SELECTIONS FROM
HOME FIRES INVOLVING COOKING EQUIPMENT
GRILLS

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Abstract

During 2003-2006, U.S. fire departments responded to an estimated average of 150,200 home structure fires involving cooking equipment per year. These fires caused an annual average of 500 civilian deaths, 4,660 civilian injuries, and $756 million in direct property damage.

Ranges, with or without ovens, account for the majority (59%) of total reported home structure fires involving cooking equipment and even larger shares of associated civilian deaths (88%) and civilian injuries (77%). Unattended equipment is the leading cause of cooking fires.

Keywords: Range, stove, oven, microwave, toaster, grill, frying, fryer, fire statistics, home fires, residential 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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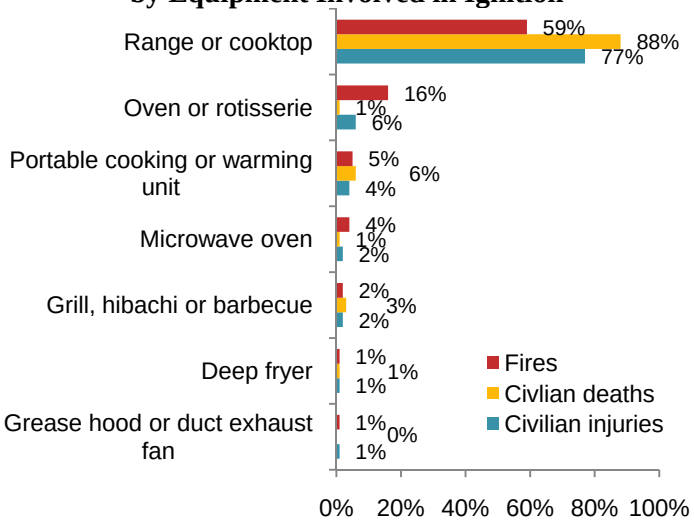
Home Fires Involving Cooking Equipment

Cooking equipment is the leading cause of home structure fires and associated civilian injuries and the third leading cause of home fire deaths.

During the four-year period of 2003-2006:

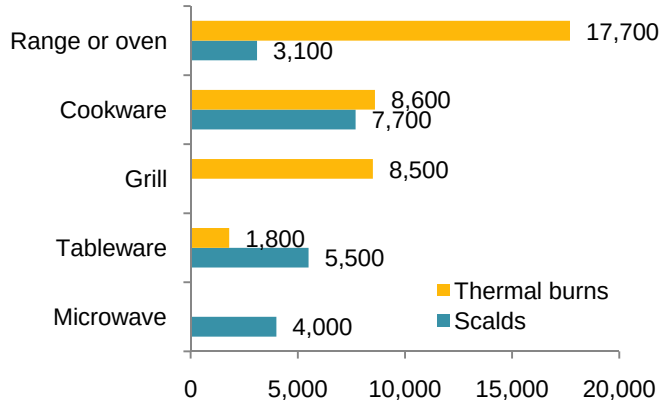
- U.S. fire departments responded to an average of **150,200** home[1] structure fires that involved cooking equipment per year. These fires caused an average of 500 civilian fire deaths, 4,660 civilian fire injuries, and $756 million in direct property damage.
- Cooking equipment was involved in 40% of all reported home fires, 17% of home fire deaths, 36% of home civilian injuries, and 12% of the direct property damage resulting from home fires.
- Unattended cooking was by far the leading contributing factor in these fires. Something that could catch fire was too close to the equipment ranked second and unintentionally turned on or not turned off ranked third.
- Ranges accounted for the largest share (59%) of home cooking fire incidents. Ovens accounted for 16%.
- Three-fifths (57%) of reported home cooking fire injuries occurred when victims tried to fight the fire themselves.

Home Cooking Equipment Fires by Equipment Involved in Ignition



- Households that use electric ranges have a higher risk of fires and associated losses than those using gas ranges.
- In a 1999 study of range fires by the U.S. Consumer Product Safety Commission, 83% of frying fires began in the first 15 minutes of cooking.

2008 Emergency Room Visits for Burns Associated with Cooking and Related Equipment



Most burns associated with cooking equipment, cookware, and tableware were not caused by fire or flame.

In 2008, ranges or ovens were involved in an estimated 17,700 thermal burn injuries seen in U.S. hospital emergency rooms.[1]

- 92% resulted from contact with the hot equipment or some other non-fire source.

Children under five accounted for 52% of the tableware scalds.

[1] Data from the Consumer Product Safety Commission's National Electronic Injury Surveillance System, queried in August 2009.

Grills

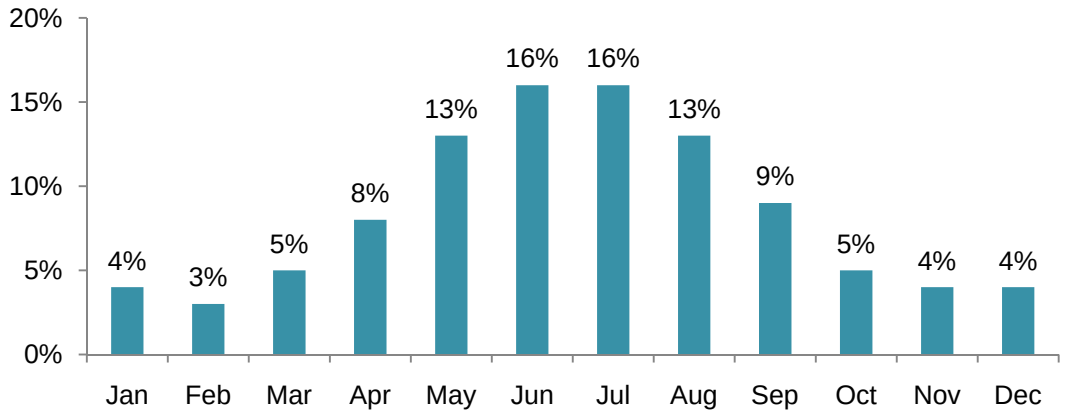
U.S. fire departments responded to an average of 7,900 home structure and outdoor fires involving grills per year during 2003-2006.
During the four-year period of 2003-2006, grills, hibachis or barbecues were involved in the ignition of an estimated 7,900 reported home[40] structure and outdoor fires per year. These fires caused an average of 10 civilian deaths, 120 civilian injuries, and $80 million in direct property damage annually. When a grill was involved in ignition, it provided the heat source that started the fire.

The 7,900 home grill fires reported annually included 2,900 (37%) fires per year in or on structures. All of the grill fire deaths, 90 (73%) of the associated fire injuries, and $79 million in direct property damage (99%) per year resulted from fires involving structures. The 2,900 home structure fires involving grills accounted for 2% of the reported home cooking equipment fires, 3% of associated civilian deaths, and 2% of associated civilian injuries, but 10% of the associated property damage.

On average, 5,000 (63%) outside and unclassified grill fires were reported annually during this period. These fires caused an annual average of 30 civilian injuries (27%) and less than $1 million in direct property damage.

Grill fires peak in the summer.
Figure 6.1 shows that June and July were the peak months for grill fires, with 16% of the incidents each. May and August followed with 13% each. Although the smallest share of fires occurred in the winter months, these incidents occurred throughout the year.

Figure 6.1. Home Grill Fires by Month: 2003-2006



[40] Homes include one- and two-family dwellings, apartments (regardless of ownership), and manufactured housing. Fires are rounded to the nearest hundred, casualties to the nearest ten, and direct property damage to the nearest million.

Data Sources, Definitions and Conventions Used in this Report

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

NFIRS equipment involved in ignition code 643 identifies grills, hibachis, and barbecues. The data classification system does not distinguish between equipment intended for outdoor vs. indoor use (or both). Nor does it distinguish based on size and price. Anything from a discount story hibachi to high end outdoor cooking equipment for the serious cook may be called a grill.

NFIRS incident type codes in the range of 110-129 were used to identify structure fires. Unknown data were allocated proportionally in most fields analyzed except for incident type. NFIRS 5.0, first introduced in 1999, brought major changes to fire incident data, including changes in some definitions and coding rules. Because of these changes, caution should be used when comparing data before 1998 with data from 1999 on.

The estimates reflect a proportional share of home fires with equipment involved in ignition unknown or recorded as hearing or air conditioning equipment of undetermined type. Fires reported as "no equipment" but lacking a confirming specific heat source (codes 40-99) are also treated as unknown equipment and allocated.

Property damage has not been adjusted for inflation. Vehicle fires were excluded from this analysis. Additional details on the methodology used may be found in Appendix A.

More people are grilling year round.

The market research company NPD Group, Inc. reported that in 2007, more than one-third (38%) of American households had at least one meal cooked on an outdoor grill in an average two-week period during the year.[41] In the summer months of June, July and August, half (49%) had a grilled meal. But even in the winter months of December, January, and February, one-quarter (27%) had eaten at least one grilled item in a 14-day period. Year-round grilling more than doubled from 17% in 1985 to 38% in 2007.

More than one-third of people who cooked from scratch prepared at least one meal per week on an outdoor grill, according to A.E. Sloan's article that referenced 2005 findings from Multi-

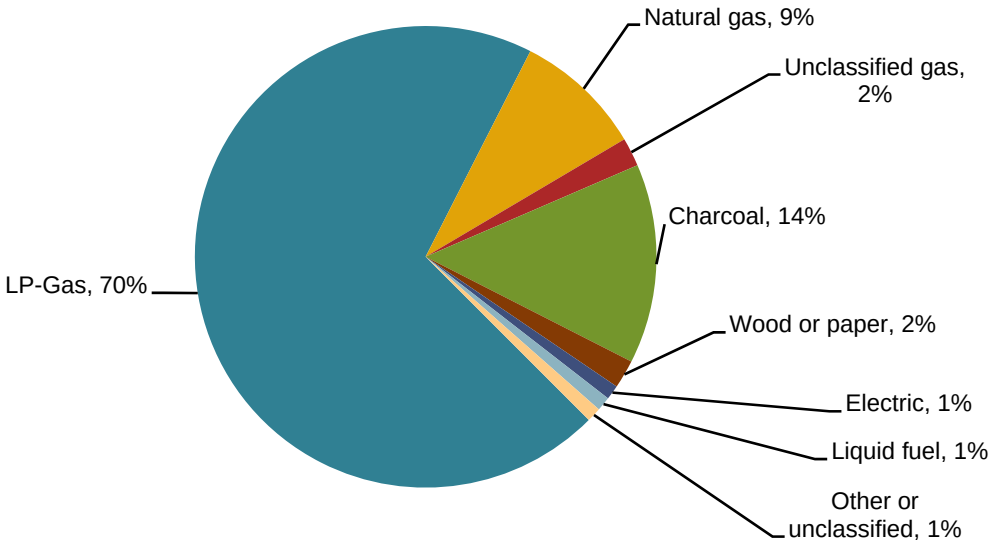
[41] The NPD Group, Inc. "NPD Reports Year Round Grilling at All Time High," Port Washington, New York, May 2008 15, 2008, accessed at http://www.npd.com/press/releases/press_080515a.html on April 17, 2009.

Sponsor Surveys, Inc.[42] Twenty percent used an indoor grill at least once a week. One-quarter (27%) of convenience cooks used an outdoor grill for at least one meal a week and 19% used indoor grills every week.

70% of grills involved in home outdoor and structure fires in 2003-2006 used LP-gas. Table 6.1 and Figure 6.2 show the power source for all grills involved in reported home fires. Gas grills were involved in 81% of reported home grill fires. More than two-thirds (70%) of the home grill fires involved grills fueled by liquid propane gas (LP-gas) or similar gas that is heavier than air. Nine percent were fueled by natural gas or other lighter than air gas, and 2% were fueled by an unclassified gas.

Sixteen percent of the grills involved in fires were solid-fueled, including 14% that used charcoal or coal and 2% that used wood or paper. One percent of the grills were powered by electricity, 1% by a liquid fuel, and 1% by another known or unclassified power source.

Figure 6.2. Home Grill Fires by Power Source: 2003-2006



The NPD Group also noted that 76% of American households own an outdoor grill and 75% of the owners have a gas grill.[43] That means that more than half (57%) of American households have a gas grill. In a 2007 press release, NPD reported that in 2005, 30% of households had a charcoal grill and 56% a gas grill.

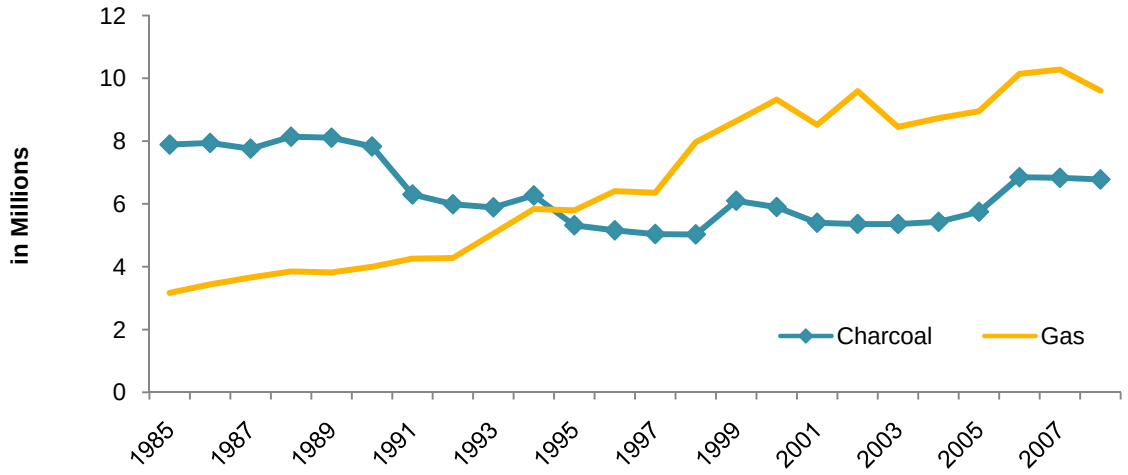
In 2008, the Weber GrillWatch™ Survey, conducted by Greenfield Online, reported that 53% of all grill owners have a charcoal grill, and 63% have a gas grill.[44] Fifty-six percent use gas grills more often, while 38% use charcoal grills more. Almost one-quarter (23%) use both equally.

[42] A.E. Sloan. "What, When and Where America Eats," *Food Technology*, January 2006, p. 26, accessed http://members.ift.org/NR/rdonlyres/65A7B82E-0AFF-4639-95B2-733B8225D93A/0/0106americaeats.pdf on April 20, 2009.
[43] The NPD Group, Inc., 2008.
[44] Weber. "Outdoor Grillers Are Turning to Healthier Choices, Grilling More Often According to the 19th Annual Grillwatch™ Survey." March 24, 2008. Accessed at http://weber.mediaroom.com/index.php?s=41&cat=1.

Although gas grills are used roughly 1.5 times as often as charcoal grills, they were involved in five times as many fires.

Shipments of gas grills overtook charcoal in 1995.
According to the Hearth, Patio and Barbecue Association, more than twice as many charcoal grills were shipped in North America during 1985 as gas grills. Figure 6.3 shows that as of 1995, more gas grills were shipped for sale than charcoal grills.

Figure 6.3. Number of Barbecue Grills Shipped in North America, by Power Source:1985-2007



Source: Hearth, Patio and Barbecue Association, "BBQ Grill Shipments- North America: 1985-2008," accessed at http://www.hpba.org/index.php?id=255 on April 17, 2009.

Gas grill fires climbed since the early 80s while solid-fueled grill fires decreased.
In 2005, gas grill user households outnumbered charcoal grill user households by roughly 2-to-1 (56% of U.S. households vs. 30% of U.S. households).[45] Figure 6.4 and Table 6.2 show that the 9,200 grill fires in 2006 was almost twice the 5,300 reported in 1980 but still below the peak years of 1995-1998, when fires ranged between 10,500 and 12,500. These statistics include both structure and outdoor fires. Because of issues related to the gradual introduction of NFIRS 5.0, data from 1990-2001 are not depicted graphically but are included in the tables.

Gas grill fires were nearly three times as frequent in 2006 (7,500 fires) as in 1980 (2,600). In contrast, 1,400 charcoal or solid-fueled grill fires were reported in 2006, a drop of 30% from the 2,000 reported in 1980.

[45] The NPD Group, Inc., "NPD reveals outdoor grill usage at a 20-year high," news release, May 22, 2006, accessed at www.npd.com.

Figure 6.4. Home Fires Involving Grills, by Year
Fires Reported to U.S. Fire Departments: 1980-2006

Source: Data from NFIRS and NFPA survey. Note: See Note in year table.

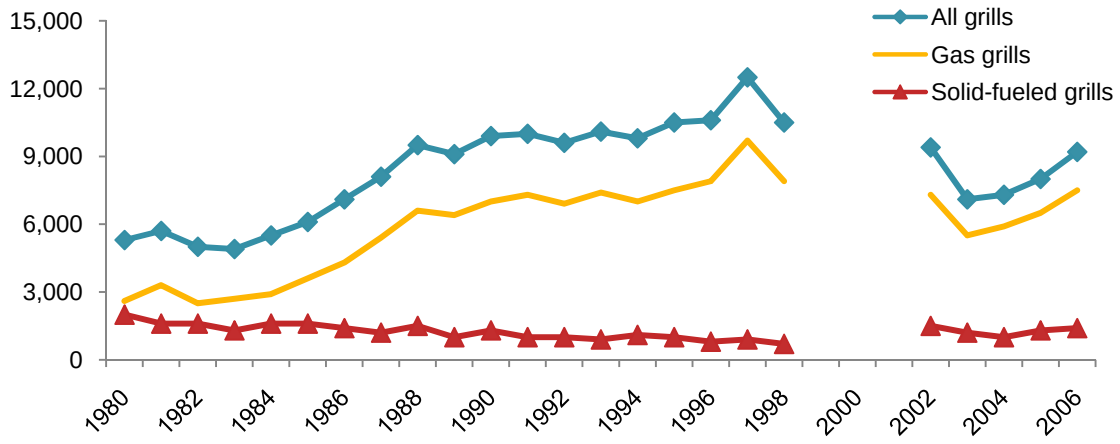
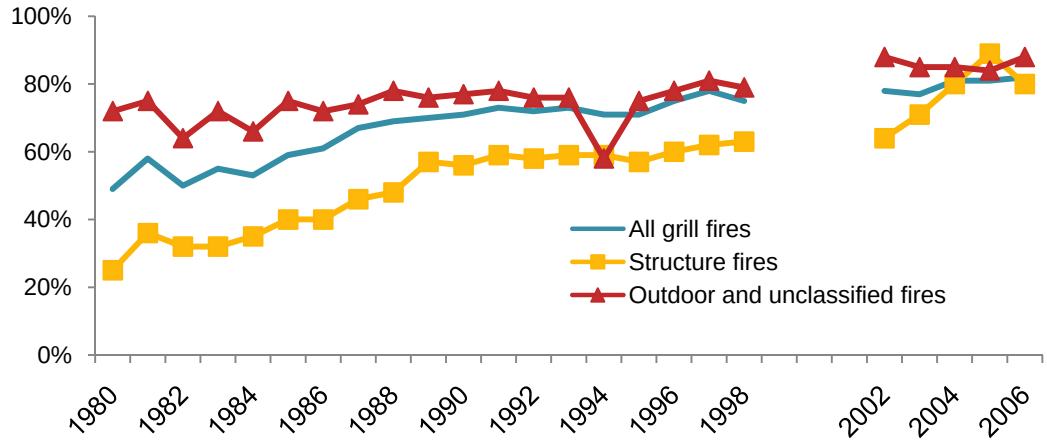


Figure 6.5 shows that gas grills accounted for roughly two-thirds to three-quarters of the outdoor and unclassified grill fires from 1980 through 1998. Since 2002, 84-89% of the outdoor grill fires involved gas-fueled equipment. Gas-fueled equipment accounted for roughly one-quarter to one-third of the structure fires involving grills in the early 1980s. In the most recent three years of data, gas-fired equipment was involved in 80-89% of the grill structure fires.

Figure 6.5. Percent of Home Grill Fires Involving Gas-Fueled Grills, by Year
Fires Reported to U.S. Fire Departments: 1980-2006



Source: Data from NFIRS and NFPA survey.Note: See Note in year table.

One-third of home grill structure fires started on an exterior balcony or open porch.
Figure 6.6 and Table 6.3 show that in 2003-2006, 33% of the non-confined home grill structure fires started on an exterior balcony or unenclosed porch; 18% began on a courtyard, terrace, or patio; and 11% started along an exterior wall surface. Unlike typical cooking equipment, most grills are

intended for outdoor use. Consequently, few grill fires start in kitchens (5% of non-confined home structure grill fires). The rank order of where fires start is the same for both gas grills and solid-fueled grills. It appears that grills are too often used too close to the structure.

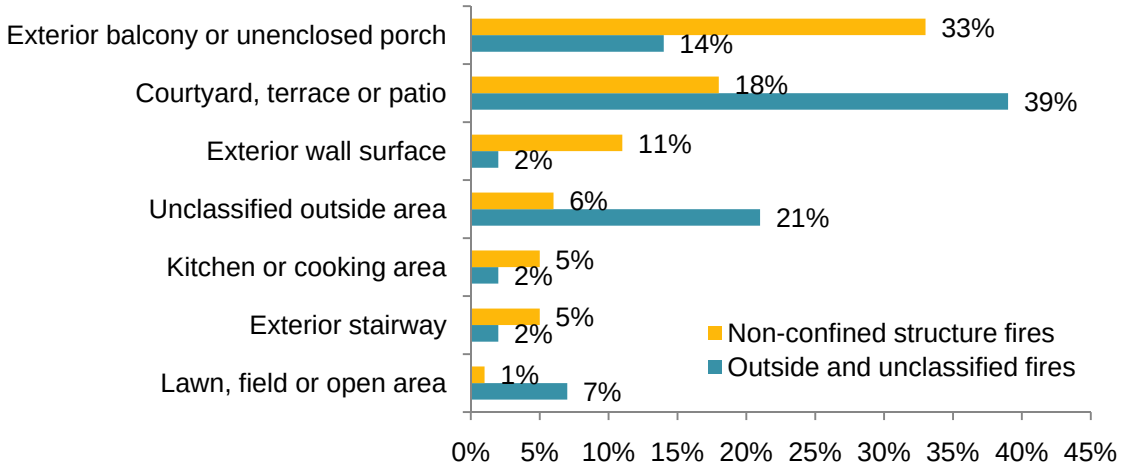
For outdoor and unclassified grill fires (excluding outdoor rubbish fires), the leading areas of origin were courtyards, terraces, or patios (39%); unclassified outside areas (21%); exterior balconies or unenclosed porch (14%), and lawns, fields, or open areas (7%). Although the order varied slightly, these were the leading areas of origin for outdoor fires involving both gas and solid-fueled grills.

About Confined, Non-Confined, and Outside Rubbish Fires

Certain types of fires collectively referred to as "confined fires," including confined cooking fires, chimney fires, trash fires, and fuel burner or boiler fires (incident types 113-118) can be documented more easily in NFIRS 5.0. Causal data, including equipment involved in ignition, is generally not required for these incidents although it is provided in some cases. Equipment involved in ignition was reported in 22% of the non-confined fires and 4% of the confined fires. Confined and non-confined structure fires were analyzed separately and then summed to obtain estimates of grill structure fires with different power sources.

Causal data is not required for outside rubbish fires (incident type 150-159) either. Outside rubbish fires were analyzed separately from the remaining non-structure, non-vehicle fires. These two groups (1- outside rubbish, and 2- outside non rubbish and unclassified) were also analyzed separately and summed for estimates of grill trends, power sources and months.

Figure 6.6. Home Grill Fires by Leading Areas of Origin 2003-2006



The grill was too close to something combustible in one-third of non-confined home grill structure fires.
In 2003-2006, a heat source (the grill) was too close to something that could catch fire in 32% of all non-confined structure fires in which grills were involved in ignition. Table 6.4 shows that the leading factors contributing to ignition varied by power source. Heat source too close was a factor in almost half (46%) of solid-fueled grill structure fires and almost one-quarter (23%) of gas grill structure fires. Unattended equipment was a factor in 15% of all grill structure fires, 16% of gas grill structure fires, 12% of solid-fueled grill structure fires, 15% of outdoor solid-fueled grill fires, but only 2% of outdoor gas grill fires.

Although leaks or breaks were the leading contributing factors in all outdoor grill fires (34%) and the third leading factor in grill structure fires (13%), this is due largely to gas grill fires. Leaks or breaks were the leading contributing factors in gas grill structure fires (24%), and outdoor gas grill fires (39%). A failure to clean was a factor in 14% of all outdoor grill fires and 16% of outdoor gas grill fires.

Flammable or combustible gas or liquid was the item first ignited in half of home outdoor grill fires.
In 51% of the home outdoor fires in which grills were involved, 56% of the outside gas grills, and 29% of the non-confined gas grill structure fires, the fire started when a flammable or combustible gas or liquid caught fire. Table 6.5 shows that exterior wall coverings and structural members or framing were in the top three items first ignited for all non-confined grill structure fires, as well as those involving solid-fueled and gas grills.

So far, the analysis has focused on fires that were reported to fire departments. These injuries are a tiny fraction of the grill-related injuries seen in the country's emergency rooms.

In 2007, 18,600 patients went to emergency rooms because of injuries involving grills.
The U.S. Consumer Product Safety Commission (CPSC) maintains the National Electronic Injury Surveillance System (NEISS). A weighted sample of hospital emergency rooms provides information about the patients and injuries seen and allows projections to be made about injuries involving specific products. Gas grills accounted for an estimated 2,900 injuries and charcoal or wood-burning grills for 2,100 injuries. Unspecified other grills accounted for 13,300 injuries. The number of electric-powered grill injuries was too small to produce reliable estimates.[46]

- The 9,600 thermal burns accounted for roughly two-thirds (2,000) of the injuries involving gas grills and charcoal or wood-burning grills (1,400) and almost half (6,100) of the injuries involving unspecified grills. Children under five accounted for 2,200, or roughly one-quarter, of total thermal grill burns. Most of these were contact burns rather than flame burns.
- Roughly one-third of the gas grill injuries were thermal burns incurred while lighting the grill.
- Gasoline or lighter fluid was a factor in roughly one-quarter of the charcoal or wood burning grill burns.

[46] Queries on charcoal or wood burning grills (code 3218), gas or LP-Grills or Stoves (for outdoor use) (code 3248, and grills, not specified (3249) were done at http://www.cpsc.gov/library/neiss.html in n April 2009.

- Although the number of cases was too small for reliable estimates, more people were seen for carbon monoxide exposure after using a charcoal grill inside the home compared to gas grills.

CPSC estimates that grills were involved in an average of 7 fatal CO poisonings a year in 2003-2005.

In a study of non-fire deaths resulting from carbon monoxide (CO) poisoning, Matthew Hnatov of the CPSC reported that charcoal or charcoal grills were involved in an average of six such deaths a year in 2003-2005.[47] Gas-fueled grills or camp stoves were involved in an average of one CO death per year in the same period.

[47] Matthew Hnatov Non-Fire Carbon Monoxide Deaths Associated with the Use of Consumer Products," U.S. Consumer Product Safety Commission, 2008, Table 1, p. 6 accessed at http://www.cpsc.gov/LIBRARY/co08.pdf on April 20, 2009.

Table 6.1. Home Grill Fires by Power Source
Annual Average of 2003-2006 Fires Reported to U.S. Fire Departments

A. Grill Fires Summarized: All Incident Types

Power Source	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
All gas	6,390	(81%)	9	(73%)	67	(55%)	$58	(73%)
All solid-fueled	1,260	(16%)	4	(27%)	23	(18%)	$19	(24%)
Electric	110	(1%)	0	(0%)	0	(0%)	$3	(3%)
Other known power source	160	(2%)	0	(0%)	2	(1%)	$0	(0%)
Total	7,920	(100%)	13	(100%)	122	(100%)	$80	(100%)

B. Grill Fires in Detail: All Incident Types

Power Source	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
LP-gas or other heavier than air gas	5,550	(70%)	9	(73%)	85	(70%)	$40	(50%)
Natural gas or other lighter than air gas	690	(9%)	0	(0%)	2	(1%)	$17	(21%)
Unclassified gas	150	(2%)	0	(0%)	0	(0%)	$1	(1%)
All gas-fueled	*6,390*	*(81%)*	*9*	*(73%)*	*87*	*(71%)*	*$58*	*(73%)*
Charcoal or coal	1,100	(14%)	4	(27%)	34	(27%)	$19	(23%)
Wood or paper	150	(2%)	0	(0%)	0	(0%)	$0	(0%)
Unclassified solid fuel	0	(0%)	0	(0%)	0	(0%)	$0	(0%)
All solid-fueled	*1,260*	*(16%)*	*4*	*(27%)*	*34*	*(27%)*	*$19*	*(24%)*
Electric	110	(1%)	0	(0%)	0	(0%)	$3	(3%)
Liquid-fueled	90	(1%)	0	(0%)	0	(0%)	$0	(0%)
Other known or unclassified power source	70	(1%)	0	(0%)	2	(1%)	$0	(0%)
Total	7,920	(100%)	13	(100%)	122	(100%)	$80	(100%)

Note: Fires are rounded to the nearest ten, civilian deaths and injuries to the nearest one, and direct property damage to the nearest million dollars. Damage has not been adjusted for inflation. Figures reflect a proportional share of home fires with equipment involved in ignition unknown or recorded as kitchen or cooking equipment of undetermined or unclassified type, as well as a proportional share of grill fires in which the equipment power source was unknown. Fires reported as "no equipment" but lacking a confirming specific heat source (codes 40-99) are also treated as unknown equipment and allocated. Home cooking fires with this equipment and power source unknown have also been allocated proportionally. Totals may not equal sums because of rounding error.

Source: Data from NFIRS Version 5.0 and NFPA survey.

Table 6.1. Home Grill Fires by Power Source
Annual Average of 2003-2006 Fires Reported to U.S. Fire Departments (Continued)

C. Structure Fires

Power Source	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
LP-gas or other heavier than air gas	1,750	(60%)	9	(73%)	65	(73%)	$40	(50%)
Natural gas or other lighter than air gas	260	(9%)	0	(0%)	2	(2%)	$17	(21%)
Unclassified gas	70	(2%)	0	(0%)	0	(0%)	$1	(1%)
All gas-fueled	*2,080*	*(72%)*	*9*	*(73%)*	*67*	*(75%)*	*$58*	*(73%)*
Charcoal or coal	590	(21%)	4	(27%)	23	(25%)	$19	(24%)
Wood or paper	40	(1%)	0	(0%)	0	(0%)	$0	(0%)
Unclassified solid fuel	0	(0%)	0	(0%)	0	(0%)	$0	(0%)
All solid-fueled	*630*	*(22%)*	*4*	*(27%)*	*23*	*(25%)*	*$19*	*(24%)*
Electric	80	(3%)	0	(0%)	0	(0%)	$3	(3%)
Liquid-fueled	40	(1%)	0	(0%)	0	(0%)	$0	(0%)
Other known or unclassified power source	60	(2%)	0	(0%)	0	(0%)	$0	(0%)
Total	2,900	(100%)	13	(100%)	90	(100%)	$79	(100%)

D. Non-Confined Structure Fires

Power Source	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
LP-gas or other heavier than air gas	620	(50%)	9	(73%)	48	(66%)	$40	(50%)
Natural gas or other lighter than air gas	100	(8%)	0	(0%)	2	(2%)	$17	(21%)
Unclassified gas	10	(1%)	0	(0%)	0	(0%)	$1	(1%)
All gas-fueled	*730*	*(59%)*	*9*	*(73%)*	*49*	*(69%)*	*$57*	*(73%)*
Charcoal or coal	430	(34%)	4	(27%)	23	(31%)	$19	(24%)
Wood or paper	20	(2%)	0	(0%)	0	(0%)	$0	(0%)
All solid-fueled	*450*	*(36%)*	*4*	*(27%)*	*23*	*(31%)*	*$19*	*(24%)*
Electric	40	(3%)	0	(0%)	0	(0%)	$3	(4%)
Liquid-fueled	10	(1%)	0	(0%)	0	(0%)	$0	(0%)
Other known or unclassified power source	10	(1%)	0	(0%)	0	(0%)	$0	(0%)
Total	1,250	(100%)	13	(100%)	72	(100%)	$79	(100%)

Note: Fires are rounded to the nearest ten, civilian deaths and injuries to the nearest one, and direct property damage to the nearest million dollars. Damage has not been adjusted for inflation. Figures reflect a proportional share of home fires with equipment involved in ignition unknown or recorded as kitchen or cooking equipment of undetermined or unclassified type, as well as a proportional share of grill fires in which the equipment power source was unknown. Fires reported as "no equipment" but lacking a confirming specific heat source (codes 40-99) are also treated as unknown equipment and allocated. Home cooking fires with this equipment and area of origin unknown have also been allocated proportionally. Totals may not equal sums because of rounding error.

Source: Data from NFIRS Version 5.0 and NFPA survey.

Table 6.1. Home Grill Fires by Power Source
Annual Average of 2003-2006 Fires Reported to U.S. Fire Departments (Continued)

E. Confined Structure Fires

Power Source	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
LP-gas or other heavier than air gas	1,130	(69%)	0	(NA)	18	(100%)	$0	(45%)
Natural gas or other lighter than air gas	160	(10%)	0	(NA)	0	(0%)	$0	(6%)
Unclassified gas	60	(3%)	0	(NA)	0	(0%)	$0	(48%)
All gas-fueled	*1,350*	*(82%)*	*0*	*(NA)*	*18*	*(100%)*	*$0*	*(99%)*
Charcoal or coal	170	(10%)	0	(NA)	0	(0%)	$0	(1%)
Wood or paper	10	(1%)	0	(NA)	0	(0%)	$0	(0%)
All solid-fueled	*180*	*(11%)*	*0*	*(NA)*	*0*	*(0%)*	*$0*	*(1%)*
Electric	40	(2%)	0	(NA)	0	(0%)	$0	(1%)
Liquid-fueled	30	(2%)	0	(NA)	0	(0%)	$0	(0%)
Other known or unclassified fuel or power source	50	(3%)	0	(NA)	0	(0%)	$0	(0%)
Total	1,640	(100%)	0	(NA)	18	(100%)	$0	(100%)

F. Outside and Unclassified Grill Fires

Power Source	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
LP-gas or other heavier than air gas	3,800	(76%)	0	(NA)	20	(61%)	$0	(74%)
Natural gas or other lighter than air gas	430	(8%)	0	(NA)	0	(0%)	$0	(9%)
Unclassified gas	80	(2%)	0	(NA)	0	(0%)	$0	(2%)
All gas-fueled	*4,310*	*(86%)*	*0*	*(NA)*	*20*	*(61%)*	*$0*	*(85%)*
Charcoal or coal	510	(10%)	0	(NA)	11	(34%)	$0	(14%)
Wood or paper	120	(2%)	0	(NA)	0	(0%)	$0	(0%)
Unclassified solid fuel	0	(0%)	0	(NA)	0	(0%)	$0	(0%)
All solid-fueled	*620*	*(12%)*	*0*	*(NA)*	*11*	*(34%)*	*$0*	*(14%)*
Electric	30	(1%)	0	(NA)	0	(0%)	$0	(0%)
Liquid-fueled	60	(1%)	0	(NA)	0	(0%)	$0	(0%)
Other known or unclassified fuel or power source	0	(0%)	0	(NA)	2	(5%)	$0	(1%)
Total	5,030	(100%)	0	(NA)	33	(100%)	$0	(100%)

NA – not applicable because estimated total is zero.

Note: Fires are rounded to the nearest ten, civilian deaths and injuries to the nearest one, and direct property damage to the nearest million dollars. Damage has not been adjusted for inflation. Figures reflect a proportional share of home fires with equipment involved in ignition unknown or recorded as kitchen or cooking equipment of undetermined or unclassified type, as well as a proportional share of grill fires in which the equipment power source was unknown. Fires reported as "no equipment" but lacking a confirming specific heat source (codes 40-99) are also treated as unknown equipment and allocated. Home cooking fires with this equipment and area of origin unknown have also been allocated proportionally. Totals may not equal sums because of rounding error.

Source: Data from NFIRS Version 5.0 and NFPA survey.

Table 6.1. Home Grill Fires by Power Source
Annual Average of 2003-2006 Fires Reported to U.S. Fire Departments (Continued)

G. Outside and Unclassified Fires, Excluding Trash Fires

Power Source	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
LP-gas or other heavier than air gas	3,750	(78%)	0	(NA)	20	(61%)	$0	(74%)
Natural gas or other lighter than air gas	400	(8%)	0	(NA)	0	(0%)	$0	(9%)
Unclassified gas	80	(2%)	0	(NA)	0	(0%)	$0	(2%)
All gas-fueled	*4,230*	*(88%)*	*0*	*(NA)*	*20*	*(61%)*	*$0*	*(85%)*
Charcoal or coal	410	(9%)	0	(NA)	11	(34%)	$0	(14%)
Wood or paper	60	(1%)	0	(NA)	0	(0%)	$0	(0%)
All solid-fueled	*470*	*(10%)*	*0*	*(NA)*	*11*	*(34%)*	*$0*	*(14%)*
Electric	30	(1%)	0	(NA)	0	(0%)	$0	(0%)
Liquid-fueled	60	(1%)	0	(NA)	0	(0%)	$0	(0%)
Other known or unclassified fuel or power source	0	(0%)	0	(NA)	2	(5%)	$0	(1%)
Total	4,790	(100%)	0	(NA)	33	(100%)	$0	(100%)

H. Outside Trash Fires

Power Source	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
LP-gas or other heavier than air gas	50	(23%)	0	(NA)	0	(NA)	$0	(24%)
Natural gas or other lighter than air gas	30	(11%)	0	(NA)	0	(NA)	$0	(43%)
All gas-fueled	*80*	*(0%)*	*0*	*(NA)*	*0*	*(NA)*	*$0*	*(67%)*
Charcoal or coal	100	(42%)	0	(NA)	0	(NA)	$0	(33%)
Wood or paper	60	(24%)	0	(NA)	0	(NA)	$0	(0%)
All solid-fueled	*160*	*(66%)*	*0*	*(NA)*	*0*	*(NA)*	*$0*	*(33%)*
Total	240	(100%)	0	(NA)	0	(NA)	$0	(100%)

NA – not applicable because estimated total is zero.

Note: These are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. National estimates are projections. Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Fires are rounded to the nearest hundred, civilian deaths to the nearest one, and direct property damage to the nearest million dollars. Damage has not been adjusted for inflation. Figures reflect a proportional share of home fires with equipment involved in ignition unknown or recorded as heating or air conditioning equipment of undetermined type, as well as a proportional share of grill fires in which the equipment power source was unknown. Fires reported as "no equipment" but lacking a confirming specific heat source (codes 40-99) are also treated as unknown equipment and allocated. Home heating fires with this equipment and area of origin unknown have also been allocated proportionally. Totals may not equal sums because of rounding error.

Source: Data from NFIRS Version 5.0 and NFPA survey.

Table 6.2. Home Fires Involving Grills, by Year
Fires Reported to U.S. Fire Departments

A. Structure Fires: All Power Sources

Year	Fires		Civilian Injuries		Direct Property Damage (in Millions) As Reported		In 2006 Dollars
1980	2,400		90		$9		$22
1981	2,500		100		$12		$27
1982	2,200		80		$15		$31
1983	1,900		120		$15		$30
1984	2,300		70		$16		$31
1985	2,500		80		$17		$32
1986	2,500		90		$18		$33
1987	2,400		70		$19		$34
1988	2,700		130		$37		$63
1989	2,300		60		$20		$33
1990	2,500		120		$24		$37
1991	2,200		110		$36*		$53*
1992	2,400		100		$41		$59
1993	2,200		80		$22		$31
1994	2,200		90		$21		$29
1995	2,100		70		$30		$40
1996	2,000		110		$29		$37
1997	2,100		80		$44		$55
1998	1,900		90		$53		$66
1999	3,500	(2,900)	0	(0)	$82	($84)	$99
2000	2,200	(900)	100	(100)	$61	($61)	$71
2001	2,200	(1,400)	50	(50)	$41	($41)	$47
2002	2,800	(2,600)	90	(90)	$56	($55)	$63
2003	2,100	(1,100)	90	(70)	$92	($92)	$101
2004	2,500	(1,200)	110	(110)	$47	($47)	$50
2005	2,700	(1,300)	70	(60)	$135	($135)	$139
2006	3,000	(1,400)	90	(60)	$49	($49)	$49

* All 1991 home fire property damage figures are inflated by estimation problems related to the handling of the Oakland fire storm.

Note: Numbers in parentheses exclude confined fires. Confined fires are fires reported as confined to a cooking vessel and involving cooking equipment; they are analyzed separately. Fires are rounded to the nearest hundred, civilian deaths and civilian injuries are expressed to the nearest ten and direct property damage is rounded to the nearest million dollars. Figures reflect a proportional share of home fires with equipment involved in ignition unknown or reported as cooking or kitchen equipment of undetermined or unclassified type. Fires reported as "no equipment" but lacking a confirming specific heat source (codes (40-99) are also treated as unknown equipment and allocated. Because of their small numbers, annual estimates of fire deaths involving this equipment are unreliable and not shown. *Because of low participation in NFIRS Version 5.0 during 1999-2001, estimates for those years are highly uncertain and must be used with caution.* Inflation adjustment to 2006 dollars is done using the consumer price index.

Source: Data from NFIRS Version 4.1 (1980-1998) and Version 5.0 (1999-2006) and from NFPA survey.

Table 6.2. Home Fires Involving Grills, by Year
Fires Reported to U.S. Fire Departments (Continued)

B. Outdoor Fires: All Power Sources

Year	Fires	Civilian Injuries	Direct Property Damage (in Millions) As Reported	In 2006 Dollars
1980	2,900	30	$0	$0
1981	3,200	10	$0	$0
1982	2,800	40	$0	$0
1983	2,900	30	$0	$0
1984	3,200	30	$0	$0
1985	3,600	20	$0	$0
1986	4,600	30	$0	$0
1987	5,800	30	$0	$0
1988	6,800	30	$0	$0
1989	6,800	30	$1	$2
1990	7,300	20	$0	$0
1991	7,700	40	$0	$0
1992	7,200	40	$1	$1
1993	7,900	20	$0	$0
1994	9,800	120	$21	$29
1995	8,400	50	$1	$1
1996	8,600	30	$0	$0
1997	10,400	40	$0	$0
1998	8,500	40	$1	$1
1999	5,600	90	$0	$0
2000	4,000	20	$0	$0
2001	5,400	70	$0	$0
2002	6,400	30	$1	$1
2003	4,800	20	$0	$0
2004	4,600	20	$0	$0
2005	4,900	30	$0	$0
2006	5,800	60	$1	$1

Note: Fires are rounded to the nearest hundred, civilian deaths and civilian injuries are expressed to the nearest ten and direct property damage is rounded to the nearest million dollars. Figures reflect a proportional share of home fires with equipment involved in ignition unknown or reported as cooking or kitchen equipment of undetermined or unclassified type. Fires reported as "no equipment" but lacking a confirming specific heat source (codes (40-99) are also treated as unknown equipment and allocated. Because of their small numbers, annual estimates of fire deaths involving this equipment are unreliable and not shown. *Because of low participation in NFIRS Version 5.0 during 1999-2001, estimates for those years are highly uncertain and must be used with caution.* Inflation adjustment to 2006 dollars is done using the consumer price index. For outdoor fires, details such as cause are not required for trash fires, and so trash fires are analyzed separately from other outdoor fires.

Source: Data from NFIRS Version 4.1 (1980-1998) and Version 5.0 (1999-2006) and from NFPA survey.

Table 6.2. Home Fires Involving Grills, by Year
Fires Reported to U.S. Fire Departments (Continued)

C. Structure and Outdoor Fires Combined: All Power Sources

Year	Fires	Civilian Injuries	Direct Property Damage (in Millions) As Reported	In 2006 Dollars
1980	5,300	120	$9	$22
1981	5,700	110	$12	$27
1982	5,000	120	$15	$31
1983	4,900	150	$15	$30
1984	5,500	110	$16	$31
1985	6,100	110	$18	$34
1986	7,100	120	$18	$33
1987	8,100	110	$19	$34
1988	9,500	150	$37	$63
1989	9,100	100	$21	$34
1990	9,900	140	$25	$39
1991	10,000	150	$36*	$53*
1992	9,600	140	$42	$60
1993	10,100	100	$23	$32
1994	9,800	120	$21	$29
1995	10,500	130	$31	$41
1996	10,600	150	$30	$39
1997	12,500	110	$45	$57
1998	10,500	140	$54	$67
1999	9,100	90	$83	$100
2000	6,200	130	$61	$71
2001	7,700	120	$41	$47
2002	9,400	110	$56	$63
2003	7,100	110	$93	$102
2004	7,300	130	$48	$51
2005	8,000	110	$136	$140
2006	9,200	110	$50	$50

* All 1991 home fire property damage figures are inflated by estimation problems related to the handling of the Oakland fire storm.
Note: Fires are rounded to the nearest hundred, civilian deaths and civilian injuries are expressed to the nearest ten and direct property damage is rounded to the nearest million dollars. Figures reflect a proportional share of home fires with equipment involved in ignition unknown or reported as cooking or kitchen equipment of undetermined or unclassified type. Fires reported as "no equipment" but lacking a confirming specific heat source (codes (40-99) are also treated as unknown equipment and allocated. Because of their small numbers, annual estimates of fire deaths involving this equipment are unreliable and not shown. *Because of low participation in NFIRS Version 5.0 during 1999-2001, estimates for those years are highly uncertain and must be used with caution.* Inflation adjustment to 2006 dollars is done using the consumer price index. For outdoor fires, details such as cause are not required for trash fires, and so trash fires are analyzed separately from other outdoor fires.
Source: Data from NFIRS Version 4.1 (1980-1998) and Version 5.0 (1999-2006) and from NFPA survey.

Table 6.2. Home Fires Involving Grills, by Year
Fires Reported to U.S. Fire Departments (Continued)

D. Structure Fires: Gas-Fueled Grills

Year	Fires		Civilian Injuries		Direct Property Damage (in Millions) As Reported		In 2006 Dollars
1980	600		40		$2		$5
1981	900		70		$3		$7
1982	700		20		$2		$4
1983	600		50		$6		$12
1984	800		40		$5		$10
1985	1,000		50		$7		$13
1986	1,000		50		$6		$11
1987	1,100		40		$7		$12
1988	1,300		80		$21		$36
1989	1,300		40		$9		$15
1990	1,400		70		$15		$23
1991	1,300		100		$19*		$28*
1992	1,400		80		$31		$45
1993	1,300		60		$15		$21
1994	1,300		60		$11		$15
1995	1,200		40		$11		$15
1996	1,200		70		$15		$19
1997	1,300		60		$24		$30
1998	1,200		40		$32		$40
1999	1,300	(600)	0	(0)	$1	($1)	$1
2000	1,400	(500)	100	(100)	$26	($26)	$30
2001	1,400	(700)	0	(0)	$18	($18)	$21
2002	1,800	(900)	50	(50)	$28	($27)	$31
2003	1,500	(600)	80	(60)	$76	($76)	$83
2004	2,000	(700)	80	(80)	$20	($20)	$21
2005	2,400	(800)	60	(40)	$118	($118)	$122
2006	2,400	(800)	60	(20)	$22	($22)	$22

* All 1991 home fire property damage figures are inflated by estimation problems related to the handling of the Oakland fire storm.
Note: Numbers in parentheses exclude confined fires. Confined fires are fires reported as confined to a cooking vessel and involving cooking equipment; they are analyzed separately. Fires are rounded to the nearest hundred, civilian deaths and civilian injuries are expressed to the nearest ten and direct property damage is rounded to the nearest million dollars. Figures reflect a proportional share of home fires with equipment involved in ignition unknown or reported as cooking or kitchen equipment of undetermined or unclassified type, as well as grill fires with unknown power source. Fires reported as "no equipment" but lacking a confirming specific heat source (codes 40-99) are also treated as unknown equipment and allocated. Because of their small numbers, annual estimates of fire deaths involving this equipment are unreliable and not shown. *Because of low participation in NFIRS Version 5.0 during 1999-2001, estimates for those years are highly uncertain and must be used with caution.* Inflation adjustment to 2006 dollars is done using the consumer price index.
Source: Data from NFIRS Version 4.1 (1980-1998) and Version 5.0 (1999-2006) and from NFPA survey.

Table 6.2. Home Fires Involving Grills, by Year
Fires Reported to U.S. Fire Departments (Continued)

E. Outdoor Fires: Gas-Fueled Grills

Year	Fires	Civilian Injuries	Direct Property Damage (in Millions) As Reported	In 2006 Dollars
1980	2,100	0	$0	$0
1981	2,400	10	$0	$0
1982	1,800	40	$0	$0
1983	2,100	20	$0	$0
1984	2,100	20	$0	$0
1985	2,700	10	$0	$0
1986	3,300	30	$0	$0
1987	4,300	20	$0	$0
1988	5,300	20	$0	$0
1989	5,200	20	$1	$2
1990	5,600	10	$0	$0
1991	6,000	30	$0	$0
1992	5,500	30	$1	$1
1993	6,000	10	$0	$0
1994	5,700	20	$0	$0
1995	6,300	50	$1	$1
1996	6,700	20	$0	$0
1997	8,400	40	$0	$0
1998	6,700	40	$1	$1
1999	3,800	40	$0	$0
2000	3,200	20	$0	$0
2001	4,800	60	$0	$0
2002	5,600	0	$0	$1
2003	4,100	20	$0	$0
2004	3,900	10	$0	$0
2005	4,100	10	$0	$0
2006	5,100	0	$1	$1

Note: Fires are rounded to the nearest hundred, civilian deaths and civilian injuries are expressed to the nearest ten and direct property damage is rounded to the nearest million dollars. Figures reflect a proportional share of home fires with equipment involved in ignition unknown or reported as cooking or kitchen equipment of undetermined or unclassified type, as well as grill fires with unknown power source. Fires reported as "no equipment" but lacking a confirming specific heat source (codes (40-99) are also treated as unknown equipment and allocated. Because of their small numbers, annual estimates of fire deaths involving this equipment are unreliable and not shown. *Because of low participation in NFIRS Version 5.0 during 1999-2001, estimates for those years are highly uncertain and must be used with caution.* Inflation adjustment to 2006 dollars is done using the consumer price index. For outdoor fires, details such as cause are not required for trash fires, and so trash fires are analyzed separately from other outdoor fires. Outside rubbish fires were analyzed separately from all other outside and unclassified fires and the results summed.
Source: Data from NFIRS Version 4.1 (1980-1998) and Version 5.0 (1999-2006) and from NFPA survey.

Table 6.2. Home Fires Involving Grills, by Year
Fires Reported to U.S. Fire Departments (Continued)

F. Structure and Outdoor Fires Combined: Gas-Fueled Grills

Year	Fires	Civilian Injuries	Direct Property Damage (in Millions) As Reported	In 2006 Dollars
1980	2,600	60	$2	$5
1981	3,300	70	$3	$7
1982	2,500	60	$2	$4
1983	2,700	70	$6	$12
1984	2,900	60	$5	$10
1985	3,600	60	$7	$13
1986	4,300	80	$6	$11
1987	5,400	60	$7	$12
1988	6,600	90	$21	$36
1989	6,400	60	$10	$16
1990	7,000	80	$15	$23
1991	7,300	130	$19*	$28*
1992	6,900	110	$32	$46
1993	7,400	80	$15	$21
1994	7,000	80	$11	$15
1995	7,500	80	$12	$16
1996	7,900	90	$15	$19
1997	9,700	100	$24	$30
1998	7,900	80	$33	$41
1999	5,100	40	$1	$1
2000	4,600	130	$26	$30
2001	6,200	60	$18	$21
2002	7,300	50	$28	$31
2003	5,500	100	$76	$83
2004	5,900	90	$21	$21
2005	6,500	70	$119	$123
2006	7,500	60	$22	$22

* All 1991 home fire property damage figures are inflated by estimation problems related to the handling of the Oakland fire storm.
Note: Fires are rounded to the nearest hundred, civilian deaths and civilian injuries are expressed to the nearest ten and direct property damage is rounded to the nearest million dollars. Figures reflect a proportional share of home fires with equipment involved in ignition unknown or reported as cooking or kitchen equipment of undetermined or unclassified type, as well as grill fires with unknown power source. Fires reported as "no equipment" but lacking a confirming specific heat source (codes (40-99) are also treated as unknown equipment and allocated. Because of their small numbers, annual estimates of fire deaths involving this equipment are unreliable and not shown. *Because of low participation in NFIRS Version 5.0 during 1999-2001, estimates for those years are highly uncertain and must be used with caution*. Inflation adjustment to 2006 dollars is done using the consumer price index. For outdoor fires, details such as cause are not required for trash fires, and so trash fires are analyzed separately from other outdoor fires.
Source: Data from NFIRS Version 4.1 (1980-1998) and Version 5.0 (1999-2006) and from NFPA survey.

Table 6.2. Home Fires Involving Grills, by Year
Fires Reported to U.S. Fire Departments (Continued)

G. Structure Fires: Solid-Fueled Grills

Year	Fires		Civilian Injuries		Direct Property Damage (in Millions) As Reported		In 2006 Dollars
1980	1,500		40		$4		$10
1981	1,300		20		$7		$15
1982	1,100		50		$6		$13
1983	900		50		$8		$16
1984	1,100		20		$10		$19
1985	1,100		20		$5		$9
1986	1,100		30		$9		$17
1987	900		10		$6		$11
1988	1,000		30		$13		$22
1989	700		20		$9		$15
1990	800		20		$6		$9
1991	600		10		$12*		$18*
1992	600		0		$7		$10
1993	500		0		$3		$4
1994	600		30		$7		$10
1995	500		0		$14		$19
1996	400		40		$4		$5
1997	400		10		$5		$6
1998	300		10		$5		$6
1999	1,300	(1,200)	0	(0)	$11	($11)	$13
2000	700	(700)	0	(0)	$5	($5)	$6
2001	700	(600)	50	(50)	$15	($15)	$17
2002	700	(500)	0	(0)	$27	($27)	$30
2003	600	(400)	10	(10)	$13	($13)	$14
2004	600	(400)	30	(30)	$20	($20)	$21
2005	600	(400)	20	(20)	$17	($17)	$18
2006	600	(500)	40	(40)	$27	($27)	$27

* All 1991 home fire property damage figures are inflated by estimation problems related to the handling of the Oakland fire storm.
Note: Numbers in parentheses exclude confined fires. Confined fires are fires reported as continued to a cooking vessel and involving cooking equipment; they are analyzed separately. Fires are rounded to the nearest hundred, civilian deaths and civilian injuries are expressed to the nearest ten and direct property damage is rounded to the nearest million dollars. Figures reflect a proportional share of home fires with equipment involving in ignition unknown or reported as cooking or kitchen equipment of undetermined type, as well as grill fires with unknown power source. Fires reported as "no equipment" but lacking a confirming specific heat source (codes (40-99) are also treated as unknown equipment and allocated. Because of their small numbers, annual estimates of fire deaths involving this equipment are unreliable and not shown. *Because of low participation in NFIRS Version 5.0 during 1999-2001, estimates for those years are highly uncertain and must be used with caution.* Inflation adjustment to 2006 dollars is done using the consumer price index.
Source: Data from NFIRS Version 4.1 (1980-1998) and Version 5.0 (1999-2006) and from NFPA survey.

Table 6.2. Home Fires Involving Grills, by Year
Fires Reported to U.S. Fire Departments (Continued)

H. Outdoor Fires: Solid-Fueled Grills

Year	Fires	Civilian Injuries	Direct Property Damage (in Millions) As Reported	In 2006 Dollars
1980	500	10	$0	$0
1981	400	10	$0	$0
1982	500	0	$0	$0
1983	400	0	$0	$0
1984	500	0	$0	$0
1985	4002	0	$0	$0
1986	400	0	$0	$0
1987	400	0	$0	$0
1988	500	0	$0	$0
1989	300	0	$0	$0
1990	500	0	$0	$0
1991	400	0	$0	$0
1992	400	0	$0	$0
1993	400	0	$0	$0
1994	400	0	$0	$0
1995	400	0	$0	$0
1996	400	0	$0	$0
1997	500	0	$0	$0
1998	400	0	$0	$0
1999	200	0	$0	$0
2000	100	0	$0	$0
2001	500	0	$0	$0
2002	800	0	$0	$0
2003	600	0	$0	$0
2004	400	10	$0	$0
2005	800	10	$0	$0
2006	600	0	$0	$0

Note: Fires are rounded to the nearest hundred, civilian deaths and civilian injuries are expressed to the nearest ten and direct property damage is rounded to the nearest million dollars. Figures reflect a proportional share of home fires with equipment involved in ignition unknown or reported as cooking or kitchen equipment of undetermined or unclassified type, as well as grill fires with unknown power source. Fires reported as "no equipment" but lacking a confirming specific heat source (codes (40-99) are also treated as unknown equipment and allocated. Because of their small numbers, annual estimates of fire deaths involving this equipment are unreliable and not shown. *Because of low participation in NFIRS Version 5.0 during 1999-2001, estimates for those years are highly uncertain and must be used with caution.* Inflation adjustment to 2006 dollars is done using the consumer price index. For outdoor fires, details such as cause are not required for trash fires, and so trash fires are analyzed separately from other outdoor fires.
Source: Data from NFIRS Version 4.1 (1980-1998) and Version 5.0 (1999-2006) and from NFPA survey.

Table 6.2. Home Fires Involving Solid-Fueled Grills, by Year
Fires Reported to U.S. Fire Departments (Continued)

I. Structure and Outdoor Fires Combined: Solid-Fueled Grills

Year	Fires	Civilian Injuries	Direct Property Damage (in Millions) As Reported	In 2006 Dollars
1980	2,000	50	$4	$10
1981	1,600	20	$7	$15
1982	1,600	50	$6	$16
1983	1,300	50	$8	$16
1984	1,600	20	$10	$19
1985	1,600	20	$5	$9
1986	1,400	30	$9	$17
1987	1,200	10	$6	$11
1988	1,500	30	$13	$22
1989	1,000	30	$9	$15
1990	1,300	30	$6	$9
1991	1,000	20	$12*	$18*
1992	1,000	0	$7	$10
1993	900	0	$3	$4
1994	1,100	30	$7	$10
1995	1,000	0	$14	$18
1996	800	40	$4	$5
1997	900	10	$5	$6
1998	700	10	$5	$6
1999	1,400	0	$11	$13
2000	800	0	$5	$6
2001	1,200	50	$15	$17
2002	1,500	0	$27	$30
2003	1,200	10	$13	$14
2004	1,000	40	$20	$21
2005	1,300	20	$17	$18
2006	1,400	40	$27	$27

* All 1991 home fire property damage figures are inflated by estimation problems related to the handling of the Oakland fire storm.
Note: Numbers in parenthesis exclude confined fires. Confined fires are fires reported as confined to a cooking vessel and involving cooking equipment; they are analyzed separately. These are national estimates of fires reported to U.S. municipal fire departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades. National estimates are projections. Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Because of their small numbers, annual estimates of fire deaths involving this equipment are unreliable and not shown. *Because of low participation in NFIRS Version 5.0 during 1999-2001, estimates for those years are highly uncertain and must be used with caution*. Inflation adjustment to 2006 dollars is done using the consumer price index. For outdoor fires, details such as cause are not required for trash fires, and so trash fires are analyzed separately from other outdoor fires.
Source: Data from NFIRS Version 4.1 (1980-1998) and Version 5.0 (1999-2006) and from NFPA survey.

Table 6.3. Home Fires Involving Grills, by Area of Origin
Annual Average of 2003-2006 Fires Reported to U.S. Fire Departments
(Excluding Fires Reported as Confined Structure Fires and Outside Trash Fires)

A. Structure Fires: All Power Sources

Area of Origin	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Exterior balcony or unenclosed porch	400	(33%)	0	(0%)	33	(45%)	$32	(40%)
Courtyard, terrace or patio	200	(18%)	0	(0%)	15	(21%)	$11	(14%)
Exterior wall surface	100	(11%)	0	(0%)	6	(9%)	$5	(6%)
Unclassified outside area	100	(6%)	0	(0%)	0	(0%)	$1	(1%)
Garage or vehicle storage area*	100	(5%)	0	(0%)	7	(10%)	$4	(6%)
Exterior stairway, ramp, or fire escape	100	(5%)	0	(0%)	3	(3%)	$1	(1%)
Kitchen or cooking area	100	(5%)	0	(0%)	2	(2%)	$1	(2%)
Other known area	200	(17%)	13	(100%)	6	(9%)	$23	(29%)
Total	1,300	(100%)	13	(100%)	72	(100%)	$79	(100%)

* Does not include garage coded as separate property.

B. Outdoor Fires: All Power Sources

Area of Origin	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Courtyard, terrace or patio	1,900	(39%)	0	(NA)	13	(39%)	$0	(47%)
Unclassified outside area	1,000	(21%)	0	(NA)	3	(10%)	$0	(10%)
Exterior balcony or unenclosed porch	700	(14%)	0	(NA)	6	(18%)	$0	(15%)
Lawn, field or open area	300	(7%)	0	(NA)	5	(16%)	$0	(4%)
Unclassified area	200	(4%)	0	(NA)	2	(5%)	$0	(4%)
Vegetation area	200	(3%)	0	(NA)	2	(6%)	$0	(1%)
Kitchen or cooking area	100	(2%)	0	(NA)	0	(0%)	$0	(1%)
Unclassified equipment or service area	100	(2%)	0	(NA)	0	(0%)	$0	(2%)
Unclassified function area	100	(2%)	0	(NA)	0	(0%)	$0	(2%)
Fuel tank or fuel line of vehicle	100	(1%)	0	(NA)	0	(0%)	$0	(5%)
Other known area	200	(4%)	0	(NA)	2	(5%)	$0	(0%)
Total	4,800	(100%)	0	(NA)	33	(100%)	$0	(0%)

NA – Not applicable because estimated total is zero.

Note: Fires are rounded to the nearest hundred, civilian deaths and injuries to the nearest one, and direct property damage to the nearest million dollars. Damage has not been adjusted for inflation. Figures reflect a proportional share of home fires with equipment involved in ignition unknown or recorded as kitchen or cooking equipment of undetermined or unclassified type. Fires reported as "no equipment" but lacking a confirming specific heat source (codes 40-99) are also treated as unknown equipment and allocated. Home kitchen and cooking fires with this equipment and area of origin unknown have also been allocated proportionally. Totals may not equal sums because of rounding error.

Source: Data from NFIRS Version 5.0 and NFPA survey.

Table 6.3. Home Fires Involving Grills, by Area of Origin
Annual Average of 2003-2006 Fires Reported to U.S. Fire Departments
(Excluding Fires Reported as Confined Structure Fires and Outside Trash Fires)
(Continued)

C. Structure Fires: Gas-Fueled Grills

Area of Origin	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Exterior balcony or unenclosed porch	200	(32%)	0	(0%)	20	(40%)	$20	(35%)
Courtyard, terrace or patio	100	(20%)	0	(0%)	7	(15%)	$5	(9%)
Exterior wall surface	100	(12%)	0	(0%)	6	(13%)	$3	(5%)
Other known area	300	(36%)	9	(100%)	16	(32%)	$0	(0%)
Total	700	(100%)	9	(100%)	49	(100%)	$0	(0%)

D. Outdoor Fires: Gas-Fueled Grills

Area of Origin	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Courtyard, terrace or patio	1,800	(43%)	0	(NA)	10	(51%)	$0	(52%)
Unclassified outside area	900	(21%)	0	(NA)	0	(0%)	$0	(8%)
Exterior balcony or unenclosed porch	600	(15%)	0	(NA)	6	(32%)	$0	(16%)
Lawn, field or open area	300	(6%)	0	(NA)	2	(9%)	$0	(3%)
Unclassified area	200	(5%)	0	(NA)	2	(9%)	$0	(5%)
Unclassified equipment or service area	100	(2%)	0	(NA)	0	(0%)	$0	(3%)
Kitchen or cooking area	100	(2%)	0	(NA)	0	(0%)	$0	(1%)
Unclassified function area	100	(2%)	0	(NA)	0	(0%)	$0	(1%)
Fuel tank or fuel line of vehicle	100	(2%)	0	(NA)	0	(0%)	$0	(6%)
Other known area	100	(3%)	0	(NA)	0	(0%)	$0	(0%)
Total	4,200	(100%)	0	(NA)	20	(100%)	$0	(0%)

NA – Not applicable because estimated total is zero.

Note: Fires are rounded to the nearest hundred, civilian deaths and injuries to the nearest one, and direct property damage to the nearest million dollars. Damage has not been adjusted for inflation. Figures reflect a proportional share of home fires with equipment involved in ignition unknown or recorded as kitchen or cooking equipment of undetermined or unclassified type. Fires reported as "no equipment" but lacking a confirming specific heat source (codes 40-99) are also treated as unknown equipment and allocated. Home kitchen and cooking fires with this equipment and area of origin unknown have also been allocated proportionally. Totals may not equal sums because of rounding error.

Source: Data from NFIRS Version 5.0 and NFPA survey.

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Table 6.3. Home Fires Involving Grills, by Area of Origin
Annual Average of 2003-2006 Fires Reported to U.S. Fire Departments
(Excluding Fires Reported as Confined Structure Fires and Outside Trash Fires)
(Continued)

E. Structure Fires: Solid-Fueled Grills

Area of Origin	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Exterior balcony or unenclosed porch	200	(42%)	0	(0%)	13	(57%)	$11	(60%)
Courtyard, terrace or patio	100	(17%)	0	(0%)	8	(35%)	$4	(19%)
Other known area	200	(41%)	4	(100%)	2	(8%)	$4	(21%)
Total	500	(100%)	4	(100%)	23	(100%)	$19	(100%)

F. Outdoor Fires: Solid-Fueled Grills

Area of Origin	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Unclassified outside area	100	(29%)	0	(NA)	2	(17%)	$0	(15%)
Courtyard, terrace or patio	100	(24%)	0	(NA)	3	(31%)	$0	(20%)
Lawn, field or open area	100	(15%)	0	(NA)	4	(35%)	$0	(11%)
Exterior balcony, unenclosed porch	100	(15%)	0	(NA)	0	(0%)	$0	(15%)
Other known item	100	(17%)	0	(NA)	2	(17%)	$0	(38%)
Total	500	(100%)	0	(NA)	11	(100%)	$0	(100%)

NA – Not applicable because estimated total is zero.

Note: Fires are rounded to the nearest hundred, civilian deaths to the nearest one, civilian injuries to the nearest one, and direct property damage to the nearest million dollars. Damage has not been adjusted for inflation. Figures reflect a proportional share of home fires with equipment involved in ignition unknown or recorded as kitchen or cooking equipment of undetermined or unclassified type. Fires reported as "no equipment" but lacking a confirming specific heat source (codes 40-99) are also treated as unknown equipment and allocated. Home kitchen and cooking fires with this equipment and area of origin unknown have also been allocated proportionally. Totals may not equal sums because of rounding error.

Source: Data from NFIRS Version 5.0 and NFPA survey.

Table 6.4. Home Fires Involving Grills, by Factor Contributing to Ignition
Annual Average of 2003-2006 Fires Reported to U.S. Fire Departments
(Excluding Fires Reported as Confined Structure Fires and Outside Trash Fires)

A. Structure Fires: All Power Sources

Factor	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Heat source too close to combustible	400	(32%)	4	(27%)	26	(36%)	$17	(22%)
Equipment unattended	200	(15%)	0	(0%)	3	(5%)	$7	(9%)
Leak or break	200	(13%)	9	(73%)	24	(34%)	$19	(24%)
Outside or open fire for warming or cooking	100	(8%)	0	(0%)	5	(8%)	$4	(5%)
Unclassified misuse of material or product,	100	(6%)	0	(0%)	6	(9%)	$24	(30%)
Unclassified mechanical failure or malfunction	100	(5%)	9	(73%)	3	(4%)	$2	(3%)
Abandoned or discarded material	100	(4%)	0	(0%)	0	(0%)	$2	(3%)
Other known factor	400	(33%)	0	(0%)	20	(27%)	$45	(57%)
Total fires	1,300	(100%)	13	(100%)	72	(100%)	$79	(100%)
Total entries	1,400	(115%)	22	(173%)	87	(121%)	$120	(152%)

Note: Multiple entries are allowed, resulting in more factor entries than fires. Fires are rounded to the nearest hundred, civilian deaths and injuries to the nearest one and direct property damage to the nearest million dollars. Damage has not been adjusted for inflation. Figures reflect a proportional share of home fire with equipment involved in ignition unknown or recorded cooking or kitchen equipment of undetermined type. Fires reported as "no equipment" but lacking a confirming specific heat source (codes 40-99) are also treated as unknown equipment and allocated. Home cooking fires with this equipment and factor contributing to ignition listed as unknown, unreported, none, or blank have also been allocated proportionally. Totals may not equal sums because of rounding error.

Source: Data from NFIRS Version 5.0 and NFPA survey.

Table 6.4. Home Fires Involving Grills, by Factor Contributing to Ignition
Annual Average of 2003-2006 Fires Reported to U.S. Fire Departments
(Excluding Fires Reported as Confined Structure Fires and Outside Trash Fires)
(Continued)

B. Outdoor Fires: All Power Sources

Factor	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Leak or break	1,600	(34%)	0	(NA)	2	(7%)	$0	(24%)
Failure to clean	700	(14%)	0	(NA)	0	(0%)	$0	(10%)
Unclassified mechanical failure or malfunction	400	(9%)	0	(NA)	6	(18%)	$0	(18%)
Heat source too close to combustible	300	(6%)	0	(NA)	3	(9%)	$0	(18%)
Unclassified misuse of product	300	(5%)	0	(NA)	6	(18%)	$0	(4%)
Worn out	200	(5%)	0	(NA)	0	(0%)	$0	(3%)
Equipment unattended	200	(4%)	0	(NA)	0	(0%)	$0	(4%)
Outside or open fire for warming or cooking	200	(4%)	0	(NA)	5	(15%)	$0	(8%)
Equipment not being operated properly	200	(3%)	0	(NA)	5	(16%)	$0	(3%)
Unclassified factor contributed to ignition	100	(3%)	0	(NA)	0	(0%)	$0	(0%)
Unclassified operational deficiency	100	(3%)	0	(NA)	0	(0%)	$0	(1%)
Flammable liquid used to kindle fire	100	(1%)	0	(NA)	5	(16%)	$0	(1%)
Installation deficiency	100	(1%)	0	(NA)	0	(0%)	$0	(0%)
High wind	100	(1%)	0	(NA)	0	(0%)	$0	(1%)
Abandoned or discarded materials or products	100	(1%)	0	(NA)	0	(0%)	$0	(0%)
Other known factor	500	(10%)	0	(NA)	3	(8%)	$0	(18%)
Total fires	4,800	(100%)	0	(NA)	33	(100%)	$0	(100%)
Total entries	5,000	(105%)	0	(NA)	35	(107%)	$1	(113%)

NA – Not applicable because estimated total is zero.

Note: Multiple entries are allowed, resulting in more factor entries than fires. Fires are rounded to the nearest hundred, civilian deaths and injuries to the nearest one, and direct property damage to the nearest million dollars. Damage has not been adjusted for inflation. Figures reflect a proportional share of home fire with equipment involved in ignition unknown or recorded cooking or kitchen equipment of undetermined type. Fires reported as "no equipment" but lacking a confirming specific heat source (codes 40-99) are also treated as unknown equipment and allocated. Home cooking fires with this equipment and factor contributing to ignition listed as unknown, unreported, none, or blank have also been allocated proportionally. Totals may not equal sums because of rounding error.

Source: Data from NFIRS Version 5.0 and NFPA survey.

Table 6.4. Home Fires Involving Grills, by Factor Contributing to Ignition
Annual Average of 2003-2006 Fires Reported to U.S. Fire Departments
(Excluding Fires Reported as Confined Structure Fires and Outside Trash Fires)
(Continued)

C. Structure Fires: Gas-Fueled Grills

Factor	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Leak or break	200	(24%)	9	(100%)	27	(54%)	$20	(35%)
Heat source too close to combustible	200	(23%)	0	(0%)	13	(26%)	$6	(11%)
Equipment unattended	100	(16%)	0	(0%)	4	(7%)	$5	(9%)
Unclassified mechanical failure or malfunction	100	(8%)	9	(100%)	3	(6%)	$2	(4%)
Other known factor	300	(46%)	0	(0%)	10	(21%)	$64	(112%)
Total fires	700	(100%)	9	(100%)	49	(100%)	$57	(100%)
Total entries	900	(117%)	19	(200%)	56	(114%)	$98	(171%)

Note: Multiple entries are allowed, resulting in more factor entries than fires. Fires are rounded to the nearest hundred, civilian deaths and injuries to the nearest one, and direct property damage to the nearest million dollars. Damage has not been adjusted for inflation. Figures reflect a proportional share of home fire with equipment involved in ignition unknown or recorded cooking or kitchen equipment of undetermined type. Fires reported as "no equipment" but lacking a confirming specific heat source (codes 40-99) are also treated as unknown equipment and allocated. Home cooking fires with this equipment and factor contributing to ignition listed as unknown, unreported, none, or blank have also been allocated proportionally. Totals may not equal sums because of rounding error.

Source: Data from NFIRS Version 5.0 and NFPA survey.

Table 6.4. Home Fires Involving Grills, by Factor Contributing to Ignition
Annual Average 2003-2006 Fires Reported to U.S. Fire Department
(Excluding Fires Reported as Confined Structure Fires and Outside Trash Fires)
(Continued)

D. Outdoor Fires: Gas-Fueled Grills

Factor	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Leak or break	1,600	(39%)	0	(NA)	3	(14%)	$0	(28%)
Failure to clean	700	(16%)	0	(NA)	0	(0%)	$0	(12%)
Unclassified mechanical failure or malfunction	400	(11%)	0	(NA)	7	(35%)	$0	(22%)
Worn out	200	(5%)	0	(NA)	0	(0%)	$0	(1%)
Unclassified misuse of material	200	(4%)	0	(NA)	7	(35%)	$0	(2%)
Heat source too close to combustible	200	(4%)	0	(NA)	0	(0%)	$0	(20%)
Equipment not being operated properly	200	(4%)	0	(NA)	6	(30%)	$0	(3%)
Unclassified factor contributed to ignition	100	(3%)	0	(NA)	0	(0%)	$0	(0%)
Unclassified operational deficiency	100	(3%)	0	(NA)	0	(0%)	$0	(1%)
Outside or open fire for warming or cooking	100	(3%)	0	(NA)	0	(0%)	$0	(1%)
Equipment unattended	100	(2%)	0	(NA)	0	(0%)	$0	(3%)
Installation deficiency	100	(2%)	0	(NA)	0	(0%)	$0	(0%)
Unclassified design, manufacturing or installation deficiency	100	(1%)	0	(NA)	0	(0%)	$0	(1%)
Other known factor	400	(9%)	0	(NA)	0	(0%)	$0	(21%)
Total fires	4,200	(100%)	0	(NA)	20	(100%)	$0	(100%)
Total entries	4,400	(105%)	0	(NA)	22	(114%)	$0	(114%)

NA – Not applicable because estimated total is zero.

Note: Multiple entries are allowed, resulting in more factor entries than fires. Fires are rounded to the nearest hundred, civilian deaths and injuries to the nearest one, and direct property damage to the nearest million dollars. Damage has not been adjusted for inflation. Figures reflect a proportional share of home fire with equipment involved in ignition unknown or recorded cooking or kitchen equipment of undetermined type. Fires reported as "no equipment" but lacking a confirming specific heat source (codes 40-99) are also treated as unknown equipment and allocated. Home cooking fires with this equipment and factor contributing to ignition listed as unknown, unreported, none, or blank have also been allocated proportionally. Totals may not equal sums because of rounding error.

Source: Data from NFIRS Version 5.0 and NFPA survey.

Table 6.4. Home Fires Involving Grills, by Factor Contributing to Ignition
Annual Average of 2003-2006 Fires Reported to U.S. Fire Departments
(Excluding Fires Reported as Confined Structure Fires and Outside Trash Fires)
(Continued)

E. Structure Fires: Solid-Fueled Grills

Factor	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Heat source too close to combustible	200	(46%)	4	(100%)	12	(52%)	$9	(47%)
Outside or open fire for warming or cooking	100	(15%)	0	(0%)	2	(9%)	$3	(17%)
Equipment unattended	100	(12%)	0	(0%)	0	(0%)	$1	(8%)
Other known factor	200	(40%)	0	(0%)	16	(72%)	$8	(40%)
Total fires	500	(100%)	4	(100%)	23	(100%)	$19	(100%)
Total entries	500	(113%)	4	(100%)	30	(132%)	$21	(112%)

F. Outdoor Fires: Solid-Fueled Grills

Factor	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Heat source too close to combustible	100	(17%)	0	(NA)	0	(0%)	$0	(8%)
Equipment unattended	100	(15%)	0	(NA)	0	(0%)	$0	(8%)
Unclassified misuse of material	100	(13%)	0	(NA)	0	(0%)	$0	(14%)
Outside or open fire for warming or cooking	100	(12%)	0	(NA)	4	(38%)	$0	(43%)
Other known factor	200	(53%)	0	(NA)	7	(62%)	$0	(0%)
Total fires	500	(111%)	0	(NA)	11	(100%)	$0	(0%)
Total entries	500	(100%)	0	(NA)	11	(100%)	$0	(0%)

NA – Not applicable because estimated total is zero.

Note: Multiple entries are allowed, resulting in more factor entries than fires. Fires are rounded to the nearest hundred, civilian deaths and injuries to the nearest one, and direct property damage to the nearest million dollars. Damage has not been adjusted for inflation. Figures reflect a proportional share of home fire with equipment involved in ignition unknown or recorded cooking or kitchen equipment of undetermined type. Fires reported as "no equipment" but lacking a confirming specific heat source (codes 40-99) are also treated as unknown equipment and allocated. Home cooking fires with this equipment and factor contributing to ignition listed as unknown, unreported, none, or blank have also been allocated proportionally. Totals may not equal sums because of rounding error.

Source: Data from NFIRS Version 5.0 and NFPA survey.

Table 6.5. Home Fires Involving Grills, by Item First Ignited

Annual Average of 2003-2006 Fires Reported to U.S. Fire Departments
(Excluding Fires Reported as Confined Structure Fires and Outside Trash Fires)

A. Structure Fires: All Power Sources

Item First Ignited	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Exterior wall covering or finish	300	(22%)	9	(73%)	24	(33%)	$10	(13%)
Flammable or combustible liquid or gas	200	(17%)	0	(0%)	15	(21%)	$20	(25%)
Structural member or framing	200	(14%)	0	(0%)	5	(7%)	$25	(31%)
Cooking materials, including food	100	(7%)	0	(0%)	9	(13%)	$3	(4%)
Unclassified structural component or finish	100	(6%)	0	(0%)	0	(0%)	$7	(9%)
Unclassified item first ignited	100	(4%)	0	(0%)	0	(0%)	$2	(3%)
Exterior trim, including door	100	(4%)	0	(0%)	9	(13%)	$2	(3%)
Other known item	300	(24%)	4	(27%)	10	(14%)	$11	(13%)
Total	1,300	(100%)	13	(100%)	72	(100%)	$79	(100%)

B. Outdoor Fires: All Power Sources

Item First Ignited	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Flammable or combustible liquid or gas	2,400	(51%)	0	(NA)	30	(93%)	$0	(45%)
Cooking materials, including food	900	(19%)	0	(NA)	0	(0%)	$0	(10%)
Unclassified item	700	(14%)	0	(NA)	0	(0%)	$0	(22%)
Pipe, duct, conduit, hose or covering	200	(4%)	0	(NA)	0	(0%)	$0	(3%)
Light vegetation including grass	100	(3%)	0	(NA)	0	(0%)	$0	(5%)
Appliance housing or casing	100	(2%)	0	(NA)	0	(0%)	$0	(3%)
Unclassified organic material	100	(1%)	0	(NA)	0	(0%)	$0	(1%)
Other known item	300	(6%)	0	(NA)	2	(7%)	$0	(11%)
Total	4,800	(100%)	0	(NA)	33	(100%)	$0	(100%)

NA – Not applicable because estimated total is zero.

Note: Fires are rounded to the nearest hundred, civilian deaths and injuries to the nearest one, and direct property damage to the nearest million dollars. Damage has not been adjusted for inflation. Figures reflect a proportional share of home fires with equipment involved in ignition unknown or recorded as kitchen or cooking equipment of undetermined or unclassified type. Fires reported as "no equipment" but lacking a confirming specific heat source (codes 40-99) are also treated as unknown equipment and allocated. Home heating fires with this equipment and item first ignited unknown have also been allocated proportionally. Totals may not equal sums because of rounding.

Source: Data from NFIRS Version 5.0 and NFPA survey.

Table 6.5. Home Fires Involving Grills, by Item First Ignited
Annual Average of 2003-2006 Fires Reported to U.S. Fire Departments
(Excluding Fires Reported as Confined Structure Fires and Outside Trash Fires)
(Continued)

C. Structure Fires: Gas-Fueled Grills

Item First Ignited	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Flammable or combustible liquid or gas	200	(29%)	0	(0%)	12	(25%)	$21	(36%)
Exterior wall covering or finish	200	(24%)	9	(100%)	15	(31%)	$8	(14%)
Structural member or framing	100	(10%)	0	(0%)	3	(5%)	$19	(33%)
Cooking materials, including food	100	(8%)	0	(0%)	7	(15%)	$1	(2%)
Other known item	200	(29%)	0	(0%)	12	(24%)	$9	(16%)
Total	700	(100%)	9	(100%)	49	(100%)	$57	(100%)

D. Outdoor Fires: Gas-Fueled Grills

Item First Ignited	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Flammable or combustible liquid or gas	2,400	(56%)	0	(NA)	20	(100%)	$0	(51%)
Cooking materials, including food	800	(19%)	0	(NA)	0	(0%)	$0	(10%)
Unclassified item	600	(13%)	0	(NA)	0	(0%)	$0	(19%)
Pipe, duct, conduit hose or covering	200	(5%)	0	(NA)	0	(0%)	$0	(3%)
Appliance housing or casing	100	(2%)	0	(NA)	0	(0%)	$0	(4%)
Other known item	200	(6%)	0	(NA)	0	(0%)	$0	(13%)
Total	4,200	(100%)	0	(NA)	20	(100%)	$0	(100%)

Note: Fires are rounded to the nearest hundred, civilian deaths and injuries to the nearest one, and direct property damage to the nearest million dollars. Damage has not been adjusted for inflation. Figures reflect a proportional share of home fires with equipment involved in ignition unknown or recorded as kitchen or cooking equipment of undetermined or unclassified type. Fires reported as "no equipment" but lacking a confirming specific heat source (codes 40-99) are also treated as unknown equipment and allocated. Home heating fires with this equipment and item first ignited unknown have also been allocated proportionally. Totals may not equal sums because of rounding.

Source: Data from NFIRS Version 5.0 and NFPA survey.

Table 6.5. Home Fires Involving Grills, by Item First Ignited
Annual Average of 2003-2006 Fires Reported to U.S. Fire Departments
(Excluding Fires Reported as Confined Structure Fires and Outside Trash Fires)
(Continued)

E. Structure Fires: Solid-Fueled Grills

Item First Ignited	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Structural member or framing	100	(21%)	0	(0%)	3	(11%)	$7	(37%)
Exterior wall covering or finish	100	(20%)	0	(0%)	8	(38%)	$3	(16%)
Unclassified structural component or finish	100	(12%)	0	(0%)	0	(0%)	$3	(15%)
Other known item	200	(46%)	4	(100%)	11	(51%)	$6	(33%)
Total	500	(100%)	4	(100%)	23	(100%)	$19	(100%)

F. Outdoor Fires: Solid-Fueled Grills

Item First Ignited	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Unclassified item first ignited	100	(23%)	0	(NA)	0	(0%)	$0	(42%)
Light vegetation, including grass	100	(21%)	0	(NA)	0	(0%)	$0	(1%)
Cooking materials, including food	100	(19%)	0	(NA)	0	(0%)	$0	(10%)
Other known item	200	(37%)	0	(NA)	11	(100%)	$0	(47%)
Total	500	(100%)	0	(NA)	11	(100%)	$0	(100%)

NA – Not applicable because estimated total is zero.

Note: Fires are rounded to the nearest hundred, civilian deaths and injuries to the nearest one, and direct property damage to the nearest million dollars. Damage has not been adjusted for inflation. Figures reflect a proportional share of home fires with equipment involved in ignition unknown or recorded as kitchen or cooking equipment of undetermined or unclassified type. Fires reported as "no equipment" but lacking a confirming specific heat source (codes 40-99) are also treated as unknown equipment and allocated. Home heating fires with this equipment and item first ignited unknown have also been allocated proportionally. Totals may not equal sums because of rounding.

Source: Data from NFIRS Version 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.

NFIRS provides the most detailed incident information of any national database not limited to large fires. NFIRS is the only database capable of addressing national patterns for fires of all sizes by specific property use and specific fire cause. NFIRS also captures information on the extent of flame spread, and automatic detection and suppression equipment. For more information about NFIRS visit http://www.nfirs.fema.gov/. Copies of the paper forms may be downloaded from http://www.nfirs.fema.gov/_download/nfirspaperforms2007.pdf.

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

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

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

Projecting NFIRS to National Estimates

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

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

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

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

Figure 1.

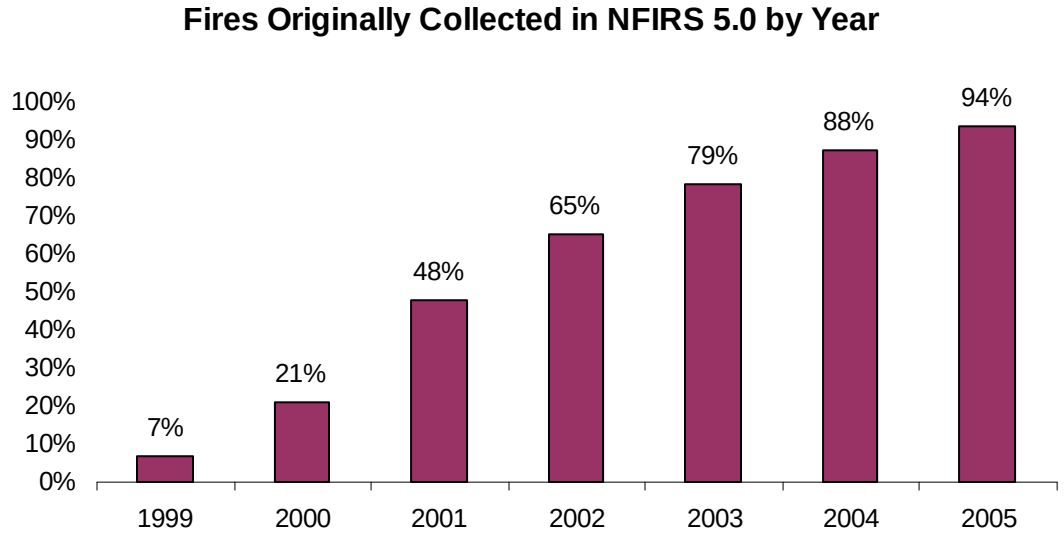

Figure 1 shows the percentage of fires originally collected in the NFIRS 5.0 system. Each year's release version of NFIRS data also includes data collected in older versions of NFIRS that were converted to NFIRS 5.0 codes.

For 2002 data on, analyses are based on scaling ratios using only data originally collected in NFIRS 5.0:

$$\frac{\text{NFPA survey projections}}{\text{NFIRS totals (Version 5.0)}}$$

For 1999 to 2001, the same rules may be applied, but estimates for these years in this form will be less reliable due to the smaller amount of data originally collected in NFIRS 5.0; they should be viewed with extreme caution.

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

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

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

Although causal and other detailed information is typically not required for these incidents, it is provided in some cases. In order for that limited detail to be used to characterize the confined fires, they must be analyzed separately from non-confined fires. Otherwise, the patterns in a factor for the more numerous non-confined fires with factor known will dominate the allocation of the unknown factor fires for both non-confined and confined fires. If the pattern is different for confined fires, which is often the case, that fact will be lost unless analysis is done separately.

For most fields other than Property Use, NFPA allocates unknown data proportionally among known data. This approach assumes that if the missing data were known, it would be distributed in the same manner as the known data. NFPA makes additional adjustments to several fields.

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

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

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

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

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

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

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

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

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

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

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

Rounding and percentages. The data shown are estimates and generally rounded. An entry of zero may be a true zero or it may mean that the value rounds to zero. Percentages are calculated from unrounded values. It is quite possible to have a percentage entry of up to 100%, even if the rounded number entry is zero. Values that appear identical may be associated with different percentages, and identical percentages may be associated with slightly different values.