

HOME STRUCTURE FIRES

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Abstract

NFPA estimates that U.S. fire departments responded to an average of 377,100 reported home structure fires per year during the four-year-period of 2002-2005. These fires caused an estimated average of 2,870 civilian deaths, 13,360 civilian injuries, and \$5.9 billion in direct property damage per year. Almost three-quarters (72%) of the reported home structure fires and 85% of the fatal home fire injuries occurred in one- and two-family dwellings (including manufactured homes). The remainder occurred in apartments or similar properties.

Cooking equipment is the leading cause of home structure fires and home fire injuries, while heating equipment and smoking materials are the leading causes of home fire deaths. Among the major fire causes, smoking materials have the highest rate of deaths per 100 reported fires. More than half of all home fire deaths result from incidents reported between 11:00 p.m. and 7:00 a.m. Twenty-four percent of all home fire deaths were caused by fires that started in the living room, family room or den; 24% also resulted from fires originating in the bedroom. Although smoke alarms operated in 49% of the reported home fires, no working smoke alarm was present in 65% of the home fire deaths.

These estimates are based on data 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 fire department experience survey.

Keywords: fire statistics, home fires, residential fires, apartment fires

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Table of Contents

Table of Contents	i
List of Tables	iii
List of Figures	v
U.S. Home Structure Fires Fact Sheet	vii
Home Structure Fires	1
Leading Causes of Reported Home Structure Fires	7
Detailed Causal Information by NFIRS Field	13
Home Structure Fire Tables	20
One-and Two-Family Dwelling Structure Fire Tables	34
Apartment Structure Fire Tables	48
Appendix A. How National Estimates are Calculated	61
Appendix B. Methodology and Definitions Used in “Leading Cause” Tables	66

List of Tables

		Page
Table A.	Home Structure Fires by Property Use	1
Table B.	Sprinkler Systems in Non-Confined Home Structure Fires	19
Table 1.	Home Structure Fires by Year	20
Table 2.	Home Structure Fires by Month	21
Table 3.	Home Structure Fires by Day of Week	21
Table 4.	Home Structure Fires by Alarm Time	22
Table 5.	Major Causes of Home Structure Fires	23
Table 6.	Home Structure Fires by Equipment Involved in Ignition	24
Table 7.	Home Structure Fires by Heat Source	25
Table 8.	Home Structure Fires by Factor Contributing to Ignition	26
Table 9.	Home Structure Fires by Factor Contributing to Ignition Grouping	28
Table 10.	Home Structure Fires by Area of Origin	30
Table 11.	Home Structure Fires by Item First Ignited	31
Table 12.	Home Structure Fires by Extent of Flame Damage	33
Table 1A.	One- and Two-Family Dwelling Structure Fires by Year	34
Table 2A.	One- and Two-Family Dwelling Structure Fires by Month	35
Table 3A.	One- and Two-Family Dwelling Structure Fires by Day of Week	35
Table 4A.	One- and Two-Family Dwelling Structure Fires by Alarm Time	36
Table 5A.	Major Causes of One- and Two-Family Dwelling Structure Fires	37
Table 6A.	One- and Two-Family Dwelling Structure Fires by Equipment Involved in Ignition	38
Table 7A.	One- and Two-Family Dwelling Structure Fires by Heat Source	39
Table 8A.	One- and Two-Family Dwelling Structure Fires by Factor Contributing to Ignition	40
Table 9A.	One- and Two-Family Dwelling Structure Fires by Factor Contributing to Ignition Grouping	42
Table 10A.	One- and Two-Family Dwelling Structure Fires by Area of Origin	44
Table 11A.	One- and Two-Family Dwelling Structure Fires by Item First Ignited	45
Table 12A.	One- and Two-Family Dwelling Structure Fires by Extent of Flame Damage	47
Table 1B.	Apartment Structure Fires by Year	48
Table 2B.	Apartment Structure Fires by Month	49
Table 3B.	Apartment Structure Fires by Day of Week	49
Table 4B.	Apartment Structure Fires by Alarm Time	50
Table 5B.	Major Causes of Apartment Structure Fires	51
Table 6B.	Apartment Structure Fires by Equipment Involved in Ignition	52
Table 7B.	Apartment Structure Fires by Heat Source	53
Table 8B.	Apartment Structure Fires by Factor Contributing to Ignition	54
Table 9B.	Apartment Structure Fires by Factor Contributing to Ignition Grouping	55
Table 10B.	Apartment Structure Fires by Area of Origin	57
Table 11B.	Apartment Structure Fires by Item First Ignited	58
Table 12B.	Apartment Structure Fires by Extent of Flame Damage	59

List of Figures

	Page
Figure 1. Reported Home Structure Fires by Year	3
Figure 2. Home Structure Fire Deaths by Year	3
Figure 3. Reported Structure Fires in One- and Two-Family Dwellings by Year	4
Figure 4. Reported Structure Fires in Apartments by Year	4
Figure 5. Home Structure Fires and Fire Deaths by Month	5
Figure 6. Home Structure Fires by Alarm Time	6
Figure 7. Home Structure Fire Deaths by Alarm Time	6
Figure 8. Major Causes of Home Structure Fire	7
Figure 9. Major Causes of Structure Fires in One- and Two-Family Dwellings and Apartments	9
Figure 10. Leading Areas of Origin in Home Structure Fires	14
Figure 11. Leading Items First Ignited in Home Structure Fires	16
Figure 12. Home Structure Fires and Deaths, by Smoke Alarm Performance	17
Figure 13. Death Rate per 100 Reported Fires by Smoke Alarm Status and Occupancy	18



U.S. Home Structure Fires

U.S. fire departments responded to an estimated 396,000 home¹ structure fires in 2006. These fires caused:



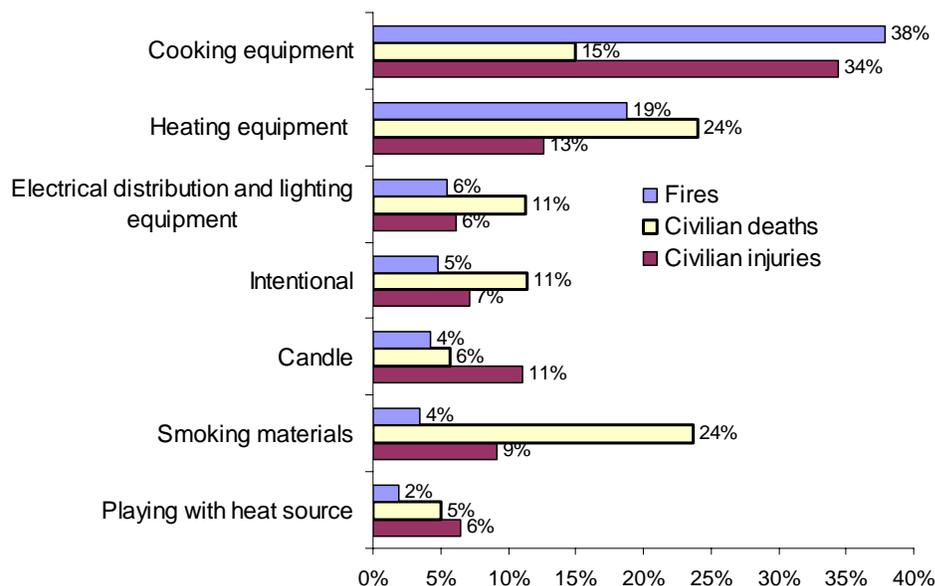
- 2,580 civilian fire deaths,
- 12,500 civilian fire injuries, and
- \$6.8 billion in direct damage.
- Roughly 80% of all civilian fire deaths in 2006 resulted from home structure fires.
- On average, seven people died in U.S. home fires every day.

Causes and Circumstances of Home Fires

Details from the U.S. Fire Administration's National Fire Incident Reporting System show that

- Cooking is the leading cause of home structure fires and home fire injuries.
- Heating equipment and smoking are the leading causes of civilian home fire deaths.

**Major Causes of Home Structure Fires
2002-2005**



FACT: Children under five and adults over 65 face the highest risk of fire death.



65% of reported home fire deaths in 2002-2005 resulted from fires in homes with no smoke alarms or no working smoke alarms.

Based on a telephone survey done in 2004, 96% of all homes have at least one smoke alarm.

¹Homes are dwellings, duplexes, manufactured homes, apartments, townhouses, rowhouses, and condominiums.

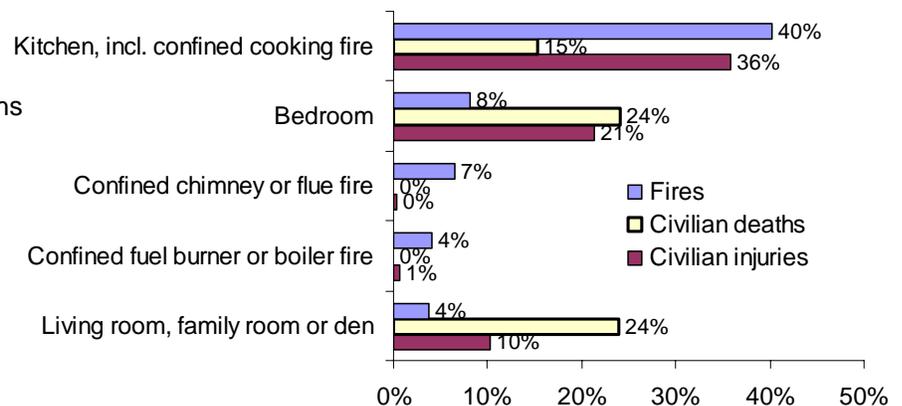
Kitchens were the leading area of origin.

- 40% of home structure fires and 36% of civilian home fire injuries resulted from kitchen fires. (Kitchen fires include confined cooking fires.)
 - 15% of home fire deaths also resulted from kitchen fires.
- 8% of reported home fires started in the bedroom. These fires caused 24% of home fire deaths and 21% of home fire injuries.
- 4% of home fire deaths started in the living room, family room, or den. These fires caused 24% of home fire deaths and 10% of the home fire injuries.
- Confined chimney or flue fire fires accounted for 7% of all reported home fires. Confined fuel burner or boiler fires accounted for 4%. These fires caused very few casualties.

Leading Areas of Origin in Home Structure Fires 2002-2005



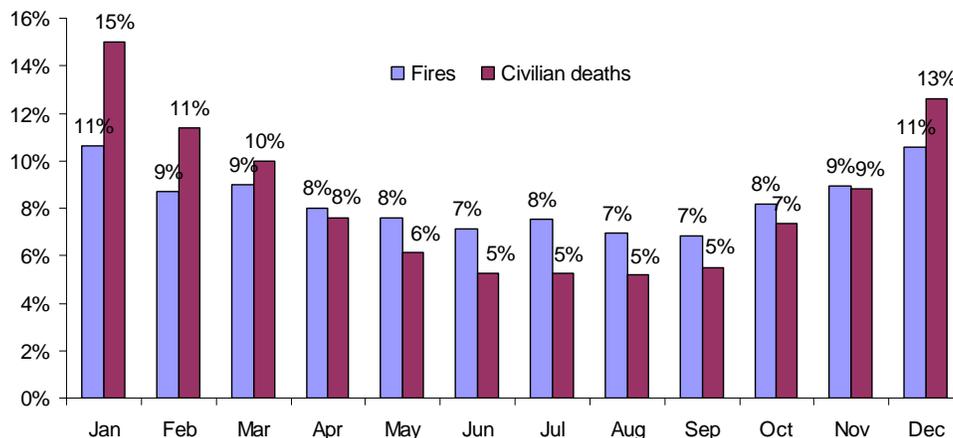
Fact: 21% of home fire deaths resulted from fires beginning with upholstered furniture.



January and December were the peak months for home fires and home fire deaths.

- 20% of reported home structure fires occurred between 11:00 PM and 7:00 AM. These fires caused 53% of all home fire deaths.
- Home structure fires peaked around the dinner hours between 5:00 and 8:00 PM.

Home Structure Fires and Fire Deaths by Month 2002-2005



Home Structure Fires

377,100 home structure fires were reported per year.

During the four-year period of 2002-2005, an estimated 377,100 home structure fires, on average, were reported per year. These fires caused an annual average of 2,870 civilian deaths, 13,360 civilian fire injuries, and \$5.9 billion in direct property damage. Table A provides a more detailed breakdown of losses by occupancy. Almost three-quarters (72%) of the reported home structure fires and 85% of the fatal home fire injuries occurred in one- and two-family dwellings (including manufactured homes).

**Table A.
Home Structure Fires by Property Use
2002-2005 Annual Averages**

Property Use	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
One- or two-family dwelling or manufactured home	271,300	(72%)	2,430	(85%)	9,590	(72%)	\$4,839	(82%)
Apartment, tenement or flat	105,800	(28%)	440	(15%)	3,780	(28%)	\$1,079	(18%)
Total	377,100	(100%)	2,870	(100%)	13,360	(100%)	\$5,918	(100%)

These are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. These national estimates are projections based on the detailed information collected in Version 5.0 of NFIRS. Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Fires are rounded to the nearest hundred, deaths and injuries to the nearest ten and direct property damage to the nearest million dollars. Property damage has not been adjusted for inflation. Totals may not equal sums due to rounding errors. Source: NFIRS and NFPA survey.

Homes include:

- detached dwellings, duplexes, and manufactured housing,
- apartments, tenements, and flats, and
- townhouses and row houses.

The home category does NOT include rooming, boarding or lodging houses; hotels or motels; dormitories or fraternity or sorority houses; barracks or bunk houses; or any institutional property providing lodging.

In this analysis, homes are grouped into two major classes: 1) one- and two-family dwellings, including manufactured housing; and 2) apartments, which includes tenements, flats, and properties of similar configuration. Townhouses normally involve three or more separate housing units per building and so would be grouped with apartments. "Condominium" is a type of ownership arrangement, not a type of property, but most condominium homes are apartments. Only fires reported to public fire departments are included in these statistics.

NFIRS 5.0, the source of detailed information about fires, requires less information about minor “confined” structure fires.

The statistics in this analysis are national estimates derived from Version 5.0 of the U.S. Fire Administration’s (USFA’s) National Fire Incident Reporting System (NFIRS) and NFPA’s annual fire department experience survey. (Trend tables and figures are based exclusively on the NFPA survey.) Details on the methodology used may be found in the Appendix. NFIRS Version 5.0, first introduced in 1999, brought major changes to fire incident data, including changes in some definitions and coding rules. Certain types of confined fires, including confined cooking fires, chimney fires, trash fires, and fuel burner or boiler fires can be documented more easily in NFIRS 5.0. Causal data is generally not required for these incidents. Caution should be used when comparing the information with earlier analyses as differences may be due to changes in data collection practices rather than actual variations in the fire experience.

Tables in the back of this section are grouped by occupancy, with data for all homes shown in Tables 1-12, one- and two-family dwellings (including manufactured homes) in Tables 1A-12A, and apartments in Tables 1B-12B. The tables are in the same order in all three sections.

Although tables showing the combined results for all homes are shown first, these tables were created by summing the values for the two categories of homes. Unknown data has been allocated proportionally for all fields except property use. Analyses that were done initially on all homes may yield slightly different results, depending on whether the allocation of unknown data was done separately for each occupancy subgroup or for both categories of homes combined. When the two categories are analyzed separately and then summed, heading equipment is involved in slightly more fire deaths than smoking materials. When homes are analyzed together, smoking is the leading cause of fire deaths.

On average, a fire was reported in one of every 322 housing units.

During 2002-2005, an average of 121,560,750 housing units existed in the United States.¹ Dividing the number of housing units by the number of home fires yields a rate of one reported fire per every 322 housing units.

91% of civilian structure fire deaths resulted from fires in the home.

Based on annual averages for 2002-2005, the 377,100 reported home structure fires accounted for 73% of the 519,000 structure fires, 91% of the 3,140 civilian structure fire deaths, 86% of the 15,520 civilian structure fire injuries, and 68% of the \$8.7 billion in direct property loss.

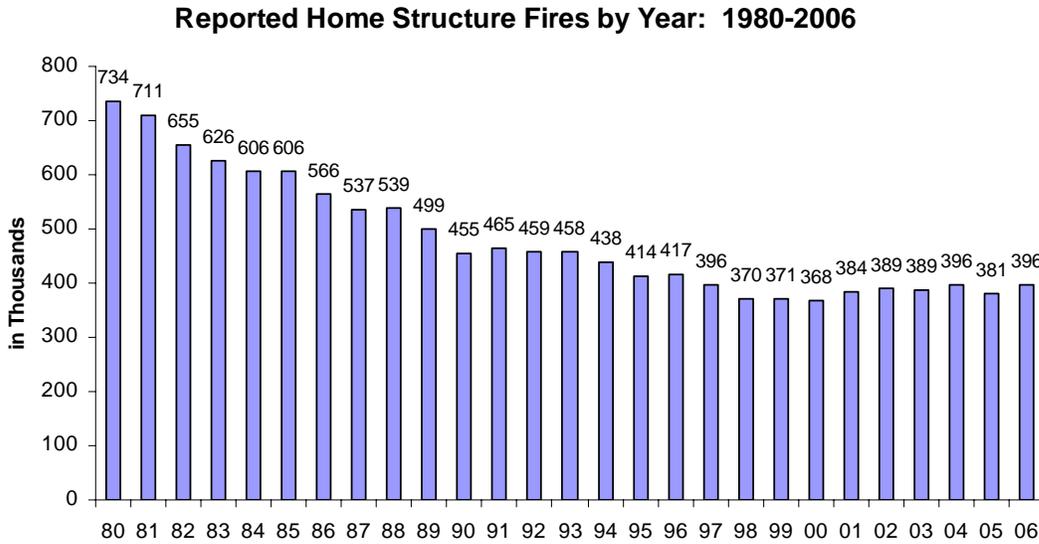
Reported home structure fires have been cut almost in half since 1980.

The NFPA annual fire department experience survey provides the earliest estimates of reported home fires and associated losses although it lacks the detail about causes and circumstances found in NFIRS. Tables 1, 1A and 1B show the number of reported fires

¹ U.S. Census Bureau, *Statistical Abstract of the United States: 2007* (126th edition) Washington, DC, 2006, Table 948, “Total Housing Inventory for the United States: 1980 to 2005.”

in homes, one- and two-family dwellings, and apartments, respectively, based on data collected by NFPA's survey. Although the NFPA survey is separate from NFIRS, it uses the same definitions. Survey estimates are not restricted by NFIRS version.

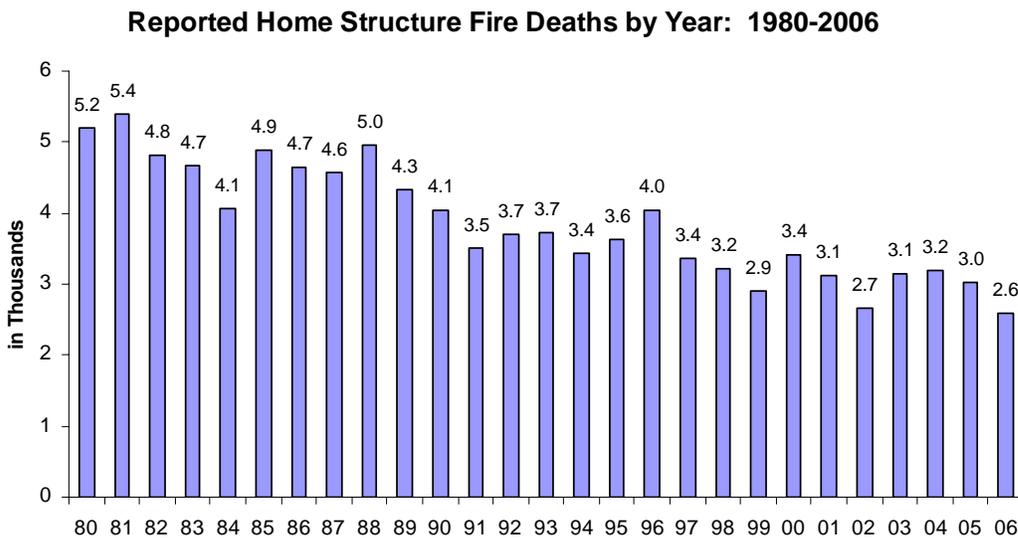
Figure 1.



Source: NFPA survey.

Figure 1 shows that the 396,000 home structure fires reported in 2006 is 46% less than the 734,000 reported in 1980. The decline was sharpest during the 1980s. The downward trend continued more slowly in the 1990s. Reported home structure fires hit their lowest point in 2000. However, the trend has been fairly flat since 1997. Because of the changes in definitions introduced by NFIRS 5.0 in 1999, it is possible that the data collection rules are impacting the trends.

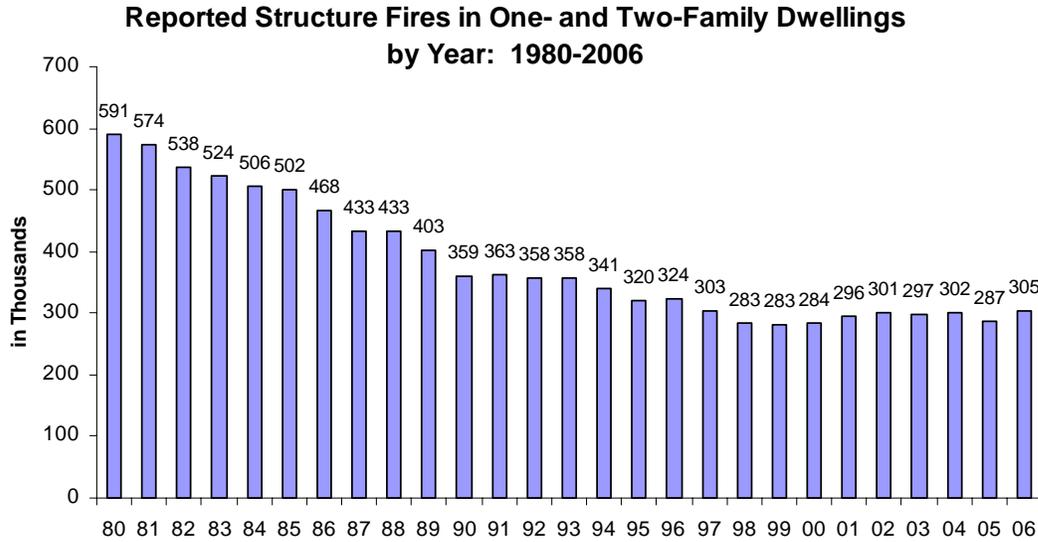
Figure 2.



Source: NFPA survey.

Figure 2 shows that home structure fire deaths fell 50% from 5,200 in 1980 to 2,580 in 2006. However, more fluctuation is seen from year to year in the death data than the fire data.

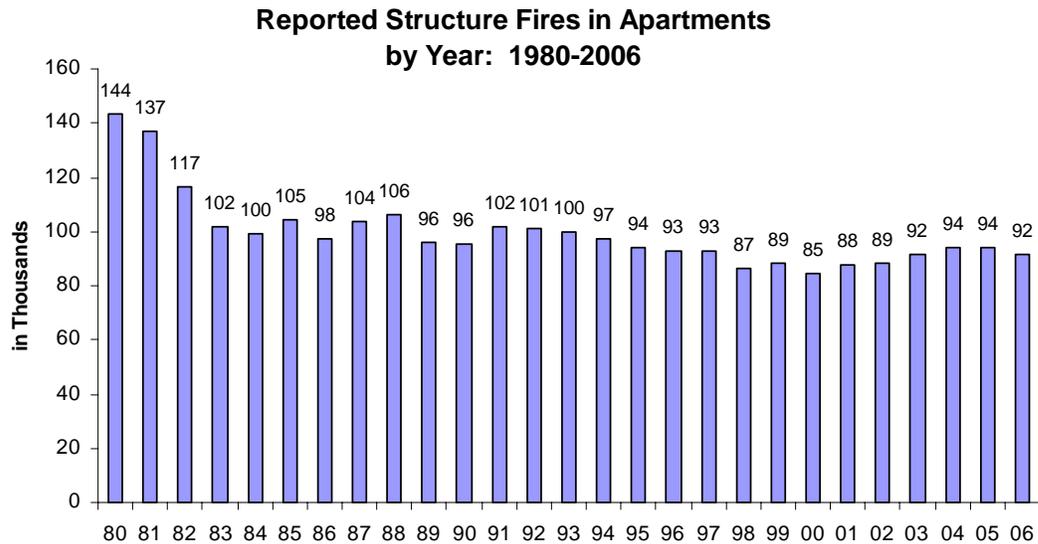
Figure 3.



Source: NFPA survey.

Figure 3 shows that the trend in reported one-and two-family dwelling fires (including fires in manufactured housing) closely resembles that of fires in all homes.

Figure 4.



Source: NFPA survey.

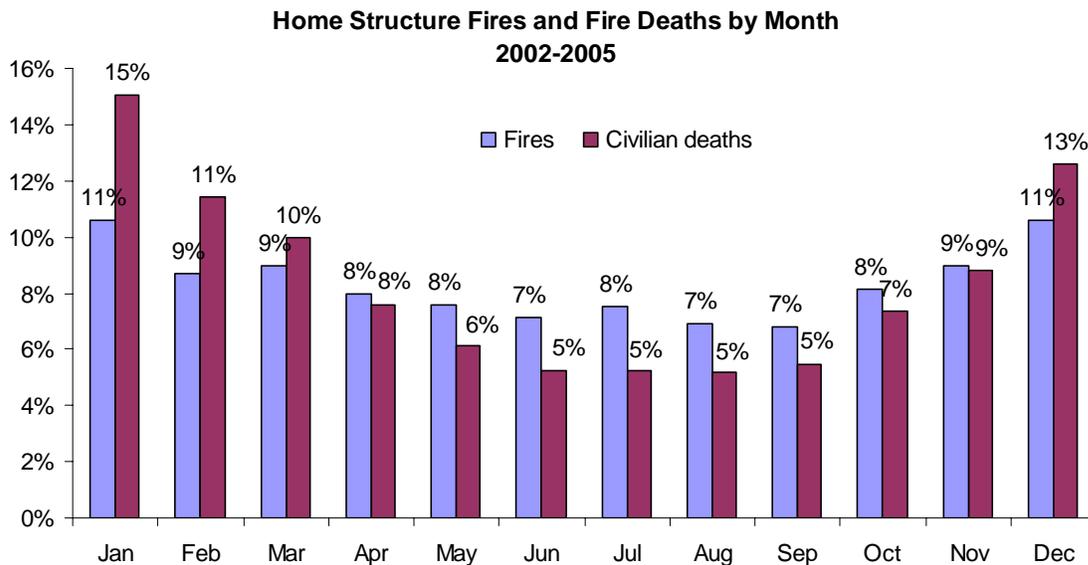
The trend is rather different in apartments. Figure 4 shows that apartment fires fell sharply in the early 1980s but have been relatively stable since then. The smallest number of apartment fires was reported in 2000.

Sixty-four percent of the apartment fires reported originally in NFIRS 5.0 during 2002-2005 were coded as confined structure fires compared to 36% of the fires in one- and two-family dwellings. It is possible that very minor apartment fires are more likely to be reported than are minor fires in one- and two-family dwellings.

December and January were the peak months for reported home structure fires and home fire deaths.

Figure 5 and Table 2 show that 30% of reported home structure fires and 39% of home structure fire deaths occurred in the months of December, January, and February. This reflects the influence of heating equipment fires. Not surprisingly, heating equipment fires and associated deaths are much less common in the summer..

Figure 5.

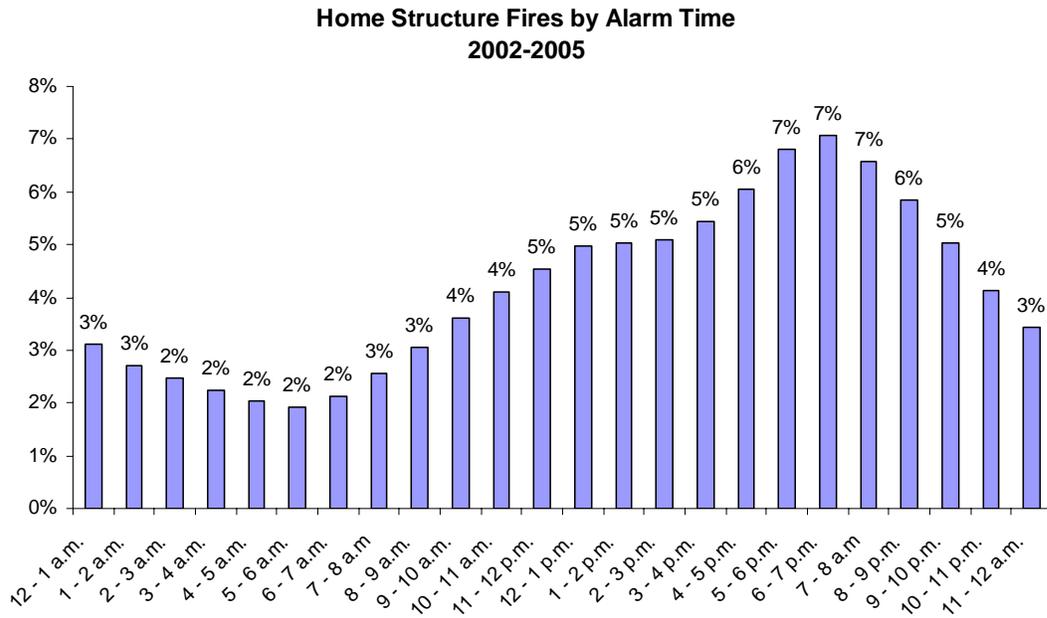


Source: NFIRS 5.0 and NFPA survey.

Fires between 11 p.m. and 7 a.m. caused more than half of home fire deaths.

Sunday was the peak day for reported home fires and home fire injuries while home fire deaths were more common on Friday and Saturday. (See Table 3.) Figure 6 and Table 4 show that reported home fires peaked around the dinner hours of 5:00 to 8:00 p.m. Only one-fifth (20%) of the reported home fires occurred between 11:00 p.m. and 7:00 a.m.

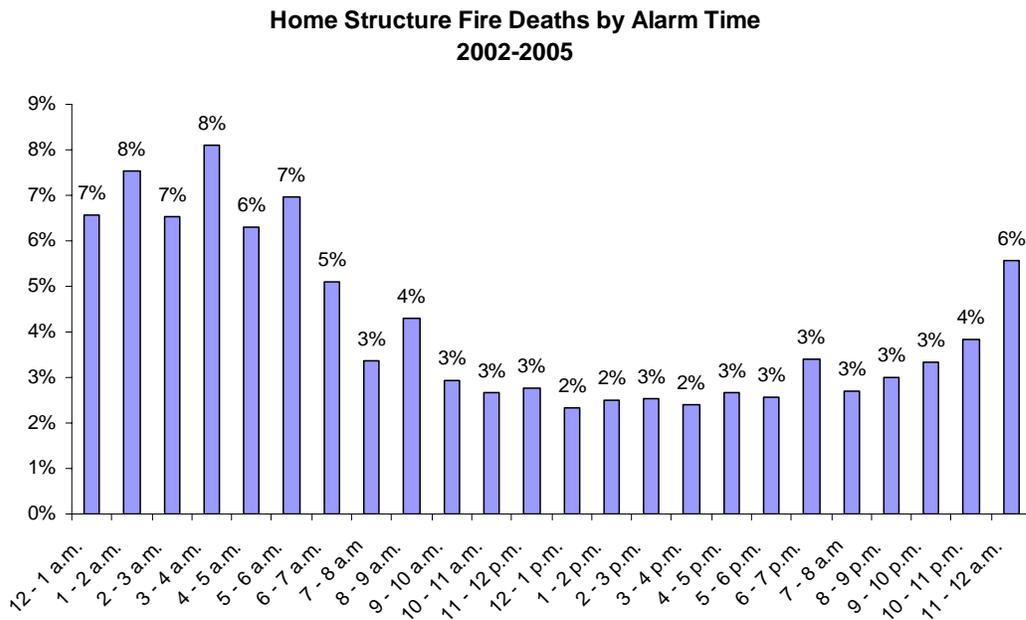
Figure 6.



Source: NFIRS 5.0 and NFPA survey

Figure 7 shows that more than half (53%) of the home fire deaths resulted from incidents reported between 11:00 p.m. and 7:00 a.m. The pattern of when fires occur is similar in one-and two-family homes and apartments.

Figure 7.

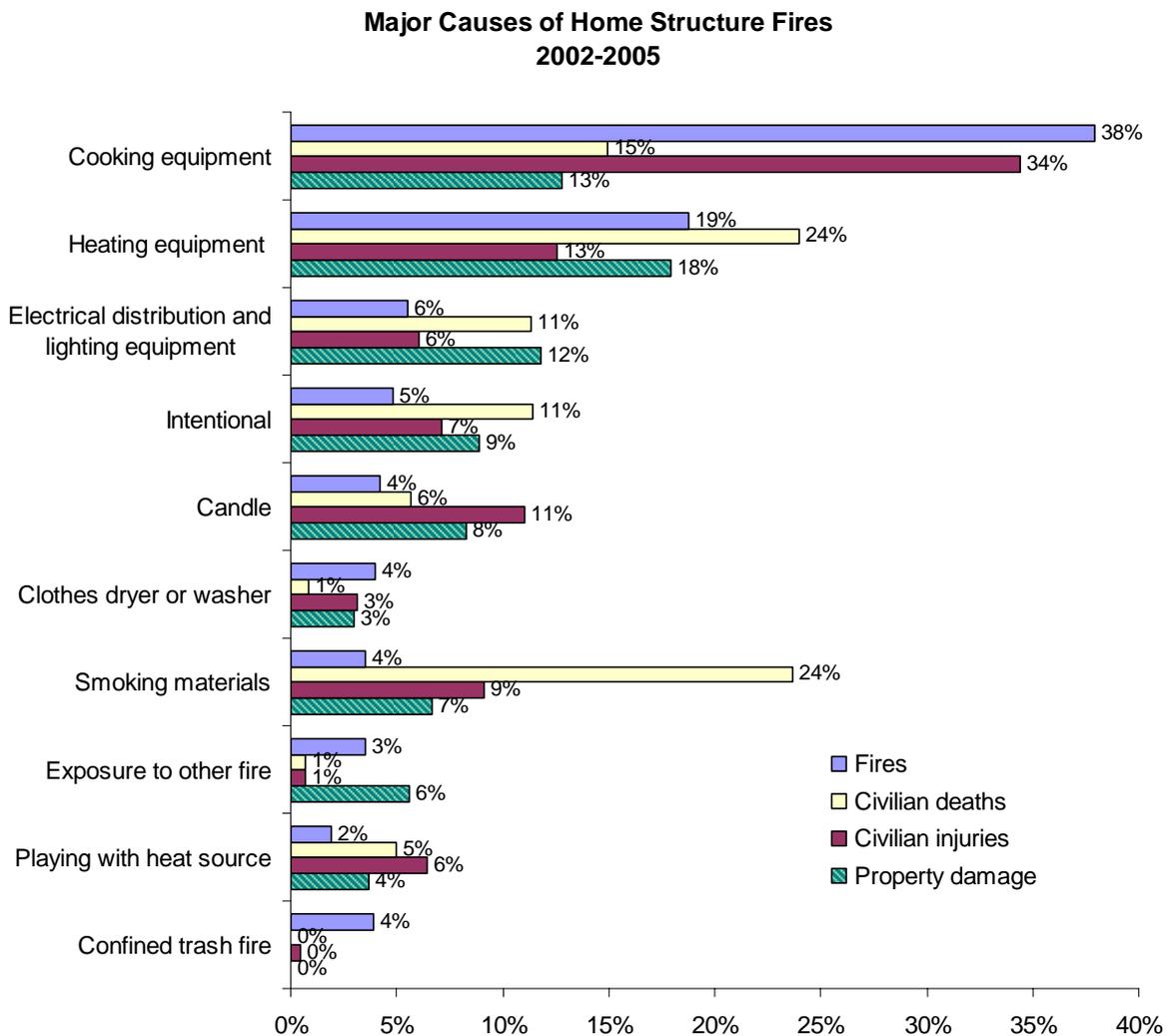


Source: NFIRS 5.0 and NFPA survey

Leading Causes of Reported Home Structure Fires

Table 5 and Figure 8 show the leading causes of home structure fires with data summarized from several NFIRS fields. In some cases, the equipment involved in ignition is most relevant; heat source, the field “cause,” and factor contributing to ignition also provide relevant information. The causes shown in this table are not mutually exclusive when they have been pulled from different fields. Causal factors that lack detail (such as unintentional or failure of equipment or heat source in the cause field, or heat from operating or powered equipment or arcing in the heat source field) were not included in this summary table. The causes shown are those that a) have clear prevention strategies or have historically been of interest.

Figure 8.



Source: NFIRS 5.0 and NFPA survey.

Causal data is typically not required for the confined fire incident types, although it is sometimes provided. Non-confined fires were analyzed separately from confined fires.

For this analysis, only incident types were used to categorize confined fires. Confined fires were added to the tables after the non-confined fires had been analyzed and final percentages calculated using the total of confined and non-confined fires. For all causal tables, non-confined fires with unknown causal data were allocated proportionally among fires with known data.

More detailed information on equipment involved in ignition may be found in Table 6. The methodology used to analyze equipment involved in ignition has been modified, resulting in higher estimates than were shown in earlier studies. In addition to the allocation of unknown data, a proportional share of fires in which the equipment involved was coded as “none” but the heat source data was unknown or indicated some type of equipment were treated as unknown and allocated proportionally.

Table 7 provides more information on heat sources. Factors contributing to ignition are shown in descending order by frequency in Table 8 and in groupings in Table 9.

Cooking equipment continues to be the leading cause of home structure fires and civilian fire injuries. Smoking materials have historically caused the largest number of fire deaths. However, in 2002-2005, heating equipment and smoking materials each accounted for 24% of the fire deaths. Heating equipment fires caused the largest percentage of direct property damage.

Each of the causes shown in the graph will be discussed in more detail on the following pages. When some type of equipment is shown as a cause, it means the equipment was involved in the ignition. It need not mean that the equipment was defective or malfunctioned. In many cases, the equipment was used improperly.

Leading fire causes differ for one- and two-family homes vs. apartments.

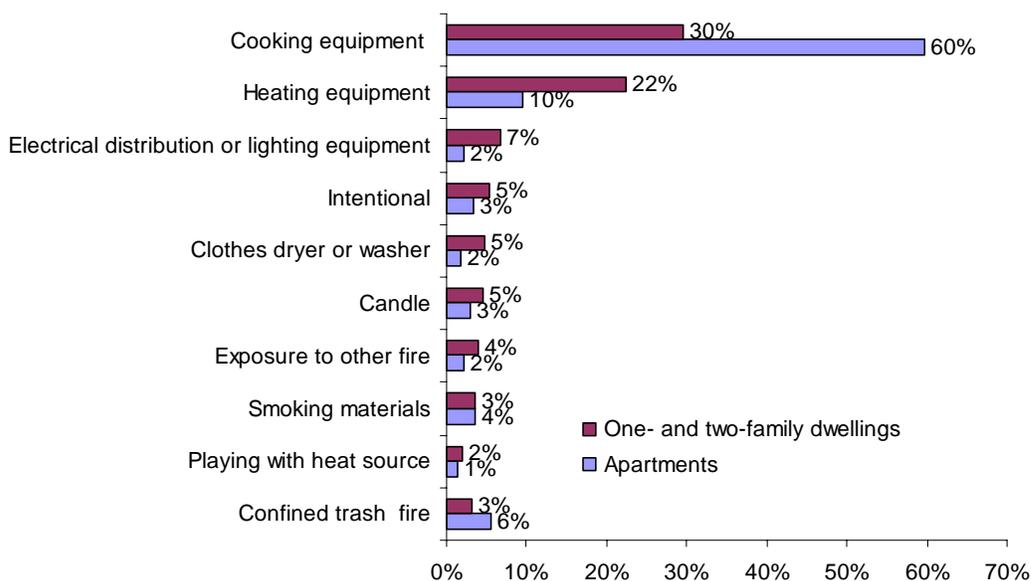
As shown in Figure 9 and in Tables 5A and 5B, the cause profile for apartment fires differs markedly from the profile for dwelling fires. Because reported fires in one- and two-family dwellings outnumber apartment fires by roughly three to one, the fires in one- and two-family dwellings dominate the cause profile. The systems that tend to be centrally installed, maintained and supervised in apartment buildings, such as heating and electrical distribution equipment, cause a smaller share of the fires in apartments than in dwellings. Those causes that reflect more on the actions of the occupants, such as cooking, rank high in both kinds of properties. This is not surprising. Human errors usually play a role in equipment-related fires. When systems pass into the jurisdiction of regulatory authorities and central management by professionals, greater safety typically results. It is also possible that differences exist in the likelihood of minor fires being reported to the fire department. Confined fires account for 36% of the reported fires in one- and two-family dwellings vs. 64% of the reported incidents in apartments. It is also possible that these minor fires may be more likely to be reported when they occur in apartments than in one- and two-family dwellings.

Although human errors are often involved, equipment and other product redesign, such as the “fire-safe” cigarette which stops burning if not actively smoked, or automatic shut-

offs on heating equipment, cooking equipment, or irons can improve safety; this method may even be the most effective and inexpensive approach. Public education with respect to fire safety is clearly needed to address all types of home fires. Active fire protection systems – like smoke alarms and residential sprinklers – and practiced escape plans can provide safety margins after a fire has begun.

Figure 9.

**Major Causes of Structure Fires
in One- and Two-Family Dwellings and Apartments
2002-2005**



Source: NFIRS 5.0 and NFPA survey.

Roughly one-third of reported home structure fires and associated injuries resulted from cooking equipment fires.

Cooking equipment was the leading cause of home fires and home fire injuries, the third leading cause of home fire deaths, and the second leading cause of direct property damage resulting from fire. According to the definitions used here, cooking equipment is equipment used to heat or warm food (unlike other kitchen equipment such as refrigerators, food processors, or can openers). Human error was a factor in many of these fires. For example, unattended equipment was a contributing factor in 34% of the non-confined home cooking fires reported in 1999-2003, as well as one-third of the associated injuries and 42% of the direct property damage.¹ In 2002-2005, cooking equipment was involved in an estimated annual average of 142,900 reported home structure fires, 430 civilian fire deaths, 4,600 civilian injuries, and \$757 million in direct property damage.

¹ John R. Hall, Jr., *Home Cooking Fire Patterns and Trends*, Quincy, MA: National Fire Protection Association, Fire Analysis and Research Division, July 2006, p. 6.

Cooking equipment was identified as the equipment involved in 10% of the home structure fires; an additional 28% were confined cooking fires. In total, cooking equipment was involved in 38% of the reported home structure fires, 15% of the home fire deaths, 34% of the home fire injuries, and 13% of the direct property damage. Cooking equipment was involved in 60% of the reported apartment fires but only 30% of the fires in one- and two-family dwellings, although it was the leading cause in both. For purposes of this analysis, cooking equipment was assumed to be involved in all confined cooking fires. All unclassified cooking or kitchen equipment was also grouped with cooking equipment.

Additional information about specific types of home cooking equipment may be found in NFPA's report, *Home Cooking Fire Patterns and Trends*, by John R. Hall, Jr.

Heating equipment caused 24% of home fire deaths.

Heating equipment is considered the cause of a fire when the equipment provided the heat to start the fire, even if the equipment itself was working properly. Home heating equipment includes central heating units, portable and stationary space heaters, fireplaces, chimneys, and heat transfer systems, as well as some devices not used to heat living spaces, most notably hot water heaters.

During 2002-2005, heating equipment was involved in the ignition of 70,700 reported home structure fires that resulted in 690 civilian fire deaths, 1,680 civilian injuries, and \$1.1 billion in direct property damage.

Heating equipment was identified as the equipment involved in 8% of reported home structure fires, an additional 7% were confined chimney fires, and 4% were confined fuel burner or boiler fires. In total, heating equipment was involved in 19% of the reported home structure fires, 24% of the home fire deaths, 13% of the home fire injuries, and 18% of the direct property damage. Overall, heating equipment ranked first in home fire deaths (very slightly ahead of smoking) and in direct property damage, and second in reported home fires and home fire injuries. Heating equipment was involved in 22% of the fires in one- and two-family dwellings but only 10% of the apartment fires. For purposes of this analysis, all confined chimney or flue fires and confined fuel burner or boiler fires are considered heating equipment fires, as are all unclassified heating, ventilation or air conditioning equipment fires.

Additional information about specific types of home heating equipment may be found in NFPA's report, *Home Heating Fire Patterns and Trends*, by John R. Hall, Jr.

Smoking materials were roughly tied with heating equipment as the leading cause of home fire deaths.

Smoking materials have historically been the leading cause of home fire deaths. During 2002-2005, smoking materials dropped very slightly behind heating equipment among causes of fire deaths. The difference is dependent upon the analysis approach used. If fire deaths are analyzed separately by cause for all homes, without first separating one- and two-family dwellings from apartments, smoking still ranks first. In either case, the

two causes are virtually tied. However, the death rate per 100 reported home structure fires for smoking materials (5.1) was twice that for home heating equipment fires (2.2) and the highest of all the major causes. During this period, smoking materials were the heat source in an annual average of 13,300 reported home structure fires, 680 civilian fire deaths, 1,220 civilian fire injuries, and \$396 million in direct property damage. A proportional share of fires with heat sources from unclassified open flame or smoking materials are included in the candle and smoking material estimates.

Only 4% of reported home structure fires were started by smoking materials, but these fires caused 24% of the home fire deaths. They also caused 9% of the home fire injuries and 7% of the direct property damage. Smoking material incidents ranked eighth in number of fires, second in home fire deaths, fourth in home fire injuries and sixth in direct property damage.

Additional information on this subject may be found in NFPA's report, *The Smoking-Material Fire Problem*, by John R. Hall Jr.

On average, electrical distribution and lighting equipment was involved in 20,800 home structure fires per year.

Electrical distribution and lighting equipment includes:

- fixed wiring; transformers or associated overcurrent or disconnect equipment;
- meters or meter boxes;
- power switch gear or overcurrent protection devices;
- switches, receptacles or outlets;
- cords and plugs, and
- lighting equipment.

During 2002-2005, electrical distribution and lighting equipment was involved in the ignition of 20,800 reported home structure fires, on average, per year. These fires caused an annual average of 330 civilian fire deaths, 810 civilian fire injuries, and \$697 million in direct property damage.

In 2002-2005, electrical distribution or lighting equipment was involved in 6% of the home structure fires (7% in one- and two-family dwellings and 2% in apartments), 11% of the home fire deaths, 6% of the home fire injuries, and 12% of the direct property damage. Overall, electrical distribution and lighting equipment ranked third in home fires and direct property damage, tied for fourth in home fire deaths, and ranked seventh in home fire injuries.

Intentionally set fires ranked fourth in home structure fires, in associated deaths, and in direct property damage.

During 2002-2005, intentional firesetting caused 18,300 reported home structure fires, 330 civilian fire deaths, 960 civilian injuries, and \$524 million in direct property damage. Earlier versions of NFIRS included ignition factors of incendiary and suspicious. These were generally combined together in discussions of arson. These codes have both been eliminated and replaced with "intentional." Causal data is not required for confined or

contained fires. These changes have contributed to lower estimates of intentional fires than were seen in the past.

Five percent of home structure fires were intentionally set. These fires caused 11% of the home fire deaths, 7% of the home fire injuries and 9% of the direct property damage. Intentionally set fires ranked fourth in home fire frequency, in direct property damage and tied for fourth in home fire deaths. It ranked fifth in home fire injuries.

Additional information may be found in NFPA's report, *Intentional Fires and Arson*, by John R. Hall, Jr.

Candles were the third leading cause of reported home fire injuries and ranked fifth among major home fire causes.

During 2002-2005, candles caused an estimated annual average of 15,800 reported home structure fires, 160 home fire deaths, 1,480 home fire injuries, and \$488 million in direct property damage. A proportional share of fires with heat sources from unclassified open flame or smoking materials are included in the candle and smoking material estimates.

Candles caused 4% of the home fires, 6% of the home fire deaths, 11% of the home fire injuries, and 8% of the direct property damage. Candles ranked fifth among the leading cause categories in number of fires and in direct property damage, sixth in home fire deaths, and third in home fire injuries.

Additional information on this subject may be found in NFPA's report, *Home Candle Fires* by Marty Ahrens.

Playing with heat source caused 2% of home fires but 5% of home fire deaths.

During 2002-2005, people, often children, playing with fire or other heat sources started an estimated annual average of 7,100 home structure fires. These fires caused 140 civilian fire deaths, 860 civilian fire injuries, and \$220 million in direct property damage. Overall, the 2% of home structure fires started by someone playing with fire or some other heat source caused 5% of the home fire deaths, 6% of the home fire injuries, and 4% of the direct property damage.

In older versions of NFIRS, child play was identified by two codes in the ignition factor field. Also, child playing and incendiary or suspicious were mutually exclusive. In Version 5.0 of NFIRS, a fire could have a cause of intentional *and* a factor contributing to ignition of playing with fire. This factor is no longer restricted to children.

Additional information on this topic may be found in NFPA's report, *Children Playing with Fire*, by John R. Hall, Jr.

Clothes dryers and washers were involved in 4% of home structure fires.

During 2002-2005, clothes dryers and washers were involved in the ignition of an average of 14,900 home structure fires per year. These fires caused an annual average of 20 civilian fire deaths, 420 civilian fire injuries, and \$178 million in direct property

damage. Overall, clothes dryers or washers were involved in 4% of the home structure fires, 1% of the home fire deaths, and 3% of the home fire injuries and direct property damage.

Exposure to other fires caused 3% of home structure fires.

The term “exposure” indicates that a fire was caused by another fire nearby. These fires may result from direct flame, radiant heat, or flying embers or brands. While exposures are technically fires that spread from outside to a building or vehicle, or from one building or vehicle to another building or vehicle, some fire departments use the term to indicate that the fire has spread from the property of one individual to a property belonging to, or occupied by, someone else.

During 2002-2005, exposures caused 13,200 reported home structure fires, 20 civilian fire deaths, 90 civilian fire injuries, and \$332 million in direct property damage. Exposures caused 3% of the home structure fires, 1% of the home fire deaths and injuries, and 6% of the direct property damage.

Four percent of reported home structure fires were confined trash fires.

During 2002-2005, U.S. fire departments responded to an estimated average of 14,700 confined or contained trash or rubbish fires in homes per year. These fires caused an average of 60 civilian injuries and \$3 million in direct property damage per year. No deaths resulted from these fires. Because NFIRS 5.0 does not require causal information on confined structure fires and trash fires can result from variety of causes, these fires are listed separately. These figures do not include the 1,500 reported confined commercial trash compactor fires or the 600 confined incinerator fires.

Detailed Causal Information by NFIRS Field

As mentioned earlier, this analysis also includes information on the equipment involved in ignition, heat source, factor contributing to ignition, area of fire origin, item first ignited, extent of flame damage, smoke alarms and automatic suppression systems. Some of the information has already been discussed in the section on leading causes. The highlights of the details on equipment involved in ignition and heat sources were provided on the previous pages. Tables 6 and 7 provide more specific information on these two factors.

Various errors in usage and operation were factors in three-fourths of the home fire deaths.

Factors contributing to ignition provide information on how the heat source/equipment involved actually started the fire. Multiple entries are allowed. Percentages were calculated based on the number of fires, not the entries, so sums will exceed 100%. Table 8 shows that a heat source too close to a combustible material was a factor in 8% of the fires, 20% of the home fire deaths, 18% of the injuries, and 16% of the direct property damage. Heat sources in this scenario include cooking and heating equipment, candles,

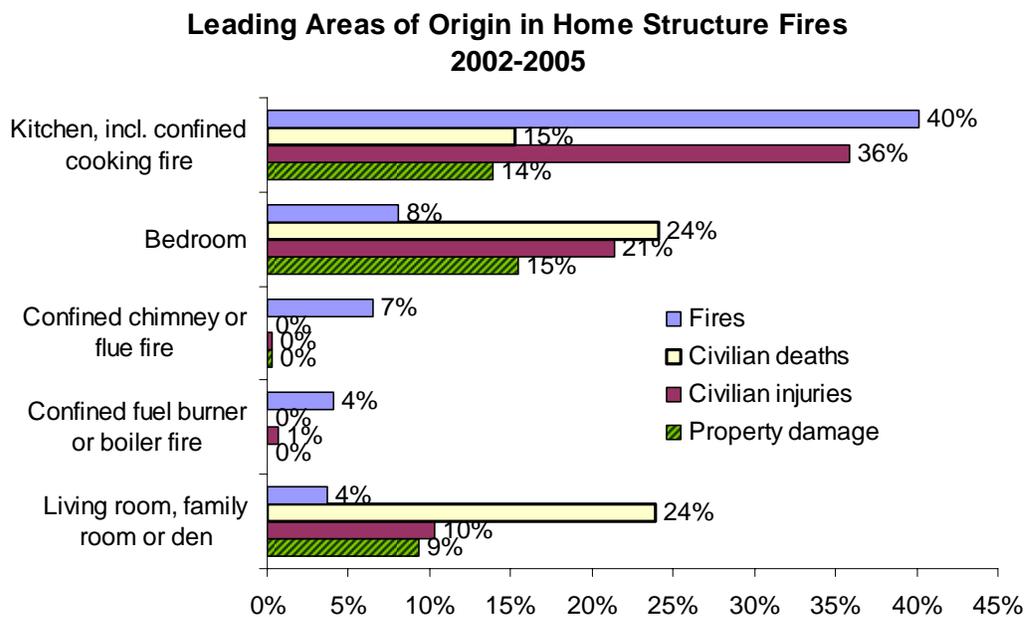
lamps and bulbs, and a variety of other products that produce heat. An open flame is not necessary to start a fire. Combustible materials include food and cooking materials, trash, mattresses and bedding upholstered furniture, or anything that can catch fire.

Because factor contributing to ignition is not generally required for confined fires, the confined fires were grouped together in Table 9. Confined fires accounted for 43% of the structure fires in 2002-2005.

Various types of misuse of material or product, including heat source too close to combustible, abandoned or discarded material or product, and playing with heat source, accounted for 59% of the home fire deaths. Operational deficiency, such as unattended equipment, unintentionally turned on or not turned off, and failure to clean, accounted for 15% of the home fire deaths. Combining the two categories, some type of human error was involved in 73% of the home fire deaths.

Electrical failures or malfunctions were factors in 13% of the home fires, 18% of the home fire deaths, 11% of the home fire injuries and 24% of the direct property damage. Electrical failures may occur in any type of electric-powered equipment, including heating and cooking equipment, as well as in electrical distribution and lighting equipment.

Figure 10.



Source: NFIRS 5.0 and NFPA survey.

Kitchens were the leading area of origin for home structure fires.

Figure 10 and Table 10 show that 40% of home structure fires started in the kitchen or cooking area. This includes the 28% that were reported initially as confined cooking fires (and were assumed in this analysis to start in this area) and the 12% in which the

kitchen or cooking area was specifically identified. Fifteen percent of the civilian deaths, 36% of the civilian injuries, and 14% of the direct property damage resulted from these fires. Three-fifths (62%) of the reported apartment fires and one-third (32%) of the fires in one- and two-family dwellings originated in the kitchen.

The eight percent of home structure fires originating in the bedroom caused 24% of the civilian deaths, 21% of the civilian injuries, and 15% of the direct property damage.

Seven percent of home fires (9% in one- and two-family dwellings and 1% in apartments) were reported as confined chimney or flue fires. Four percent were confined fuel burner or boiler fires (4% in one- and two-family dwellings and 5% in apartments). Losses from these fires were minimal.

The four percent of home structure fires originating in the living room, family room, den or common room caused 24% of the civilian fire deaths, 10% of the civilian injuries, and 9% of the direct property damage.

21% of home fire deaths resulted from fires beginning with upholstered furniture.

Assuming that the confined cooking fires began similarly to other cooking fires, food or cooking materials were the items first ignited in 34% of the reported home structure fires. As noted previously, 7% of the fires were confined chimney or flue fires; most of these probably started with creosote. Structural members or framing were first ignited in 5% of the reported home structure fires. Including the confined rubbish or trash fires, rubbish was first ignited in 5% of home fires. Although mattresses or bedding were first ignited in only 3% of the fires, 13% of the home fire deaths and 10% of the home fire injuries resulted from these incidents. Only 2% of the home structure fires began with upholstered furniture but these fires accounted for 21% of the home fire deaths and 7% of the home fire injuries. See Figure 11 and Table 11 for more details.

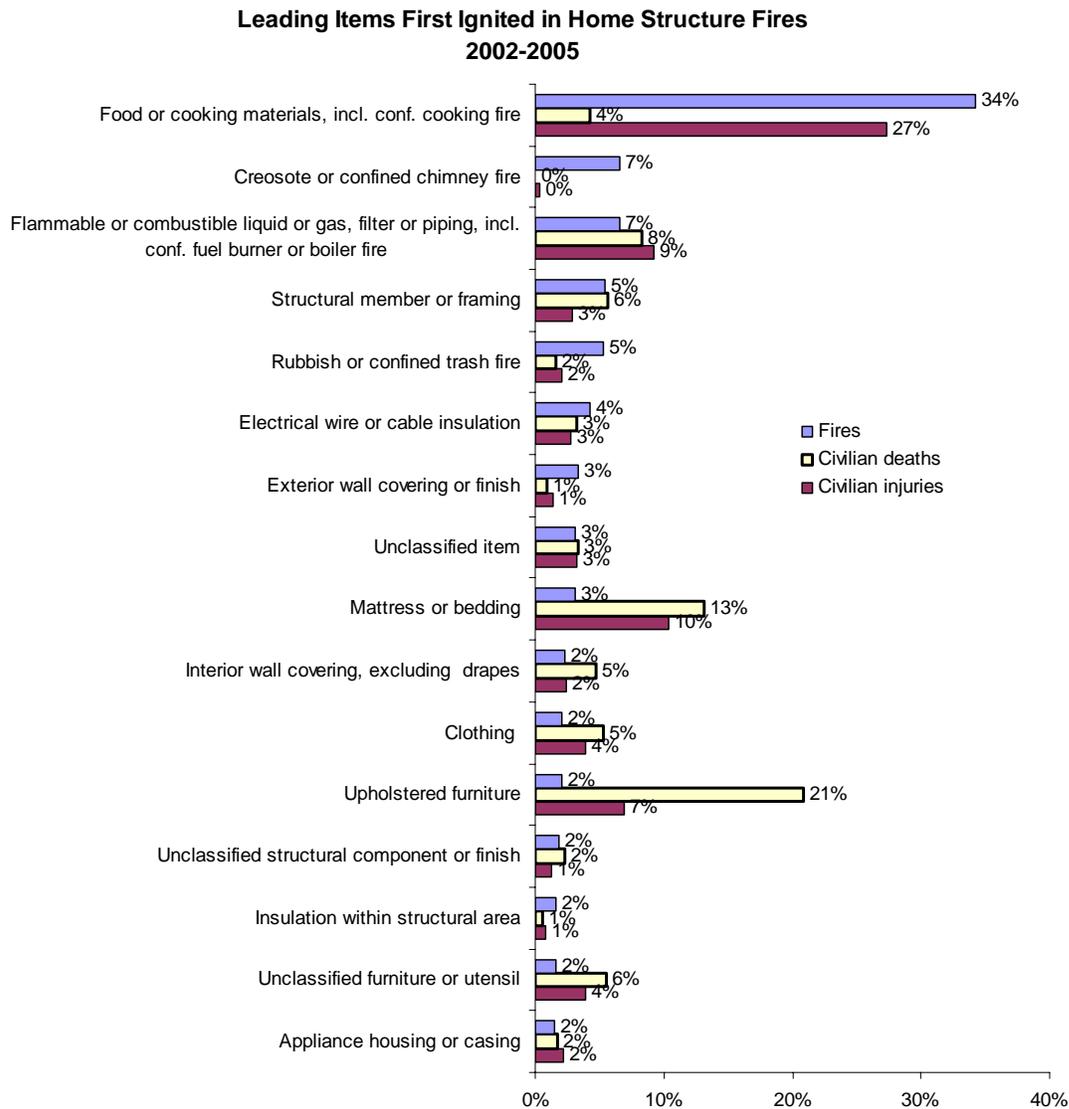
More detailed information and causal factors on the items first ignited in these fires may be found in NFPA's report, *Products First Ignited in Home Fires* by Kimberly D. Rohr.

Flame damage spread beyond room of origin in only one-quarter of the fires.

Forty-three percent of the reported home fires (36% on one- and two-family dwellings and 64% in apartments) were confined or contained fires. Version 5.0 of NFIRS introduced shorter reporting for cooking fires confined to the vessel, fires confined to chimney or flues, to incinerators, to fuel burners or boilers, and contained trash or rubbish fires with no flame damage to the structure.

In addition to the 43% of home fires with incident types indicating contained or confined fires, Table 12 shows that in an additional 16%, flame damage was confined to the object of origin. Only 23% spread beyond the room of origin. Seventy-seven percent of home fire deaths resulted from fires that extended beyond the room of origin. This scenario was more common in one one- and two-family dwellings where 80% of the fire deaths resulted from fires extending beyond the room of origin compared to 63% of the fire deaths in apartments.

Figure 11.



Source: NFIRS 5.0 and NFPA survey.

65% of home fire deaths occurred in properties without working smoke alarms.

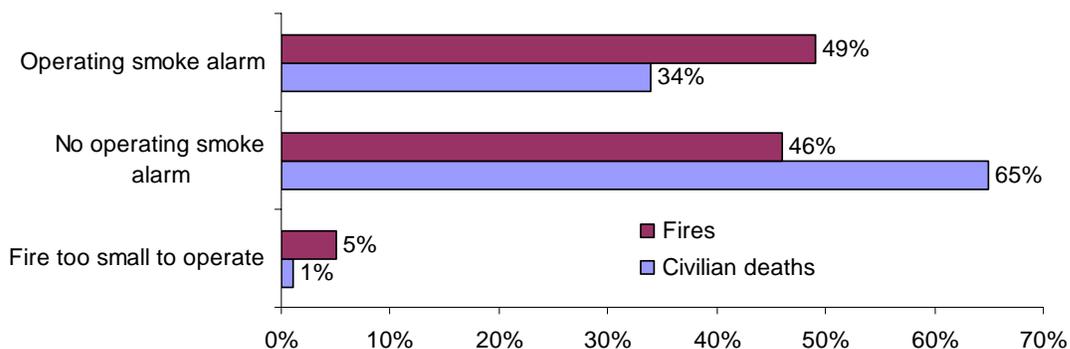
Smoke alarm and sprinkler performance are analyzed in detail in separate NFPA reports. More information on these subject and methodologies used may be found in *U.S. Experience with Smoke Alarms and Other Fire Detection Equipment* by Marty Ahrens, and *U.S. Experience with Sprinklers and Other Fire Extinguishing Equipment* by John R. Hall, Jr., the sources for fire protection data in this analysis.

Analyzing smoke alarm data is considerably more complicated with Version 5.0 of NFIRS than it was in the past. Detailed information on smoke alarm presence and operation is not required for confined or contained fires, 41% of the home fires reported in NFIRS Version 5.0 in 2000-2004, the years covered in that report. Because the

confined or contained fires are almost all minor, this means that many of the minor fires are removed from the pool of data with details on smoke alarm effectiveness. Smoke alarms were assumed to have operated in confined fires in which the device alerted occupants and to have not operated in confined fires in which smoke alarms did not alert occupants.

Figure 12.

**Home Structure Fires and Deaths by Smoke Alarm Performance
2000-2004**



Source: NFIRS 5.0 and NFPA survey.

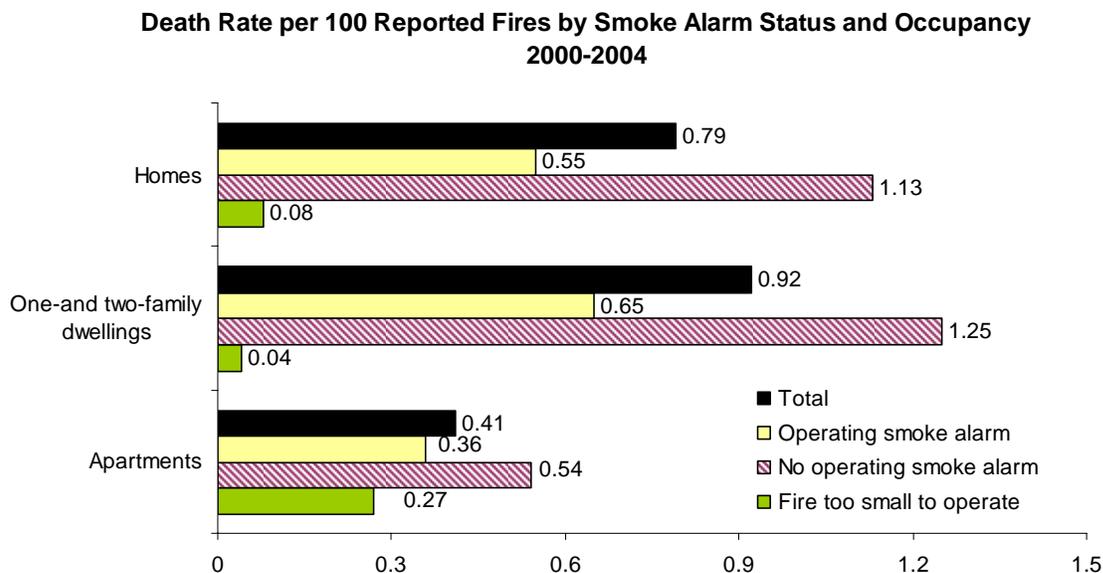
Because smoke alarms can operate in fires without occupants, some fires are too small to activate a smoke alarm a distance away, and occupants can discover a fire before a smoke alarm activates, these statistics likely underestimate the number of fires with working smoke alarms and overstate the number of fires without this protection. Smoke alarms may also alert individuals to fires in their earliest stages, allowing occupants to handle them without calling the fire department. Such incidents are not included in these statistics.

Figure 12 shows that smoke alarms operated in 49% of the reported home fires. Almost two-thirds (65%) of the home fire deaths resulted from fires with no working smoke alarms, including homes with no smoke alarms at all.

Figure 13 shows that the death rate per 100 reported home fires was 51% lower in reported home fires in which a smoke alarm operated than in reported fires with no working smoke alarms. This understates the impact of smoke alarms that alert people to situations before fire service intervention is required. The smoke alarm profile differed sharply between one- and two-family homes and apartments. Sixty-nine percent of the fatalities in one- and two-family homes resulted from fires without working smoke alarms compared to 40% in apartments. It is unclear whether the smoke alarms that operated in apartments were in the unit of origin, in a common area, or in another unit. It is possible for building residents to be alerted by a smoke alarm in a common hallway to a fire that began in an apartment with a disabled smoke alarm. Similarly, a smoke alarm in one unit may alert occupants outside the unit of origin. A difference may also exist in the types of fires that are reported. Forty-seven percent of the

apartment fires reported in Version 5.0 in 2000-2004 were confined fires with smoke alarms alerting occupants compared to 20% such fires in one- and two-family dwellings.¹

Figure 13.



Source: NFIRS 5.0 and NFPA survey.

There is little difference in injury rates per 100 fires when working smoke alarms are present compared to their absence. Someone alerted to a fire by a smoke alarm may find a fire small enough that they consider fighting it themselves. Only four percent of the people who were fatally injured in home fires during 1999-2002 were injured while fighting the fire themselves, compared to 35% of those who suffered non-fatal injuries.²

The fire death rate per 1,000 reported non-confined apartment fires was more than twice as high in fires without automatic suppression systems compared to sprinklered properties.

In 2002-2004, sprinklers were present in 1% of the non-confined fires reported in one- and two-family dwellings and in 8% of the non-confined apartment fires. Table B shows that, compared to fires in apartments without automatic suppression systems, the death rate per 1,000 reported fires was 57% lower and the average loss per fire was 42% lower in non-confined apartment fires with sprinklers. When present, sprinklers operated in 97% of the non-confined apartment fires in which the fire was large enough to activate them.³ No further analysis of sprinkler performance was done for fires in one- and two-family dwellings due to the small number of fires in such properties that had this protection.

¹ Marty Ahrens, *U.S. Experience with Smoke Alarms and Other Fire Detection Equipment*, National Fire Protection Association, Fire Analysis and Research Division, April 2007.

² John R. Hall, Jr., *Characteristics of Home Fire Victims*, Quincy, MA: National Fire Protection Association, Fire Analysis and Research Division, July 2005, pp. 104-105.

³ John R. Hall, Jr., *U.S. Experience with Sprinklers and Other Fire Extinguishing Equipment*, Quincy, MA: National Fire Protection Association, Fire Analysis and Research Division, June 2007.

Table B.
Sprinkler Systems in Non-Confined Home Structure Fires
2002-2004 Annual Averages

One- and Two-Family Dwellings

Percent of non-confined fires in one- and two-family dwellings with sprinkler systems	1%
---	----

Apartment fires

Percent of non-confined fires in apartments with sprinkler systems	8%
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Deaths per 1,000 non-confined apartment fires with sprinkler systems	11.0
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Deaths per 1,000 non-confined apartment fires with no automatic extinguishing system present	4.7
--	-----

Reduction in deaths per 1,000 non-confined apartment fires when sprinkler systems were present	57%
--	-----

Average loss per non-confined apartment fire when sprinkler system was present	\$15,600
--	----------

Average loss per non-confined apartment fire with no automatic suppression system	\$25,900
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Reduction in loss per fire when sprinkler systems were present	42%
--	-----

Average of 145,000 outside and other fires per year were reported at homes.

During 2002-2005, an estimated annual average of 145,000 outside and other fires on home properties caused an average of 10 deaths, 370 civilian injuries and \$36 million in direct property damage per year. An average of 16,100 vehicle fires reported on these properties (without structural involvement) caused an average of ten civilian deaths, 150 civilian injuries and \$64 million in direct property damage per year.

Additional information sources

Three chapters found in the 19th edition of the NFPA *Fire Protection Handbook*, “One- and Two-Family Dwellings” by Harry L. Bradley, “Manufactured Housing and Recreational Vehicles” by A. Elwood Willey and Walter P. Sterling, and “Apartment Buildings” by Kenneth Bush, describe some of the special fire safety concerns for these properties.

NFPA offers a wide variety of home safety and statistical information at <http://www.nfpa.org>. *Manufactured Home Fires*, by John R. Hall, Jr., focuses specifically on these homes and examines the impact of the 1976 federal standards and fire risks relative to other types of dwellings. *Characteristics of Home Fire Victims*, also by John R. Hall, Jr., examines factors such as relative risk, leading causes, and victim activities, conditions and characteristics by age and gender among civilians who were injured or killed in home fires.

**Table 1.
Home Structure Fires by Year: 1980-2006**

Year	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Millions)	
				As Reported	In 2006 Dollars
1980	734,000	5,200	19,700	\$2,848	\$6,976
1981	711,000	5,400	19,125	\$3,128	\$6,924
1982	654,500	4,820	20,450	\$3,147	\$6,567
1983	625,500	4,670	20,750	\$3,205	\$6,481
1984	605,500	4,075	18,750	\$3,362	\$6,514
1985	606,000	4,885	19,175	\$3,693	\$6,909
1986	565,500	4,655	18,575	\$3,464	\$6,376
1987	536,500	4,570	19,965	\$3,599	\$6,385
1988	538,500	4,955	22,075	\$3,897	\$6,647
1989	498,500	4,335	20,275	\$3,876	\$6,306
1990	454,500	4,050	20,225	\$4,157	\$6,420
1991	464,500	3,500	21,275	\$5,463 ¹	\$8,084
1992	459,000	3,705	21,100	\$3,775	\$5,427
1993	458,000	3,720	22,000	\$4,764 ²	\$6,647
1994	438,000	3,425	19,475	\$4,215	\$5,736
1995	414,000	3,640	18,650	\$4,264	\$5,639
1996	417,000	4,035	18,875	\$4,869	\$6,263
1997	395,500	3,360	17,300	\$4,453	\$5,593
1998	369,500	3,220	16,800	\$4,273	\$5,290
1999	371,000	2,895	16,050	\$4,965	\$6,006
2000	368,000	3,420	16,975	\$5,525	\$6,472
2001	383,500	3,110	15,200	\$5,516	\$6,283
2002	389,000	2,670	13,650	\$5,931	\$6,648
2003	388,500	3,145	13,650	\$5,949 ³	\$6,525
2004	395,500	3,190	13,700	\$5,833	\$6,233
2005	381,000	3,030	13,300	\$6,729	\$6,946
2006	396,000	2,580	12,500	\$6,832	\$6,832

¹Includes \$1.5 billion in damage caused by the Oakland Fire Storm, most of which was lost to homes but for which no detailed breakdown by property type was available.

²Includes \$809 million in damage caused by Southern California wildfires

³ This does not include the Southern California wildfires

Note: These are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. National estimates are projections. Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Fires are rounded to the nearest five hundred, civilian deaths are rounded to the nearest five, injuries are rounded to the nearest twenty-five, and direct property damage is rounded to the nearest million dollars.

Source: NFPA survey. Inflation adjustments were based on the consumer price index found in the U.S. Census Bureau's *Statistical Abstract of the United States: 2007*, "Table 705, Purchasing Power of the Dollar: 1950 to 2005" and the Bureau of Labor Statistics Inflation Calculator which uses the consumer price index. The Inflation Calculator may be accessed at <http://data.bls.gov/cgi-bin/cpicalc.pl>.

**Table 2.
Home Structure Fires by Month
2002-2005 Annual Averages**

Month	Fires		Civilian		Civilian		Direct	
			Deaths	Injuries	Injuries	Property Damage (in Millions)		
January	40,000	(11%)	430	(15%)	1,420	(11%)	\$624	(11%)
February	32,800	(9%)	330	(11%)	1,260	(9%)	\$481	(8%)
March	33,900	(9%)	290	(10%)	1,280	(10%)	\$524	(9%)
April	30,100	(8%)	220	(8%)	1,070	(8%)	\$486	(8%)
May	28,600	(8%)	180	(6%)	1,030	(8%)	\$447	(8%)
June	26,800	(7%)	150	(5%)	930	(7%)	\$444	(8%)
July	28,300	(8%)	150	(5%)	970	(7%)	\$480	(8%)
August	26,200	(7%)	150	(5%)	990	(7%)	\$439	(7%)
September	25,800	(7%)	160	(5%)	850	(6%)	\$411	(7%)
October	30,800	(8%)	210	(7%)	1,070	(8%)	\$440	(7%)
November	33,800	(9%)	250	(9%)	1,130	(8%)	\$491	(8%)
December	40,000	(11%)	360	(13%)	1,360	(10%)	\$651	(11%)
Total	377,100	(100%)	2,870	(100%)	13,360	(100%)	\$5,918	(100%)
Monthly average	31,400	(8%)	240	(8%)	1,110	(8%)	\$493	(8%)

**Table 3.
Home Structure Fires by Day of Week
2002-2005 Annual Averages**

Day of Week	Fires		Civilian		Civilian		Direct	
			Deaths	Injuries	Injuries	Property Damage (in Millions)		
Sunday	57,300	(15%)	430	(15%)	2,090	(16%)	\$880	(15%)
Monday	53,300	(14%)	390	(14%)	1,900	(14%)	\$854	(14%)
Tuesday	52,400	(14%)	360	(13%)	1,850	(14%)	\$821	(14%)
Wednesday	52,200	(14%)	370	(13%)	1,820	(14%)	\$793	(13%)
Thursday	52,500	(14%)	410	(14%)	1,920	(14%)	\$808	(14%)
Friday	52,500	(14%)	450	(16%)	1,790	(13%)	\$881	(15%)
Saturday	56,900	(15%)	450	(16%)	1,990	(15%)	\$881	(15%)
Total	377,100	(100%)	2,870	(100%)	13,360	(100%)	\$5,918	(100%)
Daily average	53,900	(14%)	410	(14%)	1,910	(14%)	\$845	(14%)

Note: These are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. These national estimates are projections based on the detailed information collected in Version 5.0 of NFIRS. Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Fires are rounded to the nearest hundred, civilian deaths and injuries are rounded to the nearest ten, and direct property damage is rounded to the nearest million dollars. Property damage has not been adjusted for inflation. Sums may not equal totals due to rounding errors.

Source: NFIRS and NFPA survey.

Table 4.
Home Structure Fires by Alarm Time
2002-2005 Annual Averages

Alarm Time	Fires		Civilian		Civilian		Direct	
			Deaths	Injuries	Injuries	Property Damage (in Millions)		
Midnight - 12:59 a.m.	11,800	(3%)	190	(7%)	540	(4%)	\$262	(4%)
1:00 - 1:59 a.m.	10,200	(3%)	220	(8%)	590	(4%)	\$289	(5%)
2:00 - 2:59 a.m.	9,300	(2%)	190	(7%)	560	(4%)	\$278	(5%)
3:00 - 3:59 a.m.	8,400	(2%)	230	(8%)	570	(4%)	\$269	(5%)
4:00 - 4:59 a.m.	7,700	(2%)	180	(6%)	490	(4%)	\$244	(4%)
5:00 - 5:59 a.m.	7,200	(2%)	200	(7%)	430	(3%)	\$188	(3%)
6:00 - 6:59 a.m.	8,000	(2%)	150	(5%)	370	(3%)	\$174	(3%)
7:00 - 7:59 a.m.	9,700	(3%)	100	(3%)	360	(3%)	\$170	(3%)
8:00 - 8:59 a.m.	11,600	(3%)	120	(4%)	430	(3%)	\$175	(3%)
9:00 - 9:59 a.m.	13,600	(4%)	80	(3%)	520	(4%)	\$193	(3%)
10:00 - 10:59 a.m.	15,500	(4%)	80	(3%)	540	(4%)	\$232	(4%)
11:00 - 11:59 a.m.	17,100	(5%)	80	(3%)	550	(4%)	\$247	(4%)
Noon - 12:59 p.m.	18,800	(5%)	70	(2%)	580	(4%)	\$241	(4%)
1:00 - 1:59 p.m.	19,000	(5%)	70	(2%)	580	(4%)	\$265	(4%)
2:00 - 2:59 p.m.	19,300	(5%)	70	(3%)	570	(4%)	\$274	(5%)
3:00 - 3:59 p.m.	20,500	(5%)	70	(2%)	560	(4%)	\$270	(5%)
4:00 - 4:59 p.m.	22,800	(6%)	80	(3%)	670	(5%)	\$279	(5%)
5:00 - 5:59 p.m.	25,700	(7%)	70	(3%)	730	(5%)	\$303	(5%)
6:00 - 6:59 p.m.	26,600	(7%)	100	(3%)	710	(5%)	\$274	(5%)
7:00 - 7:59 p.m.	24,800	(7%)	80	(3%)	720	(5%)	\$275	(5%)
8:00 - 8:59 p.m.	22,000	(6%)	90	(3%)	620	(5%)	\$266	(4%)
9:00 - 9:59 p.m.	18,900	(5%)	100	(3%)	610	(5%)	\$254	(4%)
10:00 - 10:59 p.m.	15,600	(4%)	110	(4%)	520	(4%)	\$249	(4%)
11:00 - 11:59 p.m.	13,000	(3%)	160	(6%)	540	(4%)	\$247	(4%)
Total	377,100	(100%)	2,870	(100%)	13,360	(100%)	\$5,918	(100%)
Average	15,700	(4%)	120	(4%)	560	(4%)	\$247	(4%)

Note: These are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. These national estimates are projections based on the detailed information collected in Version 5.0 of NFIRS. Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Fires are rounded to the nearest hundred, civilian deaths and injuries are rounded to the nearest ten, and direct property damage is rounded to the nearest million dollars. Property damage has not been adjusted for inflation. Sums may not equal totals due to rounding errors.

Source: NFIRS and NFPA survey.

Table 5.
Major Causes of Home Structure Fires
2002-2005 Annual Averages

Cause	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Cooking equipment	142,900	(38%)	430	(15%)	4,600	(34%)	\$757	(13%)
<i>Cooking equipment in non-confined fire</i>	35,900	(10%)	420	(15%)	3,140	(23%)	\$728	(12%)
<i>Confined cooking fire</i>	107,000	(28%)	10	(0%)	1,460	(11%)	\$29	(0%)
Heating equipment	70,700	(19%)	690	(24%)	1,680	(13%)	\$1,061	(18%)
<i>Heating equipment in non-confined fire</i>	30,600	(8%)	690	(24%)	1,570	(12%)	\$1,041	(18%)
<i>Confined chimney or flue fire</i>	24,600	(7%)	0	(0%)	30	(0%)	\$15	(0%)
<i>Confined fuel burner or boiler fire</i>	15,500	(4%)	0	(0%)	90	(1%)	\$5	(0%)
Electrical distribution and lighting equipment	20,800	(6%)	330	(11%)	810	(6%)	\$697	(12%)
Intentional	18,300	(5%)	330	(11%)	960	(7%)	\$524	(9%)
Candle	15,800	(4%)	160	(6%)	1,480	(11%)	\$488	(8%)
Clothes dryer or washer	14,900	(4%)	20	(1%)	420	(3%)	\$178	(3%)
Smoking materials	13,300	(4%)	680	(24%)	1,220	(9%)	\$396	(7%)
Exposure	13,200	(3%)	20	(1%)	90	(1%)	\$332	(6%)
Playing with heat source	7,100	(2%)	140	(5%)	860	(6%)	\$220	(4%)
Confined trash or rubbish fire	14,700	(4%)	0	(0%)	60	(0%)	\$3	(0%)

Note: These are the leading causes, obtained from the following list: intentional (from the NFIRS field “cause”); playing with fire (from factor contributing to ignition); confined heating (including confined chimney and confined fuel burner or boiler fires), confined cooking, and contained trash or rubbish) from incident type; heating and cooking equipment in non-confined fire, clothes dryer or washer, torch (including burner and soldering iron), electrical distribution and lighting equipment, medical equipment, and electronic, office or entertainment equipment (from equipment involved in ignition); smoking materials, candles, lightning, and spontaneous combustion or chemical reaction (from heat source), and mobile property involved (from mobile property involved in ignition). The statistics on smoking materials and candles include a proportional share of fires in which the heat source was heat from an unclassified open flame or smoking material. Equipment statistics include a proportional share fires coded with no equipment involved in ignition but with heat source indicating equipment involvement or unknown heat source. Exposure fires include fires with an exposure number greater than zero, as well as fires identified by heat source or factor contributing to ignition when no equipment was involved in ignition and the fires were not intentionally set. Because contained trash or rubbish fires are a scenario without causal information, they are shown at the bottom of the table if they account for at least 2% of the fires. Causal information is not routinely collected for these incidents. The same fire can be listed under multiple causes, based on multiple data elements. Details on handling of unknowns, partial unknowns, and other underspecified codes may be found in the Appendix.

These are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. These national estimates are projections based on the detailed information collected in Version 5.0 of NFIRS. Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Fires are rounded to the nearest hundred, civilian deaths and injuries are rounded to the nearest ten, and direct property damage is rounded to the nearest million. Property damage has not been adjusted for inflation.

Source: NFIRS and NFPA survey.

**Table 6.
Home Structure Fires by Equipment Involved in Ignition
2002-2005 Annual Averages**

Equipment Involved	Fires		Civilian		Civilian		Direct	
			Deaths	Injuries	Injuries	Property Damage (in Millions)		
Confined cooking fire	107,000	(28%)	10	(0%)	1,460	(11%)	\$29	(0%)
No equipment involved	89,100	(24%)	1,160	(41%)	4,540	(34%)	\$2,535	(43%)
Confined chimney or flue fire	24,600	(7%)	0	(0%)	30	(0%)	\$15	(0%)
Stove or cooktop	24,000	(6%)	320	(11%)	2,410	(18%)	\$432	(7%)
Clothes dryer or washer	14,900	(4%)	20	(1%)	420	(3%)	\$178	(3%)
Confined fuel burner or boiler fire	15,500	(4%)	0	(0%)	90	(1%)	\$5	(0%)
Fixed or portable space heater	13,700	(4%)	540	(19%)	950	(7%)	\$504	(9%)
Wiring, switch or outlet	9,100	(2%)	110	(4%)	250	(2%)	\$299	(5%)
Water heater	5,600	(1%)	50	(2%)	260	(2%)	\$115	(2%)
Lamp, bulb or lighting	5,500	(1%)	50	(2%)	230	(2%)	\$158	(3%)
Unclassified kitchen or cooking equipment	4,600	(1%)	40	(1%)	320	(2%)	\$106	(2%)
Fireplace or chimney	4,200	(1%)	30	(1%)	80	(1%)	\$196	(3%)
Heating, ventilating and air conditioning, other	3,300	(1%)	30	(1%)	130	(1%)	\$106	(2%)
Fan	3,100	(1%)	20	(1%)	140	(1%)	\$71	(1%)
Central heating unit	2,900	(1%)	40	(2%)	110	(1%)	\$99	(2%)
Oven, rotisserie	2,600	(1%)	0	(0%)	110	(1%)	\$23	(0%)
Cord, plug or extension cord	2,500	(1%)	120	(4%)	200	(2%)	\$109	(2%)
Electronic or entertainment equipment	2,400	(1%)	10	(0%)	140	(1%)	\$71	(1%)
Air conditioner	2,100	(1%)	20	(1%)	90	(1%)	\$54	(1%)
Unclassified equipment involved in ignition	2,100	(1%)	20	(1%)	120	(1%)	\$83	(1%)
Confined incinerator or compactor fire	2,100	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Other known equipment	21,500	(6%)	260	(9%)	1,220	(9%)	\$727	(12%)
Confined trash or rubbish fire	14,700	(4%)	0	(0%)	60	(0%)	\$3	(0%)
Total	377,100	(100%)	2,870	(100%)	13,360	(100%)	\$5,918	(100%)

Note: These are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. These national estimates are projections based on the detailed information collected in Version 5.0 of NFIRS. Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Fires are rounded to the nearest hundred, civilian deaths and injuries are rounded to the nearest ten, and direct property damage is rounded to the nearest million dollars. Property damage has not been adjusted for inflation. Non-confined fires in which the equipment involved in ignition was unknown or not reported have been allocated proportionally among fires with known equipment involved. Fires in which the equipment involved in ignition was entered as none but the heat source indicated equipment involvement or the heat source was unknown were also treated as unknown and allocated proportionally among fires with known equipment involved. Sums may not equal totals due to rounding errors.

Source: NFIRS and NFPA survey.

**Table 7.
Home Structure Fires by Heat Source
2002-2005 Annual Averages**

Heat Source	Fires		Civilian		Civilian		Direct	
			Deaths	Injuries	Injuries	Property Damage (in Millions)		
Confined cooking fire	107,000	(28%)	10	(0%)	1,460	(11%)	\$29	(0%)
Radiated or conducted heat from operating equipment	33,200	(9%)	400	(14%)	2,280	(17%)	\$807	(14%)
Unclassified heat from powered equipment	29,000	(8%)	220	(8%)	1,660	(12%)	\$632	(11%)
Arcing	27,600	(7%)	270	(9%)	790	(6%)	\$802	(14%)
Confined chimney or flue fire	24,600	(7%)	0	(0%)	30	(0%)	\$15	(0%)
Unclassified heat source	17,000	(5%)	190	(7%)	650	(5%)	\$475	(8%)
Candle	15,800	(4%)	160	(6%)	1,480	(11%)	\$488	(8%)
Unclassified hot or smoldering object	15,600	(4%)	170	(6%)	600	(5%)	\$371	(6%)
Confined fuel burner or boiler fire	15,500	(4%)	0	(0%)	90	(1%)	\$5	(0%)
Spark, ember or flame from operating equipment	13,600	(4%)	200	(7%)	800	(6%)	\$365	(6%)
Smoking materials	13,300	(4%)	680	(24%)	1,220	(9%)	\$396	(7%)
Hot ember or ash	12,600	(3%)	130	(5%)	440	(3%)	\$380	(6%)
Cigarette lighter	7,500	(2%)	210	(7%)	910	(7%)	\$216	(4%)
Match	5,400	(1%)	90	(3%)	340	(3%)	\$145	(2%)
Lightning	4,600	(1%)	10	(0%)	50	(0%)	\$255	(4%)
Radiated heat from another fire	2,900	(1%)	0	(0%)	10	(0%)	\$42	(1%)
Flame or torch used for lighting	2,400	(1%)	30	(1%)	150	(1%)	\$81	(1%)
Molten or hot material	1,900	(1%)	10	(0%)	90	(1%)	\$41	(1%)
Other known heat source	10,700	(3%)	80	(3%)	250	(2%)	\$369	(6%)
Confined trash or rubbish fire	14,700	(4%)	0	(0%)	60	(0%)	\$3	(0%)
Confined incinerator or compactor fire	2,100	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Total	377,100	(100%)	2,870	(100%)	13,360	(100%)	\$5,918	(100%)

Note: These are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. These national estimates are projections based on the detailed information collected in Version 5.0 of NFIRS. Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Fires are rounded to the nearest hundred, civilian deaths and injuries are rounded to the nearest ten, and direct property damage is rounded to the nearest million dollars. Property damage has not been adjusted for inflation. Non-confined and non-contained structure fires in which the heat source was unknown or not reported have been allocated proportionally among fires with known heat source. The statistics on matches, lighters, smoking materials and candles include a proportional share of fires in which the heat source was heat from an unclassified open flame or smoking material. Totals may not equal sums due to rounding errors.

Source: NFIRS and NFPA survey.

**Table 8.
Home Structure Fires by Factor Contributing to Ignition
2002-2005 Annual Averages**

Factor Contributing	Fires		Civilian		Civilian		Direct	
			Deaths		Injuries		Property Damage	
							(in Millions)	
Confined cooking fire	107,000	(28%)	10	(0%)	1,460	(11%)	\$29	(0%)
Heat source too close to combustible	30,600	(8%)	580	(20%)	2,380	(18%)	\$936	(16%)
Confined chimney or flue fire	24,600	(7%)	0	(0%)	30	(0%)	\$15	(0%)
Unclassified electrical failure or malfunction	20,800	(6%)	240	(8%)	640	(5%)	\$647	(11%)
Abandoned or discarded material or product	20,600	(5%)	450	(16%)	1,380	(10%)	\$582	(10%)
Equipment unattended	17,300	(5%)	170	(6%)	1,550	(12%)	\$361	(6%)
Confined fuel burner or boiler fire	15,500	(4%)	0	(0%)	90	(1%)	\$5	(0%)
Unclassified misuse of material or product	14,200	(4%)	350	(12%)	1,470	(11%)	\$353	(6%)
Unspecified short circuit arc	13,000	(3%)	140	(5%)	380	(3%)	\$421	(7%)
Unclassified factor	13,000	(3%)	250	(9%)	800	(6%)	\$386	(7%)
Exposure to other fire	11,800	(3%)	20	(1%)	60	(0%)	\$297	(5%)
Unclassified mechanical failure or malfunction	10,400	(3%)	70	(2%)	270	(2%)	\$241	(4%)
Short circuit arc from defective or worn insulation	7,100	(2%)	70	(2%)	200	(1%)	\$172	(3%)
Playing with heat source	7,100	(2%)	140	(5%)	860	(6%)	\$220	(4%)
Failure to clean	5,200	(1%)	10	(0%)	110	(1%)	\$70	(1%)
Storm	4,800	(1%)	20	(1%)	40	(0%)	\$263	(4%)
Unintentionally turned or not turned off	4,500	(1%)	50	(2%)	300	(2%)	\$121	(2%)
Rekindle	3,400	(1%)	0	(0%)	10	(0%)	\$52	(1%)
Leak or break	3,100	(1%)	60	(2%)	200	(1%)	\$110	(2%)
Installation deficiency	3,100	(1%)	40	(1%)	70	(1%)	\$86	(1%)
Unclassified operational deficiency	2,800	(1%)	40	(2%)	180	(1%)	\$77	(1%)
Worn out	2,700	(1%)	30	(1%)	60	(0%)	\$50	(1%)
Improper container or storage	2,400	(1%)	10	(1%)	100	(1%)	\$79	(1%)
Arc from faulty contact or broken conductor	2,200	(1%)	20	(1%)	60	(0%)	\$52	(1%)
Flammable liquid or gas spill	2,000	(1%)	60	(2%)	340	(3%)	\$71	(1%)
Short circuit arc from mechanical damage	1,900	(1%)	20	(1%)	60	(0%)	\$46	(1%)
Other known factor contributing	21,000	(6%)	370	(13%)	1,040	(8%)	\$696	(12%)
Confined trash or rubbish fire	14,700	(4%)	0	(0%)	60	(0%)	\$3	(0%)

Table 8.
Home Structure Fires by Factor Contributing to Ignition
2002-2005 Annual Averages
(Continued)

Factor Contributing	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Confined incinerator or compactor fire	2,100	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Total*	377,100	(100%)	2,870	(100%)	13,360	(100%)	\$5,918	(100%)

* Multiple entries are allowed which can result in sums higher than totals.

Note: These are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. These national estimates are projections based on the detailed information collected in Version 5.0 of NFIRS. Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Fires are rounded to the nearest hundred, civilian deaths and injuries are rounded to the nearest ten, and direct property damage is rounded to the nearest million dollars. Property damage has not been adjusted for inflation. Non-confined and non-contained structure fires in which the factor contributing to ignition was coded as “none,” unknown, or not reported have been allocated proportionally among fires with known factor contributing to ignition.

Source: NFIRS and NFPA survey.

Table 9.
Home Structure Fires by Factor Contributing to Ignition Grouping
2002-2005 Annual Averages

Factor Contributing	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Confined fires	163,800	(43%)	10	(0%)	1,640	(12%)	\$53	(1%)
<i>Confined cooking fire</i>	107,000	(28%)	10	(0%)	1,460	(11%)	\$29	(0%)
<i>Confined chimney or flue fire</i>	24,600	(7%)	0	(0%)	30	(0%)	\$15	(0%)
<i>Confined fuel burner or boiler fire</i>	15,500	(4%)	0	(0%)	90	(1%)	\$5	(0%)
<i>Confined trash or rubbish fire</i>	14,700	(4%)	0	(0%)	60	(0%)	\$3	(0%)
<i>Confined incinerator or compactor fire</i>	2,100	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Misuse of material or product	80,100	(21%)	1,690	(59%)	6,840	(51%)	\$2,360	(40%)
<i>Heat source too close to combustible</i>	30,600	(8%)	580	(20%)	2,380	(18%)	\$936	(16%)
<i>Abandoned or discarded material or product</i>	20,600	(5%)	450	(16%)	1,380	(10%)	\$582	(10%)
<i>Unclassified misuse of material or product</i>	14,200	(4%)	350	(12%)	1,470	(11%)	\$353	(6%)
<i>Playing with heat source</i>	7,100	(2%)	140	(5%)	860	(6%)	\$220	(4%)
<i>Improper container or storage</i>	2,400	(1%)	10	(1%)	100	(1%)	\$79	(1%)
<i>Flammable liquid or gas spill</i>	2,000	(1%)	60	(2%)	340	(3%)	\$71	(1%)
Electrical failure or malfunction	47,800	(13%)	510	(18%)	1,410	(11%)	\$1,419	(24%)
<i>Unclassified electrical failure or malfunction</i>	20,800	(6%)	240	(8%)	640	(5%)	\$647	(11%)
<i>Unspecified short circuit arc</i>	13,000	(3%)	140	(5%)	380	(3%)	\$421	(7%)
<i>Short circuit arc from defective or worn insulation</i>	7,100	(2%)	70	(2%)	200	(1%)	\$172	(3%)
<i>Arc from faulty contact or broken conductor</i>	2,200	(1%)	20	(1%)	60	(0%)	\$52	(1%)
<i>Short circuit arc from mechanical damage</i>	1,900	(1%)	20	(1%)	60	(0%)	\$46	(1%)
Operational deficiency	34,900	(9%)	420	(15%)	2,540	(19%)	\$771	(13%)
<i>Equipment unattended</i>	17,300	(5%)	170	(6%)	1,550	(12%)	\$361	(6%)
<i>Failure to clean</i>	5,200	(1%)	10	(0%)	110	(1%)	\$70	(1%)
<i>Unintentionally turned or not turned off</i>	4,500	(1%)	50	(2%)	300	(2%)	\$121	(2%)
<i>Unclassified operational deficiency</i>	2,800	(1%)	40	(2%)	180	(1%)	\$77	(1%)

Table 9.
Home Structure Fires by Factor Contributing to Ignition Grouping
2002-2005 Annual Averages
(Continued)

Factor Contributing	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Fire spread or control	17,900	(5%)	60	(2%)	160	(1%)	\$467	(8%)
<i>Exposure to other fire</i>	11,800	(3%)	20	(1%)	60	(0%)	\$297	(5%)
<i>Rekindle</i>	3,400	(1%)	0	(0%)	10	(0%)	\$52	(1%)
Mechanical failure or malfunction	17,500	(5%)	160	(5%)	570	(4%)	\$431	(7%)
<i>Unclassified mechanical failure or malfunction</i>	10,400	(3%)	70	(2%)	270	(2%)	\$241	(4%)
<i>Leak or break</i>	3,100	(1%)	60	(2%)	200	(1%)	\$110	(2%)
<i>Worn out</i>	2,700	(1%)	30	(1%)	60	(0%)	\$50	(1%)
Natural condition	7,600	(2%)	40	(2%)	100	(1%)	\$376	(6%)
<i>Storm</i>	4,800	(1%)	20	(1%)	40	(0%)	\$263	(4%)
Design, manufacturing or installation deficiency	6,000	(2%)	60	(2%)	140	(1%)	\$178	(3%)
<i>Installation deficiency</i>	3,100	(1%)	40	(1%)	70	(1%)	\$86	(1%)
Unclassified factor	13,000	(3%)	250	(9%)	800	(6%)	\$386	(7%)
Total*	377,100	(100%)	2,870	(100%)	13,360	(100%)	\$5,918	(100%)

* Multiple entries are allowed which can result in sums higher than totals.

Note: These are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. These national estimates are projections based on the detailed information collected in Version 5.0 of NFIRS. Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Fires are rounded to the nearest hundred, civilian deaths and injuries are rounded to the nearest ten, and direct property damage is rounded to the nearest million dollars. Property damage has not been adjusted for inflation. Non-confined and non-contained structure fires in which the factor contributing to ignition was coded as "none," unknown, or not reported have been allocated proportionally among fires with known factor contributing to ignition.

Source: NFIRS and NFPA survey.

Table 10.
Home Structure Fires by Area of Origin
2002-2005 Annual Averages

Area of Origin	Fires		Civilian		Civilian		Direct	
			Deaths	Injuries	Property Damage	(in Millions)		
Confined cooking fire	107,000	(28%)	10	(0%)	1,460	(11%)	\$29	(0%)
Kitchen or cooking area	44,500	(12%)	430	(15%)	3,340	(25%)	\$794	(13%)
Bedroom	30,400	(8%)	690	(24%)	2,860	(21%)	\$917	(15%)
Confined chimney or flue fire	24,600	(7%)	0	(0%)	30	(0%)	\$15	(0%)
Confined fuel burner or boiler fire	15,500	(4%)	0	(0%)	90	(1%)	\$5	(0%)
Living room, family room or den	14,100	(4%)	690	(24%)	1,380	(10%)	\$551	(9%)
Laundry room or area	10,500	(3%)	50	(2%)	360	(3%)	\$180	(3%)
Unclassified function area	10,300	(3%)	370	(13%)	790	(6%)	\$346	(6%)
Attic or ceiling/roof assembly or concealed space	9,400	(2%)	20	(1%)	100	(1%)	\$370	(6%)
Exterior wall surface	8,700	(2%)	0	(0%)	100	(1%)	\$152	(3%)
Wall assembly or concealed space	7,900	(2%)	50	(2%)	140	(1%)	\$198	(3%)
Garage or vehicle storage area*	7,600	(2%)	40	(1%)	360	(3%)	\$409	(7%)
Bathroom or lavatory	7,500	(2%)	30	(1%)	330	(2%)	\$139	(2%)
Unclassified structural area	5,600	(1%)	90	(3%)	230	(2%)	\$197	(3%)
Crawl space or substructure space	5,600	(1%)	50	(2%)	230	(2%)	\$168	(3%)
Unclassified area	5,200	(1%)	70	(2%)	110	(1%)	\$121	(2%)
Exterior balcony or open porch	4,900	(1%)	20	(1%)	160	(1%)	\$194	(3%)
Heating equipment room	4,700	(1%)	30	(1%)	190	(1%)	\$109	(2%)
Ceiling/floor assembly or concealed space	3,900	(1%)	30	(1%)	80	(1%)	\$129	(2%)
Unclassified outside area	3,000	(1%)	0	(0%)	40	(0%)	\$60	(1%)
Closet	2,900	(1%)	10	(0%)	130	(1%)	\$70	(1%)
Unclassified storage area	2,400	(1%)	10	(0%)	60	(0%)	\$64	(1%)
Exterior roof surface	2,200	(1%)	0	(0%)	10	(0%)	\$86	(1%)
Courtyard, terrace or patio	2,000	(1%)	20	(1%)	70	(1%)	\$81	(1%)
Confined incinerator or compactor fire	2,100	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Other known area	19,900	(5%)	160	(6%)	650	(5%)	\$529	(9%)
Confined trash or rubbish fire	14,700	(4%)	0	(0%)	60	(0%)	\$3	(0%)
Total	377,100	(100%)	2,870	(100%)	13,360	(100%)	\$5,918	(100%)

* Does not include fires with property use coded as dwelling garage.

Note: These are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. These national estimates are projections based on the detailed information collected in Version 5.0 of NFIRS. Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Fires are rounded to the nearest hundred, civilian deaths and injuries are rounded to the nearest ten, and direct property damage is rounded to the nearest million dollars. Property damage has not been adjusted for inflation. Non-confined and non-contained structure fires in which the area of origin was unknown or not reported have been allocated proportionally among fires with known area of origin. Totals may not equal sums due to rounding errors.

Source: NFIRS and NFPA survey.

**Table 11.
Home Structure Fires by Item First Ignited
2002-2005 Annual Averages**

Item First Ignited	Fires		Civilian		Civilian		Direct	
			Deaths	Injuries	Property Damage	(in Millions)		
Confined cooking fire	107,000	(28%)	10	(0%)	1,460	(11%)	\$29	(0%)
Confined chimney or flue fire	24,600	(7%)	0	(0%)	30	(0%)	\$15	(0%)
Cooking materials, including food	22,000	(6%)	110	(4%)	2,200	(16%)	\$321	(5%)
Structural member or framing	20,400	(5%)	160	(6%)	380	(3%)	\$897	(15%)
Electrical wire or cable insulation	16,000	(4%)	90	(3%)	380	(3%)	\$330	(6%)
Confined fuel burner or boiler fire	15,500	(4%)	0	(0%)	90	(1%)	\$5	(0%)
Confined trash or rubbish fire	14,700	(4%)	0	(0%)	60	(0%)	\$3	(0%)
Exterior wall covering or finish	12,600	(3%)	30	(1%)	180	(1%)	\$323	(5%)
Unclassified item	11,900	(3%)	100	(3%)	430	(3%)	\$231	(4%)
Mattress or bedding	11,500	(3%)	380	(13%)	1,390	(10%)	\$357	(6%)
Flammable or combustible liquid or gas, filter or piping	9,200	(2%)	240	(8%)	1,150	(9%)	\$321	(5%)
Interior wall covering, excluding drapes	8,700	(2%)	140	(5%)	330	(2%)	\$263	(4%)
Clothing	7,800	(2%)	150	(5%)	520	(4%)	\$158	(3%)
Upholstered furniture or vehicle seat	7,600	(2%)	600	(21%)	920	(7%)	\$309	(5%)
Unclassified structural component or finish	6,800	(2%)	70	(2%)	170	(1%)	\$262	(4%)
Insulation within structural area	6,300	(2%)	20	(1%)	110	(1%)	\$133	(2%)
Unclassified furniture or utensils	6,300	(2%)	160	(6%)	530	(4%)	\$221	(4%)
Appliance housing or casing	5,800	(2%)	50	(2%)	300	(2%)	\$97	(2%)
Floor covering, rug, carpet, or mat	5,500	(1%)	110	(4%)	310	(2%)	\$160	(3%)
Cabinetry, including built-in	5,300	(1%)	60	(2%)	330	(2%)	\$170	(3%)
Rubbish, trash, or waste	5,300	(1%)	50	(2%)	230	(2%)	\$118	(2%)
Multiple items first ignited	4,100	(1%)	100	(3%)	240	(2%)	\$183	(3%)
Unclassified soft goods or wearing apparel	3,900	(1%)	40	(2%)	220	(2%)	\$89	(2%)
Magazine, newspaper, writing paper	3,500	(1%)	50	(2%)	220	(2%)	\$88	(1%)
Box, carton, bag, basket, or barrel	3,000	(1%)	20	(1%)	140	(1%)	\$99	(2%)
Exterior roof covering or finish	2,900	(1%)	0	(0%)	20	(0%)	\$132	(2%)
Dust, fiber, lint, sawdust, or excelsior	2,900	(1%)	0	(0%)	60	(0%)	\$30	(1%)
Interior ceiling cover or finish	2,800	(1%)	20	(1%)	50	(0%)	\$103	(2%)
Curtains, blinds, drapery, tapestry	2,700	(1%)	30	(1%)	220	(2%)	\$75	(1%)
Household utensils	2,600	(1%)	20	(1%)	150	(1%)	\$37	(1%)
Linen other than bedding	2,300	(1%)	10	(0%)	120	(1%)	\$33	(1%)
Confined incinerator or compactor fire	2,100	(1%)	0	(0%)	0	(0%)	\$0	(0%)

Table 11.
Home Structure Fires by Item First Ignited
2002-2005 Annual Averages
(Continued)

Item First Ignited	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Other known item	13,500	(4%)	80	(3%)	460	(3%)	\$326	(6%)
Total	377,100	(100%)	2,870	(100%)	13,360	(100%)	\$5,918	(100%)

Note: These are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. These national estimates are projections based on the detailed information collected in Version 5.0 of NFIRS. Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Fires are rounded to the nearest hundred, civilian deaths and injuries are rounded to the nearest ten, and direct property damage is rounded to the nearest million dollars. Property damage has not been adjusted for inflation. Non-confined and non-contained structure fires in which the item first ignited was unknown or not reported have been allocated proportionally among fires with known item first ignited. Totals may not equal sums due to rounding errors.

Source: NFIRS and NFPA survey.

Table 12.
Home Structure Fires by Extent of Flame Damage
2002-2005 Annual Averages

Extent of Flame Damage	Fires		Civilian		Civilian		Direct	
			Deaths	Injuries	Injuries	Property Damage (in Millions)		
Confined or contained fire	163,800	(43%)	10	(0%)	1,640	(12%)	\$53	(1%)
Confined to object of origin	61,800	(16%)	210	(7%)	1,750	(13%)	\$461	(8%)
Confined to room of origin	66,000	(18%)	420	(15%)	4,380	(33%)	\$707	(12%)
Confined to floor of origin	17,400	(5%)	310	(11%)	1,430	(11%)	\$602	(10%)
Confined to building of origin	58,500	(16%)	1,550	(54%)	3,430	(26%)	\$3,401	(57%)
Extended beyond building of origin	9,500	(3%)	360	(13%)	730	(5%)	\$696	(12%)
Total	377,100	(100%)	2,870	(100%)	13,360	(100%)	\$5,918	(100%)

Note: These are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. These national estimates are projections based on the detailed information collected in Version 5.0 of NFIRS. Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Fires are rounded to the nearest hundred, civilian deaths and injuries are rounded to the nearest ten, and direct property damage is rounded to the nearest million dollars. Property damage has not been adjusted for inflation. Non-confined and non-contained structure fires in which the extent of flame damage was unknown or not reported have been allocated proportionally among fires with known extent of flame damage. Totals may not equal sums due to rounding errors.

Source: NFIRS and NFPA survey.

Table 1A.
One- and Two-Family Dwelling Structure Fires
by Year: 1980-2006

Year	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Millions)	
				As Reported	In 2006 Dollars
1980	590,500	4,175	16,100	\$2,447	\$5,994
1981	574,000	4,430	14,875	\$2,713	\$6,006
1982	538,000	3,960	15,750	\$2,794	\$5,830
1983	523,500	3,825	16,450	\$2,792	\$5,646
1984	506,000	3,290	15,100	\$2,945	\$5,706
1985	501,500	4,020	15,250	\$3,217	\$6,019
1986	468,000	4,005	14,650	\$2,992	\$5,507
1987	433,000	3,780	15,200	\$3,078	\$5,461
1988	432,500	4,125	17,125	\$3,349	\$5,712
1989	402,500	3,545	15,225	\$3,335	\$5,426
1990	359,000	3,370	15,250	\$3,534	\$5,458
1991	363,000	2,905	15,600	\$3,354	\$4,963
1992	358,000	3,160	15,275	\$3,178	\$4,568
1993	358,000	3,035	15,700	\$4,111	\$5,736
1994	341,000	2,785	14,000	\$3,537	\$4,813
1995	320,000	3,035	13,450	\$3,615	\$4,781
1996	324,000	3,470	13,700	\$4,121	\$5,301
1997	302,500	2,700	12,300	\$3,735	\$4,691
1998	283,000	2,775	11,800	\$3,642	\$4,508
1999	282,500	2,375	11,550	\$4,123	\$4,988
2000	283,500	2,920	12,575	\$4,639	\$5,434
2001	295,500	2,650	11,400	\$4,652	\$5,299
2002	300,500	2,280	9,950	\$5,005	\$5,610
2003	297,000	2,735	10,000	\$5,052	\$5,541
2004	301,500	2,680	10,500	\$4,948	\$5,287
2005	287,000	2,570	10,300	\$5,781	\$5,967
2006	304,500	2,155	8,800	\$5,936	\$5,936

Note: These are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. National estimates are projections. Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Fires are rounded to the nearest five hundred, civilian deaths are rounded to the nearest five, injuries are rounded to the nearest twenty-five, and direct property damage is rounded to the nearest million dollars.

Source: NFPA survey. Inflation adjustments were based on the consumer price index found in the U.S. Census Bureau's *Statistical Abstract of the United States: 2007*, "Table 705, Purchasing Power of the Dollar: 1950 to 2005" and the Bureau of Labor Statistics Inflation Calculator which uses the consumer price index. The Inflation Calculator may be accessed at <http://data.bls.gov/cgi-bin/cpicalc.pl>.

Table 2A.
One- and Two-Family Dwelling Structure Fires by Month
2002-2005 Annual Averages

Month	Fires		Civilian		Civilian		Direct	
			Deaths	Injuries	Injuries	Property Damage (in Millions)		
January	30,000	(11%)	370	(15%)	1,030	(11%)	\$527	(11%)
February	23,900	(9%)	280	(11%)	900	(9%)	\$406	(8%)
March	24,600	(9%)	240	(10%)	940	(10%)	\$422	(9%)
April	21,400	(8%)	170	(7%)	750	(8%)	\$389	(8%)
May	20,100	(7%)	140	(6%)	760	(8%)	\$366	(8%)
June	18,900	(7%)	130	(5%)	660	(7%)	\$345	(7%)
July	20,600	(8%)	130	(5%)	670	(7%)	\$393	(8%)
August	18,700	(7%)	120	(5%)	670	(7%)	\$341	(7%)
September	17,800	(7%)	130	(5%)	580	(6%)	\$338	(7%)
October	21,500	(8%)	180	(8%)	770	(8%)	\$368	(8%)
November	24,400	(9%)	220	(9%)	820	(9%)	\$405	(8%)
December	29,400	(11%)	320	(13%)	1,030	(11%)	\$539	(11%)
Total	271,300	(100%)	2,430	(100%)	9,590	(100%)	\$4,839	(100%)
Monthly average	22,600	(8%)	200	(8%)	800	(8%)	\$403	(8%)

Table 3A.
One- and Two-Family Dwelling Structure Fires by Day of Week
2002-2005 Annual Averages

Day of Week	Fires		Civilian		Civilian		Direct	
			Deaths	Injuries	Injuries	Property Damage (in Millions)		
Sunday	40,400	(15%)	370	(15%)	1,470	(15%)	\$706	(15%)
Monday	38,800	(14%)	320	(13%)	1,380	(14%)	\$697	(14%)
Tuesday	38,000	(14%)	310	(13%)	1,360	(14%)	\$672	(14%)
Wednesday	37,900	(14%)	330	(13%)	1,330	(14%)	\$654	(14%)
Thursday	38,000	(14%)	340	(14%)	1,360	(14%)	\$662	(14%)
Friday	38,000	(14%)	390	(16%)	1,260	(13%)	\$733	(15%)
Saturday	40,200	(15%)	370	(15%)	1,430	(15%)	\$716	(15%)
Total	271,300	(100%)	2,430	(100%)	9,590	(100%)	\$4,839	(100%)
Daily average	38,800	(14%)	350	(14%)	1,370	(14%)	\$691	(14%)

Note: These are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. These national estimates are projections based on the detailed information collected in Version 5.0 of NFIRS. Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Fires are rounded to the nearest hundred, civilian deaths and injuries are rounded to the nearest ten, and direct property damage is rounded to the nearest million dollars. Property damage has not been adjusted for inflation. Sums may not equal totals due to rounding errors.

Source: NFIRS and NFPA survey.

Table 4A.
One- and Two-Family Dwelling Structure Fires by Alarm Time
2002-2005 Annual Averages

Alarm Time	Fires		Civilian		Civilian		Direct	
			Deaths	Injuries	Injuries	Property Damage (in Millions)		
Midnight - 12:59 a.m.	8,400	(3%)	170	(7%)	400	(4%)	\$221	(5%)
1:00 - 1:59 a.m.	7,400	(3%)	180	(8%)	420	(4%)	\$228	(5%)
2:00 - 2:59 a.m.	6,800	(3%)	160	(6%)	400	(4%)	\$230	(5%)
3:00 - 3:59 a.m.	6,200	(2%)	190	(8%)	390	(4%)	\$219	(5%)
4:00 - 4:59 a.m.	5,700	(2%)	150	(6%)	360	(4%)	\$191	(4%)
5:00 - 5:59 a.m.	5,500	(2%)	170	(7%)	310	(3%)	\$159	(3%)
6:00 - 6:59 a.m.	6,000	(2%)	130	(5%)	280	(3%)	\$138	(3%)
7:00 - 7:59 a.m.	7,300	(3%)	80	(3%)	260	(3%)	\$138	(3%)
8:00 - 8:59 a.m.	8,700	(3%)	100	(4%)	300	(3%)	\$150	(3%)
9:00 - 9:59 a.m.	10,200	(4%)	70	(3%)	380	(4%)	\$166	(3%)
10:00 - 10:59 a.m.	11,300	(4%)	60	(2%)	380	(4%)	\$192	(4%)
11:00 - 11:59 a.m.	12,400	(5%)	70	(3%)	400	(4%)	\$203	(4%)
Noon - 12:59 p.m.	13,500	(5%)	60	(2%)	450	(5%)	\$202	(4%)
1:00 - 1:59 p.m.	13,700	(5%)	60	(2%)	400	(4%)	\$217	(4%)
2:00 - 2:59 p.m.	13,800	(5%)	60	(3%)	400	(4%)	\$224	(5%)
3:00 - 3:59 p.m.	14,700	(5%)	60	(2%)	420	(4%)	\$224	(5%)
4:00 - 4:59 p.m.	16,300	(6%)	60	(3%)	490	(5%)	\$230	(5%)
5:00 - 5:59 p.m.	18,300	(7%)	60	(3%)	530	(6%)	\$228	(5%)
6:00 - 6:59 p.m.	18,800	(7%)	80	(3%)	510	(5%)	\$220	(5%)
7:00 - 7:59 p.m.	17,500	(6%)	70	(3%)	520	(5%)	\$224	(5%)
8:00 - 8:59 p.m.	15,400	(6%)	70	(3%)	430	(5%)	\$220	(5%)
9:00 - 9:59 p.m.	13,200	(5%)	80	(3%)	440	(5%)	\$208	(4%)
10:00 - 10:59 p.m.	10,900	(4%)	90	(4%)	340	(4%)	\$205	(4%)
11:00 - 11:59 p.m.	9,200	(3%)	140	(6%)	390	(4%)	\$203	(4%)
Total	271,300	(100%)	2,430	(100%)	9,590	(100%)	\$4,839	(100%)
Average	11,300	(4%)	100	(4%)	400	(4%)	\$202	(4%)

Note: These are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. These national estimates are projections based on the detailed information collected in Version 5.0 of NFIRS. Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Fires are rounded to the nearest hundred, civilian deaths and injuries are rounded to the nearest ten, and direct property damage is rounded to the nearest million dollars. Property damage has not been adjusted for inflation. Sums may not equal totals due to rounding errors.

Source: NFIRS and NFPA survey.

Table 5A.
Major Causes of One- and Two-Family Dwelling Structure Fires
2002-2005 Annual Averages

Cause	Fires		Civilian		Civilian		Direct	
			Deaths	Injuries	Property Damage	(in Millions)		
Cooking equipment	80,200	(30%)	310	(13%)	2,870	(30%)	\$567	(12%)
<i>Cooking equipment in non-confined fire</i>	26,800	(10%)	300	(13%)	2,060	(21%)	\$547	(11%)
<i>Confined cooking fire</i>	53,400	(20%)	10	(0%)	810	(8%)	\$20	(0%)
Heating equipment	60,600	(22%)	650	(27%)	1,420	(15%)	\$954	(20%)
<i>Heating equipment in non-confined fire</i>	26,600	(10%)	650	(27%)	1,330	(14%)	\$936	(19%)
<i>Confined chimney or flue fire</i>	23,900	(9%)	0	(0%)	30	(0%)	\$15	(0%)
<i>Confined fuel burner or boiler fire</i>	10,100	(4%)	0	(0%)	60	(1%)	\$4	(0%)
Electrical distribution or lighting equipment	18,300	(7%)	290	(12%)	680	(7%)	\$602	(12%)
Intentional	14,700	(5%)	280	(11%)	640	(7%)	\$400	(8%)
Clothes dryer or washer	13,000	(5%)	20	(1%)	350	(4%)	\$165	(3%)
Candle	12,600	(5%)	130	(5%)	1,150	(12%)	\$374	(8%)
Exposure	10,800	(4%)	10	(1%)	70	(1%)	\$218	(5%)
Smoking materials	9,400	(3%)	530	(22%)	750	(8%)	\$261	(5%)
Playing with heat source	5,600	(2%)	120	(5%)	610	(6%)	\$165	(3%)
Confined trash or rubbish fire	8,800	(3%)	0	(0%)	40	(0%)	\$2	(0%)

Note: These are the leading causes, obtained from the following list: intentional (from the NFIRS field “cause”); playing with fire (from factor contributing to ignition); confined heating (including confined chimney and confined fuel burner or boiler fires), confined cooking, and contained trash or rubbish from incident type; heating and cooking equipment in non-confined fire, clothes dryer or washer, torch (including burner and soldering iron), electrical distribution and lighting equipment, medical equipment, and electronic, office or entertainment equipment (from equipment involved in ignition); smoking materials, candles, lightning, and spontaneous combustion or chemical reaction (from heat source), and mobile property involved (from mobile property involved in ignition). The statistics on smoking materials and candles include a proportional share of fires in which the heat source was heat from an unclassified open flame or smoking material. Equipment statistics include a proportional share fires coded with no equipment involved in ignition but with heat source indicating equipment involvement or unknown heat source. Exposure fires include fires with an exposure number greater than zero, as well as fires identified by heat source or factor contributing to ignition when no equipment was involved in ignition and the fires were not intentionally set. Because contained trash or rubbish fires are a scenario without causal information, they are shown at the bottom of the table if they account for at least 2% of the fires. Causal information is not routinely collected for these incidents. The same fire can be listed under multiple causes, based on multiple data elements. Details on handling of unknowns, partial unknowns, and other underspecified codes may be found in the Appendix.

These are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. These national estimates are projections based on the detailed information collected in Version 5.0 of NFIRS. Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Fires are rounded to the nearest hundred, civilian deaths and injuries are rounded to the nearest ten, and direct property damage is rounded to the nearest million dollars. Property damage has not been adjusted for inflation.

Source: NFIRS and NFPA survey.

Table 6A.
One- and Two-Family Dwelling Structure Fires
by Equipment Involved in Ignition
2002-2005 Annual Averages

Equipment Involved	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
No equipment involved	72,200	(27%)	920	(38%)	3,330	(35%)	\$1,991	(41%)
Confined cooking fire	53,400	(20%)	10	(0%)	810	(8%)	\$20	(0%)
Confined chimney or flue fire	23,900	(9%)	0	(0%)	30	(0%)	\$15	(0%)
Range or cooktop	17,300	(6%)	220	(9%)	1,530	(16%)	\$321	(7%)
Clothes dryer or washer	13,000	(5%)	20	(1%)	350	(4%)	\$165	(3%)
Confined fuel burner or boiler fire	10,100	(4%)	0	(0%)	60	(1%)	\$4	(0%)
Fixed or portable space heater	11,600	(4%)	510	(21%)	790	(8%)	\$460	(10%)
Wiring, switch or outlet	8,000	(3%)	110	(4%)	220	(2%)	\$256	(5%)
Water heater	4,800	(2%)	40	(2%)	230	(2%)	\$104	(2%)
Lamp, bulb or lighting	4,700	(2%)	50	(2%)	180	(2%)	\$138	(3%)
Fireplace or chimney	4,100	(2%)	30	(1%)	80	(1%)	\$176	(4%)
Unclassified kitchen or cooking equipment	3,400	(1%)	30	(1%)	220	(2%)	\$69	(1%)
Unclassified heating, ventilation and air conditioning	2,800	(1%)	30	(1%)	110	(1%)	\$90	(2%)
Central heat	2,600	(1%)	40	(2%)	90	(1%)	\$87	(2%)
Fan	2,400	(1%)	20	(1%)	120	(1%)	\$55	(1%)
Cord, extension cord or plug	2,200	(1%)	110	(4%)	160	(2%)	\$85	(2%)
Electronic and entertainment equipment	2,000	(1%)	10	(0%)	90	(1%)	\$59	(1%)
Oven or rotisserie	1,900	(1%)	0	(0%)	70	(1%)	\$21	(0%)
Unclassified equipment involved in ignition	1,800	(1%)	20	(1%)	100	(1%)	\$71	(1%)
Air conditioner	1,700	(1%)	20	(1%)	60	(1%)	\$48	(1%)
Portable cooking or warming equipment	1,700	(1%)	30	(1%)	110	(1%)	\$53	(1%)
Power switch gear or overcurrent protection device	1,700	(1%)	10	(0%)	50	(1%)	\$45	(1%)
Torch, burner or soldering iron	1,400	(1%)	10	(0%)	80	(1%)	\$48	(1%)
Confined trash or rubbish fire	8,800	(3%)	0	(0%)	40	(0%)	\$2	(0%)
Other known equipment or confined fire	14,000	(5%)	190	(8%)	670	(7%)	\$458	(9%)
Total	271,300	(100%)	2,430	(100%)	9,590	(100%)	\$4,839	(100%)

Note: These are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. These national estimates are projections based on the detailed information collected in Version 5.0 of NFIRS. Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Fires are rounded to the nearest hundred, civilian deaths and injuries are rounded to the nearest ten, and direct property damage is rounded to the nearest million dollars. Property damage has not been adjusted for inflation. Non-confined fires in which the equipment involved in ignition was unknown or not reported have been allocated proportionally among fires with known equipment involved. Fires in which the equipment involved in ignition was entered as none but the heat source indicated equipment involvement or the heat source was unknown were also treated as unknown and allocated proportionally among fires with known equipment involved. Sums may not equal totals due to rounding errors.

Source: NFIRS and NFPA survey.

Table 7A.
One- and Two-Family Dwelling Structure Fires by Heat Source
2002-2005 Annual Averages

Heat Source	Fires		Civilian		Civilian		Direct	
			Deaths	Injuries	Injuries	Property Damage (in Millions)		
Confined cooking fire	53,400	(20%)	10	(0%)	810	(8%)	\$20	(0%)
Radiated or conducted heat from operating equipment	26,100	(10%)	340	(14%)	1,600	(17%)	\$673	(14%)
Arcing	24,300	(9%)	250	(10%)	680	(7%)	\$700	(14%)
Confined chimney or flue fire	23,900	(9%)	0	(0%)	30	(0%)	\$15	(0%)
Unclassified heat from powered equipment	23,200	(9%)	190	(8%)	1,230	(13%)	\$512	(11%)
Unclassified heat source	14,400	(5%)	180	(8%)	480	(5%)	\$410	(8%)
Unclassified hot or smoldering object	12,700	(5%)	130	(5%)	440	(5%)	\$319	(7%)
Candle	12,600	(5%)	130	(5%)	1,150	(12%)	\$374	(8%)
Spark, ember or flame from operating equipment	11,200	(4%)	170	(7%)	640	(7%)	\$305	(6%)
Hot ember or ash	10,800	(4%)	120	(5%)	350	(4%)	\$322	(7%)
Confined fuel burner or boiler fire	10,100	(4%)	0	(0%)	60	(1%)	\$4	(0%)
Smoking materials	9,400	(3%)	530	(22%)	750	(8%)	\$261	(5%)
Cigarette lighter	6,000	(2%)	170	(7%)	630	(7%)	\$158	(3%)
Match	4,400	(2%)	90	(4%)	280	(3%)	\$113	(2%)
Lightning	4,300	(2%)	10	(1%)	40	(0%)	\$233	(5%)
Radiated heat from another fire	2,700	(1%)	0	(0%)	10	(0%)	\$33	(1%)
Flame or torch used for lighting	2,100	(1%)	30	(1%)	130	(1%)	\$56	(1%)
Molten or hot material	1,600	(1%)	10	(0%)	70	(1%)	\$35	(1%)
Heat from direct flame or convection currents	1,500	(1%)	10	(0%)	10	(0%)	\$49	(1%)
Multiple heat sources, including multiple ignitions	1,500	(1%)	30	(1%)	50	(1%)	\$73	(2%)
Other known heat source or confined fire	6,400	(2%)	40	(2%)	140	(1%)	\$171	(4%)
Confined trash or rubbish fire	8,800	(3%)	0	(0%)	40	(0%)	\$2	(0%)
Total	271,300	(100%)	2,430	(100%)	9,590	(100%)	\$4,839	(100%)

Note: These are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. These national estimates are projections based on the detailed information collected in Version 5.0 of NFIRS. Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Fires are rounded to the nearest hundred, civilian deaths and injuries are rounded to the nearest ten, and direct property damage is rounded to the nearest million dollars. Property damage has not been adjusted for inflation. Non-confined and non-contained structure fires in which the heat source was unknown or not reported have been allocated proportionally among fires with known heat source. The statistics on matches, lighters, smoking materials and candles include a proportional share of fires in which the heat source was heat from an unclassified open flame or smoking material. Totals may not equal sums due to rounding errors.

Source: NFIRS and NFPA survey.

**Table 8A.
One- and Two-Family Dwelling Structure Fires by Factor Contributing to Ignition
2002-2005 Annual Averages**

Factor Contributing	Fires		Civilian		Civilian		Direct	
			Deaths	Injuries	Injuries	Property Damage (in Millions)		
Confined cooking fire	53,400	(20%)	10	(0%)	810	(8%)	\$20	(0%)
Heat source too close to combustible	24,700	(9%)	480	(20%)	1,800	(19%)	\$52	(16%)
Confined chimney or flue fire	23,900	(9%)	0	(0%)	30	(0%)	\$15	(0%)
Unclassified electrical failure or malfunction	18,500	(7%)	200	(8%)	530	(5%)	\$573	(12%)
Abandoned or discarded material or product	14,700	(5%)	350	(15%)	900	(9%)	\$417	(9%)
Equipment unattended	12,400	(5%)	130	(6%)	1,030	(11%)	\$275	(6%)
Unspecified short circuit arc	11,300	(4%)	130	(5%)	310	(3%)	\$365	(8%)
Unclassified misuse of material or product	10,600	(4%)	290	(12%)	990	(10%)	\$277	(6%)
Unclassified factor	10,600	(4%)	220	(9%)	580	(6%)	\$316	(7%)
Confined fuel burner or boiler fire	10,100	(4%)	0	(0%)	60	(1%)	\$4	(0%)
Exposure to other fire	9,400	(3%)	10	(0%)	40	(0%)	\$183	(4%)
Unclassified mechanical failure or malfunction	8,900	(3%)	60	(3%)	230	(2%)	\$219	(5%)
Short circuit arc from defective or worn insulation	6,300	(2%)	60	(3%)	180	(2%)	\$152	(3%)
Playing with heat source	5,600	(2%)	120	(5%)	610	(6%)	\$165	(3%)
Storm	4,600	(2%)	20	(1%)	30	(0%)	\$240	(5%)
Failure to clean	4,400	(2%)	10	(0%)	90	(1%)	\$67	(1%)
Unintentionally turned or not turned off	3,300	(1%)	30	(1%)	210	(2%)	\$91	(2%)
Rekindle	3,200	(1%)	0	(0%)	0	(0%)	\$48	(1%)
Installation deficiency	2,800	(1%)	30	(1%)	70	(1%)	\$78	(2%)
Leak or break	2,700	(1%)	50	(2%)	180	(2%)	\$96	(2%)
Worn out	2,400	(1%)	30	(1%)	60	(1%)	\$46	(1%)
Unclassified operational deficiency	2,300	(1%)	30	(1%)	120	(1%)	\$65	(1%)
Improper container or storage	2,000	(1%)	10	(1%)	90	(1%)	\$71	(1%)
Arc from faulty contact or broken conductor	1,900	(1%)	20	(1%)	50	(1%)	\$45	(1%)
Short circuit arc from mechanical damage	1,700	(1%)	10	(1%)	50	(1%)	\$43	(1%)
Flammable liquid or gas spill	1,700	(1%)	50	(2%)	260	(3%)	\$59	(1%)
Arc or spark from operating equipment	1,500	(1%)	40	(2%)	60	(1%)	\$47	(1%)
Equipment overloaded	1,400	(1%)	30	(1%)	90	(1%)	\$37	(1%)
Improperly operated equipment	1,400	(1%)	40	(2%)	70	(1%)	\$34	(1%)

Table 8A.
One- and Two-Family Dwelling Structure Fires by Factor Contributing to Ignition
2002-2005 Annual Averages
(Continued)

Factor Contributing	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Other known factor contributing or confined fire	14,400	(5%)	230	(9%)	640	(7%)	\$457	(9%)
Confined trash or rubbish fire	8,800	(3%)	0	(0%)	40	(0%)	\$2	(0%)
Total*	271,300	(100%)	2,430	(100%)	9,590	(100%)	\$4,839	(100%)

* Multiple entries are allowed which can result in sums higher than totals.

Note: These are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. These national estimates are projections based on the detailed information collected in Version 5.0 of NFIRS. Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Fires are rounded to the nearest hundred, civilian deaths and injuries are rounded to the nearest ten, and direct property damage is rounded to the nearest million dollars.

Property damage has not been adjusted for inflation. Non-confined and non-contained structure fires in which the factor contributing to ignition was coded as "none," unknown, or not reported have been allocated proportionally among fires with known factor contributing to ignition.

Source: NFIRS and NFPA survey.

Table 9A.
One- and Two-Family Dwelling Structure Fires
by Factor Contributing to Ignition Grouping
2002-2005 Annual Averages

Factor Contributing	Fires		Civilian		Civilian		Direct	
			Deaths	Injuries	Property Damage	(in Millions)		
All confined fires	96,500	(36%)	10	(0%)	940	(10%)	\$40	(1%)
<i>Confined cooking fire</i>	53,400	(20%)	10	(0%)	810	(8%)	\$20	(0%)
<i>Confined chimney or flue fire</i>	23,900	(9%)	0	(0%)	30	(0%)	\$15	(0%)
<i>Confined fuel burner or boiler fire</i>	10,100	(4%)	0	(0%)	60	(1%)	\$4	(0%)
<i>Confined trash or rubbish fire</i>	8,800	(3%)	0	(0%)	40	(0%)	\$2	(0%)
<i>Confined incinerator or compactor fire</i>	500	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Misuse of material or product	62,000	(23%)	1,390	(57%)	4,910	(51%)	\$1,828	(38%)
<i>Heat source too close to combustible</i>	24,700	(9%)	480	(20%)	1,800	(19%)	\$752	(16%)
<i>Abandoned or discarded material or product</i>	14,700	(5%)	350	(15%)	900	(9%)	\$417	(9%)
<i>Unclassified misuse of material or product</i>	10,600	(4%)	290	(12%)	990	(10%)	\$277	(6%)
<i>Playing with heat source</i>	5,600	(2%)	120	(5%)	610	(6%)	\$165	(3%)
<i>Improper container or storage</i>	2,000	(1%)	10	(1%)	90	(1%)	\$71	(1%)
<i>Flammable liquid or gas spill</i>	1,700	(1%)	50	(2%)	260	(3%)	\$59	(1%)
Electrical failure or malfunction	42,100	(16%)	460	(19%)	1,190	(12%)	\$1,236	(26%)
<i>Unclassified electrical failure or malfunction</i>	18,500	(7%)	200	(8%)	530	(5%)	\$573	(12%)
<i>Unspecified short circuit arc</i>	11,300	(4%)	130	(5%)	310	(3%)	\$365	(8%)
<i>Short circuit arc from defective or worn insulation</i>	6,300	(2%)	60	(3%)	180	(2%)	\$152	(3%)
<i>Arc from faulty contact or broken conductor</i>	1,900	(1%)	20	(1%)	50	(1%)	\$45	(1%)
<i>Short circuit arc from mechanical damage</i>	1,700	(1%)	10	(1%)	50	(1%)	\$43	(1%)
<i>Arc or spark from operating equipment</i>	1,500	(1%)	40	(2%)	60	(1%)	\$47	(1%)
Operational deficiency	26,800	(10%)	340	(14%)	1,760	(18%)	\$616	(13%)
<i>Equipment unattended</i>	12,400	(5%)	130	(6%)	1,030	(11%)	\$275	(6%)
<i>Failure to clean</i>	4,400	(2%)	10	(0%)	90	(1%)	\$67	(1%)
<i>Unintentionally turned or not turned off</i>	3,300	(1%)	30	(1%)	210	(2%)	\$91	(2%)
<i>Unclassified operational deficiency</i>	2,300	(1%)	30	(1%)	120	(1%)	\$65	(1%)
<i>Equipment overloaded</i>	1,400	(1%)	30	(1%)	90	(1%)	\$37	(1%)
<i>Improperly operated equipment</i>	1,400	(1%)	40	(2%)	70	(1%)	\$34	(1%)

Table 9A.
One- and Two-Family Dwelling Structure Fires
by Factor Contributing to Ignition Grouping
2002-2005 Annual Averages
(Continued)

Factor Contributing	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Mechanical failure or malfunction	15,200	(6%)	150	(6%)	500	(5%)	\$389	(8%)
<i>Unclassified mechanical failure or malfunction</i>	8,900	(3%)	60	(3%)	230	(2%)	\$219	(5%)
<i>Leak or break</i>	2,700	(1%)	50	(2%)	180	(2%)	\$96	(2%)
<i>Worn out</i>	2,400	(1%)	30	(1%)	60	(1%)	\$46	(1%)
Fire spread or control	15,100	(6%)	50	(2%)	130	(1%)	\$328	(7%)
<i>Exposure to other fire</i>	9,400	(3%)	10	(0%)	40	(0%)	\$183	(4%)
<i>Rekindle</i>	3,200	(1%)	0	(0%)	0	(0%)	\$48	(1%)
Natural condition	7,100	(3%)	40	(2%)	80	(1%)	\$343	(7%)
<i>Storm</i>	4,600	(2%)	20	(1%)	30	(0%)	\$240	(5%)
Design, manufacturing or installation deficiency	5,500	(2%)	50	(2%)	130	(1%)	\$162	(3%)
<i>Installation deficiency</i>	2,800	(1%)	30	(1%)	70	(1%)	\$78	(2%)
Unclassified factor	10,600	(4%)	220	(9%)	580	(6%)	\$316	(7%)
Total*	271,300	(100%)	2,430	(100%)	9,590	(100%)	\$4,839	(100%)

* Multiple entries are allowed which can result in sums higher than totals.

Note: These are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. These national estimates are projections based on the detailed information collected in Version 5.0 of NFIRS. Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Fires are rounded to the nearest hundred, civilian deaths and injuries are rounded to the nearest ten, and direct property damage is rounded to the nearest million dollars. Property damage has not been adjusted for inflation. Non-confined and non-contained structure fires in which the factor contributing to ignition was coded as "none," unknown, or not reported have been allocated proportionally among fires with known factor contributing to ignition.

Source: NFIRS and NFPA survey.

**Table 10A.
One- and Two-Family Dwelling Structure Fires by Area of Origin
2002-2005 Annual Averages**

Area of Origin	Fires		Civilian		Civilian		Direct	
			Deaths	Injuries	Property Damage	(in Millions)		
Confined cooking fire	53,400	(20%)	10	(0%)	810	(8%)	\$20	(0%)
Kitchen or cooking area	32,500	(12%)	330	(14%)	2,240	(23%)	\$614	(13%)
Confined chimney or flue fire	23,900	(9%)	0	(0%)	30	(0%)	\$15	(0%)
Bedroom	24,100	(9%)	570	(24%)	2,090	(22%)	\$715	(15%)
Common room, living room, family room, lounge or den	11,600	(4%)	590	(24%)	1,030	(11%)	\$446	(9%)
Confined fuel burner or boiler fire	10,100	(4%)	0	(0%)	60	(1%)	\$4	(0%)
Laundry room or area	9,100	(3%)	50	(2%)	310	(3%)	\$164	(3%)
Attic or ceiling/roof assembly or concealed space	8,700	(3%)	20	(1%)	80	(1%)	\$318	(7%)
Unclassified function area	8,700	(3%)	320	(13%)	600	(6%)	\$290	(6%)
Exterior wall surface	7,900	(3%)	0	(0%)	80	(1%)	\$123	(3%)
Garage or vehicle storage area*	7,400	(3%)	30	(1%)	350	(4%)	\$395	(8%)
Wall assembly or concealed space	7,000	(3%)	50	(2%)	120	(1%)	\$168	(3%)
Bathroom or lavatory	5,900	(2%)	30	(1%)	250	(3%)	\$99	(2%)
Crawl space or substructure space	5,300	(2%)	50	(2%)	200	(2%)	\$156	(3%)
Unclassified structural area	5,100	(2%)	80	(3%)	190	(2%)	\$163	(3%)
Unclassified area	4,500	(2%)	50	(2%)	90	(1%)	\$106	(2%)
Heating equipment room	4,100	(2%)	30	(1%)	150	(2%)	\$95	(2%)
Exterior balcony or open porch	3,600	(1%)	20	(1%)	120	(1%)	\$112	(2%)
Ceiling/floor assembly or concealed space	3,400	(1%)	30	(1%)	60	(1%)	\$99	(2%)
Unclassified outside area	2,700	(1%)	0	(0%)	40	(0%)	\$48	(1%)
Closet	2,200	(1%)	0	(0%)	90	(1%)	\$56	(1%)
Unclassified storage area	2,100	(1%)	10	(0%)	50	(1%)	\$56	(1%)
Exterior roof surface	1,900	(1%)	0	(0%)	10	(0%)	\$68	(1%)
Courtyard, terrace or patio	1,600	(1%)	20	(1%)	50	(1%)	\$68	(1%)
Lobby or entrance way	1,400	(1%)	20	(1%)	60	(1%)	\$38	(1%)
Other known area or confined fire	14,500	(5%)	110	(5%)	390	(4%)	\$401	(8%)
Confined trash or rubbish fire	8,800	(3%)	0	(0%)	40	(0%)	\$2	(0%)
Total	271,300	(100%)	2,430	(100%)	9,590	(100%)	\$4,839	(100%)

*Does not include fires with property use coded as dwelling garage.

Note: These are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. These national estimates are projections based on the detailed information collected in Version 5.0 of NFIRS. Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Fires are rounded to the nearest hundred, civilian deaths and injuries are rounded to the nearest ten, and direct property damage is rounded to the nearest million dollars. Property damage has not been adjusted for inflation. Non-confined and non-contained structure fires in which the area of origin was unknown or not reported have been allocated proportionally among fires with known area of origin. Totals may not equal sums due to rounding errors.

Source: NFIRS and NFPA survey.

Table 11A.
One- and Two-Family Dwelling Structure Fires by Item First Ignited
2002-2005 Annual Averages

Item First Ignited	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Confined cooking fire	53,400	(20%)	10	(0%)	810	(8%)	\$20	(0%)
Confined chimney or flue fire	23,900	(9%)	0	(0%)	30	(0%)	\$15	(0%)
Structural member or framing	18,000	(7%)	150	(6%)	330	(3%)	\$752	(16%)
Cooking materials, including food	14,900	(6%)	80	(3%)	1,400	(15%)	\$226	(5%)
Electrical wire or cable insulation	13,900	(5%)	90	(4%)	320	(3%)	\$276	(6%)
Exterior wall covering or finish	11,300	(4%)	20	(1%)	130	(1%)	\$269	(6%)
Confined fuel burner or boiler fire	10,100	(4%)	0	(0%)	60	(1%)	\$4	(0%)
Unclassified item	9,800	(4%)	80	(3%)	310	(3%)	\$193	(4%)
Mattress or bedding	8,800	(3%)	300	(12%)	980	(10%)	\$269	(6%)
Confined trash or rubbish fire	8,800	(3%)	0	(0%)	40	(0%)	\$2	(0%)
Flammable or combustible liquid or gas, filter or piping	7,900	(3%)	220	(9%)	980	(10%)	\$270	(6%)
Interior wall covering, excluding drapes	7,800	(3%)	110	(5%)	290	(3%)	\$237	(5%)
Clothing	6,300	(2%)	110	(5%)	390	(4%)	\$131	(3%)
Upholstered furniture or vehicle seat	5,900	(2%)	500	(21%)	640	(7%)	\$235	(5%)
Unclassified structural component or finish	5,900	(2%)	60	(2%)	130	(1%)	\$220	(5%)
Insulation within structural area	5,700	(2%)	20	(1%)	90	(1%)	\$107	(2%)
Unclassified furniture or utensils	4,900	(2%)	130	(5%)	390	(4%)	\$163	(3%)
Appliance housing or casing	4,700	(2%)	40	(2%)	210	(2%)	\$84	(2%)
Floor covering, rug, carpet, or mat	4,600	(2%)	100	(4%)	230	(2%)	\$135	(3%)
Cabinetry, including built-in	4,100	(2%)	50	(2%)	230	(2%)	\$148	(3%)
Rubbish, trash, or waste	4,100	(1%)	30	(1%)	160	(2%)	\$99	(2%)
Multiple items first ignited	3,400	(1%)	80	(3%)	180	(2%)	\$151	(3%)
Unclassified soft goods or wearing apparel	3,100	(1%)	30	(1%)	170	(2%)	\$77	(2%)
Magazine, newspaper, writing paper	2,700	(1%)	40	(2%)	170	(2%)	\$73	(2%)
Exterior roof covering or finish	2,600	(1%)	0	(0%)	20	(0%)	\$109	(2%)
Interior ceiling cover or finish	2,500	(1%)	20	(1%)	40	(0%)	\$89	(2%)
Dust, fiber, lint, sawdust, or excelsior	2,500	(1%)	0	(0%)	50	(0%)	\$27	(1%)
Box, carton, bag, basket, or barrel	2,300	(1%)	10	(1%)	90	(1%)	\$77	(2%)

Table 11A.
One- and Two-Family Dwelling Structure Fires by Item First Ignited
2002-2005 Annual Averages
(Continued)

Item First Ignited	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Curtains, blinds, drapery, tapestry	2,300	(1%)	30	(1%)	170	(2%)	\$56	(1%)
Household utensils	1,900	(1%)	10	(1%)	100	(1%)	\$27	(1%)
Linen other than bedding	1,800	(1%)	10	(0%)	90	(1%)	\$29	(1%)
Light vegetation, including grass	1,700	(1%)	0	(0%)	20	(0%)	\$31	(1%)
Unclassified organic materials	1,500	(1%)	0	(0%)	40	(0%)	\$33	(1%)
Exterior trim, including doors	1,400	(1%)	0	(0%)	20	(0%)	\$33	(1%)
Other known item or confined fire	6,900	(3%)	60	(2%)	280	(3%)	\$173	(4%)
Total	271,300	(100%)	2,430	(100%)	9,590	(100%)	\$4,839	(100%)

Note: These are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. These national estimates are projections based on the detailed information collected in Version 5.0 of NFIRS. Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Fires are rounded to the nearest hundred, civilian deaths and injuries are rounded to the nearest ten, and direct property damage is rounded to the nearest million dollars. Property damage has not been adjusted for inflation. Non-confined and non-contained structure fires in which the item first ignited was unknown or not reported have been allocated proportionally among fires with known item first ignited. Totals may not equal sums due to rounding errors.

Source: NFIRS and NFPA survey.

Table 12A.
One- and Two-Family Dwelling Structure Fires by Extent of Flame Damage
2002-2005 Annual Averages

Extent of Flame Damage	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Confined or contained fire	96,500	(36%)	10	(0%)	940	(10%)	\$40	(1%)
Confined to object of origin	48,600	(18%)	180	(7%)	1,200	(13%)	\$398	(8%)
Confined to room of origin	50,600	(19%)	290	(12%)	3,040	(32%)	\$564	(12%)
Confined to floor of origin	14,000	(5%)	240	(10%)	1,000	(10%)	\$474	(10%)
Confined to building of origin	53,000	(20%)	1,380	(57%)	2,780	(29%)	\$2,830	(58%)
Extended beyond building of origin	8,700	(3%)	330	(14%)	620	(6%)	\$532	(11%)
Total	271,300	(100%)	2,430	(100%)	9,590	(100%)	\$4,839	(100%)

Note: These are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. These national estimates are projections based on the detailed information collected in Version 5.0 of NFIRS. Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Fires are rounded to the nearest hundred, civilian deaths and injuries are rounded to the nearest ten, and direct property damage is rounded to the nearest million dollars. Property damage has not been adjusted for inflation. Non-confined and non-contained structure fires in which the extent of flame damage was unknown or not reported have been allocated proportionally among fires with known extent of flame damage. Totals may not equal sums due to rounding errors.

Source: NFIRS and NFPA survey.

Table 1B.
Apartment Structure Fires
by Year: 1980-2006

Year	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Millions)	
				As Reported	In 2006 Dollars
1980	143,500	1,025	3,600	\$401	\$982
1981	137,000	970	4,250	\$415	\$919
1982	116,500	860	4,700	\$353	\$737
1983	102,000	845	4,300	\$413	\$835
1984	99,500	785	3,650	\$417	\$808
1985	104,500	865	3,925	\$476	\$891
1986	97,500	650	3,925	\$472	\$869
1987	103,500	790	4,765	\$521	\$924
1988	106,000	830	4,950	\$548	\$935
1989	96,000	790	5,050	\$541	\$880
1990	95,500	680	4,975	\$623	\$962
1991	101,500	595	5,675	\$609	\$901
1992	101,000	545	5,825	\$597	\$858
1993	100,000	685	6,300	\$653	\$911
1994	97,000	640	5,475	\$678	\$923
1995	94,000	605	5,200	\$649	\$858
1996	93,000	565	5,175	\$748	\$962
1997	93,000	660	5,000	\$718	\$902
1998	86,500	445	5,000	\$631	\$781
1999	88,500	520	4,500	\$842	\$1,019
2000	84,500	500	4,400	\$886	\$1,038
2001	88,000	460	3,800	\$864	\$984
2002	88,500	390	3,700	\$926	\$1,038
2003	91,500	410	3,650	\$897	\$984
2004	94,000	510	3,200	\$885	\$946
2005	94,000	460	3,000	\$948	\$979
2006	91,500	425	3,700	\$896	\$896

Note: These are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. National estimates are projections. Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Fires are rounded to the nearest five hundred, civilian deaths are rounded to the nearest five, injuries are rounded to the nearest twenty-five, and direct property damage is rounded to the nearest million dollars.

Source: NFPA survey. Inflation adjustments were based on the consumer price index found in the U.S. Census Bureau's *Statistical Abstract of the United States: 2007*, "Table 705, Purchasing Power of the Dollar: 1950 to 2005" and the Bureau of Labor Statistics Inflation Calculator which uses the consumer price index. The Inflation Calculator may be accessed at <http://data.bls.gov/cgi-bin/cpicalc.pl>.

Table 2B.
Apartment Structure Fires by Month
2002-2005 Annual Averages

Month	Fires		Civilian		Civilian		Direct	
			Deaths	Injuries	Injuries	Property Damage (in Millions)		
January	10,000	(9%)	60	(14%)	390	(10%)	\$96	(9%)
February	8,900	(8%)	50	(11%)	360	(10%)	\$75	(7%)
March	9,300	(9%)	50	(11%)	330	(9%)	\$102	(9%)
April	8,700	(8%)	50	(10%)	320	(8%)	\$97	(9%)
May	8,600	(8%)	30	(8%)	270	(7%)	\$82	(8%)
June	7,900	(7%)	20	(5%)	270	(7%)	\$99	(9%)
July	7,800	(7%)	20	(5%)	300	(8%)	\$87	(8%)
August	7,500	(7%)	30	(6%)	310	(8%)	\$98	(9%)
September	7,900	(7%)	30	(7%)	270	(7%)	\$73	(7%)
October	9,300	(9%)	30	(6%)	300	(8%)	\$72	(7%)
November	9,400	(9%)	30	(7%)	320	(8%)	\$86	(8%)
December	10,500	(10%)	40	(10%)	330	(9%)	\$112	(10%)
Total	105,800	(100%)	440	(100%)	3,780	(100%)	\$1,079	(100%)
Monthly average	8,800	(8%)	40	(8%)	310	(8%)	\$90	(8%)

Table 3B.
Apartment Structure Fires by Day of Week
2002-2005 Annual Averages

Day of Week	Fires		Civilian		Civilian		Direct	
			Deaths	Injuries	Injuries	Property Damage (in Millions)		
Sunday	16,900	(16%)	60	(15%)	630	(17%)	\$174	(16%)
Monday	14,500	(14%)	70	(16%)	520	(14%)	\$157	(15%)
Tuesday	14,400	(14%)	50	(12%)	500	(13%)	\$150	(14%)
Wednesday	14,300	(14%)	50	(10%)	480	(13%)	\$139	(13%)
Thursday	14,500	(14%)	70	(16%)	560	(15%)	\$146	(14%)
Friday	14,500	(14%)	60	(13%)	530	(14%)	\$148	(14%)
Saturday	16,600	(16%)	80	(19%)	560	(15%)	\$166	(15%)
Total	105,800	(100%)	440	(100%)	3,780	(100%)	\$1,079	(100%)
Daily average	15,100	(14%)	60	(14%)	540	(14%)	\$154	(14%)

Note: These are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. These national estimates are projections based on the detailed information collected in Version 5.0 of NFIRS. Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Fires are rounded to the nearest hundred, civilian deaths and injuries are rounded to the nearest ten, and direct property damage is rounded to the nearest million dollars. Property damage has not been adjusted for inflation. Sums may not equal totals due to rounding errors.

Source: NFIRS and NFPA survey.

Table 4B.
Apartment Structure Fires by Alarm Time
2002-2005 Annual Averages

Alarm Time	Fires		Civilian		Civilian		Direct	
			Deaths	Injuries	Injuries	Property Damage (in Millions)		
Midnight - 12:59 a.m.	3,400	(3%)	20	(4%)	140	(4%)	\$42	(4%)
1:00 - 1:59 a.m.	2,800	(3%)	30	(8%)	170	(5%)	\$61	(6%)
2:00 - 2:59 a.m.	2,500	(2%)	30	(7%)	160	(4%)	\$48	(4%)
3:00 - 3:59 a.m.	2,200	(2%)	50	(11%)	180	(5%)	\$50	(5%)
4:00 - 4:59 a.m.	2,000	(2%)	30	(6%)	130	(3%)	\$53	(5%)
5:00 - 5:59 a.m.	1,700	(2%)	30	(8%)	120	(3%)	\$29	(3%)
6:00 - 6:59 a.m.	1,900	(2%)	10	(3%)	90	(2%)	\$36	(3%)
7:00 - 7:59 a.m.	2,400	(2%)	10	(3%)	100	(3%)	\$33	(3%)
8:00 - 8:59 a.m.	2,900	(3%)	20	(4%)	120	(3%)	\$24	(2%)
9:00 - 9:59 a.m.	3,400	(3%)	10	(3%)	140	(4%)	\$27	(3%)
10:00 - 10:59 a.m.	4,200	(4%)	20	(4%)	150	(4%)	\$40	(4%)
11:00 - 11:59 a.m.	4,700	(4%)	10	(3%)	150	(4%)	\$44	(4%)
Noon - 12:59 p.m.	5,300	(5%)	10	(2%)	140	(4%)	\$39	(4%)
1:00 - 1:59 p.m.	5,300	(5%)	10	(3%)	190	(5%)	\$48	(4%)
2:00 - 2:59 p.m.	5,400	(5%)	10	(2%)	170	(5%)	\$50	(5%)
3:00 - 3:59 p.m.	5,800	(6%)	10	(2%)	140	(4%)	\$47	(4%)
4:00 - 4:59 p.m.	6,500	(6%)	10	(3%)	190	(5%)	\$48	(4%)
5:00 - 5:59 p.m.	7,300	(7%)	10	(3%)	200	(5%)	\$75	(7%)
6:00 - 6:59 p.m.	7,800	(7%)	10	(3%)	190	(5%)	\$55	(5%)
7:00 - 7:59 p.m.	7,300	(7%)	10	(3%)	200	(5%)	\$51	(5%)
8:00 - 8:59 p.m.	6,700	(6%)	20	(4%)	190	(5%)	\$46	(4%)
9:00 - 9:59 p.m.	5,700	(5%)	10	(3%)	180	(5%)	\$46	(4%)
10:00 - 10:59 p.m.	4,700	(4%)	20	(4%)	180	(5%)	\$44	(4%)
11:00 - 11:59 p.m.	3,800	(4%)	20	(4%)	150	(4%)	\$44	(4%)
Total	105,800	(100%)	440	(100%)	3,780	(100%)	\$1,079	(100%)
Average	4,400	(4%)	20	(4%)	160	(4%)	\$45	(4%)

Note: These are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. These national estimates are projections based on the detailed information collected in Version 5.0 of NFIRS. Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Fires are rounded to the nearest hundred, civilian deaths and injuries are rounded to the nearest ten, and direct property damage is rounded to the nearest million dollars. Property damage has not been adjusted for inflation. Sums may not equal totals due to rounding errors.

Source: NFIRS and NFPA survey.

Table 5B.
Leading Causes of Apartment Structure Fires
2002-2005 Annual Averages

Cause	Fires		Civilian		Civilian		Direct	
			Deaths	Injuries	Property Damage	(in Millions)		
Cooking equipment	63,100	(60%)	120	(27%)	1,750	(46%)	\$190	(18%)
<i>Cooking equipment in non-</i>								
<i>confined fire</i>	9,500	(9%)	120	(26%)	1,100	(29%)	\$190	(17%)
<i>Confined cooking fire</i>	53,600	(51%)	0	(0%)	650	(17%)	\$10	(1%)
Heating equipment	10,100	(10%)	40	(9%)	270	(7%)	\$110	(10%)
<i>Heating equipment in non-</i>								
<i>confined fire</i>	4,000	(4%)	40	(9%)	240	(6%)	\$110	(10%)
<i>Confined fuel burner or boiler</i>								
<i>fire</i>	5,400	(5%)	0	(0%)	20	(1%)	\$0	(0%)
Smoking materials	3,800	(4%)	150	(33%)	470	(12%)	\$140	(13%)
Intentional	3,600	(3%)	50	(11%)	320	(8%)	\$120	(12%)
Candle	3,200	(3%)	30	(7%)	320	(9%)	\$110	(11%)
Electrical distribution or								
lighting	2,400	(2%)	30	(7%)	130	(3%)	\$100	(9%)
Exposure to other hostile fire	2,400	(2%)	10	(1%)	20	(1%)	\$110	(11%)
Clothes dryer or washer	1,900	(2%)	0	(0%)	70	(2%)	\$10	(1%)
Confined trash or rubbish fire	6,000	(6%)	0	(0%)	20	(1%)	\$0	(0%)

Note: These are the leading causes, obtained from the following list: intentional (from the NFIRS field “cause”); playing with fire (from factor contributing to ignition); confined heating (including confined chimney and confined fuel burner or boiler fires), confined cooking, and contained trash or rubbish) from incident type; heating and cooking equipment in non-confined fire, clothes dryer or washer, torch (including burner and soldering iron), electrical distribution and lighting equipment, medical equipment, and electronic, office or entertainment equipment (from equipment involved in ignition); smoking materials, candles, lightning, and spontaneous combustion or chemical reaction (from heat source), and mobile property involved (from mobile property involved in ignition). The statistics on smoking materials and candles include a proportional share of fires in which the heat source was heat from an unclassified open flame or smoking material. Equipment statistics include a proportional share fires coded with no equipment involved in ignition but with heat source indicating equipment involvement or unknown heat source. Exposure fires include fires with an exposure number greater than zero, as well as fires identified by heat source or factor contributing to ignition when no equipment was involved in ignition and the fires were not intentionally set. Because contained trash or rubbish fires are a scenario without causal information, they are shown at the bottom of the table if they account for at least 2% of the fires. Causal information is not routinely collected for these incidents. The same fire can be listed under multiple causes, based on multiple data elements. Details on handling of unknowns, partial unknowns, and other underspecified codes may be found in the Appendix.

These are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. These national estimates are projections based on the detailed information collected in Version 5.0 of NFIRS. Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Fires are rounded to the nearest hundred, civilian deaths and injuries are rounded to the nearest ten, and direct property damage is rounded to the nearest million dollars. Property damage has not been adjusted for inflation.

Source: NFIRS and NFPA survey.

Table 6B.
Apartment Structure Fires
by Equipment Involved in Ignition
2002-2005 Annual Averages

Equipment Involved	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Confined cooking fire	53,600	(51%)	0	(0%)	650	(17%)	\$10	(1%)
No equipment involved	16,900	(16%)	240	(54%)	1,210	(32%)	\$540	(50%)
Stove or cooktop	6,700	(6%)	100	(23%)	890	(24%)	\$110	(10%)
Confined fuel burner or boiler fire	5,400	(5%)	0	(0%)	20	(1%)	\$0	(0%)
Fixed or portable space heater	2,100	(2%)	30	(7%)	170	(4%)	\$40	(4%)
Clothes dryer or washer	1,900	(2%)	0	(0%)	70	(2%)	\$10	(1%)
Confined incinerator or compactor fire	1,600	(2%)	0	(0%)	0	(0%)	\$0	(0%)
Unclassified kitchen or cooking equipment	1,200	(1%)	10	(1%)	100	(3%)	\$40	(3%)
Wiring, switch or outlet	1,000	(1%)	10	(1%)	30	(1%)	\$40	(4%)
Water heater	800	(1%)	10	(2%)	30	(1%)	\$10	(1%)
Lamp, bulb or lighting	800	(1%)	0	(1%)	50	(1%)	\$20	(2%)
Fan	700	(1%)	0	(0%)	20	(1%)	\$20	(1%)
Confined chimney or flue fire	700	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Oven or rotisserie	700	(1%)	0	(0%)	40	(1%)	\$0	(0%)
Unclassified heating, ventilation and air conditioning equipment	600	(1%)	0	(0%)	20	(1%)	\$20	(2%)
Other known equipment	5,100	(5%)	40	(10%)	450	(12%)	\$210	(19%)
Confined trash or rubbish fire	6,000	(6%)	0	(0%)	20	(1%)	\$0	(0%)
Total	105,800	(100%)	440	(100%)	3,780	(100%)	\$1,080	(100%)

Note: These are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. These national estimates are projections based on the detailed information collected in Version 5.0 of NFIRS. Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Fires are rounded to the nearest hundred, civilian deaths and injuries are rounded to the nearest ten, and direct property damage is rounded to the nearest million dollars. Property damage has not been adjusted for inflation. Non-confined fires in which the equipment involved in ignition was unknown or not reported have been allocated proportionally among fires with known equipment involved. Fires in which the equipment involved in ignition was entered as none but the heat source indicated equipment involvement or the heat source was unknown were also treated as unknown and allocated proportionally among fires with known equipment involved. Sums may not equal totals due to rounding errors.

Source: NFIRS and NFPA survey.

Table 7B.
Apartment Structure Fires by Heat Source
2002-2005 Annual Averages

Heat Source	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Confined cooking fire	53,600	(51%)	0	(0%)	650	(17%)	\$10	(1%)
Radiated or conducted heat from operating equipment	7,200	(7%)	60	(13%)	690	(18%)	\$130	(12%)
Unclassified heat from powered equipment	5,800	(5%)	30	(7%)	440	(12%)	\$120	(11%)
Confined fuel burner or boiler fire	5,400	(5%)	0	(0%)	20	(1%)	\$0	(0%)
Smoking materials	3,800	(4%)	150	(33%)	470	(12%)	\$140	(13%)
Arcing	3,300	(3%)	20	(4%)	110	(3%)	\$100	(9%)
Candle	3,200	(3%)	30	(7%)	320	(9%)	\$110	(11%)
Unclassified hot or smoldering object	2,900	(3%)	40	(10%)	170	(4%)	\$50	(5%)
Unclassified heat source	2,700	(3%)	10	(2%)	170	(5%)	\$60	(6%)
Spark, ember or flame from operating equipment	2,400	(2%)	30	(6%)	150	(4%)	\$60	(6%)
Hot ember or ash	1,800	(2%)	10	(3%)	100	(3%)	\$60	(5%)
Cigarette lighter	1,500	(1%)	40	(10%)	280	(7%)	\$60	(5%)
Match	1,000	(1%)	10	(2%)	70	(2%)	\$30	(3%)
Confined chimney or flue fire	700	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Other known heat source	2,900	(3%)	10	(2%)	120	(3%)	\$140	(13%)
Confined trash or rubbish fire	6,000	(6%)	0	(0%)	20	(1%)	\$0	(0%)
Confined incinerator or compactor fire	1,600	(2%)	0	(0%)	0	(0%)	\$0	(0%)
Total	105,800	(100%)	440	(100%)	3,780	(100%)	\$1,080	(100%)

Note: These are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. These national estimates are projections based on the detailed information collected in Version 5.0 of NFIRS. Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Fires are rounded to the nearest hundred, civilian deaths and injuries are rounded to the nearest ten, and direct property damage is rounded to the nearest million dollars. Property damage has not been adjusted for inflation. Non-confined and non-contained structure fires in which the heat source was unknown or not reported have been allocated proportionally among fires with known heat source. The statistics on matches, lighters, smoking materials and candles include a proportional share of fires in which the heat source was heat from an unclassified open flame or smoking material. Totals may not equal sums due to rounding errors.

Source: NFIRS and NFPA survey.

Table 8B.
Apartment Structure Fires by Factor Contributing to Ignition
2002-2005 Annual Averages

Factor Contributing	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Confined cooking fire	53,600	(51%)	0	(0%)	650	(17%)	\$10	(1%)
Heat source too close to combustible	5,900	(6%)	100	(23%)	590	(16%)	\$185	(17%)
Abandoned or discarded material or product	5,900	(6%)	100	(22%)	480	(13%)	\$165	(15%)
Confined fuel burner or boiler fire	5,400	(5%)	0	(0%)	20	(1%)	\$0	(0%)
Equipment unattended	4,900	(5%)	40	(9%)	510	(14%)	\$85	(8%)
Unclassified misuse of material or product	3,600	(3%)	60	(13%)	480	(13%)	\$76	(7%)
Exposure to other fire	2,400	(2%)	10	(2%)	20	(0%)	\$114	(11%)
Unclassified factor	2,300	(2%)	30	(6%)	220	(6%)	\$70	(6%)
Unclassified electrical failure or malfunction	2,200	(2%)	30	(7%)	120	(3%)	\$74	(7%)
Unspecified short circuit arc	1,700	(2%)	10	(3%)	70	(2%)	\$56	(5%)
Playing with heat source	1,400	(1%)	30	(6%)	250	(7%)	\$55	(5%)
Unclassified mechanical failure or malfunction	1,400	(1%)	0	(1%)	40	(1%)	\$22	(2%)
Unintentionally turned or not turned off	1,200	(1%)	10	(3%)	90	(2%)	\$30	(3%)
Short circuit arc from defective or worn insulation	900	(1%)	0	(1%)	20	(0%)	\$20	(2%)
Failure to clean	700	(1%)	0	(0%)	20	(0%)	\$3	(0%)
Confined chimney or flue fire	700	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Other known factor contributing	5,800	(6%)	60	(15%)	380	(10%)	\$220	(20%)
Confined trash or rubbish fire	6,000	(6%)	0	(0%)	20	(1%)	\$0	(0%)
Confined incinerator or compactor fire	1,600	(2%)	0	(0%)	0	(0%)	\$0	(0%)
Total*	105,800	(100%)	440	(100%)	3,780	(100%)	\$1,080	(100%)

* Multiple entries are allowed which can result in sums higher than totals.

Note: These are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. These national estimates are projections based on the detailed information collected in Version 5.0 of NFIRS. Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Fires are rounded to the nearest hundred, civilian deaths and injuries are rounded to the nearest ten, and direct property damage is rounded to the nearest million dollars. Property damage has not been adjusted for inflation. Non-confined and non-contained structure fires in which the factor contributing to ignition was coded as "none," unknown, or not reported have been allocated proportionally among fires with known factor contributing to ignition.

Source: NFIRS and NFPA survey.

Table 9B.
Apartment Structure Fires by Factor Contributing to Ignition Grouping
2002-2005 Annual Averages

Factor Contributing	Fires		Civilian		Civilian		Direct	
			Deaths	Injuries	Property Damage	(in Millions)		
Confined or contained fire	67,300	(64%)	0	(0%)	700	(18%)	\$10	(1%)
<i>Confined cooking fire</i>	53,600	(51%)	0	(0%)	650	(17%)	\$10	(1%)
<i>Confined trash or rubbish fire</i>	6,000	(6%)	0	(0%)	20	(1%)	\$0	(0%)
<i>Confined fuel burner or boiler fire</i>	5,400	(5%)	0	(0%)	20	(1%)	\$0	(0%)
<i>Confined incinerator or compactor fire</i>	1,600	(2%)	0	(0%)	0	(0%)	\$0	(0%)
<i>Confined chimney or flue fire</i>	700	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Misuse of material or product	18,100	(17%)	300	(68%)	1,930	(51%)	\$530	(49%)
<i>Heat source too close to combustible</i>	5,900	(6%)	100	(23%)	590	(16%)	\$180	(17%)
<i>Abandoned or discarded material or product</i>	5,900	(6%)	100	(22%)	480	(13%)	\$160	(15%)
<i>Unclassified misuse of material or product</i>	3,600	(3%)	60	(13%)	480	(13%)	\$80	(7%)
<i>Playing with heat source</i>	1,400	(1%)	30	(6%)	250	(7%)	\$50	(5%)
Operational deficiency	8,100	(8%)	80	(17%)	770	(20%)	\$160	(14%)
<i>Equipment unattended</i>	4,900	(5%)	40	(9%)	510	(14%)	\$90	(8%)
<i>Unintentionally turned or not turned off</i>	1,200	(1%)	10	(3%)	90	(2%)	\$30	(3%)
<i>Failure to clean</i>	700	(1%)	0	(0%)	20	(0%)	\$0	(0%)
Electrical failure or malfunction	5,700	(5%)	50	(12%)	230	(6%)	\$180	(17%)
<i>Unclassified electrical failure or malfunction</i>	2,200	(2%)	30	(7%)	120	(3%)	\$70	(7%)
<i>Unspecified short circuit arc</i>	1,700	(2%)	10	(3%)	70	(2%)	\$60	(5%)
<i>Short circuit arc from defective or worn insulation</i>	900	(1%)	0	(1%)	20	(0%)	\$20	(2%)
Fire spread or control	2,800	(3%)	10	(3%)	30	(1%)	\$140	(13%)
<i>Exposure to other fire</i>	2,400	(2%)	10	(2%)	20	(0%)	\$110	(11%)

Table 9B.
Apartment Structure Fires by Factor Contributing to Ignition Grouping
2002-2005 Annual Averages

Factor Contributing	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Mechanical failure or malfunction	2,300	(2%)	10	(2%)	70	(2%)	\$40	(4%)
<i>Unclassified mechanical failure or malfunction</i>	<i>1,400</i>	<i>(1%)</i>	<i>0</i>	<i>(1%)</i>	<i>40</i>	<i>(1%)</i>	<i>\$20</i>	<i>(2%)</i>
Natural condition	500	(0%)	0	(1%)	20	(0%)	\$30	(3%)
Design, manufacturing or installation deficiency	500	(0%)	0	(1%)	10	(0%)	\$20	(1%)
Unclassified factor	2,300	(2%)	30	(6%)	220	(6%)	\$70	(6%)
Total*	105,800	(100%)	440	(100%)	3,780	(100%)	\$1,080	(100%)

* Multiple entries are allowed which can result in sums higher than totals.

Note: These are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. These national estimates are projections based on the detailed information collected in Version 5.0 of NFIRS. Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Fires are rounded to the nearest hundred, civilian deaths and injuries are rounded to the nearest ten, and direct property damage is rounded to the nearest million dollars. Property damage has not been adjusted for inflation. Non-confined and non-contained structure fires in which the factor contributing to ignition was coded as "none," unknown, or not reported have been allocated proportionally among fires with known factor contributing to ignition.

Source: NFIRS and NFPA survey.

Table 10B.
Apartment Structure Fires by Area of Origin
2002-2005 Annual Averages

Area of Origin	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Confined cooking fire	53,600	(51%)	0	(0%)	650	(17%)	\$10	(1%)
Kitchen or cooking area	12,000	(11%)	90	(21%)	1,100	(29%)	\$180	(17%)
Bedroom	6,300	(6%)	120	(26%)	770	(20%)	\$202	(19%)
Confined fuel burner or boiler fire	5,400	(5%)	0	(0%)	20	(1%)	\$0	(0%)
Living room, family room, or den	2,500	(2%)	90	(21%)	350	(9%)	\$106	(10%)
Unclassified function area	1,600	(2%)	50	(11%)	190	(5%)	\$56	(5%)
Bathroom or lavatory	1,600	(2%)	0	(1%)	80	(2%)	\$39	(4%)
Laundry room or area	1,500	(1%)	0	(1%)	60	(1%)	\$16	(1%)
Exterior balcony or open porch	1,300	(1%)	10	(1%)	50	(1%)	\$82	(8%)
Wall assembly or concealed space	900	(1%)	0	(0%)	30	(1%)	\$29	(3%)
Exterior wall surface	700	(1%)	0	(0%)	20	(0%)	\$29	(3%)
Confined chimney or flue fire	700	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Unclassified area	700	(1%)	10	(3%)	20	(1%)	\$15	(1%)
Attic or ceiling/roof assembly or concealed space	700	(1%)	0	(0%)	10	(0%)	\$52	(5%)
Closet	700	(1%)	0	(1%)	40	(1%)	\$14	(1%)
Interior stairway or ramp	600	(1%)	10	(3%)	40	(1%)	\$12	(1%)
Heating equipment room	600	(1%)	0	(1%)	30	(1%)	\$14	(1%)
Ceiling/floor assembly or concealed space	600	(1%)	10	(1%)	20	(0%)	\$31	(3%)
Hallway, corridor or mall	600	(1%)	0	(1%)	20	(1%)	\$5	(0%)
Unclassified structural area	500	(1%)	10	(2%)	40	(1%)	\$34	(3%)
Confined incinerator or compactor fire	1,600	(2%)	0	(0%)	0	(0%)	\$0	(0%)
Other known area	5,000	(5%)	20	(5%)	220	(6%)	\$151	(14%)
Confined trash or rubbish fire	6,000	(6%)	0	(0%)	20	(1%)	\$0	(0%)
Total	105,800	(100%)	440	(100%)	3,780	(100%)	\$1,080	(100%)

Note: These are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. These national estimates are projections based on the detailed information collected in Version 5.0 of NFIRS. Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Fires are rounded to the nearest hundred, civilian deaths and injuries are rounded to the nearest ten, and direct property damage is rounded to the nearest million dollars. Property damage has not been adjusted for inflation. Non-confined and non-contained structure fires in which the area of origin was unknown or not reported have been allocated proportionally among fires with known area of origin. Totals may not equal sums due to rounding errors.

Source: NFIRS and NFPA survey.

**Table 11B.
Apartment Structure Fires by Item First Ignited
2002-2005 Annual Averages**

Item First Ignited	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Confined cooking fire	53,600	(51%)	0	(0%)	650	(17%)	\$10	(1%)
Confined trash or rubbish fire	6,000	(6%)	0	(0%)	20	(1%)	\$0	(0%)
Confined fuel burner or boiler fire	5,400	(5%)	0	(0%)	20	(1%)	\$0	(0%)
Cooking materials, including food	7,100	(7%)	30	(7%)	800	(21%)	\$100	(9%)
Mattress or bedding	2,700	(3%)	70	(17%)	410	(11%)	\$90	(8%)
Structural member or framing	2,400	(2%)	10	(2%)	50	(1%)	\$150	(13%)
Electrical wire or cable insulation	2,100	(2%)	10	(1%)	60	(1%)	\$50	(5%)
Unclassified item	2,100	(2%)	20	(4%)	130	(3%)	\$40	(4%)
Upholstered furniture or vehicle seat	1,700	(2%)	100	(22%)	280	(7%)	\$70	(7%)
Confined incinerator or compactor fire	1,600	(2%)	0	(0%)	0	(0%)	\$0	(0%)
Clothing	1,500	(1%)	40	(9%)	130	(3%)	\$30	(3%)
Unclassified furniture or utensils	1,300	(1%)	30	(6%)	140	(4%)	\$60	(5%)
Flammable or combustible liquid or gas, filter or piping	1,300	(1%)	20	(4%)	160	(4%)	\$50	(5%)
Exterior wall covering or finish	1,300	(1%)	0	(1%)	50	(1%)	\$50	(5%)
Rubbish, trash, or waste	1,200	(1%)	10	(3%)	70	(2%)	\$20	(2%)
Cabinetry, including built-in	1,200	(1%)	10	(1%)	90	(2%)	\$20	(2%)
Appliance housing or casing	1,100	(1%)	10	(2%)	80	(2%)	\$10	(1%)
Floor covering, rug, carpet, or mat	1,000	(1%)	10	(2%)	70	(2%)	\$20	(2%)
Unclassified structural component or finish	900	(1%)	10	(2%)	30	(1%)	\$40	(4%)
Interior wall covering, excluding drapes	900	(1%)	20	(5%)	40	(1%)	\$30	(2%)
Magazine, newspaper, writing paper	800	(1%)	10	(2%)	50	(1%)	\$10	(1%)
Unclassified soft goods or wearing apparel	700	(1%)	10	(2%)	60	(2%)	\$10	(1%)
Household utensils	700	(1%)	0	(1%)	40	(1%)	\$10	(1%)
Confined chimney or flue fire	700	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Box, carton, bag, basket, or barrel	700	(1%)	0	(0%)	50	(1%)	\$20	(2%)
Multiple items first ignited	600	(1%)	10	(3%)	60	(2%)	\$30	(3%)
Insulation within structural area	600	(1%)	0	(0%)	20	(1%)	\$30	(2%)
Other known item	4,400	(4%)	10	(3%)	210	(6%)	\$120	(11%)
Total	105,800	(100%)	440	(100%)	3,780	(100%)	\$1,080	(100%)

Note: These are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. These national estimates are projections based on the detailed information collected in Version 5.0 of NFIRS. Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Fires are rounded to the nearest hundred, civilian deaths and injuries are rounded to the nearest ten, and direct property damage is rounded to the nearest million dollars. Property damage has not been adjusted for inflation. Non-confined and non-contained structure fires in which the item first ignited was unknown or not reported have been allocated proportionally among fires with known item first ignited. Totals may not equal sums due to rounding errors.

Source: NFIRS and NFPA survey.

Table 12B.
Apartment Structure Fires by Extent of Flame Damage
2002-2005 Annual Averages

Extent of Flame Damage	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Confined or contained fire	67,300	(64%)	0	(0%)	700	(18%)	\$10	(1%)
Confined to object of origin	13,200	(13%)	40	(8%)	550	(15%)	\$60	(6%)
Confined to room of origin	15,400	(15%)	130	(29%)	1,340	(36%)	\$140	(13%)
Confined to floor of origin	3,400	(3%)	70	(17%)	430	(11%)	\$130	(12%)
Confined to building of origin	5,500	(5%)	170	(39%)	650	(17%)	\$570	(53%)
Extended beyond building of origin	900	(1%)	30	(7%)	110	(3%)	\$160	(15%)
Total	105,800	(100%)	440	(100%)	3,780	(100%)	\$1,080	(100%)

Note: These are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. These national estimates are projections based on the detailed information collected in Version 5.0 of NFIRS. Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Fires are rounded to the nearest hundred, civilian deaths and injuries are rounded to the nearest ten, and direct property damage is rounded to the nearest million dollars. Property damage has not been adjusted for inflation. Non-confined and non-contained structure fires in which the extent of flame damage was unknown or not reported have been allocated proportionally among fires with known extent of flame damage. Totals may not equal sums due to rounding errors.

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.

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/download/nfirpaperforms2007.pdf>.

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; and (3) 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.

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

Version 5.0 of NFIRS, first introduced in 1999, used a different coding structure for many data elements, added some property use codes, and dropped others.

Figure 1.

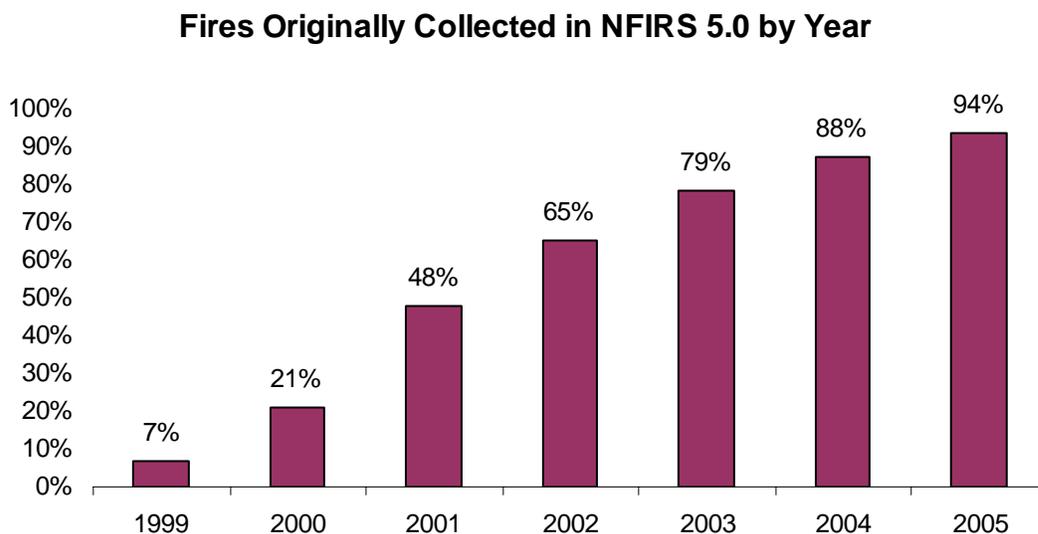


Figure 1 shows the percentage of fires originally collected in the NFIRS 5.0 system. Each year's release version of NFIRS data also includes data collected in older versions of NFIRS that were converted to NFIRS 5.0 codes.

For 2002 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)

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.

A second option is to omit year estimates for 1999-2001 from year tables.

NFIRS 5.0 has 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. In order for that limited detail to be used to characterize the confined fires, they must be analyzed separately from non-confined fires. Otherwise, the patterns in a factor for the more numerous non-confined fires with factor known will dominate the allocation of the unknown factor fires for both non-confined and confined fires. If the pattern is different for confined fires, which is often the case, that fact will be lost unless analysis is done separately.

For most fields other than Property Use, 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.

In the formulas that follow, the term “all fires” refers to all fires in NFIRS on the dimension studied.

For Factor Contributing to Ignition, the code “none” is treated as an unknown and allocated proportionally. For Human Factor Contributing to Ignition, NFPA enters a code for “not reported” when no factors are recorded. “Not reported” is treated as an unknown, but the code “none” is treated as a known code and not allocated. Multiple entries are allowed in both of these fields. Percentages are calculated on the total number of fires, not entries, resulting in sums greater than 100%. Groupings for this field show all category headings and specific factors if they account for a rounded value of at least 1%.

Type of Material First Ignited (TMI). This field is required only if the Item First Ignited falls within the code range of 00-69. NFPA has created a new code “not required” for this field that is applied when Item First Ignited is in code 70-99 (organic materials, including cooking materials and vegetation, and general materials, such as electrical wire, cable insulation, transformers, tires, books, newspaper, dust, rubbish, etc..) and TMI is blank. The ratio for allocation of unknown data is:

$$\frac{(\text{All fires} - \text{TMI Not required})}{(\text{All fires} - \text{TMI Not Required} - \text{Undetermined} - \text{Blank})}$$

Heat Source. In NFIRS 5.0, one grouping of codes encompasses various types of open flames

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

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

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

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

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

Equipment Involved in Ignition (EII). NFIRS 5.0 originally defined EII as the piece of equipment that provided the principal heat source to cause ignition if the equipment malfunctioned or was used improperly. In 2006, the definition was modified to “the piece of equipment that provided the principal heat source to cause ignition.” However, the 2006 data is not yet available and a large portion of the fires coded as no equipment involved (NNN) have heat sources in the operating equipment category. To compensate, NFPA treats fires in which EII = NNN and heat source is not in the range of 40-99 as an additional unknown.

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

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

Additional allocations may be used in specific analyses. For example, NFPA’s report about home heating fires treats Equipment Involved in Ignition Code 120, fireplace, chimney, other” as a partial unknown (like Heat Source 60) and allocates it over its related decade of 121-127, which includes codes for fireplaces (121-122) and chimneys (126-127) but also includes codes for fireplace insert or stove, heating stove, and chimney or vent connector. More general analyses of specific occupancies may not perform as many allocations of partial allocations. Notes at the end of each table describe what was allocated.

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.

Appendix B.

Methodology and Definitions Used in “Leading Cause” Tables

The cause table reflects relevant causal factors that accounted for at least 2% of the fires in a given occupancy. Only those causes that seemed to describe a scenario are included. Because the causal factors are taken from different fields, some double counting is possible. Percentages are calculated against the total number of structure fires, including both confined and non-confined fires. Bear in mind that every fire has at least three “causes” in the sense that it could have been prevented by changing behavior, heat source, or ignitability of first fuel, the last an aspect not reflected in any of the major cause categories. For example, several of the cause categories in this system refer to types of equipment (cooking, heating, electrical distribution and lighting, clothes dryers and washers, torches). However, the problem may be not with the equipment but with the way it is used. The details in national estimates are derived from the U.S. Fire Administration’s National Fire Incident Reporting System (NFIRS). This methodology is based on the coding system used in Version 5.0 of NFIRS. The *NFIRS 5.0 Reference Guide*, containing all of the codes, can be downloaded from <http://www.nfirs.fema.gov/documentation/reference/>.

Cooking equipment and heating equipment are calculated by summing fires identified by equipment involved in ignition and relevant confined fires. Confined fires will be shown if they account for at least 1% of the incidents. **Confined cooking fires** (cooking fires involving the contents of a cooking vessel without fire extension beyond the vessel) are identified by NFIRS incident type 113;

Confined heating equipment fires include **confined chimney or flue fires** (incident type 114) and **confined fuel burner or boiler** fires (incident type 116). The latter includes delayed ignitions and incidents where flames caused no damage outside the fire box. The two types of confined heating fires may be combined or listed separately, depending on the numbers involved.

Contained trash or rubbish fires with no flame damage to structure or its contents are identified by incident type 118. No cause can be ascertained for these incidents, but they account for a substantial share of the incidents in some occupancies. When appropriate, these fires are generally shown at the bottom of a cause table.

Confined or contained fires (incident type 113-118) are excluded from the remaining estimates. Unknown data is allocated proportionally among non-confined fires.

Intentional fires are identified by fires with a “1” (intentional) in the field “cause.” The estimate includes a proportional share of fires in which the cause was undetermined after investigation, under investigation, or not reported. All fires with intentional causes are included in this category regardless of the age of the person involved. Earlier versions of NFIRS included codes for incendiary and suspicious; both convert to intentional. Intentional fires were deliberately set; they may or may not be incendiary in a legal sense. No age restriction is applied.

Fires caused by **playing with heat source** (typically matches or lighters) are identified by code 19 in the field “factor contributing to ignition.” Because of conversion issues, only

data originally collected in Version 5.0 of NFIRS is used in the initial calculation. It appears that “none” is often being used in place of “unknown.” Fires in which the factor contribution to ignition was undetermined (UU), entered as none (NN) or left blank are considered unknown and allocated proportionally. Because factor contributing to ignition is not required for intentional fires, the share unknown, by these definitions, is somewhat larger than it should be. After the Version 5.0 only data have been run for non-confined fires and the unknown data allocated, percentages are calculated for each code of Version 5.0 non-confined fires. Total non-confined structure fires (all versions) are multiplied by these percentages to obtain national estimates. The final percentage of fires is calculated by dividing these estimates by the projected total number of confined and non-confined fires from all versions.

The heat source field is used to identify fires started by: **smoking materials** (cigarette, code 61; pipe or cigar, code 62; and heat from undetermined smoking material, code 63); **candles** (code 66), **lightning** (code 73); and **spontaneous combustion or chemical reaction** (code 72). Fires started by heat from unclassified open flame or smoking materials (code 60) are allocated proportionally among the “other open flame or smoking material” codes (codes 61-69) in an allocation of partial unknown data. This includes smoking materials and candles. This approach results in any true unclassified smoking or open flame heat sources such as incense being inappropriately allocated. However, in many fires, this code was used as an unknown.

The equipment involved in ignition field is used to find several cause categories. This category includes equipment that functioned properly and equipment that malfunctioned.

Cooking equipment in non-confined fire refers to equipment used to cook, heat or warm food (codes 600, 620-649 and 654). Fire in which ranges, ovens or microwave ovens, food warming appliances, fixed or portable cooking appliances, deep fat fryers, open fired charcoal or gas grills, grease hoods or ducts, or other cooking appliances) were involved in the ignition are said to be caused by cooking equipment. Food preparation devices that do not involve heating, such as can openers or food processors, are not included here. Unclassified kitchen and cooking equipment (code 600) is included here because a larger share of the whole category involved cooking rather than kitchen equipment.

Heating equipment in non-confined fire (codes 100 and 120-199) includes central heat, portable and fixed heaters (including wood stoves), fireplaces, chimneys, hot water heaters, and heat transfer equipment such as hot air ducts or hot water pipes. Heat pumps are not included. Unclassified heating, ventilation and air condition equipment (code 100) is included here because a larger share of the whole category involved heating rather than air conditioning or ventilation equipment.

Electrical distribution and lighting equipment (codes 200-299) include: fixed wiring; transformers; associated overcurrent or disconnect equipment such as fuses or circuit breakers; meters; meter boxes; power switch gear; switches, receptacles and outlets; light fixtures, lamps, bulbs or lighting; signs; cords and plugs; generators, transformers, inverters, batteries and battery charges.

Torch, burner or soldering iron (codes 331-334) includes welding torches, cutting torches, Bunsen burners, plumber furnaces, blowtorches, and soldering equipment.

Clothes dryer or washer (codes 811, 813 and 814) includes clothes dryers alone, washer and dryer combinations within one frame, and washing machines for clothes.

Electronic, office or entertainment equipment (codes 700-799) includes: computers and related equipment; calculators and adding machines; telephones or answering machines; copiers; fax machines; paper shredders; typewriters; postage meters; other office equipment; musical instruments; stereo systems and/or components; televisions and cable TV converter boxes; cameras, excluding professional television studio cameras, video equipment and other electronic equipment. Older versions of NFIRS had a code for electronic equipment that included radar, X-rays, computers, telephones, and transmitter equipment. Because this code was so broad, it unfortunately converts to equipment involved undetermined resulting in underestimates for this type of equipment.

Shop tools and industrial equipment excluding torches, burners or soldering irons (codes 300-330, 335-399) includes power tools; painting equipment; compressors; atomizing equipment; pumps; wet/dry vacuums; hoists, lifts or cranes; powered jacking equipment; water or gas drilling equipment; unclassified hydraulic equipment; heat-treating equipment; incinerators, industrial furnaces, ovens or kilns; pumps; compressors; internal combustion engines; conveyors; printing presses; casting, molding; or forging equipment; heat treating equipment; tar kettles; working or shaping machines; coating machines; chemical process equipment; waste recovery equipment; power transfer equipment; power takeoff; powered valves; bearings or brakes; picking, carding or weaving machines; testing equipment; gas regulators; separate motors; non-vehicular internal combustion engines; and unclassified shop tools and industrial equipment.

Medical equipment (codes 410-419) includes: dental, medical or other powered bed, chair or wheelchair; dental equipment; dialysis equipment; medical monitoring and imaging equipment; oxygen administration equipment; radiological equipment; medical sterilizers, therapeutic equipment and unclassified medical equipment.

Mobile property (vehicle) describes fires in which some type of mobile property was involved in ignition, regardless of whether the mobile property itself burned. Mobile property includes: highway-type vehicles such as cars, trucks, recreational vehicles, and motorcycles; trains, trolleys and subways; boats and ships; aircraft; industrial, agricultural and construction vehicles; and riding lawn mowers, snow removal vehicles and tractors. Because of conversion issues, only data originally collected in Version 5.0 of NFIRS is used in the initial calculation. The data was obtained by first running Version 5.0 non confined fires only to identify vehicles that were involved in ignition whether or not they burned themselves (mobile property involved codes 2 and 3). After the unknown data was allocated, percentages are calculated for each code of Version 5.0 non-confined fires. Total non-confined structure fires (all versions) are multiplied by these percentages to obtain national estimates. The final percentage of fires is calculated by dividing these

estimates by the total projected number of confined and non-confined fires from all versions.

Exposures are fires that are caused by the spread of or from another fire. These include fires in which the exposure number is greater than 0; the factor contributing to ignition is property too close (code 71); or heat source is heat spreading from another fire via direct flame or convection current (code 80-89). Because exposures are identified by the older hierarchical sort, all non-confined fires with exposure number greater than zero are counted as exposures, but those identified by heat source and factor contributing to ignition include only fires that were not grouped in other categories such as cooking or heating equipment.