

HOME STRUCTURE FIRES

Marty Ahrens

January 2009



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

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Abstract

NFPA estimates that U.S. fire departments responded to an average of 378,600 reported home structure fires per year during the four-year-period of 2003-2006. These fires caused an estimated average of 2,850 civilian deaths, 13,090 civilian injuries, and \$6.1 billion in direct property damage per year. More than two-thirds (70%) of the reported home structure fires and 84% of the fatal home fire injuries occurred in one- or 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 smoking materials are the leading causes of home fire deaths. Roughly 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 bedroom; 23% resulted from fires originating in the living room, family room, or den. Although smoke alarms operated in 52% of the reported home fires, no working smoke alarm was present in 63% 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

Acknowledgements

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

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

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Executive Summary

During the four-year period of 2003-2006, an estimated 378,600 home structure fires, on average, were reported per year. These fires caused an annual average of 2,850 civilian deaths, 13,090 civilian fire injuries, and \$6.1 billion in direct property damage. Home fires accounted for 73% of all reported structure fires, 91% of civilian structure fire deaths, 86% of the civilian structure fire injuries, and 69% of the direct property loss.

The statistics about fires and associated losses in this analysis are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. These national estimates are projections based on the detailed information collected in Version 5.0 of the U.S. Fire Administration's National Fire Incident Reporting System (NFIRS 5.0) and the National Fire Protection Association's (NFPA's) annual fire department experience survey.

During 2003-2006, a home fire was reported in one of every 326 housing units, including seasonal and unoccupied units.

Substantial progress has been made since 1980, the first year in which national estimates of specific fire problems were available. The 399,000 home fires reported in 2007 are 46% lower than the 734,000 reported in 1980. Home structure fire deaths fell 45% from 5,200 in 1980 to 2,865 in 2007. The declines alternated with plateaus, with such plateaus seen in the mid to late 1980s's, a second in the mid 1990s, and a third occurring since 1999. Home fires caused roughly 84% of all civilian fire deaths (including deaths from vehicle and outside fires) in 2007. On average, eight people died in U.S. home fires every day.

In 2003-2006, 30% of reported home structure fires and 37% of home structure fire deaths occurred in the months of December, January, and February. 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., but 52% of the home fire deaths resulted from fires reported during these hours.

Cooking equipment continues to be the leading cause of home structure fires and civilian fire injuries. It is also the leading cause of unreported fires. The Consumer Product Safety Commission found that in 2004-2005, for every household cooking fire reported to the fire department, U.S. households experienced 49.9 cooking equipment fires that they did not report.

Smoking materials have historically caused the largest number of fire deaths, and this was the case in 2003-2006. However, heating equipment was the leading cause of deaths resulting from fires in one- or two-family dwellings. Heating equipment fires caused the largest percentage of direct property damage.

Forty-one percent of reported home fires started in the kitchen or cooking area. Fifteen percent of the home fire deaths and 36% of the civilian fire injuries occurred in this area. Reported apartment fires were more likely to start in the kitchen than were fires in one- or two-family

dwellings. The 8% of home structure fires originating in the bedroom caused 24% of the civilian deaths and 21% of the civilian injuries. The 4% of home structure fires originating in the living room, family room, or den caused 23% of the civilian fire deaths and 10% of the civilian injuries. Historically, the largest number of fire deaths resulted from fires starting in living rooms, family rooms, or dens. In four of the last five years for which data is available, the number of fire deaths from fires starting in the bedroom was slightly higher than the number of deaths from fires starting in the living room, family room, or den.

The two leading items in home fire deaths remain 1) upholstered furniture, first ignited in 21% of home fire deaths, and 2) mattresses and bedding, first ignited in 13% of the deaths. However, the average number of deaths from fires starting with these items decreased 52-53% from 1980-1983 to 2003-2006.

Most reported home fires were small. Flame damage spread beyond the room of origin in only 23% of the reported fires.

Sixty-three percent of home fire deaths occurred in homes with no working smoke alarms. Residential fire sprinklers are in too few homes. The death rate per 1,000 reported non-confined apartment fires was 57% lower when sprinkler systems were present compared to such fires in apartments without automatic extinguishing systems.

The annual average death toll from fires started by smoking materials was 57% lower in 2003-2006 than it was in 1980-1983. The average number of deaths from fires started by lighters, candles, or matches was 41% lower in the more recent period than the earlier years. The death toll from fires started by some type of operating equipment was also 41% lower in 2003-2006 than in 1980-1983.

In 1980-1983, 61% of the people killed in home fires were outside the room or area of origin. In 2003-2006, only 47% of the victims were outside the room or area where the fire started.

This analysis shows that considerable progress has been made but more is left to be done. The vast majority of homes have at least one smoke alarm, but almost two-thirds of the deaths resulted from fires in homes without working smoke alarms. People who are in the room of fire origin may be intimately involved with ignition. Traditional means of fire protection may not save them. Even if they are not intimately involved, their proximity to the fire dramatically reduces the time they would have to escape.

Human errors are often involved. However, 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. Such changes may be the most effective and inexpensive approach to fire prevention. The U.S. Consumer Product Safety Commission issues safety standards and recalls of unsafe consumer products. 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.

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U.S. Home Structure Fires

U.S. fire departments responded to an estimated 399,000 home¹ structure fires in 2007. These fires caused:



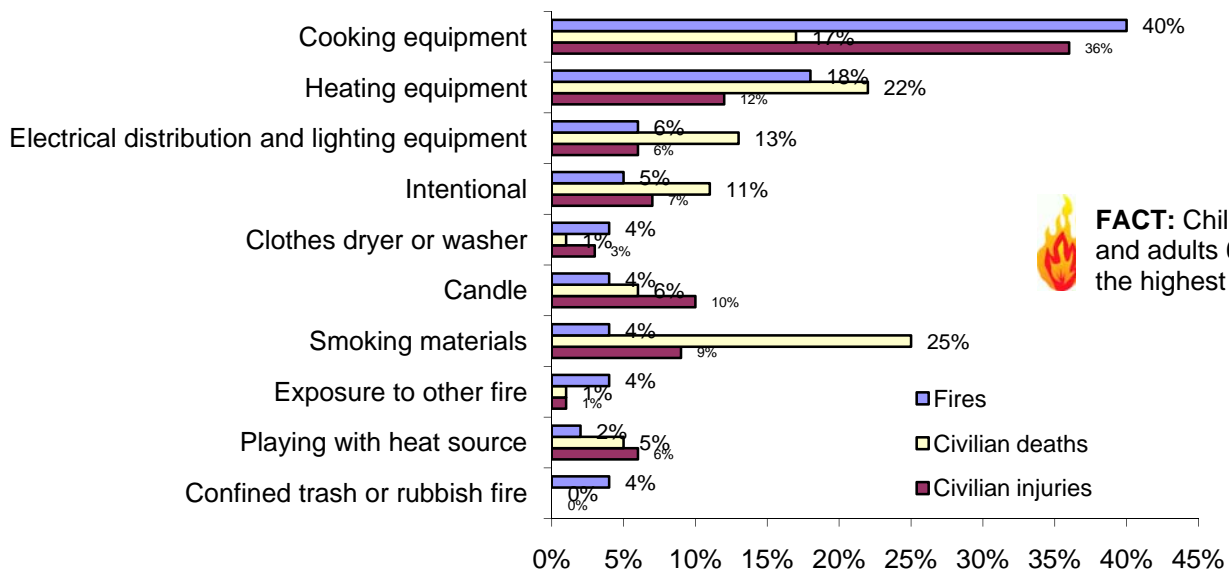
- 2,865 civilian fire deaths,
- 13,600 civilian fire injuries, and
- \$7.4 billion in direct damage.
- Roughly 84% of all civilian fire deaths in 2007 resulted from home structure fires.
- On average, eight people died in U.S. home fires every day.

Causes and Circumstances of Home Fires

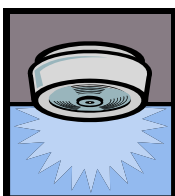
Details from the U.S. Fire Administration’s National Fire Incident Reporting System show that in 2003-2006:

- Cooking was the leading cause of home structure fires and home fire injuries.
- Smoking was the leading cause of civilian home fire deaths. Heating ranked second in home fire deaths overall, but was the leading cause in one- or two-family dwellings.

Figure 5. Leading Causes of Home Structure Fires: 2003-2006



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



63% of reported home fire deaths in 2003-2006 resulted from fires in homes with no smoke alarms or no working smoke alarms.

Based on a telephone survey done in 2008, 96% of all homes have at least one smoke alarm.

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

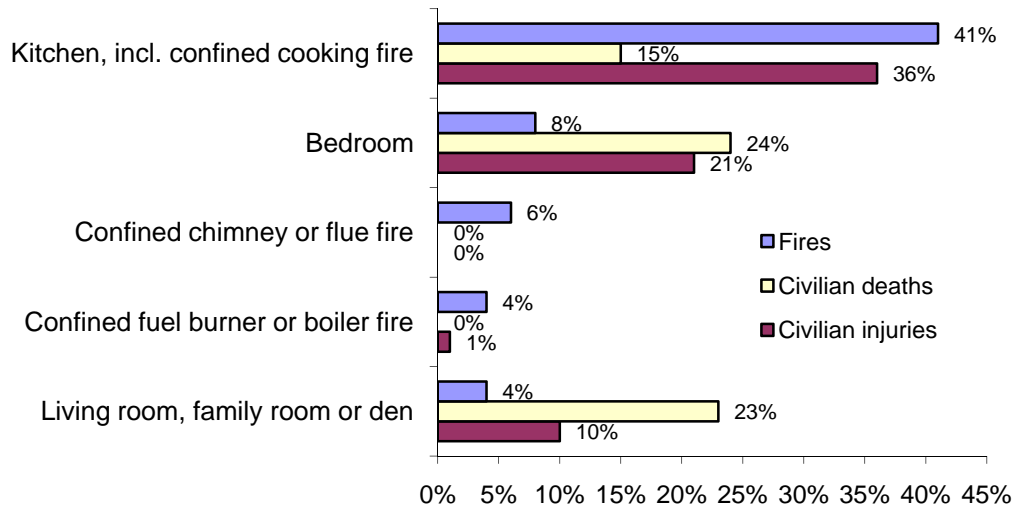
Kitchens were the leading area of origin.

- 41% 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 23% of home fire deaths and 10% of the home fire injuries.
- Fires confined to chimneys or flues accounted for 6% of all reported home fires. Confining fuel burner or boiler fires accounted for 4%. These fires caused very few casualties.

Figure 5. Leading Areas of Origin in Home Structure Fires: 2003-2006



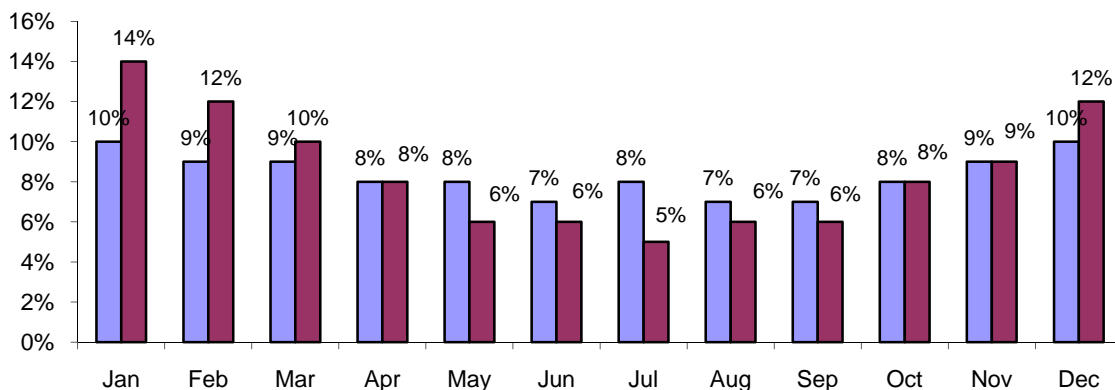
Fact: 21% of home fire deaths resulted from fires beginning with upholstered furniture.



Roughly one-third of home fires and home fire deaths occur in December, January and February.

- 20% of reported home structure fires occurred between 11:00 PM and 7:00 AM. These fires caused 52% of all home fire deaths.
- Home structure fires peaked around the dinner hours between 5:00 and 8:00 PM.

Figure 5. Home Structure Fires by Month: 2003-2006



Home Structure Fires: Overview

378,600 home structure fires were reported per year.

During the four-year period of 2003-2006, an estimated 378,600 home structure fires, on average, were reported per year. These fires caused an annual average of 2,850 civilian deaths, 13,090 civilian fire injuries, and \$6.1 billion in direct property damage. On average, eight people died in U.S. home fires every day. Home structure fires caused roughly 84% of all civilian fire deaths reported in 2007.

Table A provides a more detailed breakdown of losses by occupancy. More than two-thirds (70%) of the reported home structure fires and 84% of the fatal home fire injuries occurred in one- or two-family dwellings, including manufactured homes. During this period, 230 fire deaths per year, on average, were reported in manufactured homes.

Table A.
Reported Home Structure Fires by Property Use
2003-2006 Annual Averages

| Property Use | Fires | | Civilian Deaths | | Civilian Injuries | | Direct Property Damage (in Millions) | |
|--|---------|--------|-----------------|--------|-------------------|--------|--------------------------------------|--------|
| One- or two-family dwelling or manufactured home | 265,300 | (70%) | 2,400 | (84%) | 9,250 | (71%) | \$5,013 | (82%) |
| Apartment, tenement or flat | 113,300 | (30%) | 450 | (16%) | 3,840 | (29%) | \$1132 | (18%) |
| Total | 378,600 | (100%) | 2,850 | (100%) | 13,090 | (100%) | \$6,145 | (100%) |

Source: NFIRS 5.0 and NFPA survey.

Data sources, definitions and conventions used in this report.

The statistics in this analysis are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. These national estimates are projections based on the detailed information collected in Version 5.0 of the U.S. Fire Administration's National Fire Incident Reporting System (NFIRS 5.0) and the National Fire Protection Association's (NFPA's) annual fire department experience survey. Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Except for trend data, property damage has generally not been adjusted for inflation. Details on the methodology used may be found in the Appendix.

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- or 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.

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

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 incidents, collectively referred to as “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. In this analysis, all confined chimney or flue fires and confined fuel burner or boiler fires are grouped with heating equipment, and all confined cooking fires are grouped with kitchen or cooking fires. NFPA’s reports on cooking equipment and heating equipment examine these fires in greater detail.

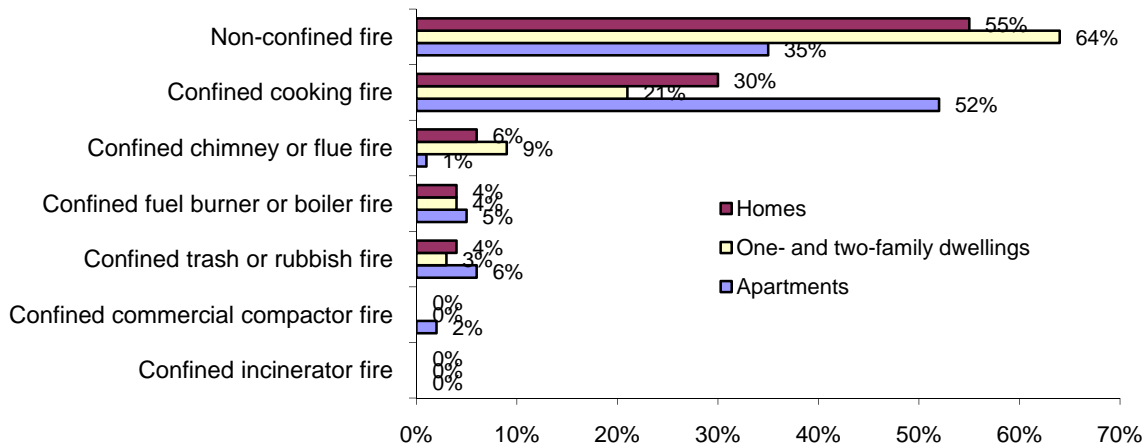
Table B shows that confined fires accounted for 45% of the reported home fires during 2003-2006. Figure 1 shows that confined fires accounted for a larger share of fires in apartments than in one- and two-family dwellings.

**Table B. Confined and Non-Confined Reported Home Structure Fires
2003-2006 Annual Averages**

| Type of Fire | Fires | | Civilian Deaths | | Civilian Injuries | | Direct Property Damage | |
|--|----------------|--------------|-----------------|-------------|-------------------|--------------|------------------------|-------------|
| | | | | | | | (in Millions) | |
| Confined fires | 170,500 | (45%) | 10 | (0%) | 1,650 | (13%) | \$47 | (1%) |
| <i>Confined cooking fire</i> | <i>112,900</i> | <i>(30%)</i> | <i>10</i> | <i>(0%)</i> | <i>1,470</i> | <i>(11%)</i> | <i>\$28</i> | <i>(0%)</i> |
| <i>Confined chimney or flue fire</i> | <i>23,300</i> | <i>(6%)</i> | <i>0</i> | <i>(0%)</i> | <i>40</i> | <i>(0%)</i> | <i>\$12</i> | <i>(0%)</i> |
| <i>Confined fuel burner or boiler fire</i> | <i>16,300</i> | <i>(4%)</i> | <i>0</i> | <i>(0%)</i> | <i>90</i> | <i>(1%)</i> | <i>\$4</i> | <i>(0%)</i> |
| <i>Confined trash or rubbish fire</i> | <i>15,600</i> | <i>(4%)</i> | <i>0</i> | <i>(0%)</i> | <i>50</i> | <i>(0%)</i> | <i>\$2</i> | <i>(0%)</i> |
| <i>Confined commercial compactor fire</i> | <i>1,800</i> | <i>(0%)</i> | <i>0</i> | <i>(0%)</i> | <i>0</i> | <i>(0%)</i> | <i>\$0</i> | <i>(0%)</i> |
| <i>Confined incinerator fire</i> | <i>600</i> | <i>(0%)</i> | <i>0</i> | <i>(0%)</i> | <i>0</i> | <i>(0%)</i> | <i>\$0</i> | <i>(0%)</i> |
| Non-confined fires | 208,000 | (55%) | 2,840 | (100%) | 11,440 | (87%) | \$6,098 | (99%) |
| Total | 378,600 | (100%) | 2,850 | (100%) | 13,090 | (100%) | \$6,145 | (100%) |

Source: NFIRS 5.0 and NFPA survey.

Figure 1. Home Structure Fires by Incident Type and Occupancy 2003-2006



Source: NFIRS 5.0 and NFPA survey.

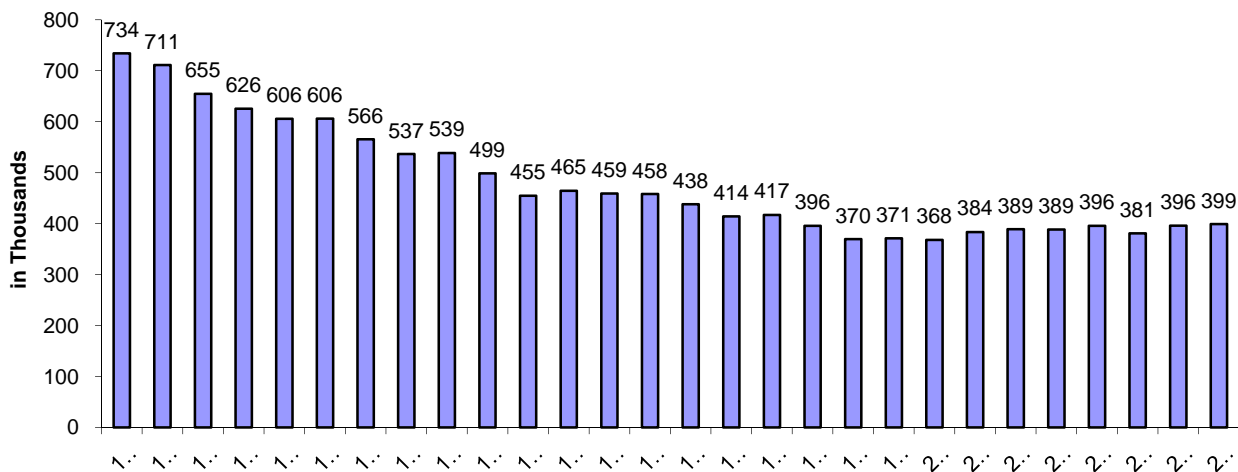
On average, a fire was reported in one of every 326 housing units.

During 2003-2006, an average of 123,239,500 housing units existed in the United States.¹ Dividing the total number of housing units (including seasonal and unoccupied) by the number of home fires yields a rate of one reported fire per every 326 housing units.

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

Based on annual averages for 2003-2006, the 378,600 reported home structure fires accounted for 73% of the 520,100 structure fires, 91% of the 3,125 civilian structure fire deaths, 86% of the 15,200 civilian structure fire injuries, and 69% of the \$9.0 billion in direct property loss.

Figure 2. Reported Home Structure Fires by Year: 1980-2007



Source: NFPA survey.

¹ U.S. Census Bureau, *Statistical Abstract of the United States: 2008* (127th edition) Washington, DC, 2007, Table 947, "Total Housing Inventory for the United States: 1980 to 2006."

Reported home structure fires fell 46% since 1980.

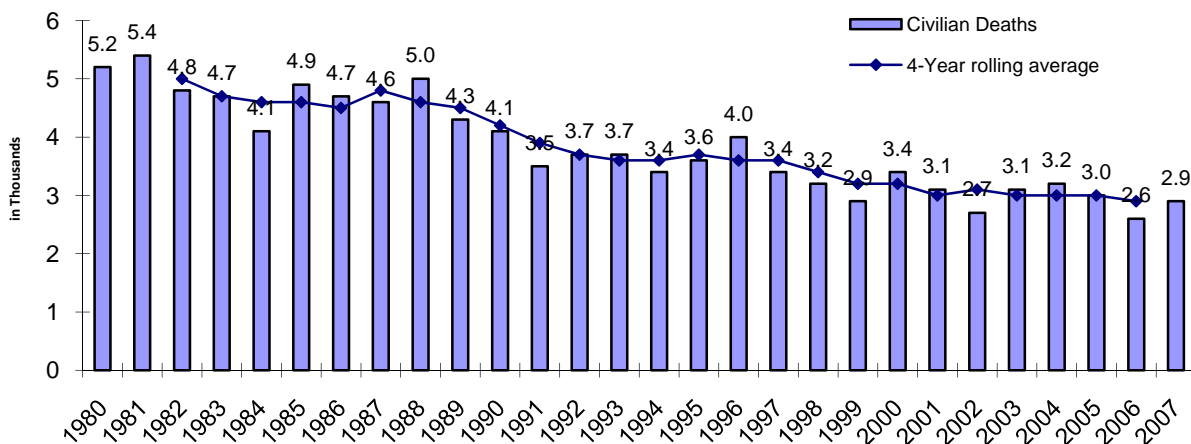
The NFPA annual fire department experience survey provides the earliest estimates of reported home fires and associated losses although it lacks the detail about causes and circumstances found in NFIRS. Tables 1, 1A and 1B show the number of reported fires in homes, one- or two-family dwellings, and 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 2 shows that the 399,000 home structure fires reported in 2007 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. The trend has been relatively flat since the introduction of NFIRS 5.0. It is possible that with simpler reporting for minor fires, some incidents are today being coded as confined that had been coded as smoke scares in the past. It is also possible that smoke alarms systems that result in automatic notification of the fire department upon activation have increased the number of minor incidents that are reported.

Home fire deaths hit their third lowest point in 2007.

Figure 3 shows that the home fire death toll in 2007 was 45% lower than the 5,200 reported in 1980. It also shows that declines alternate with plateaus, with such plateaus seen in the mid to late 1980s's, a second in the mid 1990s, and a third since 1999. Home fire deaths fell below 3,000 in only four years since NFPA began collecting data, with 2,895 in 1999; 2,670 in 2002, the record low of 2,580 in 2006, and 2,865 in 2007.

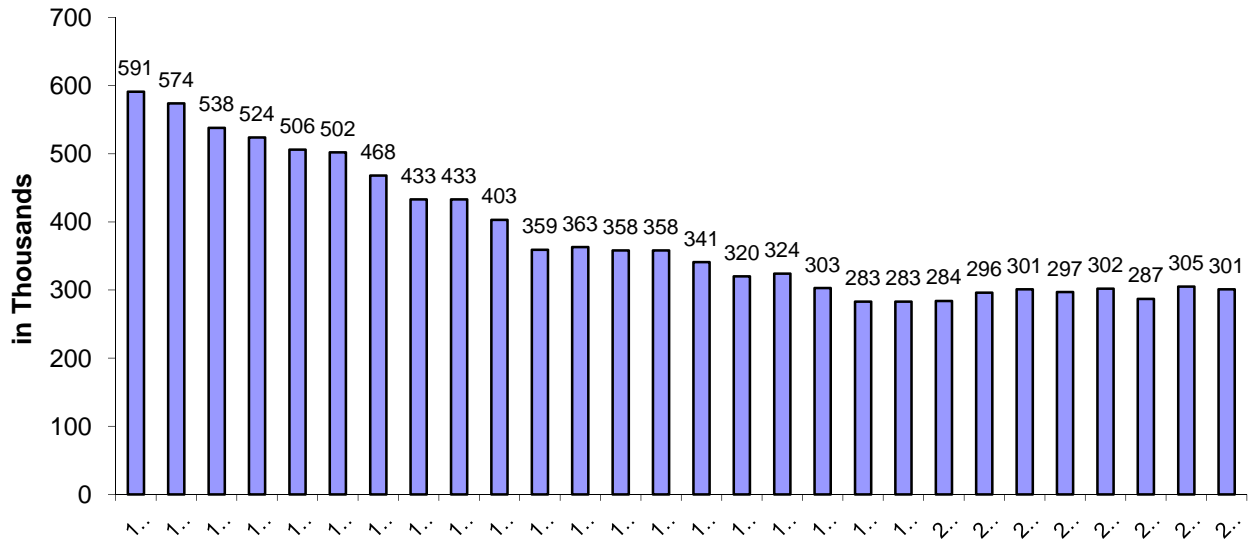
Figure 3. Reported Home Structure Fire Deaths by Year: 1980-2007



Source: NFPA survey.

Figure 4 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.

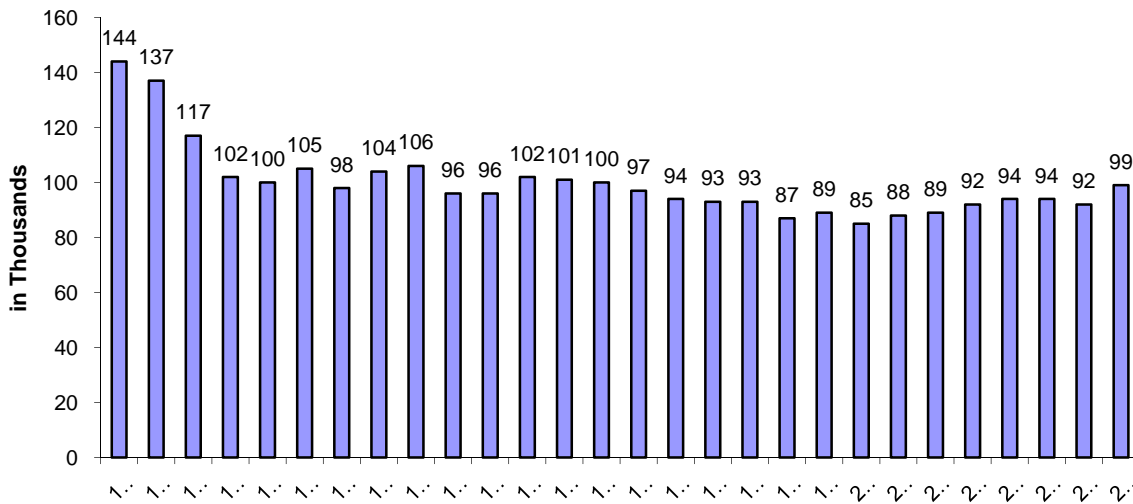
Figure 4. Reported Structure Fires in One- or Two-Family Dwellings by Year: 1980-2007



Source: NFPA survey.

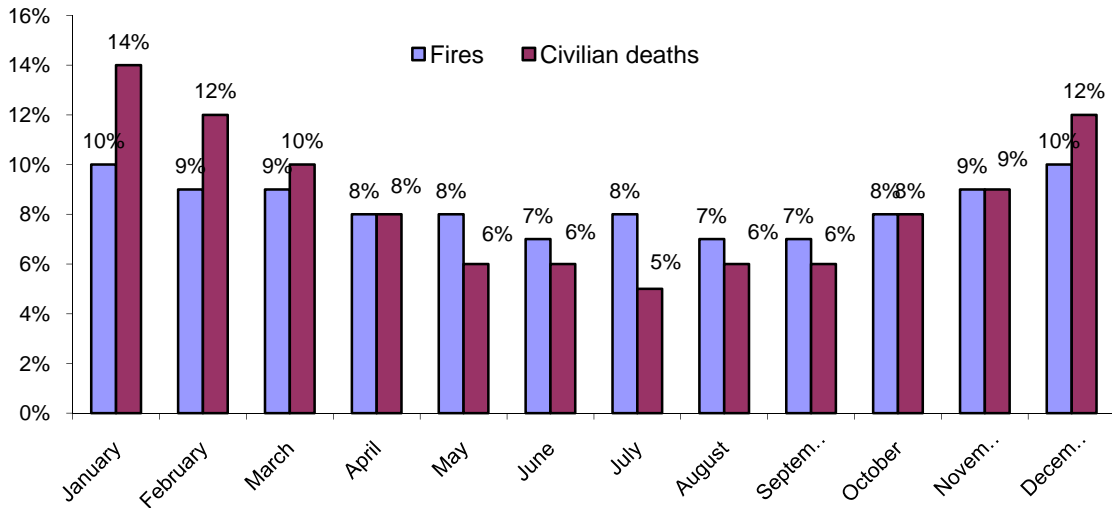
The trend is rather different in apartments. Figure 5 shows that apartment fires fell sharply in the early 1980s, declined more gradually in the 1990s, but have been relatively stable since then. The smallest number of apartment fires was reported in 2000. Sixty-five percent of the apartment fires reported originally in NFIRS 5.0 during 2003-2006 were coded as confined structure fires compared to 36% of the fires in one-and two-family dwellings. It is possible that in NFIRS 5.0, very minor apartment fires are more likely to be reported than are minor fires in one- or two-family dwellings.

Figure 5. Reported Structure Fires in Apartments by Year: 1980-2007



Source: NFPA survey.

Figure 6. Home Structure Fires and Deaths by Month: 2003-2006

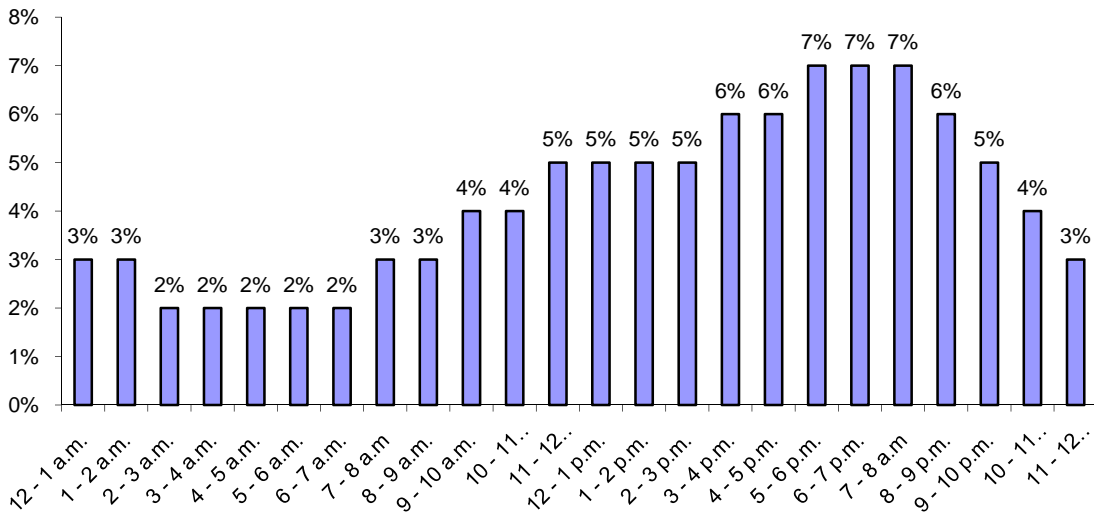


Source: NFIRS 5.0 and NFPA survey.

Home fires and fire deaths peak in winter.

Figure 6 and Table 2 show that 30% of reported home structure fires and 37% of home structure fire deaths occurred in the months of December, January, and February. This reflects the influence of heating equipment fires. Forty-four percent of home heating equipment fires in 2002-2005 were reported in these three months, as were 51% of the home heating equipment fire deaths.¹

Figure 7. Home Structure Fires by Alarm Time: 2003-2006



Source: NFIRS 5.0 and NFPA survey.

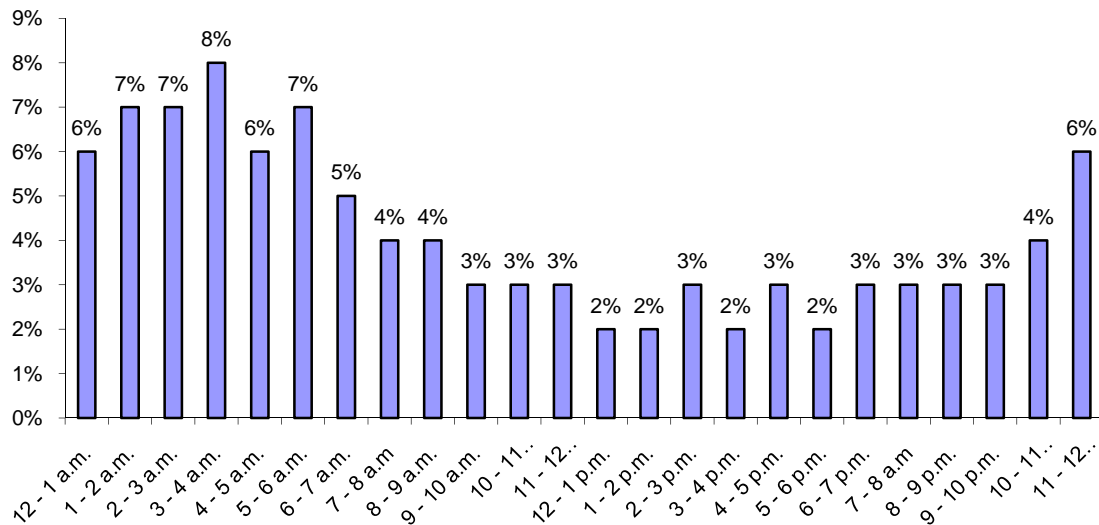
¹ John R. Hall, Jr. *Home Fires Involving Heating Equipment*, Quincy, MA: National Fire Protection Association, 2007, p. 13.

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

Sunday was the peak day for reported home fires and home fire injuries while fatal home fire injuries were more likely to occur on Saturday. (See Table 3.) Figure 7 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 8 shows that roughly half (52%) 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 8. Home Structure Fire Deaths by Alarm Time: 2003-2006



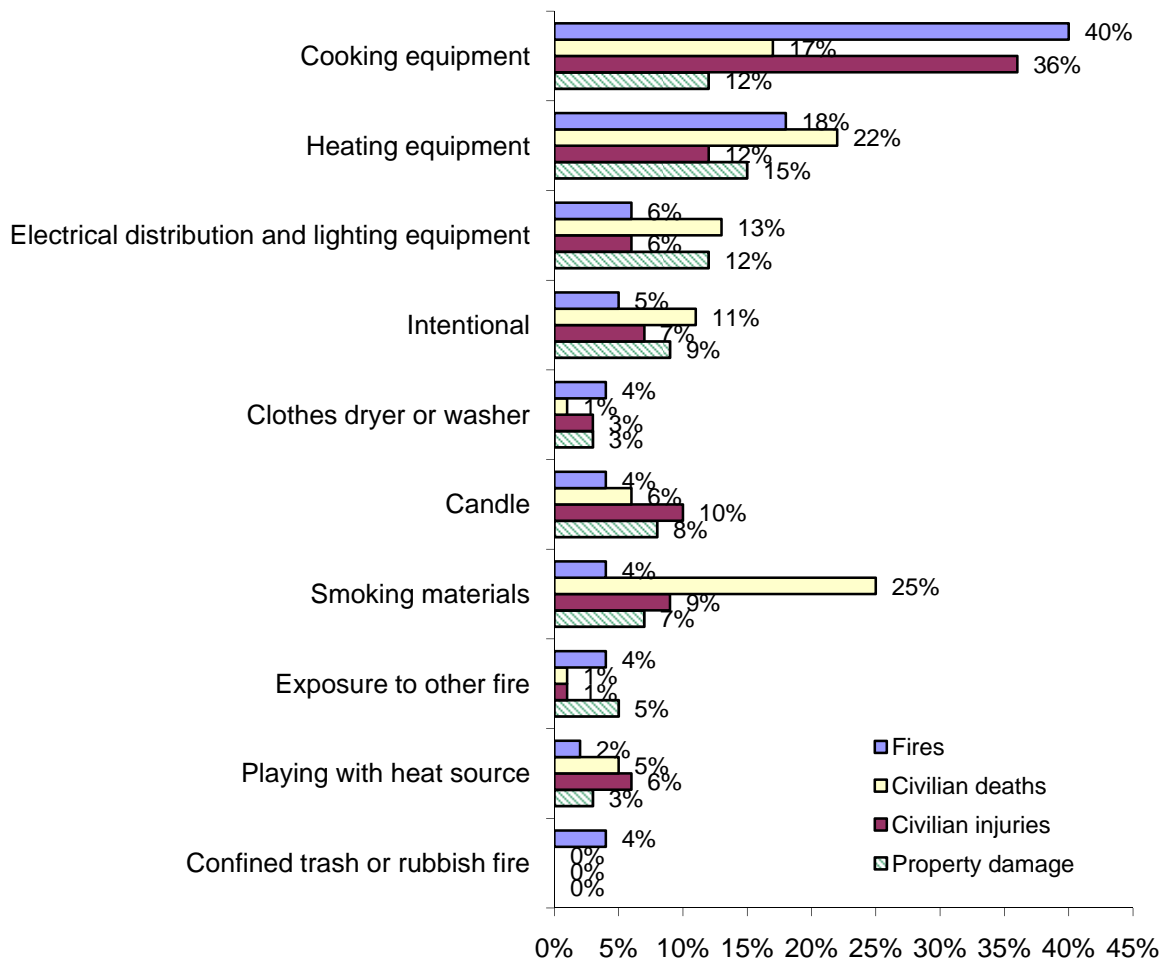
Source: NFIRS 5.0 and NFPA survey.

Leading Causes of Reported Home Structure Fires

Table 5 and Figure 9 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 are well defined, account for at least 2% of the fires, and have clear prevention strategies or have historically been of interest. Detailed information about the methodology and what is included in each category may be found in the Appendix. The methodology used to analyze equipment involved in ignition has been modified, resulting in higher estimates than were shown in earlier studies. More detailed information on equipment involved in ignition may be found in Table 6.

Table 7 provides more information on heat sources. Factors contributing to ignition are shown in Table 8.

Figure 9. Leading Causes of Home Structure Fires: 2003-2006



Source: NFIRS 5.0 and NFPA survey.

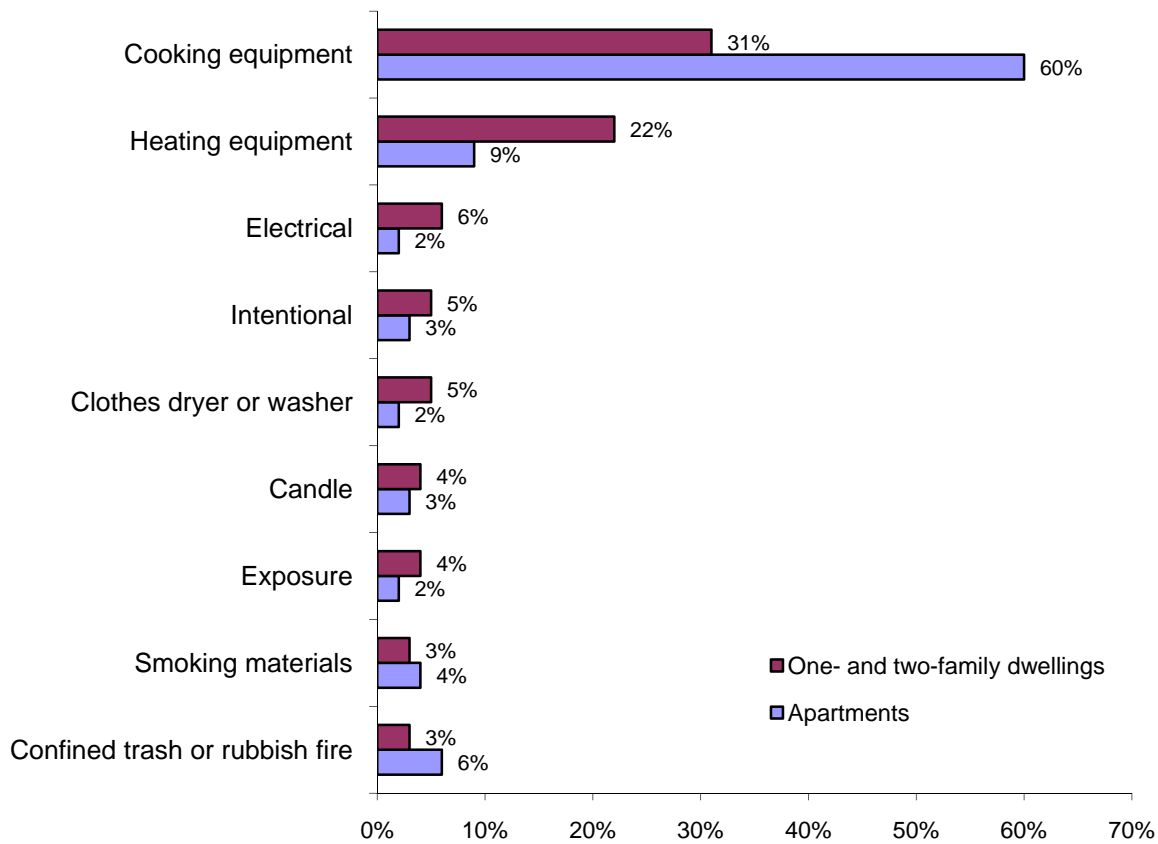
Cooking equipment continues to be the leading cause of home structure fires and civilian fire injuries. Smoking materials have historically caused the largest number of fire deaths, and this was the case in 2003-2006. However, heating equipment was the leading cause of deaths resulting from fires in one- or two-family dwellings. 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 10 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 more than two to one, the fires in one- or 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 more minor fires are reported when they occur in apartments than in one- or two-family dwelling, resulting in a different cause distribution.

Figure 10. Leading Causes of Structure Fires in One- or Two-Family Dwellings and Apartments: 2003-2006



Source: NFIRS 5.0 and NFPA survey.

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.

Four of every ten reported home fires were cooking 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 2003-2006, cooking equipment was involved in an estimated annual average of 150,200 reported home structure fires, 500 civilian fire deaths, 4,660 civilian injuries, and \$756 million in direct property damage.

Cooking equipment was identified as the equipment involved in 10% of the home structure fires; an additional 30% were confined cooking fires. In total, cooking equipment was involved in 40% of the reported home structure fires, 17% of the home fire deaths, 36% of the home fire injuries, and 12% of the direct property damage. Cooking equipment was involved in 60% of the reported apartment fires but only 31% of the fires in one- or 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.

Additional information about specific types of home cooking equipment may be found in NFPA's report, *Home Fires Involving Cooking Equipment*, by John R. Hall, Jr. The U.S. Fire Administration funded NFPA's study, *Behavioral Mitigation of Cooking Fires*. This study includes a more comprehensive literature review about cooking fires, cooking fire safety, and non-fire cooking burns. An educational PowerPoint presentation and several short videos are available on NFPA's website.

Heating equipment caused 22% 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 2003-2006, heating equipment was involved in the ignition of an estimated annual average of 67,400 reported home structure fires that resulted in an average of 620 civilian fire deaths, 1,610 civilian injuries, and \$945 million in direct property damage per year.

Heating equipment was identified as the equipment involved in 7% of reported home structure fires, an additional 6% were confined chimney fires, and 4% were confined fuel burner or boiler fires. In total, heating equipment was involved in 18% of the reported home structure fires, 22%

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.

of the home fire deaths, 11% of the home fire injuries, and 15% of the direct property damage. Overall, heating equipment ranked second in home fires, home fire deaths and home fire injuries, and first in direct property damage.

Heating equipment was involved in 22% of the fires in one- or two-family dwellings but only 9% 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.

Additional information about specific types of home heating equipment may be found in NFPA's report, *Home Fires Involving Heating Equipment*, by John R. Hall, Jr.

Smoking materials caused one of every four home fire deaths.

Smoking materials have historically been the leading cause of home fire deaths. The pattern held true in this analysis. During 2003-2006, smoking materials were the heat source in an annual average of 13,400 reported home structure fires, 710 civilian fire deaths, 1,240 civilian fire injuries, and \$429 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 25% of the home fire deaths. These materials also caused 9% of all reported home fire injuries and 7% of the direct property damage. One-third (33%) of the apartment fire deaths resulted from fires started by smoking materials. Smoking material incidents ranked seventh in number of fires, first 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 21,200 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 2003-2006, electrical distribution and lighting equipment was involved in the ignition of 21,200 reported home structure fires, on average, per year. These fires caused an annual average of 370 civilian fire deaths, 840 civilian fire injuries, and \$737 million in direct property damage.

In 2003-2006, electrical distribution or lighting equipment was involved in 6% of the home structure fires (6% in one- or two-family dwellings and 2% in apartments), 13% 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, fourth in home fire deaths, and sixth in home fire injuries.

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

During 2003-2006, intentional firesetting caused 17,900 reported home structure fires, 320 civilian fire deaths, 870 civilian injuries, and \$542 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, 8% of the home fire injuries and 9% of the direct property damage. Intentionally set fires ranked fourth in home fire frequency and in direct property damage, and fifth in home fire deaths and 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.

During 2003-2006, candles caused an estimated annual average of 14,800 reported home structure fires, 160 home fire deaths, 1,340 home fire injuries, and \$471 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, 10% 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 2003-2006, people, often children, playing with fire or other heat sources started an estimated annual average of 6,700 home structure fires. These fires caused an average of 130 civilian fire deaths, 800 civilian fire injuries, and \$214 million in direct property damage per year. 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 3% 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 Jennifer D. Flynn.

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

During 2003-2006, clothes dryers and washers were involved in the ignition of an average of 14,600 home structure fires per year. These fires caused an annual average of 10 civilian fire deaths, 400 civilian fire injuries, and \$181 million in direct property damage. Overall, clothes dryers or washers were involved in 4% of the home structure fires, less than 1% of the home fire deaths, 3% of the home fire injuries, and 3% of direct property damage.

Exposure to other fires caused 4% 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 2003-2006, exposures caused 13,300 reported home structure fires, 20 civilian fire deaths, 100 civilian fire injuries, and \$337 million in direct property damage. Exposures caused 4% of the home structure fires, 1% of the home fire deaths and injuries, and 5% of the direct property damage.

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

During 2003-2006, U.S. fire departments responded to an estimated average of 15,600 confined or contained trash or rubbish fires in homes per year. These fires caused an average of 50 civilian injuries and \$2 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 1,800 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 confined fire incident types are shown as entries in the causal tables without additional analysis. 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.

Home fires started by some type of operating equipment caused 39% of home fire deaths.

Table 7 shows that some type of operating equipment was the heat source in an average of 1,100 of the home structure fire deaths per year. The specific type of equipment matter does not matter when heat source is discussed.

Operating equipment heat sources include:

- Sparks, embers or flames from operating equipment;
- Radiated or conducted heat from operating equipment,
- Electrical arcing; and
- Unclassified heat from operating equipment.

Table 7 also shows that small open flames from candles, lighters and matches, were the heat sources in an average of 440 deaths per year (16%).

In one of every five fire deaths, the fire started when something that could catch fire was too close to a heat source.

Factors contributing to ignition provide information on how the heat source and/or 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 one-fifth (20%) of the home fire deaths resulted from fires in which a heat source was too close to a combustible. 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.

Some type of electrical failure or malfunction was a factor in incidents resulting in 18% of the home structure fire deaths. 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.

An abandoned or discarded material was a factor in 16% of the deaths, and unattended equipment contributed to fires causing 6% of the deaths.

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

Figure 11 and Table 9 show that 41% of home structure fires started in the kitchen or cooking area. This includes the 30% 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.¹ 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- or two-family dwellings originated in the kitchen.

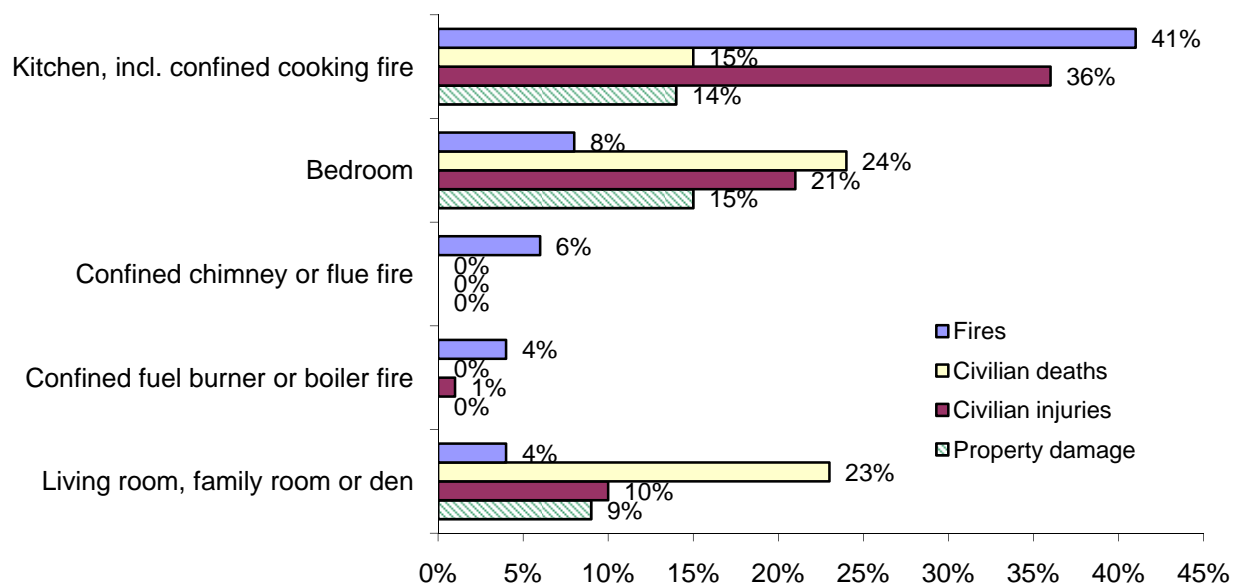
¹ Percents were calculated on unrounded data.

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.

Six percent of home fires (9% in one- or 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- or 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 23% of the civilian fire deaths, 10% of the civilian injuries, and 9% of the direct property damage.

Figure 11. Leading Areas of Origin in Home Structure Fires: 2003-2006

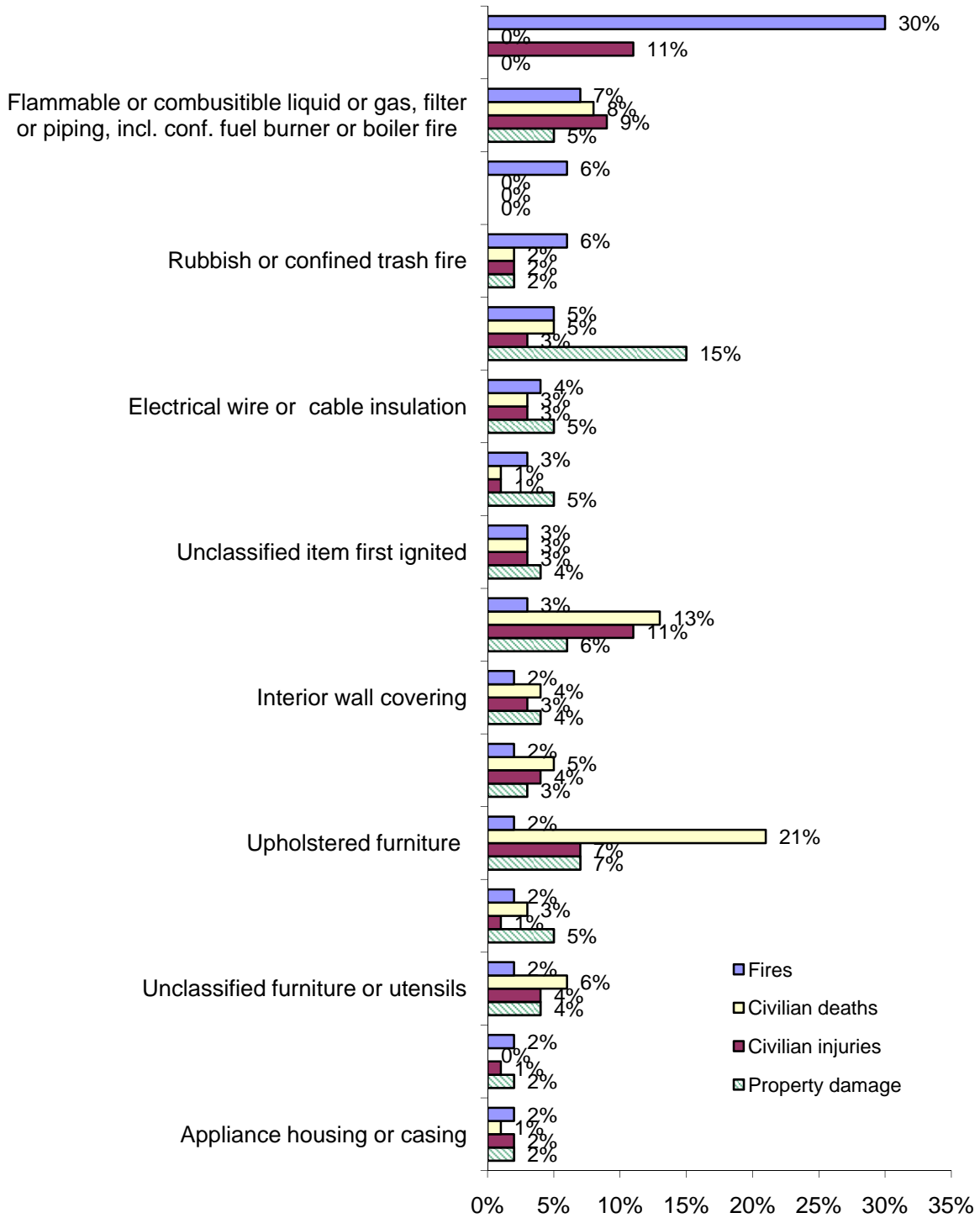


Source: NFIRS 5.0 and NFPA survey.

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 36% of the reported home structure fires. As noted previously, 6% of the fires were confined chimney or flue fires; most of these probably started with creosote. Including the confined rubbish or trash fires, rubbish was first ignited in 6% of home fires. Structural members or framing were first ignited in 5% of the reported home structure fires. Although mattresses or bedding were first ignited in only 3% of the fires, 13% of the home fire deaths and 11% 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 12 and Table 10 for more details. NFPA also has detailed reports on fires that began specifically with upholstered furniture and with mattresses and bedding.

Figure 12. Leading Items First Ignited in Home Structure Fires: 2003-2006



Source: NFIRS 5.0 and NFPA survey.

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

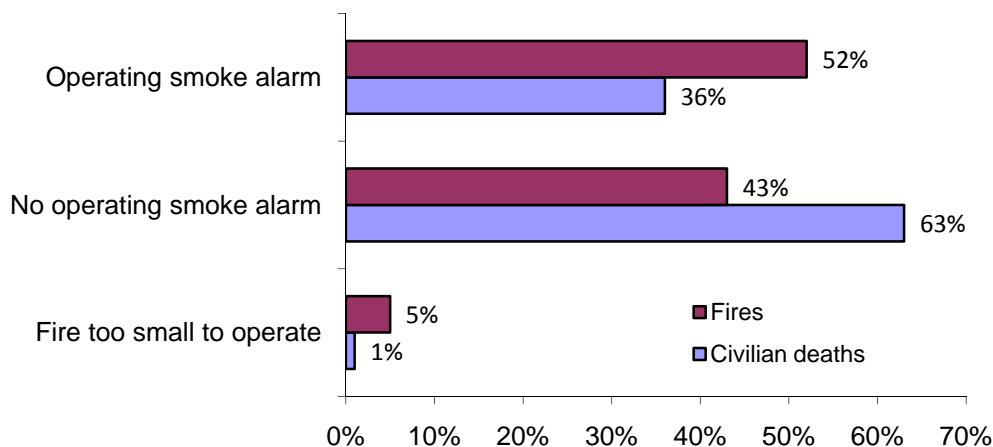
Forty-five percent of the reported home fires (36% in one- or two-family dwellings and 65% in apartments) were confined or contained fires. As discussed earlier, Version 5.0 of NFIRS introduced shorter reporting for cooking fires confined to the vessel, fires confined to chimney or flues, to incinerators, to fuel burners or boilers, and contained trash or rubbish fires with no flame damage to the structure.

In addition to the 45% of home fires with incident types indicating contained or confined fires, Table 11 shows that flame damage was confined to the object of origin in another 16% of reported home structure fires. 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 62% of the fire deaths in apartments.

63% of home fire deaths occurred in properties without working smoke alarms.

Figure 13 shows that smoke alarms operated in 52% of the reported home fires. Almost two-thirds (63%) of the home fire deaths resulted from fires with no working smoke alarms, including homes with no smoke alarms at all. Based on a telephone survey done in 2008, 96% of all homes have at least one smoke alarm.¹

Figure 13. Home Structure Fires and Deaths by Smoke Alarm Performance 2003-2006



Source: NFIRS 5.0 and NFPA survey.

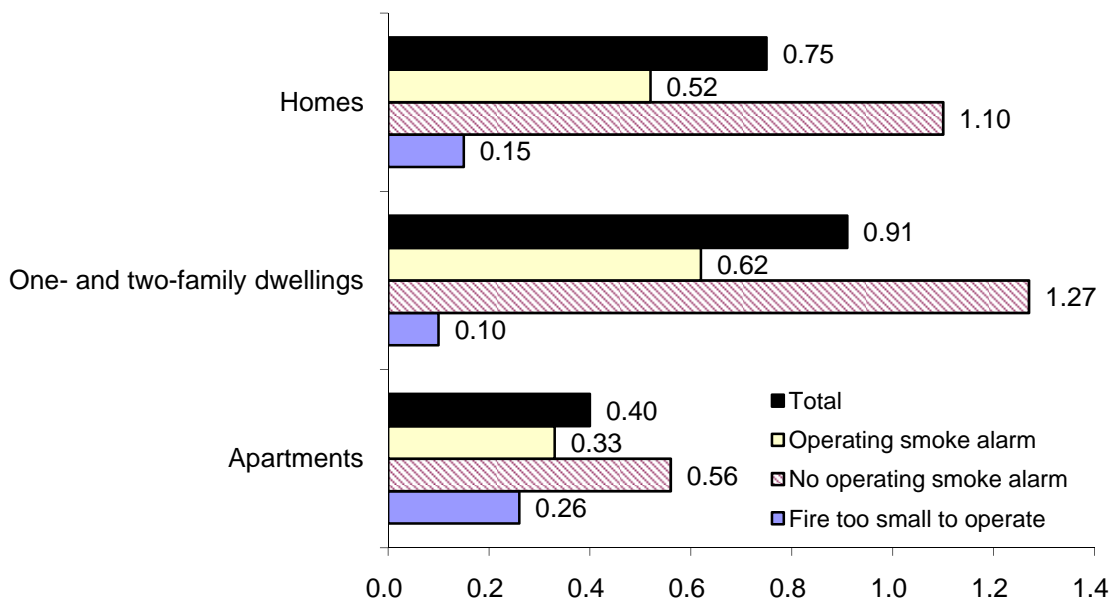
Analyzing smoke alarm data is considerably more complicated with Version 5.0 of NFIRS than it was in the past. Detailed information on smoke alarm presence and operation is not required for confined or contained fires, 45% of the home fires reported in NFIRS Version 5.0 in 2003-2006, the years covered in this report. Because the confined or contained fires are almost all

¹ Harris Interactive Smoke Alarm Omnibus Question Report, done for the National Fire Protection Association, November 2008.

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.

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 14. Death Rate per 100 Reported Fires by Smoke Alarm Status and Occupancy 2003-2006



Source: NFIRS 5.0 and NFPA survey.

Figure 14 shows that the death rate of 0.52 per 100 reported home fires was 53% lower in reported home fires in which a smoke alarm operated than in reported fires with no working smoke alarms (1.10 deaths per 100 fires). 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-eight percent of the fatalities in one- and two-family homes resulted from fires without working smoke alarms compared to 43% 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-nine percent of the apartment fires reported in 2003-2006 were confined fires with smoke alarms alerting occupants compared to 22% such fires in one- or two-family dwellings.

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 three percent of the people who were fatally injured in home fires during 2002-2005 were injured while fighting the fire themselves, compared to 37% of those who suffered non-fatal injuries.¹

Smoke alarm and sprinkler performance are analyzed in detail in separate NFPA reports. More information on these subjects 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.

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

One- or Two-Family Dwellings

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

Apartment fires

| | |
|--|----------|
| Percent of non-confined fires in apartments with sprinkler systems | 8% |
| Deaths per 1,000 non-confined apartment fires with sprinkler systems | 11.0 |
| 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 |
| Reduction in loss per fire when sprinkler systems were present | 42% |

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- or two-family dwellings and in 8% of the non-confined apartment fires. Table C 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

¹ Jennifer D. Flynn, *Characteristics of Home Fire Victims*, Quincy, MA: National Fire Protection Association, Fire Analysis and Research Division, July 2008, pp. 55, 58.

which the fire was large enough to activate them.¹ No further analysis of sprinkler performance was done for fires in one- or two-family dwellings due to the small number of fires in such properties that had this protection.

Changes in Fire Death Patterns Over Time

A variety of strategies have been employed to reduce the number of fire deaths over time. Flammability standards for upholstered furniture, mattresses and bedding, and other products reduce the likelihood that these items will be ignited. Automatic shut-offs in portable heaters activate if the device is tipped over. Other types of equipment, such as irons and coffee makers, will automatically shut off after a period of time. Arc fault circuit interrupters can prevent an electrical fault from causing a fire. Smoke alarms provide early warning of fire, allowing more time for escape. Automatic sprinklers can control a fire and limit its spread before the fire department arrives.

This section compares trends in selected fire death scenarios. Averages for three periods are shown: 1980-1983, the first four years of available data; 1995-1998, the last four years of data collected under the older NFIRS rules; and 2003-2006, the latest data available. Due to the instability of estimates for 1999-2001, the transition years to NFIRS 5.0, estimates for these years are not shown in the graphs but they are included in the tables. The total death estimates shown in Tables 12-15 were derived from the NFIRS and the NFPA survey together and consequently differ slightly from the estimates shown in Table 1 that are derived solely from the NFPA survey.

Deaths from fires originating in living rooms, family rooms or dens, fell more sharply than deaths from fires starting in bedrooms and kitchens.

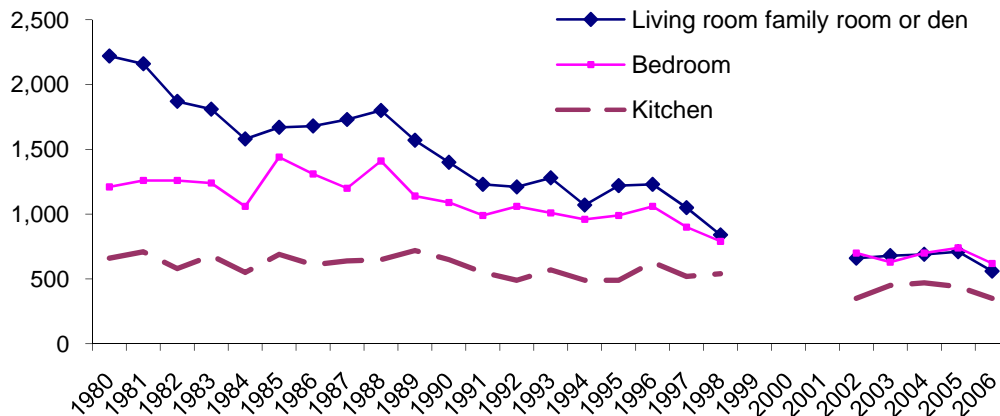
Table 12 and Figure 15 show that in four of the last five years for which data is available, the number of fire deaths from fires starting in the bedroom was slightly higher than the number of deaths from fires starting in the living room, family room, or den. In the early 1980s, living rooms, family rooms, or dens were by far the leading area or origin for fire deaths, but the differences shrank over time.

Deaths from fires in living rooms, family rooms, and dens (combined) fell 67% from 1980-1983 average of 2,010 per year to the 2003-2006 average of 660 per year. Over the same periods, deaths from bedroom fires fell 46% from 1,240 per year in 1980-1983 to 670 per year in 2003-2006. While kitchens ranked third in fire deaths, the decline in kitchen deaths was the smallest seen in the three areas. These deaths fell 35% from an average of 660 per year in 1980-1983 to 430² per year in 2003-2006.

¹ 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.

² The small number of deaths from confined fires were omitted from this analysis.

Figure 15. Home Fire Deaths by Area of Origin and Year



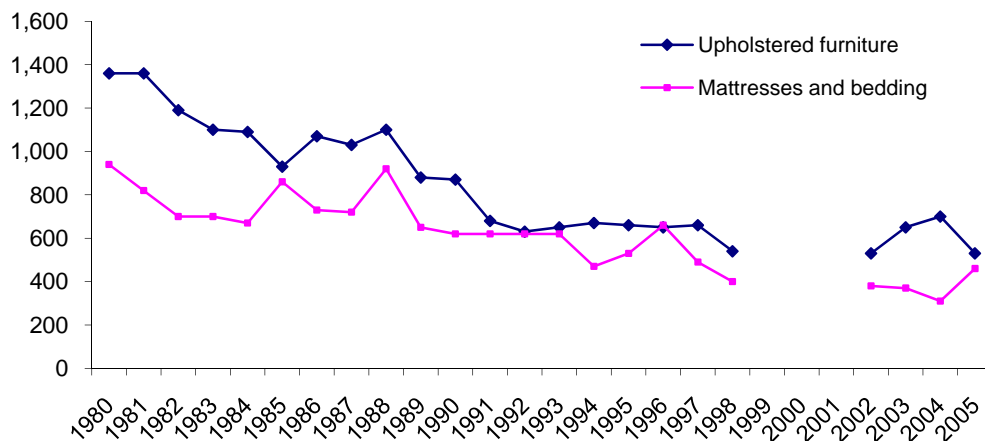
Source: NFIRS 5.0 and NFPA survey.

Fire deaths from upholstered furniture and mattress and bedding fires were both 52-53% lower than in the early 1980s.

Figure 16 and Table 13 show trends for the two leading items first ignited in home fire deaths: 1) upholstered furniture and 2) mattresses and bedding. Trend data for these items was taken from *Home Fires that Began with Upholstered Furniture*, and *Home Fires that Began with Mattresses and Bedding*, both by Marty Ahrens. The 2003-2006 annual averages were taken from Table 10 in this report.

Deaths from home fires that began with upholstered furniture fell 53% from an average of 1,250 per year in 1980-1983 to 590 per year in 2003-2006. Deaths from fires beginning with mattresses and bedding fell 52% from an average of 790 per year in 1980-1983 to 380 per year in 2003-2006.

Figure 16. Home Fire Deaths From Fires Starting with Upholstered Furniture and Mattresses and Bedding by Year: 1980-2005



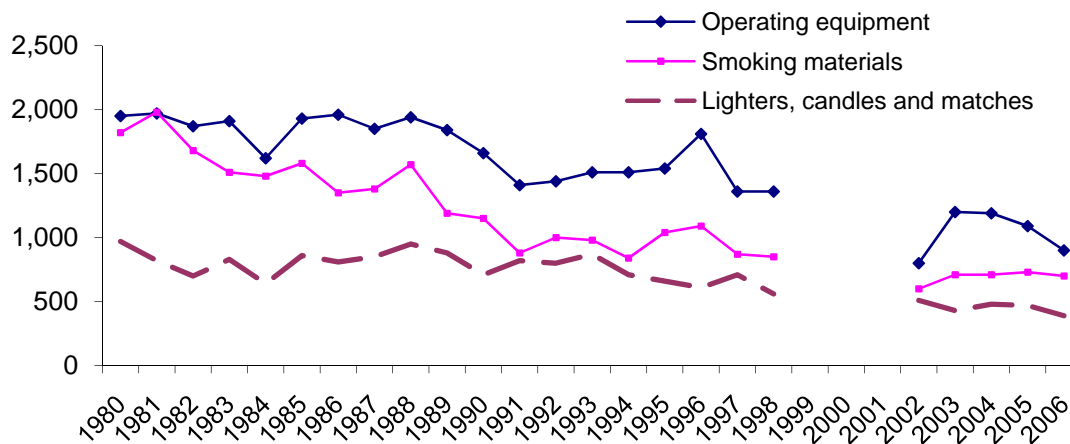
Source: NFIRS 5.0 and NFPA survey.

Deaths from fires started by operating equipment and small open flames have not fallen as much as deaths from fires started by smoking materials.

In 1980 and 1981, the number of deaths resulting from fires started by smoking materials¹ was close to the number from fires started by operating equipment.² Table 14 and Figure 17 show that the average of deaths from home fires started by operating equipment fell 43% from 1,930 per year in 1980-1983 to 1,100 per year in 2003-2006. It is important to remember that many, if not most, fires started by operating equipment involve some type of human error, such as unattended cooking, something that can catch fire left too close to a heat source such as a space heater or stove, etc.

Fires started by small open flames (lighters, candles and matches) fell 47%, dropped from an average of 830 such deaths per year in 1980-1983 to 440 deaths per year in 2003-2006. The decline in deaths from smoking materials was steeper, dropping 59% from an average of 1,750 per year in 1980-1983 to 710 per year in 2003-2006.

Figure 17. Home Fire Deaths by Selected Heat Sources and Year



Source: NFIRS 5.0 and NFPA survey.

Greater progress has been made in reducing deaths of victims outside the room of origin.

Figure 18 and Table 15 show that from 1980-1983, an average of 3,070, or 61%, of the victims of fatal home fires per year were outside the room or area of origin³ when the fire started. These deaths fell 57% to an average of 1,330 per year in 2003-2006. During this more recent period, only 47% of the victims were outside of the room or area of origin. Deaths of victims who were

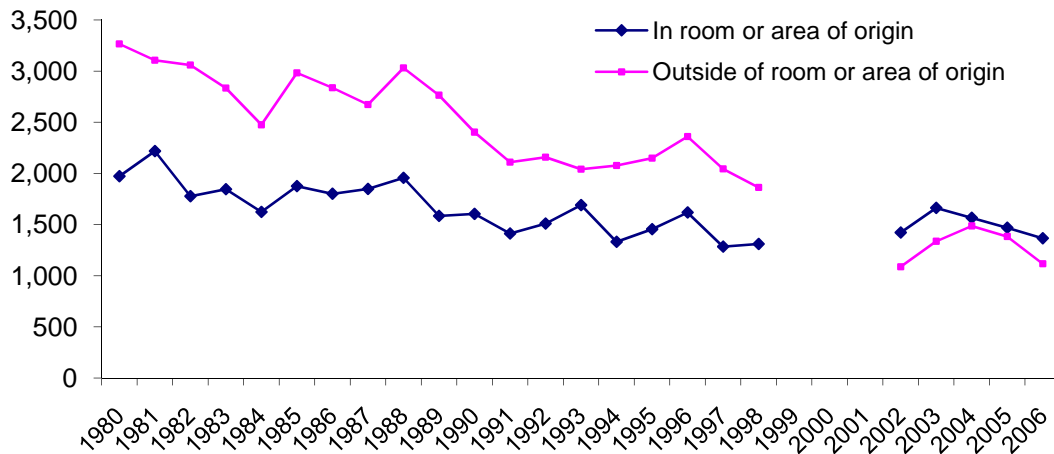
¹ John R. Hall, Jr. *The Smoking Material Fire Problem*, Quincy, MA: National Fire Protection Association, 2008.

² In 1980-1998, operating equipment identified by form of heat of ignition codes for heat from fuel-fires, fuel-powered objects, heat from electrical equipment arcing or overloaded, electric lamps, and properly and improperly operating equipment (form of heat of ignition codes 10-29, 54, 56, and 57). From 1999 on, operating equipment was identified by heat source codes for operating equipment (heat source 10-13).

³ In 1980-1998, victims who were either intimate with ignition or in the room or space or origin were considered in room or area of origin. Victims in other known locations were considered outside of the room or area of origin. From 1999 on, victims whose location at the time of incident was coded as in area of origin were considered in the room or area of origin. Victims who were not in the area of origin or in a location coded as “other” were considered outside of the room or area of origin.

in the room or area of origin at the time the fire started fell only 22% from an average of 1,950 per year in 1980-1983 to an average of 1,520 per year in 2003-2006.

Figure 18. Home Fire Deaths by Victims Location at Time of Fire Origin and Year



Source: NFIRS 5.0 and NFPA survey.

Outside and Other Fires on Home Properties

143,800 outside and other fires per year, on average, were reported at homes.

During 2003-2006, an estimated annual average of 143,800 outside and other fires on home properties caused an average of 20 deaths, 340 civilian injuries and \$42 million in direct property damage per year. An average of 15,500 vehicle fires reported on these properties (without structural involvement) caused an average of ten civilian deaths, 130 civilian injuries and \$63 million in direct property damage per year.

Additional Information Sources

NFPA offers more information.

Three chapters found in the 20th edition of the NFPA *Fire Protection Handbook*, “One- or Two-Family Dwellings” by James K. Lathrop, “Manufactured Housing” by Kirsten M. Paoletti, 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>. Members may download a number of related reports. *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*, by Jennifer D. Flynn, 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. From that report, we learn that children five and under are 1.5 times as likely to be killed by fire, and people 65 or older face twice the risk. NFPA also offers reports on a wide variety of equipment involved in home fires.

U.S. households handle more than 7 million fires a year without calling the fire department.

In a telephone survey done for the U.S. Consumer Product Safety Commission (CPSC) in 2004-2005, respondents were asked about “any incident, large or small, that resulted in unwanted flames or smoke, and could have caused damage to life or property if left unchecked.”¹ Results showed that in 2004-2005:

- U.S. households experienced an average of 7.4 million fires per year.
- 18% of the fires self-extinguished; 78% of fires were put out by a household member using a variety of methods, including: water, shutting off power, smothering and removing the fuel from the heat source.
- In 7.2 million household fires per year, the fire department did not attend.
- One of every 16 households experienced a fire. This translates to 6.6 fires per 100 households. The rate for unattended fires only was 6.3 per 100 households.
- Cooking equipment was involved in 64% of all fires with 49.9 unattended fires for every incident attended by the fire service.
- Households that experienced any fire, including those without fire department attendance, were more likely to rent than own their home, to have more people in the household, to have occupants who smoke, and to have someone living in the household under 18 but no one over 65.
- 76% of households had fire extinguishers. Extinguishers put out 5% of the fires.

CPSC provides information about product recalls.

The U.S. Consumer Product Safety Commission (CPSC) is the regulatory body that with primary authority for the safety of most household products. In some cases, they issue mandatory standards products must meet. They can also order the recall of products that have been determined to be unsafe. Reports of unsafe products may be made and information about recalled products found at <http://www.cpsc.gov/>.

¹ Michael A. Greene and Craig D. Andres. “U.S. Consumer Product Safety Commission 2004-2005 Residential Fire Survey,” Presentation given to the Public-Private Fire Safety Council, Spring, 2008.

Supporting Tables

The statistics in this analysis are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. These national estimates are projections based on the detailed information collected in Version 5.0 of the U.S. Fire Administration's National Fire Incident Reporting System (NFIRS 5.0) and the National Fire Protection Association's (NFPA's) annual fire department experience survey.

Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire.

In most tables, fires are rounded to the nearest hundred, deaths and injuries to the nearest ten and direct property damage to the nearest million dollars. In Tables 1, 1A and 1B, the data is based exclusively on the NFPA survey. In these tables, fires are rounded to the nearest five hundred, civilian deaths are rounded to the nearest five, and civilian injuries to the nearest ten. Unless otherwise noted, property damage has not been adjusted for inflation. Totals may not equal sums due to rounding errors. Details on the methodology used may be found in the Appendix.

Data for all homes are shown in Tables 1-11, one- or two-family dwellings (including manufactured homes) in Tables 1A-11A, and apartments in Tables 1B-11B. The tables are in the same order in all three groups. Tables 12-15 show comparative trend data for home fire deaths by certain causal factors or circumstances.

Unknown data has been allocated proportionally for all fields except property use.

**Table 1.
Reported Home Structure Fires by Year: 1980-2007**

| Year | Fires | Civilian Deaths | Civilian Injuries | Direct Property Damage (in Millions) | |
|------|---------|--------------------|----------------------|---|----------------------|
| | | | | As Reported | In 2007 Dollars |
| 1980 | 734,000 | 5,200 | 19,700 | \$2,848 | \$7,179 |
| 1981 | 711,000 | 5,400 | 19,125 | \$3,128 | \$7,126 |
| 1982 | 654,500 | 4,820 | 20,450 | \$3,147 | \$6,758 |
| 1983 | 625,500 | 4,670 | 20,750 | \$3,205 | \$6,669 |
| 1984 | 605,500 | 4,075 | 18,750 | \$3,362 | \$6,703 |
| 1985 | 606,000 | 4,885 | 19,175 | \$3,693 | \$7,110 |
| 1986 | 565,500 | 4,655 | 18,575 | \$3,464 | \$6,561 |
| 1987 | 536,500 | 4,570 | 19,965 | \$3,599 | \$6,571 |
| 1988 | 538,500 | 4,955 | 22,075 | \$3,897 | \$6,840 |
| 1989 | 498,500 | 4,335 | 20,275 | \$3,876 | \$6,489 |
| 1990 | 454,500 | 4,050 | 20,225 | \$4,157 | \$6,606 |
| 1991 | 464,500 | 3,500 | 21,275 | \$5,463 ¹ | \$8,319 ¹ |
| 1992 | 459,000 | 3,705 | 21,100 | \$3,775 | \$5,584 |
| 1993 | 458,000 | 3,720 | 22,000 | \$4,764 ² | \$6,840 ² |
| 1994 | 438,000 | 3,425 | 19,475 | \$4,215 | \$5,903 |
| 1995 | 414,000 | 3,640 | 18,650 | \$4,264 | \$5,803 |
| 1996 | 417,000 | 4,035 | 18,875 | \$4,869 | \$6,445 |
| 1997 | 395,500 | 3,360 | 17,300 | \$4,453 | \$5,756 |
| 1998 | 369,500 | 3,220 | 16,800 | \$4,273 | \$5,443 |
| 1999 | 371,000 | 2,895 | 16,050 | \$4,965 | \$6,180 |
| 2000 | 368,000 | 3,420 | 16,975 | \$5,525 | \$6,660 |
| 2001 | 383,500 | 3,110 | 15,200 | \$5,516 | \$6,466 |
| 2002 | 389,000 | 2,670 | 13,650 | \$5,931 | \$6,842 |
| 2003 | 388,500 | 3,145 | 13,650 | \$5,949 ³ | \$6,714 ³ |
| 2004 | 395,500 | 3,190 | 13,700 | \$5,833 | \$6,414 |
| 2005 | 381,000 | 3,030 | 13,300 | \$6,729 | \$7,148 |
| 2006 | 396,000 | 2,580 | 12,500 | \$6,832 | \$7,030 |
| 2007 | 399,000 | 2,865 | 13,600 | \$7,389 | \$7,389 ⁴ |

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 with an estimated property damage of \$2 billion.

⁴ This does not include the California Fire Storm 2007 with an estimated property damage of \$1.8 billion.

Source: *Fire Loss in the United States* series of NFPA annual reports by Michael J. Karter, Jr. Inflation adjustments were based on the Consumer Price Index Purchasing Power of the Dollar.

Table 2.
Reported Home Structure Fires by Month
2003-2006 Annual Averages

| Month | Fires | | Civilian Deaths | | Civilian Injuries | | Direct Property Damage (in Millions) | |
|-----------------|---------|--------|-----------------|--------|-------------------|--------|--------------------------------------|--------|
| | | | | | | | | |
| January | 39,400 | (10%) | 390 | (14%) | 1,370 | (10%) | \$629 | (10%) |
| February | 33,500 | (9%) | 330 | (12%) | 1,230 | (9%) | \$515 | (8%) |
| March | 34,100 | (9%) | 300 | (10%) | 1,240 | (9%) | \$533 | (9%) |
| April | 30,700 | (8%) | 210 | (8%) | 1,080 | (8%) | \$510 | (8%) |
| May | 28,700 | (8%) | 170 | (6%) | 1,040 | (8%) | \$459 | (7%) |
| June | 26,800 | (7%) | 160 | (6%) | 940 | (7%) | \$453 | (7%) |
| July | 28,400 | (8%) | 150 | (5%) | 930 | (7%) | \$499 | (8%) |
| August | 26,300 | (7%) | 160 | (6%) | 970 | (7%) | \$451 | (7%) |
| September | 26,100 | (7%) | 160 | (6%) | 840 | (6%) | \$424 | (7%) |
| October | 31,200 | (8%) | 220 | (8%) | 1,040 | (8%) | \$449 | (7%) |
| November | 33,600 | (9%) | 250 | (9%) | 1,080 | (8%) | \$504 | (8%) |
| December | 39,700 | (10%) | 350 | (12%) | 1,350 | (10%) | \$720 | (12%) |
| Total | 378,600 | (100%) | 2,850 | (100%) | 13,090 | (100%) | \$6,145 | (100%) |
| Monthly average | 31,500 | (8%) | 240 | (8%) | 1,090 | (8%) | \$512 | (8%) |

Table 3.
Reported Home Structure Fires by Day of Week
2003-2006 Annual Averages

| Day of Week | Fires | | Civilian Deaths | | Civilian Injuries | | Direct Property Damage (in Millions) | |
|---------------|---------|--------|-----------------|--------|-------------------|--------|--------------------------------------|--------|
| | | | | | | | | |
| Sunday | 58,400 | (15%) | 430 | (15%) | 2,020 | (15%) | \$927 | (15%) |
| Monday | 53,500 | (14%) | 390 | (14%) | 1,860 | (14%) | \$900 | (15%) |
| Tuesday | 52,100 | (14%) | 360 | (13%) | 1,820 | (14%) | \$905 | (15%) |
| Wednesday | 52,100 | (14%) | 380 | (13%) | 1,780 | (14%) | \$809 | (13%) |
| Thursday | 52,700 | (14%) | 400 | (14%) | 1,910 | (15%) | \$824 | (13%) |
| Friday | 52,700 | (14%) | 440 | (15%) | 1,760 | (13%) | \$882 | (14%) |
| Saturday | 57,000 | (15%) | 460 | (16%) | 1,940 | (15%) | \$898 | (15%) |
| Total | 378,600 | (100%) | 2,850 | (100%) | 13,090 | (100%) | \$6,145 | (100%) |
| Daily average | 54,100 | (14%) | 410 | (14%) | 1,870 | (14%) | \$878 | (14%) |

Source: NFIRS 5.0 and NFPA survey.

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

Table 4.
Reported Home Structure Fires by Alarm Time
2003-2006 Annual Averages

| Alarm Time | Fires | | Civilian | | Civilian | | Direct | |
|-----------------------|----------------|---------------|--------------|---------------|---------------|----------------------------------|----------------|---------------|
| | | | Deaths | Injuries | Injuries | Property Damage (in Millions) | | |
| Midnight - 12:59 a.m. | 11,900 | (3%) | 180 | (6%) | 510 | (4%) | \$272 | (4%) |
| 1:00 - 1:59 a.m. | 10,100 | (3%) | 210 | (7%) | 550 | (4%) | \$296 | (5%) |
| 2:00 - 2:59 a.m. | 9,200 | (2%) | 190 | (7%) | 550 | (4%) | \$290 | (5%) |
| 3:00 - 3:59 a.m. | 8,400 | (2%) | 230 | (8%) | 560 | (4%) | \$286 | (5%) |
| 4:00 - 4:59 a.m. | 7,600 | (2%) | 180 | (6%) | 470 | (4%) | \$253 | (4%) |
| 5:00 - 5:59 a.m. | 7,200 | (2%) | 190 | (7%) | 420 | (3%) | \$190 | (3%) |
| 6:00 - 6:59 a.m. | 8,000 | (2%) | 140 | (5%) | 360 | (3%) | \$180 | (3%) |
| 7:00 - 7:59 a.m. | 9,700 | (3%) | 110 | (4%) | 360 | (3%) | \$161 | (3%) |
| 8:00 - 8:59 a.m. | 11,600 | (3%) | 120 | (4%) | 430 | (3%) | \$180 | (3%) |
| 9:00 - 9:59 a.m. | 13,600 | (4%) | 90 | (3%) | 500 | (4%) | \$192 | (3%) |
| 10:00 - 10:59 a.m. | 15,500 | (4%) | 80 | (3%) | 520 | (4%) | \$239 | (4%) |
| 11:00 - 11:59 a.m. | 17,200 | (5%) | 70 | (3%) | 510 | (4%) | \$238 | (4%) |
| Noon - 12:59 p.m. | 18,900 | (5%) | 60 | (2%) | 580 | (4%) | \$253 | (4%) |
| 1:00 - 1:59 p.m. | 19,100 | (5%) | 70 | (2%) | 550 | (4%) | \$271 | (4%) |
| 2:00 - 2:59 p.m. | 19,500 | (5%) | 80 | (3%) | 560 | (4%) | \$282 | (5%) |
| 3:00 - 3:59 p.m. | 20,900 | (6%) | 70 | (2%) | 590 | (4%) | \$348 | (6%) |
| 4:00 - 4:59 p.m. | 23,000 | (6%) | 90 | (3%) | 680 | (5%) | \$295 | (5%) |
| 5:00 - 5:59 p.m. | 25,900 | (7%) | 60 | (2%) | 720 | (5%) | \$307 | (5%) |
| 6:00 - 6:59 p.m. | 26,700 | (7%) | 90 | (3%) | 690 | (5%) | \$281 | (5%) |
| 7:00 - 7:59 p.m. | 25,000 | (7%) | 80 | (3%) | 720 | (5%) | \$287 | (5%) |
| 8:00 - 8:59 p.m. | 22,200 | (6%) | 90 | (3%) | 640 | (5%) | \$267 | (4%) |
| 9:00 - 9:59 p.m. | 19,000 | (5%) | 100 | (3%) | 580 | (4%) | \$261 | (4%) |
| 10:00 - 10:59 p.m. | 15,600 | (4%) | 110 | (4%) | 490 | (4%) | \$253 | (4%) |
| 11:00 - 11:59 p.m. | 13,000 | (3%) | 160 | (6%) | 540 | (4%) | \$262 | (4%) |
| Total | 378,600 | (100%) | 2,850 | (100%) | 13,090 | (100%) | \$6,145 | (100%) |
| Average | 15,800 | (4%) | 120 | (4%) | 550 | (4%) | \$256 | (4%) |

Source: NFIRS 5.0 and NFPA survey.

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

Table 5.
Leading Causes of Reported Home Structure Fires
2003-2006 Annual Averages
(Unknowns in Non-Confined Fires Were Allocated Proportionally)

| Cause | Fires | | Civilian Deaths | | Civilian Injuries | | Direct Property Damage (in Millions) | |
|--|---------|-------|-----------------|-------|-------------------|-------|--------------------------------------|-------|
| Cooking equipment | 150,200 | (40%) | 500 | (17%) | 4,660 | (36%) | \$756 | (12%) |
| <i>Cooking equipment in non-confined fire</i> | 37,200 | (10%) | 490 | (17%) | 3,190 | (24%) | \$728 | (12%) |
| <i>Confined cooking fire</i> | 112,900 | (30%) | 10 | (0%) | 1,470 | (11%) | \$28 | (0%) |
| Heating equipment | 67,400 | (18%) | 620 | (22%) | 1,610 | (12%) | \$945 | (15%) |
| <i>Heating equipment in non-confined fire</i> | 27,800 | (7%) | 620 | (22%) | 1,480 | (11%) | \$929 | (15%) |
| <i>Confined chimney or flue fire</i> | 23,300 | (6%) | 0 | (0%) | 40 | (0%) | \$12 | (0%) |
| <i>Confined fuel burner or boiler fire</i> | 16,300 | (4%) | 0 | (0%) | 90 | (1%) | \$4 | (0%) |
| Electrical distribution and lighting equipment | 21,200 | (6%) | 370 | (13%) | 840 | (6%) | \$737 | (12%) |
| Intentional | 17,900 | (5%) | 320 | (11%) | 870 | (8%) | \$542 | (9%) |
| Candle | 14,800 | (4%) | 160 | (6%) | 1,340 | (10%) | \$471 | (8%) |
| Clothes dryer or washer | 14,600 | (4%) | 10 | (0%) | 400 | (3%) | \$181 | (3%) |
| Smoking materials | 13,400 | (4%) | 710 | (25%) | 1,240 | (9%) | \$429 | (7%) |
| Exposure | 13,300 | (4%) | 20 | (1%) | 100 | (1%) | \$337 | (5%) |
| Playing with heat source | 6,700 | (2%) | 130 | (5%) | 800 | (6%) | \$214 | (3%) |
| Confined trash or rubbish fire | 15,600 | (4%) | 0 | (0%) | 50 | (0%) | \$2 | (0%) |

Source: NFIRS 5.0 and NFPA survey.

Note: This table summarizes findings from multiple fields, meaning that the same fire may be listed under multiple causes. The methodology is used is described in the appendix.

Table 6.
Reported Home Structure Fires by Equipment Involved in Ignition
2003-2006 Annual Averages
(Unknowns in Non-Confined Fires Were Allocated Proportionally)

| Equipment Involved | Fires | | Civilian | | Civilian | | Direct | |
|---|----------------|---------------|--------------|---------------|---------------|----------------------------------|----------------|---------------|
| | | | Deaths | Injuries | Injuries | Property Damage (in Millions) | | |
| Confined cooking fire | 112,900 | (30%) | 10 | (0%) | 1,470 | (11%) | \$28 | (0%) |
| No equipment involved | 84,900 | (22%) | 1,100 | (39%) | 4,330 | (33%) | \$2,776 | (45%) |
| Stove or cooktop | 28,500 | (8%) | 440 | (15%) | 2,690 | (21%) | \$506 | (8%) |
| Confined chimney or flue fire | 23,300 | (6%) | 0 | (0%) | 40 | (0%) | \$12 | (0%) |
| Confined fuel burner or boiler fire | 16,300 | (4%) | 0 | (0%) | 90 | (1%) | \$4 | (0%) |
| Clothes dryer or washer | 15,300 | (4%) | 20 | (1%) | 430 | (3%) | \$201 | (3%) |
| Fixed or portable space heater | 14,300 | (4%) | 490 | (17%) | 940 | (7%) | \$453 | (7%) |
| Wiring, switch or outlet | 10,100 | (3%) | 130 | (5%) | 280 | (2%) | \$353 | (6%) |
| Water heater | 5,900 | (2%) | 50 | (2%) | 300 | (2%) | \$139 | (2%) |
| Lamp, bulb or lighting | 5,500 | (1%) | 70 | (3%) | 230 | (2%) | \$169 | (3%) |
| Fan | 3,600 | (1%) | 20 | (1%) | 130 | (1%) | \$93 | (2%) |
| Oven or rotisserie | 3,000 | (1%) | 0 | (0%) | 140 | (1%) | \$26 | (0%) |
| Central heat, furnace or boiler | 2,800 | (1%) | 50 | (2%) | 120 | (1%) | \$89 | (1%) |
| Cord or plug | 2,600 | (1%) | 140 | (5%) | 210 | (2%) | \$117 | (2%) |
| Electronic, office or entertainment equipment | 2,500 | (1%) | 10 | (0%) | 130 | (1%) | \$79 | (1%) |
| Confined incinerator or compactor fire | 2,400 | (1%) | 0 | (0%) | 0 | (0%) | \$0 | (0%) |
| Air conditioner | 2,400 | (1%) | 10 | (0%) | 100 | (1%) | \$63 | (1%) |
| Portable cooking or warming equipment | 2,200 | (1%) | 30 | (1%) | 150 | (1%) | \$75 | (1%) |
| Unclassified equipment involved in ignition | 2,100 | (1%) | 30 | (1%) | 90 | (1%) | \$83 | (1%) |
| Torch, burner or soldering iron | 2,000 | (1%) | 10 | (0%) | 110 | (1%) | \$110 | (2%) |
| Other known equipment | 20,400 | (5%) | 260 | (9%) | 1,060 | (8%) | \$763 | (12%) |
| Confined trash or rubbish fire | 15,600 | (4%) | 0 | (0%) | 50 | (0%) | \$2 | (0%) |
| Total | 378,600 | (100%) | 2,850 | (100%) | 13,090 | (100%) | \$6,145 | (100%) |

Source: NFIRS 5.0 and NFPA survey.

Note: 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. Non-confined fires in which the equipment was partially unclassified (i.e., unclassified kitchen or cooking equipment, unclassified heating, cooling or air condition equipment, etc.) were allocated proportionally among fires that grouping (kitchen or cooking equipment; heating, cooling or air conditioning equipment, etc.). Sums may not equal totals due to rounding errors.

Table 7.
Reported Home Structure Fires by Heat Source
2003-2006 Annual Averages
(Unknowns in Non-Confined Fires Were Allocated Proportionally)

| Heat Source | Fires | | Civilian | | Civilian | | Direct | |
|--|----------------|---------------|--------------|---------------|---------------|----------------------------------|----------------|---------------|
| | | | Deaths | Injuries | Injuries | Property Damage (in Millions) | | |
| Confined cooking fire | 112,900 | (30%) | 10 | (0%) | 1,470 | (11%) | \$28 | (0%) |
| Radiated or conducted heat from operating equipment | 32,200 | (8%) | 410 | (14%) | 2,230 | (17%) | \$804 | (13%) |
| Unclassified heat from powered equipment | 28,200 | (7%) | 200 | (7%) | 1,590 | (12%) | \$641 | (10%) |
| Arcing | 28,100 | (7%) | 300 | (10%) | 850 | (6%) | \$848 | (14%) |
| Confined chimney or flue fire | 23,300 | (6%) | 0 | (0%) | 40 | (0%) | \$12 | (0%) |
| Confined fuel burner or boiler fire | 16,300 | (4%) | 0 | (0%) | 90 | (1%) | \$4 | (0%) |
| Unclassified heat source | 16,100 | (4%) | 180 | (6%) | 610 | (5%) | \$474 | (8%) |
| Unclassified hot or smoldering object | 15,400 | (4%) | 160 | (6%) | 600 | (5%) | \$468 | (8%) |
| Candle | 14,800 | (4%) | 160 | (6%) | 1,340 | (10%) | \$471 | (8%) |
| Smoking materials | 13,400 | (4%) | 710 | (25%) | 1,240 | (9%) | \$429 | (7%) |
| Spark, ember or flame from operating equipment | 13,000 | (3%) | 200 | (7%) | 800 | (6%) | \$370 | (6%) |
| Hot ember or ash | 12,300 | (3%) | 120 | (4%) | 460 | (3%) | \$389 | (6%) |
| Lighter | 7,100 | (2%) | 200 | (7%) | 860 | (7%) | \$214 | (3%) |
| Match | 5,000 | (1%) | 80 | (3%) | 310 | (2%) | \$138 | (2%) |
| Lightning | 4,400 | (1%) | 10 | (0%) | 40 | (0%) | \$279 | (5%) |
| Radiated heat from another fire | 3,000 | (1%) | 0 | (0%) | 10 | (0%) | \$51 | (1%) |
| Confined incinerator or compactor fire | 2,400 | (1%) | 0 | (0%) | 0 | (0%) | \$0 | (0%) |
| Flame or torch used for lighting | 2,300 | (1%) | 30 | (1%) | 140 | (1%) | \$85 | (1%) |
| Heat from direct flame or convection currents | 2,100 | (1%) | 10 | (0%) | 30 | (0%) | \$86 | (1%) |
| Molten or hot material | 1,900 | (1%) | 0 | (0%) | 100 | (1%) | \$49 | (1%) |
| Other known heat source | 8,800 | (2%) | 80 | (3%) | 230 | (2%) | \$300 | (5%) |
| Confined trash or rubbish fire | 15,600 | (4%) | 0 | (0%) | 50 | (0%) | \$2 | (0%) |
| Total | 378,600 | (100%) | 2,850 | (100%) | 13,090 | (100%) | \$6,145 | (100%) |

Source: NFIRS 5.0 and NFPA survey.

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

Table 8.
Reported Home Structure Fires by Factor Contributing to Ignition
2003-2006 Annual Averages
(Unknowns in Non-Confined Fires Were Allocated Proportionally)

| Factor | Fires | | Civilian | | Civilian | | Direct | |
|--|--------------|--------|-----------------|-----------------|-----------------|--|---------------|--------|
| | | | Deaths | Injuries | Injuries | Property Damage (in Millions) | | |
| Confined cooking fire | 112,900 | (30%) | 10 | (0%) | 1,470 | (11%) | \$28 | (0%) |
| Electrical failure or malfunction | 46,400 | (12%) | 510 | (18%) | 1,420 | (11%) | \$1,443 | (23%) |
| Heat source too close to combustible | 29,600 | (8%) | 560 | (20%) | 2,240 | (17%) | \$894 | (15%) |
| Confined chimney or flue fire | 23,300 | (6%) | 0 | (0%) | 40 | (0%) | \$12 | (0%) |
| Abandoned or discarded material | 20,800 | (5%) | 460 | (16%) | 1,400 | (11%) | \$619 | (10%) |
| Equipment unattended | 17,000 | (4%) | 180 | (6%) | 1,520 | (12%) | \$374 | (6%) |
| Confined fuel burner or boiler fire | 16,300 | (4%) | 0 | (0%) | 90 | (1%) | \$4 | (0%) |
| Unclassified misuse of material or product | 13,900 | (4%) | 310 | (11%) | 1,410 | (11%) | \$362 | (6%) |
| Unclassified factor | 13,000 | (3%) | 250 | (9%) | 780 | (6%) | \$533 | (9%) |
| Exposure fire | 11,300 | (3%) | 20 | (1%) | 60 | (0%) | \$284 | (5%) |
| Unclassified mechanical failure or malfunction | 10,100 | (3%) | 60 | (2%) | 260 | (2%) | \$251 | (4%) |
| Playing with heat source | 6,700 | (2%) | 130 | (5%) | 800 | (6%) | \$214 | (3%) |
| Failure to clean | 4,900 | (1%) | 10 | (0%) | 110 | (1%) | \$69 | (1%) |
| Storm | 4,500 | (1%) | 20 | (1%) | 30 | (0%) | \$262 | (4%) |
| Unintentionally turned on or not turned off | 4,300 | (1%) | 40 | (2%) | 300 | (2%) | \$120 | (2%) |
| Rekindle | 3,500 | (1%) | 0 | (0%) | 0 | (0%) | \$60 | (1%) |
| Leak or break | 2,800 | (1%) | 60 | (2%) | 190 | (1%) | \$99 | (2%) |
| Installation deficiency | 2,700 | (1%) | 20 | (1%) | 80 | (1%) | \$84 | (1%) |
| Unclassified operational deficiency | 2,500 | (1%) | 40 | (1%) | 170 | (1%) | \$72 | (1%) |
| Confined incinerator or compactor fire | 2,400 | (1%) | 0 | (0%) | 0 | (0%) | \$0 | (0%) |
| Worn out | 2,500 | (1%) | 20 | (1%) | 60 | (0%) | \$47 | (1%) |
| Improper container or storage | 2,400 | (1%) | 10 | (1%) | 110 | (1%) | \$79 | (1%) |
| Flammable liquid or gas spilled | 1,900 | (1%) | 60 | (2%) | 330 | (3%) | \$74 | (1%) |
| Other known factor | 17,700 | (5%) | 330 | (11%) | 920 | (7%) | \$655 | (11%) |
| Confined trash or rubbish fire | 15,600 | (4%) | 0 | (0%) | 50 | (0%) | \$2 | (0%) |
| Total entries* | 389,100 | (103%) | 3,120 | (109%) | 13,850 | (106%) | \$6,642 | (108%) |
| Total fires* | 378,600 | (100%) | 2,850 | (100%) | 13,090 | (100%) | \$6,145 | (100%) |

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

Note: Sums may not equal totals due to rounding errors. Non-confined 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 5.0 and NFPA survey.

Table 9.
Reported Home Structure Fires by Area of Origin
2003-2006 Annual Averages
(Unknowns in Non-Confined Fires Were Allocated Proportionally)

| Area of Origin | Fires | | Civilian | | Civilian | | Direct | |
|---|----------------|---------------|--------------|---------------|-----------------|---------------|----------------|---------------|
| | | | Deaths | Injuries | Property Damage | (in Millions) | | |
| Confined cooking fire | 112,900 | (30%) | 10 | (0%) | 1,470 | (11%) | \$28 | (0%) |
| Kitchen or cooking area | 44,100 | (12%) | 430 | (15%) | 3,260 | (25%) | \$825 | (13%) |
| Bedroom | 29,400 | (8%) | 670 | (24%) | 2,810 | (21%) | \$922 | (15%) |
| Confined chimney or flue fire | 23,300 | (6%) | 0 | (0%) | 40 | (0%) | \$12 | (0%) |
| Confined fuel burner or boiler fire | 16,300 | (4%) | 0 | (0%) | 90 | (1%) | \$4 | (0%) |
| Living room, family room or den | 13,600 | (4%) | 660 | (23%) | 1,340 | (10%) | \$541 | (9%) |
| Laundry room or area | 10,100 | (3%) | 50 | (2%) | 360 | (3%) | \$181 | (3%) |
| Unclassified function area | 9,800 | (3%) | 350 | (12%) | 750 | (6%) | \$361 | (6%) |
| Attic or ceiling/roof assembly or concealed space | 9,100 | (2%) | 30 | (1%) | 100 | (1%) | \$393 | (6%) |
| Exterior wall surface | 8,600 | (2%) | 10 | (0%) | 90 | (1%) | \$164 | (3%) |
| Wall assembly or concealed space | 7,400 | (2%) | 50 | (2%) | 140 | (1%) | \$208 | (3%) |
| Garage or vehicle storage area* | 7,300 | (2%) | 40 | (1%) | 360 | (3%) | \$425 | (7%) |
| Bathroom | 7,200 | (2%) | 40 | (1%) | 310 | (2%) | \$136 | (2%) |
| Unclassified structural area | 5,400 | (1%) | 100 | (4%) | 220 | (2%) | \$210 | (3%) |
| Unclassified area of origin | 5,400 | (1%) | 50 | (2%) | 100 | (1%) | \$129 | (2%) |
| Crawl space or substructure space | 5,200 | (1%) | 50 | (2%) | 210 | (2%) | \$169 | (3%) |
| Exterior balcony or unenclosed porch | 5,000 | (1%) | 20 | (1%) | 160 | (1%) | \$206 | (3%) |
| Heating equipment room | 4,300 | (1%) | 30 | (1%) | 170 | (1%) | \$96 | (2%) |
| Ceiling/floor assembly or concealed space | 3,800 | (1%) | 30 | (1%) | 70 | (1%) | \$194 | (3%) |
| Unclassified outside area | 3,000 | (1%) | 10 | (0%) | 50 | (0%) | \$66 | (1%) |
| Closet | 2,900 | (1%) | 0 | (0%) | 120 | (1%) | \$72 | (1%) |
| Confined incinerator or compactor fire | 2,400 | (1%) | 0 | (0%) | 0 | (0%) | \$0 | (0%) |
| Unclassified storage area | 2,300 | (1%) | 10 | (0%) | 80 | (1%) | \$66 | (1%) |
| Exterior roof surface | 2,100 | (1%) | 0 | (0%) | 10 | (0%) | \$91 | (1%) |
| Courtyard, terrace or patio | 2,100 | (1%) | 20 | (1%) | 80 | (1%) | \$97 | (2%) |
| Other known area | 19,900 | (5%) | 190 | (7%) | 650 | (5%) | \$546 | (9%) |
| Confined trash or rubbish fire | 15,600 | (4%) | 0 | (0%) | 50 | (0%) | \$2 | (0%) |
| Total | 378,600 | (100%) | 2,850 | (100%) | 13,090 | (100%) | \$6,145 | (100%) |

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

Note: Sums may not equal totals due to rounding errors

Source: NFIRS 5.0 and NFPA survey.

Table 10.
Reported Home Structure Fires by Item First Ignited
2003-2006 Annual Averages
(Unknowns Were Allocated Proportionally)

| Item First Ignited | Fires | | Civilian Deaths | | Civilian Injuries | | Direct Property Damage (in Millions) | |
|--|----------------|---------------|------------------------|---------------|--------------------------|---------------|---|---------------|
| Confined cooking fire | 112,900 | (30%) | 10 | (0%) | 1,470 | (11%) | \$28 | (0%) |
| Confined chimney or flue fire | 23,300 | (6%) | 0 | (0%) | 40 | (0%) | \$12 | (0%) |
| Cooking materials, including food | 22,000 | (6%) | 120 | (4%) | 2,200 | (17%) | \$340 | (6%) |
| Structural member or framing | 19,800 | (5%) | 150 | (5%) | 370 | (3%) | \$935 | (15%) |
| Confined fuel burner or boiler fire | 16,300 | (4%) | 0 | (0%) | 90 | (1%) | \$4 | (0%) |
| Electrical wire or cable insulation | 15,700 | (4%) | 90 | (3%) | 400 | (3%) | \$336 | (5%) |
| Confined trash or rubbish fire | 15,600 | (4%) | 0 | (0%) | 50 | (0%) | \$2 | (0%) |
| Exterior wall covering or finish | 12,600 | (3%) | 30 | (1%) | 170 | (1%) | \$337 | (5%) |
| Unclassified item first ignited | 11,700 | (3%) | 80 | (3%) | 440 | (3%) | \$243 | (4%) |
| Mattress or bedding | 11,200 | (3%) | 380 | (13%) | 1,390 | (11%) | \$370 | (6%) |
| Flammable or combustible liquid or gas, or pipe, hose, duct or filter | 8,800 | (2%) | 230 | (8%) | 1,070 | (8%) | \$316 | (5%) |
| Interior wall covering | 8,200 | (2%) | 120 | (4%) | 340 | (3%) | \$263 | (4%) |
| Clothing | 7,600 | (2%) | 150 | (5%) | 500 | (4%) | \$159 | (3%) |
| Upholstered furniture | 7,400 | (2%) | 590 | (21%) | 900 | (7%) | \$416 | (7%) |
| Unclassified structural component or finish | 6,700 | (2%) | 80 | (3%) | 160 | (1%) | \$277 | (5%) |
| Insulation within structural area | 6,000 | (2%) | 10 | (0%) | 90 | (1%) | \$132 | (2%) |
| Unclassified furniture or utensils | 6,000 | (2%) | 170 | (6%) | 500 | (4%) | \$222 | (4%) |
| Appliance housing or casing | 5,800 | (2%) | 40 | (1%) | 270 | (2%) | \$100 | (2%) |
| Floor covering rug, carpet, or mat | 5,400 | (1%) | 120 | (4%) | 290 | (2%) | \$158 | (3%) |
| Rubbish, trash, or waste | 5,200 | (1%) | 50 | (2%) | 220 | (2%) | \$125 | (2%) |
| Cabinetry, including built-in | 5,200 | (1%) | 50 | (2%) | 300 | (2%) | \$156 | (3%) |
| Multiple items first ignited | 4,100 | (1%) | 100 | (3%) | 220 | (2%) | \$187 | (3%) |
| Unclassified soft goods or wearing apparel | 3,700 | (1%) | 40 | (2%) | 220 | (2%) | \$82 | (1%) |
| Magazine, newspaper or writing paper | 3,400 | (1%) | 50 | (2%) | 200 | (2%) | \$88 | (1%) |
| Exterior roof covering or finish | 2,900 | (1%) | 0 | (0%) | 20 | (0%) | \$152 | (2%) |
| Box, carton, bag, basket or barrel | 2,800 | (1%) | 10 | (0%) | 130 | (1%) | \$104 | (2%) |
| Dust, fiber or lint | 2,800 | (1%) | 0 | (0%) | 50 | (0%) | \$31 | (1%) |
| Interior ceiling cover or finish | 2,700 | (1%) | 20 | (1%) | 50 | (0%) | \$101 | (2%) |
| Household utensil | 2,600 | (1%) | 10 | (0%) | 140 | (1%) | \$39 | (1%) |
| Curtain, blind, drapery or tapestry | 2,500 | (1%) | 30 | (1%) | 200 | (2%) | \$64 | (1%) |
| Confined incinerator or compactor fire | 2,400 | (1%) | 0 | (0%) | 0 | (0%) | \$0 | (0%) |
| Linen other than bedding | 2,300 | (1%) | 20 | (1%) | 120 | (1%) | \$35 | (1%) |
| Light vegetation, including grass | 2,000 | (1%) | 0 | (0%) | 30 | (0%) | \$40 | (1%) |
| Other known item | 10,900 | (3%) | 70 | (2%) | 420 | (3%) | \$289 | (5%) |
| Total | 378,600 | (100%) | 2,850 | (100%) | 13,090 | (100%) | \$6,145 | (100%) |

Note: Sums may not equal totals due to rounding errors
Source: NFIRS 5.0 and NFPA survey.

Table 11.
Reported Home Structure Fires by Extent of Flame Damage
2003-2006 Annual Averages
 (Unknowns in Non-Confined Fires Were Allocated Proportionally)

| Extent of Flame Damage | Fires | | Civilian | | Civilian | | Direct | |
|---------------------------------------|---------|--------|----------|----------|----------|----------------------------------|---------|--------|
| | | | Deaths | Injuries | Injuries | Property Damage (in Millions) | | |
| Confined or contained fire | 170,500 | (45%) | 10 | (0%) | 1,650 | (13%) | \$47 | (1%) |
| Confined to object of origin | 59,500 | (16%) | 200 | (7%) | 1,640 | (13%) | \$448 | (7%) |
| Confined to room of origin | 64,200 | (17%) | 430 | (15%) | 4,250 | (32%) | \$771 | (13%) |
| Confined to floor of origin | 17,100 | (5%) | 280 | (10%) | 1,440 | (11%) | \$617 | (10%) |
| Confined to building of origin | 57,400 | (15%) | 1,560 | (55%) | 3,380 | (26%) | \$3,518 | (57%) |
| Extended beyond building of origin | 9,700 | (3%) | 360 | (13%) | 720 | (6%) | \$744 | (12%) |
| Total | 378,600 | (100%) | 2,850 | (100%) | 13,090 | (100%) | \$6,145 | (100%) |

Note: Sums may not equal totals due to rounding errors

Source: NFIRS 5.0 and NFPA survey.

Table 12.
Reported Home Fire Deaths in Selected Areas of Origin, by Year
1980-2006
(Unknowns Were Allocated Proportionally)

| Year | Living Room, Family Room or Den | | Bedroom | | Kitchen | | Other Area of Origin | | Total Deaths | |
|---------------------------|---------------------------------|--------|---------|--------|---------|--------|----------------------|--------|--------------|--------|
| | Count | (%) | Count | (%) | Count | (%) | Count | (%) | Count | (%) |
| 1980 | 2,220 | (42%) | 1,210 | (23%) | 660 | (13%) | 1,160 | (22%) | 5,240 | (100%) |
| 1981 | 2,160 | (41%) | 1,260 | (24%) | 710 | (13%) | 1,180 | (22%) | 5,320 | (100%) |
| 1982 | 1,870 | (39%) | 1,260 | (26%) | 580 | (12%) | 1,130 | (23%) | 4,840 | (100%) |
| 1983 | 1,810 | (39%) | 1,240 | (27%) | 680 | (15%) | 950 | (20%) | 4,680 | (100%) |
| 1984 | 1,580 | (39%) | 1,060 | (26%) | 550 | (13%) | 910 | (22%) | 4,100 | (100%) |
| 1985 | 1,670 | (34%) | 1,440 | (30%) | 690 | (14%) | 1,060 | (22%) | 4,860 | (100%) |
| 1986 | 1,680 | (36%) | 1,310 | (28%) | 610 | (13%) | 1,040 | (22%) | 4,640 | (100%) |
| 1987 | 1,730 | (38%) | 1,200 | (27%) | 640 | (14%) | 950 | (21%) | 4,520 | (100%) |
| 1988 | 1,800 | (36%) | 1,410 | (28%) | 650 | (13%) | 1,130 | (23%) | 4,990 | (100%) |
| 1989 | 1,570 | (36%) | 1,140 | (26%) | 720 | (17%) | 910 | (21%) | 4,350 | (100%) |
| 1990 | 1,400 | (35%) | 1,090 | (27%) | 650 | (16%) | 860 | (22%) | 4,010 | (100%) |
| 1991 | 1,230 | (35%) | 990 | (28%) | 550 | (15%) | 760 | (22%) | 3,520 | (100%) |
| 1992 | 1,210 | (33%) | 1,060 | (29%) | 490 | (13%) | 910 | (25%) | 3,670 | (100%) |
| 1993 | 1,280 | (34%) | 1,010 | (27%) | 570 | (15%) | 880 | (23%) | 3,730 | (100%) |
| 1994 | 1,070 | (31%) | 960 | (28%) | 490 | (14%) | 880 | (26%) | 3,410 | (100%) |
| 1995 | 1,220 | (34%) | 990 | (27%) | 490 | (14%) | 910 | (25%) | 3,600 | (100%) |
| 1996 | 1,230 | (31%) | 1,060 | (27%) | 630 | (16%) | 1,060 | (27%) | 3,980 | (100%) |
| 1997 | 1,050 | (32%) | 900 | (27%) | 520 | (16%) | 850 | (26%) | 3,330 | (100%) |
| 1998 | 840 | (27%) | 790 | (25%) | 540 | (17%) | 1,000 | (31%) | 3,170 | (100%) |
| 1999 | 660 | (23%) | 630 | (22%) | 540 | (19%) | 1,030 | (36%) | 2,870 | (100%) |
| 2000 | 860 | (27%) | 790 | (24%) | 530 | (16%) | 1,060 | (33%) | 3,250 | (100%) |
| 2001 | 790 | (26%) | 700 | (23%) | 460 | (15%) | 1,070 | (36%) | 3,010 | (100%) |
| 2002 | 660 | (26%) | 700 | (28%) | 350 | (14%) | 820 | (32%) | 2,520 | (100%) |
| 2003 | 680 | (23%) | 630 | (21%) | 450 | (15%) | 1,230 | (41%) | 3,000 | (100%) |
| 2004 | 690 | (23%) | 700 | (23%) | 470 | (15%) | 1,210 | (39%) | 3,070 | (100%) |
| 2005 | 710 | (25%) | 740 | (26%) | 440 | (16%) | 970 | (34%) | 2,870 | (100%) |
| 2006 | 560 | (23%) | 620 | (25%) | 350 | (14%) | 950 | (38%) | 2,480 | (100%) |
| 1980-1983 average | 2,010 | (40%) | 1,240 | (25%) | 660 | (13%) | 1,110 | (22%) | 5,020 | (100%) |
| 1995-1998 average | 1,090 | (31%) | 940 | (27%) | 550 | (15%) | 950 | (27%) | 3,520 | (100%) |
| 2003-2006 average | 660 | (23%) | 670 | (23%) | 430 | (15%) | 1,090 | (38%) | 2,850 | (100%) |
| Change 1980-83 to 1995-98 | -930 | -(46%) | -310 | -(25%) | -110 | -(17%) | -150 | -(14%) | -1,500 | -(30%) |
| Change 1980-83 to 2003-06 | -1,350 | -(67%) | -570 | -(46%) | -230 | -(35%) | -10 | (-1%) | -2,170 | -(43%) |
| Change 1995-98 to 2003-06 | -430 | -(39%) | -270 | -(29%) | -120 | -(22%) | 140 | (15%) | -670 | -(19%) |

Source: NFIRS and NFPA survey.

Note: Estimates from 1999 on are based on NFIRS 5.0 data and exclude deaths from confined fires. Because of low participation in NFIRS 5.0 during 1999-2001, estimates for these years are highly uncertain and must be used with caution. Estimates of total deaths vary slightly from those in Table 1. Estimates in Table 1 were based solely on NFPA survey data.

Table 13.
Reported Home Fire Deaths from Fires
Starting with Upholstered Furniture or Mattresses and Bedding
by Year: 1980-2005
(Unknowns Were Allocated Proportionally)

| Year | Upholstered Furniture | | Mattress or Bedding | | Other Item | | Total Deaths | |
|---------------------------|-----------------------|--------|---------------------|--------|------------|--------|--------------|--------|
| 1980 | 1,360 | (26%) | 940 | (18%) | 2,940 | (56%) | 5,240 | (100%) |
| 1981 | 1,360 | (26%) | 820 | (15%) | 3,140 | (59%) | 5,320 | (100%) |
| 1982 | 1,190 | (25%) | 700 | (14%) | 2,950 | (61%) | 4,840 | (100%) |
| 1983 | 1,100 | (24%) | 700 | (15%) | 2,880 | (62%) | 4,680 | (100%) |
| 1984 | 1,090 | (27%) | 670 | (16%) | 2,340 | (57%) | 4,100 | (100%) |
| 1985 | 930 | (19%) | 860 | (18%) | 3,070 | (63%) | 4,860 | (100%) |
| 1986 | 1,070 | (23%) | 730 | (16%) | 2,840 | (61%) | 4,640 | (100%) |
| 1987 | 1,030 | (23%) | 720 | (16%) | 2,770 | (61%) | 4,520 | (100%) |
| 1988 | 1,100 | (22%) | 920 | (18%) | 2,970 | (60%) | 4,990 | (100%) |
| 1989 | 880 | (20%) | 650 | (15%) | 2,820 | (65%) | 4,350 | (100%) |
| 1990 | 870 | (22%) | 620 | (15%) | 2,520 | (63%) | 4,010 | (100%) |
| 1991 | 680 | (19%) | 620 | (18%) | 2,220 | (63%) | 3,520 | (100%) |
| 1992 | 630 | (17%) | 620 | (17%) | 2,420 | (66%) | 3,670 | (100%) |
| 1993 | 650 | (17%) | 620 | (17%) | 2,460 | (66%) | 3,730 | (100%) |
| 1994 | 670 | (20%) | 470 | (14%) | 2,270 | (67%) | 3,410 | (100%) |
| 1995 | 660 | (18%) | 530 | (15%) | 2,410 | (67%) | 3,600 | (100%) |
| 1996 | 650 | (16%) | 660 | (17%) | 2,670 | (67%) | 3,980 | (100%) |
| 1997 | 660 | (20%) | 490 | (15%) | 2,180 | (65%) | 3,330 | (100%) |
| 1998 | 540 | (17%) | 400 | (13%) | 2,230 | (70%) | 3,170 | (100%) |
| 1999 | 490 | (17%) | 220 | (8%) | 2,160 | (75%) | 2,870 | (100%) |
| 2000 | 580 | (18%) | 460 | (14%) | 2,210 | (68%) | 3,250 | (100%) |
| 2001 | 620 | (21%) | 460 | (15%) | 1,930 | (64%) | 3,010 | (100%) |
| 2002 | 530 | (21%) | 380 | (15%) | 1,610 | (64%) | 2,520 | (100%) |
| 2003 | 650 | (22%) | 370 | (12%) | 1,980 | (66%) | 3,000 | (100%) |
| 2004 | 700 | (23%) | 310 | (10%) | 2,060 | (67%) | 3,070 | (100%) |
| 2005 | 530 | (18%) | 460 | (16%) | 1,880 | (66%) | 2,870 | (100%) |
| 1980-1983 average | 1,250 | (25%) | 790 | (16%) | 2,980 | (59%) | 5,020 | (100%) |
| 1995-1998 average | 630 | (18%) | 520 | (15%) | 2,370 | (67%) | 3,520 | (100%) |
| 2003-2006 average | 590 | (21%) | 380 | (13%) | 1,880 | (66%) | 2,850 | (100%) |
| Change 1980-83 to 1995-98 | -630 | -(50%) | -270 | -(34%) | -610 | -(20%) | -1,500 | -(30%) |
| Change 1980-83 to 2003-06 | -660 | -(53%) | -410 | -(52%) | -1,100 | -(37%) | -2,170 | -(43%) |
| Change 1995-98 to 2003-06 | -40 | -(6%) | -140 | -(27%) | -490 | -(21%) | -670 | -(19%) |

Source: NFIRS and NFPA survey, including Table 10 in this report (2003-2006 estimates). Also, *Home Fires that Began with Upholstered Furniture*, and *Home Fires that Began with Mattresses and Bedding*, both by Marty Ahrens, NFPA, 2008.

Note: Estimates from 1999 on are based on NFIRS 5.0 data and exclude deaths from confined fires. Because of low participation in NFIRS 5.0 during 1999-2001, estimates for these years are highly uncertain and must be used with caution. Estimates of total deaths vary slightly from those in Table 1. Estimates in Table 1 were based solely on NFPA survey data.

Table 14.
Reported Home Fire Deaths by Selected Types of Heat Sources and Year
1980-2006
(Unknowns Were Allocated Proportionally)

| Year | Operating Equipment | | Smoking Materials | | Small Open Flame | | Total Heat Source | | Deaths | |
|------------------------------|---------------------|--------|-------------------|--------|------------------|--------|-------------------|--------|--------|--------|
| 1980 | 1,950 | (37%) | 1,820 | (35%) | 970 | (19%) | 494 | (9%) | 5,240 | (100%) |
| 1981 | 1,970 | (37%) | 1,980 | (37%) | 820 | (15%) | 553 | (10%) | 5,320 | (100%) |
| 1982 | 1,870 | (39%) | 1,680 | (35%) | 700 | (14%) | 583 | (12%) | 4,840 | (100%) |
| 1983 | 1,910 | (41%) | 1,510 | (32%) | 830 | (18%) | 436 | (9%) | 4,680 | (100%) |
| 1984 | 1,620 | (39%) | 1,480 | (36%) | 640 | (16%) | 362 | (9%) | 4,100 | (100%) |
| 1985 | 1,930 | (40%) | 1,580 | (33%) | 860 | (18%) | 489 | (10%) | 4,860 | (100%) |
| 1986 | 1,960 | (42%) | 1,350 | (29%) | 810 | (18%) | 511 | (11%) | 4,640 | (100%) |
| 1987 | 1,850 | (41%) | 1,380 | (31%) | 850 | (19%) | 448 | (10%) | 4,520 | (100%) |
| 1988 | 1,940 | (39%) | 1,570 | (31%) | 950 | (19%) | 533 | (11%) | 4,990 | (100%) |
| 1989 | 1,840 | (42%) | 1,190 | (27%) | 880 | (20%) | 435 | (10%) | 4,350 | (100%) |
| 1990 | 1,660 | (41%) | 1,150 | (29%) | 710 | (18%) | 494 | (12%) | 4,010 | (100%) |
| 1991 | 1,410 | (40%) | 880 | (25%) | 820 | (23%) | 410 | (12%) | 3,520 | (100%) |
| 1992 | 1,440 | (39%) | 1,000 | (27%) | 800 | (22%) | 422 | (11%) | 3,670 | (100%) |
| 1993 | 1,510 | (41%) | 980 | (26%) | 870 | (23%) | 373 | (10%) | 3,730 | (100%) |
| 1994 | 1,510 | (44%) | 840 | (25%) | 710 | (21%) | 347 | (10%) | 3,410 | (100%) |
| 1995 | 1,540 | (43%) | 1,040 | (29%) | 660 | (18%) | 365 | (10%) | 3,600 | (100%) |
| 1996 | 1,810 | (45%) | 1,090 | (27%) | 610 | (15%) | 474 | (12%) | 3,980 | (100%) |
| 1997 | 1,360 | (41%) | 870 | (26%) | 710 | (21%) | 391 | (12%) | 3,330 | (100%) |
| 1998 | 1,360 | (43%) | 850 | (27%) | 560 | (18%) | 405 | (13%) | 3,170 | (100%) |
| 1999 | 940 | (33%) | 840 | (29%) | 370 | (13%) | 717 | (25%) | 2,870 | (100%) |
| 2000 | 1,140 | (35%) | 900 | (28%) | 650 | (20%) | 557 | (17%) | 3,250 | (100%) |
| 2001 | 1,110 | (37%) | 760 | (25%) | 560 | (19%) | 576 | (19%) | 3,010 | (100%) |
| 2002 | 800 | (32%) | 600 | (24%) | 510 | (20%) | 613 | (24%) | 2,520 | (100%) |
| 2003 | 1,200 | (40%) | 710 | (24%) | 430 | (14%) | 659 | (22%) | 3,000 | (100%) |
| 2004 | 1,190 | (39%) | 710 | (23%) | 480 | (16%) | 687 | (22%) | 3,070 | (100%) |
| 2005 | 1,090 | (38%) | 730 | (25%) | 470 | (16%) | 571 | (20%) | 2,870 | (100%) |
| 2006 | 900 | (36%) | 700 | (28%) | 390 | (16%) | 493 | (20%) | 2,480 | (100%) |
| 1980-1983 average | 1,930 | (38%) | 1,750 | (35%) | 830 | (17%) | 520 | (10%) | 5,020 | (100%) |
| 1995-1998 average | 1,510 | (43%) | 960 | (27%) | 630 | (18%) | 410 | (12%) | 3,520 | (100%) |
| 2003-2006 average | 1,100 | (38%) | 710 | (25%) | 440 | (15%) | 600 | (21%) | 2,850 | (100%) |
| Change 1980-83 to 1995-98 | -410 | -(21%) | -790 | -(45%) | -190 | -(23%) | -110 | -(21%) | -1,500 | -(30%) |
| Change 1980-83 to 2003-06 | -830 | -(43%) | -1,040 | -(59%) | -390 | -(47%) | 90 | (17%) | -2,170 | -(43%) |
| Change 1995-98 to 2003-06 | -420 | -(28%) | -250 | -(26%) | -190 | -(44%) | 190 | (46%) | -670 | -(19%) |

Table 14.
Reported Home Fire Deaths by Selected Types of Heat Sources and Year
1980-2006
(Continued)

Source: NFIRS and NFPA survey. Trend data for smoking material deaths was obtained from John Hall's 2008 report, *The Smoking Material Fire Problem*.

Note: Estimates from 1999 on are based on NFIRS 5.0 data and exclude deaths from confined fires. Because of low participation in NFIRS 5.0 during 1999-2001, estimates for these years are highly uncertain and must be used with caution. In 1980-1998, operating equipment identified by form of heat of ignition codes for heat from fuel-fires, fuel-powered objects, heat from electrical equipment arcing or overloaded, electric lamps, and properly and improperly operating equipment (form of heat of ignition codes 10-29, 54, 56, and 57). From 1999 on, operating equipment was identified by heat source codes for operating equipment (heat source 10-13). The 1980-1998 estimates of lighter, candles and matches include proportional shares of deaths from fires in which the form of heat of ignition was an unknown-type of open flame. From 1999 on, estimates for open flame and smoking material include a proportional share of deaths in which the heat source was an unclassified open flame or smoking material. Estimates of total deaths vary slightly from those in Table 1. Estimates in Table 1 were based solely on NFPA survey data.

Table 15.
Reported Home Fire Deaths by Victim's Location at Ignition and Year
1980-2006

(Unknowns Were Allocated Proportionally)

| Year | In Room or Area of Origin | | Outside of Room or Area of Origin | | Total Deaths | |
|---------------------------|------------------------------|------------|--------------------------------------|------------|-----------------|------------|
| | Count | Percentage | Count | Percentage | Count | Percentage |
| 1980 | 1,970 | (38%) | 3,270 | (62%) | 5,240 | (100%) |
| 1981 | 2,220 | (42%) | 3,110 | (58%) | 5,320 | (100%) |
| 1982 | 1,780 | (37%) | 3,060 | (63%) | 4,840 | (100%) |
| 1983 | 1,850 | (39%) | 2,830 | (61%) | 4,680 | (100%) |
| 1984 | 1,620 | (40%) | 2,480 | (60%) | 4,100 | (100%) |
| 1985 | 1,880 | (39%) | 2,980 | (61%) | 4,860 | (100%) |
| 1986 | 1,800 | (39%) | 2,840 | (61%) | 4,640 | (100%) |
| 1987 | 1,850 | (41%) | 2,670 | (59%) | 4,520 | (100%) |
| 1988 | 1,960 | (39%) | 3,030 | (61%) | 4,990 | (100%) |
| 1989 | 1,580 | (36%) | 2,760 | (64%) | 4,350 | (100%) |
| 1990 | 1,600 | (40%) | 2,400 | (60%) | 4,010 | (100%) |
| 1991 | 1,410 | (40%) | 2,110 | (60%) | 3,520 | (100%) |
| 1992 | 1,510 | (41%) | 2,160 | (59%) | 3,670 | (100%) |
| 1993 | 1,690 | (45%) | 2,040 | (55%) | 3,730 | (100%) |
| 1994 | 1,330 | (39%) | 2,080 | (61%) | 3,410 | (100%) |
| 1995 | 1,460 | (40%) | 2,150 | (60%) | 3,600 | (100%) |
| 1996 | 1,620 | (41%) | 2,360 | (59%) | 3,980 | (100%) |
| 1997 | 1,280 | (39%) | 2,040 | (61%) | 3,330 | (100%) |
| 1998 | 1,310 | (41%) | 1,860 | (59%) | 3,170 | (100%) |
| 1999 | 1,380 | (48%) | 1,490 | (52%) | 2,870 | (100%) |
| 2000 | 1,990 | (61%) | 1,260 | (39%) | 3,250 | (100%) |
| 2001 | 1,480 | (49%) | 1,530 | (51%) | 3,010 | (100%) |
| 2002 | 1,420 | (56%) | 1,090 | (43%) | 2,510 | (100%) |
| 2003 | 1,660 | (56%) | 1,340 | (45%) | 3,000 | (100%) |
| 2004 | 1,570 | (51%) | 1,490 | (48%) | 3,050 | (100%) |
| 2005 | 1,470 | (51%) | 1,380 | (48%) | 2,850 | (100%) |
| 2006 | 1,370 | (55%) | 1,120 | (45%) | 2,480 | (100%) |
| 1980-1983 average | 1,950 | (39%) | 3,070 | (61%) | 5,020 | (100%) |
| 1995-1998 average | 1,420 | (40%) | 2,100 | (60%) | 3,520 | (100%) |
| 2003-2006 average | 1,520 | (53%) | 1,330 | (47%) | 2,850 | (100%) |
| Change 1980-83 to 1995-98 | -540 | -(27%) | -960 | -(31%) | -1,500 | -(30%) |
| Change 1980-83 to 2003-06 | -440 | -(22%) | -1,730 | -(57%) | -2,170 | -(43%) |
| Change 1995-98 to 2003-06 | 100 | (7%) | -770 | -(37%) | -670 | -(19%) |

Source: NFIRS and NFPA survey.

Note: Estimates from 1999 on are based on NFIRS 5.0 data and exclude deaths from confined fires. Because of low participation in NFIRS 5.0 during 1999-2001, estimates for these years are highly uncertain and must be used with caution. Estimates of total deaths vary slightly from those in Table 1. Estimates in Table 1 were based solely on NFPA survey data. In 1980-1998, victims who were either intimate with ignition or in the room or space or origin were considered in room or area of origin. Victims in other known or unclassified locations were considered outside of the room or area of origin. From 1999 on, victims whose location at the time of incident was coded as in area of origin were considered in the room or area of origin. Victims who were not in the area of origin or in a location coded as "other" were considered outside of the room or area of origin.

**Table 1A.
Reported One- or Two-Family Dwelling Structure Fires
by Year: 1980-2007**

| Year | Fires | Civilian Deaths | Civilian Injuries | Direct Property Damage (in Millions) | |
|-------------|--------------|----------------------------|------------------------------|---|------------------------|
| | | | | As Reported | In 2007 Dollars |
| 1980 | 590,500 | 4,175 | 16,100 | \$2,447 | \$6,168 |
| 1981 | 574,000 | 4,430 | 14,875 | \$2,713 | \$6,180 |
| 1982 | 538,000 | 3,960 | 15,750 | \$2,794 | \$6,000 |
| 1983 | 523,500 | 3,825 | 16,450 | \$2,792 | \$5,810 |
| 1984 | 506,000 | 3,290 | 15,100 | \$2,945 | \$5,872 |
| 1985 | 501,500 | 4,020 | 15,250 | \$3,217 | \$6,194 |
| 1986 | 468,000 | 4,005 | 14,650 | \$2,992 | \$5,667 |
| 1987 | 433,000 | 3,780 | 15,200 | \$3,078 | \$5,620 |
| 1988 | 432,500 | 4,125 | 17,125 | \$3,349 | \$5,878 |
| 1989 | 402,500 | 3,545 | 15,225 | \$3,335 | \$5,584 |
| 1990 | 359,000 | 3,370 | 15,250 | \$3,534 | \$5,616 |
| 1991 | 363,000 | 2,905 | 15,600 | \$3,354 | \$5,108 |
| 1992 | 358,000 | 3,160 | 15,275 | \$3,178 | \$4,701 |
| 1993 | 358,000 | 3,035 | 15,700 | \$4,111 | \$5,902 |
| 1994 | 341,000 | 2,785 | 14,000 | \$3,537 | \$4,953 |
| 1995 | 320,000 | 3,035 | 13,450 | \$3,615 | \$4,920 |
| 1996 | 324,000 | 3,470 | 13,700 | \$4,121 | \$5,455 |
| 1997 | 302,500 | 2,700 | 12,300 | \$3,735 | \$4,828 |
| 1998 | 283,000 | 2,775 | 11,800 | \$3,642 | \$4,639 |
| 1999 | 282,500 | 2,375 | 11,550 | \$4,123 | \$5,132 |
| 2000 | 283,500 | 2,920 | 12,575 | \$4,639 | \$5,592 |
| 2001 | 295,500 | 2,650 | 11,400 | \$4,652 | \$5,453 |
| 2002 | 300,500 | 2,280 | 9,950 | \$5,005 | \$5,773 |
| 2003 | 297,000 | 2,735 | 10,000 | \$5,052 | \$5,702 |
| 2004 | 301,500 | 2,680 | 10,500 | \$4,948 | \$5,441 |
| 2005 | 287,000 | 2,570 | 10,300 | \$5,781 | \$6,141 |
| 2006 | 304,500 | 2,155 | 8,800 | \$5,936 | \$6,108 |
| 2007 | 300,500 | 2,350 | 9,650 | \$6,225 | \$6,225 |

Source: *Fire Loss in the United States* series of NFPA annual reports by Michael J. Karter, Jr. Inflation adjustments were based on the Consumer Price Index Purchasing Power of the Dollar.

Table 2A.
Reported One- or Two-Family Dwelling Structure Fires by Month
2003-2006 Annual Averages

| Month | Fires | | Civilian | | Civilian | | Direct | |
|-----------------|----------------|---------------|-----------------|---------------|-----------------|---------------|------------------------|---------------|
| | | | Deaths | | Injuries | | Property Damage | |
| | | | | | | | (in Millions) | |
| January | 28,700 | (11%) | 330 | (14%) | 980 | (11%) | \$510 | (10%) |
| February | 24,000 | (9%) | 270 | (11%) | 880 | (10%) | \$427 | (9%) |
| March | 24,000 | (9%) | 240 | (10%) | 880 | (10%) | \$428 | (9%) |
| April | 21,200 | (8%) | 170 | (7%) | 750 | (8%) | \$409 | (8%) |
| May | 19,600 | (7%) | 140 | (6%) | 740 | (8%) | \$375 | (7%) |
| June | 18,400 | (7%) | 140 | (6%) | 660 | (7%) | \$356 | (7%) |
| July | 20,100 | (8%) | 130 | (5%) | 630 | (7%) | \$413 | (8%) |
| August | 18,300 | (7%) | 120 | (5%) | 640 | (7%) | \$351 | (7%) |
| September | 17,700 | (7%) | 130 | (5%) | 570 | (6%) | \$347 | (7%) |
| October | 21,300 | (8%) | 180 | (8%) | 730 | (8%) | \$376 | (7%) |
| November | 23,500 | (9%) | 220 | (9%) | 790 | (9%) | \$418 | (8%) |
| December | 28,500 | (11%) | 310 | (13%) | 1,000 | (11%) | \$603 | (12%) |
| Total | 265,300 | (100%) | 2,400 | (100%) | 9,250 | (100%) | \$5,013 | (100%) |
| Monthly average | 22,100 | (8%) | 200 | (8%) | 770 | (8%) | \$418 | (8%) |

Table 3A.
Reported One- or Two-Family Dwelling Structure Fires by Day of Week
2003-2006 Annual Averages

| Day of Week | Fires | | Civilian | | Civilian | | Direct | |
|--------------------|----------------|---------------|-----------------|---------------|-----------------|---------------|------------------------|---------------|
| | | | Deaths | | Injuries | | Property Damage | |
| | | | | | | | (in Millions) | |
| Sunday | 40,000 | (15%) | 350 | (15%) | 1,410 | (15%) | \$740 | (15%) |
| Monday | 38,000 | (14%) | 330 | (14%) | 1,320 | (14%) | \$727 | (15%) |
| Tuesday | 36,800 | (14%) | 310 | (13%) | 1,300 | (14%) | \$748 | (15%) |
| Wednesday | 36,900 | (14%) | 330 | (14%) | 1,290 | (14%) | \$670 | (13%) |
| Thursday | 37,200 | (14%) | 340 | (14%) | 1,320 | (14%) | \$680 | (14%) |
| Friday | 37,100 | (14%) | 370 | (16%) | 1,230 | (13%) | \$726 | (14%) |
| Saturday | 39,300 | (15%) | 380 | (16%) | 1,380 | (15%) | \$723 | (14%) |
| Total | 265,300 | (100%) | 2,400 | (100%) | 9,250 | (100%) | \$5,013 | (100%) |
| Daily average | 37,900 | (14%) | 340 | (14%) | 1,320 | (14%) | \$716 | (14%) |

Source: NFIRS 5.0 and NFPA survey.

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

Table 4A.
Reported One- or Two-Family Dwelling Structure Fires by Alarm Time
2003-2006 Annual Averages

| Alarm Time | Fires | | Civilian | | Civilian | | Direct | |
|-----------------------|---------|--------|----------|----------|----------|----------------------------------|---------|--------|
| | | | Deaths | Injuries | Injuries | Property Damage (in Millions) | | |
| Midnight - 12:59 a.m. | 8,300 | (3%) | 160 | (7%) | 380 | (4%) | \$232 | (5%) |
| 1:00 - 1:59 a.m. | 7,100 | (3%) | 180 | (7%) | 380 | (4%) | \$235 | (5%) |
| 2:00 - 2:59 a.m. | 6,600 | (2%) | 160 | (7%) | 390 | (4%) | \$241 | (5%) |
| 3:00 - 3:59 a.m. | 6,000 | (2%) | 190 | (8%) | 390 | (4%) | \$229 | (5%) |
| 4:00 - 4:59 a.m. | 5,500 | (2%) | 160 | (7%) | 340 | (4%) | \$199 | (4%) |
| 5:00 - 5:59 a.m. | 5,300 | (2%) | 160 | (7%) | 290 | (3%) | \$157 | (3%) |
| 6:00 - 6:59 a.m. | 5,900 | (2%) | 130 | (5%) | 260 | (3%) | \$142 | (3%) |
| 7:00 - 7:59 a.m. | 7,100 | (3%) | 90 | (4%) | 250 | (3%) | \$134 | (3%) |
| 8:00 - 8:59 a.m. | 8,500 | (3%) | 100 | (4%) | 310 | (3%) | \$154 | (3%) |
| 9:00 - 9:59 a.m. | 9,900 | (4%) | 70 | (3%) | 370 | (4%) | \$167 | (3%) |
| 10:00 - 10:59 a.m. | 11,000 | (4%) | 60 | (3%) | 380 | (4%) | \$194 | (4%) |
| 11:00 - 11:59 a.m. | 12,100 | (5%) | 60 | (2%) | 360 | (4%) | \$195 | (4%) |
| Noon - 12:59 p.m. | 13,200 | (5%) | 50 | (2%) | 440 | (5%) | \$211 | (4%) |
| 1:00 - 1:59 p.m. | 13,300 | (5%) | 60 | (2%) | 370 | (4%) | \$221 | (4%) |
| 2:00 - 2:59 p.m. | 13,700 | (5%) | 70 | (3%) | 390 | (4%) | \$225 | (4%) |
| 3:00 - 3:59 p.m. | 14,500 | (5%) | 60 | (2%) | 430 | (5%) | \$290 | (6%) |
| 4:00 - 4:59 p.m. | 16,100 | (6%) | 70 | (3%) | 490 | (5%) | \$235 | (5%) |
| 5:00 - 5:59 p.m. | 18,000 | (7%) | 50 | (2%) | 520 | (6%) | \$233 | (5%) |
| 6:00 - 6:59 p.m. | 18,500 | (7%) | 80 | (3%) | 480 | (5%) | \$224 | (4%) |
| 7:00 - 7:59 p.m. | 17,100 | (6%) | 60 | (3%) | 490 | (5%) | \$236 | (5%) |
| 8:00 - 8:59 p.m. | 15,000 | (6%) | 60 | (3%) | 430 | (5%) | \$221 | (4%) |
| 9:00 - 9:59 p.m. | 12,800 | (5%) | 80 | (3%) | 410 | (4%) | \$215 | (4%) |
| 10:00 - 10:59 p.m. | 10,600 | (4%) | 90 | (4%) | 320 | (3%) | \$209 | (4%) |
| 11:00 - 11:59 p.m. | 8,900 | (3%) | 140 | (6%) | 380 | (4%) | \$214 | (4%) |
| Total | 265,300 | (100%) | 2,400 | (100%) | 9,250 | (100%) | \$5,013 | (100%) |
| Average | 11,100 | (4%) | 100 | (4%) | 390 | (4%) | \$209 | (4%) |

Source: NFIRS 5.0 and NFPA survey.

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

Table 5A.
Leading Causes of Reported One- or Two-Family Dwelling Structure Fires
2003-2006 Annual Averages
(Unknowns in Non-Confined Fires Were Allocated Proportionally)

| Cause | Fires | | Civilian Deaths | | Civilian Injuries | | Direct Property Damage (in Millions) | |
|---|--------|-------|-----------------|-------|-------------------|-------|--------------------------------------|-------|
| | | | | | | | | |
| Cooking equipment | 81,400 | (31%) | 330 | (14%) | 2,850 | (31%) | \$545 | (11%) |
| <i>Cooking equipment in non-confined fire</i> | 26,900 | (10%) | 320 | (13%) | 2,050 | (22%) | \$526 | (10%) |
| <i>Confined cooking fire</i> | 54,500 | (21%) | 10 | (0%) | 800 | (9%) | \$19 | (0%) |
| Heating equipment | 57,100 | (22%) | 600 | (25%) | 1,340 | (15%) | \$838 | (17%) |
| <i>Heating equipment in non-confined fire</i> | 24,300 | (9%) | 600 | (25%) | 1,250 | (13%) | \$823 | (16%) |
| <i>Confined chimney or flue fire</i> | 22,600 | (9%) | 0 | (0%) | 30 | (0%) | \$12 | (0%) |
| <i>Confined fuel burner or boiler fire</i> | 10,100 | (4%) | 0 | (0%) | 70 | (1%) | \$3 | (0%) |
| Electrical distribution or lighting equipment | 16,500 | (6%) | 230 | (9%) | 510 | (6%) | \$542 | (11%) |
| Intentional | 14,400 | (5%) | 270 | (11%) | 600 | (6%) | \$422 | (8%) |
| Clothes dryer or washer | 13,500 | (5%) | 20 | (1%) | 360 | (4%) | \$186 | (4%) |
| Candle | 11,600 | (4%) | 120 | (5%) | 1,010 | (11%) | \$363 | (7%) |
| Exposure | 11,200 | (4%) | 10 | (1%) | 80 | (1%) | \$229 | (5%) |
| Smoking materials | 9,200 | (3%) | 550 | (23%) | 760 | (8%) | \$267 | (5%) |
| Playing with heat source | 5,300 | (2%) | 110 | (5%) | 570 | (6%) | \$158 | (3%) |
| Confined trash or rubbish fire | 8,900 | (3%) | 0 | (0%) | 30 | (0%) | \$2 | (0%) |

Source: NFIRS 5.0 and NFPA survey.

Note: This table summarizes findings from multiple fields, meaning that the same fire may be listed under multiple causes. The methodology is used is described in the appendix.

Table 6A.
Reported One- or Two-Family Dwelling Structure Fires
by Equipment Involved in Ignition
2003-2006 Annual Averages
(Unknowns in Non-Confined Fires Were Allocated Proportionally)

| Equipment Involved | Fires | | Civilian Deaths | | Civilian Injuries | | Direct Property Damage (in Millions) | |
|--|----------------|---------------|------------------------|---------------|--------------------------|---------------|---|---------------|
| No equipment involved | 67,400 | (25%) | 870 | (36%) | 3,110 | (34%) | \$2,231 | (45%) |
| Confined cooking fire | 54,500 | (21%) | 10 | (0%) | 800 | (9%) | \$19 | (0%) |
| Confined chimney or flue fire | 22,600 | (9%) | 0 | (0%) | 30 | (0%) | \$12 | (0%) |
| Stove or cooktop | 20,200 | (8%) | 270 | (11%) | 1,690 | (18%) | \$360 | (7%) |
| Clothes dryer or washer | 13,500 | (5%) | 20 | (1%) | 360 | (4%) | \$186 | (4%) |
| Fixed or portable space heater | 12,000 | (5%) | 480 | (20%) | 770 | (8%) | \$397 | (8%) |
| Confined fuel burner or boiler fire | 10,100 | (4%) | 0 | (0%) | 70 | (1%) | \$3 | (0%) |
| Wiring, switch or outlet | 9,000 | (3%) | 130 | (5%) | 240 | (3%) | \$302 | (6%) |
| Water heater | 5,000 | (2%) | 40 | (2%) | 260 | (3%) | \$127 | (3%) |
| Lamp, bulb or lighting | 4,700 | (2%) | 70 | (3%) | 170 | (2%) | \$147 | (3%) |
| Fan | 2,700 | (1%) | 20 | (1%) | 100 | (1%) | \$62 | (1%) |
| Central heat, furnace or boiler | 2,500 | (1%) | 50 | (2%) | 100 | (1%) | \$75 | (1%) |
| Cord or plug | 2,400 | (1%) | 130 | (5%) | 180 | (2%) | \$91 | (2%) |
| Oven or rotisserie | 2,200 | (1%) | 0 | (0%) | 100 | (1%) | \$22 | (0%) |
| Electronic, office or entertainment equipment | 2,000 | (1%) | 10 | (0%) | 90 | (1%) | \$69 | (1%) |
| Air conditioner | 1,900 | (1%) | 10 | (1%) | 70 | (1%) | \$55 | (1%) |
| Portable cooking or warming equipment | 1,800 | (1%) | 30 | (1%) | 120 | (1%) | \$56 | (1%) |
| Unclassified equipment involved in ignition | 1,700 | (1%) | 20 | (1%) | 80 | (1%) | \$69 | (1%) |
| Power switch gear or overcurrent protection device | 1,700 | (1%) | 20 | (1%) | 60 | (1%) | \$45 | (1%) |
| Chimney | 1,700 | (1%) | 20 | (1%) | 40 | (0%) | \$70 | (1%) |
| Torch, burner or soldering iron | 1,500 | (1%) | 10 | (0%) | 70 | (1%) | \$61 | (1%) |
| Other known equipment or confined fire | 15,400 | (6%) | 200 | (8%) | 730 | (8%) | \$553 | (11%) |
| Contained trash or rubbish fire | 8,900 | (3%) | 0 | (0%) | 30 | (0%) | \$2 | (0%) |
| Total | 265,300 | (100%) | 2,400 | (100%) | 9,250 | (100%) | \$5,013 | (100%) |

Source: NFIRS 5.0 and NFPA survey.

Note: 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. Non-confined fires in which the equipment was partially unclassified (i.e., unclassified kitchen or cooking equipment, unclassified heating, cooling or air condition equipment, etc.) were allocated proportionally among fires that grouping (kitchen or cooking equipment; heating, cooling or air conditioning equipment, etc.). Sums may not equal totals due to rounding errors.

Table 7A.
Reported One- or Two-Family Dwelling Structure Fires by Heat Source
2003-2006 Annual Averages
(Unknowns in Non-Confined Fires Were Allocated Proportionally)

| Heat Source | Fires | | Civilian | | Civilian | | Direct | |
|---|----------------|---------------|--------------|---------------|--------------|----------------------------------|----------------|---------------|
| | | | Deaths | Injuries | Injuries | Property Damage (in Millions) | | |
| Confined cooking fire | 54,500 | (21%) | 10 | (0%) | 800 | (9%) | \$19 | (0%) |
| Radiated or conducted heat from operating equipment | 24,800 | (9%) | 330 | (14%) | 1,540 | (17%) | \$669 | (13%) |
| Arcing | 24,700 | (9%) | 280 | (12%) | 720 | (8%) | \$733 | (15%) |
| Confined chimney or flue fire | 22,600 | (9%) | 0 | (0%) | 30 | (0%) | \$12 | (0%) |
| Unclassified heat from powered equipment | 22,200 | (8%) | 170 | (7%) | 1,140 | (12%) | \$515 | (10%) |
| Unclassified heat source | 13,400 | (5%) | 170 | (7%) | 440 | (5%) | \$410 | (8%) |
| Confined fuel burner or boiler fire | 10,100 | (4%) | 0 | (0%) | 70 | (1%) | \$3 | (0%) |
| Unclassified hot or smoldering object | 12,300 | (5%) | 120 | (5%) | 430 | (5%) | \$407 | (8%) |
| Candle | 11,600 | (4%) | 120 | (5%) | 1,010 | (11%) | \$363 | (7%) |
| Hot ember or ash | 10,600 | (4%) | 110 | (5%) | 360 | (4%) | \$328 | (7%) |
| Spark, ember or flame from operating equipment | 10,400 | (4%) | 170 | (7%) | 650 | (7%) | \$311 | (6%) |
| Smoking materials | 9,200 | (3%) | 550 | (23%) | 760 | (8%) | \$267 | (5%) |
| Lighter | 5,600 | (2%) | 160 | (7%) | 590 | (6%) | \$155 | (3%) |
| Lightning | 4,200 | (2%) | 10 | (1%) | 40 | (0%) | \$249 | (5%) |
| Match | 4,100 | (2%) | 70 | (3%) | 250 | (3%) | \$112 | (2%) |
| Radiated heat from another fire | 2,800 | (1%) | 0 | (0%) | 10 | (0%) | \$43 | (1%) |
| Flame or torch used for lighting | 2,000 | (1%) | 30 | (1%) | 110 | (1%) | \$60 | (1%) |
| Heat from direct flame or convection currents | 1,700 | (1%) | 10 | (0%) | 20 | (0%) | \$53 | (1%) |
| Molten or hot material | 1,500 | (1%) | 0 | (0%) | 70 | (1%) | \$41 | (1%) |
| Multiple heat sources including multiple ignitions | 1,400 | (1%) | 30 | (1%) | 40 | (0%) | \$81 | (2%) |
| Other known heat source or confined fire | 6,600 | (2%) | 40 | (2%) | 140 | (2%) | \$183 | (4%) |
| Confined trash or rubbish fire | 8,900 | (3%) | 0 | (0%) | 30 | (0%) | \$2 | (0%) |
| Total | 265,300 | (100%) | 2,400 | (100%) | 9,250 | (100%) | \$5,013 | (100%) |

Source: NFIRS 5.0 and NFPA survey.

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

Table 8A.
Reported One- or Two-Family Dwelling Structure Fires
by Factor Contributing to Ignition
2003-2006 Annual Averages
(Unknowns in Non-Confined Fires Were Allocated Proportionally)

| Factor Contributing | Fires | | Civilian | | Civilian | | Direct | |
|--|---------|--------|----------|----------|----------|----------------------------------|---------|--------|
| | | | Deaths | Injuries | Injuries | Property Damage (in Millions) | | |
| Confined cooking fire | 54,500 | (21%) | 10 | (0%) | 800 | (9%) | \$19 | (0%) |
| Electrical failure or malfunction | 40,800 | (15%) | 480 | (20%) | 1,180 | (13%) | \$1,258 | (25%) |
| Heat source too close to combustible | 23,500 | (9%) | 460 | (19%) | 1,670 | (18%) | \$720 | (14%) |
| Confined chimney or flue fire | 22,600 | (9%) | 0 | (0%) | 30 | (0%) | \$12 | (0%) |
| Abandoned or discarded material | 14,400 | (5%) | 350 | (15%) | 900 | (10%) | \$423 | (8%) |
| Equipment unattended | 11,900 | (4%) | 120 | (5%) | 1,000 | (11%) | \$278 | (6%) |
| Unclassified factor contributed to ignition | 10,500 | (4%) | 230 | (9%) | 550 | (6%) | \$454 | (9%) |
| Unclassified misuse of material or product | 10,200 | (4%) | 260 | (11%) | 930 | (10%) | \$280 | (6%) |
| Confined fuel burner or boiler fire | 10,100 | (4%) | 0 | (0%) | 70 | (1%) | \$3 | (0%) |
| Exposure fire | 9,200 | (3%) | 10 | (0%) | 40 | (0%) | \$179 | (4%) |
| Unclassified mechanical failure or malfunction | 8,700 | (3%) | 60 | (3%) | 220 | (2%) | \$228 | (5%) |
| Playing with heat source | 5,300 | (2%) | 110 | (5%) | 570 | (6%) | \$158 | (3%) |
| Storm | 4,400 | (2%) | 20 | (1%) | 30 | (0%) | \$233 | (5%) |
| Failure to clean | 4,200 | (2%) | 10 | (1%) | 90 | (1%) | \$66 | (1%) |
| Rekindle | 3,300 | (1%) | 0 | (0%) | 0 | (0%) | \$49 | (1%) |
| Unintentionally turned on or not turned off | 3,100 | (1%) | 30 | (1%) | 210 | (2%) | \$89 | (2%) |
| Installation deficiency | 2,500 | (1%) | 20 | (1%) | 80 | (1%) | \$77 | (2%) |
| Leak or break | 2,400 | (1%) | 50 | (2%) | 170 | (2%) | \$87 | (2%) |
| Worn out | 2,100 | (1%) | 20 | (1%) | 50 | (1%) | \$43 | (1%) |
| Unclassified operational deficiency | 2,100 | (1%) | 30 | (1%) | 110 | (1%) | \$63 | (1%) |
| Improper container or storage | 2,000 | (1%) | 10 | (1%) | 90 | (1%) | \$69 | (1%) |
| Flammable liquid or gas spilled | 1,700 | (1%) | 50 | (2%) | 270 | (3%) | \$67 | (1%) |
| Other known factor or confined fire | 15,800 | (6%) | 290 | (12%) | 750 | (8%) | \$551 | (11%) |
| Confined trash or rubbish fire | 8,900 | (3%) | 0 | (0%) | 30 | (0%) | \$2 | (0%) |
| Total entries* | 274,100 | (103%) | 2,640 | (110%) | 9,830 | (106%) | \$5,408 | (108%) |
| Total fires* | 265,300 | (100%) | 2,400 | (100%) | 9,250 | (100%) | \$5,013 | (100%) |

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

Note: Sums may not equal totals due to rounding errors. Non-confined 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 5.0 and NFPA survey.

Table 9A.
Reported One- or Two-Family Dwelling Structure Fires by Area of Origin
2003-2006 Annual Averages
(Unknowns in Non-Confined Fires Were Allocated Proportionally)

| Area of Origin | Fires | | Civilian Deaths | | Civilian Injuries | | Direct Property Damage (in Millions) | |
|---|----------------|---------------|-----------------|---------------|-------------------|---------------|--------------------------------------|---------------|
| Confined cooking fire | 54,500 | (21%) | 10 | (0%) | 800 | (9%) | \$19 | (0%) |
| Kitchen or cooking area | 31,500 | (12%) | 330 | (14%) | 2,140 | (23%) | \$628 | (13%) |
| Bedroom | 22,900 | (9%) | 550 | (23%) | 2,020 | (22%) | \$715 | (14%) |
| Confined chimney or flue fire | 22,600 | (9%) | 0 | (0%) | 30 | (0%) | \$12 | (0%) |
| Living room, family room or den | 11,000 | (4%) | 570 | (24%) | 980 | (11%) | \$434 | (9%) |
| Confined fuel burner or boiler fire | 10,100 | (4%) | 0 | (0%) | 70 | (1%) | \$3 | (0%) |
| Laundry room or area | 8,700 | (3%) | 50 | (2%) | 300 | (3%) | \$163 | (3%) |
| Attic or ceiling/roof assembly or concealed space | 8,500 | (3%) | 30 | (1%) | 90 | (1%) | \$333 | (7%) |
| Unclassified function area | 8,200 | (3%) | 310 | (13%) | 560 | (6%) | \$300 | (6%) |
| Exterior wall surface | 7,900 | (3%) | 0 | (0%) | 80 | (1%) | \$133 | (3%) |
| Garage or vehicle storage area* | 7,100 | (3%) | 40 | (1%) | 350 | (4%) | \$410 | (8%) |
| Wall assembly or concealed space | 6,600 | (2%) | 50 | (2%) | 120 | (1%) | \$177 | (4%) |
| Bathroom | 5,500 | (2%) | 30 | (1%) | 240 | (3%) | \$100 | (2%) |
| Unclassified structural area | 4,900 | (2%) | 90 | (4%) | 170 | (2%) | \$175 | (3%) |
| Crawl space or substructure space | 4,900 | (2%) | 50 | (2%) | 180 | (2%) | \$158 | (3%) |
| Unclassified area of origin | 4,700 | (2%) | 50 | (2%) | 80 | (1%) | \$113 | (2%) |
| Heating equipment room or area | 3,700 | (1%) | 20 | (1%) | 140 | (1%) | \$84 | (2%) |
| Exterior balcony or unenclosed porch | 3,600 | (1%) | 10 | (1%) | 110 | (1%) | \$128 | (3%) |
| Ceiling/floor assembly or concealed space | 3,200 | (1%) | 20 | (1%) | 60 | (1%) | \$164 | (3%) |
| Unclassified outside area | 2,700 | (1%) | 0 | (0%) | 40 | (0%) | \$52 | (1%) |
| Closet | 2,100 | (1%) | 0 | (0%) | 80 | (1%) | \$55 | (1%) |
| Unclassified storage area | 2,000 | (1%) | 10 | (0%) | 70 | (1%) | \$59 | (1%) |
| Exterior roof surface | 1,800 | (1%) | 0 | (0%) | 10 | (0%) | \$76 | (2%) |
| Courtyard, terrace or patio | 1,700 | (1%) | 20 | (1%) | 60 | (1%) | \$78 | (2%) |
| Lobby or entrance way | 1,400 | (1%) | 20 | (1%) | 50 | (1%) | \$40 | (1%) |
| Other known area or confined fire | 14,200 | (5%) | 130 | (5%) | 400 | (4%) | \$403 | (8%) |
| Confined trash or rubbish fire | 8,900 | (3%) | 0 | (0%) | 30 | (0%) | \$2 | (0%) |
| Total | 265,300 | (100%) | 2,400 | (100%) | 9,250 | (100%) | \$5,013 | (100%) |

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

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

Source: NFIRS 5.0 and NFPA survey.

Table 10A.
Reported One- or Two-Family Dwelling Structure Fires by Item First Ignited
2003-2006 Annual Averages
(Unknowns in Non-Confined Fires Were Allocated Proportionally)

| Item First Ignited | Fires | | Civilian Deaths | | Civilian Injuries | | Direct Property Damage | |
|---|----------------|---------------|-----------------|---------------|-------------------|---------------|------------------------|---------------|
| | | | | | | | (in Millions) | |
| Confined trash or rubbish fire | 8,900 | (3%) | 0 | (0%) | 30 | (0%) | \$2 | (0%) |
| Mattress or bedding | 8,400 | (3%) | 280 | (12%) | 980 | (11%) | \$270 | (5%) |
| Flammable or combustible liquid or gas, or piping, hose or filter | 7,500 | (3%) | 210 | (9%) | 910 | (10%) | \$271 | (5%) |
| Interior wall covering | 7,400 | (3%) | 100 | (4%) | 290 | (3%) | \$239 | (5%) |
| Clothing | 6,000 | (2%) | 110 | (4%) | 380 | (4%) | \$132 | (3%) |
| Unclassified structural component or finish | 5,800 | (2%) | 70 | (3%) | 130 | (1%) | \$234 | (5%) |
| Upholstered furniture | 5,600 | (2%) | 500 | (21%) | 610 | (7%) | \$338 | (7%) |
| Insulation within structural area | 5,400 | (2%) | 10 | (0%) | 80 | (1%) | \$108 | (2%) |
| Unclassified furniture or utensil | 4,600 | (2%) | 150 | (6%) | 360 | (4%) | \$163 | (3%) |
| Appliance housing or casing | 4,600 | (2%) | 30 | (1%) | 190 | (2%) | \$86 | (2%) |
| Floor covering rug, carpet, or mat | 4,400 | (2%) | 110 | (5%) | 220 | (2%) | \$131 | (3%) |
| Rubbish, trash, or waste | 4,000 | (2%) | 40 | (2%) | 150 | (2%) | \$99 | (2%) |
| Cabinetry, including built-in | 4,000 | (2%) | 40 | (2%) | 210 | (2%) | \$134 | (3%) |
| Multiple items first ignited | 3,400 | (1%) | 90 | (4%) | 170 | (2%) | \$153 | (3%) |
| Unclassified soft goods or wearing apparel | 2,900 | (1%) | 40 | (2%) | 170 | (2%) | \$69 | (1%) |
| Exterior roof covering or finish | 2,600 | (1%) | 0 | (0%) | 10 | (0%) | \$126 | (3%) |
| Magazine, newspaper or writing paper | 2,500 | (1%) | 40 | (2%) | 160 | (2%) | \$72 | (1%) |
| Dust, fiber, lint, including sawdust or excelsior | 2,400 | (1%) | 0 | (0%) | 50 | (0%) | \$28 | (1%) |
| Interior ceiling cover or finish | 2,400 | (1%) | 20 | (1%) | 40 | (0%) | \$89 | (2%) |
| Box, carton, bag, basket or barrel | 2,200 | (1%) | 10 | (1%) | 90 | (1%) | \$79 | (2%) |
| Curtain, blind, drapery or tapestry | 2,100 | (1%) | 20 | (1%) | 150 | (2%) | \$50 | (1%) |
| Household utensil | 1,800 | (1%) | 10 | (0%) | 90 | (1%) | \$28 | (1%) |
| Linen other than bedding | 1,800 | (1%) | 20 | (1%) | 90 | (1%) | \$29 | (1%) |
| Light vegetation including grass | 1,700 | (1%) | 0 | (0%) | 20 | (0%) | \$33 | (1%) |
| Unclassified organic material | 1,500 | (1%) | 10 | (0%) | 30 | (0%) | \$33 | (1%) |
| Exterior trim, including doors | 1,400 | (1%) | 0 | (0%) | 20 | (0%) | \$36 | (1%) |
| Other known item or confined fire | 6,400 | (2%) | 50 | (2%) | 260 | (3%) | \$169 | (3%) |
| Total | 265,300 | (100%) | 2,400 | (100%) | 9,250 | (100%) | \$5,013 | (100%) |

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

Source: NFIRS 5.0 and NFPA survey.

Table 11A.
Reported One- or Two-Family Dwelling Structure Fires
by Extent of Flame Damage
2003-2006 Annual Averages
(Unknowns in Non-Confined Fires Were Allocated Proportionally)

| Extent of Flame Damage | Fires | | Civilian | | Civilian | | Direct | |
|---------------------------------------|---------|--------|----------|----------|----------|----------------------------------|---------|--------|
| | | | Deaths | Injuries | Injuries | Property Damage (in Millions) | | |
| Confined or contained fire | 96,600 | (36%) | 10 | (0%) | 930 | (10%) | \$36 | (1%) |
| Confined to object of origin | 46,100 | (17%) | 170 | (7%) | 1,110 | (12%) | \$382 | (8%) |
| Confined to room of origin | 48,400 | (18%) | 300 | (12%) | 2,900 | (31%) | \$619 | (12%) |
| Confined to floor of origin | 13,600 | (5%) | 210 | (9%) | 1,010 | (11%) | \$478 | (10%) |
| Confined to building of origin | 51,800 | (20%) | 1,380 | (58%) | 2,680 | (29%) | \$2,926 | (58%) |
| Extended beyond building of origin | 8,900 | (3%) | 330 | (14%) | 620 | (7%) | \$574 | (11%) |
| Total | 265,300 | (100%) | 2,400 | (100%) | 9,250 | (100%) | \$5,013 | (100%) |

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

Source: NFIRS 5.0 and NFPA survey.

**Table 1B.
Reported Apartment Structure Fires
by Year: 1980-2007**

| Year | Fires | Civilian Deaths | Civilian Injuries | Direct Property Damage (in Millions) | |
|-------------|--------------|----------------------------|------------------------------|---|------------------------|
| | | | | As Reported | In 2006 Dollars |
| 1980 | 143,500 | 1,025 | 3,600 | \$401 | \$1,011 |
| 1981 | 137,000 | 970 | 4,250 | \$415 | \$945 |
| 1982 | 116,500 | 860 | 4,700 | \$353 | \$758 |
| 1983 | 102,000 | 845 | 4,300 | \$413 | \$859 |
| 1984 | 99,500 | 785 | 3,650 | \$417 | \$831 |
| 1985 | 104,500 | 865 | 3,925 | \$476 | \$916 |
| 1986 | 97,500 | 650 | 3,925 | \$472 | \$894 |
| 1987 | 103,500 | 790 | 4,765 | \$521 | \$951 |
| 1988 | 106,000 | 830 | 4,950 | \$548 | \$962 |
| 1989 | 96,000 | 790 | 5,050 | \$541 | \$906 |
| 1990 | 95,500 | 680 | 4,975 | \$623 | \$990 |
| 1991 | 101,500 | 595 | 5,675 | \$609 | \$927 |
| 1992 | 101,000 | 545 | 5,825 | \$597 | \$883 |
| 1993 | 100,000 | 685 | 6,300 | \$653 | \$938 |
| 1994 | 97,000 | 640 | 5,475 | \$678 | \$949 |
| 1995 | 94,000 | 605 | 5,200 | \$649 | \$883 |
| 1996 | 93,000 | 565 | 5,175 | \$748 | \$990 |
| 1997 | 93,000 | 660 | 5,000 | \$718 | \$928 |
| 1998 | 86,500 | 445 | 5,000 | \$631 | \$804 |
| 1999 | 88,500 | 520 | 4,500 | \$842 | \$1,048 |
| 2000 | 84,500 | 500 | 4,400 | \$886 | \$1,068 |
| 2001 | 88,000 | 460 | 3,800 | \$864 | \$1,013 |
| 2002 | 88,500 | 390 | 3,700 | \$926 | \$1,068 |
| 2003 | 91,500 | 410 | 3,650 | \$897 | \$1,012 |
| 2004 | 94,000 | 510 | 3,200 | \$885 | \$973 |
| 2005 | 94,000 | 460 | 3,000 | \$948 | \$1,007 |
| 2006 | 91,500 | 425 | 3,700 | \$896 | \$922 |
| 2007 | 98,500 | 515 | 3,950 | \$1,164 | \$1,164 |

Source: *Fire Loss in the United States* series of NFPA annual reports by Michael J. Karter, Jr. Inflation adjustments were based on the Consumer Price Index Purchasing Power of the Dollar.

**Table 2B.
Reported Apartment Structure Fires by Month
2003-2006 Annual Averages**

| Month | Fires | | Civilian | | Civilian | | Direct | |
|-----------------|---------|--------|----------|----------|----------|----------------------------------|---------|--------|
| | | | Deaths | Injuries | Injuries | Property Damage (in Millions) | | |
| January | 10,800 | (9%) | 50 | (12%) | 380 | (10%) | \$119 | (10%) |
| February | 9,600 | (8%) | 60 | (12%) | 350 | (9%) | \$88 | (8%) |
| March | 10,100 | (9%) | 50 | (12%) | 360 | (9%) | \$105 | (9%) |
| April | 9,500 | (8%) | 40 | (9%) | 330 | (9%) | \$101 | (9%) |
| May | 9,100 | (8%) | 30 | (7%) | 290 | (8%) | \$84 | (7%) |
| June | 8,300 | (7%) | 30 | (6%) | 270 | (7%) | \$96 | (8%) |
| July | 8,300 | (7%) | 20 | (5%) | 300 | (8%) | \$86 | (8%) |
| August | 8,000 | (7%) | 30 | (7%) | 330 | (9%) | \$99 | (9%) |
| September | 8,400 | (7%) | 30 | (7%) | 270 | (7%) | \$77 | (7%) |
| October | 9,900 | (9%) | 30 | (7%) | 310 | (8%) | \$73 | (6%) |
| November | 10,000 | (9%) | 30 | (6%) | 290 | (8%) | \$85 | (8%) |
| December | 11,200 | (10%) | 40 | (9%) | 350 | (9%) | \$118 | (10%) |
| Total | 113,300 | (100%) | 450 | (100%) | 3,840 | (100%) | \$1,132 | (100%) |
| Monthly average | 9,400 | (8%) | 40 | (8%) | 320 | (8%) | \$94 | (8%) |

**Table 3B.
Reported Apartment Structure Fires by Day of Week
2003-2006 Annual Averages**

| Day of Week | Fires | | Civilian | | Civilian | | Direct | |
|---------------|---------|--------|----------|----------|----------|----------------------------------|---------|--------|
| | | | Deaths | Injuries | Injuries | Property Damage (in Millions) | | |
| Sunday | 18,400 | (16%) | 70 | (16%) | 610 | (16%) | \$187 | (17%) |
| Monday | 15,500 | (14%) | 60 | (14%) | 550 | (14%) | \$172 | (15%) |
| Tuesday | 15,300 | (14%) | 60 | (13%) | 520 | (13%) | \$158 | (14%) |
| Wednesday | 15,200 | (13%) | 50 | (12%) | 490 | (13%) | \$140 | (12%) |
| Thursday | 15,500 | (14%) | 60 | (14%) | 590 | (15%) | \$144 | (13%) |
| Friday | 15,600 | (14%) | 60 | (14%) | 530 | (14%) | \$155 | (14%) |
| Saturday | 17,700 | (16%) | 80 | (18%) | 560 | (15%) | \$175 | (15%) |
| Total | 113,300 | (100%) | 450 | (100%) | 3,840 | (100%) | \$1,132 | (100%) |
| Daily average | 16,200 | (14%) | 60 | (14%) | 550 | (14%) | \$162 | (14%) |

Source: NFIRS 5.0 and NFPA survey.

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

Table 4B.
Reported Apartment Structure Fires by Alarm Time
2003-2006 Annual Averages

| Alarm Time | Fires | | Civilian | | Civilian | | Direct | |
|-----------------------|---------|--------|----------|----------|-----------------|---------------|---------|--------|
| | | | Deaths | Injuries | Property Damage | (in Millions) | | |
| Midnight - 12:59 a.m. | 3,700 | (3%) | 20 | (4%) | 130 | (3%) | \$39 | (3%) |
| 1:00 - 1:59 a.m. | 3,000 | (3%) | 30 | (7%) | 180 | (5%) | \$61 | (5%) |
| 2:00 - 2:59 a.m. | 2,600 | (2%) | 30 | (7%) | 160 | (4%) | \$49 | (4%) |
| 3:00 - 3:59 a.m. | 2,300 | (2%) | 40 | (9%) | 170 | (5%) | \$58 | (5%) |
| 4:00 - 4:59 a.m. | 2,100 | (2%) | 30 | (6%) | 130 | (3%) | \$54 | (5%) |
| 5:00 - 5:59 a.m. | 1,900 | (2%) | 30 | (6%) | 120 | (3%) | \$33 | (3%) |
| 6:00 - 6:59 a.m. | 2,100 | (2%) | 20 | (3%) | 100 | (3%) | \$38 | (3%) |
| 7:00 - 7:59 a.m. | 2,500 | (2%) | 20 | (4%) | 110 | (3%) | \$27 | (2%) |
| 8:00 - 8:59 a.m. | 3,100 | (3%) | 20 | (4%) | 120 | (3%) | \$27 | (2%) |
| 9:00 - 9:59 a.m. | 3,700 | (3%) | 20 | (3%) | 130 | (3%) | \$25 | (2%) |
| 10:00 - 10:59 a.m. | 4,500 | (4%) | 20 | (4%) | 140 | (4%) | \$45 | (4%) |
| 11:00 - 11:59 a.m. | 5,000 | (4%) | 10 | (3%) | 150 | (4%) | \$42 | (4%) |
| Noon - 12:59 p.m. | 5,700 | (5%) | 10 | (2%) | 140 | (4%) | \$42 | (4%) |
| 1:00 - 1:59 p.m. | 5,700 | (5%) | 10 | (3%) | 180 | (5%) | \$50 | (4%) |
| 2:00 - 2:59 p.m. | 5,900 | (5%) | 10 | (3%) | 180 | (5%) | \$57 | (5%) |
| 3:00 - 3:59 p.m. | 6,300 | (6%) | 10 | (3%) | 160 | (4%) | \$58 | (5%) |
| 4:00 - 4:59 p.m. | 6,900 | (6%) | 20 | (4%) | 190 | (5%) | \$60 | (5%) |
| 5:00 - 5:59 p.m. | 7,900 | (7%) | 10 | (3%) | 200 | (5%) | \$74 | (7%) |
| 6:00 - 6:59 p.m. | 8,200 | (7%) | 20 | (3%) | 210 | (6%) | \$57 | (5%) |
| 7:00 - 7:59 p.m. | 7,900 | (7%) | 10 | (3%) | 230 | (6%) | \$51 | (5%) |
| 8:00 - 8:59 p.m. | 7,100 | (6%) | 20 | (5%) | 210 | (5%) | \$46 | (4%) |
| 9:00 - 9:59 p.m. | 6,100 | (5%) | 20 | (3%) | 170 | (4%) | \$46 | (4%) |
| 10:00 - 10:59 p.m. | 5,000 | (4%) | 20 | (4%) | 170 | (4%) | \$44 | (4%) |
| 11:00 - 11:59 p.m. | 4,100 | (4%) | 20 | (5%) | 160 | (4%) | \$48 | (4%) |
| Total | 113,300 | (100%) | 450 | (100%) | 3,840 | (100%) | \$1,132 | (100%) |
| Average | 4,700 | (4%) | 20 | (4%) | 160 | (4%) | \$47 | (4%) |

Source: NFIRS 5.0 and NFPA survey.

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

Table 5B.
Leading Causes of Reported Apartment Structure Fires
2003-2006 Annual Averages
(Unknowns in Non-Confined Fires Were Allocated Proportionally)

| Cause | Fires | | Civilian Deaths | | Civilian Injuries | | Direct Property Damage | |
|---|--------|-------|-----------------|-------|-------------------|-------|------------------------|-------|
| | | | | | | | (in Millions) | |
| Cooking equipment | 68,000 | (60%) | 140 | (31%) | 1,800 | (47%) | \$207 | (18%) |
| <i>Cooking equipment in non-confined fire</i> | 9,600 | (8%) | 140 | (31%) | 1,120 | (29%) | \$198 | (17%) |
| <i>Confined cooking fire</i> | 58,400 | (52%) | 0 | (0%) | 670 | (17%) | \$9 | (1%) |
| Heating equipment | 10,000 | (9%) | 40 | (9%) | 260 | (7%) | \$110 | (10%) |
| <i>Heating equipment in non-confined fire</i> | 3,900 | (3%) | 40 | (9%) | 240 | (6%) | \$109 | (10%) |
| <i>Confined fuel burner or boiler fire</i> | 6,100 | (5%) | 0 | (0%) | 20 | (1%) | \$1 | (0%) |
| Smoking materials | 4,000 | (4%) | 150 | (33%) | 470 | (12%) | \$155 | (14%) |
| Intentional | 3,500 | (3%) | 50 | (11%) | 280 | (7%) | \$120 | (11%) |
| Candle | 3,200 | (3%) | 30 | (7%) | 340 | (9%) | \$108 | (10%) |
| Electrical distribution or lighting | 2,700 | (2%) | 30 | (7%) | 150 | (4%) | \$107 | (9%) |
| Exposure to other hostile fire | 2,100 | (2%) | 0 | (0%) | 70 | (2%) | \$17 | (1%) |
| Clothes dryer or washer | 2,200 | (2%) | 10 | (2%) | 20 | (1%) | \$101 | (9%) |
| Confined trash or rubbish fire | 6,700 | (6%) | 0 | (0%) | 20 | (1%) | \$1 | (0%) |

Source: NFIRS 5.0 and NFPA survey.

Note: This table summarizes findings from multiple fields, meaning that the same fire may be listed under multiple causes. The methodology is used is described in the appendix.

Table 6B.
Reported Apartment Structure Fires by Equipment Involved in Ignition
2003-2006 Annual Averages
(Unknowns in Non-Confined Fires Were Allocated Proportionally)

| Equipment Involved | Fires | | Civilian Deaths | | Civilian Injuries | | Direct Property Damage (in Millions) | |
|--|----------------|---------------|------------------------|---------------|--------------------------|---------------|---|---------------|
| Confined cooking fire | 58,400 | (52%) | 0 | (0%) | 670 | (18%) | \$9 | (1%) |
| No equipment involved | 17,200 | (15%) | 210 | (47%) | 1,220 | (32%) | \$543 | (48%) |
| Stove or cooktop | 7,800 | (7%) | 130 | (30%) | 1,000 | (26%) | \$144 | (13%) |
| Confined fuel burner or boiler fire | 6,100 | (5%) | 0 | (0%) | 20 | (1%) | \$1 | (0%) |
| Fixed or portable space heater | 2,400 | (2%) | 30 | (6%) | 180 | (5%) | \$58 | (5%) |
| Clothes washer or dryer | 2,100 | (2%) | 0 | (0%) | 70 | (2%) | \$17 | (1%) |
| Confined commercial compactor fire | 1,800 | (2%) | 0 | (0%) | 0 | (0%) | \$0 | (0%) |
| Wiring, switch or outlet | 1,200 | (1%) | 10 | (2%) | 40 | (1%) | \$52 | (5%) |
| Water heater | 900 | (1%) | 10 | (2%) | 40 | (1%) | \$13 | (1%) |
| Lamp, bulb or lighting | 800 | (1%) | 0 | (1%) | 60 | (2%) | \$23 | (2%) |
| Fan | 800 | (1%) | 0 | (0%) | 20 | (1%) | \$31 | (3%) |
| Oven or rotisserie | 800 | (1%) | 0 | (0%) | 40 | (1%) | \$4 | (0%) |
| Confined chimney or flue fire | 700 | (1%) | 0 | (0%) | 10 | (0%) | \$0 | (0%) |
| Other known equipment or confined fire | 5,500 | (5%) | 50 | (12%) | 440 | (12%) | \$236 | (21%) |
| Confined trash or rubbish fire | 6,700 | (6%) | 0 | (0%) | 20 | (1%) | \$1 | (0%) |
| Total | 113,300 | (100%) | 450 | (100%) | 3,840 | (100%) | \$1,132 | (100%) |

Source: NFIRS 5.0 and NFPA survey.

Note: 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. Non-confined fires in which the equipment was partially unclassified (i.e., unclassified kitchen or cooking equipment, unclassified heating, cooling or air condition equipment, etc.) were allocated proportionally among fires that grouping (kitchen or cooking equipment; heating, cooling or air conditioning equipment, etc.). Sums may not equal totals due to rounding errors.

Table 7B.
Reported Apartment Structure Fires by Heat Source
2003-2006 Annual Averages
(Unknowns in Non-Confined Fires Were Allocated Proportionally)

| Heat Source | Fires | | Civilian Deaths | | Civilian Injuries | | Direct Property Damage (in Millions) | |
|---|----------------|---------------|------------------------|---------------|--------------------------|---------------|---|---------------|
| Confined cooking fire | 58,400 | (52%) | 0 | (0%) | 670 | (18%) | \$9 | (1%) |
| Radiated or conducted heat from operating equipment | 7,200 | (6%) | 70 | (15%) | 690 | (18%) | \$136 | (12%) |
| Confined fuel burner or boiler fire | 6,100 | (5%) | 0 | (0%) | 20 | (1%) | \$1 | (0%) |
| Unclassified heat from powered equipment | 6,000 | (5%) | 30 | (6%) | 450 | (12%) | \$125 | (11%) |
| Smoking materials | 4,000 | (4%) | 150 | (33%) | 470 | (12%) | \$155 | (14%) |
| Arcing | 3,600 | (3%) | 20 | (5%) | 130 | (3%) | \$117 | (10%) |
| Candle | 3,200 | (3%) | 30 | (7%) | 340 | (9%) | \$108 | (10%) |
| Unclassified hot or smoldering object | 3,000 | (3%) | 30 | (7%) | 170 | (4%) | \$63 | (6%) |
| Unclassified heat source | 2,700 | (2%) | 10 | (2%) | 180 | (5%) | \$66 | (6%) |
| Spark, ember or flame from operating equipment | 2,500 | (2%) | 20 | (6%) | 150 | (4%) | \$60 | (5%) |
| Confined incinerator or compactor fire | 2,000 | (2%) | 0 | (0%) | 0 | (0%) | \$0 | (0%) |
| Hot ember or ash | 1,800 | (2%) | 20 | (4%) | 100 | (3%) | \$61 | (5%) |
| Lighter | 1,500 | (1%) | 40 | (9%) | 260 | (7%) | \$58 | (5%) |
| Match | 900 | (1%) | 10 | (2%) | 70 | (2%) | \$26 | (2%) |
| Confined chimney or flue fire | 700 | (1%) | 0 | (0%) | 10 | (0%) | \$0 | (0%) |
| Other known heat source | 2,900 | (7%) | 10 | (3%) | 120 | (4%) | \$144 | (13%) |
| Confined trash or rubbish fire | 6,700 | (6%) | 0 | (0%) | 20 | (1%) | \$1 | (0%) |
| Total | 113,300 | (165%) | 450 | (100%) | 3,840 | (119%) | \$1,132 | (101%) |

Source: NFIRS 5.0 and NFPA survey.

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

Table 8B.
Reported Apartment Structure Fires by Factor Contributing to Ignition
2003-2006 Annual Averages
(Unknowns in Non-Confined Fires Were Allocated Proportionally)

| Factor Contributing | Fires | | Civilian Deaths | | Civilian Injuries | | Direct Property Damage (in Millions) | |
|---|--------------|--------|------------------------|--------|--------------------------|--------|---|--------|
| Confined cooking fire | 58,400 | (52%) | 0 | (0%) | 670 | (18%) | \$9 | (1%) |
| Abandoned or discarded material | 6,200 | (5%) | 100 | (23%) | 500 | (13%) | \$186 | (16%) |
| Confined fuel burner or boiler fire | 6,100 | (5%) | 0 | (0%) | 20 | (1%) | \$1 | (0%) |
| Heat source too close to combustible | 6,100 | (5%) | 100 | (22%) | 570 | (15%) | \$173 | (15%) |
| Electrical failure or malfunction | 5,900 | (5%) | 40 | (9%) | 250 | (6%) | \$194 | (17%) |
| Equipment unattended | 5,000 | (4%) | 50 | (12%) | 530 | (14%) | \$93 | (8%) |
| Unclassified misuse of material or product, other | 3,600 | (3%) | 50 | (11%) | 480 | (12%) | \$80 | (7%) |
| Confined incinerator or compactor fire | 2,000 | (2%) | 0 | (0%) | 0 | (0%) | \$0 | (0%) |
| Unclassified factor contributed to ignition | 2,400 | (2%) | 30 | (7%) | 230 | (6%) | \$81 | (7%) |
| Exposure fire | 2,200 | (2%) | 10 | (2%) | 20 | (0%) | \$99 | (9%) |
| Unclassified mechanical failure or malfunction | 1,500 | (1%) | 0 | (1%) | 40 | (1%) | \$26 | (2%) |
| Playing with heat source | 1,400 | (1%) | 20 | (4%) | 230 | (6%) | \$54 | (5%) |
| Unintentionally turned on, not turned off | 1,200 | (1%) | 10 | (2%) | 90 | (2%) | \$29 | (3%) |
| Confined chimney or flue fire | 700 | (1%) | 0 | (0%) | 10 | (0%) | \$0 | (0%) |
| Other known factor | 5,700 | (5%) | 60 | (14%) | 360 | (9%) | \$206 | (12%) |
| Confined trash or rubbish fire | 6,700 | (6%) | 0 | (0%) | 20 | (1%) | \$1 | (0%) |
| Total entries | 115,000 | (102%) | 480 | (107%) | 4,020 | (105%) | \$1,232 | (109%) |
| Total fires* | 113,300 | (100%) | 450 | (100%) | 3,840 | (100%) | \$1,132 | (100%) |

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

Note: Sums may not equal totals due to rounding errors. Non-confined 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 5.0 and NFPA survey.

Table 9B.
Reported Apartment Structure Fires by Area of Origin
2003-2006 Annual Averages
(Unknowns in Non-Confined Fires Were Allocated Proportionally)

| Area of Origin | Fires | | Civilian | | Civilian | | Direct | |
|---|----------------|---------------|------------|---------------|--------------|----------------------------------|----------------|---------------|
| | | | Deaths | Injuries | Injuries | Property Damage (in Millions) | | |
| Confined cooking fire | 58,400 | (52%) | 0 | (0%) | 670 | (18%) | \$9 | (1%) |
| Kitchen or cooking area | 12,300 | (11%) | 100 | (22%) | 1,110 | (29%) | \$195 | (17%) |
| Bedroom | 6,400 | (6%) | 120 | (27%) | 790 | (21%) | \$205 | (18%) |
| Confined fuel burner or boiler fire | 6,100 | (5%) | 0 | (0%) | 20 | (1%) | \$1 | (0%) |
| Living room, family room or den | 2,600 | (2%) | 90 | (21%) | 360 | (9%) | \$106 | (9%) |
| Confined incinerator or compactor fire | 2,000 | (2%) | 0 | (0%) | 0 | (0%) | \$0 | (0%) |
| Bathroom | 1,600 | (1%) | 10 | (1%) | 80 | (2%) | \$35 | (3%) |
| Unclassified function area | 1,600 | (1%) | 50 | (10%) | 190 | (5%) | \$61 | (5%) |
| Laundry room or area | 1,500 | (1%) | 0 | (1%) | 60 | (1%) | \$19 | (2%) |
| Exterior balcony or unenclosed porch | 1,300 | (1%) | 10 | (1%) | 50 | (1%) | \$76 | (7%) |
| Wall assembly or concealed space | 900 | (1%) | 0 | (0%) | 30 | (1%) | \$31 | (3%) |
| Exterior wall surface | 800 | (1%) | 0 | (0%) | 20 | (0%) | \$32 | (3%) |
| Unclassified | 700 | (1%) | 10 | (2%) | 20 | (1%) | \$16 | (1%) |
| Confined chimney or flue fire | 700 | (1%) | 0 | (0%) | 10 | (0%) | \$0 | (0%) |
| Closet | 700 | (1%) | 0 | (0%) | 40 | (1%) | \$16 | (1%) |
| Attic or ceiling/roof assembly or concealed space | 700 | (1%) | 0 | (0%) | 10 | (0%) | \$60 | (5%) |
| Hallway | 600 | (1%) | 10 | (2%) | 20 | (0%) | \$6 | (0%) |
| Interior stairway or ramp | 600 | (1%) | 10 | (3%) | 40 | (1%) | \$14 | (1%) |
| Heating equipment room | 600 | (1%) | 0 | (0%) | 30 | (1%) | \$13 | (1%) |
| Ceiling/floor assembly or concealed space | 600 | (1%) | 0 | (1%) | 20 | (0%) | \$30 | (3%) |
| Other known area | 5,800 | (5%) | 40 | (8%) | 270 | (7%) | \$205 | (18%) |
| Contained trash or rubbish fire | 6,700 | (6%) | 0 | (0%) | 20 | (1%) | \$1 | (0%) |
| Total | 113,300 | (100%) | 450 | (100%) | 3,840 | (100%) | \$1,132 | (100%) |

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

Source: NFIRS 5.0 and NFPA survey.

Table 10B.
Reported Apartment Structure Fires by Item First Ignited
2003-2006 Annual Averages
(Unknowns in Non-Confined Fires Were Allocated Proportionally)

| Item First Ignited | Fires | | Civilian Deaths | | Civilian Injuries | | Direct Property Damage (in Millions) | |
|---|----------------|---------------|------------------------|---------------|--------------------------|---------------|---|---------------|
| Confined cooking fire | 58,400 | (52%) | 0 | (0%) | 670 | (18%) | \$9 | (1%) |
| Cooking materials, including food | 7,300 | (6%) | 30 | (8%) | 810 | (21%) | \$101 | (9%) |
| Confined trash or rubbish fire | 6,700 | (6%) | 0 | (0%) | 20 | (1%) | \$1 | (0%) |
| Confined fuel burner or boiler fire | 6,100 | (5%) | 0 | (0%) | 20 | (1%) | \$1 | (0%) |
| Mattress or bedding | 2,800 | (2%) | 90 | (20%) | 420 | (11%) | \$96 | (9%) |
| Structural member or framing | 2,400 | (2%) | 10 | (2%) | 50 | (1%) | \$163 | (14%) |
| Electrical wire or cable insulation | 2,200 | (2%) | 10 | (1%) | 70 | (2%) | \$58 | (5%) |
| Unclassified item first ignited | 2,100 | (2%) | 10 | (3%) | 140 | (4%) | \$38 | (3%) |
| Confined incinerator or compactor fire | 2,000 | (2%) | 0 | (0%) | 0 | (0%) | \$0 | (0%) |
| Upholstered furniture | 1,800 | (2%) | 90 | (20%) | 290 | (8%) | \$78 | (7%) |
| Clothing | 1,500 | (1%) | 40 | (8%) | 130 | (3%) | \$27 | (2%) |
| Exterior wall covering or finish | 1,400 | (1%) | 0 | (1%) | 40 | (1%) | \$54 | (5%) |
| Unclassified furniture or utensil | 1,300 | (1%) | 20 | (5%) | 140 | (4%) | \$58 | (5%) |
| Rubbish, trash, or waste | 1,200 | (1%) | 10 | (3%) | 70 | (2%) | \$26 | (2%) |
| Appliance housing or casing | 1,200 | (1%) | 10 | (1%) | 80 | (2%) | \$14 | (1%) |
| Cabinetry, including built-in | 1,200 | (1%) | 10 | (2%) | 90 | (2%) | \$23 | (2%) |
| Floor covering rug, carpet, or mat | 1,000 | (1%) | 10 | (2%) | 70 | (2%) | \$28 | (2%) |
| Unclassified structural component or finish | 900 | (1%) | 10 | (3%) | 30 | (1%) | \$43 | (4%) |
| Magazine, newspaper, writing paper | 800 | (1%) | 10 | (2%) | 50 | (1%) | \$16 | (1%) |
| Interior wall covering | 800 | (1%) | 20 | (4%) | 50 | (1%) | \$27 | (2%) |
| Unclassified soft goods or wearing apparel | 800 | (1%) | 10 | (2%) | 50 | (1%) | \$13 | (1%) |
| Household utensil | 700 | (1%) | 0 | (0%) | 50 | (1%) | \$11 | (1%) |
| Multiple items first ignited | 700 | (1%) | 10 | (3%) | 50 | (1%) | \$34 | (3%) |
| Confined chimney or flue fire | 700 | (1%) | 0 | (0%) | 10 | (0%) | \$0 | (0%) |
| Box, carton, bag, basket or barrel | 700 | (1%) | 0 | (0%) | 50 | (1%) | \$24 | (2%) |
| Insulation within structural area | 600 | (1%) | 0 | (0%) | 20 | (0%) | \$24 | (2%) |
| Other known area | 5,800 | (5%) | 0 | (10%) | 400 | (10%) | \$200 | (15%) |
| Total | 113,300 | (100%) | 500 | (100%) | 3,800 | (100%) | \$1,100 | (100%) |

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

Source: NFIRS 5.0 and NFPA survey.

Table 11B.
Reported Apartment Structure Fires by Extent of Flame Damage
2003-2006 Annual Averages
(Unknowns in Non-Confined Fires Were Allocated Proportionally)

| Extent of Flame Damage | Fires | | Civilian Deaths | | Civilian Injuries | | Direct Property Damage (in Millions) | |
|------------------------------------|----------------|---------------|------------------------|---------------|--------------------------|---------------|---|---------------|
| Confined or contained fire | 73,900 | (65%) | 0 | (0%) | 720 | (19%) | \$11 | (1%) |
| Confined to object of origin | 13,400 | (12%) | 40 | (8%) | 530 | (14%) | \$66 | (6%) |
| Confined to room of origin | 15,800 | (14%) | 130 | (29%) | 1,350 | (35%) | \$152 | (13%) |
| Confined to floor of origin | 3,500 | (3%) | 70 | (16%) | 440 | (11%) | \$139 | (12%) |
| Confined to building of origin | 5,700 | (5%) | 180 | (40%) | 700 | (18%) | \$593 | (52%) |
| Extended beyond building of origin | 900 | (1%) | 30 | (6%) | 100 | (3%) | \$170 | (15%) |
| Total | 113,300 | (100%) | 450 | (100%) | 3,840 | (100%) | \$1,132 | (100%) |

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

Source: NFIRS 5.0 and NFPA survey.

Appendix A.

How National Estimates Statistics Are Calculated

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

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

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

Methodology may change slightly from year to year.

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

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

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

The survey is stratified by size of population protected to reduce the uncertainty of the final estimate. Small rural communities have fewer people protected per department and are less likely to respond to the survey. A larger number must be surveyed to obtain an adequate sample of those departments. (NFPA also makes follow-up calls to a sample of the smaller fire departments that do not respond, to confirm that those that did respond are truly representative of fire departments their size.) On the other hand, large city departments are so few in number and protect such a large proportion of the total U.S. population that it makes sense to survey all of them. Most respond, resulting in excellent precision for their part of the final estimate.

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

Projecting NFIRS to National Estimates

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

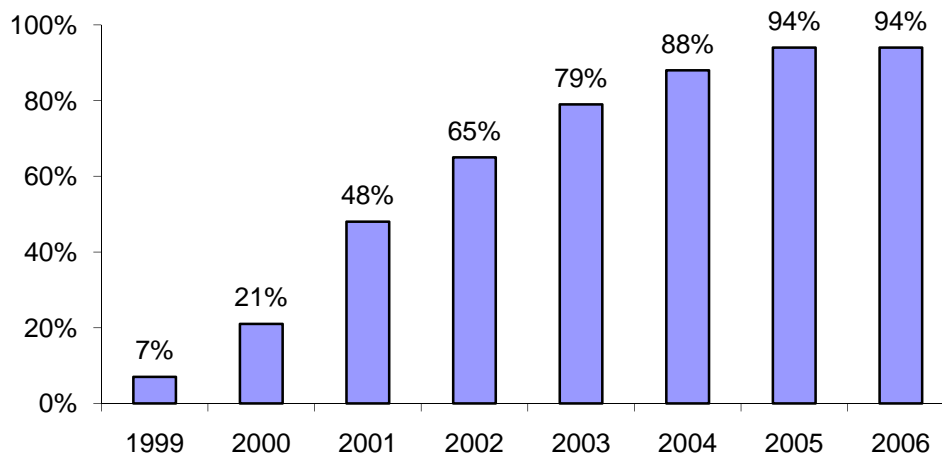
Scaling ratios are obtained by comparing NFPA's projected totals of residential structure fires, non-residential structure fires, vehicle fires, and outside and other fires, and associated civilian deaths, civilian injuries, and direct property damage with comparable totals in NFIRS. Estimates of specific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

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

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

Figure 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.

Figure 1. Fires Originally Collected in NFIRS 5.0 by Year



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.

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

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

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

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

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

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

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

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

In some analyses, all entries in the category of electrical failure or malfunction (factor contributing to ignition 30-39) are combined and shown as “electrical failure or malfunction.” This category includes:

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

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:

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

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, fuse;
- 68. Backfire from internal combustion engine. Excludes flames and sparks from an exhaust system, (11); and
- 69. Flame/torch used for lighting. Includes gas light and gas-/liquid-fueled lantern.

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

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

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

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

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

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

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

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

| Code Grouping | EII Code | NFIRS definitions |
|--|--|--|
| Central heat | 132 | Furnace or central heating unit |
| | 133 | Boiler (power, process or heating) |
| Fixed or portable space heater | 131 | Furnace, local heating unit, built-in |
| | 123 | Fireplace with insert or stove |
| | 124 | Heating stove |
| | 141 | Heater, excluding catalytic and oil-filled |
| | 142 | Catalytic heater |
| | 143 | Oil-filled heater |
| Fireplace or chimney | 121 | Fireplace, masonry |
| | 122 | Fireplace, factory-built |
| | 125 | Chimney connector or vent connector |
| | 126 | Chimney – brick, stone or masonry |
| | 127 | Chimney-metal, including stovepipe or flue |
| Wiring, switch or outlet | 210 | Unclassified electrical wiring |
| | 211 | Electrical power or utility line |
| | 212 | Electrical service supply wires from utility |
| | 214 | Wiring from meter box to circuit breaker |
| | 216 | Electrical branch circuit |
| | 217 | Outlet, receptacle |
| | 218 | Wall switch |
| Power switch gear or overcurrent protection device | 215 | Panel board, switch board, circuit breaker board |
| | 219 | Ground fault interrupter |
| | 222 | Overcurrent, disconnect equipment |
| | 227 | Surge protector |
| Lamp, bulb or lighting | 230 | Unclassified lamp or lighting |
| | 231 | Lamp-tabletop, floor or desk |
| | 232 | Lantern or flashlight |
| | 233 | Incandescent lighting fixture |
| | 234 | Fluorescent light fixture or ballast |
| | 235 | Halogen light fixture or lamp |
| | 236 | Sodium or mercury vapor light fixture or lamp |
| | 237 | Work or trouble light |
| | 238 | Light bulb |
| | 241 | Nightlight |
| | 242 | Decorative lights – line voltage |
| 243 | Decorative or landscape lighting – low voltage | |
| 244 | Sign | |
| Cord or plug | 260 | Unclassified cord or plug |
| | 261 | Power cord or plug, detachable from |

| | | |
|---------------------------------------|-----|--|
| | | appliance |
| | 262 | Power cord or plug- permanently attached |
| | 263 | Extension cord |
| Torch, burner or soldering iron | 331 | Welding torch |
| | 332 | Cutting torch |
| | 333 | Burner, including Bunsen burners |
| | 334 | Soldering equipment |
| Portable cooking or warming equipment | 631 | Coffee maker or teapot |
| | 632 | Food warmer or hot plate |
| | 633 | Kettle |
| | 634 | Popcorn popper |
| | 635 | Pressure cooker or canner |
| | 636 | Slow cooker |
| | 637 | Toaster, toaster oven, counter-top broiler |
| | 638 | Waffle iron, griddle |
| | 639 | Wok, frying pan, skillet |
| | 641 | Breadmaking machine |

Item First Ignited. In most analyses, mattress and pillows (item first ignited 31) and bedding, blankets, sheets, and comforters (item first ignited 32) are combined and shown as “mattresses and bedding.” In many analyses, wearing apparel not on a person (code 34) and wearing apparel on a person (code 35) are combined and shown as “clothing.” In some analyses, flammable and combustible liquids and gases, piping and filters (item first ignited 60-69) are combined and shown together

Area of Origin. Two areas of origin: bedroom for more than five people (code 21) and bedroom for less than five people (code 22) are combined and shown as simply “bedroom.”

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.

In this analysis, when estimates were derived solely from the NFPA survey, fires were rounded to the nearest 500, civilian deaths were rounded to the nearest five, civilian injuries were rounded to the nearest 25, and direct property damage was rounded to the nearest million dollars. For estimates derived from NFIRS and the NFPA survey, fires were rounded to the nearest hundred, civilian deaths and injuries were rounded to the nearest ten, and direct property damage was rounded to the nearest million dollars.

Inflation. Property damage estimates are not adjusted for inflation unless so indicated. In this analysis, inflation adjusted damage estimates are provided in Table 1, 1A and 1B.

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 2% 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 based on the incident type alone, 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. 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.” 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.

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. As noted in Appendix A, a proportional share of unclassified kitchen and cooking equipment (code 600) is included here.

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. As noted in Appendix A, a proportional share of unclassified heating, ventilation and air condition equipment (code 100) is included here.

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. As noted in Appendix A, a proportional share of shop tools and industrial equipment (code 300) is included here.

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. As noted in Appendix A, a proportional share of unclassified personal and household equipment (code 800) is included here.

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.

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. . As noted in Appendix A, a proportional share of shop tools and industrial equipment (code 300) is included here.

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. As noted in Appendix A, a proportional share of commercial and medical equipment (code 400) is included here.

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 involved codes 2 and 3).

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.