

# HOME STRUCTURE FIRES

**Marty Ahrens**

**March 2010**



**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 380,000 reported home structure fires per year during the five-year-period of 2003-2007. These fires caused an estimated average of 2,840 civilian deaths, 13,160 civilian injuries, and \$6.4 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 homes, 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. Roughly two-thirds of home fire deaths resulted from fires in which no smoke alarms were present or in which smoke alarms were present but failed to operate.

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**

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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 five-year period of 2003-2007, NFPA estimates that U.S. fire departments responded to an average of 380,000 home structure fires per year. These fires caused an annual average of 2,840 civilian deaths, 13,160 civilian fire injuries, and \$6.4 billion in direct property damage. Home fires accounted for 73% of all reported structure fires, 92% of civilian structure fire deaths, 86% of the civilian structure fire injuries, and 68% of direct structure fire property loss. Homes include one- and two-family homes, manufactured homes, and apartments or other multi-family housing, regardless of ownership. In general, any fire in or on a structure is considered a structure fire, even if the damage was to contents only.

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 2003-2007, roughly one of every 300 households had a reported home fire.

Substantial progress has been made since 1980, the first year in which national estimates of specific fire problems were available. Reported home fires fell 47% from 734,000 in 1980 to 386,500 in 2008. Home structure fire deaths fell 47% from 5,200 in 1980 to 2,755 in 2008. 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.

In 2003-2007, 30% of reported home structure fires and 38% of home structure fire deaths occurred in the quarter including 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 50 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 2003-2007. Heating equipment was the second leading cause of home fires and home fire deaths but the leading cause of deaths resulting from fires in one- or two-family homes.

Forty-one percent of reported home fires started in the kitchen or cooking area. These fires caused 15% of the home fire deaths and 36% of the reported fire injuries. Reported apartment fires were more likely to start in the kitchen than were fires in one- or two-family homes. 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.

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

Properly installed and maintained fire protection can prevent most fire deaths. Forty percent of fatal home fire injuries resulted from fires in properties with no smoke alarms at all. Twenty-three percent were caused by fires in which smoke alarms were present but failed to operate. Fire sprinklers were present in only 5% of reported home fires. The death rate per 1,000 reported home fires was 83% lower when wet pipe sprinkler systems were present compared to reported home fires without any automatic extinguishing systems.

More progress has been made in some areas than in others. Overall, average home fire deaths per year were 41% lower in 2003-2007 than in 1980-1984. In 1980-1984, 61% of the people killed in home fires were outside the room or area of origin. In 2003-2007, only 47% of the victims were outside the room or area where the fire started. The average number of victims who were outside the room of origin fell 54% from the first period to the second while the average death toll of victims who were in the area of origin fell only 20%. The early warning from smoke alarms provides additional escape time when people are not in close proximity to the fire.

Almost all homes today have at least one smoke alarm. However, only a minority have interconnected smoke alarms. When smoke alarms are interconnected, all alarms will sound when one is activated. This means that the warning will sound throughout the home.

Historically, the largest number of fire deaths resulted from fires starting in living rooms, family rooms, or dens. In five of the last six 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. Compared to home fire deaths in 1980-1984, the average number of deaths in 2003-2007 resulting from fires starting in the

- living room, family room, or den fell 66%;
- bedroom fell 43%; and
- kitchen fell 31%.

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 51-52% from the 1980-1984 average to the 2003-2007 average.

The annual average death toll from fires started by smoking materials was 59% lower in 2003-2007 than it was in 1980-1984. 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 42% lower in 2003-2007 than in 1980-1984.

This analysis shows that considerable progress has been made but more is left to be done. Human error is a factor in many fires. 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.

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. Public education with respect to fire safety is clearly needed to address all types of home fires.

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.

Home fire sprinklers can control a fire until help arrives even when the occupants are unable to act. For more information on how sprinklers can help, see <http://firesprinklerinitiative.org/>.



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## U.S. Home Structure Fires

U.S. fire departments responded to an estimated average of 380,000 home structure<sup>1</sup> fires per year during 2003-2007. These fires caused an annual average of



- 2,840 civilian fire deaths,
- 13,160 civilian fire injuries, and
- \$6.4 billion in direct damage.

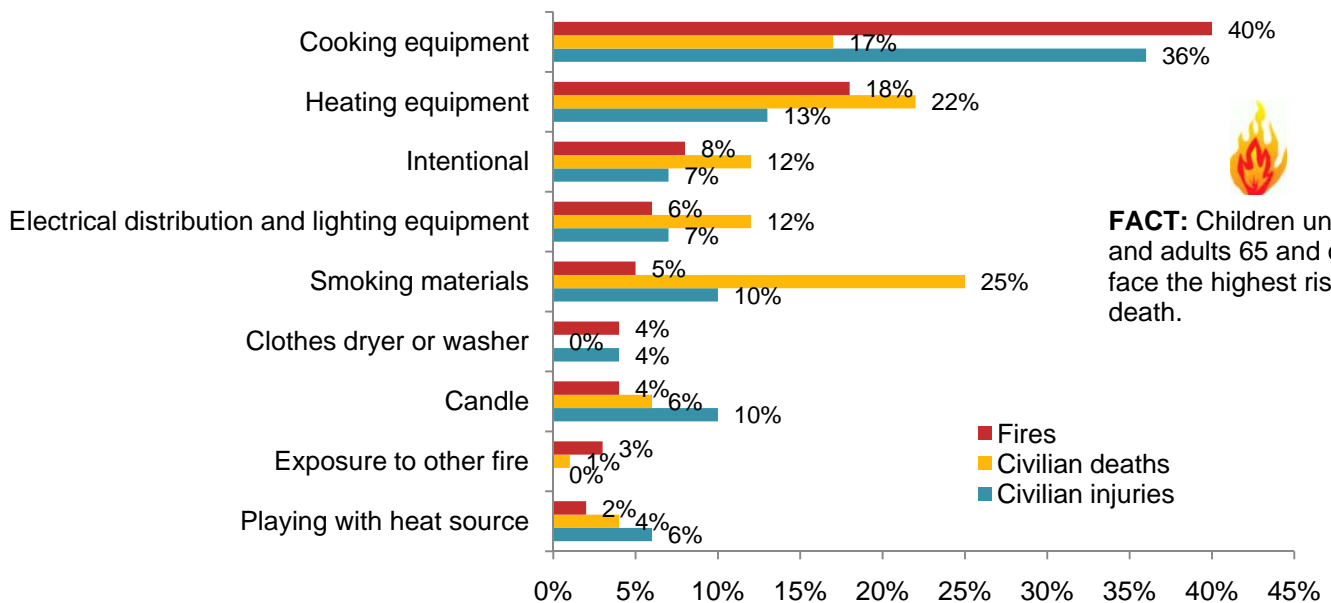
- 92% of all structure fire deaths resulted from home fires.
- On average, eight people died in U.S. home fires every day.

### Causes and Circumstances of Home Fires

Details from the U.S. Fire Administration's National Fire Incident Reporting System show that in 2003-2007:

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

### Leading Causes of Home Structure Fires: 2003-2007



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

Almost all homes have at least one smoke alarm, but almost two-thirds of reported home fire deaths in 2003-2007 resulted from fires in homes with no smoke alarms or no working smoke alarms

<sup>1</sup>Homes include one- or two-family homes, manufactured homes, apartments, townhouses, and rowhouses, regardless of ownership. In general, any fire that occurs in or in a structure is considered a structure fire, even if the fire was limited to contents and the building itself was not damaged.

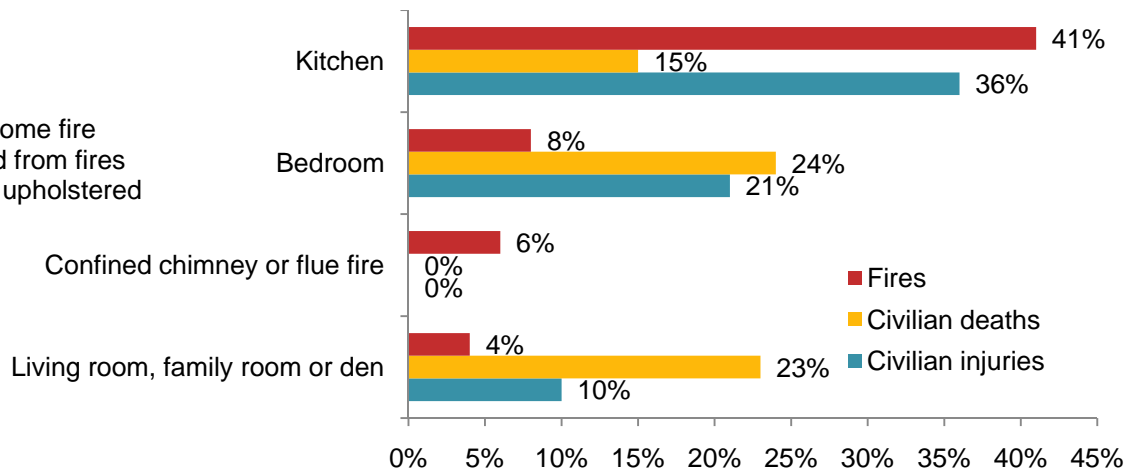
**Kitchens were the leading area of fire origin.**

- 41% of home structure fires started in the kitchen. These fires caused 36% of civilian home fire injuries.
  - 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. These fires caused very few casualties.

**Leading Areas of Origin in Home Structure Fires: 2003-2007**



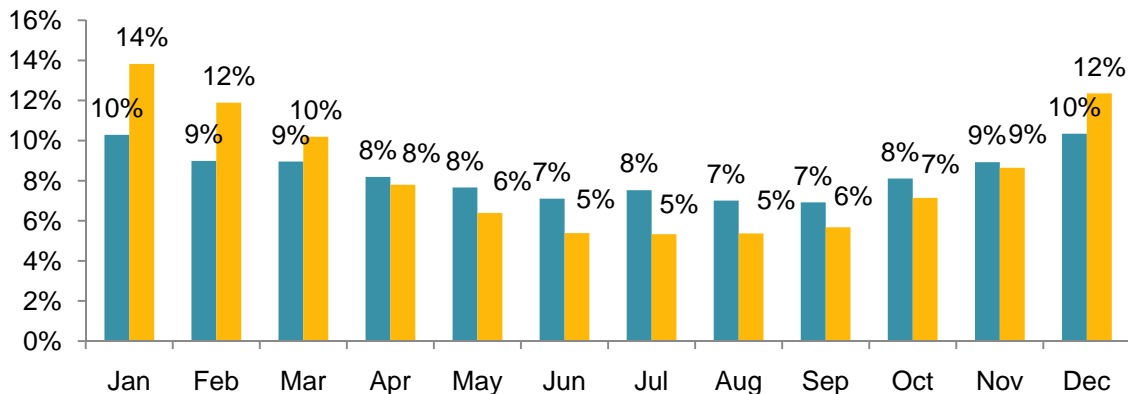
**Fact:** 21% of home fire deaths resulted from fires beginning with upholstered furniture.



**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.

**Home Structure Fires by Month: 2003-2007**



## Home Structure Fires: Overview

### **380,000 home structure fires were reported per year.**

During the five-year period of 2003-2007, U.S. fire departments responded to an estimated average of 380,000 home structure fires per year. These fires caused an annual average of 2,840 civilian deaths, 13,160 civilian fire injuries, and \$6.4 billion in direct property damage. On average, eight people died in U.S. home fires every day.

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 homes, 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  
2003-2007 Annual Averages**

Property Use	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
One- or two-family home or manufactured home	267,700	(70%)	2,400	(84%)	9,290	(71%)	\$5,225	(82%)
Apartment, tenement or flat	112,400	(30%)	440	(16%)	3,870	(29%)	\$1,133	(18%)
Total	380,000	(100%)	2,840	(100%)	13,160	(100%)	\$6,358	(100%)

Source: NFIRS 5.0 and NFPA survey.

Version 5.0 of the U.S. Fire Administration’s National Fire Incident Reporting System (NFIRS 5.0) includes six categories of structure fires, collectively referred to as confined fires, which were intended to describe specific scenarios. Additional causal information is typically not required for these incidents. More details on confined fires, definitions, and general methodology are provided in Appendix A.

### **On average, a fire was reported in one of every 300 households.**

During 2003-2007, an average of 113 million households existed in the United States.<sup>1</sup> Dividing the total number of households by the number of home fires yields a rate of roughly one reported fire per every 300 housing units.

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<sup>1</sup> U.S. Census Bureau, “Families and Living Arrangements” reported as “Households, Families, Subfamilies, and Married Couples in *Statistical Abstract of the United States*, 2006, 2008 and 2010 editions..

## Data Sources, Definitions and Conventions Used in this Report

Unless otherwise specified, the statistics in this analysis are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. These estimates are projections based on the detailed information collected in Version 5.0 of the U.S. Fire Administration's National Fire Incident Reporting System (NFIRS 5.0) and the National Fire Protection Association's (NFPA's) annual fire department experience survey. Except for property use and incident type, fires with unknown or unreported data were allocated proportionally in calculations of national estimates.

Homes include:

- detached dwellings, duplexes, and manufactured housing, and
- apartments, tenements, and flats, townhouses, and rowhouses, regardless of ownership.

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

NFIRS 5.0 includes a category of structure fires collectively referred to as "confined fires," identified by incident type. These include confined cooking fires, confined chimney or flue fires, confined trash fires, confined fuel burner or boiler fires, confined commercial compactor fires, and confined incinerator fires (incident type 113-118). Table A.1 in Appendix A shows that confined fires accounted for a larger share of fires in apartments than in one- and two-family homes. Losses are generally minimal in these fires, which by definition, are assumed to have been limited to the object of origin. Although causal data is not required for these fires, it is sometimes present.

Confined and non-confined fires were analyzed separately and summed for Cause of Ignition, Heat Source, Factor Contributing to Ignition, Area of Origin, and Item First Ignited. Non-confined fires and confined cooking fires were analyzed for Equipment Involved in Ignition. Other types of confined fires were not broken out further and were grouped by incident type.

Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Property damage has not been adjusted for inflation. Fires are rounded to the nearest hundred, civilian deaths and injuries to the nearest ten, and direct property damage to the nearest million. Additional details on the methodology may be found in Appendix A and B.

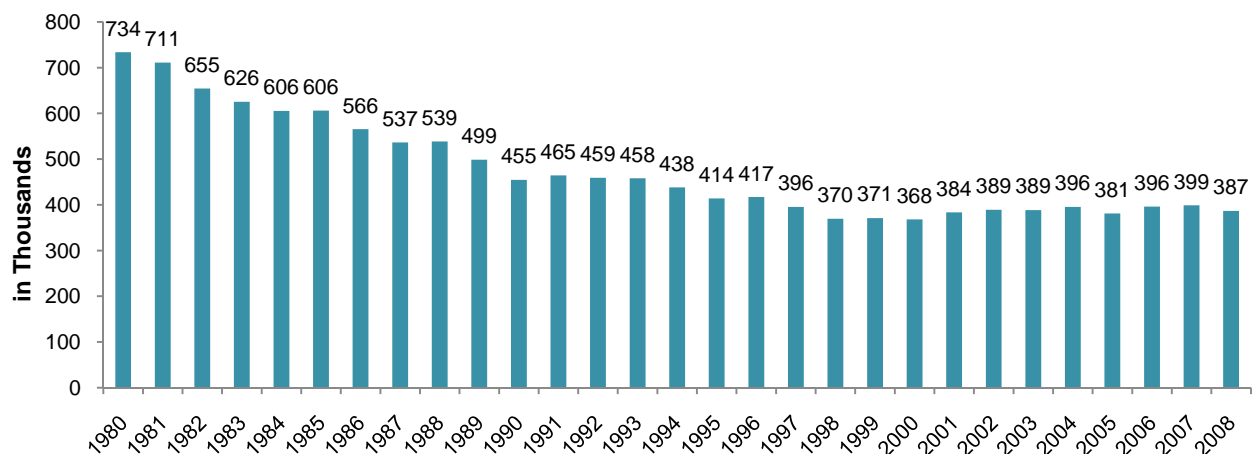
**92% of civilian structure fire deaths resulted from fires in the home.**

Based on annual averages for 2003-2007, the 380,000 reported home structure fires accounted for 73% of the 522,200 structure fires, 92% of the 3,100 civilian structure fire deaths, 86% of the 15,230 civilian structure fire injuries, and 68% of the \$9.3 billion in direct property loss.

**Reported home structure fires fell 47% 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 homes, and apartments, respectively, based on data collected by NFPA’s survey.<sup>2</sup>

**Figure 1. Reported Home Structure Fires by Year: 1980-2008**



Source: NFPA survey.

Figure 1 shows that the 386,500 home structure fires reported in 2008 is 47% 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 fires that had been coded as smoke scares in the past. It is also possible that smoke detection systems that result in automatic notification of the fire department upon activation have increased the number of minor incidents that are reported.

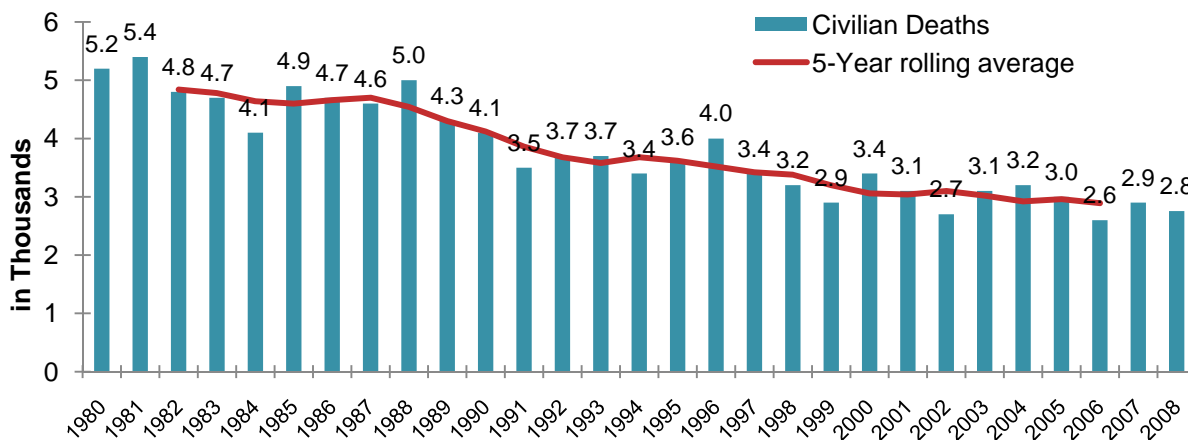
**Home fire deaths hit their third lowest point in 2008.**

Figure 2 shows that the home fire death toll in 2008 was 47% 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

<sup>2</sup> The NFPA survey is separate from NFIRS. Although the definitions are the same, the survey does not include provisions for capturing unknown data. Survey estimates are not restricted by NFIRS version. Because of these differences, national estimates derived solely from NFPA’s survey will differ somewhat from estimates derived when NFIRS and NFPA survey are combined.

3,000 in only five years since NFPA began collecting data, with 2,895 in 1999; 2,670 in 2002, the record low of 2,580 in 2006, 2,865 in 2007, and 2,755 in 2008.

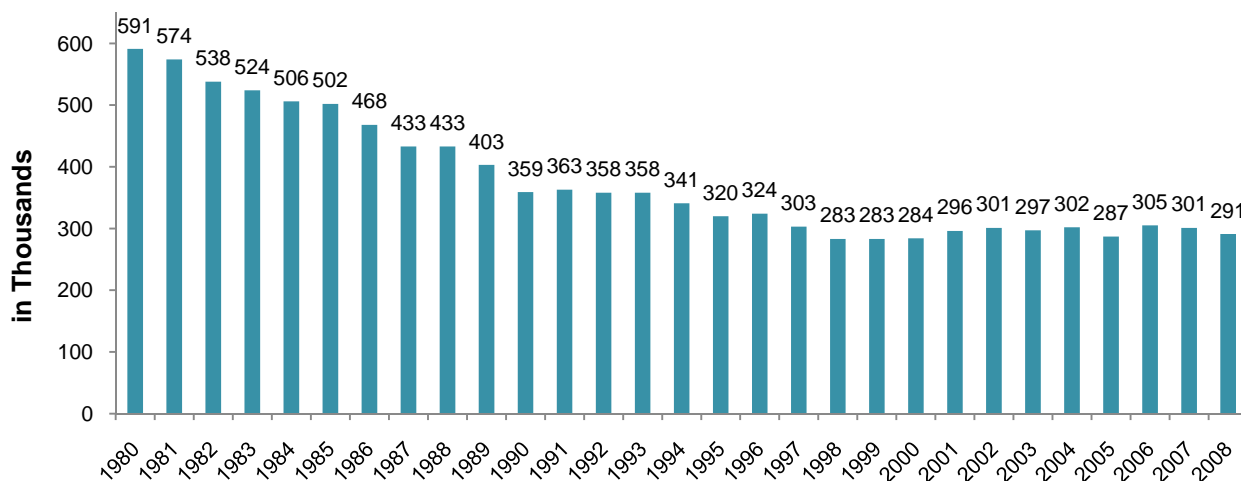
**Figure 2. Reported Home Structure Fire Deaths by Year: 1980-2008**



Source: NFPA survey.

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

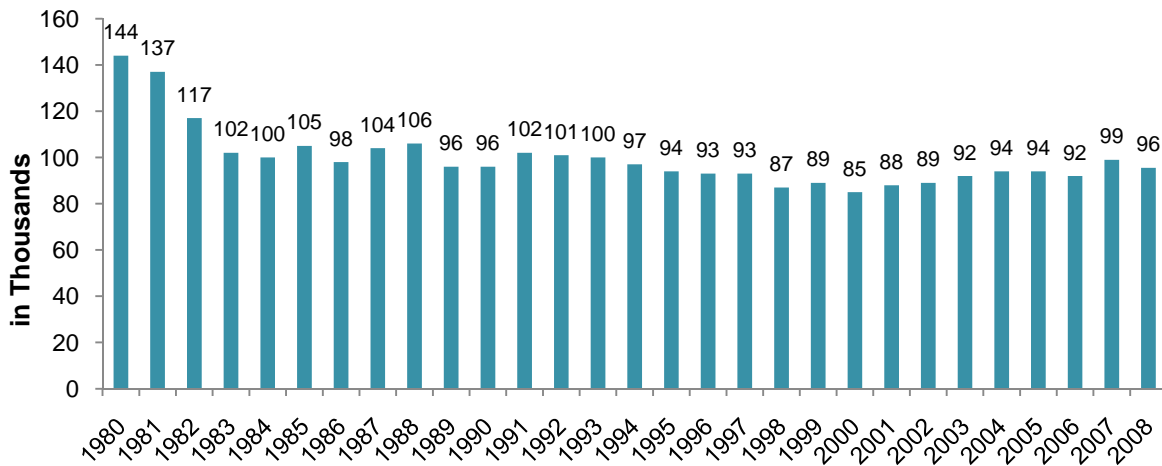
**Figure 3. Reported Structure Fires in One- or Two-Family Homes by Year: 1980-2008**



Source: NFPA survey.

The trend is rather different in apartments. Figure 4 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 2003-2007 were coded as confined structure fires compared to 36% of the fires in one- and two-family homes. It is possible that in NFIRS 5.0, minor apartment fires are more likely to be reported than are minor fires in one- or two-family homes.

**Figure 4. Reported Structure Fires in Apartments by Year: 1980-2008**

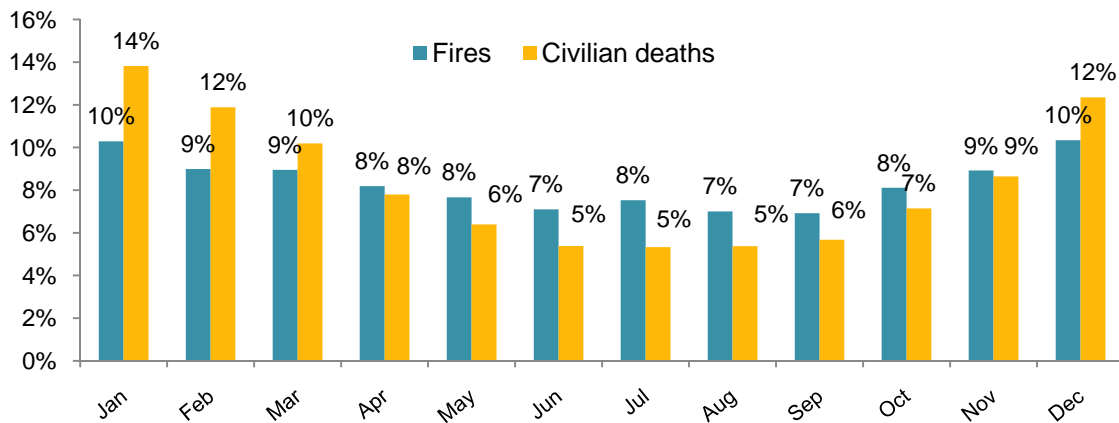


Source: NFPA survey.

**Home fires and fire deaths peak in winter.**

Figure 5 and Table 2 show that 30% of reported home structure fires and 38% of home structure fire deaths occurred in the months of December, January, and February. This reflects the influence of heating equipment fires. Forty-nine percent of home heating equipment fires in 2003-2007 were reported in these three months, as were 58% of the home heating equipment fire deaths.<sup>3</sup>

**Figure 5. Home Structure Fires and Deaths by Month: 2003-2007**



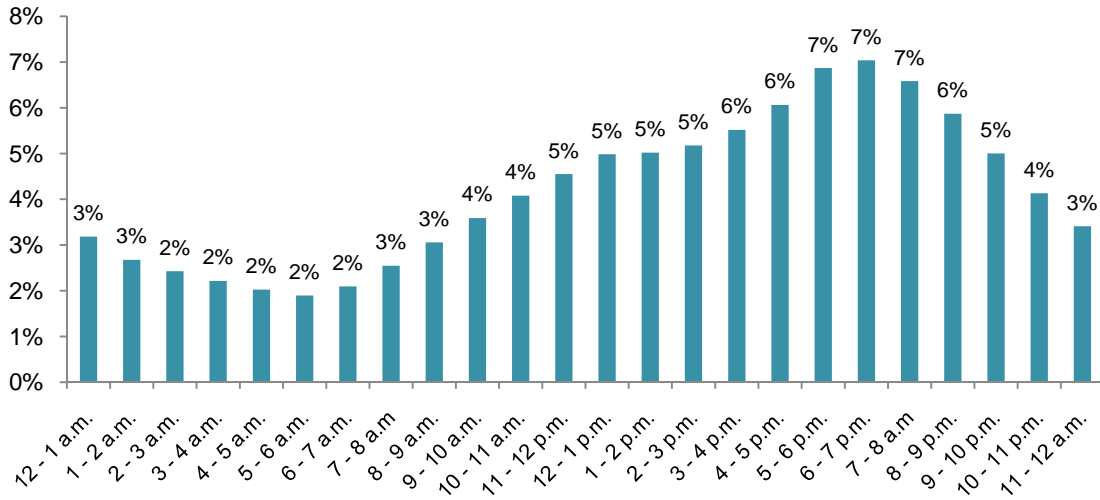
Source: NFIRS 5.0 and NFPA survey.

**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 6 and Table 4 show that reported home fires peaked around the dinner hours of 5:00 to 8:00 p.m. Only one-fifth (20%) of the reported home fires occurred between 11:00 p.m. and 7:00 a.m.

<sup>3</sup> John R. Hall, Jr. *Home Fires Involving Heating Equipment*, Quincy, MA: National Fire Protection Association, 2010, p. 15.

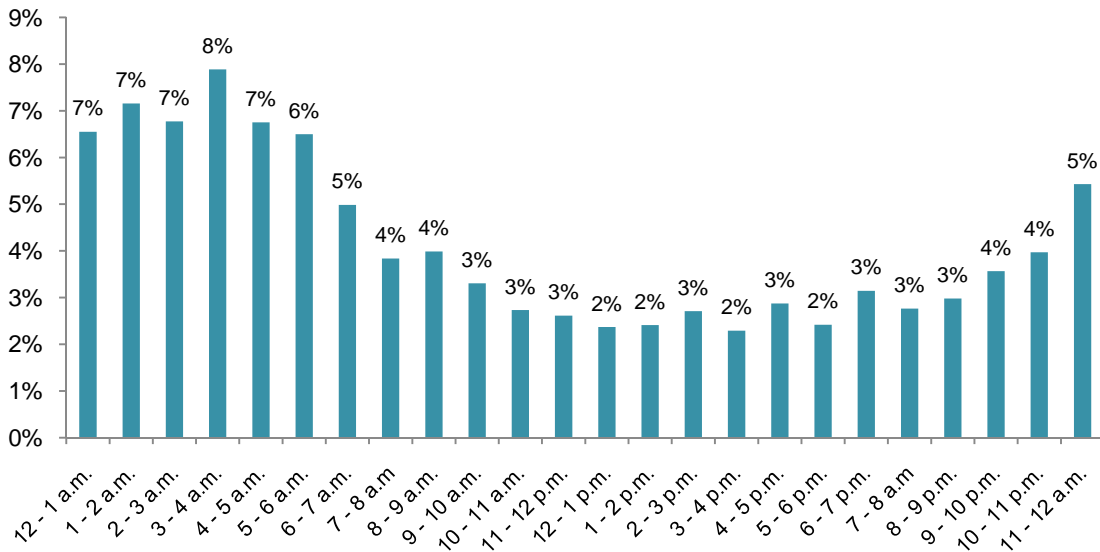
**Figure 6. Home Structure Fires by Alarm Time: 2003-2007**



Source: NFIRS 5.0 and NFPA survey.

Figure 7 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 patterns of when fires and fatal fire injuries occur are similar in one- or two-family homes and in apartments.

**Figure 7. Home Structure Fire Deaths by Alarm Time: 2003-2007**



Source: NFIRS 5.0 and NFPA survey.

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## ***Home Fires: How Often and How Likely?***

Sometimes it is easier to think of the statistics in terms of time. The statistics below are based on home structure fires reported during 2003-2007.

### ***Reported fires by time***

More than 1,000 home structure fires were reported every day. This translates to 43 fires every hour or one reported home fire every 83 seconds.

Home fires killed an average of eight people every day. Once every three hours, someone was fatally injured in a home fire.

A civilian (non-firefighter) injury is reported every 40 minutes.

Home fires cause roughly \$200 in damage every second.

### ***The odds of a reported fires***

According to the U.S Census Bureau, the U.S. resident population averaged 296 million people during 2003-2007 and roughly 113 million households.

Each year,

- Roughly one of 780 people had a reported home fire.
- Roughly one of every 300 households had a reported home fire.
- Home fires kill one of every 104,000 people each year.

### ***Any home fire, including those handled without the fire department***

The Consumer Product Safety Commission's (CPSC's) 2004-2005 Residential Fire Survey found that U.S. households an average of 7.4 million home fires per year. Roughly 130,000 injuries or symptoms, usually minor, resulted from these fires. The fire department was called to only 3% of these fires.

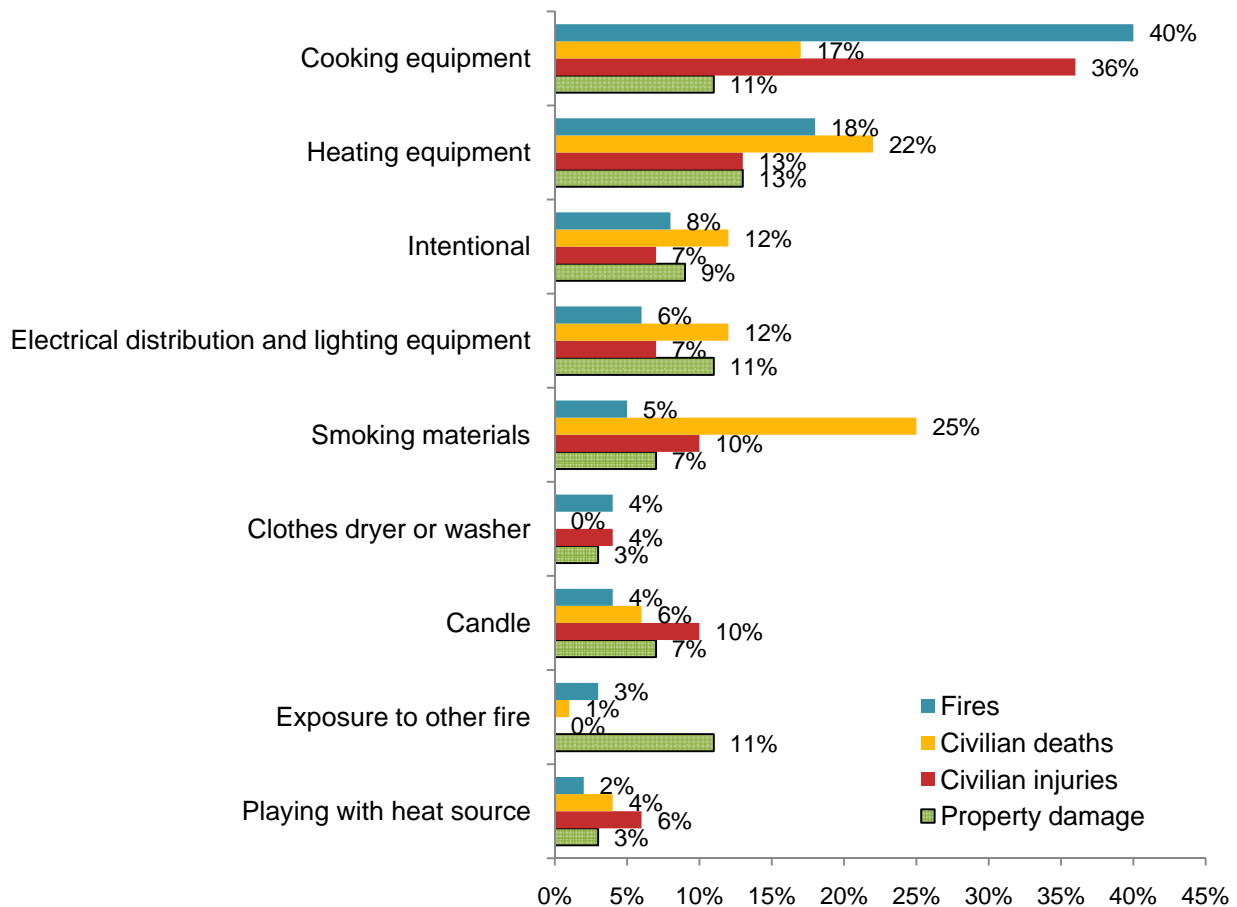
Including unreported fires, one in 40 people has a home fire each year, as does one in 15 households.

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## Leading Causes of Reported Home Structure Fires

Table 5 and Figure 8 show the leading causes of home structure fires with data summarized from several NFIRS fields. In some cases, the equipment involved in ignition is most relevant; heat source, the field “cause,” and factor contributing to ignition also provide relevant information. The causes shown here 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 may be found in Appendix B. In recent versions of this report, confined fires were not included in estimates of intentional fires or fires started by smoking, playing with heat source, and candles. They were included here. Also, the methodology used to analyze equipment involved in ignition has been modified, resulting in higher estimates than were shown in earlier studies. The broad categories of cause of ignition, a field in NFIRS 5.0 are shown in Table 6. More detailed information on equipment involved in ignition may be found in Table 7. Table 8 shows more information on heat sources. Factors contributing to ignition are shown in Table 9.

**Figure 8. Leading Causes of Home Structure Fires: 2003-2007**



Source: NFIRS 5.0 and NFPA survey.

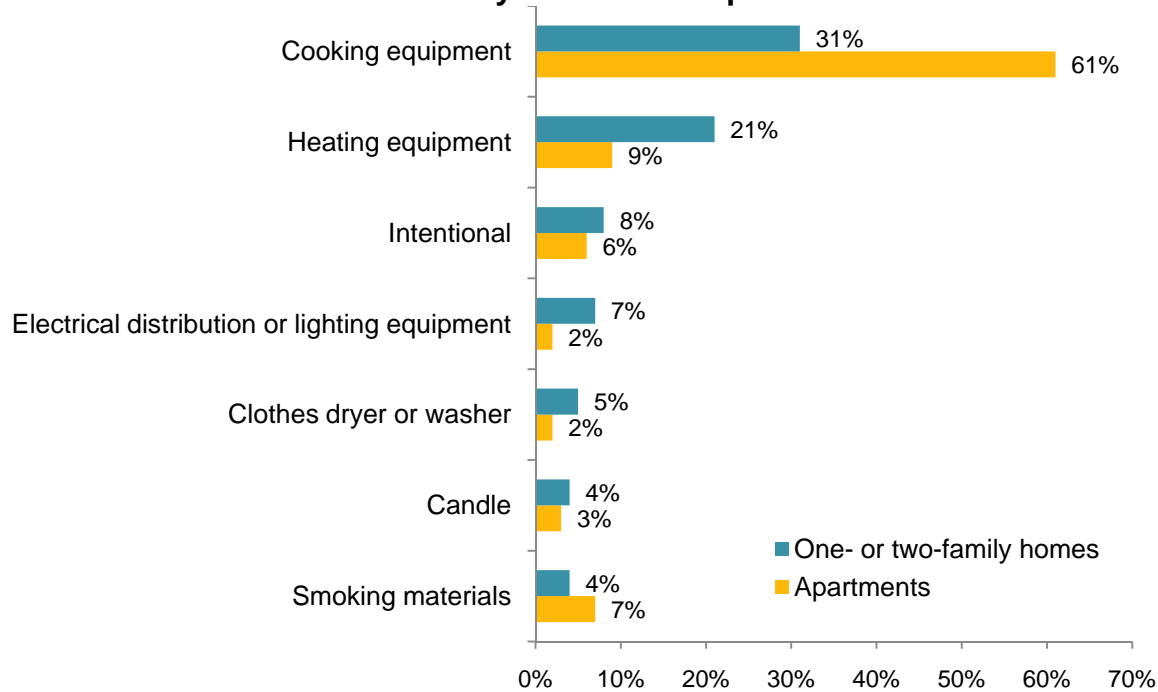
Cooking equipment continues to be the leading cause of home structure fires and civilian fire injuries. Smoking materials have historically caused the largest number of fire deaths, and this was the case in 2003-2007. However, heating equipment was the leading cause of deaths resulting from fires in one- or two-family homes but the fourth leading cause of deaths from apartment fires. Cooking equipment was the second leading cause of apartment fire deaths after smoking.

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

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

As shown in Figure 9 and in Tables 5A and 5B, the cause profile for apartment fires differs markedly from the profile for one- or two-family home fires. Because reported fires in one- or two-family homes outnumber apartment fires by more than two to one, the fires in one- or two-family homes dominate the cause profile.

**Figure 9. Leading Causes of Structure Fires in One- or Two-Family Homes and Apartments: 2003-2007**



Source: NFIRS 5.0 and NFPA survey.

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 one- or two-family homes. 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 home, resulting in a different cause distribution.

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 roughly one-third of the cooking fires reported in 2003-2006.<sup>4</sup> In 2003-2007, cooking equipment was involved in an estimated annual average of 151,300 reported home structure fires, 480 civilian fire deaths, 4,690 civilian injuries, and \$686 million in direct property damage.

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 11% of the direct property damage. Cooking equipment was involved in 61% of the reported apartment fires but only 31% of the fires in one- or two-family homes, although it was the leading cause in both.<sup>5</sup> Ranges or cooktops were involved in more than half of all fires involving cooking equipment and 23% of all reported home fires.

The 2004-2005 CPSC’s Residential Fire Survey asked about all fires, including incidents that were not attended by the fire service.<sup>6</sup> They estimate that U.S. households experienced a total of 7.4 million fires per year, including 7.2 million that were not attended by the fire service. Cooking appliances were involved in 4.8 million home fires, including 4.7 million incidents that the fire department did not attend. One of every 22 occupied households had a cooking fire. They found that cooking equipment was involved in roughly two-thirds of home fire incidents, including 64% of the total and 65% of fires that the fire department did not attend. The overwhelming majority of cooking equipment fires (50 to one) did not have the fire department in attendance.

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<sup>4</sup> Marty Ahrens *Home Fires Involving Cooking Equipment*, Quincy, MA: National Fire Protection Association, Fire Analysis and Research Division, November 2009, pp. 8-9.

<sup>5</sup> For purposes of this analysis, cooking equipment was assumed to be involved in all confined cooking fires.

<sup>6</sup> Michael A. Greene and Craig Andres. *2004-2005 National Sample Survey of Unreported Residential Fires*. U.S. Consumer Product Safety Commission, July 2009, pp. 102, 127-133.

Additional information may be found in NFPA's report, *Home Fires Involving Cooking Equipment*, by Marty Ahrens. Working together, the U.S. Fire Administration and NFPA produced a 2006 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 2003-2007, heating equipment was involved in the ignition of an estimated annual average of 67,200 reported home structure fires that resulted in an average of 610 civilian fire deaths, 1,660 civilian injuries, and \$846 million in direct property damage per year.

Heating equipment was involved in 18% of the reported home structure fires, 22% of the home fire deaths, 13% of the home fire injuries, and 13% 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. Space heaters, including portable heaters and those that are permanently installed, were involved in more than three-quarters of the home heating fire deaths and in 17% of overall home fire deaths.

Heating equipment was involved in 21% of the fires in one- or two-family homes but only 9% of the apartment fires. One-quarter of the fatal fire injuries occurring in one- or two-family homes resulted from fires involving heating equipment compared to only 10% of the apartment fire deaths. 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. His analysis also provides more details on the equipment involved in the confined heating equipment fires.

### **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 2003-2007, smoking materials were the heat source in an annual average of 19,400 reported home structure fires, 700 civilian fire deaths, 1,280 civilian fire injuries, and \$424 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 5% of reported home structure fires were started by smoking materials, but these fires caused 25% of the home fire deaths. These materials also caused 10% of all reported home fire injuries and 7% of the direct property damage. One-third (34%) of the apartment fire deaths

resulted from fires started by smoking materials. Smoking material incidents ranked fifth in number of fires, first in home fire deaths, fourth in home fire injuries and seventh 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.

### **Intentionally set fires ranked third in home structure fires.**

During 2003-2007, intentional firesetting caused an average of 29,000 reported home structure fires, 330 civilian fire deaths, 940 civilian injuries, and \$541 million in direct property damage.

Eight percent of home structure fires were intentionally set. These fires caused 12% of the home fire deaths, 7% of the home fire injuries, and 9% of the direct property damage. Intentionally set fires ranked third in home fire frequency, and fifth in home fire deaths, injuries, and direct property damage. Current estimates of intentional fires are higher than those published in recent editions of this report because of the inclusion of confined fires in this analysis. In the past, confined or contained trash fires had been shown without further breakdown. Intentional fires overlap with but are not identical to the legally defined arson fires.

Additional information may be found in NFPA's report, *Intentional Fires and Arson*, by Jennifer D. Flynn.

### **On average, electrical distribution and lighting equipment was involved in 22,000 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 2003-2007, electrical distribution and lighting equipment was involved in the ignition of 22,000 reported home structure fires, on average, per year. These fires caused an annual average of 350 civilian fire deaths, 880 civilian fire injuries, and \$709 million in direct property damage.

In 2003-2007, electrical distribution or lighting equipment was involved in 6% of the home structure fires 7% in one- or two-family homes and 2% in apartments, 12% of the home fire deaths, 7% of the home fire injuries, and 11% of the direct property damage.

Overall, electrical distribution and lighting equipment ranked fourth in home fires and home fire deaths, sixth in home fire injuries, and second in direct property damage.

Electrical factors can play a role in fires involving any type of equipment powered by electricity, including cooking, heating, office and entertainment equipment, washers and dryers, etc. as well as electrical distribution and lighting equipment. Table 9 shows that electrical failures or

malfunctions were factors in 14% of reported home fires, 18% of home fire deaths, 11% of home fire injuries and 11% of the direct property damage. Electrical failures or malfunctions were factors in 17% of the fires in one-or two family homes but only 6% of the reported apartment fires.

For more information on both fires involving electrical distribution and lighting equipment and on fires in which electrical failures or malfunctions were contributing factors, see NFPA's report, *Home Electrical Fires*, by John R. Hall, Jr.

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

During 2003-2007, clothes dryers and washers were involved in the ignition of an average of 15,700 non-confined home structure fires per year.<sup>7</sup> These fires caused an annual average of 10 civilian fire deaths, 460 civilian fire injuries, and \$189 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.

For more information, see NFPA's report, *Home Fires Involving Clothes Dryers and Washing Machines*, by John R. Hall, Jr.

**Candles were the third leading cause of reported home fire injuries.**

During 2003-2007, candles caused an estimated annual average of 15,300 reported home structure fires, 170 home fire deaths, 1,290 home fire injuries, and \$450 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 7% of the direct property damage. Candles ranked seventh among the leading cause categories in number of fires, sixth in home fire deaths and in direct property damage, and third in home fire injuries.

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

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

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

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<sup>7</sup> Except for confined cooking fires, the estimates for equipment involved in ignition did not break out the confined fires further. In NFPA's 2010 detailed analysis of 2003-2007 home fires "Home Structure Fires by Equipment Involved in Ignition," John R. Hall, Jr. notes an annual average total of 17,300 dryer or washer fires, with an annual average of 1,550 such fires having confined fire incident types. Confined dryer or washer fires include an annual average of 170 fires confined to cooking vessel; 530 fires confined to chimney, flue, fuel burner, or boiler; 670 confined trash fires; 160 confined incinerator fires; and 20 confined compactor fires, all of which are also coded with confined cooking, heating, trash, incinerator, or compactor fires, respectively.

During 2003-2007, exposures caused an average 12,300 reported home structure fires, 20 civilian fire deaths, 60 civilian fire injuries, and \$682 million in direct property damage per year. Exposures caused 3% of the home structure fires, 1% of the home fire deaths, less than 1% of the injuries, and 11% of the direct property damage. Exposure fires ranked eighth among the leading causes in number of reported home fires and associated deaths, ninth in home fire injuries and fourth in direct property damage.

**Playing with heat source caused 2% of home fires but 4% of home fire deaths.**

During 2003-2007, people, typically children, playing with fire or other heat sources started an estimated annual average of 7,900 home structure fires. These fires caused an average of 120 civilian fire deaths, 790 civilian fire injuries, and \$201 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 4% of the home fire deaths, 6% of the home fire injuries, and 3% of the direct property damage.

Additional information on this topic may be found in NFPA's report, *Children Playing with Fire*, by Jennifer D. Flynn.

## **More Detailed Information about Fire Circumstances**

Fires can be prevented or mitigated in a variety of ways. The likelihood of fire may be reduced by changes to heat sources, in behavior, or to the potential fuel source. Should a fire start, casualties and property damage can be minimized by fire protection such as smoke alarms that provide an early warning, home fire sprinklers that can control or extinguish a fire, and by compartmentation that prevents a fire from spreading from one area to another. The previous section focused on major cause scenarios. 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. The more detailed information in this section may be used in a variety of fire prevention strategies. The highlights of the details on equipment involved in ignition and heat sources were provided on the previous pages. Tables 7 and 8 provide more specific information on these two factors.

**Home fires started by some type of operating equipment caused 38% of home fire deaths.**

Table 8 shows that some type of operating equipment was the heat source in an average of 1,070, or 38%, of the home structure fire deaths per year. Heat from operating equipment started an average of 201,300, or 53% of all reported home fires annually. The specific type of equipment involved 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 8 also shows that small open flames from candles, lighters and matches, were the heat sources in an average of 460, or 16%, of the deaths per year and 37,400, or 10%, of the fires.

**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 9 shows that 570, or 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.

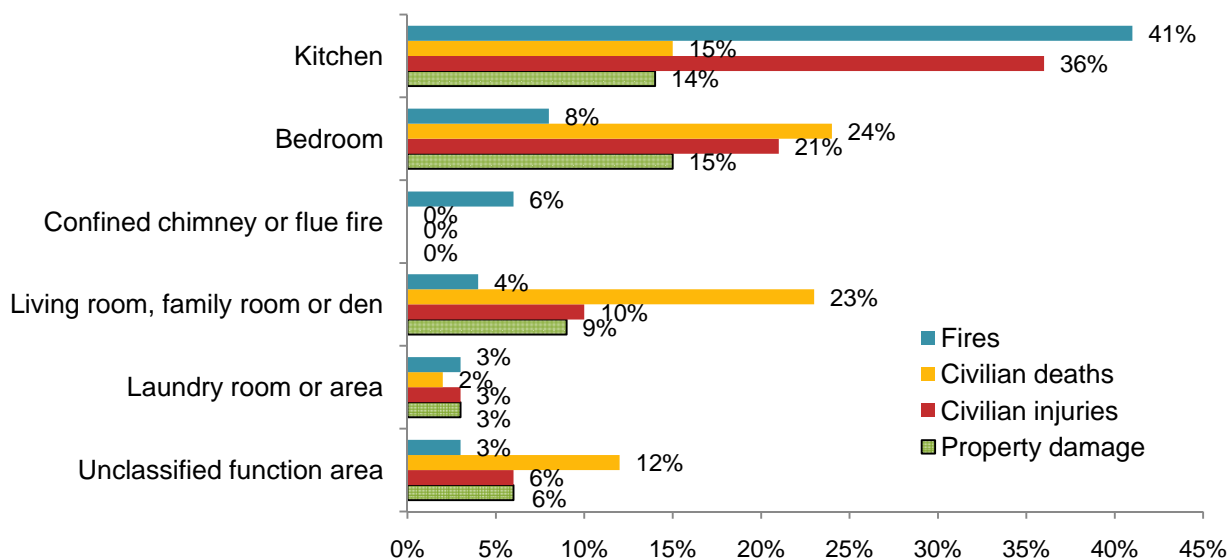
As noted earlier, some type of electrical failure or malfunction was a factor in incidents resulting in 18% of the home structure fire deaths. Electrical failures may occur in any type of electric-powered equipment, including heating and cooking equipment, as well as in electrical distribution and lighting equipment.

An abandoned or discarded material was a factor in 16% of the deaths, and unattended equipment contributed to fires causing 7% of the deaths.

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

Figure 10 and Table 10 show that 41% of home structure fires started in the kitchen or cooking area. Fifteen percent of the civilian deaths, 36% of the civilian injuries, and 14% of the direct property damage resulted from these fires. Three-fifths (61%) of the reported apartment fires and one-third (32%) of the fires in one- or two-family homes originated in the kitchen.

**Figure 10. Leading Areas of Origin in Home Structure Fires: 2003-2007**

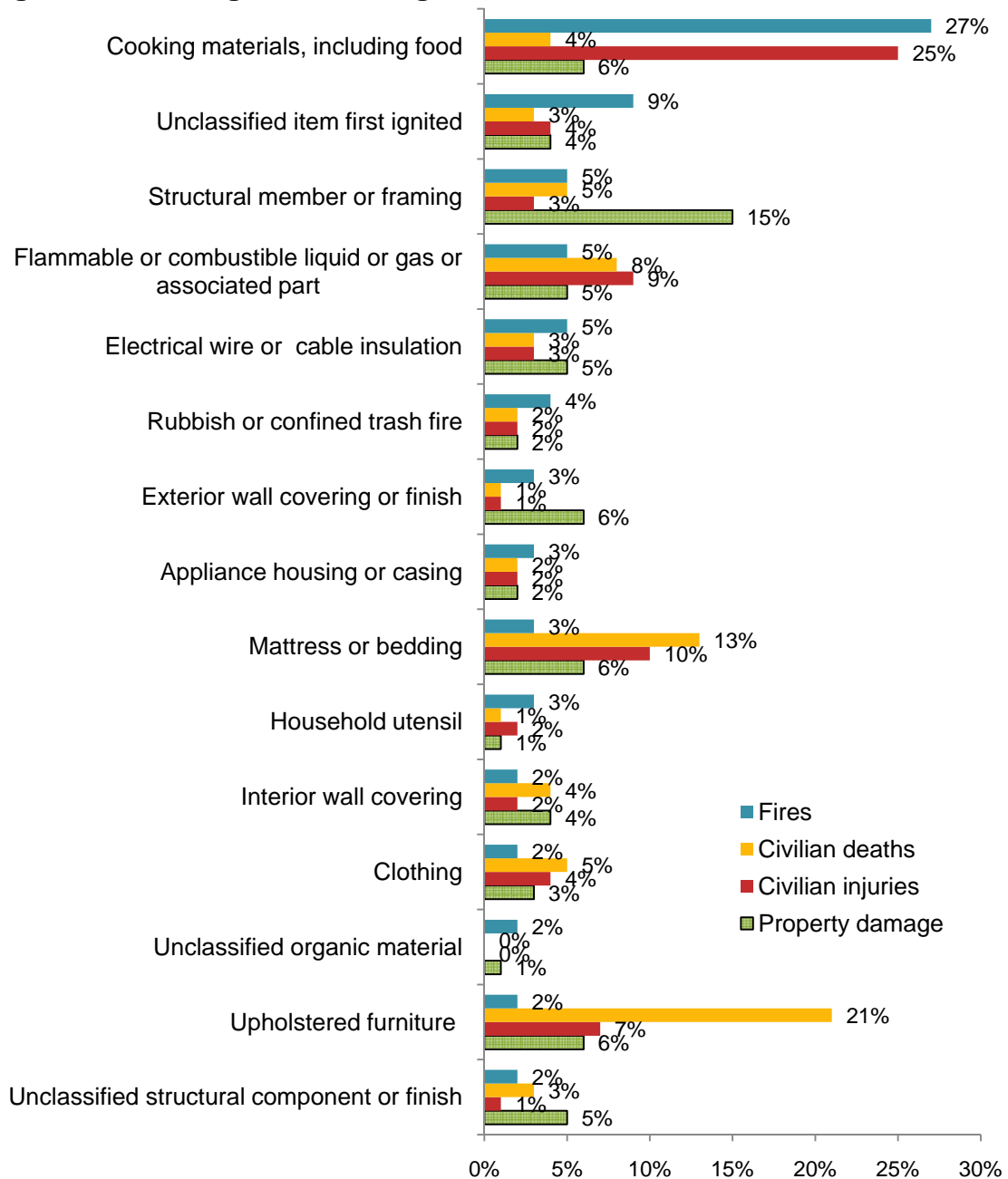


Source: NFIRS 5.0 and NFPA survey.

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. The four percent of home structure fires originating in the living room, family room, or den caused 23% of the civilian fire deaths, 10% of the civilian injuries, and 9% of the direct property damage.

Six percent of home fires (8% in one- or two-family homes and 1% in apartments) were reported as confined chimney or flue fires.

**Figure 11. Leading Items First Ignited in Home Structure Fires: 2003-2007**



Source: NFIRS 5.0 and NFPA survey.

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

Cooking materials, including food, were the items first ignited in 27% of the reported home structure fires. Nine percent of the reported home fires began with an unclassified item, 5% started with the ignition of structural members or framing, another 5% started when flammable or combustible liquids or gases or associated parts caught fire, and yet another 5% started when electrical wire or cable insulation ignited.

Although mattresses or bedding were first ignited in only 3% of the fires, 13% of the home fire deaths and 10% of the home fire injuries resulted from these incidents. Only 2% of the home structure fires began with upholstered furniture but these fires accounted for 21% of the home fire deaths and 7% of the home fire injuries. See Figure 11 and Table 11 for more details. NFPA also has detailed reports on fires that began specifically with upholstered furniture and with mattresses and bedding.

**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 homes and 65% in apartments) were confined or contained fires identified by NFIRS incident type. 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 12 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-eight 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 homes where 80% of the fire deaths resulted from fires extending beyond the room of origin compared to 62% of the fire deaths in apartments.

**The vast majority of all households have smoke alarms, but households with fires tend to have less smoke alarm protection.**

Based on a telephone survey done in 2008, 96% of all homes have at least one smoke alarm.<sup>8</sup> In the 2004-2005 CPSC survey, Green and Andres compared smoke alarm coverage and performance in households that did not have fires with households that had fires and that were handled without having the fire department come (unreported fires). In 93% of the unreported fires, at least one smoke alarm was present, slightly less than the 97% of households without fires that had smoke alarms. Compared to households that did not have fires, households with fires were less likely to have smoke alarms in every bedroom (31% vs. 22%) or to have interconnected smoke alarms (19% vs. 13%). Interconnected smoke alarms were more likely to alert occupants to a fire than were alarms that were not interconnected.<sup>9</sup>

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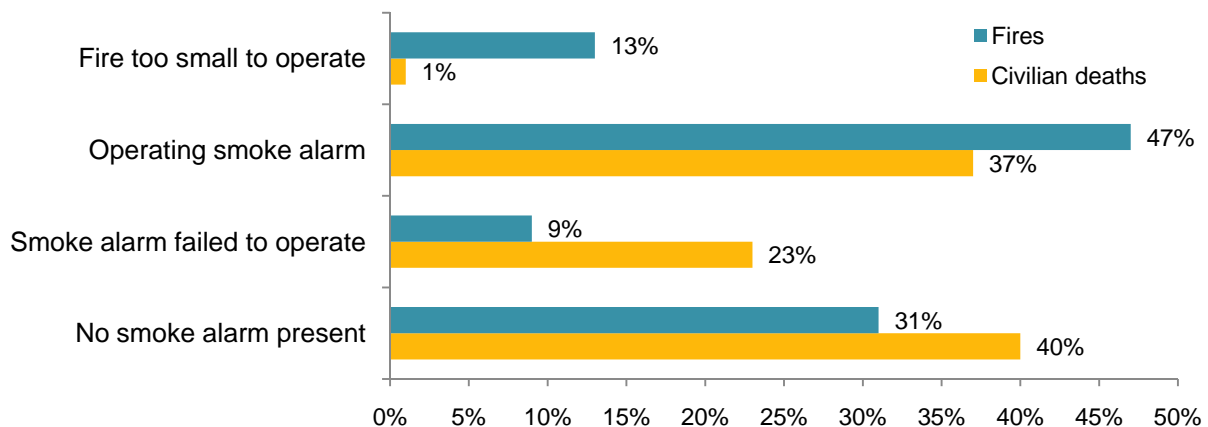
<sup>8</sup> Harris Interactive Smoke Alarm Omnibus Question Report, done for the National Fire Protection Association, November 2008.

<sup>9</sup> Michael A. Greene and Craig Andres. *2004-2005 National Sample Survey of Unreported Residential Fires*. U.S. Consumer Product Safety Commission, July 2009, pp. 73-91, 150-180.

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

Smoke alarm were present in 69% of reported home fires, still a solid majority, but a considerably smaller percentage than that found in CPSC’s study of unreported fires. Figure 12 shows that smoke alarms operated in 47% of the reported home fires. The fire was too small to operate the smoke alarm in 13% of the fires. Almost two-thirds of the home fire deaths resulted from fires with no working smoke alarms, including 40% of the deaths that resulted from fires with no smoke alarms at all and 23% from fires in which smoke alarms were present but failed to operate.<sup>10</sup>

**Figure 12. Home Structure Fires and Deaths by Smoke Alarm Performance 2003-2006**



Source: NFIRS 5.0 and NFPA survey.

**When no automatic extinguishing equipment was present, the fire death rate per 1,000 reported home fires was six times as high as in home fires with wet-pipe sprinklers.**

Table B shows that in 2003-2007, sprinklers were present in 5% of the reported home fires, excluding fires in properties under construction and fires in which no automatic extinguishing equipment was present in the fire area.<sup>11</sup>

When sprinklers were present and the fire was large enough to activate them, sprinklers operated in 95% of the fires. When sprinklers operated, they were effective in controlling the fire in 99% of the incidents. Combined, in reported fires with sprinklers that were large enough to activate them, sprinklers operated and were effective 94% of the time. These statistics were taken from John Hall’s 2010 report, *U.S. Experience with Sprinklers and Other Fire Extinguishing Equipment*.

Ninety-one percent of the sprinklers found in reported home fires were wet-pipe sprinklers. Compared to homes fires without automatic extinguishing systems, the 1.3 death rate per 1,000 reported fires was 83% lower than the 7.8 deaths per 1,000 reported fires with no automatic

<sup>10</sup> Marty Ahrens. *Smoke Alarms in U.S. Home Fires*. Quincy, MA: National Fire Protection Association, 2009. p. 3. Although the period referenced is the same as in last year’s report, the methodology has changed.

<sup>11</sup> 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, 2010.

extinguishing equipment. The average loss per fire was 74% lower in reported fires in which wet pipe sprinklers were present, regardless of operation.

**Table B.**  
**Sprinkler Systems in Reported Home Structure Fires**  
**Excluding Fires in Properties in Construction**  
**and Fires in Which Automatic Extinguishing Equipment was Not Present in Fire Area**  
**2003-2007 Annual Averages**

Share of reported home fires with sprinklers present	5%
When present, operating in fires large enough to activate	95%
When operating, effective in controlling fire	99%
When present and fire large enough, operated <i>and</i> effective	94%
Civilian deaths per 1,000 reported fires	
Without automatic extinguishing equipment	7.8
When wet-pipe sprinkler were present regardless of operation	1.3
Percent reduction	83%
Average loss per fire	
Without automatic extinguishing equipment	\$17,000
When wet-pipe sprinklers were present regardless of operation	\$4,000
Percent reduction	74%

The 2007 American Housing Survey found that 4% of occupied year-round homes had sprinklers, including 2% of single-family homes and 11% of the units in housing with two or more units.<sup>12</sup>

**Wet-pipe sprinklers combined with hard-wired, interconnected smoke alarms maximize home fire safety.**

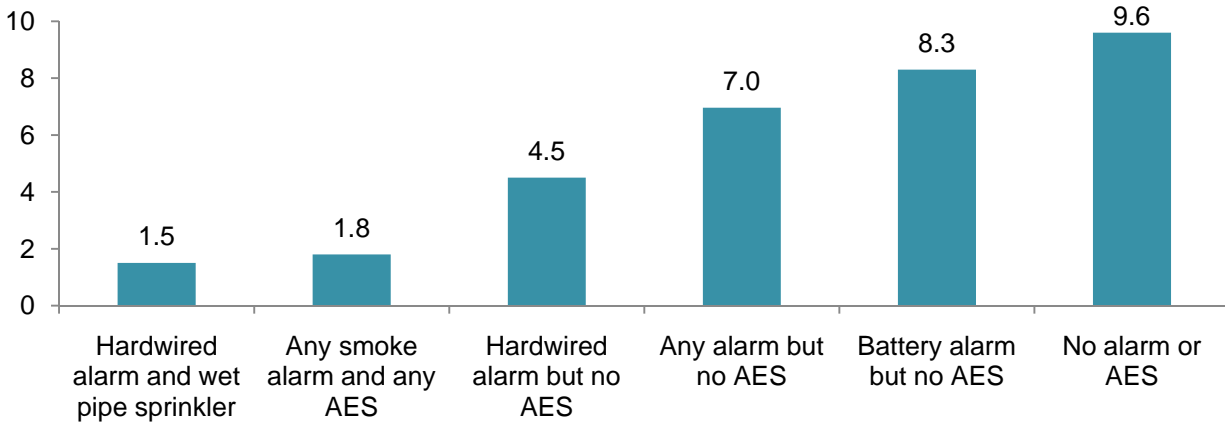
CPSC’s study of unreported fires showed that interconnected smoke alarms were more likely to alert occupants to a fire. Although NFIRS does not collect data on interconnectivity, Figure 13 shows that the death rate per 1,000 reported fires steadily declines with greater levels of fire protection. The death rate is lower in homes with hard-wired smoke alarms than in homes with battery-powered alarms. The rate is lowest in homes both with wet pipe sprinklers and hardwired smoke alarms. These rates are based on presence only. Operation was not considered.

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 *Smoke Alarms in U.S. Home Fires* by Marty Ahrens, and *U.S. Experience with Sprinklers and Other Automatic Fire Extinguishing Equipment* by John R. Hall, Jr.

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<sup>12</sup> *American Housing Survey 2007*, U.S. Department of Commerce and U.S. Department of Housing and Urban Development, September 2008, Table 1C-4, 2-4, and 2-25.

**Figure 13. Fire Death Rate per 1,000 Reported Home Structure Fires by Presence of Smoke Alarms and Automatic Extinguishing Systems (AES) 2003-2006**



Source: NFIRS 5.0 and NFPA survey.

### **Fire Sprinkler Initiative is working to get sprinklers in more homes**

Fire sprinklers have been proven to save lives yet they are found in a minority of homes. One- and two-family homes are less likely to have this protection than apartments. The Fire Sprinkler Initiative is working to bring sprinklers into all new homes, including one- or two-family homes and apartments or multi-family homes. For details, see <http://www.firesprinklerinitiative.org/>.

### **Changes in Fire Death Patterns Over Time**

Over the years, a variety of strategies have been employed to reduce the number of fire deaths. 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.

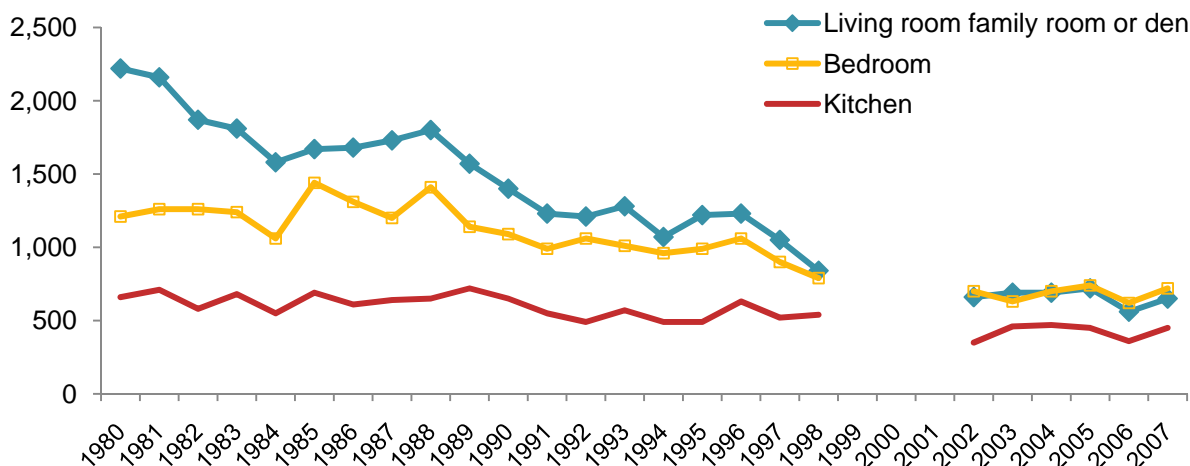
This section compares trends in selected fire death scenarios. Averages are shown for two five-year periods: 1980-1984, the earliest years of national data available, and 2003-2007, the latest data available. Due to the instability of estimates for 1999-2001, the transition years to NFIRS 5.0, estimates for these years are not shown in the graphs but are included in the tables. The total death estimates shown in Tables 13-16 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 13 and Figure 14 show that in five of the last six 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 66% from the 1980-1984 average of 1,930 per year to the 2003-2007 average of 660 per year. Over the same periods, deaths from bedroom fires fell 43% from 1,210 per year to 680 per year. While kitchens ranked third in fire deaths, the decline in kitchen deaths was the smallest seen in the three areas. These deaths fell 31% from an average of 640 per year in 1980-1984 to 440 per year in 2003-2007.

**Figure 14. Home Fire Deaths by Area of Origin and Year**

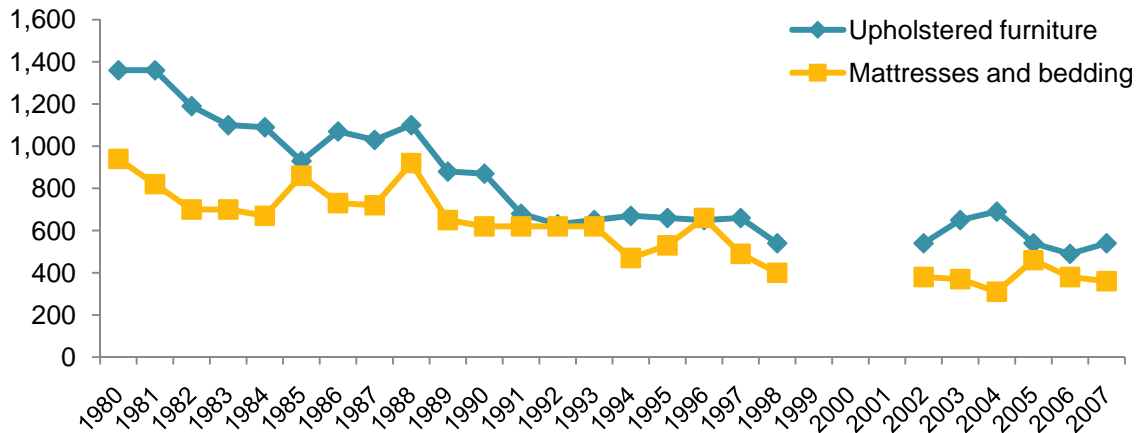


Source: NFIRS 5.0 and NFPA survey.

**Fire deaths from upholstered furniture and mattress and bedding fires were both 51-52% lower than in the early 1980s.**

Figure 15 and Table 14 show trends for the two leading items first ignited in home fire deaths: 1) upholstered furniture and 2) mattresses and bedding. Deaths from home fires that began with upholstered furniture fell 52% from an average of 1,220 per year in 1980-1984 to 580 per year in 2003-2007. Deaths from fires beginning with mattresses and bedding fell 51% from an average of 770 per year in 1980-1984 to 380 per year in 2003-2007. For more information on these topics, see NFPA's reports, *Home Fires that Began with Upholstered Furniture*, and *Home Fires that Began with Mattresses and Bedding*, both by Marty Ahrens. As noted early, flammability standards for both products address these deaths. These undoubtedly played a role in the declining number of deaths resulting from fires starting in both living rooms, family rooms dens and from fires starting in bedrooms.

**Figure 15. Home Fire Deaths from Fires Starting with Upholstered Furniture and Mattresses and Bedding by Year: 1980-2007**

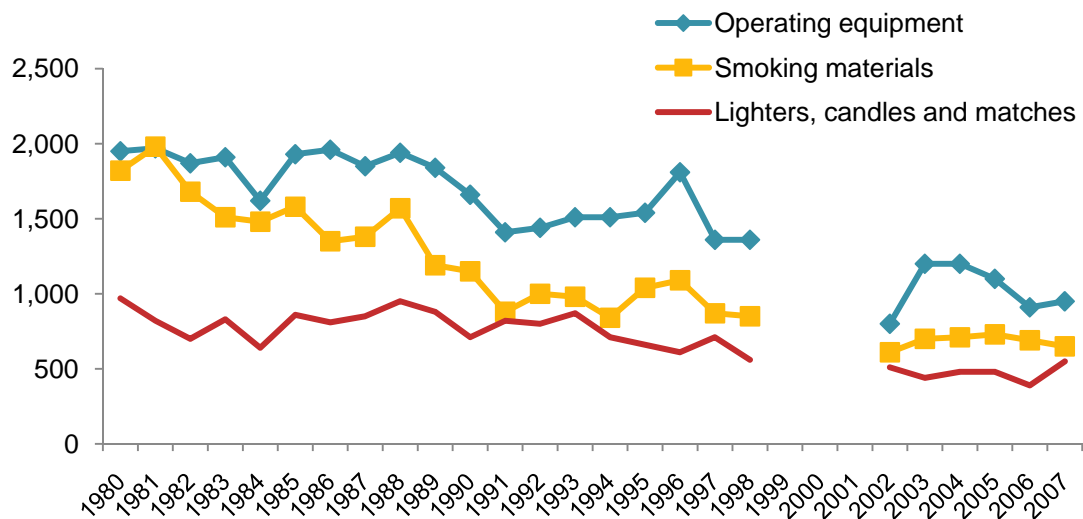


Source: NFIRS 5.0 and NFPA survey.

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

Some flammability standards are intended to prevent ignition by cigarettes. Others address small open flames. Operating equipment is a diverse category a wide variety of types of equipment. In 1980 and 1981, the number of deaths resulting from fires started by smoking materials was close to the number from fires started by operating equipment.<sup>13</sup>

**Figure 16. Home Fire Deaths by Selected Heat Sources and Year**



Source: NFIRS 5.0 and NFPA survey.

<sup>13</sup> 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).

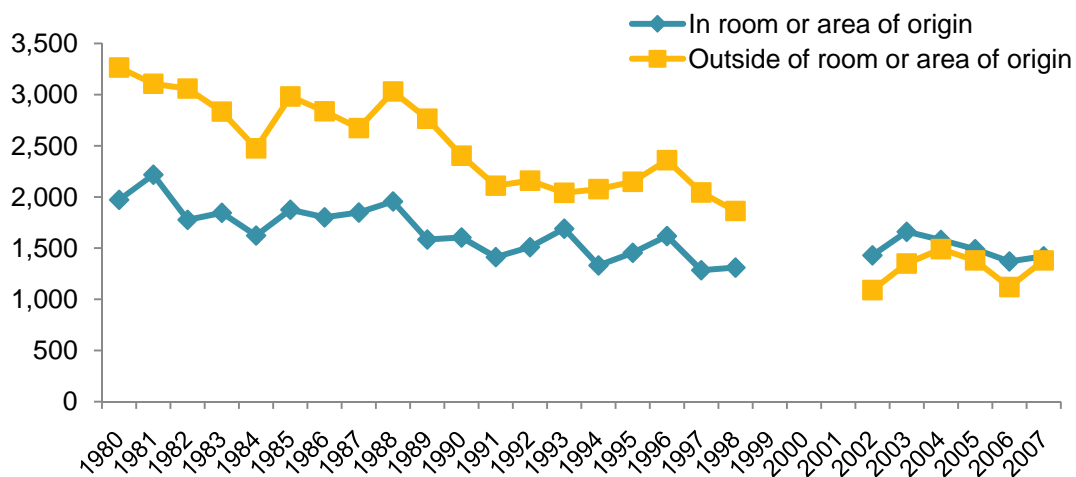
Table 15 and Figure 16 show that the average of deaths from home fires started by operating equipment fell 42% from 1,860 per year in 1980-1984 to 1,070 per year in 2003-2007. It is important to remember that many, if not most, fires started by operating equipment involve some type of human error, such 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 41%, dropping from an average of 790 such deaths per year in 1980-1984 to 460 deaths per year in 2003-2007. The decline in deaths from smoking materials was steeper, dropping 59% from an average of 1,690 per year in 1980-1984 to 700 per year in 2003-2007.

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

Figure 17 and Table 16 show that from 1980-1984, an average of 2,950, or 61%, of the victims of fatal home fires per year were outside the room or area of origin<sup>14</sup> when the fire started. These deaths fell 54% to an average of 1,430 per year in 2003-2007. During this more recent period, only 47% of the victims were outside of the room or area of origin.

**Figure 17. Home Fire Deaths by Victims Location at Time of Fire Origin and Year**



Source: NFIRS 5.0 and NFPA survey.

Deaths of victims who were in the room or area of origin at the time the fire started fell only 20% from an average of 1,890 per year in 1980-1984 to an average of 1,500 per year in 2003-2007. This reversal is consistent with the increasing number of homes who had at least one smoke alarm to provide an early warning of the fire. In 1980, only half of U.S. homes had at least one smoke alarm.<sup>15</sup> By 1990, at least one smoke alarm was found in 86% of all U.S. households.<sup>16</sup>

<sup>14</sup> 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.

<sup>15</sup> Sample survey by the U.S. Fire Administration.

<sup>16</sup> Louis Harris Surveys for *Prevention Magazine*.

By 2004, 96% of all households surveyed by phone reported having at least one smoke alarm.<sup>17</sup> People who are in the room where the fire starts have less time to escape. Someone who is involved with the fire when it starts may be fatally injured before fire protection can operate. This is a particular problem when people are unable to act to remove themselves from danger.

## Outside and Other Fires on Home Properties

### **143,600 outside and other fires per year, on average, were reported at homes.**

During 2003-2007, an estimated annual average of 143,600 outside and other fires on home properties caused an average of 20 deaths, 330 civilian injuries, and \$53 million in direct property damage per year. An average of 15,200 vehicle fires reported on these properties (without structural involvement) caused an average of ten civilian deaths, 130 civilian injuries, and \$60 million in direct property damage per year.

## Additional Information Sources

### **NFPA offers more information.**

Three chapters found in the 20<sup>th</sup> 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. The report also shows a breakdown of victim ages for the major fire causes. From that report, we learn that children five and under are 1.4 times as likely to be killed by fire, and people 65 or older face 2.3 times 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 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.”<sup>18</sup>

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<sup>17</sup> Harris Interactive. 2004 Fire Prevention Week survey for NFPA.

<sup>18</sup> Michael A. Greene and Craig Andres. *2004-2005 National Sample Survey of Unreported Residential Fires*. U.S. Consumer Product Safety Commission, July 2009.

Results showed that in 2004-2005:

- U.S. households experienced an average of 7.4 million fires per year.
- In 7.2 million household fires per year, the fire department did not attend.
- 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, removing the fuel from the heat source, and fire extinguishers.
- Including both unreported and reported fires, one of every 15 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 50 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 all households had fire extinguishers. Extinguishers were used in 5.0% of the fires. When a fire extinguisher was used, half of the time it put out the fire completely. It minimized the fire but did not completely put it out in almost one-quarter of the fires. In roughly one-fifth of the fires, an extinguisher was used to little or no effect.

**CPSC provides information about product recalls.**

The 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/>.

**Table 1.  
Reported Home Structure Fires by Year: 1980-2008**

Year	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Millions)	
				As Reported	In 2008 Dollars
1980	734,000	5,200	19,700	\$2,848	\$7,442
1981	711,000	5,400	19,125	\$3,128	\$7,386
1982	654,500	4,820	20,450	\$3,147	\$7,005
1983	625,500	4,670	20,750	\$3,205	\$6,913
1984	605,500	4,075	18,750	\$3,362	\$6,948
1985	606,000	4,885	19,175	\$3,693	\$7,370
1986	565,500	4,655	18,575	\$3,464	\$6,801
1987	536,500	4,570	19,965	\$3,599	\$6,811
1988	538,500	4,955	22,075	\$3,897	\$7,090
1989	498,500	4,335	20,275	\$3,876	\$6,727
1990	454,500	4,050	20,225	\$4,157	\$6,848
1991	464,500	3,500	21,275	\$5,463 <sup>1</sup>	\$8,623 <sup>1</sup>
1992	459,000	3,705	21,100	\$3,775	\$5,788
1993	458,000	3,720	22,000	\$4,764 <sup>2</sup>	\$7,090 <sup>2</sup>
1994	438,000	3,425	19,475	\$4,215	\$6,119
1995	414,000	3,640	18,650	\$4,264	\$6,015
1996	417,000	4,035	18,875	\$4,869	\$6,680
1997	395,500	3,360	17,300	\$4,453	\$5,966
1998	369,500	3,220	16,800	\$4,273	\$5,642
1999	371,000	2,895	16,050	\$4,965	\$6,406
2000	368,000	3,420	16,975	\$5,525	\$6,903
2001	383,500	3,110	15,200	\$5,516	\$6,702
2002	389,000	2,670	13,650	\$5,931	\$7,092
2003	388,500	3,145	13,650	\$5,949 <sup>3</sup>	\$6,960 <sup>3</sup>
2004	395,500	3,190	13,700	\$5,833	\$6,648
2005	381,000	3,030	13,300	\$6,729	\$7,409
2006	396,000	2,580	12,500	\$6,832	\$7,287
2007	399,000	2,865	13,600	\$7,389 <sup>4</sup>	\$7,659 <sup>4</sup>
2008	386,500	2,755	13,560	\$8,243	\$8,243

<sup>1</sup>Includes \$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.

<sup>2</sup>Includes \$809 million in damage caused by Southern California wildfires

<sup>3</sup> This does not include the Southern California wildfires with an estimated property damage of \$2 billion.

<sup>4</sup>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**  
**2003-2007 Annual Averages**

Month	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
January	39,100	(10%)	390	(14%)	1,360	(10%)	\$625	(10%)
February	34,200	(9%)	340	(12%)	1,250	(9%)	\$534	(8%)
March	34,000	(9%)	290	(10%)	1,260	(10%)	\$530	(8%)
April	31,100	(8%)	220	(8%)	1,090	(8%)	\$516	(8%)
May	29,100	(8%)	180	(6%)	1,040	(8%)	\$474	(7%)
June	27,000	(7%)	150	(5%)	930	(7%)	\$464	(7%)
July	28,600	(8%)	150	(5%)	960	(7%)	\$497	(8%)
August	26,600	(7%)	150	(5%)	960	(7%)	\$453	(7%)
September	26,300	(7%)	160	(6%)	870	(7%)	\$434	(7%)
October	30,800	(8%)	200	(7%)	1,020	(8%)	\$623	(10%)
November	33,900	(9%)	250	(9%)	1,090	(8%)	\$503	(8%)
December	39,300	(10%)	350	(12%)	1,340	(10%)	\$704	(11%)
Total	380,000	(100%)	2,840	(100%)	13,160	(100%)	\$6,358	(100%)
Monthly average	31,700	(8%)	240	(8%)	1,100	(8%)	\$530	(8%)

**Table 3.**  
**Reported Home Structure Fires by Day of Week**  
**2003-2007 Annual Averages**

Day of Week	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Sunday	58,600	(15%)	430	(15%)	2,010	(15%)	\$1,068	(17%)
Monday	54,300	(14%)	390	(14%)	1,870	(14%)	\$942	(15%)
Tuesday	52,300	(14%)	360	(13%)	1,840	(14%)	\$905	(14%)
Wednesday	52,200	(14%)	380	(13%)	1,800	(14%)	\$811	(13%)
Thursday	52,700	(14%)	380	(13%)	1,900	(14%)	\$833	(13%)
Friday	52,600	(14%)	430	(15%)	1,760	(13%)	\$888	(14%)
Saturday	57,200	(15%)	470	(17%)	1,970	(15%)	\$911	(14%)
Total	380,000	(100%)	2,840	(100%)	13,160	(100%)	\$6,358	(100%)
Daily average	54,300	(14%)	410	(14%)	1,880	(14%)	\$908	(14%)

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

Source: NFIRS 5.0 and NFPA survey.

**Table 4.**  
**Reported Home Structure Fires by Alarm Time**  
**2003-2007 Annual Averages**

Alarm Time	Fires		Civilian		Civilian		Direct	
			Deaths	Injuries	Injuries	Property Damage (in Millions)		
Midnight - 12:59 a.m.	12,100	(3%)	190	(7%)	520	(4%)	\$391	(6%)
1:00 - 1:59 a.m.	10,200	(3%)	200	(7%)	540	(4%)	\$303	(5%)
2:00 - 2:59 a.m.	9,200	(2%)	190	(7%)	540	(4%)	\$289	(5%)
3:00 - 3:59 a.m.	8,400	(2%)	220	(8%)	550	(4%)	\$279	(4%)
4:00 - 4:59 a.m.	7,700	(2%)	190	(7%)	480	(4%)	\$254	(4%)
5:00 - 5:59 a.m.	7,200	(2%)	180	(6%)	420	(3%)	\$199	(3%)
6:00 - 6:59 a.m.	8,000	(2%)	140	(5%)	360	(3%)	\$179	(3%)
7:00 - 7:59 a.m.	9,700	(3%)	110	(4%)	380	(3%)	\$161	(3%)
8:00 - 8:59 a.m.	11,600	(3%)	110	(4%)	430	(3%)	\$184	(3%)
9:00 - 9:59 a.m.	13,600	(4%)	90	(3%)	490	(4%)	\$223	(4%)
10:00 - 10:59 a.m.	15,500	(4%)	80	(3%)	510	(4%)	\$234	(4%)
11:00 - 11:59 a.m.	17,300	(5%)	70	(3%)	520	(4%)	\$244	(4%)
Noon - 12:59 p.m.	18,900	(5%)	70	(2%)	590	(4%)	\$256	(4%)
1:00 - 1:59 p.m.	19,100	(5%)	70	(2%)	570	(4%)	\$273	(4%)
2:00 - 2:59 p.m.	19,700	(5%)	80	(3%)	570	(4%)	\$292	(5%)
3:00 - 3:59 p.m.	21,000	(6%)	70	(2%)	590	(5%)	\$343	(5%)
4:00 - 4:59 p.m.	23,000	(6%)	80	(3%)	690	(5%)	\$295	(5%)
5:00 - 5:59 p.m.	26,100	(7%)	70	(2%)	710	(5%)	\$344	(5%)
6:00 - 6:59 p.m.	26,700	(7%)	90	(3%)	700	(5%)	\$283	(4%)
7:00 - 7:59 p.m.	25,000	(7%)	80	(3%)	740	(6%)	\$289	(5%)
8:00 - 8:59 p.m.	22,300	(6%)	80	(3%)	640	(5%)	\$274	(4%)
9:00 - 9:59 p.m.	19,000	(5%)	100	(4%)	580	(4%)	\$260	(4%)
10:00 - 10:59 p.m.	15,700	(4%)	110	(4%)	500	(4%)	\$253	(4%)
11:00 - 11:59 p.m.	13,000	(3%)	150	(5%)	530	(4%)	\$256	(4%)
Total	380,000	(100%)	2,840	(100%)	13,160	(100%)	\$6,358	(100%)
Average	15,800	(4%)	120	(4%)	550	(4%)	\$265	(4%)

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

Source: NFIRS 5.0 and NFPA survey.

**Table 5.**  
**Leading Causes of Reported Home Structure Fires**  
**2003-2007 Annual Averages**  
**(Unknowns Were Allocated Proportionally)**

Cause	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Cooking equipment	151,300	(40%)	480	(17%)	4,690	(36%)	\$686	(11%)
<i>Cooking equipment in non-confined fire</i>	37,500	(10%)	480	(17%)	3,190	(24%)	\$659	(10%)
<i>Confined cooking fire</i>	113,800	(30%)	10	(0%)	1,500	(11%)	\$26	(0%)
Heating equipment	67,200	(18%)	610	(22%)	1,660	(13%)	\$846	(13%)
<i>Heating equipment in non-confined fire</i>	28,000	(7%)	610	(22%)	1,530	(12%)	\$831	(13%)
<i>Confined chimney or flue fire</i>	23,400	(6%)	0	(0%)	40	(0%)	\$11	(0%)
<i>Confined fuel burner or boiler fire</i>	15,800	(4%)	0	(0%)	90	(1%)	\$4	(0%)
Intentional	29,000	(8%)	330	(12%)	940	(7%)	\$541	(9%)
Electrical distribution or lighting equipment*	22,000	(6%)	350	(12%)	880	(7%)	\$709	(11%)
Smoking materials	19,400	(5%)	700	(25%)	1,280	(10%)	\$424	(7%)
Clothes dryer or washer*	15,700	(4%)	10	(0%)	460	(3%)	\$189	(3%)
Candle	15,300	(4%)	170	(6%)	1,290	(10%)	\$450	(7%)
Exposure fire	12,300	(3%)	20	(1%)	60	(0%)	\$682	(11%)
Playing with heat source	7,900	(2%)	120	(4%)	790	(6%)	\$201	(3%)

\* Estimates of fires involving electrical distribution or lighting equipment or clothes dryers or washers exclude confined fires. See NFPA's detailed analysis of 2003-2007 home fires "Home Structure Fires by Equipment Involved in Ignition," John R. Hall, Jr. for estimates that include confined fires.

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.

Source: NFIRS 5.0 and NFPA survey.

**Table 6.**  
**Reported Home Structure Fires by Cause of Ignition (from NFIRS Cause Field)**  
**2003-2007 Annual Averages**  
**(Unknowns Were Allocated Proportionally)**

Cause of Ignition	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Unintentional	263,000	(69%)	2,070	(73%)	10,570	(80%)	\$3,846	(60%)
<i>In non-confined fire</i>	128,200	(34%)	2,060	(73%)	9,030	(69%)	\$3,812	(60%)
<i>In confined fire</i>	134,800	(35%)	10	(0%)	1,540	(12%)	\$34	(1%)
Failure of equipment or heat source	60,400	(16%)	360	(13%)	1,340	(10%)	\$1,015	(16%)
<i>In non-confined fire</i>	41,700	(11%)	360	(13%)	1,260	(10%)	\$1,009	(16%)
<i>In confined fire</i>	18,700	(5%)	0	(0%)	80	(1%)	\$6	(0%)
Intentional	29,100	(8%)	330	(12%)	940	(7%)	\$541	(9%)
<i>In non-confined fire</i>	18,300	(5%)	330	(12%)	900	(7%)	\$539	(8%)
<i>In confined fire</i>	10,800	(3%)	0	(0%)	40	(0%)	\$2	(0%)
Unclassified	21,500	(6%)	60	(2%)	250	(2%)	\$677	(11%)
<i>In non-confined fire</i>	15,500	(4%)	60	(2%)	230	(2%)	\$676	(11%)
<i>In confined fire</i>	6,000	(2%)	0	(0%)	20	(0%)	\$1	(0%)
Act of nature	6,200	(2%)	10	(0%)	60	(0%)	\$279	(4%)
<i>In non-confined fire</i>	5,500	(1%)	10	(1%)	60	(0%)	\$279	(4%)
<i>In confined fire</i>	700	(0%)	0	(0%)	0	(0%)	\$0	(0%)
<b>Total</b>	<b>380,000</b>	<b>(100%)</b>	<b>2,840</b>	<b>(100%)</b>	<b>13,160</b>	<b>(100%)</b>	<b>\$6,358</b>	<b>(100%)</b>
<i>Total non-confined</i>	209,100	(55%)	2,830	(100%)	11,480	(87%)	\$6,314	(99%)
<i>Total confined</i>	171,000	(45%)	10	(0%)	1,690	(13%)	\$44	(1%)

Note: Sums may not equal totals due to rounding errors. Confined structure fires (NFIRS incident type 113-118) were analyzed separately from non-confined structure fires (incident type 110-129, except 113-118). See Appendix A for details.

Source: NFIRS 5.0 and NFPA survey.

**Table 7.**  
**Reported Home Structure Fires by Equipment Involved in Ignition**  
**2003-2007 Annual Averages**  
 (Unknowns in Non-Confined Fires and Confined Cooking Fires Were Allocated Proportionally)

Equipment Involved	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
<b>Cooking equipment</b>	<b>151,300</b>	<b>(40%)</b>	<b>480</b>	<b>(17%)</b>	<b>4,690</b>	<b>(36%)</b>	<b>\$686</b>	<b>(11%)</b>
Range or cooktop	88,600	(23%)	410	(14%)	3,640	(28%)	\$483	(8%)
<i>Range or cooktop with non-confined fire incident type</i>	29,200	(8%)	410	(14%)	2,720	(21%)	\$469	(7%)
<i>Confined range fire</i>	59,400	(16%)	0	(0%)	920	(7%)	\$15	(0%)
Oven or rotisserie	23,800	(6%)	10	(0%)	290	(2%)	\$29	(0%)
<i>Oven or rotisserie with non-confined fire incident type</i>	3,000	(1%)	10	(0%)	140	(1%)	\$25	(0%)
<i>Confined oven or rotisserie fire</i>	20,800	(5%)	0	(0%)	150	(1%)	\$4	(0%)
Portable cooking or warming device	7,100	(2%)		(0%)		(0%)	\$66	(1%)
<i>Portable cooking or warming device with non-confined fire incident type</i>	2,200	(1%)	30	(1%)	150	(1%)	\$66	(1%)
<i>Portable cooking or warming device in confined fire</i>	4,800	(1%)	0	(0%)	60	(0%)	\$1	(0%)
Microwave oven	6,800	(2%)	0	(0%)	130	(1%)	\$20	(0%)
<i>Microwave oven with non-confined fire incident type</i>	1,400	(0%)	0	(0%)	80	(1%)	\$20	(0%)
<i>Confined microwave oven fire</i>	5,500	(1%)	0	(0%)	40	(0%)	\$1	(0%)
Grill, barbecue or hibachi	2,900	(1%)	20	(1%)	90	(1%)	\$69	(1%)
<i>Grill, hibachi or barbecue with non-confined fire incident type</i>	1,300	(0%)	20	(1%)	70	(1%)	\$68	(1%)
<i>Confined grill, hibachi or barbecue fire</i>	1,600	(0%)	0	(0%)	20	(0%)	\$0	(0%)
Other known cooking equipment in non-confined fire	900	(0%)	0	(0%)	60	(0%)	\$18	(0%)
Confined cooking fire with other or unknown equipment	21,600	(6%)	0	(0%)	310	(2%)	\$5	(0%)
<b>No equipment involved</b>	<b>83,400</b>	<b>(22%)</b>	<b>1,130</b>	<b>(40%)</b>	<b>4,140</b>	<b>(31%)</b>	<b>\$3,236</b>	<b>(51%)</b>
<b>Heating equipment</b>	<b>67,200</b>	<b>(18%)</b>	<b>610</b>	<b>(22%)</b>	<b>1,660</b>	<b>(13%)</b>	<b>\$846</b>	<b>(13%)</b>
Fireplace or chimney fire*	27,400	(7%)	30	(1%)	140	(1%)	\$211	(3%)
<i>Fireplace or chimney with non-confined incident type</i>	4,100	(1%)	30	(1%)	100	(1%)	\$201	(3%)
<i>Confined chimney or flue fire*</i>	23,400	(6%)	0	(0%)	40	(0%)	\$11	(0%)
Furnace, central heat or boiler*	18,600	(5%)	40	(2%)	200	(2%)	\$77	(1%)
<i>Furnace or boiler with non-confined incident type</i>	2,700	(1%)	40	(2%)	110	(1%)	\$73	(1%)
<i>Confined fuel burner or boiler fire*</i>	15,800	(4%)	0	(0%)	90	(1%)	\$4	(0%)
Space heater	14,500	(4%)	490	(17%)	980	(7%)	\$415	(7%)
Water heater	5,900	(2%)	40	(1%)	310	(2%)	\$121	(2%)
Other known heating equipment in non-confined fire	900	(0%)	10	(0%)	30	(0%)	\$21	(0%)

**Table 7.**  
**Reported Home Structure Fires by Equipment Involved in Ignition**  
**2003-2007 Annual Averages**  
(Unknowns in Non-Confined Fires and Confined Cooking Fires Were Allocated Proportionally)  
(Continued)

Equipment Involved	Fires		Civilian		Civilian		Direct	
			Deaths	Injuries	Property Damage	(in Millions)		
<b>Electrical distribution or lighting equipment</b>	<b>22,000</b>	<b>(6%)</b>	<b>350</b>	<b>(12%)</b>	<b>880</b>	<b>(7%)</b>	<b>\$709</b>	<b>(11%)</b>
Fixed wiring and related equipment	12,600	(3%)	140	(5%)	350	(3%)	\$374	(6%)
Lamp, light bulb or fixture	5,400	(1%)	70	(0%)	250	(0%)	\$180	(3%)
Cord or plug	2,700	(1%)	130	(5%)	220	(2%)	\$101	(2%)
Other known electrical distribution or lighting equipment	1,200	(0%)	20	(1%)	60	(0%)	\$55	(1%)
<b>Clothes dryer or washer*</b>	<b>15,700</b>	<b>(4%)</b>	<b>10</b>	<b>(0%)</b>	<b>460</b>	<b>(3%)</b>	<b>\$189</b>	<b>(3%)</b>
<b>Fan</b>	<b>3,700</b>	<b>(1%)</b>	<b>20</b>	<b>(1%)</b>	<b>130</b>	<b>(1%)</b>	<b>\$79</b>	<b>(1%)</b>
<b>Kitchen equipment not used to heat food</b>	<b>2,800</b>	<b>(1%)</b>	<b>10</b>	<b>(0%)</b>	<b>100</b>	<b>(1%)</b>	<b>\$68</b>	<b>(1%)</b>
<b>Electronic, office, or entertainment equipment</b>	<b>2,500</b>	<b>(1%)</b>	<b>10</b>	<b>(0%)</b>	<b>150</b>	<b>(1%)</b>	<b>\$74</b>	<b>(1%)</b>
<b>Air conditioner</b>	<b>2,400</b>	<b>(1%)</b>	<b>10</b>	<b>(0%)</b>	<b>100</b>	<b>(1%)</b>	<b>\$58</b>	<b>(1%)</b>
<b>Unclassified equipment involved in ignition</b>	<b>2,100</b>	<b>(1%)</b>	<b>20</b>	<b>(1%)</b>	<b>80</b>	<b>(1%)</b>	<b>\$0</b>	<b>(0%)</b>
<b>Torch, burner or soldering iron</b>	<b>2,000</b>	<b>(1%)</b>	<b>10</b>	<b>(0%)</b>	<b>120</b>	<b>(1%)</b>	<b>\$130</b>	<b>(2%)</b>
<b>Contained trash or rubbish fire</b>	<b>15,600</b>	<b>(4%)</b>	<b>0</b>	<b>(0%)</b>	<b>50</b>	<b>(0%)</b>	<b>\$0</b>	<b>(0%)</b>
<b>Other confined fire</b>	<b>2,300</b>	<b>(1%)</b>	<b>0</b>	<b>(0%)</b>	<b>0</b>	<b>(0%)</b>	<b>\$0</b>	<b>(0%)</b>
<b>Other known equipment</b>	<b>6,400</b>	<b>(2%)</b>	<b>160</b>	<b>(6%)</b>	<b>550</b>	<b>(4%)</b>	<b>\$198</b>	<b>(3%)</b>
<b>Total</b>	<b>380,000</b>	<b>(100%)</b>	<b>2,840</b>	<b>(100%)</b>	<b>13,160</b>	<b>(100%)</b>	<b>\$6,358</b>	<b>(100%)</b>

\* The estimates of fires involving fireplaces or chimneys include all fires with the confined chimney or flue incident type regardless of what may have been coded as equipment involved. Likewise, the estimates of fires involving furnaces, central heat or boilers include all fires with confined fuel burner or boiler incident type. The estimates shown should be considered upper bounds. Except for confined cooking fires, the estimates for equipment involved in ignition did not break out the confined fires further. In NFPA's 2010 detailed analysis of 2003-2007 home fires "Home Structure Fires by Equipment Involved in Ignition," John R. Hall, Jr. notes an annual average total of 17,300 dryer or washer fires, with an annual average of 1,550 such fires having confined fire incident types. Confined dryer or washer fires include an annual average of 170 fires confined to cooking vessel; 530 fires confined to chimney, flue, fuel burner, or boiler; 670 confined trash fires; 160 confined incinerator fires; and 20 confined compactor fires, all of which are also coded with confined cooking, heating, trash, incinerator, or compactor fires, respectively. Hall's report, *Home Fires Involving Heating Equipment*, shows a detailed breakdown of the equipment involved in the confined heating fires.

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.

Source: NFIRS 5.0 and NFPA survey.

**Table 8.**  
**Reported Home Structure Fires by Heat Source**  
**2003-2007 Annual Averages (Unknowns Were Allocated Proportionally)**

<b>Heat Source</b>	<b>Fires</b>	<b>Civilian Deaths</b>	<b>Civilian Injuries</b>	<b>Direct Property Damage (in Millions)</b>
Radiated or conducted heat from operating equipment	77,700 (20%)	390 (14%)	2,900 (22%)	\$796 (13%)
<i>In non-confined fire</i>	32,000 (8%)	390 (14%)	2,260 (17%)	\$785 (12%)
<i>In confined fire</i>	45,700 (12%)	0 (0%)	640 (5%)	\$10 (0%)
Unclassified heat from powered equipment	65,600 (17%)	200 (7%)	2,060 (16%)	\$641 (10%)
<i>In non-confined fire</i>	28,300 (7%)	200 (7%)	1,580 (12%)	\$630 (10%)
<i>In confined fire</i>	37,300 (10%)	0 (0%)	480 (4%)	\$11 (0%)
Unclassified heat source	36,600 (10%)	180 (6%)	800 (6%)	\$468 (7%)
<i>In non-confined fire</i>	15,700 (4%)	180 (6%)	610 (5%)	\$463 (7%)
<i>In confined fire</i>	20,900 (5%)	0 (0%)	180 (1%)	\$5 (0%)
Arcing	32,500 (9%)	290 (10%)	920 (7%)	\$855 (13%)
<i>In non-confined fire</i>	29,100 (8%)	290 (10%)	910 (7%)	\$854 (13%)
<i>In confined fire</i>	3,400 (1%)	0 (0%)	10 (0%)	\$1 (0%)
Unclassified hot or smoldering object	27,000 (7%)	170 (6%)	700 (5%)	\$444 (7%)
<i>In non-confined fire</i>	15,300 (4%)	160 (6%)	590 (5%)	\$441 (7%)
<i>In confined fire</i>	11,700 (3%)	0 (0%)	110 (1%)	\$3 (0%)
Hot ember or ash	26,400 (7%)	110 (4%)	470 (4%)	\$384 (6%)
<i>In non-confined fire</i>	12,400 (3%)	110 (4%)	450 (3%)	\$380 (6%)
<i>In confined fire</i>	14,100 (4%)	0 (0%)	20 (0%)	\$4 (0%)
Spark, ember or flame from operating equipment	25,600 (7%)	190 (7%)	890 (7%)	\$354 (6%)
<i>In non-confined fire</i>	12,600 (3%)	180 (6%)	790 (6%)	\$350 (6%)
<i>In confined fire</i>	13,000 (3%)	0 (0%)	100 (1%)	\$4 (0%)
Smoking materials	19,400 (5%)	700 (25%)	1,280 (10%)	\$424 (7%)
<i>In non-confined fire</i>	13,500 (4%)	700 (25%)	1,240 (9%)	\$423 (7%)
<i>In confined fire</i>	5,900 (2%)	0 (0%)	50 (0%)	\$1 (0%)
Candle	15,300 (4%)	170 (6%)	1,290 (10%)	\$450 (7%)
<i>In non-confined fire</i>	14,200 (4%)	170 (6%)	1,280 (10%)	\$449 (7%)
<i>In confined fire</i>	1,000 (0%)	0 (0%)	10 (0%)	\$1 (0%)
Match	12,700 (3%)	90 (3%)	350 (3%)	\$132 (2%)
<i>In non-confined fire</i>	4,900 (1%)	90 (3%)	320 (2%)	\$131 (2%)
<i>In confined fire</i>	7,800 (2%)	0 (0%)	30 (0%)	\$1 (0%)
Lighter	9,400 (2%)	210 (7%)	860 (7%)	\$211 (3%)
<i>In non-confined fire</i>	7,200 (2%)	210 (7%)	850 (6%)	\$211 (3%)
<i>In confined fire</i>	2,200 (1%)	0 (0%)	10 (0%)	\$0 (0%)
Other known heat source	31,900 (8%)	150 (5%)	650 (5%)	\$1,201 (19%)
<i>In non-confined fire</i>	23,900 (6%)	150 (5%)	590 (4%)	\$1,199 (19%)
<i>In confined fire</i>	8,000 (2%)	0 (0%)	60 (0%)	\$2 (0%)
<b>Total</b>	<b>380,000 (100%)</b>	<b>2,840 (100%)</b>	<b>13,160 (100%)</b>	<b>\$6,358 (100%)</b>
<i>Total non-confined fires</i>	<i>209,100 (55%)</i>	<i>2,830 (100%)</i>	<i>11,480 (87%)</i>	<i>\$6,314 (99%)</i>
<i>Total confined fires</i>	<i>171,000 (45%)</i>	<i>10 (0%)</i>	<i>1,690 (13%)</i>	<i>\$44 (1%)</i>

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. Confined structure fires (NFIRS incident type 113-118) were analyzed separately from non-confined structure fires (incident type 110-129, except 113-118). See Appendix A for details.  
Source: NFIRS 5.0 and NFPA survey.

**Table 9.**  
**Reported Home Structure Fires by Factors Contributing to Ignition**  
**2003-2007 Annual Averages**  
**(Unknowns Were Allocated Proportionally)**

<b>Factor Contributing</b>	<b>Fires</b>	<b>Civilian Deaths</b>	<b>Civilian Injuries</b>	<b>Direct Property Damage (in Millions)</b>
Equipment unattended	53,900 (14%)	190 (7%)	2,110 (16%)	\$367 (3%)
<i>In non-confined fire</i>	16,800 (4%)	190 (7%)	1,530 (12%)	\$358 (3%)
<i>In confined fire</i>	37,000 (10%)	0 (0%)	580 (4%)	\$9 (0%)
Electrical failure or malfunction	52,200 (14%)	500 (18%)	1,480 (11%)	\$1,404 (11%)
<i>In non-confined fire</i>	46,500 (12%)	500 (18%)	1,470 (11%)	\$1,401 (11%)
<i>In confined fire</i>	5,700 (2%)	0 (0%)	10 (0%)	\$3 (0%)
Heat source too close to combustibles	40,400 (11%)	570 (20%)	2,380 (18%)	\$885 (7%)
<i>In non-confined fire</i>	29,400 (8%)	570 (20%)	2,260 (17%)	\$880 (7%)
<i>In confined fire</i>	10,900 (3%)	10 (0%)	120 (1%)	\$4 (0%)
Abandoned or discarded material	39,300 (10%)	450 (16%)	1,560 (12%)	\$619 (5%)
<i>In non-confined fire</i>	21,000 (6%)	450 (16%)	1,380 (10%)	\$615 (5%)
<i>In confined fire</i>	18,300 (5%)	0 (0%)	180 (1%)	\$3 (0%)
Failure to clean	34,600 (9%)	10 (0%)	160 (1%)	\$71 (1%)
<i>In non-confined fire</i>	4,900 (1%)	10 (0%)	110 (1%)	\$66 (1%)
<i>In confined fire</i>	29,700 (8%)	0 (0%)	40 (0%)	\$5 (0%)
Unclassified misuse of material	29,600 (8%)	320 (11%)	1,610 (12%)	\$355 (3%)
<i>In non-confined fire</i>	14,000 (4%)	320 (11%)	1,400 (11%)	\$351 (3%)
<i>In confined fire</i>	15,700 (4%)	0 (0%)	220 (2%)	\$4 (0%)
Mechanical failure or malfunction	29,600 (11%)	160 (6%)	650 (7%)	\$412 (9%)
<i>In non-confined fire</i>	16,400 (6%)	160 (6%)	540 (4%)	\$408
<i>In confined fire</i>	13,200 (6%)	0 (0%)	100 (3%)	\$4 (4%)
Unclassified factor contributed to ignition	29,400 (8%)	280 (10%)	960 (7%)	\$511 (4%)
<i>In non-confined fire</i>	13,400 (4%)	280 (10%)	800 (6%)	\$506 (4%)
<i>In confined fire</i>	16,000 (4%)	0 (0%)	150 (1%)	\$5 (0%)
Exposure fire	12,300 (3%)	20 (1%)	60 (0%)	\$682 (5%)
<i>In non-confined fire</i>	12,100 (3%)	20 (1%)	60 (0%)	\$682 (5%)
<i>In confined fire</i>	300 (0%)	0 (0%)	0 (0%)	\$0 (0%)
Unintentionally turned on or not turned off	12,000 (3%)	40 (1%)	390 (3%)	\$117 (1%)
<i>In non-confined fire</i>	4,300 (1%)	40 (1%)	290 (2%)	\$115 (1%)
<i>In confined fire</i>	7,600 (2%)	0 (0%)	100 (1%)	\$2 (0%)
Playing with heat source	7,900 (2%)	120 (4%)	790 (6%)	\$201 (2%)
<i>In non-confined fire</i>	6,700 (2%)	120 (4%)	780 (6%)	\$201 (2%)
<i>In confined fire</i>	1,200 (0%)	0 (0%)	10 (0%)	\$0 (0%)
Unclassified operational deficiency	6,500 (2%)	30 (1%)	210 (2%)	\$71 (1%)
<i>In non-confined fire</i>	2,500 (1%)	30 (1%)	160 (1%)	\$70 (1%)
<i>In confined fire</i>	4,000 (1%)	0 (0%)	50 (0%)	\$1 (0%)
Other known factor	49,300 (13%)	420 (15%)	1,630 (12%)	\$1,144 (9%)
<i>In non-confined fire</i>	31,600 (8%)	420 (15%)	1,460 (11%)	\$1,139 (9%)
<i>In confined fire</i>	17,700 (5%)	0 (0%)	170 (1%)	\$5 (0%)
Total entries*	396,900 (104%)	3,110 (110%)	14,000 (106%)	\$6,838 (54%)
<i>In non-confined fire</i>	219,600 (58%)	3,110 (109%)	12,250 (93%)	\$6,792 (54%)
<i>In confined fire</i>	177,300 (47%)	10 (0%)	1,740 (13%)	\$46 (0%)
Total fires*	380,100 (100%)	2,840 (100%)	13,170 (100%)	\$12,672 (100%)
<i>Total non-confined fires</i>	209,100 (55%)	2,830 (100%)	11,480 (87%)	\$6,314 (99%)
<i>Total confined fires</i>	171,000 (45%)	10 (0%)	1,690 (13%)	\$44 (1%)

**Table 9.**  
**Reported Home Structure Fires by Factors Contributing to Ignition**  
**2003-2007 Annual Averages**  
**(Unknowns Were Allocated Proportionally)**  
**(Continued)**

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

Note: Sums may not equal totals due to rounding errors. 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. Confined structure fires (NFIRS incident type 113-118) were analyzed separately from non-confined structure fires (incident type 110-129, except 113-118). See Appendix A for details.

Source: NFIRS 5.0 and NFPA survey.

**Table 10.**  
**Reported Home Structure Fires by Area of Origin**  
**2003-2007 Annual Averages**  
**(Unknowns Were Allocated Proportionally)**

Area of Origin	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Kitchen	154,300	(41%)	440	(15%)	4,740	(36%)	\$866	(14%)
<i>In non-confined fire</i>	44,100	(12%)	430	(15%)	3,270	(25%)	\$841	(13%)
<i>In confined fire</i>	110,200	(29%)	10	(0%)	1,470	(11%)	\$25	(0%)
Bedroom	30,100	(8%)	680	(24%)	2,820	(21%)	\$940	(15%)
<i>In non-confined fire</i>	29,100	(8%)	680	(24%)	2,770	(21%)	\$937	(15%)
<i>In confined fire</i>	1,000	(0%)	0	(0%)	10	(0%)	\$0	(0%)
Confined chimney or flue fire*	23,400	(6%)	0	(0%)	40	(0%)	\$11	(0%)
Living room, family room or den	14,500	(4%)	660	(23%)	1,370	(10%)	\$560	(9%)
<i>In non-confined fire</i>	13,700	(4%)	660	(23%)	1,360	(10%)	\$559	(9%)
<i>In confined fire</i>	900	(0%)	0	(0%)	20	(0%)	\$0	(0%)
Laundry room or area	11,500	(3%)	50	(2%)	370	(3%)	\$185	(3%)
<i>In non-confined fire</i>	10,200	(3%)	50	(2%)	360	(3%)	\$184	(3%)
<i>In confined fire</i>	1,400	(0%)	0	(0%)	10	(0%)	\$0	(0%)
Unclassified function area	10,800	(3%)	350	(12%)	740	(6%)	\$370	(6%)
<i>In non-confined fire</i>	9,700	(3%)	350	(12%)	740	(6%)	\$370	(6%)
<i>In confined fire</i>	1,100	(0%)	0	(0%)	10	(0%)	\$0	(0%)
Attic or ceiling/roof assembly or concealed space	9,400	(2%)	30	(1%)	110	(1%)	\$407	(6%)
<i>In non-confined fire</i>	9,200	(2%)	30	(1%)	110	(1%)	\$407	(6%)
<i>In confined fire</i>	100	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Heating equipment room	9,100	(2%)	100	(4%)	220	(2%)	\$253	(4%)
<i>In non-confined fire</i>	4,200	(1%)	20	(1%)	160	(1%)	\$100	(2%)
<i>In confined fire</i>	4,900	(1%)	0	(0%)	50	(0%)	\$2	(0%)
Exterior wall surface	9,100	(2%)	10	(0%)	100	(1%)	\$177	(3%)
<i>In non-confined fire</i>	8,900	(2%)	10	(0%)	100	(1%)	\$177	(3%)
<i>In confined fire</i>	200	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Garage or vehicle storage area**	8,600	(2%)	40	(1%)	390	(3%)	\$456	(7%)
<i>In non-confined fire</i>	7,500	(2%)	40	(1%)	390	(3%)	\$455	(7%)
<i>In confined fire</i>	1,100	(0%)	0	(0%)	10	(0%)	\$0	(0%)
Unclassified area of origin	8,600	(2%)	60	(2%)	110	(1%)	\$131	(2%)
<i>In non-confined fire</i>	5,400	(1%)	60	(2%)	100	(1%)	\$131	(2%)
<i>In confined fire</i>	3,200	(1%)	0	(0%)	10	(0%)	\$1	(0%)
Bathroom	8,100	(2%)	40	(1%)	310	(2%)	\$133	(2%)
<i>In non-confined fire</i>	7,100	(2%)	40	(1%)	310	(2%)	\$133	(2%)
<i>In confined fire</i>	1,000	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Unclassified outside area	7,600	(2%)	10	(0%)	60	(0%)	\$76	(1%)
<i>In non-confined fire</i>	3,200	(1%)	10	(0%)	50	(0%)	\$75	(1%)
<i>In confined fire</i>	4,400	(1%)	0	(0%)	0	(0%)	\$1	(0%)

\* NFIRS 5.0 does not have a separate area of origin code for fires starting in chimneys. Any home fire with NFIRS incident type 114 - "Chimney of fire originating in and confined to a chimney or flue" is captured here.

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

**Table 10.**  
**Reported Home Structure Fires by Area of Origin**  
**2003-2007 Annual Averages**  
**(Unknowns Were Allocated Proportionally)**  
**(Continued)**

<b>Area of Origin</b>	<b>Fires</b>		<b>Civilian Deaths</b>		<b>Civilian Injuries</b>		<b>Direct Property Damage (in Millions)</b>	
Wall assembly or concealed space	7,600	(2%)	40	(2%)	140	(1%)	\$213	(3%)
<i>In non-confined fire</i>	7,400	(2%)	40	(2%)	140	(1%)	\$213	(3%)
<i>In confined fire</i>	200	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Unclassified structural area	6,400	(2%)	100	(4%)	220	(2%)	\$253	(4%)
<i>In non-confined fire</i>	5,500	(1%)	100	(4%)	210	(2%)	\$253	(4%)
<i>In confined fire</i>	900	(0%)	0	(0%)	10	(0%)	\$0	(0%)
Exterior balcony or unenclosed porch	6,100	(2%)	20	(1%)	180	(1%)	\$219	(3%)
<i>In non-confined fire</i>	5,200	(1%)	20	(1%)	170	(1%)	\$219	(3%)
<i>In confined fire</i>	900	(0%)	0	(0%)	10	(0%)	\$0	(0%)
Crawl space or substructure space	6,000	(2%)	60	(2%)	220	(2%)	\$168	(3%)
<i>In non-confined fire</i>	5,200	(1%)	60	(2%)	210	(2%)	\$168	(3%)
<i>In confined fire</i>	800	(0%)	0	(0%)	10	(0%)	\$0	(0%)
Other known area	48,800	(13%)	240	(9%)	1,040	(8%)	\$1,093	(17%)
<i>In non-confined fire</i>	33,400	(9%)	240	(9%)	1,010	(8%)	\$1,091	(17%)
<i>In confined fire</i>	15,300	(4%)	0	(0%)	30	(0%)	\$2	(0%)
Total fires	380,000	(100%)	2,840	(100%)	13,160	(100%)	\$6,358	(100%)
Total non-confined fires	209,100	(55%)	2,830	(100%)	11,480	(87%)	\$6,314	(99%)
Total confined fires	171,000	(45%)	10	(0%)	1,690	(13%)	\$44	(1%)

Note: Sums may not equal totals due to rounding errors. All fires with the confined chimney or flue incident type (NFIRS incident type 114) are shown separately. Chimney is longer an area of origin choice for non-confined fires. Other confined structure fires (NFIRS incident type 113, and 115-118) were analyzed separately from non-confined structure fires (incident type 110-129, except 113-118). See Appendix A for details.

Source: NFIRS 5.0 and NFPA survey.

**Table 11.**  
**Reported Home Structure Fires by Item First Ignited**  
**2003-2007 Annual Averages**  
**(Unknowns Were Allocated Proportionally)**

Item First Ignited	Fires		Civilian		Civilian		Direct	
			Deaths	Injuries	Property Damage	(in Millions)		
Cooking materials, including food	101,200	(27%)	130	(4%)	3,330	(25%)	\$368	(6%)
<i>In non-confined fire</i>	22,000	(6%)	120	(4%)	2,200	(17%)	\$350	(6%)
<i>In confined fire</i>	79,200	(21%)	0	(0%)	1,130	(9%)	\$18	(0%)
Unclassified item first ignited	34,300	(9%)	80	(3%)	530	(4%)	\$263	(4%)
<i>In non-confined fire</i>	11,600	(3%)	80	(3%)	430	(3%)	\$257	(4%)
<i>In confined fire</i>	22,600	(6%)	0	(0%)	100	(1%)	\$6	(0%)
Structural member or framing	20,700	(5%)	150	(5%)	390	(3%)	\$966	(15%)
<i>In non-confined fire</i>	20,100	(5%)	150	(5%)	390	(3%)	\$965	(15%)
<i>In confined fire</i>	600	(0%)	0	(0%)	0	(0%)	\$1	(0%)
Flammable or combustible liquid or gas or associated part	18,200	(5%)	240	(8%)	1,190	(9%)	\$329	(5%)
<i>In non-confined fire</i>	9,500	(3%)	0	(0%)	120	(1%)	\$3	(0%)
<i>In confined fire</i>	8,700	(2%)	230	(8%)	1,070	(8%)	\$326	(5%)
Electrical wire or cable insulation	18,200	(5%)	100	(3%)	420	(3%)	\$346	(5%)
<i>In non-confined fire</i>	15,900	(4%)	100	(3%)	400	(3%)	\$345	(5%)
<i>In confined fire</i>	2,400	(1%)	0	(0%)	10	(0%)	\$1	(0%)
Rubbish, trash, or waste	14,900	(4%)	60	(2%)	270	(2%)	\$129	(2%)
<i>In non-confined fire</i>	5,300	(1%)	60	(2%)	220	(2%)	\$127	(2%)
<i>In confined fire</i>	9,500	(3%)	0	(0%)	40	(0%)	\$2	(0%)
Exterior wall covering or finish	13,000	(3%)	30	(1%)	170	(1%)	\$382	(6%)
<i>In non-confined fire</i>	12,800	(3%)	30	(1%)	170	(1%)	\$382	(6%)
<i>In confined fire</i>	200	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Appliance housing or casing	11,700	(3%)	40	(2%)	320	(2%)	\$104	(2%)
<i>In non-confined fire</i>	5,900	(2%)	40	(2%)	270	(2%)	\$102	(2%)
<i>In confined fire</i>	5,700	(2%)	0	(0%)	50	(0%)	\$2	(0%)
Mattress or bedding	11,500	(3%)	380	(13%)	1,380	(10%)	\$374	(6%)
<i>In non-confined fire</i>	11,000	(3%)	380	(13%)	1,380	(10%)	\$373	(6%)
<i>In confined fire</i>	500	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Household utensil	10,100	(3%)	20	(1%)	220	(2%)	\$42	(1%)
<i>In non-confined fire</i>	2,600	(1%)	20	(1%)	140	(1%)	\$40	(1%)
<i>In confined fire</i>	7,500	(2%)	0	(0%)	80	(1%)	\$2	(0%)
Interior wall covering	8,500	(2%)	110	(4%)	330	(2%)	\$272	(4%)
<i>In non-confined fire</i>	8,200	(2%)	110	(4%)	330	(2%)	\$271	(4%)
<i>In confined fire</i>	400	(0%)	0	(0%)	0	(0%)	\$1	(0%)
Clothing	8,500	(2%)	150	(5%)	510	(4%)	\$160	(3%)
<i>In non-confined fire</i>	7,600	(2%)	140	(5%)	500	(4%)	\$160	(3%)
<i>In confined fire</i>	900	(0%)	0	(0%)	10	(0%)	\$0	(0%)

**Table 11.**  
**Reported Home Structure Fires by Item First Ignited**  
**2003-2007 Annual Averages**  
**(Unknowns Were Allocated Proportionally)**  
**(Continued)**

<b>Item First Ignited</b>	<b>Fires</b>		<b>Civilian Deaths</b>		<b>Civilian Injuries</b>		<b>Direct Property Damage (in Millions)</b>	
Unclassified organic material	7,900	(2%)	10	(0%)	60	(0%)	\$53	(1%)
<i>In non-confined fire</i>	1,900	(1%)	10	(0%)	50	(0%)	\$52	(1%)
<i>In confined fire</i>	5,900	(2%)	0	(0%)	10	(0%)	\$1	(0%)
Upholstered furniture	7,600	(2%)	580	(21%)	880	(7%)	\$409	(6%)
<i>In non-confined fire</i>	7,300	(2%)	580	(21%)	880	(7%)	\$409	(6%)
<i>In confined fire</i>	300	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Unclassified structural component or finish	7,500	(2%)	80	(3%)	160	(1%)	\$290	(5%)
<i>In non-confined fire</i>	6,900	(2%)	80	(3%)	160	(1%)	\$289	(5%)
<i>In confined fire</i>	600	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Film or residue, including paint, resin and creosote	6,600	(2%)	0	(0%)	10	(0%)	\$9	(0%)
<i>In non-confined fire</i>	300	(0%)	0	(0%)	10	(0%)	\$7	(0%)
<i>In confined fire</i>	6,300	(2%)	0	(0%)	0	(0%)	\$2	(0%)
Cabinetry	6,400	(2%)	50	(2%)	320	(2%)	\$162	(3%)
<i>In non-confined fire</i>	5,200	(1%)	50	(2%)	310	(2%)	\$161	(3%)
<i>In confined fire</i>	1,300	(0%)	0	(0%)	10	(0%)	\$1	(0%)
Magazine, newspaper or writing paper	6,200	(2%)	60	(2%)	210	(2%)	\$90	(1%)
<i>In non-confined fire</i>	3,400	(1%)	60	(2%)	200	(2%)	\$90	(1%)
<i>In confined fire</i>	2,800	(1%)	0	(0%)	10	(0%)	\$0	(0%)
Insulation within structural area	6,200	(2%)	10	(0%)	100	(1%)	\$151	(2%)
<i>In non-confined fire</i>	6,100	(2%)	10	(0%)	100	(1%)	\$151	(2%)
<i>In confined fire</i>	200	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Other known item	61,000	(16%)	580	(20%)	2,350	(18%)	\$1,459	(23%)
<i>In non-confined fire</i>	46,200	(12%)	580	(20%)	2,270	(17%)	\$1,456	(23%)
<i>In confined fire</i>	14,800	(4%)	0	(0%)	90	(1%)	\$4	(0%)
<b>Total</b>	<b>380,000</b>	<b>(100%)</b>	<b>2,840</b>	<b>(100%)</b>	<b>13,160</b>	<b>(100%)</b>	<b>\$6,358</b>	<b>(100%)</b>
<i>Total non-confined fires</i>	<i>209,100</i>	<i>(55%)</i>	<i>2,830</i>	<i>(100%)</i>	<i>11,480</i>	<i>(87%)</i>	<i>\$6,314</i>	<i>(99%)</i>
<i>Total confined fires</i>	<i>171,000</i>	<i>(45%)</i>	<i>10</i>	<i>(0%)</i>	<i>1,690</i>	<i>(13%)</i>	<i>\$44</i>	<i>(1%)</i>

Note: Sums may not equal totals due to rounding errors. Confined structure fires (NFIRS incident type 113-118) were analyzed separately from non-confined structure fires (incident type 110-129, except 113-118). See Appendix A for details.

Source: NFIRS 5.0 and NFPA survey.

**Table 12.**  
**Reported Home Structure Fires by Extent of Flame Damage**  
**2003-2007 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 identified by incident type	171,000	(45%)	10	(0%)	1,690	(13%)	\$44	(1%)
Confined to object of origin	59,200	(16%)	200	(7%)	1,620	(12%)	\$438	(7%)
Confined to room of origin	63,800	(17%)	430	(15%)	4,260	(32%)	\$761	(12%)
Confined to floor of origin	17,200	(5%)	290	(10%)	1,420	(11%)	\$612	(10%)
Confined to building of origin	58,500	(15%)	1,560	(55%)	3,420	(26%)	\$3,560	(56%)
Extended beyond building of origin	10,300	(3%)	360	(13%)	760	(6%)	\$943	(15%)
Total	380,000	(100%)	2,840	(100%)	13,160	(100%)	\$6,358	(100%)

Note: Sums may not equal totals due to rounding errors

Source: NFIRS 5.0 and NFPA survey.

**Table 13.**  
**Reported Home Fire Deaths in Selected Areas of Origin, by Year**  
**1980-2007**  
(Unknowns Were Allocated Proportionally)

Year	Living Room, Family		Bedroom	Kitchen		Other Area		Total		
	Room or Den					of Origin		Deaths		
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%)	810	(32%)	2,520	(100%)
2003	690	(23%)	630	(21%)	460	(15%)	1,220	(41%)	3,010	(100%)
2004	690	(23%)	700	(23%)	470	(15%)	1,200	(39%)	3,070	(100%)
2005	720	(25%)	740	(26%)	450	(16%)	960	(33%)	2,870	(100%)
2006	560	(23%)	620	(25%)	360	(14%)	950	(38%)	2,480	(100%)
2007	650	(23%)	720	(26%)	450	(16%)	990	(35%)	2,800	(100%)
1980-1984 average	1,930	(40%)	1,210	(25%)	640	(13%)	1,070	(22%)	4,830	(100%)
2003-2007 average	660	(23%)	680	(24%)	440	(15%)	1,070	(37%)	2,850	(100%)
Change 1980-84 to 2003-07	-1,270	-(66%)	-520	-(43%)	-200	-(31%)	0	(0%)	-1,990	-(41%)

Note: Estimates from 1999 on are based on NFIRS 5.0 data and include 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.

Source: NFIRS and NFPA survey.

**Table 14.**  
**Reported Home Fire Deaths from Fires**  
**Starting with Upholstered Furniture or Mattresses and Bedding**  
**by Year: 1980-2007**  
**(Unknowns Were Allocated Proportionally)**

<b>Year</b>	<b>Upholstered Furniture</b>		<b>Mattress or Bedding</b>		<b>Other Item</b>		<b>Total Deaths</b>	
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	480	(17%)	210	(7%)	2,180	(76%)	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	540	(21%)	380	(15%)	1,610	(64%)	2,520	(100%)
2003	650	(22%)	370	(12%)	1,980	(66%)	3,010	(100%)
2004	690	(23%)	310	(10%)	2,070	(68%)	3,070	(100%)
2005	540	(19%)	460	(16%)	1,870	(65%)	2,870	(100%)
2006	490	(20%)	380	(15%)	1,610	(65%)	2,480	(100%)
2007	540	(19%)	360	(13%)	1,890	(68%)	2,800	(100%)
1980-1984 average	1,220	(25%)	770	(16%)	2,850	(59%)	4,830	(100%)
2003-2007 average	580	(21%)	380	(13%)	1,880	(66%)	2,840	(100%)
Change 1980-84 to 2003-07	-640	-(52%)	-390	-(51%)	-970	-(34%)	-1,990	-(41%)

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.

Source: NFIRS and NFPA survey.

**Table 15.**  
**Reported Home Fire Deaths by Selected Types of Heat Sources and Year**  
**1980-2007**

(Unknowns Were Allocated Proportionally)

<b>Year</b>	<b>Operating Equipment</b>		<b>Smoking Materials</b>		<b>Small Open Flame</b>		<b>Other Heat Source</b>		<b>Total Deaths</b>	
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%)	830	(29%)	370	(13%)	717	(25%)	2,870	(100%)
2000	1,140	(35%)	860	(26%)	650	(20%)	557	(17%)	3,250	(100%)
2001	1,110	(37%)	760	(25%)	560	(19%)	576	(19%)	3,010	(100%)
2002	800	(32%)	610	(24%)	510	(20%)	613	(24%)	2,520	(100%)
2003	1,200	(40%)	700	(23%)	440	(15%)	659	(22%)	3,000	(100%)
2004	1,200	(39%)	710	(23%)	480	(16%)	687	(22%)	3,070	(100%)
2005	1,100	(38%)	730	(26%)	480	(17%)	571	(20%)	2,870	(100%)
2006	910	(36%)	690	(28%)	390	(16%)	493	(20%)	2,480	(100%)
2007	950	(34%)	650	(23%)	550	(20%)	493	(20%)	2,800	(100%)
1980-1984 average	1,860	(39%)	1,690	(35%)	790	(16%)	490	(10%)	4,830	(100%)
2003-2007 average	1,070	(38%)	700	(25%)	460	(15%)	610	(21%)	2,840	(100%)
Change 1980-84 to 2003-07	-790	-(42%)	-1,000	-(59%)	-320	-(41%)	120	(26%)	-1,990	-(41%)

**Table 15.**  
**Reported Home Fire Deaths by Selected Types of Heat Sources and Year**  
**1980-2007**  
**(Continued)**

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.

Source: NFIRS and NFPA survey.

**Table 16.**  
**Reported Home Fire Deaths by Victim's Location at Ignition and Year**  
**1980-2007**

(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	1,430	(57%)	1,090	(43%)	2,510	(100%)
2003	1,660	(55%)	1,350	(45%)	3,000	(100%)
2004	1,580	(52%)	1,490	(49%)	3,050	(100%)
2005	1,490	(52%)	1,380	(48%)	2,850	(100%)
2006	1,370	(55%)	1,120	(45%)	2,480	(100%)
2007	1,420	(51%)	1,380	(49%)	2,800	(100%)
1980-1984 average	1,890	(39%)	2,950	(61%)	4,830	(100%)
2003-2007 average	1,500	(53%)	1,430	(47%)	2,840	(100%)
Change 1980-84 to 2003-07	-380	-(20%)	-1,610	-(54%)	-1,990	-(41%)

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.

Source: NFIRS and NFPA survey.

**Table 1A.**  
**Reported One- or Two-Family Home Structure Fires**  
**by Year: 1980-2008**

Year	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Millions)	
				As Reported	In 2008 Dollars
1980	590,500	4,175	16,100	\$2,447	\$6,394
1981	574,000	4,430	14,875	\$2,713	\$6,406
1982	538,000	3,960	15,750	\$2,794	\$6,219
1983	523,500	3,825	16,450	\$2,792	\$6,022
1984	506,000	3,290	15,100	\$2,945	\$6,086
1985	501,500	4,020	15,250	\$3,217	\$6,420
1986	468,000	4,005	14,650	\$2,992	\$5,875
1987	433,000	3,780	15,200	\$3,078	\$5,825
1988	432,500	4,125	17,125	\$3,349	\$6,093
1989	402,500	3,545	15,225	\$3,335	\$5,788
1990	359,000	3,370	15,250	\$3,534	\$5,822
1991	363,000	2,905	15,600	\$3,354	\$5,294
1992	358,000	3,160	15,275	\$3,178	\$4,873
1993	358,000	3,035	15,700	\$4,111	\$6,118
1994	341,000	2,785	14,000	\$3,537	\$5,134
1995	320,000	3,035	13,450	\$3,615	\$5,100
1996	324,000	3,470	13,700	\$4,121	\$5,654
1997	302,500	2,700	12,300	\$3,735	\$5,004
1998	283,000	2,775	11,800	\$3,642	\$4,809
1999	282,500	2,375	11,550	\$4,123	\$5,320
2000	283,500	2,920	12,575	\$4,639	\$5,796
2001	295,500	2,650	11,400	\$4,652	\$5,652
2002	300,500	2,280	9,950	\$5,005	\$5,984
2003	297,000	2,735	10,000	\$5,052	\$5,910
2004	301,500	2,680	10,500	\$4,948	\$5,640
2005	287,000	2,570	10,300	\$5,781	\$6,365
2006	304,500	2,155	8,800	\$5,936	\$6,332
2007	300,500	2,350	9,650	\$6,225	\$6,453
2008	291,000	2,365	9,185	\$6,892	\$6,892

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 Home Structure Fires by Month**  
**2003-2007 Annual Averages**

Month	Fires		Civilian		Civilian		Direct	
			Deaths	Injuries	Injuries	Property Damage (in Millions)		
January	28,700	(11%)	330	(14%)	990	(11%)	\$508	(10%)
February	24,700	(9%)	280	(12%)	880	(10%)	\$442	(8%)
March	24,100	(9%)	240	(10%)	910	(10%)	\$428	(8%)
April	21,700	(8%)	180	(8%)	750	(8%)	\$414	(8%)
May	19,900	(7%)	150	(6%)	730	(8%)	\$386	(7%)
June	18,600	(7%)	130	(5%)	660	(7%)	\$362	(7%)
July	20,200	(8%)	130	(5%)	640	(7%)	\$412	(8%)
August	18,600	(7%)	120	(5%)	650	(7%)	\$361	(7%)
September	17,800	(7%)	130	(5%)	580	(6%)	\$356	(7%)
October	21,200	(8%)	180	(7%)	710	(8%)	\$549	(11%)
November	23,800	(9%)	220	(9%)	790	(9%)	\$419	(8%)
December	28,300	(11%)	300	(13%)	980	(11%)	\$587	(11%)
Total	267,700	(100%)	2,400	(100%)	9,290	(100%)	\$5,225	(100%)
Monthly average	22,300	(8%)	200	(8%)	770	(8%)	\$435	(8%)

**Table 3A.**  
**Reported One- or Two-Family Home Structure Fires by Day of Week**  
**2003-2007 Annual Averages**

Day of Week	Fires		Civilian		Civilian		Direct	
			Deaths	Injuries	Injuries	Property Damage (in Millions)		
Sunday	40,500	(15%)	360	(15%)	1,400	(15%)	\$889	(17%)
Monday	38,800	(14%)	330	(14%)	1,330	(14%)	\$768	(15%)
Tuesday	37,000	(14%)	300	(13%)	1,320	(14%)	\$740	(14%)
Wednesday	37,100	(14%)	320	(13%)	1,290	(14%)	\$671	(13%)
Thursday	37,400	(14%)	330	(14%)	1,320	(14%)	\$684	(13%)
Friday	37,300	(14%)	370	(15%)	1,230	(13%)	\$734	(14%)
Saturday	39,700	(15%)	390	(16%)	1,410	(15%)	\$737	(14%)
Total	267,700	(100%)	2,400	(100%)	9,290	(100%)	\$5,225	(100%)
Daily average	38,200	(14%)	340	(14%)	1,330	(14%)	\$746	(14%)

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

Source: NFIRS 5.0 and NFPA survey.

**Table 4A.**  
**Reported One- or Two-Family Home Structure Fires by Alarm Time**  
**2003-2007 Annual Averages**

Alarm Time	Fires		Civilian		Civilian		Direct	
			Deaths	Injuries	Property Damage	(in Millions)		
Midnight - 12:59 a.m.	8,500	(3%)	160	(7%)	380	(4%)	\$346	(7%)
1:00 - 1:59 a.m.	7,200	(3%)	170	(7%)	380	(4%)	\$238	(5%)
2:00 - 2:59 a.m.	6,600	(2%)	160	(7%)	380	(4%)	\$241	(5%)
3:00 - 3:59 a.m.	6,100	(2%)	190	(8%)	380	(4%)	\$226	(4%)
4:00 - 4:59 a.m.	5,600	(2%)	170	(7%)	350	(4%)	\$203	(4%)
5:00 - 5:59 a.m.	5,400	(2%)	160	(7%)	290	(3%)	\$161	(3%)
6:00 - 6:59 a.m.	5,900	(2%)	130	(5%)	260	(3%)	\$143	(3%)
7:00 - 7:59 a.m.	7,200	(3%)	90	(4%)	260	(3%)	\$133	(3%)
8:00 - 8:59 a.m.	8,500	(3%)	90	(4%)	310	(3%)	\$155	(3%)
9:00 - 9:59 a.m.	10,000	(4%)	80	(3%)	370	(4%)	\$196	(4%)
10:00 - 10:59 a.m.	11,100	(4%)	60	(3%)	370	(4%)	\$192	(4%)
11:00 - 11:59 a.m.	12,300	(5%)	60	(3%)	370	(4%)	\$203	(4%)
Noon - 12:59 p.m.	13,300	(5%)	60	(2%)	430	(5%)	\$213	(4%)
1:00 - 1:59 p.m.	13,400	(5%)	60	(2%)	380	(4%)	\$219	(4%)
2:00 - 2:59 p.m.	13,900	(5%)	70	(3%)	400	(4%)	\$238	(5%)
3:00 - 3:59 p.m.	14,700	(5%)	50	(2%)	440	(5%)	\$280	(5%)
4:00 - 4:59 p.m.	16,100	(6%)	70	(3%)	500	(5%)	\$235	(4%)
5:00 - 5:59 p.m.	18,300	(7%)	60	(2%)	520	(6%)	\$275	(5%)
6:00 - 6:59 p.m.	18,500	(7%)	80	(3%)	490	(5%)	\$226	(4%)
7:00 - 7:59 p.m.	17,200	(6%)	70	(3%)	500	(5%)	\$237	(5%)
8:00 - 8:59 p.m.	15,200	(6%)	60	(3%)	430	(5%)	\$229	(4%)
9:00 - 9:59 p.m.	12,900	(5%)	80	(4%)	410	(4%)	\$214	(4%)
10:00 - 10:59 p.m.	10,800	(4%)	90	(4%)	330	(4%)	\$210	(4%)
11:00 - 11:59 p.m.	8,900	(3%)	130	(5%)	370	(4%)	\$211	(4%)
<b>Total</b>	<b>267,700</b>	<b>(100%)</b>	<b>2,400</b>	<b>(100%)</b>	<b>9,290</b>	<b>(100%)</b>	<b>\$5,225</b>	<b>(100%)</b>
<b>Average</b>	<b>11,200</b>	<b>(4%)</b>	<b>100</b>	<b>(4%)</b>	<b>390</b>	<b>(4%)</b>	<b>\$218</b>	<b>(4%)</b>

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

Source: NFIRS 5.0 and NFPA survey.

**Table 5A.**  
**Leading Causes of Reported One- or Two-Family Home Structure Fires**  
**2003-2007 Annual Averages**  
**(Unknowns Were Allocated Proportionally)**

Cause	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Cooking equipment	82,500	(31%)	330	(14%)	2,880	(31%)	\$493	(9%)
<i>Cooking equipment in non-confined fire</i>	27,300	(10%)	320	(14%)	2,080	(22%)	\$475	(9%)
<i>Confined cooking fire</i>	55,200	(21%)	10	(0%)	800	(9%)	\$17	(0%)
Heating equipment	57,100	(21%)	590	(25%)	1,360	(15%)	\$737	(14%)
<i>Heating equipment in non-confined fire</i>	24,400	(9%)	590	(25%)	1,260	(14%)	\$724	(14%)
<i>Confined chimney or flue fire</i>	22,700	(8%)	0	(0%)	30	(0%)	\$11	(0%)
<i>Confined fuel burner or boiler fire</i>	10,000	(4%)	0	(0%)	70	(1%)	\$3	(0%)
Intentional	21,600	(8%)	280	(12%)	630	(7%)	\$414	(8%)
Electrical distribution or lighting equipment	19,600	(7%)	340	(14%)	720	(8%)	\$594	(11%)
Clothes dryer or washer	13,700	(5%)	10	(1%)	380	(4%)	\$169	(3%)
Candle	11,800	(4%)	130	(5%)	950	(10%)	\$349	(7%)
Smoking materials	11,800	(4%)	540	(22%)	790	(9%)	\$263	(5%)
Exposure fire	10,100	(4%)	10	(1%)	40	(0%)	\$578	(11%)
Playing with heat source	6,000	(2%)	110	(5%)	560	(6%)	\$147	(3%)

Note: This table summarizes findings from multiple fields, meaning that the same fire may be listed under multiple causes. Estimates of fires involving electrical distribution or lighting equipment or clothes dryers or washers exclude confined fires. The methodology is used is described in the appendix.

Source: NFIRS 5.0 and NFPA survey.

**Table 6A.**  
**Reported One- or Two-Family Home Structure Fires**  
**by Cause of Ignition (from NFIRS Cause Field)**  
**2003-2007 Annual Averages**  
(Unknowns Were Allocated Proportionally)

Cause of Ignition	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Unintentional	174,800	(65%)	1,710	(71%)	7,330	(79%)	\$3,108	(59%)
<i>In non-confined fire</i>	101,800	(38%)	1,700	(71%)	6,480	(70%)	\$3,082	(59%)
<i>In confined fire</i>	73,000	(27%)	10	(0%)	850	(9%)	\$25	(0%)
Failure of equipment or heat source	48,800	(18%)	350	(14%)	1,100	(12%)	\$886	(17%)
<i>In non-confined fire</i>	35,600	(13%)	350	(14%)	1,040	(11%)	\$881	(17%)
<i>In confined fire</i>	13,200	(5%)	0	(0%)	60	(1%)	\$5	(0%)
Intentional	21,600	(8%)	280	(12%)	630	(7%)	\$414	(8%)
<i>In non-confined fire</i>	14,700	(6%)	280	(12%)	610	(7%)	\$412	(8%)
<i>In confined fire</i>	6,900	(3%)	0	(0%)	20	(0%)	\$1	(0%)
Unclassified	16,700	(6%)	50	(2%)	190	(2%)	\$566	(11%)
<i>In non-confined fire</i>	12,900	(5%)	50	(2%)	180	(2%)	\$565	(11%)
<i>In confined fire</i>	3,900	(1%)	0	(0%)	10	(0%)	\$1	(0%)
Act of nature	5,700	(2%)	20	(1%)	50	(1%)	\$251	(5%)
<i>In non-confined fire</i>	5,200	(2%)	20	(1%)	50	(1%)	\$251	(5%)
<i>In confined fire</i>	600	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Total	267,700	(100%)	2,400	(100%)	9,290	(100%)	\$5,225	(100%)
<i>Total non-confined fires</i>	170,200	(64%)	2,390	(100%)	8,350	(90%)	\$5,192	(99%)
<i>Total confined fires</i>	97,500	(36%)	10	(0%)	940	(10%)	\$33	(1%)

Note: Sums may not equal totals due to rounding errors. Confined structure fires (NFIRS incident type 113-118) were analyzed separately from non-confined structure fires (incident type 110-129, except 113-118). See Appendix A for details.

Source: NFIRS 5.0 and NFPA survey.

**Table 7A.**  
**Reported One- or Two-Family Home Structure Fires**  
**by Equipment Involved in Ignition**  
**2003-2007 Annual Averages**  
(Unknowns in Non-Confined Fires and Confined Cooking Fires Were Allocated Proportionally)

Equipment Involved	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Millions)
<b>Cooking equipment</b>	<b>82,500 (31%)</b>	<b>330 (14%)</b>	<b>2,880 (31%)</b>	<b>\$493 (9%)</b>
Range or cooktop	47,600 (18%)	270 (11%)	2,220 (24%)	\$337 (6%)
<i>In non-confined fire</i>	20,500 (8%)	270 (11%)	1,720 (19%)	\$327 (6%)
<i>In confined fire</i>	27,100 (10%)	0 (0%)	490 (5%)	\$10 (0%)
Oven or rotisserie	13,600 (5%)	10 (0%)	160 (2%)	\$23 (0%)
<i>In non-confined fire</i>	2,200 (1%)	10 (0%)	90 (1%)	\$20 (0%)
<i>In confined fire</i>	11,400 (4%)	0 (0%)	70 (1%)	\$3 (0%)
Portable cooking or warming unit	3,900 (1%)	30 (1%)	140 (2%)	\$50 (1%)
<i>In non-confined fire</i>	1,800 (1%)	30 (1%)	110 (1%)	\$50 (1%)
<i>In confined fire</i>	2,100 (1%)	0 (0%)	40 (0%)	\$1 (0%)
Microwave oven	3,900 (1%)	0 (0%)	80 (1%)	\$15 (0%)
<i>In non-confined fire</i>	1,100 (0%)	0 (0%)	60 (1%)	\$14 (0%)
<i>In confined fire</i>	2,800 (1%)	0 (0%)	20 (0%)	\$0 (0%)
Grill, hibachi or barbecue	2,100 (1%)	10 (1%)	70 (1%)	\$49 (1%)
<i>In non-confined fire</i>	1,100 (0%)	10 (1%)	60 (1%)	\$49 (1%)
<i>In confined fire</i>	1,000 (0%)	0 (0%)	10 (0%)	\$0 (0%)
Other known cooking equipment in non-confined fire	700 (0%)	0 (0%)	40 (0%)	\$15 (0%)
Confined cooking fire with other or unknown equipment	10,700 (4%)	0 (0%)	170 (2%)	\$3 (0%)
<b>No equipment involved</b>	<b>67,000 (25%)</b>	<b>900 (37%)</b>	<b>3,000 (32%)</b>	<b>\$2,720 (52%)</b>
<b>Heating equipment</b>	<b>57,100 (21%)</b>	<b>590 (25%)</b>	<b>1,360 (15%)</b>	<b>\$737 (14%)</b>
Fireplace or chimney	25,800 (10%)	10 (1%)	100 (1%)	\$156 (3%)
<i>In non-confined fire</i>	3,100 (1%)	10 (1%)	70 (1%)	\$145 (3%)
<i>Confined chimney or flue fire</i>	22,700 (8%)	0 (0%)	30 (0%)	\$11 (0%)
Fixed or portable space heater	13,100 (5%)	500 (21%)	800 (9%)	\$393 (8%)
Central heat, furnace or boiler	12,400 (5%)	40 (2%)	170 (2%)	\$64 (1%)
<i>In non-confined fire</i>	2,400 (1%)	40 (2%)	100 (1%)	\$61 (1%)
<i>Confined fuel burner or boiler fire</i>	10,000 (4%)	0 (0%)	70 (1%)	\$3 (0%)
Water heater	5,000 (2%)	40 (1%)	260 (3%)	\$105 (2%)
Other known heating equipment in non-confined fire	800 (0%)	10 (0%)	30 (0%)	\$20 (0%)
<b>Electrical distribution or lighting equipment</b>	<b>19,600 (7%)</b>	<b>340 (14%)</b>	<b>720 (8%)</b>	<b>\$594 (11%)</b>
Fixed wiring and related equipment	11,400 (4%)	140 (6%)	300 (3%)	\$311 (6%)
Lamp, light bulb or light fixture	4,600 (2%)	60 (3%)	190 (2%)	\$156 (3%)
Cord or plug	2,400 (1%)	120 (5%)	180 (2%)	\$79 (2%)
Transformers and power supplies	1,100 (0%)	10 (0%)	50 (1%)	\$48 (1%)
Other known electrical distribution or lighting equipment in non-confined fire	0 (0%)	0 (0%)	0 (0%)	\$1 (0%)

**Table 7A.**  
**Reported One- or Two-Family Home Structure Fires**  
**by Equipment Involved in Ignition**  
**2003-2007 Annual Averages**  
(Unknowns in Non-Confined Fires and Confined Cooking Fires Were Allocated Proportionally)  
(Continued)

Equipment Involved	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
<b>Clothes dryer or washer</b>	<b>13,700</b>	<b>(5%)</b>	<b>10</b>	<b>(1%)</b>	<b>380</b>	<b>(4%)</b>	<b>\$169</b>	<b>(3%)</b>
<b>Fan</b>	<b>2,800</b>	<b>(1%)</b>	<b>20</b>	<b>(1%)</b>	<b>110</b>	<b>(1%)</b>	<b>\$54</b>	<b>(1%)</b>
<b>Kitchen equipment not used to heat food</b>	<b>2,500</b>	<b>(1%)</b>	<b>10</b>	<b>(0%)</b>	<b>90</b>	<b>(1%)</b>	<b>\$60</b>	<b>(1%)</b>
Refrigerator or freezer	1,400	(1%)	10	(0%)	70	(1%)	\$40	(1%)
Dishwasher	1,100	(0%)	0	(0%)	20	(0%)	\$19	(0%)
Other known kitchen equipment not used to heat food	100	(0%)	0	(0%)	0	(0%)	\$1	(0%)
<b>Electronic, office or entertainment equipment</b>	<b>2,000</b>	<b>(1%)</b>	<b>10</b>	<b>(0%)</b>	<b>110</b>	<b>(1%)</b>	<b>\$63</b>	<b>(1%)</b>
<b>Air conditioner</b>	<b>2,000</b>	<b>(1%)</b>	<b>10</b>	<b>(1%)</b>	<b>80</b>	<b>(1%)</b>	<b>\$48</b>	<b>(1%)</b>
<b>Unclassified equipment involved in ignition</b>	<b>1,700</b>	<b>(1%)</b>	<b>20</b>	<b>(1%)</b>	<b>70</b>	<b>(1%)</b>	<b>\$63</b>	<b>(1%)</b>
<b>Torch, burner or soldering iron</b>	<b>1,500</b>	<b>(1%)</b>	<b>10</b>	<b>(0%)</b>	<b>80</b>	<b>(1%)</b>	<b>\$52</b>	<b>(1%)</b>
<b>Other known equipment</b>	<b>5,500</b>	<b>(2%)</b>	<b>150</b>	<b>(6%)</b>	<b>380</b>	<b>(4%)</b>	<b>\$170</b>	<b>(3%)</b>
<b>Contained or confined trash or rubbish fire</b>	<b>9,100</b>	<b>(3%)</b>	<b>0</b>	<b>(0%)</b>	<b>30</b>	<b>(0%)</b>	<b>\$2</b>	<b>(0%)</b>
<b>Other confined fire</b>	<b>500</b>	<b>(0%)</b>	<b>0</b>	<b>(0%)</b>	<b>0</b>	<b>(0%)</b>	<b>\$0</b>	<b>(0%)</b>
<b>Total</b>	<b>267,700</b>	<b>(100%)</b>	<b>2,400</b>	<b>(100%)</b>	<b>9,290</b>	<b>(100%)</b>	<b>\$5,225</b>	<b>(100%)</b>

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. The same approach was used with confined cooking fires. 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.). The estimates of fires involving fireplace or chimney include all fires with the confined chimney or flue incident type regardless of what may have been coded as equipment involved. Likewise, the estimates of fires involving furnaces, central heat or boilers include all fires with confined fuel burner or boiler incident type. The estimates shown should be considered upper bounds. Sums may not equal totals due to rounding errors.

Source: NFIRS 5.0 and NFPA survey.

**Table 8A.**  
**Reported One- or Two-Family Home Structure Fires by Heat Source**  
**2003-2007 Annual Averages**  
**(Unknowns in Fires Were Allocated Proportionally)**

Heat Source	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Radiated or conducted heat from operating equipment	47,500	(18%)	330	(14%)	1,910	(21%)	\$657	(13%)
<i>In non-confined fire</i>	24,700	(9%)	330	(14%)	1,560	(17%)	\$649	(12%)
<i>In confined fire</i>	22,800	(9%)	0	(0%)	350	(4%)	\$8	(0%)
Unclassified heat from powered equipment	41,200	(15%)	170	(7%)	1,390	(15%)	\$512	(10%)
<i>In non-confined fire</i>	22,200	(8%)	170	(7%)	1,130	(12%)	\$506	(10%)
<i>In confined fire</i>	19,000	(7%)	0	(0%)	260	(3%)	\$6	(0%)
Arcing	28,000	(10%)	280	(12%)	770	(8%)	\$736	(14%)
<i>In non-confined fire</i>	25,700	(10%)	280	(12%)	760	(8%)	\$735	(14%)
<i>In confined fire</i>	2,300	(1%)	0	(0%)	10	(0%)	\$1	(0%)
Unclassified heat source	24,700	(9%)	180	(7%)	540	(6%)	\$403	(8%)
<i>In non-confined fire</i>	13,200	(5%)	180	(7%)	440	(5%)	\$399	(8%)
<i>In confined fire</i>	11,500	(4%)	0	(0%)	100	(1%)	\$4	(0%)
Hot ember or ash	21,500	(8%)	100	(4%)	370	(4%)	\$327	(6%)
<i>In non-confined fire</i>	10,700	(4%)	100	(4%)	360	(4%)	\$323	(6%)
<i>In confined fire</i>	10,800	(4%)	0	(0%)	20	(0%)	\$4	(0%)
Unclassified hot or smoldering object	19,200	(7%)	130	(5%)	480	(5%)	\$382	(7%)
<i>In non-confined fire</i>	12,400	(5%)	130	(5%)	430	(5%)	\$380	(7%)
<i>In confined fire</i>	6,800	(3%)	0	(0%)	60	(1%)	\$2	(0%)
Spark, ember or flame from operating equipment	19,000	(7%)	170	(7%)	690	(7%)	\$297	(6%)
<i>In non-confined fire</i>	10,200	(4%)	170	(7%)	640	(7%)	\$293	(6%)
<i>In confined fire</i>	8,800	(3%)	0	(0%)	60	(1%)	\$3	(0%)
Candle	11,800	(4%)	130	(5%)	950	(10%)	\$349	(7%)
<i>In non-confined fire</i>	11,200	(4%)	130	(5%)	950	(10%)	\$349	(7%)
<i>In confined fire</i>	600	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Smoking materials	11,800	(4%)	540	(22%)	790	(9%)	\$263	(5%)
<i>In non-confined fire</i>	9,300	(3%)	540	(22%)	770	(8%)	\$262	(5%)
<i>In confined fire</i>	2,500	(1%)	0	(0%)	30	(0%)	\$1	(0%)
Match	9,800	(4%)	80	(3%)	280	(3%)	\$107	(2%)
<i>In non-confined fire</i>	4,000	(1%)	80	(3%)	260	(3%)	\$106	(2%)
<i>In confined fire</i>	5,800	(2%)	0	(0%)	30	(0%)	\$1	(0%)
Cigarette lighter	7,200	(3%)	160	(7%)	610	(7%)	\$151	(3%)
<i>In non-confined fire</i>	5,700	(2%)	160	(7%)	600	(7%)	\$150	(3%)
<i>In confined fire</i>	1,500	(1%)	0	(0%)	10	(0%)	\$0	(0%)
Lightning	4,200	(2%)	10	(0%)	40	(0%)	\$241	(5%)
<i>In non-confined fire</i>	4,200	(2%)	10	(0%)	40	(0%)	\$241	(5%)
<i>In confined fire</i>	0	(0%)	0	(0%)	0	(0%)	\$0	(0%)

**Table 8A.**  
**Reported One- or Two-Family Home Structure Fires by Heat Source**  
**2003-2007 Annual Averages**  
**(Unknowns in Fires Were Allocated Proportionally)**  
**(Continued)**

Heat Source	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage	
							(in Millions)	
Other known heat source	22,000	(8%)	130	(5%)	460	(5%)	\$800	(15%)
<i>In non-confined fire</i>	17,000	(6%)	130	(5%)	430	(5%)	\$798	(15%)
<i>In confined fire</i>	5,000	(2%)	0	(0%)	30	(0%)	\$2	(0%)
Total fires	267,700	(100%)	2,400	(100%)	9,290	(100%)	\$5,225	(100%)
<i>Total non-confined fires</i>	170,200	(64%)	2,390	(100%)	8,350	(90%)	\$5,192	(99%)
<i>Total confined fires</i>	97,500	(36%)	10	(0%)	940	(10%)	\$33	(1%)

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. Confined structure fires (NFIRS incident type 113-118) were analyzed separately from non-confined structure fires (incident type 110-129, except 113-118). See Appendix A for details.

Source: NFIRS 5.0 and NFPA survey.

**Table 9A.**  
**Reported One- or Two-Family Home Structure Fires**  
**by Factor Contributing to Ignition**  
**2003-2007 Annual Averages**  
(Unknowns in Non-Confined Fires Were Allocated Proportionally)

Factor Contributing	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Electrical failure or malfunction	44,900	(17%)	470	(19%)	1,220	(13%)	\$1,219	(23%)
<i>In non-confined fire</i>	<i>41,000</i>	<i>(15%)</i>	<i>470</i>	<i>(19%)</i>	<i>1,210</i>	<i>(13%)</i>	<i>\$1,217</i>	<i>(23%)</i>
<i>In confined fire</i>	<i>3,900</i>	<i>(1%)</i>	<i>0</i>	<i>(0%)</i>	<i>10</i>	<i>(0%)</i>	<i>\$2</i>	<i>(0%)</i>
Heat source too close to combustibles	29,100	(11%)	480	(20%)	1,720	(19%)	\$701	(13%)
<i>In non-confined fire</i>	<i>23,400</i>	<i>(9%)</i>	<i>470</i>	<i>(20%)</i>	<i>1,660</i>	<i>(18%)</i>	<i>\$697</i>	<i>(13%)</i>
<i>In confined fire</i>	<i>5,700</i>	<i>(2%)</i>	<i>0</i>	<i>(0%)</i>	<i>60</i>	<i>(1%)</i>	<i>\$4</i>	<i>(0%)</i>
Equipment unattended	27,500	(10%)	140	(6%)	1,290	(14%)	\$271	(5%)
<i>In non-confined fire</i>	<i>11,800</i>	<i>(4%)</i>	<i>140</i>	<i>(6%)</i>	<i>990</i>	<i>(11%)</i>	<i>\$266</i>	<i>(5%)</i>
<i>In confined fire</i>	<i>15,800</i>	<i>(6%)</i>	<i>0</i>	<i>(0%)</i>	<i>300</i>	<i>(3%)</i>	<i>\$5</i>	<i>(0%)</i>
Failure to clean	26,900	(10%)	10	(1%)	120	(1%)	\$66	(1%)
<i>In non-confined fire</i>	<i>4,100</i>	<i>(2%)</i>	<i>10</i>	<i>(1%)</i>	<i>90</i>	<i>(1%)</i>	<i>\$62</i>	<i>(1%)</i>
<i>In confined fire</i>	<i>22,800</i>	<i>(9%)</i>	<i>0</i>	<i>(0%)</i>	<i>30</i>	<i>(0%)</i>	<i>\$5</i>	<i>(0%)</i>
Mechanical failure or malfunction	23,500	(9%)	150	(6%)	560	(6%)	\$372	(7%)
<i>In non-confined fire</i>	<i>14,100</i>	<i>(5%)</i>	<i>150</i>	<i>(6%)</i>	<i>480</i>	<i>(5%)</i>	<i>\$369</i>	<i>(7%)</i>
<i>In confined fire</i>	<i>9,400</i>	<i>(4%)</i>	<i>0</i>	<i>(0%)</i>	<i>80</i>	<i>(1%)</i>	<i>\$3</i>	<i>(0%)</i>
Abandoned or discarded material	22,700	(8%)	340	(14%)	990	(11%)	\$426	(8%)
<i>In non-confined fire</i>	<i>14,700</i>	<i>(5%)</i>	<i>340</i>	<i>(14%)</i>	<i>910</i>	<i>(10%)</i>	<i>\$424</i>	<i>(8%)</i>
<i>In confined fire</i>	<i>8,000</i>	<i>(3%)</i>	<i>0</i>	<i>(0%)</i>	<i>80</i>	<i>(1%)</i>	<i>\$2</i>	<i>(0%)</i>
Unclassified factor	20,300	(8%)	240	(10%)	670	(7%)	\$428	(8%)
<i>In non-confined fire</i>	<i>10,900</i>	<i>(4%)</i>	<i>240</i>	<i>(10%)</i>	<i>570</i>	<i>(6%)</i>	<i>\$424</i>	<i>(8%)</i>
<i>In confined fire</i>	<i>9,300</i>	<i>(3%)</i>	<i>0</i>	<i>(0%)</i>	<i>100</i>	<i>(1%)</i>	<i>\$4</i>	<i>(0%)</i>
Unclassified misuse of material	17,800	(7%)	260	(11%)	1,040	(11%)	\$268	(5%)
<i>In non-confined fire</i>	<i>10,200</i>	<i>(4%)</i>	<i>260</i>	<i>(11%)</i>	<i>920</i>	<i>(10%)</i>	<i>\$266</i>	<i>(5%)</i>
<i>In confined fire</i>	<i>7,600</i>	<i>(3%)</i>	<i>0</i>	<i>(0%)</i>	<i>110</i>	<i>(1%)</i>	<i>\$2</i>	<i>(0%)</i>
Exposure fire	10,100	(4%)	10	(1%)	40	(0%)	\$578	(11%)
<i>In non-confined fire</i>	<i>9,900</i>	<i>(4%)</i>	<i>10</i>	<i>(1%)</i>	<i>40</i>	<i>(0%)</i>	<i>\$578</i>	<i>(11%)</i>
<i>In confined fire</i>	<i>100</i>	<i>(0%)</i>	<i>0</i>	<i>(0%)</i>	<i>0</i>	<i>(0%)</i>	<i>\$0</i>	<i>(0%)</i>
Unintentionally turned on, not turned off	6,900	(3%)	30	(1%)	270	(3%)	\$88	(2%)
<i>In non-confined fire</i>	<i>3,200</i>	<i>(1%)</i>	<i>30</i>	<i>(1%)</i>	<i>200</i>	<i>(2%)</i>	<i>\$86</i>	<i>(2%)</i>
<i>In confined fire</i>	<i>3,700</i>	<i>(1%)</i>	<i>0</i>	<i>(0%)</i>	<i>60</i>	<i>(1%)</i>	<i>\$2</i>	<i>(0%)</i>

**Table 9A.**  
**Reported One- or Two-Family Home Structure Fires**  
**by Factor Contributing to Ignition**  
**2003-2007 Annual Averages**  
**(Unknowns Were Allocated Proportionally)**  
**(Continued)**

Factor Contributing	Fires		Civilian Deaths		Civilian Injuries		Direct	
							Property Damage (in Millions)	
Playing with heat source	6,000	(2%)	110	(5%)	560	(6%)	\$147	(3%)
<i>In non-confined fire</i>	5,300	(2%)	110	(5%)	560	(6%)	\$147	(3%)
<i>In confined fire</i>	700	(0%)	0	(0%)	10	(0%)	\$0	(0%)
Storm	4,400	(2%)	20	(1%)	30	(0%)	\$220	(4%)
<i>In non-confined fire</i>	4,300	(2%)	20	(1%)	30	(0%)	\$220	(4%)
<i>In confined fire</i>	0	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Other known factor	40,100	(15%)	390	(16%)	1,410	(15%)	\$823	(16%)
<i>In non-confined fire</i>	26,000	(10%)	390	(16%)	1,270	(14%)	\$818	(16%)
<i>In confined fire</i>	14,100	(5%)	0	(0%)	140	(2%)	\$5	(0%)
Total entries*	280,100	(105%)	2,640	(110%)	9,920	(107%)	\$5,608	(107%)
<i>In non-confined fire</i>	179,000	(67%)	2,630	(110%)	8,950	(96%)	\$5,574	(107%)
<i>In confined fire</i>	101,100	(38%)	10	(0%)	980	(10%)	\$35	(1%)
Total fires*	267,700	(100%)	2,400	(100%)	9,290	(100%)	\$5,225	(100%)
<i>Total non-confined fires</i>	170,200	(64%)	2,390	(100%)	8,350	(90%)	\$5,192	(99%)
<i>Total confined fires</i>	97,500	(36%)	10	(0%)	940	(10%)	\$33	(1%)

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

Note: Sums may not equal totals due to rounding errors. 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. Confined structure fires (NFIRS incident type 113-118) were analyzed separately from non-confined structure fires (incident type 110-129, except 113-118). See Appendix A for details.

Source: NFIRS 5.0 and NFPA survey.

**Table 10A.**  
**Reported One- or Two-Family Home Structure Fires by Area of Origin**  
**2003-2007 Annual Averages**  
**(Unknowns Were Allocated Proportionally)**

Area of Origin	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Kitchen or cooking area	86,000	(32%)	340	(14%)	2,940	(32%)	\$662	(13%)
<i>In non-confined fire</i>	31,600	(12%)	330	(14%)	2,150	(23%)	\$645	(12%)
<i>In confined fire</i>	54,400	(20%)	0	(0%)	790	(8%)	\$17	(0%)
Bedroom	23,400	(9%)	560	(23%)	1,990	(21%)	\$729	(14%)
<i>In non-confined fire</i>	22,900	(9%)	560	(23%)	1,980	(21%)	\$729	(14%)
<i>In confined fire</i>	500	(0%)	0	(0%)	10	(0%)	\$0	(0%)
Confined chimney or flue fire	22,700	(8%)	0	(0%)	30	(0%)	\$11	(0%)
Living room, family room, or den	11,600	(4%)	570	(24%)	1,000	(11%)	\$447	(9%)
<i>In non-confined fire</i>	11,100	(4%)	570	(24%)	990	(11%)	\$447	(9%)
<i>In confined fire</i>	500	(0%)	0	(0%)	10	(0%)	\$0	(0%)
Laundry room or area	9,400	(4%)	40	(2%)	300	(3%)	\$166	(3%)
<i>In non-confined fire</i>	8,700	(3%)	40	(2%)	300	(3%)	\$166	(3%)
<i>In confined fire</i>	700	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Unclassified function area	8,800	(3%)	310	(13%)	560	(6%)	\$309	(6%)
<i>In non-confined fire</i>	8,200	(3%)	310	(13%)	560	(6%)	\$309	(6%)
<i>In confined fire</i>	600	(0%)	0	(0%)	10	(0%)	\$0	(0%)
Attic or ceiling/roof assembly or concealed space	8,700	(3%)	30	(1%)	100	(1%)	\$350	(7%)
<i>In non-confined fire</i>	8,600	(3%)	30	(1%)	100	(1%)	\$350	(7%)
<i>In confined fire</i>	100	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Exterior wall surface	8,300	(3%)	10	(0%)	80	(1%)	\$145	(3%)
<i>In non-confined fire</i>	8,100	(3%)	10	(0%)	80	(1%)	\$145	(3%)
<i>In confined fire</i>	200	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Garage or vehicle storage area*	8,200	(3%)	40	(1%)	380	(4%)	\$445	(9%)
<i>In non-confined fire</i>	7,400	(3%)	40	(1%)	380	(4%)	\$445	(9%)
<i>In confined fire</i>	800	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Heating equipment room	7,000	(3%)	20	(1%)	170	(2%)	\$90	(2%)
<i>In non-confined fire</i>	3,600	(1%)	20	(1%)	130	(1%)	\$88	(2%)
<i>In confined fire</i>	3,400	(1%)	0	(0%)	40	(0%)	\$2	(0%)
Wall assembly or concealed space	6,700	(3%)	40	(2%)	110	(1%)	\$183	(4%)
<i>In non-confined fire</i>	6,600	(2%)	40	(2%)	110	(1%)	\$183	(4%)
<i>In confined fire</i>	100	(0%)	0	(0%)	0	(0%)	\$0	(0%)

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

**Table 10A.**  
**Reported One- or Two-Family Home Structure Fires by Area of Origin**  
**2003-2007 Annual Averages**  
**(Unknowns Were Allocated Proportionally)**  
**(Continued)**

Area of Origin	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Unclassified area of origin	6,600	(2%)	40	(2%)	80	(1%)	\$117	(2%)
<i>In non-confined fire</i>	4,700	(2%)	40	(2%)	80	(1%)	\$117	(2%)
<i>In confined fire</i>	1,900	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Unclassified outside area	6,100	(2%)	10	(0%)	50	(1%)	\$58	(1%)
<i>In non-confined fire</i>	2,900	(1%)	10	(0%)	40	(0%)	\$57	(1%)
<i>In confined fire</i>	3,200	(1%)	0	(0%)	0	(0%)	\$1	(0%)
Bathroom	5,900	(2%)	40	(1%)	230	(2%)	\$99	(2%)
<i>In non-confined fire</i>	5,500	(2%)	40	(1%)	230	(2%)	\$99	(2%)
<i>In confined fire</i>	500	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Unclassified structural area	5,500	(2%)	90	(4%)	180	(2%)	\$222	(4%)
<i>In non-confined fire</i>	5,000	(2%)	90	(4%)	180	(2%)	\$222	(4%)
<i>In confined fire</i>	500	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Unclassified function area	8,800	(3%)	310	(13%)	560	(6%)	\$309	(6%)
<i>In non-confined fire</i>	8,200	(3%)	310	(13%)	560	(6%)	\$309	(6%)
<i>In confined fire</i>	600	(0%)	0	(0%)	10	(0%)	\$0	(0%)
Crawl space or substructure space	5,400	(2%)	60	(2%)	200	(2%)	\$158	(3%)
<i>In non-confined fire</i>	4,900	(2%)	60	(2%)	190	(2%)	\$157	(3%)
<i>In confined fire</i>	500	(0%)	0	(0%)	10	(0%)	\$0	(0%)
Exterior balcony or unenclosed porch	4,300	(2%)	20	(1%)	130	(1%)	\$139	(3%)
<i>In non-confined fire</i>	3,800	(1%)	20	(1%)	130	(1%)	\$139	(3%)
<i>In confined fire</i>	500	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Other known area	33,000	(12%)	200	(8%)	740	(8%)	\$896	(17%)
<i>In non-confined fire</i>	26,600	(10%)	200	(8%)	730	(8%)	\$895	(17%)
<i>In confined fire</i>	6,400	(2%)	0	(0%)	20	(0%)	\$1	(0%)
Total fires	267,700	(100%)	2,400	(100%)	9,290	(100%)	\$5,225	(100%)
<i>In non-confined fire</i>	170,200	(64%)	2,390	(100%)	8,350	(90%)	\$5,192	(99%)
<i>In confined fire</i>	97,500	(36%)	10	(0%)	940	(10%)	\$33	(1%)

Note: Sums may not equal totals due to rounding errors. Confined structure fires (NFIRS incident type 113-118) were analyzed separately from non-confined structure fires (incident type 110-129, except 113-118). See Appendix A for details.

Source: NFIRS 5.0 and NFPA survey.

**Table 11A.**  
**Reported One- or Two-Family Home Structure Fires by Item First Ignited**  
**2003-2007 Annual Averages**  
**(Unknowns Were Allocated Proportionally)**

Item First Ignited	Fires		Civilian		Civilian		Direct	
			Deaths	Injuries	Injuries	Property Damage (in Millions)		
Cooking materials, including food	51,400	(19%)	90	(4%)	1,980	(21%)	\$256	(5%)
<i>In non-confined fire</i>	14,600	(5%)	90	(4%)	1,380	(15%)	\$244	(5%)
<i>In confined fire</i>	36,800	(14%)	0	(0%)	600	(7%)	\$12	(0%)
Unclassified item first ignited	25,500	(10%)	70	(3%)	360	(4%)	\$223	(4%)
<i>In non-confined fire</i>	9,600	(4%)	70	(3%)	290	(3%)	\$218	(4%)
<i>In confined fire</i>	15,900	(6%)	0	(0%)	60	(1%)	\$5	(0%)
Structural member or framing	18,300	(7%)	140	(6%)	340	(4%)	\$811	(16%)
<i>In non-confined fire</i>	17,800	(7%)	140	(6%)	340	(4%)	\$810	(16%)
<i>In confined fire</i>	500	(0%)	0	(0%)	0	(0%)	\$1	(0%)
Electrical wire or cable insulation	15,300	(6%)	90	(4%)	340	(4%)	\$294	(6%)
<i>In non-confined fire</i>	13,700	(5%)	90	(4%)	340	(4%)	\$294	(6%)
<i>In confined fire</i>	1,600	(1%)	0	(0%)	10	(0%)	\$1	(0%)
Flammable or combustible liquid or gas or associated part	13,900	(5%)	210	(9%)	1,000	(11%)	\$280	(5%)
<i>In non-confined fire</i>	7,400	(3%)	210	(9%)	900	(10%)	\$277	(5%)
<i>In confined fire</i>	6,500	(2%)	0	(0%)	90	(1%)	\$2	(0%)
Exterior wall covering or finish	11,700	(4%)	30	(1%)	140	(1%)	\$321	(6%)
<i>In non-confined fire</i>	11,500	(4%)	30	(1%)	140	(1%)	\$321	(6%)
<i>In confined fire</i>	200	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Rubbish, trash, or waste	9,000	(3%)	40	(2%)	180	(2%)	\$102	(2%)
<i>In non-confined fire</i>	4,100	(2%)	40	(2%)	160	(2%)	\$101	(2%)
<i>In confined fire</i>	4,900	(2%)	0	(0%)	20	(0%)	\$1	(0%)
Mattress or bedding	8,500	(3%)	280	(12%)	970	(10%)	\$274	(5%)
<i>In non-confined fire</i>	8,300	(3%)	280	(12%)	960	(10%)	\$274	(5%)
<i>In confined fire</i>	200	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Appliance housing or casing	8,500	(3%)	40	(2%)	220	(2%)	\$90	(2%)
<i>In non-confined fire</i>	4,700	(2%)	40	(2%)	190	(2%)	\$89	(2%)
<i>In confined fire</i>	3,700	(1%)	0	(0%)	30	(0%)	\$1	(0%)
Interior wall covering	7,700	(3%)	90	(4%)	280	(3%)	\$250	(5%)
<i>In non-confined fire</i>	7,400	(3%)	90	(4%)	280	(3%)	\$249	(5%)
<i>In confined fire</i>	300	(0%)	0	(0%)	0	(0%)	\$1	(0%)
Clothing	6,500	(2%)	100	(4%)	380	(4%)	\$134	(3%)
<i>In non-confined fire</i>	6,100	(2%)	100	(4%)	380	(4%)	\$134	(3%)
<i>In confined fire</i>	500	(0%)	0	(0%)	0	(0%)	\$0	(0%)

**Table 11A.**  
**Reported One- or Two-Family Home Structure Fires by Item First Ignited**  
**2003-2007 Annual Averages**  
**(Unknowns Were Allocated Proportionally)**  
**(Continued)**

Item First Ignited	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage	
							(in Millions)	
Unclassified structural component or finish	6,400	(2%)	70	(3%)	130	(1%)	\$246	(5%)
<i>In non-confined fire</i>	5,900	(2%)	70	(3%)	130	(1%)	\$246	(5%)
<i>In confined fire</i>	400	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Unclassified organic material	6,100	(2%)	0	(0%)	40	(0%)	\$36	(1%)
<i>In non-confined fire</i>	1,600	(1%)	0	(0%)	40	(0%)	\$35	(1%)
<i>In confined fire</i>	4,500	(2%)	0	(0%)	10	(0%)	\$1	(0%)
Household utensil	5,800	(2%)	10	(1%)	140	(1%)	\$31	(1%)
<i>In non-confined fire</i>	1,900	(1%)	10	(1%)	90	(1%)	\$30	(1%)
<i>In confined fire</i>	3,900	(1%)	0	(0%)	50	(0%)	\$1	(0%)
Upholstered furniture	5,800	(2%)	500	(21%)	610	(7%)	\$331	(6%)
<i>In non-confined fire</i>	5,600	(2%)	500	(21%)	600	(7%)	\$330	(6%)
<i>In confined fire</i>	200	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Insulation within structural area	5,600	(2%)	10	(0%)	80	(1%)	\$115	(2%)
<i>In non-confined fire</i>	5,500	(2%)	10	(0%)	80	(1%)	\$115	(2%)
<i>In confined fire</i>	100	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Film or residue, including paint, resin and creosote	5,500	(2%)	0	(0%)	10	(0%)	\$9	(0%)
<i>In non-confined fire</i>	300	(0%)	0	(0%)	10	(0%)	\$7	(0%)
<i>In confined fire</i>	5,300	(2%)	0	(0%)	0	(0%)	\$2	(0%)
Unclassified furniture or utensil	5,300	(2%)	130	(6%)	370	(4%)	\$169	(3%)
<i>In non-confined fire</i>	4,600	(2%)	130	(6%)	360	(4%)	\$169	(3%)
<i>In confined fire</i>	700	(0%)	0	(0%)	10	(0%)	\$0	(0%)
Cabinetry	4,800	(2%)	40	(2%)	220	(2%)	\$141	(3%)
<i>In non-confined fire</i>	4,000	(2%)	40	(2%)	210	(2%)	\$141	(3%)
<i>In confined fire</i>	800	(0%)	0	(0%)	10	(0%)	\$1	(0%)
Floor covering, rug or mat	4,500	(2%)	110	(5%)	220	(2%)	\$137	(3%)
<i>In non-confined fire</i>	4,400	(2%)	110	(5%)	220	(2%)	\$136	(3%)
<i>In confined fire</i>	100	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Multiple items first ignited	4,400	(2%)	90	(4%)	190	(2%)	\$167	(3%)
<i>In non-confined fire</i>	3,600	(1%)	90	(4%)	180	(2%)	\$166	(3%)
<i>In confined fire</i>	900	(0%)	0	(0%)	10	(0%)	\$0	(0%)

**Table 11A.**  
**Reported One- or Two-Family Home Structure Fires by Item First Ignited**  
**2003-2007 Annual Averages**  
**(Unknowns Were Allocated Proportionally)**  
**(Continued)**

<b>Item First Ignited</b>	<b>Fires</b>		<b>Civilian Deaths</b>		<b>Civilian Injuries</b>		<b>Direct Property Damage (in Millions)</b>	
Magazine, newspaper or writing paper	4,200	(2%)	50	(2%)	160	(2%)	\$73	(1%)
<i>In non-confined fire</i>	2,500	(1%)	50	(2%)	150	(2%)	\$73	(1%)
<i>In confined fire</i>	1,600	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Other known item	33,000	(12%)	170	(7%)	940	(10%)	\$736	(14%)
<i>In non-confined fire</i>	25,100	(9%)	170	(7%)	910	(10%)	\$734	(14%)
<i>In confined fire</i>	7,800	(3%)	0	(0%)	30	(0%)	\$2	(0%)
Total fires	267,700	(100%)	2,400	(100%)	9,290	(100%)	\$5,225	(100%)
<i>Total non-confined fires</i>	170,200	(64%)	2,390	(100%)	8,350	(90%)	\$5,192	(99%)
<i>Total confined fires</i>	97,500	(36%)	10	(0%)	940	(10%)	\$33	(1%)

Note: Sums may not equal totals due to rounding errors. Confined structure fires (NFIRS incident type 113-118) were analyzed separately from non-confined structure fires (incident type 110-129, except 113-118). See Appendix A for details.

Source: NFIRS 5.0 and NFPA survey.

**Table 12A.**  
**Reported One- or Two-Family Home Structure Fires**  
**by Extent of Flame Damage**  
**2003-2007 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 identified by incident type	97,500	(36%)	10	(0%)	940	(10%)	\$33	(1%)
Confined to object of origin	46,200	(17%)	160	(7%)	1,100	(12%)	\$376	(7%)
Confined to room of origin	48,300	(18%)	300	(12%)	2,890	(31%)	\$612	(12%)
Confined to floor of origin	13,600	(5%)	220	(9%)	990	(11%)	\$474	(9%)
Confined to building of origin	52,700	(20%)	1,380	(58%)	2,720	(29%)	\$2,957	(57%)
Extended beyond building of origin	9,400	(4%)	330	(14%)	650	(7%)	\$773	(15%)
Total	267,700	(100%)	2,390	(100%)	9,290	(100%)	\$5,225	(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: 1980-2008**

Year	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Millions)	
				As Reported	In 2008 Dollars
1980	143,500	1,025	3,600	\$401	\$1,048
1981	137,000	970	4,250	\$415	\$980
1982	116,500	860	4,700	\$353	\$786
1983	102,000	845	4,300	\$413	\$891
1984	99,500	785	3,650	\$417	\$862
1985	104,500	865	3,925	\$476	\$950
1986	97,500	650	3,925	\$472	\$927
1987	103,500	790	4,765	\$521	\$986
1988	106,000	830	4,950	\$548	\$997
1989	96,000	790	5,050	\$541	\$939
1990	95,500	680	4,975	\$623	\$1,026
1991	101,500	595	5,675	\$609	\$961
1992	101,000	545	5,825	\$597	\$915
1993	100,000	685	6,300	\$653	\$972
1994	97,000	640	5,475	\$678	\$984
1995	94,000	605	5,200	\$649	\$916
1996	93,000	565	5,175	\$748	\$1,026
1997	93,000	660	5,000	\$718	\$962
1998	86,500	445	5,000	\$631	\$833
1999	88,500	520	4,500	\$842	\$1,086
2000	84,500	500	4,400	\$886	\$1,107
2001	88,000	460	3,800	\$864	\$1,050
2002	88,500	390	3,700	\$926	\$1,107
2003	91,500	410	3,650	\$897	\$1,049
2004	94,000	510	3,200	\$885	\$1,009
2005	94,000	460	3,000	\$948	\$1,044
2006	91,500	425	3,700	\$896	\$956
2007	98,500	515	3,950	\$1,164	\$1,207
2008	95,500	390	3,975	\$1,351	\$1,351

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  
2003-2007 Annual Averages**

Month	Fires		Civilian		Civilian		Direct	
			Deaths	Injuries	Injuries	Property Damage (in Millions)		
January	10,400	(9%)	60	(13%)	370	(10%)	\$117	(10%)
February	9,400	(8%)	50	(12%)	360	(9%)	\$92	(8%)
March	9,900	(9%)	50	(11%)	350	(9%)	\$102	(9%)
April	9,500	(8%)	40	(9%)	340	(9%)	\$102	(9%)
May	9,200	(8%)	30	(7%)	310	(8%)	\$88	(8%)
June	8,300	(7%)	30	(6%)	270	(7%)	\$102	(9%)
July	8,400	(7%)	20	(5%)	310	(8%)	\$85	(8%)
August	8,100	(7%)	30	(6%)	310	(8%)	\$92	(8%)
September	8,500	(8%)	30	(8%)	290	(7%)	\$78	(7%)
October	9,600	(9%)	30	(6%)	310	(8%)	\$74	(7%)
November	10,100	(9%)	30	(6%)	300	(8%)	\$85	(7%)
December	11,000	(10%)	50	(10%)	360	(9%)	\$117	(10%)
Total	112,400	(100%)	440	(100%)	3,870	(100%)	\$1,133	(100%)
Monthly average	9,400	(8%)	40	(8%)	320	(8%)	\$94	(8%)

**Table 3B.  
Reported Apartment Structure Fires by Day of Week  
2003-2007 Annual Averages**

Day of Week	Fires		Civilian		Civilian		Direct	
			Deaths	Injuries	Injuries	Property Damage (in Millions)		
Sunday	18,200	(16%)	70	(15%)	620	(16%)	\$179	(16%)
Monday	15,600	(14%)	60	(14%)	550	(14%)	\$174	(15%)
Tuesday	15,200	(14%)	60	(14%)	520	(14%)	\$164	(15%)
Wednesday	15,100	(13%)	50	(12%)	510	(13%)	\$140	(12%)
Thursday	15,400	(14%)	60	(13%)	580	(15%)	\$149	(13%)
Friday	15,400	(14%)	60	(14%)	540	(14%)	\$153	(14%)
Saturday	17,600	(16%)	80	(18%)	560	(15%)	\$174	(15%)
Total	112,400	(100%)	440	(100%)	3,870	(100%)	\$1,133	(100%)
Daily average	16,100	(14%)	60	(14%)	550	(14%)	\$162	(14%)

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

Source: NFIRS 5.0 and NFPA survey.

**Table 4B.**  
**Reported Apartment Structure Fires by Alarm Time**  
**2003-2007 Annual Averages**

Alarm Time	Fires		Civilian		Civilian		Direct	
			Deaths	Injuries	Injuries	Property Damage (in Millions)		
Midnight - 12:59 a.m.	3,600	(3%)	20	(5%)	140	(4%)	\$45	(4%)
1:00 - 1:59 a.m.	2,900	(3%)	30	(7%)	170	(4%)	\$65	(6%)
2:00 - 2:59 a.m.	2,600	(2%)	30	(7%)	160	(4%)	\$48	(4%)
3:00 - 3:59 a.m.	2,300	(2%)	30	(8%)	170	(4%)	\$53	(5%)
4:00 - 4:59 a.m.	2,100	(2%)	30	(6%)	130	(3%)	\$51	(5%)
5:00 - 5:59 a.m.	1,800	(2%)	30	(6%)	120	(3%)	\$38	(3%)
6:00 - 6:59 a.m.	2,000	(2%)	20	(4%)	110	(3%)	\$36	(3%)
7:00 - 7:59 a.m.	2,500	(2%)	20	(4%)	120	(3%)	\$28	(2%)
8:00 - 8:59 a.m.	3,100	(3%)	20	(4%)	120	(3%)	\$29	(3%)
9:00 - 9:59 a.m.	3,700	(3%)	20	(4%)	130	(3%)	\$27	(2%)
10:00 - 10:59 a.m.	4,400	(4%)	20	(3%)	130	(3%)	\$42	(4%)
11:00 - 11:59 a.m.	5,000	(4%)	10	(3%)	150	(4%)	\$41	(4%)
Noon - 12:59 p.m.	5,600	(5%)	10	(2%)	150	(4%)	\$43	(4%)
1:00 - 1:59 p.m.	5,700	(5%)	10	(3%)	190	(5%)	\$53	(5%)
2:00 - 2:59 p.m.	5,800	(5%)	10	(3%)	170	(4%)	\$54	(5%)
3:00 - 3:59 p.m.	6,300	(6%)	10	(3%)	160	(4%)	\$63	(6%)
4:00 - 4:59 p.m.	6,900	(6%)	10	(3%)	190	(5%)	\$60	(5%)
5:00 - 5:59 p.m.	7,800	(7%)	10	(3%)	200	(5%)	\$68	(6%)
6:00 - 6:59 p.m.	8,200	(7%)	10	(3%)	210	(6%)	\$57	(5%)
7:00 - 7:59 p.m.	7,800	(7%)	10	(3%)	240	(6%)	\$52	(5%)
8:00 - 8:59 p.m.	7,100	(6%)	20	(5%)	210	(5%)	\$45	(4%)
9:00 - 9:59 p.m.	6,100	(5%)	20	(4%)	170	(4%)	\$47	(4%)
10:00 - 10:59 p.m.	5,000	(4%)	20	(4%)	170	(4%)	\$43	(4%)
11:00 - 11:59 p.m.	4,000	(4%)	20	(5%)	160	(4%)	\$46	(4%)
Total	112,400	(100%)	440	(100%)	3,870	(100%)	\$1,133	(100%)
Average	4,700	(4%)	20	(4%)	160	(4%)	\$47	(4%)

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

Source: NFIRS 5.0 and NFPA survey.

**Table 5B.**  
**Leading Causes of Reported Apartment Structure Fires**  
**2003-2007 Annual Averages**  
**(Unknowns Were Allocated Proportionally)**

Cause	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Cooking equipment	68,600	(61%)	130	(29%)	1,840	(47%)	\$204	(18%)
<i>Cooking equipment in non-confined fire</i>	9,900	(9%)	130	(29%)	1,130	(29%)	\$195	(17%)
<i>Confined cooking fire</i>	58,600	(52%)	0	(0%)	700	(18%)	\$9	(1%)
Heating equipment	10,400	(9%)	40	(10%)	300	(8%)	\$106	(9%)
<i>Heating equipment in non-confined fire</i>	3,900	(3%)	40	(10%)	280	(7%)	\$104	(9%)
<i>Confined fuel burner or boiler fire</i>	5,800	(5%)	0	(0%)	20	(0%)	\$1	(0%)
<i>Confined chimney or flue fire</i>	700	(1%)	0	(0%)	10	(0%)	\$0	(0%)
Smoking materials	7,500	(7%)	150	(34%)	490	(13%)	\$157	(14%)
Intentional	6,900	(6%)	50	(11%)	310	(8%)	\$127	(11%)
Candle	3,400	(3%)	30	(7%)	340	(9%)	\$102	(9%)
Electrical distribution and lighting equipment	2,700	(2%)	30	(6%)	160	(4%)	\$114	(10%)
Exposure fire	2,300	(2%)	10	(2%)	20	(2%)	\$105	(2%)
Clothes dryer or washer	2,200	(2%)	0	(0%)	80	(2%)	\$19	(2%)
Playing with heat source	1,900	(2%)	20	(4%)	230	(6%)	\$52	(5%)

Note: This table summarizes findings from multiple fields, meaning that the same fire may be listed under multiple causes. Estimates of fires involving electrical distribution or lighting equipment or clothes dryers or washers exclude confined fires. The methodology is used is described in the appendix.

Source: NFIRS 5.0 and NFPA survey.

**Table 6B.**  
**Cause of Ignition in Reported Apartment Structure Fires**  
**2003-2007 Annual Averages**  
**(Unknowns Were Allocated Proportionally)**

Cause of Ignition	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage	
							(in Millions)	
Unintentional	90,600	(81%)	360	(80%)	3,250	(84%)	\$738	(65%)
<i>In non-confined fire</i>	26,300	(23%)	350	(80%)	2,550	(66%)	\$729	(64%)
<i>In confined fire</i>	64,300	(57%)	0	(0%)	700	(18%)	\$9	(1%)
Failure of equipment or heat source	10,000	(9%)	30	(6%)	240	(6%)	\$129	(11%)
<i>In non-confined fire</i>	6,100	(5%)	30	(6%)	220	(6%)	\$128	(11%)
<i>In confined fire</i>	3,800	(3%)	0	(0%)	20	(0%)	\$1	(0%)
Intentional	6,900	(6%)	50	(11%)	310	(8%)	\$127	(11%)
<i>In non-confined fire</i>	3,500	(3%)	50	(11%)	290	(8%)	\$126	(11%)
<i>In confined fire</i>	3,400	(3%)	0	(0%)	20	(0%)	\$0	(0%)
Unclassified cause	4,500	(4%)	10	(3%)	60	(2%)	\$112	(10%)
<i>In non-confined fire</i>	2,600	(2%)	10	(3%)	50	(1%)	\$111	(10%)
<i>In confined fire</i>	1,900	(2%)	0	(0%)	20	(0%)	\$0	(0%)
Act of nature	400	(0%)	0	(0%)	10	(0%)	\$28	(2%)
<i>In non-confined fire</i>	300	(0%)	0	(0%)	10	(0%)	\$28	(2%)
<i>In confined fire</i>	100	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Total	112,400	(100%)	440	(100%)	3,870	(100%)	\$1,133	(100%)
<i>Total non-confined fires</i>	38,900	(35%)	440	(100%)	3,120	(81%)	\$1,122	(99%)
<i>Total confined fires</i>	73,500	(65%)	0	(0%)	750	(19%)	\$11	(1%)

Source: NFIRS 5.0 and NFPA survey.

Note: Sums may not equal totals due to rounding errors. Confined structure fires (NFIRS incident type 113-118) were analyzed separately from non-confined structure fires (incident type 110-129, except 113-118). See Appendix A for details.

**Table 7B.**  
**Reported Apartment Structure Fires by Equipment Involved in Ignition**  
**2003-2007 Annual Averages**  
 (Unknowns in Non-Confined Fires and Confined Cooking Fires Were Allocated Proportionally)

Equipment Involved	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
<b>Cooking equipment</b>	<b>68,600</b>	<b>(61%)</b>	<b>130</b>	<b>(29%)</b>	<b>1,840</b>	<b>(47%)</b>	<b>\$204</b>	<b>(18%)</b>
Range or cooktop	41,900	(37%)	120	(27%)	1,420	(37%)	\$151	(13%)
<i>In non-confined fire</i>	8,100	(7%)	120	(27%)	990	(26%)	\$146	(13%)
<i>In confined fire</i>	33,800	(30%)	0	(0%)	430	(11%)	\$5	(0%)
Oven or rotisserie	9,000	(8%)	0	(0%)	130	(3%)	\$6	(1%)
<i>In non-confined fire</i>	700	(1%)	0	(0%)	40	(1%)	\$5	(0%)
<i>In confined fire</i>	8,200	(7%)	0	(0%)	80	(2%)	\$1	(0%)
Portable cooking or warming unit	3,300	(3%)	0	(0%)	60	(2%)	\$16	(1%)
<i>In non-confined fire</i>	500	(0%)	0	(0%)	40	(1%)	\$16	(1%)
<i>In confined fire</i>	2,800	(3%)	0	(0%)	20	(1%)	\$0	(0%)
Microwave oven	2,800	(2%)	0	(0%)	50	(1%)	\$5	(0%)
<i>In non-confined fire</i>	300	(0%)	0	(0%)	20	(1%)	\$5	(0%)
<i>In confined fire</i>	2,500	(2%)	0	(0%)	20	(1%)	\$0	(0%)
Grill, hibachi or barbecue	600	(1%)	10	(1%)	20	(1%)	\$20	(2%)
<i>In non-confined fire</i>	200	(0%)	10	(1%)	20	(0%)	\$20	(2%)
<i>In confined fire</i>	400	(0%)	0	(0%)	10	(0%)	\$0	(0%)
Other known cooking equipment in non-confined fire	200	(0%)	0	(0%)	20	(1%)	\$3	(0%)
Other confined cooking fire	10,900	(10%)	0	(0%)	140	(4%)	\$2	(0%)
<b>No equipment involved</b>	<b>16,200</b>	<b>(14%)</b>	<b>220</b>	<b>(49%)</b>	<b>1,150</b>	<b>(30%)</b>	<b>\$513</b>	<b>(45%)</b>
<b>Heating equipment</b>	<b>10,400</b>	<b>(9%)</b>	<b>40</b>	<b>(10%)</b>	<b>300</b>	<b>(8%)</b>	<b>\$106</b>	<b>(9%)</b>
Furnace, central heat or boiler	6,200	(5%)	0	(1%)	30	(1%)	\$13	(1%)
<i>In non-confined fire</i>	300	(0%)	0	(1%)	10	(0%)	\$12	(1%)
<i>In confined fire</i>	5,800	(5%)	0	(0%)	20	(0%)	\$1	(0%)
Fixed or portable space heater	2,400	(2%)	30	(7%)	200	(5%)	\$57	(5%)
Water heater	1,000	(1%)	10	(2%)	50	(1%)	\$15	(1%)
Fireplace or chimney	800	(1%)	0	(0%)	10	(0%)	\$19	(2%)
<i>In non-confined fire</i>	100	(0%)	0	(0%)	10	(0%)	\$18	(2%)
<i>Confined chimney or flue fire</i>	700	(1%)	0	(0%)	10	(0%)	\$0	(0%)
Other known heating equipment in non-confined fire	100	(0%)	0	(0%)	0	(0%)	\$1	(0%)
<b>Electrical distribution and lighting equipment</b>	<b>2,700</b>	<b>(2%)</b>	<b>30</b>	<b>(6%)</b>	<b>160</b>	<b>(4%)</b>	<b>\$114</b>	<b>(10%)</b>
Fixed wiring and related equipment	1,400	(1%)	10	(2%)	50	(1%)	\$63	(6%)
Lamp, light bulb or light fixture	800	(1%)	0	(1%)	60	(2%)	\$23	(2%)
Other known electrical distribution or lighting equipment in non-confined fire	400	(0%)	10	(3%)	40	(1%)	\$28	(3%)

**Table 7B.**  
**Reported Apartment Structure Fires by Equipment Involved in Ignition**  
**2003-2007 Annual Averages**  
**(Unknowns in Non-Confined Fires and Confined Cooking Fires Were Allocated Proportionally)**  
**(Continued)**

<b>Equipment Involved</b>	<b>Fires</b>		<b>Civilian Deaths</b>		<b>Civilian Injuries</b>		<b>Direct Property Damage (in Millions)</b>	
Clothes dryer or washer	2,200	(2%)	0	(0%)	80	(2%)	\$19	(2%)
Confined commercial compactor fire	1,600	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Fan	900	(1%)	0	(0%)	20	(1%)	\$27	(2%)
Other known equipment in non-confined fire	3,000	(3%)	20	(6%)	300	(8%)	\$150	(13%)
Contained trash or rubbish fire	6,500	(6%)	0	(0%)	20	(1%)	\$1	(0%)
Confined incinerator overload or malfunction fire	200	(0%)	0	(0%)	0	(0%)	\$0	(0%)
<b>Total</b>	<b>112,400</b>	<b>(100%)</b>	<b>440</b>	<b>(100%)</b>	<b>3,870</b>	<b>(100%)</b>	<b>\$1,133</b>	<b>(100%)</b>

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. The same approach was used with confined cooking fires. 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.). The estimates of fires involving fireplace or chimney include all fires with the confined chimney or flue incident type regardless of what may have been coded as equipment involved. Likewise, the estimates of fires involving furnaces, central heat or boilers include all fires with confined fuel burner or boiler incident type. The estimates shown should be considered upper bounds. Sums may not equal totals due to rounding errors.

Source: NFIRS 5.0 and NFPA survey.

**Table 8B.**  
**Reported Apartment Structure Fires by Heat Source**  
**2003-2007 Annual Averages**  
**(Unknowns Were Allocated Proportionally)**

Heat Source	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Radiated or conducted heat from operating equipment	32,000	(28%)	60	(14%)	990	(26%)	\$139	(12%)
<i>In non-confined fire</i>	7,100	(6%)	60	(14%)	700	(18%)	\$136	(12%)
<i>In confined fire</i>	24,800	(22%)	0	(0%)	290	(7%)	\$3	(0%)
Unclassified heat from powered equipment	25,700	(23%)	30	(7%)	670	(17%)	\$128	(11%)
<i>In non-confined fire</i>	6,000	(5%)	30	(7%)	450	(12%)	\$124	(11%)
<i>In confined fire</i>	19,700	(18%)	0	(0%)	220	(6%)	\$5	(0%)
Smoking materials	7,500	(7%)	150	(34%)	490	(13%)	\$157	(14%)
<i>In non-confined fire</i>	4,000	(4%)	150	(34%)	470	(12%)	\$156	(14%)
<i>In confined fire</i>	3,600	(3%)	0	(0%)	20	(1%)	\$0	(0%)
Arcing	4,500	(4%)	20	(4%)	160	(4%)	\$120	(11%)
In non-confined fire	3,600	(3%)	20	(4%)	150	(4%)	\$120	(11%)
In confined fire	900	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Candle	3,400	(3%)	30	(7%)	340	(9%)	\$102	(9%)
<i>In non-confined fire</i>	3,000	(3%)	30	(7%)	330	(9%)	\$102	(9%)
<i>In confined fire</i>	400	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Unclassified hot or smoldering object	7,800	(7%)	30	(7%)	220	(6%)	\$62	(5%)
<i>In non-confined fire</i>	2,900	(3%)	30	(7%)	170	(4%)	\$61	(5%)
<i>In confined fire</i>	4,900	(4%)	0	(0%)	50	(1%)	\$1	(0%)
Unclassified heat source	12,200	(11%)	10	(3%)	260	(7%)	\$66	(6%)
<i>In non-confined fire</i>	2,600	(2%)	10	(3%)	170	(4%)	\$65	(6%)
<i>In confined fire</i>	9,600	(9%)	0	(0%)	80	(2%)	\$1	(0%)
Spark, ember or flame from operating equipment	5,700	(5%)	20	(5%)	200	(5%)	\$57	(5%)
<i>In non-confined fire</i>	2,400	(2%)	20	(5%)	160	(4%)	\$57	(5%)
<i>In confined fire</i>	3,300	(3%)	0	(0%)	40	(1%)	\$0	(0%)
Hot ember or ash	3,400	(3%)	10	(3%)	100	(2%)	\$57	(5%)
In non-confined fire	1,800	(2%)	10	(3%)	90	(2%)	\$57	(5%)
In confined fire	1,600	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Lighter	2,200	(2%)	50	(10%)	250	(6%)	\$60	(5%)
<i>In non-confined fire</i>	1,500	(1%)	50	(10%)	250	(6%)	\$60	(5%)
<i>In confined fire</i>	600	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Match	2,400	(2%)	10	(2%)	70	(2%)	\$26	(2%)
<i>In non-confined fire</i>	900	(1%)	10	(2%)	70	(2%)	\$25	(2%)
<i>In confined fire</i>	1,500	(1%)	0	(0%)	0	(0%)	\$0	(0%)

**Table 8B.**  
**Reported Apartment Structure Fires by Heat Source**  
**2003-2007 Annual Averages**  
**(Unknowns Were Allocated Proportionally)**  
**(Continued)**

<b>Heat Source</b>	<b>Fires</b>		<b>Civilian Deaths</b>		<b>Civilian Injuries</b>		<b>Direct Property Damage (in Millions)</b>	
Other known heat source	5,500	(5%)	10	(3%)	150	(5%)	\$160	(15%)
<i>In non-confined fire</i>	3,000	(3%)	10	(3%)	120	(3%)	\$160	(14%)
<i>In confined fire</i>	2,600	(3%)	0	(0%)	30	(2%)	\$0	(1%)
Total fires	112,400	(100%)	440	(100%)	3,870	(101%)	\$1,133	(101%)
<i>Total non-confined fires</i>	38,900	(35%)	440	(100%)	3,120	(81%)	\$1,122	(99%)
<i>Total confined fires</i>	73,500	(66%)	0	(0%)	750	(21%)	\$11	(2%)

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. Confined structure fires (NFIRS incident type 113-118) were analyzed separately from non-confined structure fires (incident type 110-129, except 113-118). See Appendix A for details.

Source: NFIRS 5.0 and NFPA survey.

**Table 9B.**  
**Reported Apartment Structure Fires by Factor Contributing to Ignition**  
**2003-2007 Annual Averages**  
**(Unknowns Fires Were Allocated Proportionally)**

Factor Contributing	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage	
							(in Millions)	
Equipment unattended	29,200	(26%)	50	(11%)	820	(21%)	\$93	(8%)
<i>In non-confined fire</i>	4,900	(4%)	50	(11%)	540	(14%)	\$90	(8%)
<i>In confined fire</i>	24,300	(22%)	0	(0%)	290	(7%)	\$3	(0%)
Abandoned or discarded material	17,800	(16%)	100	(23%)	570	(15%)	\$186	(16%)
<i>In non-confined fire</i>	6,100	(5%)	100	(23%)	470	(12%)	\$184	(16%)
<i>In confined fire</i>	11,700	(10%)	0	(0%)	110	(3%)	\$2	(0%)
Unclassified misuse of material or product	12,500	(11%)	50	(12%)	580	(15%)	\$85	(7%)
<i>In non-confined fire</i>	3,600	(3%)	50	(12%)	470	(12%)	\$83	(7%)
<i>In confined fire</i>	8,900	(8%)	0	(0%)	110	(3%)	\$2	(0%)
Heat source too close to combustibles	11,500	(10%)	100	(21%)	660	(17%)	\$182	(16%)
<i>In non-confined fire</i>	5,900	(5%)	90	(21%)	600	(15%)	\$181	(16%)
<i>In confined fire</i>	5,500	(5%)	0	(0%)	60	(2%)	\$1	(0%)
Unclassified factor contributed to ignition	9,000	(8%)	40	(10%)	290	(7%)	\$84	(7%)
<i>In non-confined fire</i>	2,500	(2%)	40	(10%)	240	(6%)	\$83	(7%)
<i>In confined fire</i>	6,500	(6%)	0	(0%)	50	(1%)	\$1	(0%)
Electrical failure or malfunction	7,300	(6%)	40	(9%)	260	(7%)	\$190	(17%)
<i>In non-confined fire</i>	5,800	(5%)	40	(9%)	260	(7%)	\$190	(17%)
<i>In confined fire</i>	1,500	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Unintentionally turned on or not turned off	5,400	(5%)	10	(2%)	120	(3%)	\$28	(3%)
<i>In non-confined fire</i>	1,100	(1%)	10	(2%)	90	(2%)	\$28	(2%)
<i>In confined fire</i>	4,200	(4%)	0	(0%)	30	(1%)	\$1	(0%)
Mechanical failure or malfunction	5,100	(5%)	10	(2%)	80	(2%)	\$42	(4%)
<i>In non-confined fire</i>	2,300	(2%)	10	(2%)	70	(2%)	\$42	(4%)
<i>In confined fire</i>	2,700	(2%)	0	(0%)	10	(0%)	\$1	(0%)
Failure to clean	4,300	(4%)	0	(0%)	30	(1%)	\$5	(0%)
<i>In non-confined fire</i>	800	(1%)	0	(0%)	20	(1%)	\$5	(0%)
<i>In confined fire</i>	3,600	(3%)	0	(0%)	10	(0%)	\$0	(0%)
Exposure fire	2,300	(2%)	10	(2%)	20	(0%)	\$105	(9%)
<i>In non-confined fire</i>	2,200	(2%)	10	(2%)	20	(0%)	\$105	(9%)
<i>In confined fire</i>	100	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Unclassified operational deficiency	1,900	(2%)	10	(2%)	70	(2%)	\$11	(1%)
<i>In non-confined fire</i>	500	(0%)	10	(2%)	50	(1%)	\$11	(1%)
<i>In confined fire</i>	1,500	(1%)	0	(0%)	20	(0%)	\$1	(0%)
Playing with heat source	1,900	(2%)	20	(4%)	230	(6%)	\$52	(5%)
<i>In non-confined fire</i>	1,400	(1%)	20	(4%)	220	(6%)	\$52	(5%)
<i>In confined fire</i>	600	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Equipment not being operated properly	1,800	(2%)	0	(1%)	80	(2%)	\$8	(1%)
<i>In non-confined fire</i>	400	(0%)	0	(1%)	60	(1%)	\$8	(1%)
<i>In confined fire</i>	1,500	(1%)	0	(0%)	20	(0%)	\$0	(0%)
Other known factor	6,800	(6%)	40	(10%)	260	(7%)	\$156	(14%)
<i>In non-confined fire</i>	3,200	(3%)	40	(10%)	210	(5%)	\$156	(14%)
<i>In confined fire</i>	3,600	(3%)	0	(0%)	50	(1%)	\$1	(0%)

**Table 9B.**  
**Reported Apartment Structure Fires by Factor Contributing to Ignition**  
**2003-2007 Annual Averages**  
**(Unknowns Were Allocated Proportionally)**  
**(Continued)**

<b>Factor Contributing</b>	<b>Fires</b>		<b>Civilian Deaths</b>		<b>Civilian Injuries</b>		<b>Direct Property Damage (in Millions)</b>	
Total entries*	116,800	(104%)	470	(107%)	4,070	(105%)	\$1,229	(108%)
<i>In non-confined fire</i>	40,600	(36%)	470	(107%)	3,310	(85%)	\$1,218	(107%)
<i>In confined fire</i>	76,200	(68%)	0	(0%)	770	(20%)	\$11	(1%)
Total fires*	112,400	(100%)	440	(100%)	3,870	(100%)	\$1,133	(100%)
<i>Total non-confined fires</i>	38,900	(35%)	440	(100%)	3,120	(81%)	\$1,122	(99%)
<i>Total confined fires</i>	73,500	(65%)	0	(0%)	750	(19%)	\$11	(1%)

\* 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. Confined structure fires (NFIRS incident type 113-118) were analyzed separately from non-confined structure fires (incident type 110-129, except 113-118). See Appendix A for details.

Source: NFIRS 5.0 and NFPA survey.

**Table 10B.**  
**Reported Apartment Structure Fires by Area of Origin**  
**2003-2007 Annual Averages**  
(Unknowns Fires Were Allocated Proportionally)

Area of Origin	Fires	Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Kitchen	68,600	(61%)	100	(22%)	1,800	(47%)	\$201 (18%)
<i>In non-confined fire</i>	12,200	(11%)	100	(22%)	1,120	(29%)	\$192 (17%)
<i>In confined fire</i>	56,400	(50%)	0	(0%)	680	(18%)	\$9 (1%)
Bedroom	6,700	(6%)	120	(28%)	790	(20%)	\$206 (18%)
<i>In non-confined fire</i>	6,200	(6%)	120	(28%)	780	(20%)	\$206 (18%)
<i>In confined fire</i>	500	(0%)	0	(0%)	0	(0%)	\$0 (0%)
Living room, family room or den	2,900	(3%)	90	(20%)	370	(10%)	\$111 (10%)
<i>In non-confined fire</i>	2,600	(2%)	90	(20%)	370	(9%)	\$111 (10%)
<i>In confined fire</i>	400	(0%)	0	(0%)	10	(0%)	\$0 (0%)
Hallway, corridor, mall	2,700	(2%)	10	(2%)	20	(1%)	\$8 (1%)
<i>In non-confined fire</i>	600	(1%)	10	(2%)	20	(1%)	\$8 (1%)
<i>In confined fire</i>	2,100	(2%)	0	(0%)	0	(0%)	\$0 (0%)
Trash or rubbish chute, area or container	2,300	(2%)	0	(0%)	10	(0%)	\$1 (0%)
<i>In non-confined fire</i>	100	(0%)	0	(0%)	10	(0%)	\$1 (0%)
<i>In confined fire</i>	2,200	(2%)	0	(0%)	0	(0%)	\$0 (0%)
Bathroom	2,200	(2%)	10	(2%)	80	(2%)	\$33 (3%)
<i>In non-confined fire</i>	1,600	(1%)	10	(2%)	80	(2%)	\$33 (3%)
<i>In confined fire</i>	500	(0%)	0	(0%)	0	(0%)	\$0 (0%)
Laundry room or area	2,200	(2%)	0	(1%)	70	(2%)	\$19 (2%)
<i>In non-confined fire</i>	1,500	(1%)	0	(1%)	60	(2%)	\$19 (2%)
<i>In confined fire</i>	700	(1%)	0	(0%)	10	(0%)	\$0 (0%)
Interior stairway or ramp	2,000	(2%)	10	(2%)	40	(1%)	\$15 (1%)
<i>In non-confined fire</i>	600	(1%)	10	(2%)	40	(1%)	\$15 (1%)
<i>In confined fire</i>	1,500	(1%)	0	(0%)	0	(0%)	\$0 (0%)
Unclassified function area	2,000	(2%)	40	(10%)	190	(5%)	\$61 (5%)
<i>In non-confined fire</i>	1,600	(1%)	40	(10%)	180	(5%)	\$61 (5%)
<i>In confined fire</i>	500	(0%)	0	(0%)	10	(0%)	\$0 (0%)
Unclassified area of origin	1,900	(2%)	10	(3%)	30	(1%)	\$15 (1%)
In non-confined fire	700	(1%)	10	(3%)	20	(1%)	\$15 (1%)
In confined fire	1,200	(1%)	0	(0%)	10	(0%)	\$0 (0%)
Exterior balcony or unenclosed porch	1,800	(2%)	10	(1%)	50	(1%)	\$77 (7%)
<i>In non-confined fire</i>	1,400	(1%)	10	(1%)	40	(1%)	\$77 (7%)
<i>In confined fire</i>	400	(0%)	0	(0%)	0	(0%)	\$0 (0%)
Heating equipment room	1,700	(2%)	0	(0%)	40	(1%)	\$14 (1%)
<i>In non-confined fire</i>	600	(1%)	0	(0%)	30	(1%)	\$13 (1%)
<i>In confined fire</i>	1,100	(1%)	0	(0%)	10	(0%)	\$0 (0%)
Other known area	15,300	(14%)	40	(10%)	380	(10%)	\$372 (33%)
<i>In non-confined fire</i>	9,200	(8%)	40	(10%)	360	(9%)	\$371 (33%)
<i>In confined fire</i>	6,100	(5%)	0	(0%)	10	(0%)	\$1 (0%)
Total fires	112,400	(100%)	440	(100%)	3,870	(100%)	\$1,133 (100%)
<i>Total non-confined fires</i>	38,900	(35%)	440	(100%)	3,120	(81%)	\$1,122 (99%)
<i>Total confined fires</i>	73,500	(65%)	0	(0%)	750	(19%)	\$11 (1%)

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

**Table 11B.**  
**Reported Apartment Structure Fires by Item First Ignited**  
**2003-2007 Annual Averages**  
**(Unknowns Were Allocated Proportionally)**

<b>Item First Ignited</b>	<b>Fires</b>		<b>Civilian Deaths</b>		<b>Civilian Injuries</b>		<b>Direct Property Damage (in Millions)</b>	
Cooking materials, including food	53,900	(48%)	30	(7%)	1,340	(35%)	\$106	(9%)
<i>In non-confined fire</i>	7,200	(6%)	30	(7%)	810	(21%)	\$100	(9%)
<i>In confined fire</i>	46,700	(42%)	0	(0%)	530	(14%)	\$6	(1%)
Unclassified item first ignited	7,200	(6%)	10	(3%)	170	(4%)	\$41	(4%)
<i>In non-confined fire</i>	2,100	(2%)	10	(3%)	140	(4%)	\$40	(4%)
<i>In confined fire</i>	5,200	(5%)	0	(0%)	30	(1%)	\$1	(0%)
Rubbish, trash or waste	6,100	(5%)	10	(3%)	90	(2%)	\$26	(2%)
<i>In non-confined fire</i>	1,200	(1%)	10	(3%)	60	(2%)	\$25	(2%)
<i>In confined fire</i>	4,900	(4%)	0	(0%)	20	(1%)	\$1	(0%)
Household utensil	4,400	(4%)	0	(1%)	90	(2%)	\$10	(1%)
<i>In non-confined fire</i>	700	(1%)	0	(1%)	50	(1%)	\$10	(1%)
<i>In confined fire</i>	3,700	(3%)	0	(0%)	40	(1%)	\$1	(0%)
Flammable or combustible liquid or gas or associated part	3,800	(3%)	20	(6%)	200	(5%)	\$51	(4%)
<i>In non-confined fire</i>	1,300	(1%)	20	(6%)	170	(4%)	\$50	(4%)
<i>In confined fire</i>	2,400	(2%)	0	(0%)	30	(1%)	\$1	(0%)
Appliance housing or casing	2,900	(3%)	10	(1%)	100	(3%)	\$14	(1%)
<i>In non-confined fire</i>	1,200	(1%)	10	(1%)	80	(2%)	\$14	(1%)
<i>In confined fire</i>	1,800	(2%)	0	(0%)	20	(1%)	\$0	(0%)
Mattress or bedding material	2,900	(3%)	90	(20%)	410	(11%)	\$95	(8%)
<i>In non-confined fire</i>	2,700	(2%)	90	(20%)	410	(11%)	\$95	(8%)
<i>In confined fire</i>	200	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Electrical wire or cable insulation	2,800	(2%)	0	(1%)	70	(2%)	\$53	(5%)
<i>In non-confined fire</i>	2,200	(2%)	0	(1%)	70	(2%)	\$53	(5%)
<i>In confined fire</i>	600	(1%)	0	(0%)	10	(0%)	\$0	(0%)
Structural member or framing	2,400	(2%)	10	(2%)	50	(1%)	\$157	(14%)
<i>In non-confined fire</i>	2,400	(2%)	10	(2%)	50	(1%)	\$157	(14%)
<i>In confined fire</i>	0	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Unclassified furniture or utensil	2,000	(2%)	20	(5%)	150	(4%)	\$54	(5%)
<i>In non-confined fire</i>	1,300	(1%)	20	(5%)	140	(4%)	\$54	(5%)
<i>In confined fire</i>	700	(1%)	0	(0%)	10	(0%)	\$0	(0%)

**Table 11B.**  
**Reported Apartment Structure Fires by Item First Ignited**  
**2003-2007 Annual Averages**  
**(Unknowns Were Allocated Proportionally)**  
**(Continued)**

Item First Ignited	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Magazine, newspaper or writing paper	2,000	(2%)	10	(2%)	50	(1%)	\$17	(2%)
<i>In non-confined fire</i>	800	(1%)	10	(2%)	50	(1%)	\$17	(1%)
<i>In confined fire</i>	1,200	(1%)	0	(0%)	0	(0%)	\$0	(0%)
Clothing	1,900	(2%)	40	(9%)	130	(3%)	\$26	(2%)
<i>In non-confined fire</i>	1,500	(1%)	40	(8%)	130	(3%)	\$26	(2%)
<i>In confined fire</i>	400	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Upholstered furniture	1,800	(2%)	90	(20%)	280	(7%)	\$78	(7%)
<i>In non-confined fire</i>	1,700	(2%)	90	(20%)	280	(7%)	\$78	(7%)
<i>In confined fire</i>	100	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Other known item	18,100	(16%)	90	(21%)	750	(19%)	\$404	(36%)
<i>In non-confined fire</i>	12,500	(11%)	90	(21%)	700	(18%)	\$403	(36%)
<i>In confined fire</i>	5,600	(5%)	0	(0%)	50	(1%)	\$1	(0%)
Total fires	112,400	(100%)	440	(100%)	3,870	(100%)	\$1,133	(100%)
<i>Total non-confined fires</i>	38,900	(35%)	440	(100%)	3,120	(81%)	\$1,122	(99%)
<i>Total confined fires</i>	73,500	(65%)	0	(0%)	750	(19%)	\$11	(1%)

Note: Sums may not equal totals due to rounding errors. Confined structure fires (NFIRS incident type 113-118) were analyzed separately from non-confined structure fires (incident type 110-129, except 113-118). See Appendix A for details.

Source: NFIRS 5.0 and NFPA survey.

**Table 12B.**  
**Reported Apartment Structure Fires by Extent of Flame Damage**  
**2003-2007 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 identified by incident type	73,500	(65%)	0	(0%)	750	(19%)	\$11	(1%)
Confined to object of origin	13,100	(12%)	40	(8%)	510	(13%)	\$63	(6%)
Confined to room of origin	15,500	(14%)	130	(29%)	1,370	(35%)	\$149	(13%)
Confined to floor of origin	3,500	(3%)	70	(15%)	430	(11%)	\$137	(12%)
Confined to building of origin	5,800	(5%)	180	(40%)	700	(18%)	\$603	(53%)
Extended beyond building of origin	900	(1%)	30	(7%)	110	(3%)	\$169	(15%)
<b>Total</b>	<b>112,400</b>	<b>(100%)</b>	<b>440</b>	<b>(100%)</b>	<b>3,870</b>	<b>(100%)</b>	<b>\$1,133</b>	<b>(100%)</b>

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](http://www.nfirs.fema.gov/documentation/design/NFIRS_Paper_Forms_2008.pdf).

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

#### **Methodology may change slightly from year to year.**

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

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

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

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

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

### **Projecting NFIRS to National Estimates**

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

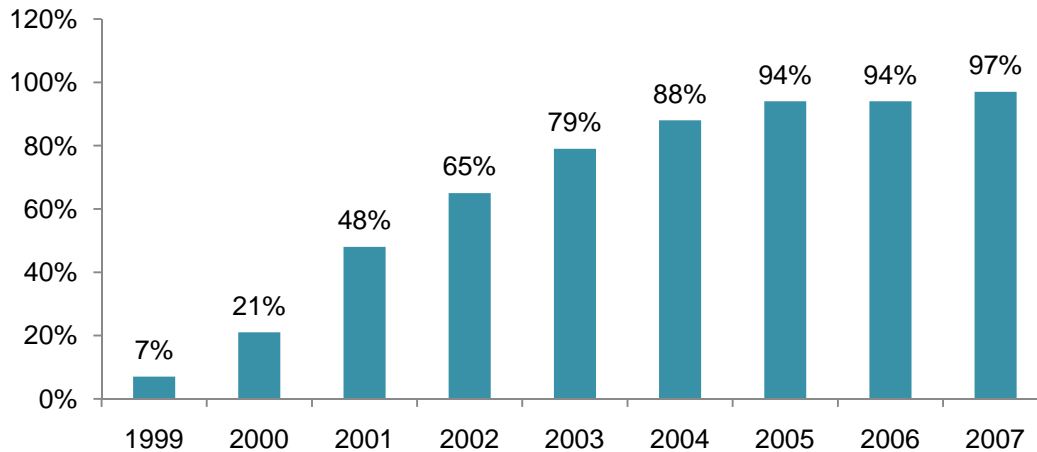
Scaling ratios are obtained by comparing NFPA's projected totals of residential structure fires, non-residential structure fires, vehicle fires, and outside and other fires, and associated civilian deaths, civilian injuries, and direct property damage with comparable totals in NFIRS. Estimates of specific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

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

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

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

**Figure A.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. Table A1 shows the breakdown of these fires. Figure A.1 shows the percentage of the different confined fires and of non-confined fires for all homes, one-and two-family homes (including manufactured homes), and apartments.

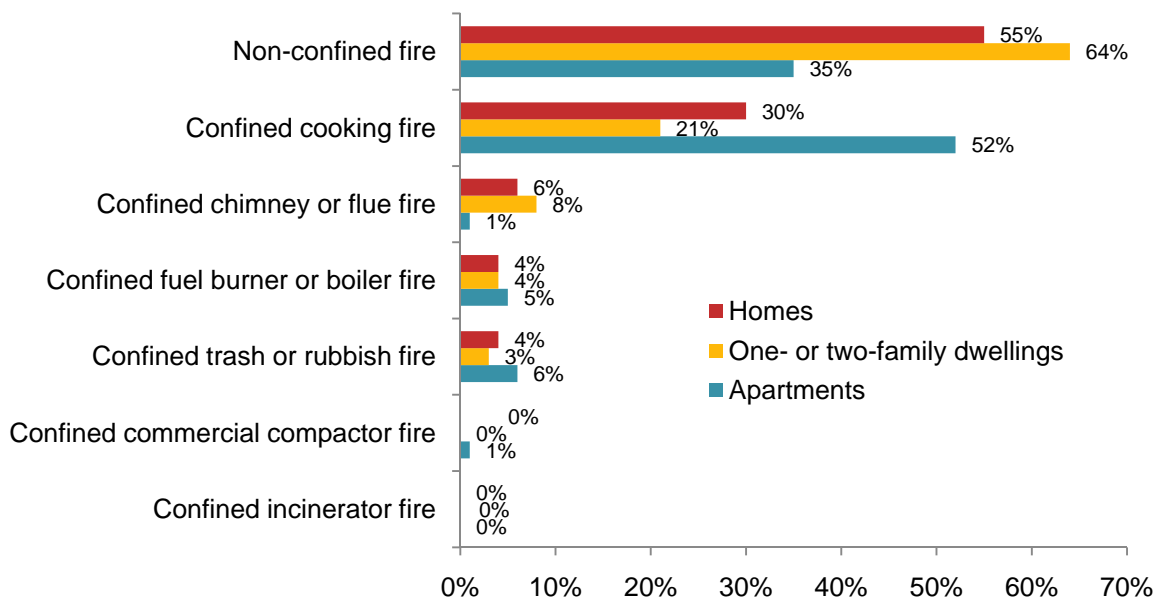
**Table A.1. Confined and Non-Confined Reported Home Structure Fires  
2003-2007 Annual Averages**

Type of Fire	Fires		Civilian		Civilian		Direct	
			Deaths	Injuries	Property Damage	(in Millions)		
Confined fires	171,000	(45%)	10	(0%)	1,690	(13%)	\$44	(1%)
<i>Confined cooking fire</i>	113,800	(30%)	10	(0%)	1,500	(11%)	\$26	(0%)
<i>Confined chimney or flue fire</i>	23,400	(6%)	0	(0%)	40	(0%)	\$11	(0%)
<i>Confined fuel burner or boiler fire</i>	15,800	(4%)	0	(0%)	90	(1%)	\$4	(0%)
<i>Confined trash or rubbish fire</i>	15,600	(4%)	0	(0%)	50	(0%)	\$2	(0%)
<i>Confined commercial compactor fire</i>	1,700	(0%)	0	(0%)	0	(0%)	\$0	(0%)
<i>Confined incinerator fire</i>	600	(0%)	0	(0%)	0	(0%)	\$0	(0%)
Non-confined fires	209,000	(55%)	2,830	(100%)	11,480	(87%)	\$6,314	(99%)
Total	380,000	(100%)	2,840	(100%)	13,160	(100%)	\$6,358	(100%)

Source: NFIRS 5.0 and NFPA survey.

**Figure A.2. Home Structure Fires by Incident Type and Occupancy  
2003-2007**

Source: NFIRS 5.0 and NFPA survey.



Source: NFIRS 5.0 and NFPA survey.

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

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

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

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

**Cause of Ignition:** This field is used chiefly to identify intentional fires. “Unintentional” in this field is a specific entry and does not include other fires that were not intentionally set: failure of equipment or heat source, act of nature, or “other” (unclassified).” The last should be used for exposures but has been used for other situations as well. Fires that were coded as under investigation and those that were coded as undetermined after investigation were treated as unknown. For non-confined home structure fires, the cause was known in 73% of the fires, 48% of the civilian deaths, 73% of the civilian injuries, and 61% of the direct property damage. For confined fires, the cause was known in 13% of the fires.

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

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

21. Automatic control failure;
22. Manual control failure;
23. Leak or break. Includes leaks or breaks from containers or pipes. Excludes operational deficiencies and spill mishaps;
25. Worn out;
26. Backfire. Excludes fires originating as a result of hot catalytic converters;
27. Improper fuel used; Includes the use of gasoline in a kerosene heater and the like; and

20. Mechanical failure or malfunction, other.

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

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

The factor contributing to ignition was coded as none, undetermined or left blank in 47% of the non-confined home structure fires, 64% of the associated deaths, 41% of the associated injuries, 53% of the associated direct property damage and 92% of the confined fires.

**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.

In non-confined home structure fires, code 60: “heat from open flame or smoking material, other” was entered for 3% of the fires, as well as civilian deaths and injuries and direct property damage. The heat source was undetermined in 30% of the non-confined home structure fires, 53% of the civilian deaths, 26% of the civilian injuries, and 42% of the direct property damage. The heat source was known in 13% of the confined fires, including 1% with heat source code 60.

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

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

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

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

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

Code Grouping	EII Code	NFIRS definitions
Central heat	132	Furnace or central heating unit
	133	Boiler (power, process or heating)
Fixed or portable space heater	131	Furnace, local heating unit, built-in
	123	Fireplace with insert or stove
	124	Heating stove
	141	Heater, excluding catalytic and oil-filled
	142	Catalytic heater
	143	Oil-filled heater
Fireplace or chimney	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

The equipment involved in ignition was undetermined, not reported, or coded as no equipment with a heat source code outside the range of 40-99 (non-equipment related heat sources) in 77% of the non-confined fires, 82% of the associated deaths, 71% of the injuries, 78% of the direct property damage, and in 96% of confined cooking equipment fires.

**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. The item first ignited was undetermined or unreported in 31% of the non-confined structure fires, 52% of the associated deaths, 25% of the associated injuries, 44% of the direct property damage, and in 88% of the confined home fires.

**Area of Origin.** Two areas of origin: bedroom for more than five people (code 21) and bedroom for less than five people (code 22) are combined and shown as simply “bedroom.” Chimney is no longer a valid area of origin code for non-confined fires. The area of origin was unknown or not reported in 11% of non-confined home structure fires, 18% of associated deaths, 6% of associated injuries, and 18% of the direct property damage. It was also unknown in 87% of confined fires excluding those confined to the chimney or flue which were all assumed to have begun in the chimney or flue.

**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.

**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 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 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 were identified by factor contributing to ignition code 71. This code is automatically applied when the exposure number is greater than zero.