(2%)	11	(3%)	49	(1%)	\$89	(8%)
Non-confined	1,300	(2%)	11	(3%)	47	(1%)	\$89	(8%)
Confined	300	(0%)	0	(0%)	2	(0%)	\$0	(0%)
Unclassified area of origin	1,300	(2%)	8	(2%)	25	(1%)	\$13	(1%)
Non-confined	400	(0%)	8	(2%)	21	(1%)	\$13	(1%)
Confined	900	(1%)	0	(0%)	4	(0%)	\$0	(0%)
Unclassified function area	1,300	(1%)	35	(9%)	139	(4%)	\$53	(5%)
Non-confined	1,000	(1%)	35	(9%)	132	(4%)	\$53	(5%)
Confined	300	(0%)	0	(0%)	6	(0%)	\$0	(0%)
Heating equipment room	1,200	(1%)	1	(0%)	23	(1%)	\$18	(2%)
Non-confined	400	(0%)	1	(0%)	21	(1%)	\$17	(2%)
Confined	800	(1%)	0	(0%)	2	(0%)	\$0	(0%)
Exterior wall surface	800	(1%)	1	(0%)	17	(0%)	\$26	(2%)
Non-confined	800	(1%)	1	(0%)	14	(0%)	\$25	(2%)
Confined	0	(0%)	0	(0%)	2	(0%)	\$0	(0%)

Table 6. (continued)
Apartment or Multi-Family Housing Fires in which No Automatic Extinguishing Equipment Was Present
by Area of Origin
2007-2011 Annual Averages
(Properties under Construction Were Excluded)

Area of Origin	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Wall assembly or concealed space	700	(1%)	6	(1%)	27	(1%)	\$36	(3%)
Non-confined	700	(1%)	6	(1%)	27	(1%)	\$36	(3%)
Confined	0	(0%)	0	(0%)	0	(0%)	0	(0%)
Trash or rubbish chute, area or container	700	(1%)	0	(0%)	0	(0%)	\$1	(0%)
Non-confined	100	(0%)	0	(0%)	0	(0%)	\$1	(0%)
Confined	600	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Other known area of origin	9,000	(11%)	42	(11%)	388	(10%)	\$304	(28%)
Non-confined	6,600	(8%)	42	(11%)	377	(10%)	\$303	(28%)
Confined	2,400	(3%)	0	(0%)	11	(0%)	\$0	(0%)
Total	84,200	(100%)	381	(100%)	3,729	(100%)	\$1,082	(100%)
Non-confined	30,000	(36%)	381	(100%)	3,079	(83%)	\$1,072	(99%)
Confined	54,200	(64%)	0	(0%)	650	(17%)	\$9	(1%)

Source: NFIRS and NFPA survey.

Table 7.
Apartment or Multi-Family Housing Fires in which No Automatic Extinguishing Equipment Was Present
by Extent of Flame Damage
2007-2011 Annual Averages
(Properties under Construction Were Excluded)

Extent of Flame Damage	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Confined fire identified by incident type	54,200	(64%)	0	(0%)	650	(17%)	\$9	(1%)
Confined to object of origin	7,100	(8%)	15	(4%)	280	(8%)	\$33	(3%)
Confined to room of origin	13,300	(16%)	116	(31%)	1,342	(36%)	\$144	(13%)
Confined to floor of origin	3,200	(4%)	59	(16%)	513	(14%)	\$138	(13%)
Confined to building of origin	5,700	(7%)	155	(41%)	823	(22%)	\$636	(59%)
Extended beyond building of origin	700	(1%)	35	(9%)	121	(3%)	\$121	(11%)
Total	84,200	(100%)	381	(100%)	3,729	(100%)	\$1,082	(100%)
Extended beyond room of origin	9,600	(11%)	250	(65%)	1,458	(39%)	\$896	(83%)

Source: NFIRS and NFPA survey.

Table 8.
Apartment or Multi-Family Housing Fires in which No Automatic Extinguishing Equipment Was Present
and Flame Damage Spread beyond the Room of Origin, by Area of Origin
2007-2011 Annual Averages
(Properties under Construction Were Excluded)

Area of Origin	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Bedroom	1,640	(17%)	71	(29%)	458	(31%)	\$162	(18%)
Kitchen or cooking area	1,610	(17%)	41	(16%)	327	(22%)	\$132	(15%)
Living room, family room, den or common room	700	(7%)	47	(19%)	208	(14%)	\$79	(9%)
Exterior balcony or unenclosed porch	610	(6%)	11	(4%)	39	(3%)	\$86	(10%)
Exterior wall surface	430	(5%)	2	(1%)	11	(1%)	\$24	(3%)
Attic or ceiling/roof assembly or concealed space	370	(4%)	1	(1%)	10	(1%)	\$54	(6%)
Wall assembly or concealed space	360	(4%)	6	(2%)	21	(1%)	\$34	(4%)
Unclassified function area	360	(4%)	23	(9%)	69	(5%)	\$44	(5%)
Bathroom or lavatory	290	(3%)	2	(1%)	31	(2%)	\$18	(2%)
Ceiling/floor assembly or concealed space	220	(2%)	4	(2%)	11	(1%)	\$22	(2%)
Laundry room or area	210	(2%)	0	(0%)	16	(1%)	\$14	(2%)
Exterior stairway, ramp, or fire escape	200	(2%)	5	(2%)	24	(2%)	\$16	(2%)
Courtyard, terrace, or patio	200	(2%)	1	(1%)	19	(1%)	\$24	(3%)
Unclassified structural area	190	(2%)	3	(1%)	13	(1%)	\$18	(2%)
Unclassified outside area	180	(2%)	1	(0%)	7	(0%)	\$13	(1%)
Interior stairway or ramp	170	(2%)	2	(1%)	29	(2%)	\$12	(1%)
Multiple areas of origin	160	(2%)	4	(1%)	16	(1%)	\$10	(1%)
Unclassified area of origin	140	(1%)	7	(3%)	10	(1%)	\$12	(1%)
Closet	130	(1%)	4	(1%)	13	(1%)	\$12	(1%)
Crawl space or substructure space	130	(1%)	1	(1%)	6	(0%)	\$9	(1%)
Exterior roof surface	130	(1%)	0	(0%)	6	(0%)	\$11	(1%)
Heating equipment room	130	(1%)	1	(1%)	11	(1%)	\$11	(1%)
Garage or vehicle storage area*	110	(1%)	0	(0%)	12	(1%)	\$16	(2%)
Hallway, corridor, or mall	100	(1%)	6	(2%)	22	(2%)	\$7	(1%)
Unclassified means of egress	100	(1%)	1	(0%)	9	(1%)	\$4	(0%)
Lobby or entrance way	90	(1%)	1	(0%)	14	(1%)	\$4	(0%)
Unclassified storage area	80	(1%)	0	(0%)	10	(1%)	\$7	(1%)
Exterior surface of vehicle	70	(1%)	0	(0%)	2	(0%)	\$7	(1%)

* Does not include fires with property use coded as residential garage

Table 8. (continued)
Apartment or Multi-Family Housing Fires in which No Automatic Extinguishing Equipment Was Present
and Flame Damage Spread beyond the Room of Origin, by Area of Origin
2007-2011 Annual Averages
(Properties under Construction Were Excluded)

Area of Origin	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Duct for HVAC, cable, exhaust, heating, or AC	50	(1%)	0	(0%)	2	(0%)	\$4	(0%)
Storage room, area, tank, or bin	50	(1%)	0	(0%)	8	(1%)	\$4	(0%)
Vacant structural area	50	(1%)	0	(0%)	1	(0%)	\$33	(0%)
Other known area of origin	310	(3%)	3	(1%)	22	(2%)	\$24	(3%)
Total	9,580	(100%)	250	(100%)	1,458	(100%)	\$896	(100%)

Source: NFIRS and NFPA survey.

Table 9.
Apartment or Multi-Family Housing Fires, by Number of Stories
2007-2011 Annual Averages
(Properties under Construction Were Excluded)

Number of Stories	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
One to four stories	92,400	(87%)	361	(88%)	3665	(86%)	\$1,151	95%
Non-confined fire	30,400	(29%)	361	(88%)	2889	(85%)	\$1,140	94%
Confined fire	62,000	(59%)	0	(0%)	776	(91%)	\$11	1%
Five or more stories	13,400	(13%)	48	(12%)	601	(14%)	\$59	5%
Non-confined fire	3,400	(3%)	48	(12%)	525	(15%)	\$56	5%
Confined fire	10,000	(9%)	0	(0%)	75	(9%)	\$3	0%
Total	105,800	(100%)	409	(100%)	4266	(100%)	\$1,210	100%
Non-confined fire	33,800	(32%)	409	(100%)	3414	(80%)	\$1,196	99%
Confined fire	72,000	(68%)	0	(0%)	852	(20%)	\$14	1%

Source: NFIRS and NFPA survey.

Table 10.
Fires in Apartment or Multi-Family Housing of One to Four Stories
by Presence of Automatic Extinguishing Equipment
2007-2011 Annual Averages
(Properties under Construction Were Excluded)

Automatic Extinguishing Equipment	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Present	14,300	(16%)	13	(4%)	361	(10%)	\$83	(7%)
Non-confined fire	2,600	(3%)	13	(4%)	200	(5%)	\$79	(7%)
Confined fire	11,700	(13%)	0	(0%)	162	(4%)	\$4	(0%)
System not in fire area and did not operate	300	(0%)	0	(0%)	4	(0%)	\$17	(1%)
Non-confined fire	100	(0%)	0	(0%)	4	(0%)	\$17	(1%)
Confined fire	200	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Partial system	400	(0%)	2	(1%)	17	(0%)	\$9	(1%)
Non-confined fire	100	(0%)	2	(1%)	15	(0%)	\$9	(1%)
Confined fire	300	(0%)	0	(0%)	2	(0%)	\$0	(0%)
None present	77,500	(84%)	346	(96%)	3,283	(90%)	\$1,042	(91%)
Non-confined fire	27,600	(30%)	346	(96%)	2,670	(73%)	\$1,035	(90%)
Confined fire	49,900	(54%)	0	(0%)	613	(17%)	\$7	(1%)
Total	92,400	(100%)	361	(100%)	3,665	(100%)	\$1,151	(100%)
Non-confined fire	30,400	(33%)	361	(100%)	2,889	(79%)	\$1,140	(99%)
Confined fire	62,000	(67%)	0	(0%)	776	(21%)	\$11	(1%)

Source: NFIRS and NFPA survey.

Table 11.
Fires in Apartment or Multi-Family Housing of One to Four Stories
by Type of Automatic Extinguishing Equipment
2007-2011 Annual Averages
(Properties under Construction Were Excluded)

Automatic Extinguishing Equipment	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Wet pipe sprinkler	12,500	(85%)	11	(86%)	325	(89%)	\$89	(89%)
Non-confined fire	2,500	(17%)	11	(86%)	184	(50%)	\$86	(86%)
Confined fire	10,000	(69%)	0	(0%)	141	(39%)	\$3	(3%)
Dry pipe sprinkler	1,400	(10%)	0	(0%)	31	(8%)	\$9	(9%)
Non-confined fire	200	(1%)	0	(0%)	13	(4%)	\$9	(9%)
Confined fire	1,200	(9%)	0	(0%)	18	(5%)	\$0	(0%)
Unclassified sprinkler system	300	(2%)	0	(0%)	4	(1%)	\$1	(1%)
Non-confined fire	0	(0%)	0	(0%)	4	(1%)	\$1	(1%)
Confined fire	300	(2%)	0	(0%)	0	(0%)	\$0	(0%)
Unclassified or other know automatic extinguishing system	400	(3%)	2	(14%)	5	(1%)	\$1	(1%)
Non-confined fire	100	(0%)	2	(14%)	3	(1%)	\$1	(1%)
Confined fire	300	(2%)	0	(0%)	2	(1%)	\$0	(0%)
Total	14,600	(100%)	13	(100%)	366	(100%)	\$100	(100%)
Non-confined fire	2,700	(19%)	13	(100%)	204	(56%)	\$96	(96%)
Confined fire	11,900	(81%)	0	(0%)	162	(44%)	\$4	(4%)
	0							
Sprinklers present even if not in fire area	14,200	(97%)	11	(86%)	360	(99%)	\$99	(99%)
Non-confined fire	2,700	(18%)	11	(86%)	201	(55%)	\$96	(96%)
Confined fire	11,500	(79%)	0	(0%)	159	(44%)	\$4	(4%)

Source: NFIRS and NFPA survey.

Table 12.
Fires in Apartment or Multi-Family Housing of One to Four Stories in which Sprinklers Were Present
Even if Not in Fire Area, by Area of Origin
2007-2011 Annual Averages
(Properties under Construction Were Excluded)

Area of Origin	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Kitchen or cooking area	11,400	(80%)	6	(54%)	252	(70%)	\$22	(22%)
Non-confined	1,200	(9%)	6	(54%)	98	(27%)	\$18	(18%)
Confined	10,200	(72%)	0	(0%)	155	(43%)	\$3	(3%)
Trash or rubbish chute, area or container	400	(3%)	0	(0%)	3	(1%)	\$0	(0%)
Non-confined	0	(0%)	0	(0%)	1	(0%)	\$0	(0%)
Confined	400	(3%)	0	(0%)	3	(1%)	\$0	(0%)
Bedroom	300	(2%)	1	(10%)	33	(9%)	\$5	(5%)
Non-confined	300	(2%)	1	(10%)	31	(9%)	\$5	(5%)
Confined	0	(0%)	0	(0%)	2	(1%)	\$0	(0%)
Exterior balcony or unenclosed porch	300	(2%)	0	(0%)	10	(3%)	\$32	(32%)
Non-confined	200	(1%)	0	(0%)	10	(3%)	\$32	(32%)
Confined	100	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Living room, family room, den or common room	200	(1%)	3	(30%)	15	(4%)	\$3	(3%)
Non-confined	100	(1%)	3	(30%)	15	(4%)	\$3	(3%)
Confined	100	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Laundry room or area	200	(1%)	0	(0%)	3	(1%)	\$1	(1%)
Non-confined	100	(1%)	0	(0%)	3	(1%)	\$1	(1%)
Confined	0	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Bathroom or lavatory	200	(1%)	0	(0%)	6	(2%)	\$2	(2%)
Non-confined	100	(1%)	0	(0%)	6	(2%)	\$2	(2%)
Confined	100	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Unclassified area of origin	200	(1%)	0	(0%)	1	(0%)	\$1	(1%)
Non-confined	0	(0%)	0	(0%)	1	(0%)	\$1	(1%)
Confined	100	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Unclassified function area	100	(1%)	1	(6%)	6	(2%)	\$4	(4%)
Non-confined	100	(0%)	1	(6%)	6	(2%)	\$4	(4%)
Confined	0	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Heating equipment room	100	(1%)	0	(0%)	2	(1%)	\$0	(0%)
Non-confined	0	(0%)	0	(0%)	2	(1%)	\$0	(0%)
Confined	100	(0%)	0	(0%)	0	(0%)	\$0	(0%)

Table 12. (continued)
Fires in Apartment or Multi-Family Housing of One to Four Stories in which Sprinklers Were Present
Even if Not in Fire Area, by Area of Origin
2007-2011 Annual Averages
(Properties under Construction Were Excluded)

Area of Origin	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Closet	100	(1%)	0	(0%)	4	(1%)	\$1	(1%)
Non-confined	100	(0%)	0	(0%)	4	(1%)	\$1	(1%)
Confined	0	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Other known area of origin	800	(6%)	0	(0%)	26	(7%)	\$29	(29%)
Non-confined	400	(3%)	0	(0%)	26	(7%)	\$29	(29%)
Confined	410	(3%)	0	(0%)	0	(0%)	\$0	(0%)
Total	14,200	(100%)	11	(100%)	360	(100%)	\$99	(100%)
Non-confined	2,700	(19%)	11	(100%)	201	(56%)	\$96	(96%)
Confined	11,500	(81%)	0	(0%)	159	(44%)	\$4	(4%)

Source: NFIRS and NFPA survey.

Table 13.
Fires in Apartment or Multi-Family Housing of One to Four Stories in which Sprinklers Were Present
Even if not in Fire Area, by Extent of Flame Damage
2007-2011 Annual Averages
(Properties under Construction Were Excluded)

Extent of Flame Damage	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Confined fire identified by incident type	11,500	(81%)	0	(0%)	15,929	(44%)	\$4	(4%)
Confined to object of origin	800	(6%)	3	(24%)	39	(11%)	\$7	(7%)
Confined to room of origin	1,500	(11%)	4	(38%)	124	(34%)	\$21	(21%)
Confined to floor of origin	100	(1%)	2	(14%)	13	(4%)	\$6	(7%)
Confined to building of origin	200	(1%)	3	(24%)	24	(7%)	\$52	(52%)
Extended beyond building of origin	0	(0%)	0	(0%)	1	(0%)	\$10	(10%)
Total	14,200	(100%)	11	(100%)	360	(100%)	\$99	(100%)
Extended beyond room of origin	300	(2%)	4	(38%)	38	(10%)	\$68	(69%)

Source: NFIRS and NFPA survey.

Table 14.
Fires in Apartment or Multi-Family Housing of One to Four Stories in which Sprinklers Were Present
Even if not in Fire Area and Flame Damage Spread beyond the Room of Origin, by Area of Origin
2007-2011 Annual Averages (Properties under Construction Were Excluded)

Area of Origin	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Exterior balcony or unenclosed porch	79	(23%)	0	(0%)	6	(16%)	\$30	(44%)
Kitchen or cooking area	44	(13%)	2	(57%)	6	(15%)	\$3	(4%)
Bedroom	26	(8%)	1	(14%)	6	(16%)	\$2	(3%)
Attic or ceiling/roof assembly or concealed space	18	(5%)	0	(0%)	1	(3%)	\$5	(7%)
Courtyard, terrace, or patio	18	(5%)	0	(0%)	7	(19%)	\$8	(11%)
Living room, family room, den or common room	15	(4%)	1	(29%)	2	(6%)	\$1	(1%)
Exterior wall surface	13	(4%)	0	(0%)	0	(0%)	\$4	(5%)
Unclassified outside area	12	(3%)	0	(0%)	0	(0%)	\$4	(6%)
Unclassified function area	10	(3%)	0	(0%)	3	(7%)	\$3	(5%)
Wall assembly or concealed space	9	(3%)	0	(0%)	0	(1%)	\$1	(1%)
Bathroom or lavatory	9	(2%)	0	(0%)	0	(1%)	\$1	(2%)
Exterior roof surface	8	(2%)	0	(0%)	0	(1%)	\$2	(3%)
Exterior stairway, ramp, or fire escape	8	(2%)	0	(0%)	0	(1%)	\$1	(1%)
Laundry room or area	7	(2%)	0	(0%)	0	(0%)	\$0	(1%)
Interior stairway or ramp	7	(2%)	0	(0%)	0	(1%)	\$0	(0%)
Ceiling/floor assembly or concealed space	6	(2%)	0	(0%)	0	(0%)	\$0	(1%)
Hallway, corridor, or mall	5	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Unclassified structural area	5	(1%)	0	(0%)	1	(2%)	\$1	(2%)
Trash or rubbish chute, area or container	5	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Lobby or entrance way	5	(1%)	0	(0%)	2	(6%)	\$0	(0%)
Closet	5	(1%)	0	(0%)	0	(1%)	\$0	(0%)
Heating equipment room	4	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Unclassified means of egress	4	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Exterior surface of vehicle	3	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Unclassified area of origin	3	(1%)	0	(0%)	1	(1%)	\$1	(1%)
Unclassified storage area	3	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Garage or vehicle storage area*	2	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Crawl space or substructure space	2	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Other known area of origin	12	(4%)	0	(0%)	0	(0%)	\$1	(1%)
Total	346	(100%)	4	(100%)	38	(100%)	\$68	(100%)

* Does not include fires with property use coded as residential garage
Source: NFIRS and NFPA survey.

Table 15.
Fires in Apartment or Multi-Family Housing of One to Four Stories
in which No Automatic Extinguishing Equipment Was Present, by Area of Origin
2007-2011 Annual Averages
(Properties under Construction Were Excluded)

Area of Origin	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Kitchen or cooking area	53,000	(68%)	64	(19%)	1,584	(48%)	\$193	(19%)
Non-confined	9,000	(12%)	64	(19%)	1,013	(31%)	\$187	(18%)
Confined	44,100	(57%)	0	(0%)	572	(17%)	\$6	(1%)
Bedroom	4,300	(6%)	105	(30%)	654	(20%)	\$186	(18%)
Non-confined	4,100	(5%)	105	(30%)	654	(20%)	\$186	(18%)
Confined	200	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Living room, family room, den or common room	2,100	(3%)	77	(22%)	314	(10%)	\$95	(9%)
Non-confined	1,800	(2%)	77	(22%)	312	(10%)	\$94	(9%)
Confined	300	(0%)	0	(0%)	2	(0%)	\$0	(0%)
Laundry room or area	1,600	(2%)	0	(0%)	60	(2%)	\$19	(2%)
Non-confined	1,200	(2%)	0	(0%)	48	(1%)	\$19	(2%)
Confined	400	(1%)	0	(0%)	13	(0%)	\$0	(0%)
Exterior balcony or unenclosed porch	1,500	(2%)	11	(3%)	49	(2%)	\$90	(9%)
Non-confined	1,300	(2%)	11	(3%)	47	(1%)	\$90	(9%)
Confined	300	(0%)	0	(0%)	2	(0%)	\$0	(0%)
Bathroom or lavatory	1,500	(2%)	4	(1%)	72	(2%)	\$22	(2%)
Non-confined	1,200	(2%)	4	(1%)	69	(2%)	\$22	(2%)
Confined	300	(0%)	0	(0%)	2	(0%)	\$0	(0%)
Unclassified function area	1,200	(2%)	33	(10%)	126	(4%)	\$50	(5%)
Non-confined	900	(1%)	33	(10%)	122	(4%)	\$50	(5%)
Confined	300	(0%)	0	(0%)	4	(0%)	\$0	(0%)
Heating equipment room	1,200	(1%)	1	(0%)	22	(1%)	\$18	(2%)
Non-confined	400	(1%)	1	(0%)	20	(1%)	\$17	(2%)
Confined	800	(1%)	0	(0%)	2	(0%)	\$0	(0%)
Unclassified area of origin	1,100	(1%)	3	(1%)	21	(1%)	\$13	(1%)
Non-confined	400	(0%)	3	(1%)	17	(1%)	\$13	(1%)
Confined	800	(1%)	0	(0%)	4	(0%)	\$0	(0%)
Exterior wall surface	800	(1%)	2	(0%)	17	(1%)	\$26	(2%)
Non-confined	700	(1%)	2	(0%)	15	(0%)	\$26	(2%)
Confined	0	(0%)	0	(0%)	2	(0%)	\$0	(0%)

Table 15. (continued)
Fires in Apartment or Multi-Family Housing of One to Four Stories
in which No Automatic Extinguishing Equipment Was Present, by Area of Origin
2007-2011 Annual Averages
(Properties under Construction Were Excluded)

Area of Origin	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Wall assembly or concealed space	700	(1%)	6	(2%)	27	(1%)	\$35	(3%)
Non-confined	700	(1%)	6	(2%)	27	(1%)	\$35	(3%)
Confined	0	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Attic or ceiling/roof assembly or concealed space	600	(1%)	1	(0%)	13	(0%)	\$56	(5%)
Non-confined	600	(1%)	1	(0%)	13	(0%)	\$56	(5%)
Confined	0	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Other known area of origin	7,800	(10%)	38	(11%)	323	(10%)	\$239	(23%)
Non-confined	5,400	(7%)	38	(11%)	314	(10%)	\$239	(23%)
Confined	2,400	(3%)	0	(0%)	9	(0%)	\$0	(0%)
Total	77,500	(100%)	346	(100%)	3,283	(100%)	\$1,042	(100%)
Non-confined	27,600	(36%)	346	(100%)	2,670	(81%)	\$1,035	(99%)
Confined	49,900	(64%)	0	(0%)	613	(19%)	\$7	(1%)

Source: NFIRS and NFPA survey.

Table 16.
Fires in Apartment or Multi-Family Housing of One to Four Stories
in which No Automatic Extinguishing Equipment Was Present, by Extent of Flame Damage
2007-2011 Annual Averages
(Properties under Construction Were Excluded)

Extent of Flame Damage	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Confined fire identified by incident type	49,900	(64%)	0	(0%)	613	(19%)	\$7	(1%)
Confined to object of origin	6,300	(8%)	14	(4%)	246	(7%)	\$32	(3%)
Confined to room of origin	12,200	(16%)	98	(28%)	1,148	(35%)	\$132	(13%)
Confined to floor of origin	2,900	(4%)	54	(16%)	402	(12%)	\$130	(13%)
Confined to building of origin	5,500	(7%)	145	(42%)	753	(23%)	\$619	(59%)
Extended beyond building of origin	700	(1%)	35	(10%)	121	(4%)	\$121	(12%)
Total	77,500	(100%)	346	(100%)	3,283	(100%)	\$1,042	(100%)
Extended beyond room of origin	9,100	(12%)	233	(67%)	1,276	(39%)	\$871	(84%)

Source: NFIRS and NFPA survey.

Table 17.
Fires in Apartment or Multi-Family Housing of One to Four Stories
in which No Automatic Extinguishing Equipment Was Present
and Flame Damage Spread beyond the Room of Origin, by Area of Origin
2007-2011 Annual Averages
(Properties under Construction Were Excluded)

Area of Origin	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Kitchen or cooking area	1,530	(17%)	39	(17%)	295	(23%)	\$127	(15%)
Bedroom	1,520	(17%)	66	(28%)	382	(30%)	\$152	(17%)
Living room, family room, den or common room	640	(7%)	46	(20%)	177	(14%)	\$78	(9%)
Exterior balcony or unenclosed porch	610	(7%)	11	(5%)	39	(3%)	\$87	(10%)
Exterior wall surface	430	(5%)	2	(1%)	12	(1%)	\$24	(3%)
Attic or ceiling/roof assembly or concealed space	370	(4%)	1	(1%)	10	(1%)	\$53	(6%)
Wall assembly or concealed space	360	(4%)	6	(2%)	20	(2%)	\$33	(4%)
Unclassified function area	350	(4%)	22	(9%)	65	(5%)	\$43	(5%)
Bathroom or lavatory	270	(3%)	2	(1%)	28	(2%)	\$17	(2%)
Ceiling/floor assembly or concealed space	210	(2%)	4	(2%)	10	(1%)	\$22	(2%)
Exterior stairway, ramp, or fire escape	200	(2%)	5	(2%)	23	(2%)	\$15	(2%)
Laundry room or area	200	(2%)	0	(0%)	16	(1%)	\$14	(2%)
Courtyard, terrace, or patio	200	(2%)	1	(1%)	20	(2%)	\$25	(3%)
Unclassified structural area	180	(2%)	3	(1%)	13	(1%)	\$17	(2%)
Unclassified outside area	180	(2%)	1	(0%)	7	(1%)	\$12	(1%)
Multiple areas of origin	150	(2%)	4	(2%)	15	(1%)	\$10	(1%)
Interior stairway or ramp	150	(2%)	2	(1%)	24	(2%)	\$12	(1%)
Unclassified area of origin	140	(1%)	2	(1%)	8	(1%)	\$12	(1%)
Crawl space or substructure space	130	(1%)	1	(1%)	5	(0%)	\$9	(1%)
Closet	130	(1%)	3	(1%)	10	(1%)	\$12	(1%)
Heating equipment room	120	(1%)	1	(1%)	10	(1%)	\$11	(1%)
Exterior roof surface	110	(1%)	0	(0%)	2	(0%)	\$9	(1%)
Garage or vehicle storage area*	100	(1%)	0	(0%)	12	(1%)	\$16	(2%)
Hallway, corridor, or mall	90	(1%)	4	(2%)	15	(1%)	\$6	(1%)
Unclassified means of egress	80	(1%)	1	(0%)	9	(1%)	\$4	(0%)
Lobby or entrance way	80	(1%)	1	(0%)	12	(1%)	\$3	(0%)
Unclassified storage area	80	(1%)	0	(0%)	8	(1%)	\$7	(1%)
Exterior surface of vehicle	60	(1%)	0	(0%)	2	(0%)	\$7	(1%)
Duct for HVAC, cable, exhaust, heating, or AC	50	(1%)	0	(0%)	2	(0%)	\$4	(0%)
Storage room, area, tank, or bin	50	(1%)	0	(0%)	6	(0%)	\$4	(1%)
Other known area of origin	310	(3%)	3	(1%)	19	(2%)	\$25	(3%)
Total	9,090	(100%)	233	(100%)	1,276	(100%)	\$871	(100%)

* Does not include fires with property use coded as residential garage

Source: NFIRS and NFPA survey.

Table 18.
Fires in Apartment or Multi-Family Housing of Five or More Stories
by Presence of Automatic Extinguishing Equipment
2007-2011 Annual Averages
(Properties under Construction Were Excluded)

Automatic Extinguishing Equipment	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Present	5,900	(44%)	9	(20%)	133	(22%)	\$16	(27%)
Non-confined fire	800	(6%)	9	(20%)	96	(16%)	\$15	(26%)
Confined fire	5,000	(38%)	0	(0%)	36	(6%)	\$1	(1%)
System not in fire area and did not operate	200	(1%)	1	(3%)	5	(1%)	\$1	(2%)
Non-confined fire	0	(0%)	1	(3%)	5	(1%)	\$1	(2%)
Confined fire	100	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Partial system	300	(3%)	2	(3%)	20	(3%)	\$2	(4%)
Non-confined fire	100	(0%)	2	(3%)	10	(2%)	\$2	(4%)
Confined fire	300	(2%)	0	(0%)	10	(2%)	\$0	(0%)
None present	7,000	(52%)	36	(74%)	442	(74%)	\$39	(67%)
Non-confined fire	2,500	(18%)	36	(74%)	413	(69%)	\$37	(62%)
Confined fire	4,500	(34%)	0	(0%)	29	(5%)	\$3	(4%)
Total	13,400	(100%)	48	(100%)	601	(100%)	\$59	(100%)
Non-confined fire	3,400	(25%)	48	(100%)	525	(87%)	\$56	(95%)
Confined fire	10,000	(75%)	0	(0%)	75	(13%)	\$3	(5%)

Source: NFIRS and NFPA survey.

Table 19.
Fires in Apartment or Multi-Family Housing of Five or More Stories
by Type of Automatic Extinguishing Equipment
2007-2011 Annual Averages
(Properties under Construction Were Excluded)

Type of Automatic Extinguishing Equipment	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Wet pipe sprinkler	5,370	(89%)	10	(95%)	128	(92%)	\$17	(97%)
Non-confined fire	810	(13%)	10	(95%)	94	(68%)	\$16	(95%)
Confined fire	4,560	(75%)	0	(0%)	34	(25%)	\$0	(3%)
Dry pipe sprinkler	440	(7%)	0	(0%)	6	(4%)	\$0	(1%)
Non-confined fire	40	(1%)	0	(0%)	3	(2%)	\$0	(1%)
Confined fire	400	(7%)	0	(0%)	2	(2%)	\$0	(0%)
Unclassified sprinkler system	90	(2%)	0	(0%)	0	(0%)	\$0	(0%)
Non-confined fire	10	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Confined fire	80	(1%)	0	(0%)	0	(0%)	\$ -	(0%)
Unclassified or other know automatic extinguishing system	140	(2%)	1	(5%)	5	(3%)	\$0	(1%)
Non-confined fire	20	(0%)	1	(5%)	5	(3%)	\$0	(1%)
Confined fire	120	(2%)	0	(0%)	0	(0%)	\$0	(0%)
	6,040							
Total	890	(100%)	11	(100%)	138	(100%)	\$17	(100%)
Non-confined fire	5,150	(15%)	11	(100%)	102	(74%)	\$17	(97%)
Confined fire	5,370	(85%)	0	(0%)	36	(26%)	\$1	(3%)
Sprinklers present even if not in fire area	5,900	(98%)	10	(95%)	134	(97%)	\$17	(99%)
Non-confined fire	860	(14%)	10	(95%)	97	(70%)	\$17	(96%)
Confined fire	5,030	(83%)	0	(0%)	36	(26%)	\$1	(3%)

Source: NFIRS and NFPA survey.

Table 20.
Fires in Apartment or Multi-Family Housing of Five or More Stories in which Sprinklers Were Present
Even if not in Fire Area, by Area of Origin
2007-2011 Annual Averages
(Properties under Construction Were Excluded)

Area of Origin	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Kitchen or cooking area	4,770	(81%)	3	(32%)	62	(46%)	\$7	(44%)
Non-confined	330	(6%)	3	(32%)	33	(25%)	\$7	(41%)
Confined	4,440	(75%)	0	(0%)	28	(21%)	\$0	(2%)
Trash or rubbish chute, area or container	350	(6%)	0	(0%)	10	(7%)	\$0	(1%)
Non-confined	40	(1%)	0	(0%)	1	(1%)	\$0	(0%)
Confined	310	(5%)	0	(0%)	8	(6%)	\$0	(0%)
Living room, family room, den or common room	130	(2%)	3	(27%)	18	(14%)	\$2	(10%)
Non-confined	90	(1%)	3	(27%)	18	(14%)	\$2	(10%)
Confined	40	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Bedroom	120	(2%)	3	(33%)	21	(16%)	\$3	(16%)
Non-confined	100	(2%)	3	(33%)	21	(16%)	\$3	(16%)
Confined	10	(0%)	0	(0%)	0	(0%)	\$ -	(0%)
Hallway, corridor, or mall	60	(1%)	0	(0%)	3	(2%)	\$0	(2%)
Non-confined	20	(0%)	0	(0%)	3	(2%)	\$0	(2%)
Confined	40	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Laundry room or area	60	(1%)	0	(0%)	0	(0%)	\$0	(2%)
Non-confined	30	(1%)	0	(0%)	0	(0%)	\$0	(2%)
Confined	20	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Bathroom or lavatory	40	(1%)	0	(0%)	3	(3%)	\$0	(2%)
Non-confined	30	(1%)	0	(0%)	3	(3%)	\$0	(2%)
Confined	10	(0%)	0	(0%)	0	(0%)	\$ -	(0%)
Unclassified function area	40	(1%)	0	(5%)	4	(3%)	\$0	(2%)
Non-confined	30	(0%)	0	(5%)	4	(3%)	\$0	(2%)
Confined	10	(0%)	0	(0%)	0	(0%)	\$-	(0%)
Courtyard, terrace, or patio	30	(1%)	0	(0%)	1	(1%)	\$0	(0%)
Non-confined	10	(0%)	0	(0%)	1	(1%)	\$0	(0%)
Confined	30	(0%)	0	(0%)	0	(0%)	\$0	(0%)

Table 20. (continued)
Fires in Apartment or Multi-Family Housing of Five or More Stories in which Sprinklers Were Present
Even if Not in Fire Area, by Area of Origin
2007-2011 Annual Averages
(Properties under Construction Were Excluded)

Area of Origin	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Other known area of origin	410	(6%)	0	(4%)	11	(8%)	\$4	(21%)
Non-confined	180	(3%)	0	(4%)	11	(8%)	\$4	(21%)
Confined	160	(3%)	0	(0%)	0	(0%)	\$0	(0%)
Total	5,900	(100%)	10	(100%)	134	(100%)	\$17	(100%)
Non-confined	860	(15%)	10	(100%)	97	(73%)	\$17	(97%)
Confined	5,030	(85%)	0	(0%)	36	(27%)	\$1	(3%)

Source: NFIRS and NFPA survey.

Table 21.
Fires in Apartment or Multi-Family Housing of Five or More Stories in which Sprinklers Were Present
Even if Not in Fire Area, by Extent of Flame Damage
2007-2011 Annual Averages
(Properties under Construction Were Excluded)

Extent of Flame Damage	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Confined fire identified by incident type	5,030	(85%)	0	(0%)	36	(28%)	\$1	(3%)
Confined to object of origin	300	(5%)	1	(5%)	16	(12%)	\$2	(12%)
Confined to room of origin	470	(8%)	8	(81%)	64	(48%)	\$10	(61%)
Confined to floor of origin	40	(1%)	0	(5%)	13	(10%)	\$2	(14%)
Confined to building of origin	50	(1%)	1	(9%)	3	(2%)	\$2	(10%)
Extended beyond building of origin	0	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Total	5,900	(100%)	10	(100%)	134	(100%)	\$17	(100%)
	0						\$ -	
Extended beyond room of origin	91	(11%)	1	(14%)	16	(12%)	\$4	(24%)

Source: NFIRS and NFPA survey.

Table 22.
Fires in Apartment or Multi-Family Housing of Five or More Stories
in which Sprinklers Were Present Even if Not in Fire Area and Flame Damage Spread
beyond the Room of Origin, by Area of Origin
2007-2011 Annual Averages
(Properties under Construction Were Excluded)

Area of Origin	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Kitchen or cooking area	14	(16%)	0	(30%)	9	(54%)	\$1	(18%)
Bedroom	10	(11%)	1	(70%)	1	(5%)	\$1	(20%)
Trash or rubbish chute, area or container	8	(9%)	0	(0%)	0	(0%)	\$0	(0%)
Living room, family room, den or common room	7	(8%)	0	(0%)	2	(13%)	\$0	(5%)
Exterior roof surface	6	(6%)	0	(0%)	0	(2%)	\$0	(2%)
Exterior balcony or unenclosed porch	5	(6%)	0	(0%)	0	(0%)	\$1	(13%)
Hallway, corridor, or mall	4	(4%)	0	(0%)	2	(12%)	\$0	(0%)
Bathroom or lavatory	4	(4%)	0	(0%)	0	(0%)	\$0	(1%)
Laundry room or area	3	(4%)	0	(0%)	0	(0%)	\$0	(5%)
Wall assembly or concealed space	3	(3%)	0	(0%)	0	(0%)	\$0	(1%)
Interior stairway or ramp	3	(3%)	0	(0%)	0	(0%)	\$0	(2%)
Closet	2	(3%)	0	(0%)	0	(0%)	\$0	(1%)
Unclassified area of origin	2	(2%)	0	(0%)	0	(3%)	\$0	(8%)
Lobby or entrance way	2	(2%)	0	(0%)	0	(0%)	\$ -	(0%)
Exterior wall surface	2	(2%)	0	(0%)	0	(0%)	\$ -	(0%)
Attic or ceiling/roof assembly or concealed space	1	(2%)	0	(0%)	0	(0%)	\$1	(12%)
Unclassified function area	1	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Unclassified means of egress	1	(1%)	0	(0%)	2	(10%)	\$0	(1%)
Multiple areas of origin	1	(1%)	0	(0%)	0	(0%)	\$0	(3%)
Ceiling/floor assembly or concealed space	1	(1%)	0	(0%)	0	(0%)	\$ -	(0%)
Unclassified equipment or service area	1	(1%)	0	(0%)	0	(0%)	\$0	(1%)
Unclassified outside area	1	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Duct for HVAC, cable, exhaust, heating, or AC	1	(1%)	0	(0%)	0	(0%)	\$ -	(0%)
Conduit, pipe, utility, or ventilation shaft	1	(1%)	0	(0%)	0	(0%)	\$ -	(0%)
Heating equipment room	1	(1%)	0	(0%)	0	(0%)	\$ -	(0%)
Unclassified storage area	1	(1%)	0	(0%)	0	(0%)	\$ -	(0%)

Table 22. (continued)
Fires in Apartment or Multi-Family Housing of Five or More Stories
in which Sprinklers Were Present Even if Not in Fire Area and Flame Damage Spread
beyond the Room of Origin, by Area of Origin
2007-2011 Annual Averages
(Properties under Construction Were Excluded)

Area of Origin	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Other known area of origin	8	(9%)	0	(0%)	0	(0%)	\$0	(5%)
Total	91	(100%)	1	(100%)	16	(100%)	\$4	(100%)

Source: NFIRS and NFPA survey.

Table 23.
Fires in Apartment or Multi-Family Housing of Five or More Stories
in which No Automatic Extinguishing Equipment Was Present, by Area of Origin
2007-2011 Annual Averages
(Properties under Construction Were Excluded)

Area of Origin	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Kitchen or cooking area	4,750	(68%)	8	(23%)	132	(30%)	\$11	(28%)
Non-confined	760	(11%)	8	(23%)	105	(24%)	\$9	(22%)
Confined	3,980	(57%)	0	(0%)	27	(6%)	\$3	(7%)
Bedroom	480	(7%)	11	(31%)	148	(33%)	\$10	(26%)
Non-confined	470	(7%)	11	(31%)	148	(33%)	\$10	(26%)
Confined	10	(0%)	0	(0%)	0	(0%)	\$ -	(0%)
Living room, family room, den or common room	330	(5%)	7	(21%)	80	(18%)	\$3	(7%)
Non-confined	300	(4%)	7	(21%)	80	(18%)	\$3	(7%)
Confined	30	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Trash or rubbish chute, area or container	140	(2%)	0	(0%)	0	(0%)	\$0	(0%)
Non-confined	30	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Confined	110	(2%)	0	(0%)	0	(0%)	\$0	(0%)
Bathroom or lavatory	110	(2%)	0	(0%)	10	(2%)	\$2	(5%)
Non-confined	100	(1%)	0	(0%)	10	(2%)	\$2	(5%)
Confined	10	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Unclassified area of origin	100	(1%)	4	(12%)	4	(1%)	\$0	(0%)
Non-confined	30	(0%)	4	(12%)	4	(1%)	\$0	(0%)
Confined	60	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Interior stairway or ramp	90	(1%)	0	(1%)	6	(1%)	\$0	(0%)
Non-confined	70	(1%)	0	(1%)	6	(1%)	\$0	(0%)
Confined	20	(0%)	0	(0%)	0	(0%)	\$ -	(0%)
Laundry room or area	90	(1%)	0	(0%)	3	(1%)	\$0	(1%)
Non-confined	70	(1%)	0	(0%)	3	(1%)	\$0	(1%)
Confined	20	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Heating equipment room	90	(1%)	0	(0%)	1	(0%)	\$0	(1%)
Non-confined	20	(0%)	0	(0%)	1	(0%)	\$0	(1%)
Confined	70	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Hallway, corridor, or mall	80	(1%)	0	(1%)	10	(2%)	\$1	(2%)
Non-confined	30	(0%)	0	(1%)	10	(2%)	\$1	(2%)
Confined	50	(1%)	0	(0%)	0	(0%)	\$0	(0%)

Table 23. (continued)
Fires in Apartment or Multi-Family Housing of Five or More Stories
in which No Automatic Extinguishing Equipment Was Present, by Area of Origin
2007-2011 Annual Averages
(Properties under Construction Were Excluded)

Area of Origin	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Unclassified function area	60	(1%)	3	(8%)	11	(2%)	\$2	(6%)
Non-confined	50	(1%)	3	(8%)	11	(2%)	\$2	(6%)
Confined	0	(0%)	0	(0%)	0	(0%)	\$ -	(0%)
Exterior balcony or unenclosed porch	60	(1%)	0	(0%)	0	(0%)	\$0	(1%)
Non-confined	40	(1%)	0	(0%)	0	(0%)	\$0	(1%)
Confined	20	(0%)	0	(0%)	0	(0%)	\$ -	(0%)
Other known area of origin	630	(9%)	1	(2%)	38	(9%)	\$9	(24%)
Non-confined	480	(7%)	1	(2%)	36	(8%)	\$9	(24%)
Confined	150	(2%)	0	(0%)	3	(1%)	\$0	(0%)
Total	6,990	(100%)	36	(100%)	442	(100%)	\$39	(100%)
Non-confined	2,450	(35%)	36	(100%)	413	(93%)	\$37	(93%)
Confined	4,540	(65%)	0	(0%)	29	(7%)	\$3	(7%)

Source: NFIRS and NFPA survey.

Table 24.
Fires in Apartment or Multi-Family Housing of Five or More Stories
in which No Automatic Extinguishing Equipment Was Present, by Extent of Flame Damage
2007-2011 Annual Averages
(Properties under Construction Were Excluded)

Extent of Flame Damage	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Confined fire identified by incident type	4,540	(65%)	0	(0%)	29	(7%)	\$3	(7%)
Confined to object of origin	690	(10%)	1	(2%)	32	(7%)	\$1	(2%)
Confined to room of origin	1,190	(17%)	19	(52%)	195	(44%)	\$9	(24%)
Confined to floor of origin	280	(4%)	4	(11%)	112	(25%)	\$7	(18%)
Confined to building of origin	270	(4%)	11	(32%)	73	(16%)	\$18	(46%)
Extended beyond building of origin	10	(0%)	1	(2%)	1	(0%)	\$1	(3%)
Total	6,990	(100%)	36	(100%)	442	(100%)	\$39	(100%)
Extended beyond room of origin	560	(8%)	16	(46%)	186	(42%)	\$27	(68%)

Source: NFIRS and NFPA survey.

Table 25. (continued)
Fires in Apartment or Multi-Family Housing of Five or More Stories in which No Automatic Extinguishing
Equipment Was Present and Flame Damage Spread beyond the Room of Origin, by Area of Origin
2007-2011 Annual Averages
(Properties under Construction Were Excluded)

Area of Origin	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Bedroom	134	(24%)	5	(32%)	78	(42%)	\$8	(30%)
Kitchen or cooking area	96	(17%)	2	(12%)	34	(18%)	\$5	(20%)
Living room, family room, den or common room	63	(11%)	2	(11%)	32	(17%)	\$1	(5%)
Exterior roof surface	23	(4%)	0	(0%)	3	(2%)	\$2	(7%)
Bathroom or lavatory	21	(4%)	0	(0%)	3	(1%)	\$2	(6%)
Interior stairway or ramp	21	(4%)	0	(3%)	5	(3%)	\$0	(0%)
Unclassified means of egress	14	(2%)	0	(0%)	0	(0%)	\$0	(0%)
Unclassified function area	13	(2%)	2	(12%)	3	(2%)	\$1	(3%)
Exterior balcony or unenclosed porch	11	(2%)	0	(0%)	0	(0%)	\$0	(1%)
Trash or rubbish chute, area or container	11	(2%)	0	(0%)	0	(0%)	\$0	(0%)
Lobby or entrance way	11	(2%)	0	(0%)	2	(1%)	\$0	(0%)
Wall assembly or concealed space	10	(2%)	0	(0%)	0	(0%)	\$0	(1%)
Ceiling/floor assembly or concealed space	9	(2%)	0	(0%)	0	(0%)	\$0	(1%)
Conduit, pipe, utility, or ventilation shaft	9	(2%)	0	(0%)	0	(0%)	\$0	(0%)
Laundry room or area	8	(1%)	0	(0%)	0	(0%)	\$0	(1%)
Closet	8	(1%)	0	(0%)	4	(2%)	\$1	(2%)
Exterior wall surface	8	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Hallway, corridor, or mall	8	(1%)	0	(3%)	7	(4%)	\$1	(2%)
Unclassified area of origin	7	(1%)	5	(28%)	3	(1%)	\$0	(0%)
Unclassified structural area	7	(1%)	0	(0%)	0	(0%)	\$0	(1%)
Attic or ceiling/roof assembly or concealed space	6	(1%)	0	(0%)	0	(0%)	\$1	(6%)
Multiple areas of origin	6	(1%)	0	(0%)	2	(1%)	\$0	(0%)
Storage room, area, tank, or bin	6	(1%)	0	(0%)	2	(1%)	\$0	(0%)
Heating equipment room	5	(1%)	0	(0%)	0	(0%)	\$0	(1%)
Unclassified outside area	4	(1%)	0	(0%)	0	(0%)	\$1	(3%)
Exterior stairway, ramp, or fire escape	4	(1%)	0	(0%)	1	(1%)	\$0	(2%)
Garage or vehicle storage area*	4	(1%)	0	(0%)	0	(0%)	\$0	(1%)

Table 25.
Fires in Apartment or Multi-Family Housing of Five or More Stories in which No Automatic Extinguishing
Equipment Was Present and Flame Damage Spread beyond the Room of Origin, by Area of Origin
2007-2011 Annual Averages
(Properties under Construction Were Excluded)

Area of Origin	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Storage of supplies or tools or dead storage	4	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Exterior surface of vehicle	3	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Other known area of origin	29	(5%)	0	(0%)	5	(3%)	\$1	(4%)
Total	564	(100%)	16	(100%)	186	(100%)	\$27	(100%)

* Does not include fires with property use coded as residential garage

Source: NFIRS 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

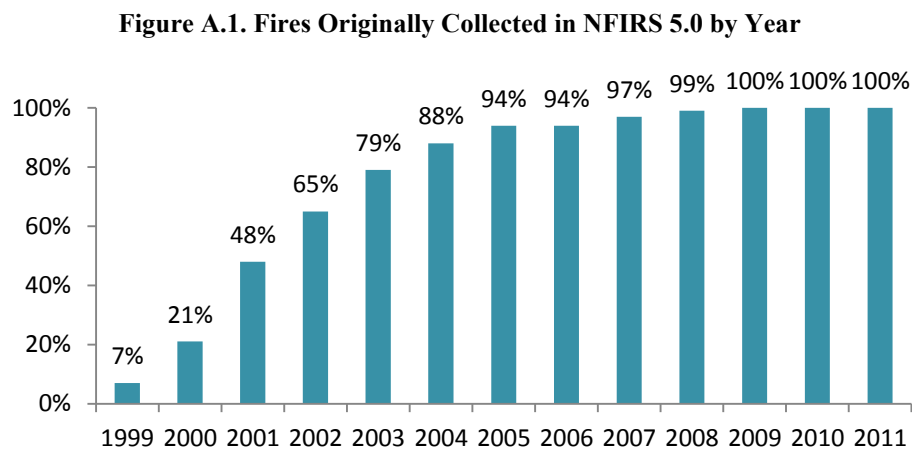
As noted, NFIRS is a voluntary system. Different states and jurisdictions have different reporting requirements and practices. Participation rates in NFIRS are not necessarily uniform across regions and community sizes, both factors correlated with frequency and severity of fires. This means NFIRS may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

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.*

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.