RESEARCH

Intentional Fires

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Abstract
During 2010-2014, an estimated 261,330 intentional fires were reported to U.S. municipal fire departments each year, with associated annual losses of 440 civilian deaths, 1,310 civilian injuries, and $1 billion in direct property damage. Outside or unclassified fires accounted for three-quarters of these incidents (75%), while 19% were structure fires and 6% were vehicle fires.

The fire estimates are based on data from the National Fire Incident Reporting System (NFIRS) conducted by the U.S. Fire Administration (USFA) and the annual fire department experience survey conducted by the National Fire Protection Association (NFPA).

Keywords: fire statistics, fire setting, intentional fires, arson, incendiary fires

Acknowledgements

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

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

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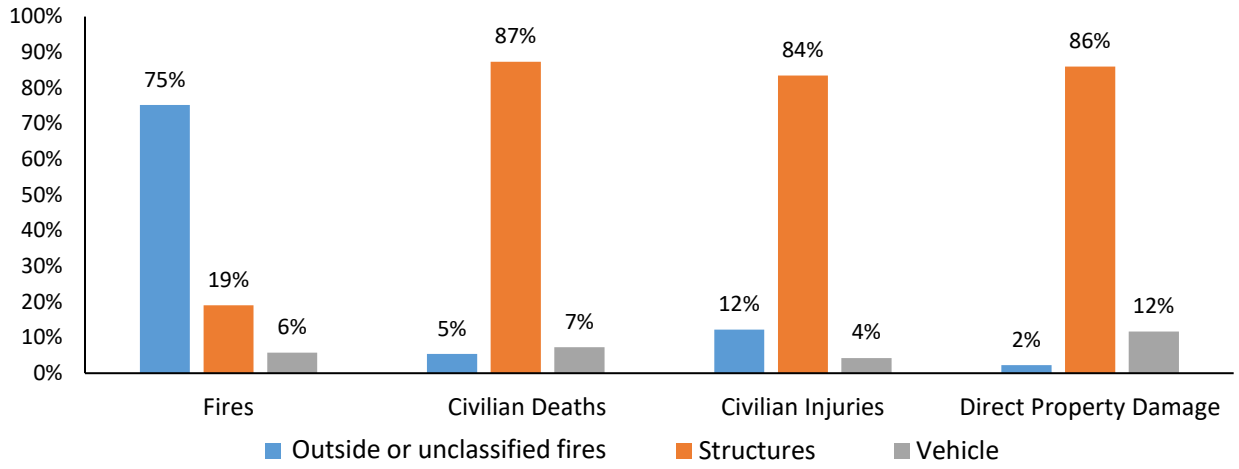
FACT SHEET » RESEARCH

Intentional Fires Fact Sheet

Each year between 2010 and 2014, an estimated 261,330 intentionally set fires were reported to fire departments in the United States. The fires included 196,480 outside or unclassified fires, 49,690 structure fires, and 13,160 vehicle fires. Losses resulting from these fires included:

- 440 civilian deaths
- 1,310 civilian injuries
- $1 billion in direct property damage

Intentional Fires and Losses by Incident Type, 2010–2014 Annual Averages



75% of intentional fires occurred outside.

Although 19% of intentional fires involved structures, these fires accounted for 87% of civilian deaths, 84% of civilian injuries, and 86% of direct property damage resulting from intentional fires.

6% of intentional fires involved vehicles. These fires accounted for 12% of the direct property damage.

What is an "intentional" fire?

The fire statistics in this analysis use detailed data from the U.S. Fire Administration's National Fire Incident Reporting Systems (NFIRS). The definition of "intentional" in NFIRS 5.0 specifically includes *"deliberate misuse of heat source or a fire of an incendiary nature." Additional resources can be found at www.nfpa.org/arson*.

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What is an "intentional" fire?

The fire statistics in this analyses use detailed data from the U.S. Fire Administration's National Fire Incident Reporting Systems (NFIRS). The definition of "intentional" in NFIRS 5.0 specifically includes "deliberate misuse of heat source or a fire of an incendiary nature."

What is the difference between "intentional" and "arson"?

Both terms refer to a fire that was started deliberately. For "intentional," that is the whole of the definition. For "arson," there are two other elements: (a) to some extent, the firesetter intended not only the fire but the harm caused by the fire, and (b) by applicable legal standards, the firesetter was capable of forming a criminal intent. In many jurisdictions, for example, there is a minimum age below which an individual cannot be charged with arson. In some jurisdictions, a person can legally destroy his or her own property, including a house.

What data sources are used in this report?

Several data sources are used in this analysis. National estimates for this analysis are derived from the United States Fire Administration's National Fire Incident Reporting Systems (NFIRS) and the NFPA's annual fire department experience survey. In NFIRS Version 5.0, intentional fires are identified by cause of ignition code 1. Only fires reported to municipal fire departments are included in these statistics. Details on the methodology used may be found in Appendix A.

"Intentional" is a code entry unique to NFIRS Version 5.0. Prior to 1999, the field ignition factor included a choice between "incendiary," "suspicious" "child playing," and many other fire causes. This is important to keep in mind when looking at trend analysis. More information on the coding history is in Appendix B. NFIRS Version 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 information is not required for these incidents, it is provided in some cases. Confined fires are analyzed separately from non-confined fires; estimates are based on the share with causal data. Causal data is not required but is sometimes provided for outside trash fires. The same analysis approach is used for outside trash and non-trash as was used for non-confined and confined structure fires.

Executive Summary

During 2010-2014, an estimated average of 261,330 intentional fires were reported to U.S. municipal fire departments each year, with associated annual losses of 440 civilian deaths, 1,310 civilian injuries, and $1 billion in direct property damage. Outside or unclassified fires accounted for three-quarters of these incidents (75%), while 19% were structure fires and 6% were vehicle fires.

Despite representing one-fifth (19%) of all intentional fires, structure fires accounted for 87% of civilian deaths, 84% of civilian injuries, and 86% of direct property damage caused by intentional fires. Sixty-three percent of intentional structure fires occurred in residential properties, 5% occurred in storage facilities, 4% occurred in educational properties, 4% occurred in mercantile or business properties, and 3% occurred in public assembly properties.

Approximately two-thirds (67%) of intentional structure fires occurred in structures that are occupied and operating, and these fires account for most of the associated losses. Fourteen percent occurred in vacant, unsecured properties, and 7% in vacant, secured properties. The most common item first ignited in intentional structure fires was rubbish, trash or waste, but a disproportionate share of the property damage resulted from fires beginning with flammable or combustible liquids or gases, (possibly accelerants).

The largest shares of intentional home structure fires occurred between 6 p.m. and midnight (35%) and between noon and 6 p.m. (29%). Lighters were the heat source in 29% of intentional home structure fires, 32% of storage property fires, and 28% of mercantile or business property fires, while matches were the heat source in 21% of intentional home structure fires, 25% of storage property fires, and 20% of mercantile or business property fires.

The most common areas of origin in intentional home structure fires were an unclassified outside area (13%) or bedroom (12%). In educational properties, more than half (59%) of intentionally set structure fires began in the bathroom or locker room. In storage properties, the garage was the most common specified area of origin (22% of fires), and in mercantile or business properties the most common specified areas of origin were an unclassified outside area (12%) or a bathroom (9% of fires).

Outside or unclassified fires accounted for 75% of intentionally set fires. In this report, outside trash or rubbish fires are often listed separately from other outside and unclassified fires. This is because outside trash and rubbish fires have limited reporting requirements. Nearly one-third (30%) of outside or unclassified fires began in a lawn, field or other open area. Matches were the heat source in one out of three (33%) of these fires, and a lighter was the heat source in 24%. Light vegetation, including grass, was the item first ignited in just over one-quarter (27%) of the outside or unclassified fires.

In intentionally set vehicle fires, the most common items first ignited were flammable or combustible liquids or gases, piping or filter (30%) and vehicle seats (24%). The most common heat sources were matches (20% of fires), lighters (19%) and incendiary devices (13%).

Overview: Intentional Fires

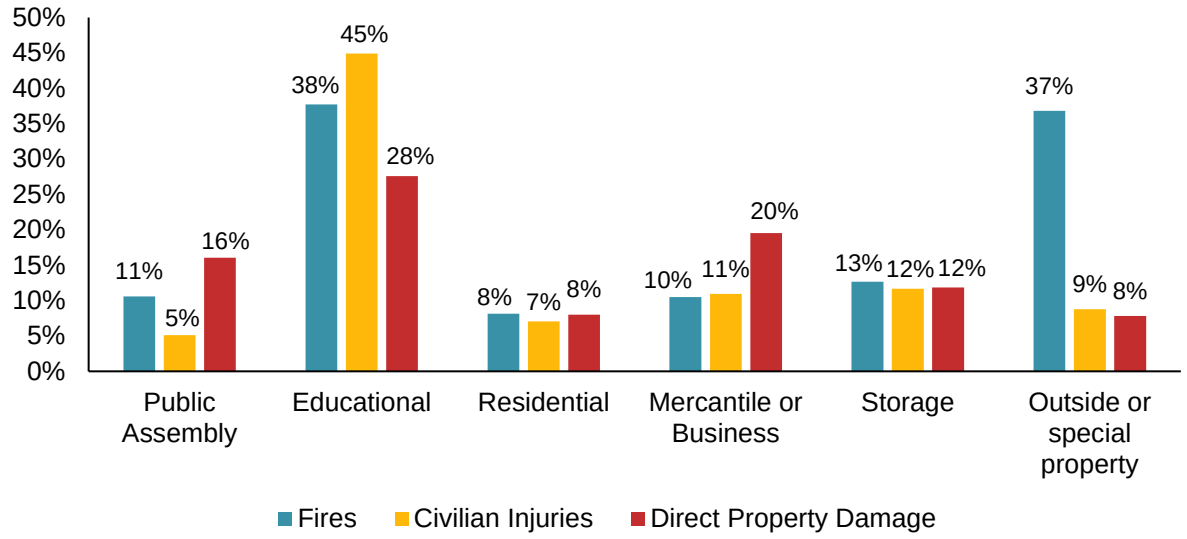
An estimated 261,330 intentionally set fires were reported to local fire departments in the U.S. each year between 2010 and 2014. These fires resulted in associated annual losses of 440 civilian deaths, 1,310 civilian injuries, and $1 billion in direct property damage. Three-quarters (75%) of these fires occurred outside, while another 19% involved structures and 6% involved vehicles. Structure fires accounted for the majority of losses caused by intentional fires – 87% of civilian deaths, 84% of civilian injuries, and 86% of direct property damage. Outside or unclassified fires accounted for 5% of the civilian deaths, 12% of civilian injuries and just 2% of direct property damage. Vehicle fires accounted for 12% of direct property damage from intentional fires, as well as 7% of civilian deaths and 4% of civilian injuries. See Table A below.

Table A.
Intentional Fires by Incident Type
2010-2014 Annual Averages

Incident Type	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Outside or unclassified fires	196,480	(75%)	20	(5%)	160	(12%)	$23	(2%)
Outside trash or rubbish	120,570	(46%)	0	(1%)	50	(4%)	$6	(1%)
Outside, excluding trash or rubbish	75,910	(29%)	20	(5%)	110	(9%)	$17	(2%)
Structures	49,690	(19%)	380	(87%)	1,100	(84%)	$863	(86%)
Vehicle	15,160	(6%)	30	(7%)	60	(4%)	$118	(12%)
Total	261,330	(100%)	440	(100%)	1,310	(100%)	$1,003	(100%)

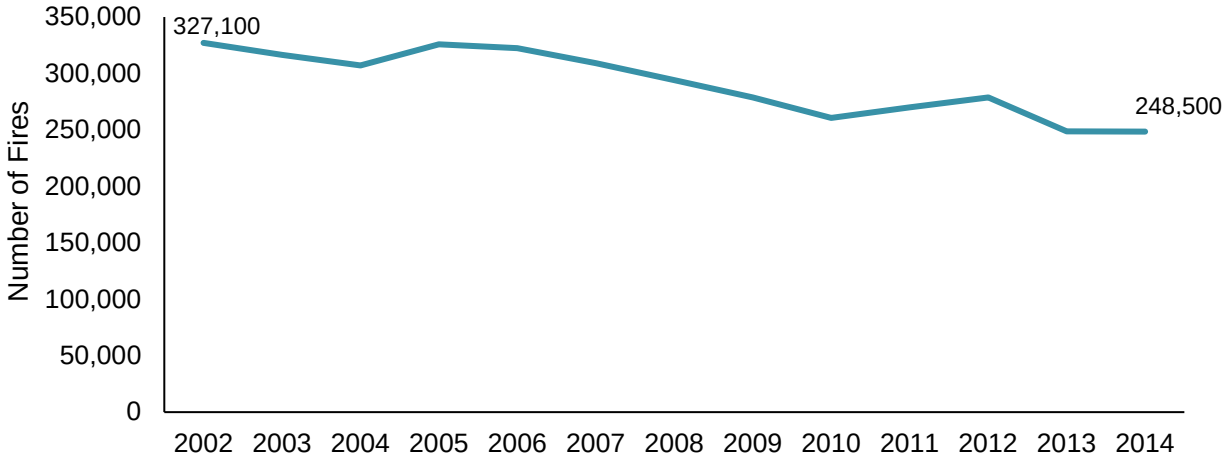
Intentional fires are more common in some types of structures than others. Nearly two of every five fires in educational (38%) or outside or special properties (37%) were intentionally set. Intentional fires also accounted for 45% of civilian injuries in educational property fires, as well as 28% of the direct property damage. Intentional fires were substantially less common to other properties, accounting for 13% of fires in storage properties, 11% of fires in public assembly properties, 10% of fires in mercantile or business properties, and 8% in residential properties. The 10% of fires in mercantile or business properties that were intentionally set accounted for a disproportionate share (20%) of the direct property damage caused by fires in these properties. Fires with an intentional cause were responsible for 16% of fire-related direct property damage in public assembly properties. See Figure 1 for more details.

Figure 1.
Intentional Fires as Percentage of Structure Fires by Property Use
2010-2014



Intentional fires have shown a steady decline since 2002, falling from a high of 327,100 fires in 2002 to a low of 248,500 fires in 2014. Intentional fires prior to 2002 are not included in Figure 2 below because a new version of NFIRS (NFIRS 5.0) introduced in 1999 included a change in coding options for intentional fires and data during the transition to the new system between 1999 and 2002 are considered volatile. Since 2005, fires are following a distinct downward trend, despite increases between 2010 and 2012. Additional information is available in Table 1.

Figure 2.
Intentional Fires by Year
2002-2014



In 45% of fires reported to NFIRS that have the arson module filled out, the investigation is coded as being open. The arson module is optional in NFIRS, and it can be filled out when the cause of ignition is intentional, or cause is under investigation. It may also be used when the fire is coded as "cause undetermined after investigation," and to document juvenile-set fires. Note that "investigation open" is broad and that not every incident for which the arson module is completed is necessarily "arson" in the traditional criminal definition. The investigation is closed in 38% of cases, inactive in 7%, closed with an arrest in 7%, and closed with exceptional clearance in 2%. (See Table 2)

Most intentional fires are set on private property. More than four of five intentionally set fires (85%) occur on privately owned property (based on incidents where the NFIRS arson module was filled out). Nine percent began on property owned by a city or town. (See Table 3)

Nearly one-quarter of intentional fires (24%) where a motivation is identified are motivated by curiosity. Based on fires where the arson module of NFIRS 5.0 was filled out, only a minority of arson incidents are suspected to be motivated by financial reasons, including insurance fraud (5%), burglary (2%), auto theft concealment (7%) or burglary concealment (3%), and void contract or lease (1%). Table B shows that these patterns differ by investigation status.

Table B.
Intentional Fires, by Investigation Status and Suspected Motive
2010-2014 Annual Averages

Suspected Motive	Open	Closed	Inactive	Closed with arrest	Closed with Exceptional Clearance	All Fires with Completed Arson Module
Fireplay or curiosity	16%	33%	25%	20%	57%	24%
Personal	26%	20%	13%	30%	15%	24%
Thrills	15%	16%	20%	16%	15%	16%
Intimidation	12%	11%	13%	8%	4%	10%
Unclassified	8%	8%	8%	9%	8%	8%
Domestic violence	9%	7%	4%	14%	4%	8%
Auto theft concealment	9%	5%	13%	2%	1%	7%
Insurance fraud	6%	5%	7%	2%	0%	5%
Attention/sympathy	3%	5%	2%	8%	6%	4%
Burglary concealment	4%	1%	3%	2%	1%	3%
Suicide	2%	2%	0%	3%	4%	2%
Burglary	3%	1%	4%	1%	2%	2%
Destroy records/evidence	2%	1%	4%	2%	1%	2%
Vanity/recognition	1%	1%	2%	2%	1%	1%
Hate crime	2%	0%	1%	1%	0%	1%
Institutional	0%	2%	0%	1%	1%	1%
Protest	1%	1%	1%	2%	0%	1%
Void contract/lease	1%	1%	0%	1%	0%	1%
Societal	1%	1%	1%	1%	0%	1%
Homicide or homicide concealment	1%	1%	1%	2%	2%	0%
Institutional	0%	2%	0%	1%	1%	1%
Other known	2%	1%	1%	1%	0%	1%

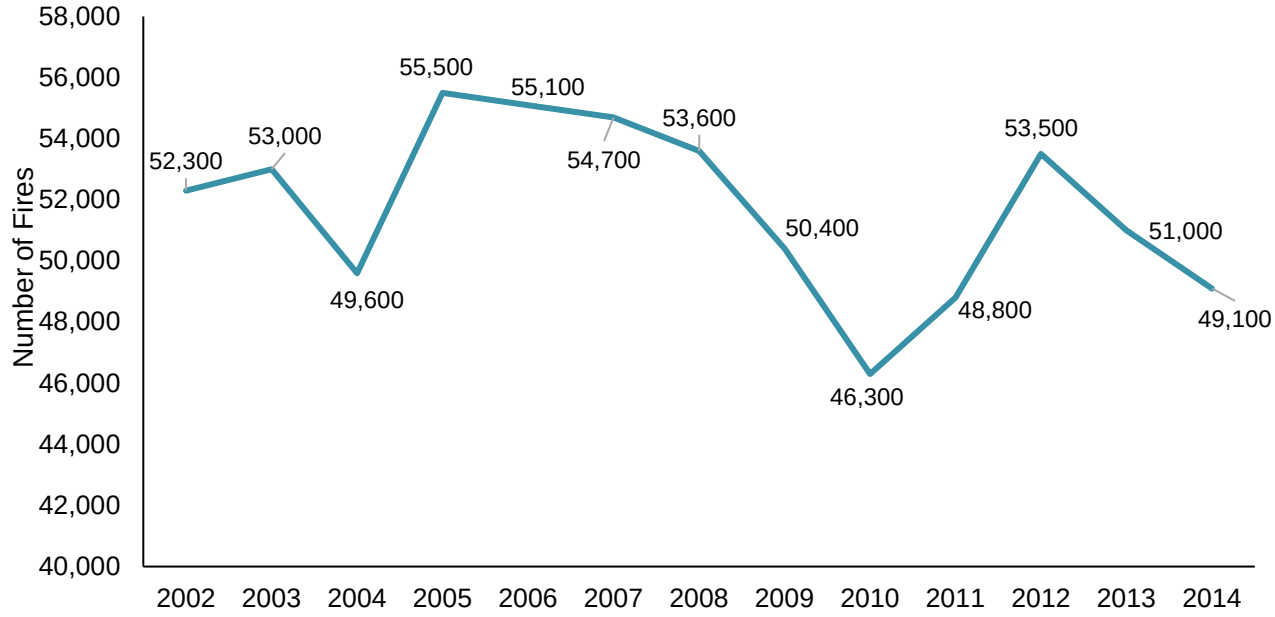
Between 2010 and 2014, an estimated 49,690 structure fires were reported to local fire departments each year. These fires caused an estimated 380 civilian deaths, 1,100 civilian injuries, and $863 million in direct property damage each year. Nearly two-thirds (63%) of intentional structure fires involved residential properties, most of which were homes, as shown in Table C. The fires in residential properties accounted for 97% of the intentional structure civilian deaths, 85% of the civilian injuries, and 66% of direct property damage. Outside and special properties (such as bridges and vacant lots) accounted for 17% of intentional structure fires, but just 1% of civilian injuries and 1% of direct property damage. Other sites of intentional structure fires included storage properties (5% of total), educational properties (4%), mercantile or business properties (4%), and public assembly properties (3%). The 4% of fires in mercantile or business properties accounted for a disproportionate share of direct property damage (16%).

Table C.
Intentional Structure Fires by Property Use
2010-2014 Annual Averages

Property Use	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage	
Residential	31,390	(63%)	370	(97%)	930	(85%)	$567	(66%)
Homes	28,720	(58%)	350	(92%)	890	(81%)	$527	(61%)
Outside or special property	8,280	(17%)	0	(0%)	10	(1%)	$8	(1%)
Storage	2,670	(5%)	10	(1%)	30	(3%)	$70	(8%)
Educational	1,880	(4%)	0	(0%)	30	(3%)	$20	(2%)
Mercantile or business	1,780	(4%)	0	(0%)	30	(3%)	$140	(16%)
Public assembly	1,490	(3%)	0	(0%)	10	(1%)	$55	(6%)
Other known property use	920	(2%)	0	(0%)	30	(3%)	$16	(2%)
Other, unclassified or unknown	1,220	(2%)	0	(0%)	0	(0%)	$17	(2%)
Total	49,690	(100%)	380	(100%)	1,100	(100%)	$863	(100%)

The number of estimated intentional structure fires fell between 2005 and 2010, then increased in 2011 and 2012. Despite the recent increase and year-to-year fluctuations, the number of annual intentional structure fires remain below those recorded in 2005 and 2006, as shown in Figure 3. Additional information is available in Table 1.

Figure 3.
Intentional Structure Fires by Year
2002-2014



Two-thirds of intentional structure fires in 2010-2014 occurred in structures that were classified as occupied and operating. Fires in structures that were occupied and operating caused 69% of direct property damage, as well as the vast majority of civilian deaths (94%) and civilian injuries (94%) resulting from intentional structure fires, as shown in Table 4. Structures that were vacant and unsecured accounted for 14% of the fires and 13% of direct property damage, while 7% of the fires were in structures that were vacant and secured. The latter fires caused 11% of direct property damage. Smaller shares of intentional fires involved structures that were idle, not routinely used (2%), being demolished (2%), under construction (1%), or under major renovation (1%).

Intentional Structure Fires by Area of Origin.

The area of fire origin in intentional structure fires varied by the type of occupancy. Intentional fires in homes most often originated in an unclassified outside area (13%), bedroom (12%), kitchen (10%), living room, family room, or den (7%), or lawn, field, or open area (6%). In educational properties, the majority of intentional fires originated in a lavatory, bathroom, locker room, or check room (59%), followed by hallway, corridor, or mall (5%), and unclassified outside area (4%). Fires in storage properties most often originated in a garage or vehicle storage area (22%), unclassified storage area (13%), unclassified outside area (10%), exterior wall surface (8%), or a storage area of supplies or tools or dead storage (7%). Intentional fires in mercantile or business properties most often originated in an unclassified outside area (12%), lavatory, bathroom, locker room, or check room (9%), sales or showroom area (7%), office (6%), exterior wall surface (5%), or lobby or entrance way (4%).

In intentional home fires, intentional fires originating in the bedroom accounted for the greatest shares of civilian deaths (23%) and injuries (29%), while those originating in the living room, family room, or den accounted for 17% of civilian deaths and 10% of civilian injuries. Fires originating in the bedroom caused one-fifth (21%) of direct property damage. In mercantile or

business properties, the 7% of intentional fires originating in a sales or showroom area accounted for 27% of civilian injuries and 45% of direct property damage. See Table 5 for detailed information.

Intentional Structure Fires by Item First Ignited.
Rubbish, trash, or waste was the most common item first ignited in intentionally set fires in all analyzed property types (home, educational property, storage property, and mercantile property structures). Educational properties had the highest proportion of fires that began with rubbish, trash, or waste, (37% of fires). One fifth (19%) of intentional mercantile or business property structure fires were first ignited by rubbish, trash or waste, as were 17% of intentional storage property fires and 13% of home structure fires. Fires in which flammable or combustible liquids or gases, piping or filter were the item first ignited caused the highest amounts of direct property damage in home structure fires (19%), educational property structure fires (29%), and storage property fires (25%). In mercantile or business property structure fires, nearly half (46%) of direct property damage resulted from fires in which multiple items were first ignited. Detailed information is available in Table 6.

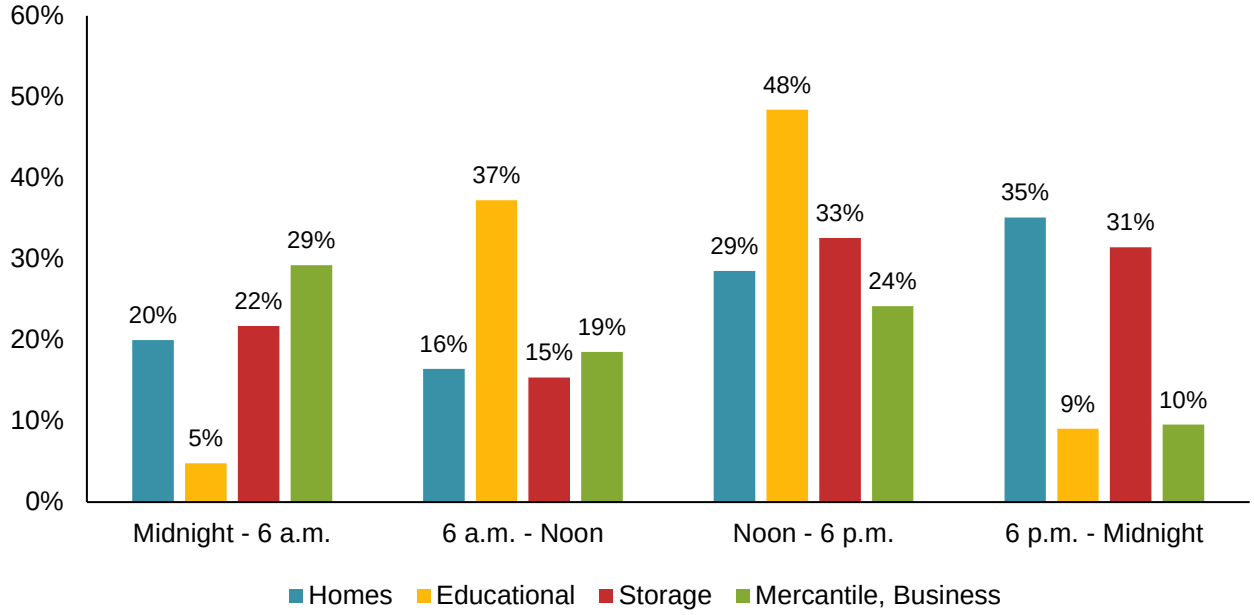
Heat Sources in Intentional Structure Fires.
Lighters and matches were the two leading heating sources in each of the property types analyzed. As shown in Table 7, nearly three in five (58%) intentional structure fires in educational properties were ignited by lighters, and another 21% of the fires were ignited by matches. Lighters were the heat source in 29% of intentional home structure fires, 32% of storage property fires, and 28% of mercantile or business property fires, while matches were the heat source in 21% of home structure fires, 25% of storage property fires, and 20% of mercantile or business property fires.

Intentional Structure Fires by Day of Week.
There were substantially fewer intentional structure fires in educational properties on Sundays (4%) or Saturdays (5%) than on weekdays, whose shares ranged from 17% to 20% of the total. The remaining properties showed little variation in intentional fires by day of week, as indicated in Table 8.

Intentional Structure Fires by Month.
There were fewer intentional fires in educational properties during the summer months than other times of the year, but there were generally no notable trends in the distribution of fires by month in other property types. In educational properties, July and August accounted for the lowest share of fires by month, each with 3% of the annual total, followed by June (6%) and September (7%). The next lowest monthly totals were recorded in December (8%) and January (11%), months when schools are not in session for periods of time due to seasonal vacation schedules. See Table 9 for more information.

Intentional Structure Fires by Time of Day.
The peak periods for intentional structure fires varied by property use. The largest shares of intentional home structure fires occurred between 6 p.m. and midnight (35%) and between noon and 6 p.m. (29%). Nearly half (48%) of intentional fires in educational properties occurred between noon and 6 p.m., with another 37% of fires occurring between 6 a.m. and noon. Intentional storage property fires most often occurred between noon and 6 p.m. (33%) or between 6 p.m. and midnight (31%). The largest share of business or mercantile property fires occurred between midnight and 6 a.m. (29%), with 24% of the fires occurring between noon and 6 p.m. See Figure 4 and Table 10.

Figure 4.
Intentional Structure Fires by Alarm Hour
2010-2014



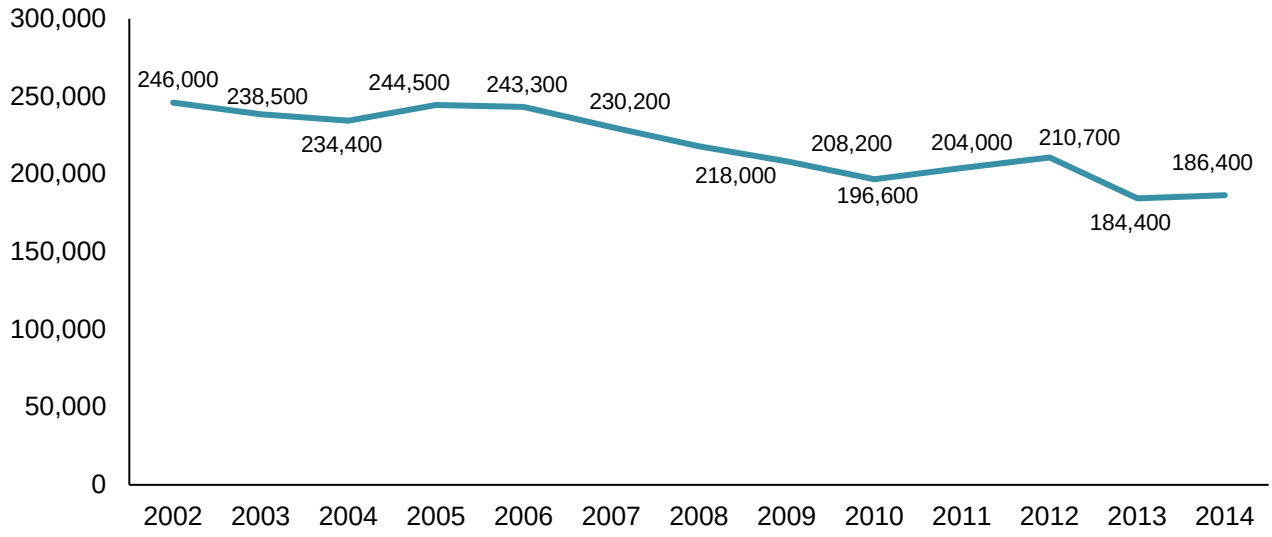
An estimated average of 196,480 outside and unclassified fires were intentionally set each year between 2010 and 2014. As indicated earlier in Table A, outside and unclassified fires accounted for 75% of the intentional fires during this period. The outside and unclassified fire designation includes two categories of outside fires: *outside trash or rubbish* fires and *outside or unclassified non-trash* fires. Because outside trash or rubbish fires have limited reporting requirements in NFIRS, they are generally listed separately from outside or unclassified fires in this report. Although there were substantially more intentional outside trash or rubbish fires (120,570 fires) than outside or unclassified non-trash fires (75,910) in 2010-2014, the latter accounted for higher losses, as shown below in Table D.

Table D.
Intentional Outside or Unclassified Fires by Incident Type
2010-2014 Annual Averages

Incident Type	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Outside or unclassified fires	196,480	(100%)	20	(100%)	160	(100%)	$23	(100%)
Outside trash or rubbish	120,570	(61%)	0	(10%)	50	(29%)	$6	(25%)
Outside or unclassified non-trash	75,910	(39%)	20	(90%)	110	(71%)	$17	(75%)

Intentional outside or unclassified fires have a general downward trend in the years since 2002, when there were an estimated 246,000 fires, the high point for the 2002 – 2014 period. The three lowest annual totals have been recorded in 2010 (196,600 fires), 2013 (184,400 fires), and 2014 (186,400 fires), as shown in Figure 5.

Figure 5.
Intentional Outside or Unclassified Fires by Year
2002-2014



Intentional Outside or Unclassified Fires by Area of Origin.
The most common area of origin for intentional outside fires were unclassified outside areas (37%) and lawn, field, or open area (30%). Fires originating on or near a highway, public way, or street accounted for 9% of outside fires (7% outside trash or rubbish, 2% outside or unclassified non-trash). See Table 11 for details.

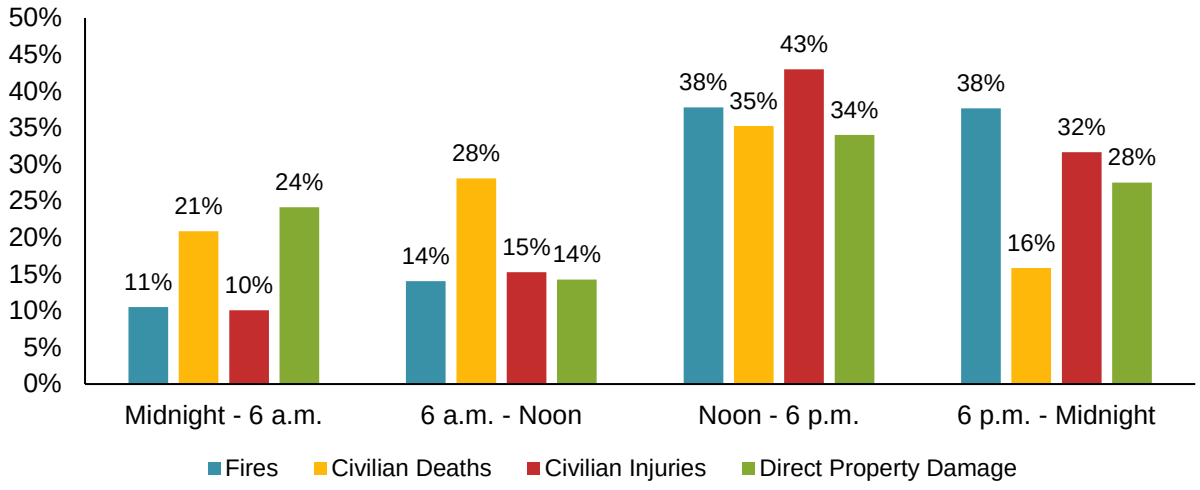
Intentional Outside or Unclassified Fires by Item First Ignited.
The leading items first ignited in intentional outside or unclassified non-trash fires were light vegetation, including grass (27%) and rubbish, trash or waste (24%). Other leading items first ignited included heavy vegetation, including trees (8%), unclassified organic materials (8%), unclassified items (7%), and magazine, newspaper, or writing paper (5%). Nearly all of the civilian deaths (90%) and 71% of the civilian injuries occurred in outside or unclassified non-trash fires. See Table 12 for more information.

Intentional Outside or Unclassified Fires by Heat Source.
Matches (33%) or lighters (24%) provided the heat source in nearly three of five intentional outside or unclassified fires. Unclassified heat sources (12%), flame or torch (8%), and hot ember or ash (5%) were other leading heat sources in these fires. See Table 13 for more information.

Intentional Outside or Unclassified Fires by Day of Week.
Intentional outside or unclassified fires most often occurred on Saturdays (18% of weekly total) or Sundays (16%), with another 14% of fires taking place on Fridays. Each of the remaining days of the week had a 13% share of fires. See Table 14.

Intentional Outside or Unclassified Fires by Time of Day.
Intentional outside or unclassified fires were much less likely to occur in the overnight or morning hours, with nearly four of five outside or unclassified fires occurring between noon and midnight. As shown in Figure 6, 38% of these fires occurred between noon and 6 p.m. and 38% occurred between 6 p.m. and midnight. Civilian deaths (35%) and injuries (43%) were highest in the fires occurring between noon and 6 p.m. Additional information is available in Table 15.

Figure 6.
Intentional Outside or Unclassified Fires by Alarm Hour
2010-2014

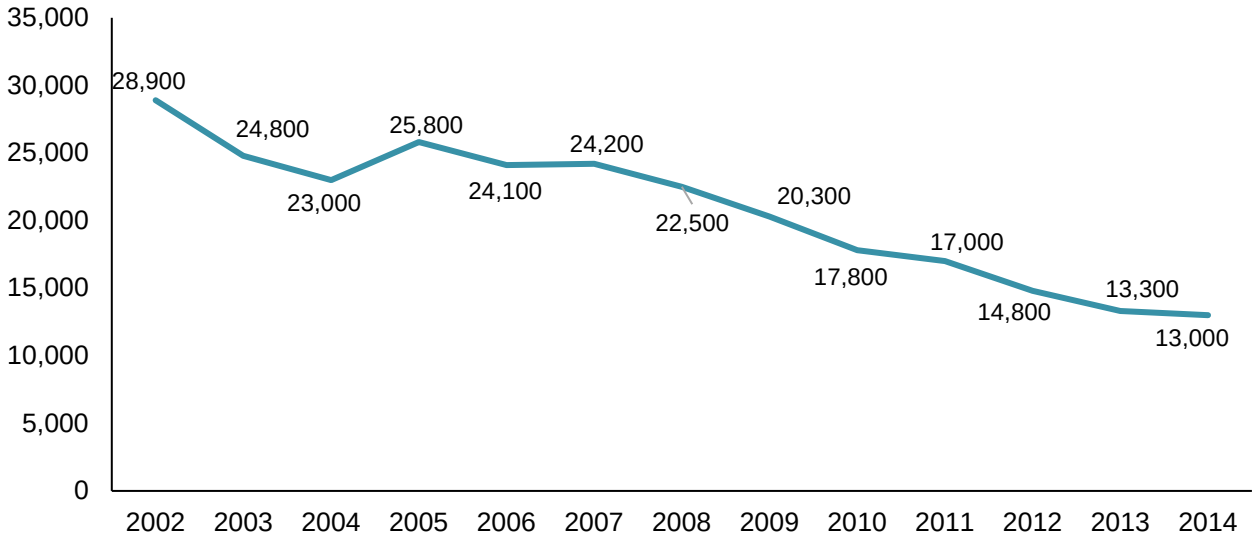


Intentional Outside or Unclassified Fires by Month.
Outside trash or rubbish fires were spread evenly through the year, but non-trash outside or unclassified fires show spikes in March and April**.** Table 16 shows that outside or unclassified fires were highest in March and April. This is almost exclusively due to differences in intentionally set outside or unclassified non-trash fires during these months, each month accounting for a 13% share of the annual total. The third highest monthly total in outside or unclassified non-trash fires came in July (9%), which may be due to the prevalence of fireworks around the July 4th holiday. The smallest share of outside or unclassified non-trash fires came in December, which recorded 5% of fires.

Between 2010 and 2014, an estimated average of 15,160 intentionally set vehicle fires were reported to local fire departments in the U.S. each year. These fires were responsible for estimated averages of 30 civilian deaths, 60 civilian injuries and $118 million in direct property damage.

The number of annual intentional vehicle fires has fallen dramatically since 2002, as shown in Figure 7, from a high of 28,900 vehicle fires in 2002 to approximately 13,000 vehicle fires in both 2013 and 2014. Figure 7 shows that the downward trend is quite consistent since 2005.

Figure 7.
Intentional Vehicle Fires by Year
2002-2014



Intentional Vehicle Fires by Area of Origin.
The leading area of origin for intentional vehicle fires was the passenger area of vehicles, with 45% of the total. These fires accounted for 53% of the civilian deaths, 57% of civilian injuries, and 46% of direct property damage of the losses associated with intentional vehicle fires. Other leading areas of origin included unclassified vehicle areas (14% of fires), engine area, running gear, or wheel area (11%), exterior surface of vehicle (9%) and cargo or trunk area (6%). More information is available in Table 17.

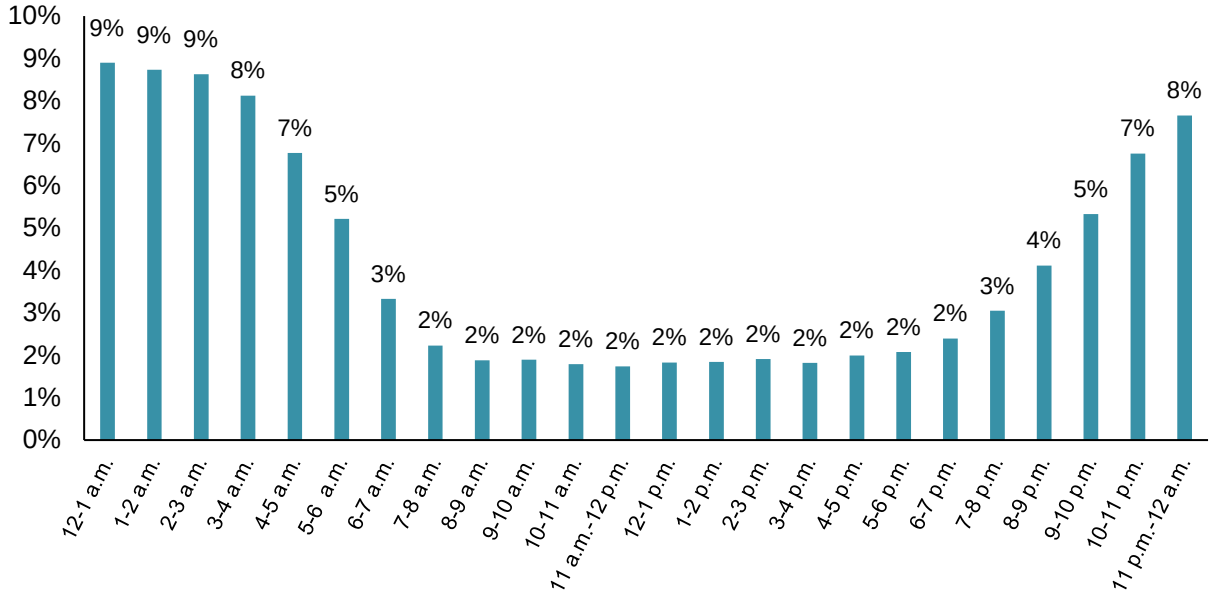
Intentional Vehicle Fires by Item First Ignited.
The most common item first ignited in intentional vehicle fires was flammable or combustible liquids or gases, piping or filter, with 30% of the total. These fires accounted for half of civilian deaths (50%) and civilian injuries (48%) and 36% of direct property damage associated with intentional vehicle fires. Other leading items first ignited included vehicle seats (24%), unclassified items (13%), and multiple items (11%). See Table 18 for details.

Intentional Vehicle Fires by Heat Source.
Matches (20%) and lighters (19%) were the leading heat sources in intentional vehicle fires, followed by incendiary devices (13%), unclassified heat sources (11%), and flames or torches (8%). The vehicle fires in which lighters provided the heat source accounted for 44% of the civilian injuries. See Table 19.

Intentional Vehicle Fires by Day of Week.
Sundays (17% of weekly total) and Saturdays (16%) were the peak days of the week for intentional vehicle fires. With the exception of Mondays (14%), each of the remaining days of the week had a 13% share of fires. See Table 20 for more information.

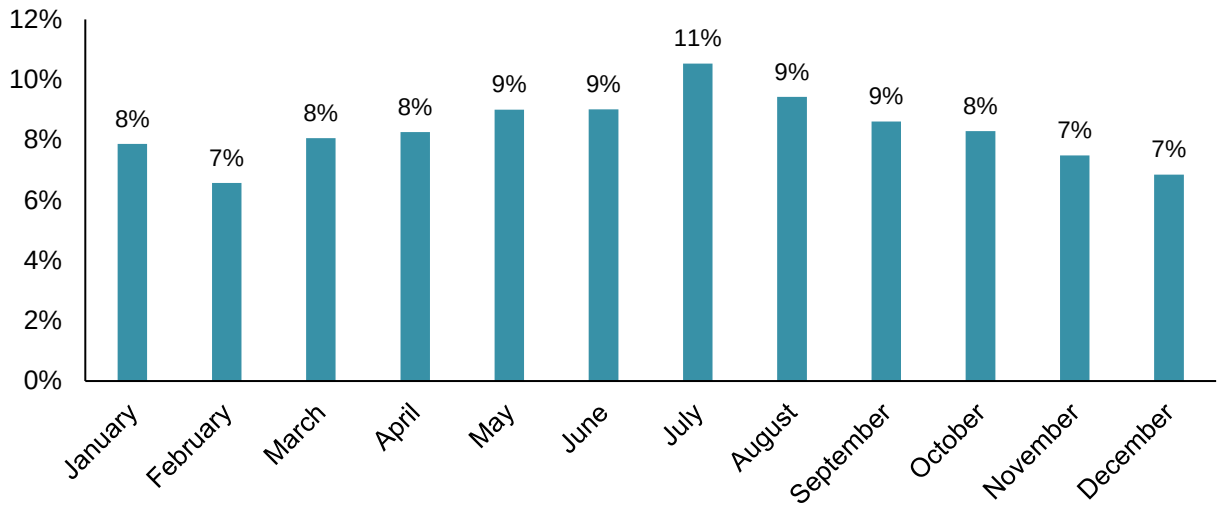
Intentional Vehicle Fires by Time of Day.
Intentional vehicle fires were most likely to occur late at night or early in the morning. As Figure 8 shows, intentional vehicle fires were at their highest points beginning at 10 p.m. through 6 a.m., peaking 12 a.m. through 3 a.m. The fewest intentional vehicle fires occurred between 7 a.m. and 7 p.m. See Table 21 for more detailed information.

Figure 8.
Intentional Vehicle Fires by Alarm Hour
2010-2014 Annual Averages



Intentional Vehicle Fires by Month.
Intentional vehicle fires were highest from May through September and peaked in July, which had 11% of the annual total, as shown in Figure 9. The fewest fires occurred in February, November, and December, each of which had a 7% share of the annual total. See Table 22 for more information.

Figure 9.
Intentional Vehicle Fires by Month
2010-2014 Annual Averages



In the U.S., approximately one of every five arson offenses (22% in 2014) is cleared by arrest or "exceptional means." "Clearance" indicates that law enforcement officials are satisfied that they have identified the perpetrator, even if no arrest has been made for that particular offense. (It is not unusual for an individual who is suspected of many offenses to be charged with only a few of them for which the evidence is the strongest. The officials will regard all the offenses as cleared.) A single clearance can mean several arrests if a fire was set by several persons. A single arrest can mean several clearances if one suspect is reliably associated with several arson offenses. Clearance by "exceptional means" involves the following criteria: (1) identification of offender, (2) sufficient evidence to support an arrest, make a charge, and turn over the offender for prosecution, (3) identification of the offender's exact location so that an arrest can be made, and (4) circumstances outside the control of law enforcement that prohibit arrest, such as death of the offender, denial of extradition because of simultaneous prosecution for another offense elsewhere, or refusal of victim to cooperate with prosecution after identifying the offender.

As shown in Table 23, FBI statistics show that there was a 3% drop in arson offenses involving structures from 2013 to 2014, a 5% drop in arson offenses involving mobile property, and a 3% drop in other arson offenses. In 2014, according to FBI data, 45% of arson offenses involved structures, 23% involved mobile property, and 32% involved other property[1].

Table 24 indicates that the regional clearance percentages have also been fairly stable, except for a sustained improvement in the Northeast, which had the highest clearance rate in 2001 to 2014. The South had had the highest clearance rate in every year prior to 2001 and now ranks second, behind the Northeast.

Juveniles accounted for approximately one-third (34%) of arson arrestees in 2014. Table 25 shows the 2014 age breakdown of arrestees, when 34% of arrestees were under age 18. As indicated in Table 25, 44% of arrestees were under age 21.

Table 25 and Table 26 show that 2% of people arrested for arson were under 10 years of age in 2014. Interestingly, the percentage under age 10 was higher in the 1980s, when the total percentage of arrestees under age 18 was lower than it has been in recent years. From 1992 to 2006, at least 49% of arrestees were under age 18 in every year. Before 1992 and after 2006, the arson arrest percentage for people under age 18 was never as high as 49%.

Small towns have smaller intentional structure fire rates and lower overall arson offense rates relative to population than large cities and rural communities. Rates of intentional structure fires or arson offenses, relative to population, are highest in large cities but also tend to be higher in cities with populations under 10,000, as shown in Table 27.

[1] Crime in the United States 2014, Federal Bureau of Investigation, Table 15. Available at: https://ucr.fbi.gov/crime-in-the-u.s/2014/crime-in-the-u.s.-2014/tables/table-15. Accessed May 15, 2017.

The lowest rates have been in cities with populations from 10,000 to 24,999 inhabitants, followed by those with 25,000 to 49,999 inhabitants. Table 27 shows the differences by size of community and variations from year to year.

The U.S. Centers for Disease Control and Prevention collects data on fatal injuries through the National Vital Statistics System, operated by the National Center for Health Statistics, including information on intentional injuries involving fire or flame. For the 2010-2014 period, the data indicates that there were 801 suicides and 427 homicides caused by fire or flame. See the Web-based Injury Statistics Query and Reporting System (WISQARS) for more information: https://www.cdc.gov/injury/wisqars/fatal.html

Table 1.
Intentional Fires by Incident Type and Year
2002-2014

A. Fires

		Structure			
Year	**All Fires**	**Non-confined Fires**	**Vehicle**	**Outside or Unclassified**	**Total**
2002	52,300	(33,100)	28,900	246,000	327,100
2003	53,000	(28,500)	24,800	238,500	316,400
2004	49,600	(29,200)	23,000	234,400	307,000
2005	55,500	(29,100)	25,800	244,500	325,900
2006	55,100	(29,100)	24,100	243,300	322,500
2007	54,700	(30,400)	24,200	230,200	309,100
2008	53,600	(29,400)	22,500	218,000	294,200
2009	50,400	(26,500)	20,300	208,200	278,900
2010	46,300	(25,500)	17,800	196,600	260,600
2011	48,800	(26,100)	17,000	204,000	269,900
2012	53,500	(28,200)	14,800	210,700	278,900
2013	51,000	(24,800)	13,300	184,400	248,700
2014	49,100	(23,200)	13,000	186,400	248,500

B. Deaths

		Structure			
Year	**All Fires**	**Non-confined Fires**	**Vehicle**	**Outside or Unclassified**	**Total Civilian Deaths**
2002	330	(330)	90	10	420
2003	440	(440)	50	30	520
2004	310	(310)	30	20	350
2005	430	(430)	40	20	490
2006	330	(330)	40	10	380
2007	420	(420)	40	10	480
2008	400	(400)	10	20	430
2009	350	(350)	40	10	400
2010	330	(330)	30	20	380
2011	340	(340)	40	20	400
2012	460	(460)	30	20	510
2013	450	(450)	10	20	490
2014	330	(330)	50	30	410

Numbers in parentheses exclude fires reported as a “confined fire” incident type.
Source: NFIRS and NFPA survey.

Table 1.
Intentional Fires by Incident Type and Year
2002-2014 (continued)

C. Injuries

Year	Structure All Fires	Non-confined Fires	Vehicle	Outside or Unclassified	Total Civilian Injuries
2002	1,390	(1,320)	50	170	1,610
2003	1,190	(1,110)	80	230	1,500
2004	1,090	(1,060)	70	260	1,420
2005	1,200	(1,140)	90	220	1,510
2006	980	(940)	50	170	1,200
2007	1,240	(1,210)	70	130	1,450
2008	1,080	(1,030)	70	160	1,310
2009	1,080	(1,030)	80	160	1,310
2010	1,090	(1,010)	80	160	1,330
2011	1,240	(1,160)	40	110	1,390
2012	1,160	(1,100)	50	180	1,390
2013	1,090	(1,040)	50	150	1,290
2014	900	(870)	60	190	1,150

D. Direct Property Damage (in Millions)

Year	Structure All Fires	Non-confined Fires	Vehicle	Outside or Unclassified	Direct Property Damage	Total in 2014 Dollars
2002	$908	($906)	$161	$6	$1,074	$1,415
2003	$860	($857)	$142	$27	$1,029	$1,327
2004	$818	($817)	$128	$41	$986	$1,239
2005	$915	($911)	$171	$13	$1,099	$1,333
2006	$991	($988)	$165	$27	$1,182	$1,390
2007	$1,027	($1,024)	$250	$44	$1,321	$1,509
2008	$1,263	($1,262)	$215	$181	$1,659	$1,828
2009	$1,148	($1,147)	$170	$58	$1,376	$1,520
2010	$1,001	($1,000)	$133	$23	$1,158	$1,260
2011	$797	($796)	$122	$14	$934	$984
2012	$981	($980)	$123	$30	$1,135	$1,173
2013	$805	($802)	$114	$28	$947	$963
2014	$724	($723)	$100	$15	$839	$839

Numbers in parentheses exclude fires reported as a “confined fire” incident type.
Source: NFIRS and NFPA survey.

Table 2.
Intentional Fires with Arson Modules by Case Status
2010-2014

Case Status	Percent of Incidents
Investigation open	45%
Investigation closed	38%
Investigation inactive	7%
Closed with arrest	7%
Closed exceptional clearance	2%
Total	100%

Table 3.
Intentional Fires with Arson Modules by Property Ownership
2010-2014

Property Ownership	Percent of Incidents
Private	85%
City, town, village, or local	9%
Unclassified	2%
County or parish	2%
Other known owner	2%
Total	100%

Note: These are not projections, but are estimates based on raw incidents reported to U.S. municipal departments and so exclude fires reported only to Federal or state agencies or industrial fire brigades.

This variable was collected in the Arson Module of NFIRS; it is not required that this module be completed and the variable "suspected motive" is also not required. Only 24% of completed arson modules had a value for this field; all others were unknown and are not shown.

Source: NFIRS Arson Module raw data.

Table 4.
Intentional Structure Fires by Structure Status
2010-2014 Annual Averages

Structure Status	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Occupied and operating	33,450	(67%)	360	(94%)	1,030	(94%)	$594	(69%)
Vacant and unsecured	7,020	(14%)	10	(2%)	20	(2%)	$112	(13%)
Vacant and secured	3,520	(7%)	10	(2%)	20	(1%)	$94	(11%)
Idle, not routinely used	1,230	(2%)	0	(1%)	10	(1%)	$20	(2%)
Being demolished	980	(2%)	0	(0%)	0	(0%)	$4	(0%)
Under construction	630	(1%)	0	(0%)	0	(0%)	$26	(3%)
Under major renovation	360	(1%)	0	(0%)	0	(0%)	$10	(1%)
Unclassified	2,500	(5%)	0	(0%)	10	(1%)	$3	(0%)
Total	49,690	(100%)	380	(100%)	1,100	(100%)	$863	(100%)

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

Table 5.
Intentional Structure Fires by Area of Origin
2010-2014 Annual Averages

A. Home Structure Fires

Area of Origin	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Unclassified outside area	3,730	(13%)	0	(1%)	10	(1%)	$8	(1%)
Bedroom	3,450	(12%)	80	(23%)	260	(29%)	$112	(21%)
Kitchen or cooking area	2,870	(10%)	20	(5%)	90	(10%)	$31	(6%)
Living room, family room, or den	1,910	(7%)	60	(17%)	90	(10%)	$65	(12%)
Lawn, field, or open area	1,630	(6%)	0	(0%)	0	(0%)	$1	(0%)
Confined chimney or flue	1,510	(5%)	0	(0%)	0	(0%)	$0	(0%)
Multiple areas of origin	1,250	(4%)	40	(10%)	50	(5%)	$58	(11%)
Unclassified function area	930	(3%)	30	(8%)	50	(5%)	$31	(6%)
Exterior wall surface	910	(3%)	0	(0%)	10	(1%)	$15	(3%)
Unclassified area of origin	890	(3%)	0	(1%)	10	(1%)	$6	(1%)
Courtyard, terrace, or patio	830	(3%)	0	(1%)	10	(1%)	$8	(1%)
Exterior balcony or unenclosed porch	730	(3%)	20	(5%)	20	(2%)	$17	(3%)
Garage or vehicle storage area	610	(2%)	10	(2%)	30	(4%)	$21	(4%)
Lavatory, bathroom, locker room or check room	600	(2%)	10	(3%)	40	(4%)	$8	(2%)
Lobby or entrance way	550	(2%)	10	(4%)	20	(2%)	$10	(2%)
Unclassified structural area	500	(2%)	10	(4%)	10	(1%)	$14	(3%)
Unclassified means of egress	500	(2%)	0	(1%)	20	(2%)	$9	(2%)
Closet	490	(2%)	0	(1%)	30	(3%)	$12	(2%)
Interior stairway or ramp	480	(2%)	10	(3%)	30	(3%)	$10	(2%)
Hallway, corridor, or mall	430	(1%)	10	(2%)	30	(3%)	$8	(2%)
Other known area of origin	3,910	(14%)	40	(10%)	70	(8%)	$84	(16%)
Total	28,720	(100%)	350	(100%)	890	(100%)	$527	(100%)

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

Table 5.
Intentional Structure Fires by Area of Origin
2010-2014 Annual Averages (continued)

B. Educational Property Structure Fires

Area of Origin	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Lavatory, bathroom, locker room or check room	1,110	(59%)	0	(NA)	10	(36%)	$1	(5%)
Hallway, corridor, or mall	90	(5%)	0	(NA)	0	(2%)	$0	(2%)
Unclassified outside area	80	(4%)	0	(NA)	0	(0%)	$0	(1%)
Small assembly area, less than 100 person capacity	60	(3%)	0	(NA)	0	(8%)	$6	(28%)
Trash or rubbish chute, area or container	60	(3%)	0	(NA)	0	(0%)	$0	(0%)
Unclassified area of origin	50	(2%)	0	(NA)	0	(4%)	$0	(1%)
Unclassified function area	40	(2%)	0	(NA)	0	(0%)	$1	(3%)
Other known area of origin	400	(21%)	0	(NA)	20	(50%)	$12	(59%)
Total	1,880	(100%)	0	(NA)	30	(100%)	$20	(100%)

C. Storage Property Structure Fires

Area of Origin	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Garage or vehicle storage area	600	(22%)	2	(45%)	10	(32%)	$10	(14%)
Unclassified storage area	350	(13%)	2	(35%)	10	(24%)	$20	(28%)
Unclassified outside area	260	(10%)	0	(0%)	0	(12%)	$2	(3%)
Exterior wall surface	210	(8%)	0	(0%)	0	(5%)	$1	(2%)
Storage of supplies or tools or dead storage	190	(7%)	0	(0%)	0	(5%)	$3	(4%)
Vacant structural area	150	(6%)	0	(0%)	0	(0%)	$3	(5%)
Lawn, field, or open area	110	(4%)	0	(0%)	0	(2%)	$1	(1%)
Storage room, area, tank, or bin	100	(4%)	1	(11%)	0	(4%)	$8	(12%)
Unclassified structural area	90	(3%)	0	(0%)	0	(2%)	$2	(3%)
Unclassified area of origin	70	(3%)	0	(0%)	0	(2%)	$0	(1%)
Multiple areas of origin	50	(2%)	0	(0%)	0	(1%)	$2	(3%)
Trash or rubbish chute, area or container	40	(1%)	0	(0%)	0	(0%)	$0	(0%)
Other known area of origin	460	(17%)	0	(9%)	0	(12%)	$18	(25%)
Total	2,670	(100%)	10	(100%)	30	(100%)	$70	(100%)

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

Table 5.
Intentional Structure Fires by Area of Origin
2010-2014 Annual Averages (continued)

D. Mercantile or Business Property Structure Fires

Area of Origin	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Unclassified outside area	210	(12%)	0	(0%)	0	(0%)	$3	(2%)
Lavatory, bathroom, locker room or check room	150	(9%)	0	(0%)	0	(11%)	$1	(1%)
Sales or showroom area	120	(7%)	0	(24%)	10	(27%)	$62	(45%)
Office	100	(6%)	0	(0%)	0	(6%)	$7	(5%)
Exterior wall surface	90	(5%)	0	(0%)	0	(0%)	$3	(2%)
Lobby or entrance way	80	(4%)	0	(0%)	0	(5%)	$4	(3%)
Unclassified area of origin	60	(4%)	0	(0%)	0	(1%)	$1	(1%)
Trash or rubbish chute, area or container	60	(3%)	0	(0%)	0	(0%)	$0	(0%)
Multiple areas of origin	50	(3%)	0	(0%)	0	(5%)	$7	(5%)
Lawn, field, or open area	50	(3%)	0	(0%)	0	(0%)	$0	(0%)
Unclassified means of egress	50	(3%)	0	(0%)	0	(0%)	$0	(0%)
Unclassified storage area	50	(3%)	0	(0%)	0	(4%)	$7	(5%)
Kitchen or cooking area	50	(3%)	0	(0%)	0	(2%)	$1	(1%)
Laundry room or area	40	(2%)	0	(0%)	0	(1%)	$1	(0%)
Vacant structural area	40	(2%)	0	(0%)	0	(0%)	$0	(0%)
Unclassified assembly or sales area	40	(2%)	0	(0%)	0	(4%)	$3	(2%)
Storage room, area, tank, or bin	40	(2%)	0	(0%)	0	(2%)	$10	(7%)
Exterior roof surface	30	(2%)	0	(0%)	0	(0%)	$1	(0%)
On or near highway, public way or street	30	(2%)	0	(0%)	0	(0%)	$1	(0%)
Unclassified structural area	30	(2%)	0	(0%)	0	(0%)	$3	(2%)
Shipping receiving or loading area	30	(2%)	0	(0%)	0	(1%)	$2	(1%)
Hallway, corridor, or mall	30	(2%)	0	(0%)	0	(7%)	$1	(1%)
Confined chimney or flue	10	(1%)	0	(0%)	0	(0%)	$0	(0%)
Other known area of origin	350	(20%)	1	(76%)	10	(24%)	$23	(16%)
Total	1,780	(100%)	2	(100%)	30	(100%)	$140	(100%)

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

Table 6.
Intentional Structure Fires by Item First Ignited
2010-2014 Annual Averages

A. Home Structure Fires

Item First Ignited	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Rubbish, trash, or waste	3,620	(13%)	0	(1%)	30	(3%)	$17	(3%)
Flammable or combustible liquids or gases, piping or filter	2,260	(8%)	120	(34%)	150	(17%)	$98	(19%)
Magazine, newspaper, or writing paper	2,210	(8%)	10	(2%)	40	(5%)	$19	(4%)
Unclassified item first ignited	1,910	(7%)	20	(5%)	30	(4%)	$24	(4%)
Multiple items first ignited	1,850	(6%)	30	(10%)	60	(7%)	$61	(12%)
Mattress or bedding	1,680	(6%)	20	(7%)	150	(17%)	$57	(11%)
Cooking materials, including food	1,460	(5%)	0	(0%)	40	(4%)	$4	(1%)
Clothing	1,320	(5%)	30	(8%)	90	(11%)	$30	(6%)
Light vegetation including grass	1,210	(4%)	0	(0%)	0	(0%)	$4	(1%)
Unclassified organic materials	1,100	(4%)	0	(1%)	0	(0%)	$2	(0%)
Floor covering rug, carpet, or mat	1,000	(3%)	20	(4%)	40	(4%)	$25	(5%)
Exterior wall covering or finish	980	(3%)	10	(2%)	10	(1%)	$21	(4%)
Upholstered furniture or vehicle seat	890	(3%)	20	(5%)	40	(5%)	$34	(7%)
Structural member or framing	720	(3%)	0	(0%)	10	(1%)	$20	(4%)
Unclassified furniture or utensils	580	(2%)	20	(6%)	20	(3%)	$18	(3%)
Unclassified structural component or finish	560	(2%)	10	(2%)	10	(1%)	$16	(3%)
Heavy vegetation, including trees	520	(2%)	0	(0%)	0	(0%)	$3	(0%)
Unclassified soft goods or wearing apparel	520	(2%)	10	(2%)	30	(3%)	$12	(2%)
Box, carton, bag, basket, or barrel	510	(2%)	0	(0%)	10	(1%)	$9	(2%)
Other known item first ignited	3,810	(13%)	30	(10%)	120	(13%)	$53	(10%)
Total	28,720	(100%)	350	(100%)	890	(100%)	$527	(100%)

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

Table 6.
Intentional Structure Fires by Item First Ignited
2010-2014 Annual Averages (continued)

B. Educational Property Structure Fires

Item First Ignited	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Rubbish, trash, or waste	700	(37%)	0	(NA)	10	(24%)	$5	(24%)
Magazine, newspaper, or writing paper	370	(20%)	0	(NA)	0	(1%)	$3	(17%)
Rolled or wound material	230	(12%)	0	(NA)	0	(11%)	$0	(2%)
Unclassified item first ignited	170	(9%)	0	(NA)	0	(2%)	$1	(3%)
Multiple items first ignited	60	(3%)	0	(NA)	0	(1%)	$1	(6%)
Box, carton, bag, basket, or barrel	50	(2%)	0	(NA)	0	(0%)	$0	(1%)
Flammable or combustible liquids or gases, piping or filter	30	(2%)	0	(NA)	10	(41%)	$6	(29%)
Clothing	30	(2%)	0	(NA)	0	(0%)	$0	(0%)
Other known item first ignited	250	(13%)	0	(NA)	10	(19%)	$3	(17%)
Total	1,880	(100%)	0	(NA)	30	(100%)	$20	(100%)

C. Storage Property Structure Fires

Item First Ignited	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Rubbish, trash, or waste	450	(17%)	0	(0%)	0	(2%)	$3	(4%)
Exterior wall covering or finish	230	(9%)	0	(0%)	0	(2%)	$2	(3%)
Flammable or combustible liquids or gases, piping or filter	210	(8%)	3	(64%)	10	(41%)	$18	(25%)
Structural member or framing	200	(7%)	0	(0%)	0	(2%)	$2	(3%)
Light vegetation including grass	190	(7%)	0	(0%)	0	(7%)	$2	(2%)
Multiple items first ignited	180	(7%)	0	(0%)	0	(5%)	$3	(5%)
Magazine, newspaper, or writing paper	170	(6%)	1	(13%)	0	(6%)	$1	(2%)
Unclassified item first ignited	150	(6%)	0	(0%)	0	(13%)	$12	(17%)
Mattress or bedding	90	(3%)	0	(0%)	0	(4%)	$1	(1%)
Box, carton, bag, basket, or barrel	80	(3%)	0	(0%)	0	(4%)	$16	(24%)
Unclassified structural component or finish	80	(3%)	0	(0%)	0	(0%)	$1	(1%)
Upholstered furniture or vehicle seat	70	(3%)	0	(0%)	0	(0%)	$1	(2%)
Unclassified organic materials	50	(2%)	0	(0%)	0	(0%)	$1	(1%)
Other known item first ignited	530	(20%)	1	(23%)	0	(13%)	$7	(10%)
Total	2,670	(100%)	10	(100%)	30	(100%)	$70	(100%)

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

Table 6.
Intentional Structure Fires by Item First Ignited
2010-2014 Annual Averages (continued)

D. Mercantile or Business Property Structure Fires

Item First Ignited	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Rubbish, trash, or waste	330	(19%)	0	(0%)	0	(6%)	$4	(3%)
Flammable or combustible liquids or gases, piping or filter	190	(11%)	2	(100%)	10	(37%)	$23	(16%)
Magazine, newspaper, or writing paper	160	(9%)	0	(0%)	0	(4%)	$6	(5%)
Multiple items first ignited	140	(8%)	0	(0%)	0	(12%)	$64	(46%)
Unclassified item first ignited	120	(7%)	0	(0%)	0	(0%)	$5	(3%)
Box, carton, bag, basket, or barrel	90	(5%)	0	(0%)	0	(0%)	$4	(3%)
Clothing	60	(4%)	0	(0%)	10	(15%)	$2	(1%)
Exterior wall covering or finish	60	(4%)	0	(0%)	0	(0%)	$3	(2%)
Rolled or wound material	50	(3%)	0	(0%)	0	(3%)	$1	(1%)
Unclassified organic materials	40	(2%)	0	(0%)	0	(2%)	$0	(0%)
Cooking materials, including food	40	(2%)	0	(0%)	0	(0%)	$0	(0%)
Structural member or framing	30	(2%)	0	(0%)	0	(0%)	$2	(2%)
Exterior trim, including doors	30	(2%)	0	(0%)	0	(0%)	$0	(0%)
Floor covering rug, carpet, or mat	30	(2%)	0	(0%)	0	(0%)	$1	(1%)
Light vegetation including grass	30	(2%)	0	(0%)	0	(0%)	$0	(0%)
Upholstered furniture or vehicle seat	30	(2%)	0	(0%)	0	(0%)	$2	(1%)
Other known item first ignited	340	(19%)	0	(0%)	10	(21%)	$21	(15%)
Total	1,780	(100%)	2	(100%)	30	(100%)	$140	(100%)

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

Table 7.
Intentional Structure Fires by Heat Source
2010-2014 Annual Averages

A. Home Structure Fires

Heat Source	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Lighter	8,430	(29%)	120	(35%)	460	(52%)	$203	(38%)
Match	6,170	(21%)	50	(15%)	100	(11%)	$86	(16%)
Unclassified heat source	2,350	(8%)	20	(6%)	20	(3%)	$33	(6%)
Incendiary device	1,470	(5%)	30	(7%)	30	(3%)	$40	(7%)
Hot ember or ash	1,370	(5%)	0	(1%)	20	(2%)	$9	(2%)
Flame or torch used for lighting	1,320	(5%)	50	(14%)	40	(5%)	$27	(5%)
Unclassified hot or smoldering object	1,170	(4%)	10	(3%)	10	(1%)	$12	(2%)
Multiple heat sources, including multiple ignitions	1,010	(4%)	30	(7%)	40	(4%)	$38	(7%)
Unclassified heat from powered equipment	900	(3%)	0	(0%)	30	(3%)	$9	(2%)
Radiated or conducted heat from operating equipment	890	(3%)	0	(1%)	40	(4%)	$6	(1%)
Smoking materials	790	(3%)	10	(2%)	20	(2%)	$15	(3%)
Heat from direct flame or convection currents	760	(3%)	10	(2%)	20	(2%)	$7	(1%)
Spark, ember or flame from operating equipment	530	(2%)	0	(0%)	10	(2%)	$6	(1%)
Other known heat source	1,560	(5%)	20	(4%)	60	(7%)	$37	(7%)
Total	28,720	(100%)	350	(100%)	890	(100%)	$527	(100%)

B. Educational Property Structure Fires

Heat Source	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Lighter	1,090	(58%)	0	(0%)	20	(54%)	$13	(64%)
Match	390	(21%)	0	(0%)	10	(30%)	$5	(26%)
Smoking materials	80	(4%)	0	(0%)	0	(10%)	$0	(1%)
Flame or torch used for lighting	60	(3%)	0	(0%)	0	(0%)	$0	(1%)
Unclassified heat source	60	(3%)	0	(0%)	0	(0%)	$0	(2%)
Incendiary device	40	(2%)	0	(0%)	0	(0%)	$1	(3%)
Unclassified hot or smoldering object	40	(2%)	0	(0%)	0	(0%)	$0	(0%)
Other known heat source	140	(7%)	0	(0%)	0	(7%)	$1	(3%)
					0			
Total	1,880	(100%)	0	(0%)	30	(100%)	$20	(100%)

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

Table 7.
Intentional Structure Fires by Heat Source
2010-2014 Annual Averages (continued)

C. Storage Property Structure Fires

Heat Source	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Lighter	860	(32%)	4	(86%)	10	(41%)	$23	(33%)
Match	660	(25%)	1	(14%)	0	(6%)	$5	(7%)
Flame or torch used for lighting	190	(7%)	0	(0%)	10	(16%)	$5	(7%)
Unclassified heat source	190	(7%)	0	(0%)	0	(12%)	$7	(10%)
Hot ember or ash	110	(4%)	0	(0%)	0	(2%)	$1	(2%)
Unclassified hot or smoldering object	80	(3%)	0	(0%)	0	(2%)	$2	(2%)
Incendiary device	80	(3%)	0	(0%)	0	(7%)	$5	(8%)
Multiple heat sources, including multiple ignitions	80	(3%)	0	(0%)	0	(0%)	$5	(7%)
Smoking materials	80	(3%)	0	(0%)	0	(3%)	$2	(2%)
Heat from direct flame or convection currents	80	(3%)	0	(0%)	0	(0%)	$1	(1%)
Unclassified heat spread from another fire	70	(2%)	0	(0%)	0	(2%)	$0	(1%)
Other known heat source	200	(7%)	0	(0%)	0	(10%)	$14	(20%)
Total	2,670	(100%)	10	(100%)	30	(100%)	$70	(100%)

D. Mercantile or Business Property Structure Fires

Heat Source	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Lighter	500	(28%)	1	(46%)	20	(56%)	$39	(28%)
Match	360	(20%)	0	(0%)	0	(14%)	$10	(7%)
Unclassified heat source	140	(8%)	0	(0%)	0	(0%)	$8	(6%)
Incendiary device	130	(7%)	0	(0%)	0	(5%)	$54	(38%)
Flame or torch used for lighting	120	(7%)	0	(0%)	0	(4%)	$10	(7%)
Unclassified hot or smoldering object	100	(5%)	0	(0%)	0	(3%)	$4	(3%)
Smoking materials	90	(5%)	0	(0%)	0	(0%)	$1	(1%)
Hot ember or ash	60	(3%)	0	(0%)	0	(0%)	$0	(0%)
Multiple heat sources including multiple ignitions	50	(3%)	0	(0%)	0	(3%)	$4	(3%)
Heat from direct flame or convection currents	50	(3%)	0	(0%)	0	(0%)	$3	(2%)
Unclassified heat from powered equipment	40	(2%)	0	(0%)	0	(3%)	$1	(1%)
Radiated or conducted heat from operating equipment	30	(2%)	0	(0%)	0	(2%)	$0	(0%)
Other known heat source	110	(6%)	1	(54%)	0	(10%)	$7	(5%)
Total	1,780	(100%)	2	(100%)	30	(100%)	$140	(100%)

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

Table 8.
Intentional Structure Fires by Day of Week
2010-2014 Annual Averages

A. Home Structure Fires

Day of Week	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Sunday	4,410	15%	50	14%	150	17%	$86	16%
Monday	4,000	14%	60	17%	130	15%	$78	15%
Tuesday	4,000	14%	40	12%	130	15%	$70	13%
Wednesday	3,870	13%	40	11%	110	12%	$67	13%
Thursday	3,830	13%	50	14%	120	13%	$76	14%
Friday	4,030	14%	60	16%	130	15%	$71	13%
Saturday	4,570	16%	60	16%	130	14%	$79	15%
Total	28,720	100%	350	100%	890	100%	$527	100%

B. Educational Property Structure Fires

Day of Week	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Sunday	80	4%	0	0	0	0%	$2	10%
Monday	320	17%	0	0	10	27%	$3	13%
Tuesday	360	19%	0	0	0	6%	$2	12%
Wednesday	340	18%	0	0	0	5%	$2	8%
Thursday	370	20%	0	0	20	49%	$3	14%
Friday	320	17%	0	0	0	13%	$5	23%
Saturday	90	5%	0	0	0	0%	$4	21%
Total	1,880	100%	0	2	30	100%	$20	100%

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

Table 8.
Intentional Structure Fires by Day of Week
2010-2014 Annual Averages (continued)

C. Storage Property Structure Fires

Day of Week	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Sunday	400	15%	0	0%	10	33%	$8	12%
Monday	390	15%	0	0%	0	0%	$8	11%
Tuesday	360	13%	0	0%	0	0%	$12	17%
Wednesday	380	14%	0	0%	10	33%	$11	15%
Thursday	340	13%	0	0%	0	0%	$10	15%
Friday	360	13%	0	0%	0	0%	$10	14%
Saturday	450	17%	0	0%	0	0%	$12	17%
Total	2,670	100%	10	100%	30	100%	$70	100%

D. Mercantile or Business Property Structure Fires

Day of Week	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Sunday	250	14%	0	0%	0	14%	$14	10%
Monday	270	15%	0	0%	10	24%	$21	15%
Tuesday	280	16%	0	24%	10	16%	$14	10%
Wednesday	250	14%	0	21%	0	12%	$11	8%
Thursday	250	14%	1	54%	0	11%	$52	37%
Friday	240	13%	0	0%	0	5%	$9	7%
Saturday	240	13%	0	0%	10	17%	$18	13%
Total	1,780	100%	2	100%	30	100%	$140	100%

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

Table 9.
Intentional Structure Fires by Month
2010-2014 Annual Averages

A. Home Structure Fires

Month	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
January	2,490	9%	40	10%	90	10%	$43	8%
February	2,130	7%	40	10%	70	8%	$41	8%
March	2,570	9%	30	9%	90	10%	$49	9%
April	2,500	9%	30	9%	80	9%	$50	9%
May	2,450	9%	20	7%	70	8%	$46	9%
June	2,420	8%	30	9%	80	9%	$44	8%
July	2,570	9%	30	9%	70	8%	$51	10%
August	2,410	8%	30	8%	80	8%	$44	8%
September	2,250	8%	20	6%	60	7%	$41	8%
October	2,380	8%	30	8%	60	7%	$41	8%
November	2,340	8%	30	7%	70	8%	$40	8%
December	2,210	8%	30	7%	80	9%	$35	7%
Total	28,720	100%	350	100%	890	100%	$527	100%

B. Educational Property Structure Fires

Month	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
January	210	11%	0	0	0	14%	$1	5%
February	190	10%	0	0	0	9%	$2	8%
March	220	12%	0	0	0	11%	$2	9%
April	190	10%	0	0	0	2%	$1	6%
May	220	12%	0	0	0	4%	$4	22%
June	110	6%	0	0	0	1%	$1	6%
July	50	3%	0	0	0	0%	$2	11%
August	50	3%	0	0	0	3%	$1	3%
September	130	7%	0	0	0	11%	$2	9%
October	190	10%	0	0	0	0%	$0	2%
November	170	9%	0	0	0	0%	$3	15%
December	150	8%	0	0	10	45%	$1	3%
Total	1,880	100%	0	2	30	100%	$20	100%

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

Table 9.
Intentional Structure Fires by Month
2010-2014 Annual Averages (continued)

C. Storage Property Structure Fires

Month	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
January	190	7%	0	0%	0	7%	$2	3%
February	160	6%	0	0%	0	4%	$8	11%
March	240	9%	0	0%	10	22%	$7	10%
April	280	11%	0	33%	0	10%	$3	4%
May	260	10%	0	11%	10	21%	$7	10%
June	280	10%	0	12%	0	3%	$5	7%
July	260	10%	0	0%	0	5%	$7	10%
August	230	8%	0	11%	0	13%	$7	10%
September	210	8%	0	0%	0	3%	$2	3%
October	210	8%	0	33%	0	5%	$5	6%
November	210	8%	0	0%	0	2%	$11	16%
December	150	6%	0	0%	0	6%	$7	10%
Total	2,670	100%	10	100%	30	100%	$70	100%

D. Mercantile or Business Property Structure Fires

Month	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
January	180	10%	0	21%	0	11%	$8	5%
February	120	7%	0	54%	0	13%	$9	7%
March	140	8%	0	0%	0	5%	$9	6%
April	160	9%	0	0%	0	9%	$10	7%
May	170	10%	0	0%	10	17%	$9	6%
June	130	8%	0	0%	0	5%	$7	5%
July	170	10%	0	0%	0	4%	$8	6%
August	130	7%	0	24%	0	4%	$8	6%
September	130	7%	0	0%	0	10%	$5	3%
October	150	8%	0	0%	0	2%	$51	37%
November	140	8%	0	0%	0	5%	$8	5%
December	150	8%	0	0%	10	15%	$9	6%
Total	1,780	100%	2	100%	30	100%	$140	100%

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

Table 10.
Intentional Structure Fires by Alarm Hour
2010-2014 Annual Averages

A. Home Structure Fires

Alarm Hour	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Midnight-12:59 a.m.	1,170	(4%)	20	(6%)	40	(5%)	$30	(6%)
1:00-1:59 a.m.	1,110	(4%)	10	(3%)	40	(4%)	$29	(6%)
2:00-2:59 a.m.	1,020	(4%)	10	(3%)	40	(5%)	$35	(7%)
3:00-3:59 a.m.	910	(3%)	20	(6%)	40	(5%)	$38	(7%)
4:00-4:59 a.m.	830	(3%)	30	(9%)	40	(5%)	$27	(5%)
5:00-5:59 a.m.	700	(2%)	20	(5%)	30	(3%)	$24	(5%)
6:00-6:59 a.m.	640	(2%)	30	(8%)	20	(2%)	$15	(3%)
7:00-7:59 a.m.	650	(2%)	10	(4%)	20	(2%)	$14	(3%)
8:00-8:59 a.m.	650	(2%)	20	(5%)	30	(3%)	$16	(3%)
9:00-9:59 a.m.	860	(3%)	10	(4%)	30	(4%)	$13	(2%)
10:00-10:59 a.m.	930	(3%)	20	(6%)	40	(5%)	$16	(3%)
11:00-11:59 a.m.	990	(3%)	10	(3%)	30	(4%)	$15	(3%)
12:00-12:59 p.m.	1,100	(4%)	20	(5%)	30	(4%)	$15	(3%)
1:00-1:59 p.m.	1,140	(4%)	10	(4%)	30	(3%)	$18	(3%)
2:00-2:59 p.m.	1,280	(4%)	10	(4%)	30	(4%)	$22	(4%)
3:00-3:59 p.m.	1,360	(5%)	10	(4%)	50	(5%)	$19	(4%)
4:00-4:59 p.m.	1,540	(5%)	10	(2%)	40	(4%)	$19	(4%)
5:00-5:59 p.m.	1,770	(6%)	10	(3%)	40	(5%)	$25	(5%)
6:00-6:59 p.m.	1,800	(6%)	10	(2%)	40	(4%)	$19	(4%)
7:00-7:59 p.m.	1,880	(7%)	10	(4%)	50	(6%)	$18	(3%)
8:00-8:59 p.m.	1,970	(7%)	10	(3%)	50	(6%)	$23	(4%)
9:00-9:59 p.m.	1,670	(6%)	10	(4%)	50	(5%)	$24	(4%)
10:00-10:59 p.m.	1,450	(5%)	10	(2%)	40	(4%)	$24	(4%)
11:00-11:59 p.m.	1,320	(5%)	20	(5%)	40	(4%)	$30	(6%)
Total	28,720	(100%)	350	(100%)	890	(100%)	$527	(100%)

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

Table 10.
Intentional Structure Fires by Alarm Hour
2010-2014 Annual Averages (continued)

B. Educational Property Structure Fires

Alarm Hour	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Midnight-12:59 a.m.	20	(1%)	0	(NA)	0	(0%)	$0	(2%)
1:00-1:59 a.m.	20	(1%)	0	(NA)	0	(0%)	$2	(9%)
2:00-2:59 a.m.	10	(1%)	0	(NA)	0	(0%)	$0	(0%)
3:00-3:59 a.m.	20	(1%)	0	(NA)	0	(0%)	$1	(6%)
4:00-4:59 a.m.	10	(1%)	0	(NA)	0	(2%)	$0	(1%)
5:00-5:59 a.m.	10	(1%)	0	(NA)	0	(0%)	$0	(1%)
6:00-6:59 a.m.	10	(1%)	0	(NA)	0	(2%)	$1	(6%)
7:00-7:59 a.m.	40	(2%)	0	(NA)	0	(12%)	$1	(3%)
8:00-8:59 a.m.	90	(5%)	0	(NA)	0	(4%)	$0	(2%)
9:00-9:59 a.m.	160	(8%)	0	(NA)	0	(0%)	$4	(21%)
10:00-10:59 a.m.	190	(10%)	0	(NA)	20	(50%)	$1	(7%)
11:00-11:59 a.m.	210	(11%)	0	(NA)	0	(9%)	$0	(1%)
12:00-12:59 p.m.	250	(13%)	0	(NA)	0	(8%)	$0	(2%)
1:00-1:59 p.m.	230	(12%)	0	(NA)	0	(8%)	$0	(1%)
2:00-2:59 p.m.	200	(11%)	0	(NA)	0	(1%)	$0	(2%)
3:00-3:59 p.m.	110	(6%)	0	(NA)	0	(3%)	$0	(1%)
4:00-4:59 p.m.	70	(4%)	0	(NA)	0	(0%)	$1	(6%)
5:00-5:59 p.m.	50	(3%)	0	(NA)	0	(2%)	$0	(1%)
6:00-6:59 p.m.	40	(2%)	0	(NA)	0	(0%)	$1	(4%)
7:00-7:59 p.m.	40	(2%)	0	(NA)	0	(0%)	$0	(1%)
8:00-8:59 p.m.	30	(2%)	0	(NA)	0	(0%)	$0	(1%)
9:00-9:59 p.m.	30	(2%)	0	(NA)	0	(0%)	$3	(13%)
10:00-10:59 p.m.	20	(1%)	0	(NA)	0	(0%)	$1	(3%)
11:00-11:59 p.m.	10	(1%)	0	(NA)	0	(0%)	$1	(5%)
Total	1,880	(100%)	0	(NA)	30	(100%)	$20	(100%)

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

Table 10.
Intentional Structure Fires by Alarm Hour
2010-2014 Annual Averages (continued)

C. Storage Property Structure Fires

Alarm Hour	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Midnight-12:59 a.m.	120	(4%)	0	(0%)	0	(0%)	$2	(2%)
1:00-1:59 a.m.	120	(4%)	0	(0%)	0	(2%)	$2	(3%)
2:00-2:59 a.m.	100	(4%)	0	(0%)	0	(5%)	$6	(9%)
3:00-3:59 a.m.	90	(3%)	0	(0%)	0	(1%)	$4	(6%)
4:00-4:59 a.m.	80	(3%)	0	(0%)	0	(2%)	$7	(10%)
5:00-5:59 a.m.	70	(2%)	0	(0%)	0	(5%)	$2	(2%)
6:00-6:59 a.m.	60	(2%)	0	(0%)	0	(0%)	$4	(5%)
7:00-7:59 a.m.	50	(2%)	0	(0%)	0	(0%)	$0	(0%)
8:00-8:59 a.m.	50	(2%)	0	(20%)	0	(1%)	$0	(0%)
9:00-9:59 a.m.	70	(3%)	0	(0%)	0	(0%)	$0	(1%)
10:00-10:59 a.m.	90	(3%)	0	(21%)	0	(10%)	$4	(5%)
11:00-11:59 a.m.	90	(3%)	0	(11%)	0	(4%)	$1	(1%)
12:00-12:59 p.m.	110	(4%)	0	(0%)	0	(14%)	$2	(2%)
1:00-1:59 p.m.	120	(4%)	0	(0%)	0	(7%)	$9	(13%)
2:00-2:59 p.m.	130	(5%)	0	(0%)	0	(7%)	$2	(2%)
3:00-3:59 p.m.	160	(6%)	0	(0%)	0	(3%)	$1	(2%)
4:00-4:59 p.m.	160	(6%)	0	(0%)	0	(5%)	$1	(2%)
5:00-5:59 p.m.	190	(7%)	0	(0%)	0	(7%)	$2	(3%)
6:00-6:59 p.m.	180	(7%)	0	(11%)	0	(9%)	$2	(3%)
7:00-7:59 p.m.	160	(6%)	0	(11%)	0	(7%)	$2	(3%)
8:00-8:59 p.m.	150	(6%)	0	(14%)	0	(5%)	$3	(5%)
9:00-9:59 p.m.	130	(5%)	0	(12%)	0	(2%)	$2	(2%)
10:00-10:59 p.m.	110	(4%)	0	(0%)	0	(2%)	$7	(10%)
11:00-11:59 p.m.	110	(4%)	0	(0%)	0	(2%)	$6	(8%)
Total	2,670	(100%)	10	(100%)	30	(100%)	$70	(100%)

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

Table 10.
Intentional Structure Fires by Alarm Hour
2010-2014 Annual Averages (continued)

D. Mercantile or Business Property Structure Fires

Month	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Midnight-12:59 a.m.	80	(5%)	0	(0%)	0	(0%)	$5	(3%)
1:00-1:59 a.m.	90	(5%)	0	(0%)	0	(0%)	$5	(4%)
2:00-2:59 a.m.	90	(5%)	0	(0%)	0	(11%)	$13	(9%)
3:00-3:59 a.m.	90	(5%)	0	(21%)	0	(3%)	$10	(7%)
4:00-4:59 a.m.	90	(5%)	0	(24%)	0	(2%)	$8	(5%)
5:00-5:59 a.m.	80	(4%)	0	(0%)	0	(2%)	$4	(3%)
6:00-6:59 a.m.	60	(3%)	0	(0%)	0	(2%)	$2	(2%)
7:00-7:59 a.m.	50	(3%)	0	(0%)	0	(5%)	$4	(3%)
8:00-8:59 a.m.	50	(3%)	0	(0%)	0	(3%)	$1	(1%)
9:00-9:59 a.m.	60	(3%)	0	(54%)	0	(8%)	$4	(3%)
10:00-10:59 a.m.	50	(3%)	0	(0%)	0	(4%)	$39	(28%)
11:00-11:59 a.m.	60	(3%)	0	(0%)	0	(11%)	$2	(1%)
12:00-12:59 p.m.	70	(4%)	0	(0%)	0	(5%)	$3	(2%)
1:00-1:59 p.m.	80	(5%)	0	(0%)	0	(3%)	$1	(1%)
2:00-2:59 p.m.	70	(4%)	0	(0%)	0	(3%)	$1	(1%)
3:00-3:59 p.m.	60	(3%)	0	(0%)	0	(5%)	$1	(1%)
4:00-4:59 p.m.	80	(4%)	0	(0%)	0	(6%)	$1	(1%)
5:00-5:59 p.m.	70	(4%)	0	(0%)	0	(2%)	$1	(1%)
6:00-6:59 p.m.	80	(4%)	0	(0%)	0	(6%)	$5	(3%)
7:00-7:59 p.m.	90	(5%)	0	(0%)	0	(4%)	$4	(3%)
8:00-8:59 p.m.	90	(5%)	0	(0%)	0	(7%)	$5	(4%)
9:00-9:59 p.m.	80	(4%)	0	(0%)	0	(3%)	$3	(2%)
10:00-10:59 p.m.	90	(5%)	0	(0%)	0	(4%)	$14	(10%)
11:00-11:59 p.m.	80	(5%)	0	(0%)	0	(0%)	$6	(4%)
Total	1,780	(100%)	2	(100%)	30	(100%)	$140	(100%)

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

Table 11.
Intentional Outside or Unclassified Fires by Area of Origin
2010-2014 Annual Averages

Area of Origin	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Unclassified outside area	72,150	(37%)	8	(34%)	44	(27%)	$5	(20%)
Outside trash or rubbish	48,300	(25%)	1	(5%)	22	(14%)	$3	(11%)
Outside or unclassified non-trash	23,850	(12%)	7	(29%)	22	(14%)	$2	(9%)
Lawn, field, or open area	58,610	(30%)	6	(27%)	46	(29%)	$4	(16%)
Outside trash or rubbish	33,920	(17%)	1	(5%)	15	(9%)	$1	(4%)
Outside or unclassified non-trash	24,690	(13%)	5	(22%)	31	(19%)	$3	(12%)
On or near highway, public way or street	17,340	(9%)	1	(4%)	6	(4%)	$1	(6%)
Outside trash or rubbish	13,690	(7%)	0	(0%)	3	(2%)	$0	(2%)
Outside or unclassified non-trash	3,650	(2%)	1	(4%)	4	(2%)	$1	(4%)
Courtyard, terrace, or patio	7,040	(4%)	0	(2%)	11	(7%)	$1	(4%)
Outside trash or rubbish	5,320	(3%)	0	(0%)	2	(1%)	$1	(3%)
Outside or unclassified non-trash	1,720	(1%)	0	(2%)	9	(6%)	$0	(1%)
Trash or rubbish chute, area or container	5,260	(3%)	0	(0%)	2	(1%)	$0	(2%)
Outside trash or rubbish	5,110	(3%)	0	(0%)	1	(1%)	$0	(2%)
Outside or unclassified non-trash	150	(0%)	0	(0%)	1	(0%)	$0	(0%)
Unclassified area of origin	7,690	(4%)	2	(8%)	5	(3%)	$1	(3%)
Outside trash or rubbish	4,270	(2%)	0	(0%)	1	(0%)	$0	(0%)
Outside or unclassified non-trash	3,420	(2%)	2	(8%)	4	(2%)	$1	(2%)
Wildland area or woods	10,370	(5%)	1	(3%)	8	(5%)	$1	(4%)
Outside trash or rubbish	2,830	(1%)	0	(0%)	1	(0%)	$0	(0%)
Outside or unclassified non-trash	7,540	(4%)	1	(3%)	7	(5%)	$1	(3%)
Vegetation area, wildland module	5,540	(3%)	2	(10%)	7	(4%)	$4	(19%)
Outside trash or rubbish	0	(0%)	0	(0%)	0	(0%)	$0	(0%)
Outside or unclassified non-trash	5,540	(3%)	2	(10%)	7	(4%)	$4	(19%)
Other known area of origin	12,630	(6%)	3	(13%)	33	(20%)	$6	(26%)
Outside trash or rubbish	7,120	(4%)	0	(0%)	3	(2%)	$0	(2%)
Outside or unclassified non-trash	5,510	(3%)	3	(13%)	30	(19%)	$5	(24%)
Total	196,480	(100%)	20	(100%)	160	(100%)	$23	(100%)
Outside trash or rubbish	120,570	(61%)	0	(10%)	50	(29%)	$6	(25%)
Outside or unclassified non-trash	75,910	(39%)	20	(90%)	110	(71%)	$17	(75%)

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

Table 12.
Intentional Outside or Unclassified Fires by Item First Ignited
2010-2014 Annual Averages

Item First Ignited	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Light vegetation, including grass	53,860	(27%)	3	(11%)	26	(16%)	3	(15%)
Outside trash or rubbish	17,450	(9%)	0	(0%)	4	(3%)	0	(1%)
Outside or unclassified non-trash	36,410	(19%)	3	(11%)	22	(14%)	3	(14%)
Rubbish, trash, or waste	47,000	(24%)	2	(7%)	16	(10%)	2	(10%)
Outside trash or rubbish	43,360	(22%)	1	(5%)	13	(8%)	2	(7%)
Outside or unclassified non-trash	3,640	(2%)	1	(3%)	3	(2%)	1	(3%)
Heavy vegetation, including trees	16,000	(8%)	0	(2%)	7	(5%)	1	(4%)
Outside trash or rubbish	6,170	(3%)	0	(0%)	2	(1%)	0	(2%)
Outside or unclassified non-trash	9,830	(5%)	0	(2%)	6	(4%)	1	(3%)
Unclassified organic materials	14,890	(8%)	0	(0%)	9	(5%)	1	(6%)
Outside trash or rubbish	7,370	(4%)	0	(0%)	3	(2%)	1	(3%)
Outside or unclassified non-trash	7,520	(4%)	0	(0%)	6	(3%)	1	(3%)
Unclassified item first ignited	13,110	(7%)	1	(3%)	7	(4%)	2	(8%)
Outside trash or rubbish	7,180	(4%)	0	(0%)	1	(1%)	0	(1%)
Outside or unclassified non-trash	5,930	(3%)	1	(3%)	6	(4%)	2	(7%)
Magazine, newspaper, or writing paper	9,040	(5%)	0	(0%)	7	(4%)	1	(3%)
Outside trash or rubbish	7,190	(4%)	0	(0%)	4	(3%)	0	(1%)
Outside or unclassified non-trash	1,840	(1%)	0	(0%)	3	(2%)	1	(2%)
Multiple items first ignited	7,170	(4%)	1	(3%)	4	(3%)	1	(4%)
Outside trash or rubbish	6,280	(3%)	1	(3%)	1	(0%)	0	(1%)
Outside or unclassified non-trash	890	(0%)	0	(0%)	4	(2%)	1	(3%)
Upholstered furniture or vehicle seat	4,530	(2%)	0	(0%)	1	(1%)	1	(6%)
Outside trash or rubbish	4,160	(2%)	0	(0%)	0	(0%)	1	(5%)
Outside or unclassified non-trash	370	(0%)	0	(0%)	1	(1%)	0	(1%)
Flammable or combustible liquids or gases, piping or filter	3,690	(2%)	9	(39%)	53	(33%)	2	(7%)
Outside trash or rubbish	1,810	(1%)	0	(0%)	15	(10%)	0	(1%)
Outside or unclassified non-trash	1,870	(1%)	9	(39%)	38	(23%)	1	(5%)
Other known item first ignited	27,200	(14%)	8	(35%)	30	(18%)	8	(37%)
Outside trash or rubbish	19,590	(10%)	1	(3%)	4	(2%)	1	(3%)
Outside or unclassified non-trash	7,610	(4%)	8	(32%)	26	(16%)	8	(35%)
Total	196,480	(100%)	20	(100%)	160	(100%)	$23	(100%)
Outside trash or rubbish	120,570	(61%)	0	(10%)	50	(29%)	$6	(25%)
Outside or unclassified non-trash	75,910	(39%)	20	(90%)	110	(71%)	$17	(75%)

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

Table 13.
Intentional Outside or Unclassified Fires by Heat Source
2010-2014 Annual Averages

Heat Source	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Match	65,200	(33%)	6	(23%)	32	(20%)	$3	(13%)
Outside trash or rubbish	44,470	(23%)	2	(7%)	12	(8%)	$1	(5%)
Outside or unclassified non-trash	20,730	(11%)	4	(17%)	20	(12%)	$2	(8%)
Lighter	47,960	(24%)	12	(49%)	74	(46%)	$5	(21%)
Outside trash or rubbish	32,470	(17%)	1	(3%)	23	(14%)	$2	(7%)
Outside or unclassified non-trash	15,490	(8%)	11	(46%)	51	(32%)	$3	(13%)
Unclassified heat source	23,860	(12%)	1	(6%)	9	(5%)	$1	(6%)
Outside trash or rubbish	13,960	(7%)	0	(0%)	3	(2%)	$0	(1%)
Outside or unclassified non-trash	9,900	(5%)	1	(6%)	5	(3%)	$1	(4%)
Flame or torch used for lighting	15,570	(8%)	1	(5%)	15	(9%)	$1	(3%)
Outside trash or rubbish	8,270	(4%)	0	(0%)	5	(3%)	$0	(0%)
Outside or unclassified non-trash	7,300	(4%)	1	(5%)	10	(6%)	$0	(2%)
Hot ember or ash	10,110	(5%)	1	(5%)	4	(2%)	$2	(8%)
Outside trash or rubbish	4,840	(2%)	0	(0%)	1	(1%)	$1	(6%)
Outside or unclassified non-trash	5,270	(3%)	1	(5%)	2	(2%)	$1	(2%)
Unclassified hot or smoldering object	8,420	(4%)	0	(1%)	2	(1%)	$0	(2%)
Outside trash or rubbish	5,240	(3%)	0	(0%)	0	(0%)	$0	(0%)
Outside or unclassified non-trash	3,180	(2%)	0	(1%)	2	(1%)	$0	(1%)
Smoking materials	4,570	(2%)	1	(4%)	3	(2%)	$0	(2%)
Outside trash or rubbish	3,110	(2%)	0	(0%)	0	(0%)	$0	(0%)
Outside or unclassified non-trash	1,460	(1%)	1	(4%)	3	(2%)	$0	(1%)
Fireworks	3,860	(2%)	0	(0%)	4	(3%)	$5	(21%)
Outside trash or rubbish	950	(0%)	0	(0%)	0	(0%)	$0	(0%)
Outside or unclassified non-trash	2,910	(1%)	0	(0%)	4	(3%)	$5	(21%)
Incendiary device	2,990	(2%)	0	(0%)	1	(1%)	$0	(2%)
Outside trash or rubbish	1,750	(1%)	0	(0%)	0	(0%)	$0	(0%)
Outside or unclassified non-trash	1,240	(1%)	0	(0%)	1	(1%)	$0	(2%)
Other known heat source	13,940	(7%)	1	(6%)	18	(11%)	$5	(24%)
Outside trash or rubbish	5,510	(3%)	0	(0%)	2	(1%)	$1	(4%)
Outside or unclassified non-trash	8,430	(4%)	1	(6%)	16	(10%)	$5	(20%)
Total	196,480	(100%)	20	(100%)	160	(100%)	$23	(100%)
Outside trash or rubbish	120,570	(61%)	0	(10%)	50	(29%)	$6	(25%)
Outside or unclassified non-trash	75,910	(39%)	20	(90%)	110	(71%)	$17	(75%)

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

Table 14.
Intentional Outside or Unclassified Fires by Day of Week
2010-2014 Annual Averages

Day of Week	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Sunday	30,970	16%	3	13%	25	15%	$4	17%
Monday	26,410	13%	4	16%	28	17%	$4	16%
Tuesday	25,370	13%	2	10%	19	12%	$4	18%
Wednesday	25,490	13%	4	16%	18	11%	$2	11%
Thursday	25,530	13%	1	6%	21	13%	$2	11%
Friday	27,980	14%	3	13%	20	12%	$3	12%
Saturday	34,730	18%	6	26%	31	19%	$4	16%
Total	196,480	(100%)	20	(100%)	160	(100%)	$23	(100%)

Table 15.
Intentional Outside or Unclassified Fires by Alarm Hour
2010-2014 Annual Averages

Alarm Hour	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Midnight - 6 a.m.	20,650	11%	5	(21%)	16	(10%)	$5	(24%)
6 a.m. - Noon	27,660	14%	7	(28%)	25	(15%)	$3	(14%)
Noon - 6 p.m.	74,210	38%	8	(35%)	69	(43%)	$8	(34%)
6 p.m. - Midnight	73,950	38%	4	(16%)	51	(32%)	$6	(28%)
Total	196,480	(100%)	20	(100%)	160	(100%)	$23	(100%)

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

Table 15.
Intentional Outside or Unclassified Fires by Alarm Hour
2010-2014 Annual Averages (continued)

Alarm Hour	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
1:00-1:59 a.m.	4,220	(2%)	0	(2%)	3	(2%)	$1	(3%)
2:00-2:59 a.m.	3,700	(2%)	0	(2%)	4	(2%)	$1	(5%)
3:00-3:59 a.m.	2,990	(2%)	1	(4%)	3	(2%)	$1	(5%)
4:00-4:59 a.m.	2,380	(1%)	2	(8%)	1	(1%)	$0	(2%)
5:00-5:59 a.m.	2,000	(1%)	1	(3%)	0	(0%)	$0	(1%)
6:00-6:59 a.m.	2,280	(1%)	2	(8%)	0	(0%)	$0	(1%)
7:00-7:59 a.m.	3,010	(2%)	0	(0%)	1	(1%)	$0	(1%)
8:00-8:59 a.m.	3,830	(2%)	0	(2%)	2	(1%)	$0	(1%)
9:00-9:59 a.m.	4,820	(2%)	2	(8%)	3	(2%)	$0	(1%)
10:00-10:59 a.m.	6,030	(3%)	1	(4%)	8	(5%)	$0	(1%)
11:00-11:59 a.m.	7,690	(4%)	2	(7%)	10	(6%)	$2	(10%)
12:00-12:59 p.m.	9,550	(5%)	1	(6%)	10	(6%)	$1	(4%)
1:00-1:59 p.m.	10,790	(5%)	2	(8%)	6	(4%)	$1	(3%)
2:00-2:59 p.m.	12,030	(6%)	2	(9%)	15	(9%)	$1	(5%)
3:00-3:59 p.m.	12,860	(7%)	1	(6%)	16	(10%)	$2	(9%)
4:00-4:59 p.m.	13,770	(7%)	1	(3%)	12	(8%)	$1	(4%)
5:00-5:59 p.m.	15,210	(8%)	1	(4%)	10	(6%)	$2	(9%)
6:00-6:59 p.m.	14,920	(8%)	0	(2%)	14	(9%)	$1	(3%)
7:00-7:59 p.m.	14,870	(8%)	0	(1%)	10	(6%)	$1	(5%)
8:00-8:59 p.m.	15,260	(8%)	2	(7%)	8	(5%)	$2	(9%)
9:00-9:59 p.m.	12,490	(6%)	1	(4%)	8	(5%)	$1	(4%)
10:00-10:59 p.m.	9,340	(5%)	0	(1%)	5	(3%)	$1	(3%)
11:00-11:59 p.m.	7,070	(4%)	0	(1%)	5	(3%)	$1	(3%)
Total	196,480	(100%)	20	(100%)	160	(100%)	$23	(100%)

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

Table 16.
Intentional Outside or Unclassified Fires by Month
2010-2014 Annual Averages

A. Outside or Unclassified Fires

Month	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
January	15,870	(8%)	1	(6%)	14	(9%)	$1	(5%)
February	12,580	(6%)	2	(9%)	12	(7%)	$2	(10%)
March	20,540	(10%)	2	(10%)	17	(11%)	$2	(8%)
April	20,720	(11%)	3	(12%)	15	(10%)	$2	(7%)
May	17,770	(9%)	2	(7%)	16	(10%)	$2	(10%)
June	16,250	(8%)	3	(15%)	14	(9%)	$5	(22%)
July	18,490	(9%)	1	(3%)	14	(9%)	$3	(14%)
August	15,840	(8%)	2	(8%)	13	(8%)	$1	(6%)
September	14,710	(7%)	2	(8%)	12	(7%)	$2	(7%)
October	16,510	(8%)	2	(8%)	11	(7%)	$1	(5%)
November	15,150	(8%)	2	(7%)	12	(8%)	$1	(4%)
December	12,040	(6%)	1	(5%)	10	(6%)	$1	(3%)
Total	196,480	(100%)	20	(100%)	160	(100%)	$23	(100%)

B. Outside Trash or Rubbish Fires

Month	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
January	10,380	(9%)	0	(0%)	4	(8%)	$0	(7%)
February	7,510	(6%)	1	(27%)	3	(7%)	$0	(4%)
March	10,580	(9%)	0	(0%)	4	(9%)	$1	(12%)
April	11,150	(9%)	1	(26%)	4	(9%)	$0	(6%)
May	11,350	(9%)	1	(27%)	5	(10%)	$1	(12%)
June	10,420	(9%)	0	(0%)	3	(6%)	$1	(17%)
July	11,370	(9%)	0	(0%)	3	(6%)	$1	(11%)
August	10,460	(9%)	0	(20%)	6	(13%)	$0	(6%)
September	9,670	(8%)	0	(0%)	4	(9%)	$1	(12%)
October	10,560	(9%)	0	(0%)	3	(7%)	$0	(2%)
November	9,160	(8%)	0	(0%)	4	(8%)	$0	(8%)
December	7,950	(7%)	0	(0%)	4	(9%)	$0	(3%)
Total	120,570	(100%)	2	(100%)	50	(100%)	$6	(100%)

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

Table 16.
Intentional Outside or Unclassified Fires by Month
2010-2014 Annual Averages (continued)

C. Outside or Unclassified Non-trash

Month	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
January	5,480	(7%)	1	(7%)	10	(9%)	$1	(4%)
February	5,070	(7%)	1	(7%)	9	(8%)	$2	(12%)
March	9,970	(13%)	2	(11%)	13	(11%)	$1	(7%)
April	9,580	(13%)	2	(10%)	11	(10%)	$1	(7%)
May	6,420	(8%)	1	(5%)	11	(10%)	$2	(10%)
June	5,830	(8%)	3	(16%)	11	(10%)	$4	(24%)
July	7,120	(9%)	1	(4%)	11	(10%)	$2	(15%)
August	5,380	(7%)	1	(7%)	7	(6%)	$1	(6%)
September	5,050	(7%)	2	(9%)	8	(7%)	$1	(6%)
October	5,950	(8%)	2	(9%)	8	(7%)	$1	(5%)
November	5,990	(8%)	2	(8%)	9	(7%)	$0	(2%)
December	4,090	(5%)	1	(6%)	6	(5%)	$1	(4%)
Total	75,910	(100%)	20	(100%)	110	(100%)	$17	(100%)

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

Table 17.
Intentional Vehicle Fires by Area of Origin
2010-2014 Annual Averages

Area of Origin	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Passenger area of vehicle	6,830	(45%)	17	(53%)	32	(57%)	$54	(46%)
Unclassified vehicle area	2,170	(14%)	5	(16%)	4	(8%)	$16	(14%)
Engine area, running gear, or wheel area of vehicle	1,660	(11%)	3	(9%)	5	(9%)	$15	(13%)
Exterior surface of vehicle	1,360	(9%)	0	(1%)	2	(3%)	$9	(8%)
Cargo or trunk area of vehicle	900	(6%)	2	(7%)	6	(10%)	$7	(6%)
Fuel tank or fuel line of vehicle	550	(4%)	2	(7%)	1	(2%)	$2	(2%)
Unclassified area of origin	350	(2%)	1	(3%)	1	(2%)	$2	(2%)
Unclassified outside area	310	(2%)	0	(1%)	1	(2%)	$2	(1%)
On or near highway, public way or street	270	(2%)	0	(1%)	1	(2%)	$2	(2%)
Multiple areas of origin	240	(2%)	0	(0%)	1	(1%)	$3	(3%)
Other known area of origin	510	(3%)	0	(1%)	3	(5%)	$4	(4%)
Total	15,160	(100%)	30	(100%)	60	(100%)	$118	(100%)

Table 18.
Intentional Vehicle Fires by Item First Ignited
2010-2014 Annual Averages

Item First Ignited	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Flammable or combustible liquids or gases, piping or filter	4,550	(30%)	16	(50%)	27	(48%)	$43	(36%)
Upholstered furniture or vehicle seat	3,710	(24%)	5	(15%)	7	(13%)	$29	(25%)
Unclassified item first ignited	2,000	(13%)	3	(8%)	6	(12%)	$14	(12%)
Multiple items first ignited	1,690	(11%)	1	(4%)	4	(8%)	$16	(14%)
Magazine, newspaper, or writing paper	530	(3%)	1	(2%)	4	(8%)	$3	(2%)
Electrical wire or cable insulation	440	(3%)	1	(2%)	1	(1%)	$2	(2%)
Rubbish, trash, or waste	330	(2%)	0	(0%)	2	(4%)	$1	(1%)
Clothing	260	(2%)	3	(11%)	1	(2%)	$1	(1%)
Tire	230	(2%)	0	(0%)	0	(0%)	$2	(2%)
Other known item first ignited	1,430	(9%)	3	(8%)	2	(4%)	$6	(5%)
Total	15,160	(100%)	30	(100%)	60	(100%)	$118	(100%)

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

Table 19.
Intentional Vehicle Fires by Heat Source
2010-2014 Annual Averages

Heat Source	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Match	3,020	(20%)	5	(17%)	9	(15%)	$22	(19%)
Lighter	2,920	(19%)	6	(20%)	24	(44%)	$24	(20%)
Incendiary device	1,910	(13%)	1	(4%)	2	(4%)	$17	(14%)
Unclassified heat source	1,740	(11%)	5	(17%)	2	(4%)	$13	(11%)
Flame or torch used for lighting	1,260	(8%)	1	(3%)	1	(2%)	$11	(9%)
Unclassified hot or smoldering object	590	(4%)	1	(2%)	3	(6%)	$3	(3%)
Multiple heat sources including multiple ignitions	590	(4%)	2	(6%)	1	(2%)	$7	(6%)
Smoking materials	580	(4%)	1	(3%)	1	(2%)	$5	(4%)
Unclassified heat from powered equipment	380	(3%)	3	(8%)	1	(1%)	$2	(2%)
Radiated or conducted heat from operating equipment	320	(2%)	3	(8%)	1	(2%)	$1	(1%)
Spark, ember or flame from operating equipment	290	(2%)	1	(2%)	5	(9%)	$2	(2%)
Heat from direct flame or convection currents	260	(2%)	0	(0%)	0	(0%)	$2	(2%)
Arcing	240	(2%)	1	(2%)	1	(2%)	$1	(1%)
Other known heat source	1,060	(7%)	2	(6%)	0	(9%)	$6	(5%)
Total	15,160	(100%)	30	(100%)	60	(100%)	$118	(100%)

Table 20.
Intentional Vehicle Fires by Day of Week
2010-2014 Annual Averages

Day of Week	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Sunday	2,570	(17%)	4	(11%)	5	(9%)	$241	(20%)
Monday	2,190	(14%)	6	(19%)	8	(14%)	$164	(14%)
Tuesday	2,040	(13%)	4	(14%)	7	(12%)	$146	(12%)
Wednesday	2,000	(13%)	5	(16%)	7	(13%)	$137	(12%)
Thursday	1,960	(13%)	4	(14%)	9	(15%)	$153	(13%)
Friday	2,030	(13%)	5	(15%)	10	(18%)	$158	(13%)
Saturday	2,360	(16%)	4	(12%)	10	(18%)	$178	(15%)
Total	15,160	(100%)	30	(100%)	60	(100%)	$118	(100%)

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

Table 21.
Intentional Vehicle Fires by Alarm Hour
2010-2014 Annual Averages

Alarm Hour	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
Midnight-12:59 a.m.	1,350	(9%)	2	(5%)	2	(4%)	$102	(9%)
1:00-1:59 a.m.	1,320	(9%)	1	(4%)	5	(9%)	$114	(10%)
2:00-2:59 a.m.	1,310	(9%)	1	(4%)	4	(7%)	$111	(9%)
3:00-3:59 a.m.	1,230	(8%)	4	(11%)	4	(8%)	$117	(10%)
4:00-4:59 a.m.	1,030	(7%)	1	(4%)	2	(4%)	$83	(7%)
5:00-5:59 a.m.	790	(5%)	3	(9%)	1	(2%)	$91	(8%)
6:00-6:59 a.m.	500	(3%)	1	(4%)	1	(1%)	$35	(3%)
7:00-7:59 a.m.	340	(2%)	0	(1%)	1	(2%)	$30	(3%)
8:00-8:59 a.m.	280	(2%)	0	(1%)	2	(4%)	$15	(1%)
9:00-9:59 a.m.	290	(2%)	1	(2%)	2	(3%)	$17	(1%)
10:00-10:59 a.m.	270	(2%)	2	(7%)	1	(2%)	$16	(1%)
11:00-11:59 a.m.	260	(2%)	2	(6%)	2	(3%)	$14	(1%)
12:00-12:59 p.m.	280	(2%)	1	(3%)	1	(2%)	$16	(1%)
1:00-1:59 p.m.	280	(2%)	0	(0%)	4	(7%)	$16	(1%)
2:00-2:59 p.m.	290	(2%)	1	(4%)	3	(6%)	$14	(1%)
3:00-3:59 p.m.	280	(2%)	2	(5%)	1	(2%)	$11	(1%)
4:00-4:59 p.m.	300	(2%)	0	(1%)	3	(5%)	$16	(1%)
5:00-5:59 p.m.	310	(2%)	1	(4%)	1	(2%)	$16	(1%)
6:00-6:59 p.m.	360	(2%)	0	(1%)	0	(1%)	$24	(2%)
7:00-7:59 p.m.	460	(3%)	1	(4%)	3	(5%)	$29	(2%)
8:00-8:59 p.m.	620	(4%)	2	(5%)	2	(4%)	$54	(5%)
9:00-9:59 p.m.	810	(5%)	2	(5%)	4	(7%)	$57	(5%)
10:00-10:59 p.m.	1,020	(7%)	1	(4%)	2	(4%)	$80	(7%)
11:00-11:59 p.m.	1,160	(8%)	2	(7%)	3	(5%)	$97	(8%)
Total	15,160	(100%)	30	(100%)	60	(100%)	$118	(100%)

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

Table 22.
Intentional Vehicle Fires by Month
2010-2014 Annual Averages

Month	Fires		Civilian Deaths		Civilian Injuries		Direct Property Damage (in Millions)	
January	1,190	(8%)	2	(7%)	3	(5%)	$139	(12%)
February	1,000	(7%)	1	(2%)	3	(6%)	$72	(6%)
March	1,220	(8%)	4	(11%)	2	(4%)	$96	(8%)
April	1,250	(8%)	2	(7%)	3	(5%)	$85	(7%)
May	1,370	(9%)	3	(10%)	7	(12%)	$100	(9%)
June	1,370	(9%)	3	(9%)	7	(13%)	$104	(9%)
July	1,600	(11%)	2	(7%)	7	(13%)	$114	(10%)
August	1,430	(9%)	5	(15%)	7	(12%)	$108	(9%)
September	1,300	(9%)	4	(12%)	4	(7%)	$99	(8%)
October	1,260	(8%)	3	(10%)	5	(10%)	$93	(8%)
November	1,130	(7%)	3	(9%)	4	(7%)	$81	(7%)
December	1,040	(7%)	0	(0%)	4	(7%)	$85	(7%)
Total	15,160	(100%)	30	(100%)	60	(100%)	$118	(100%)

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

Table 23.
Arson Offenses
2013-2014

	Arson							
Year	Structure		Mobile		Other		Total	
2013	18,826	(45%)	9,818	(24%)	13,087	(31%)	41,731	(100%)
2014	18,240	(45%)	9,332	(23%)	12,696	(32%)	40,268	(100%)
Percent change	-3.1		-5.0		-3.0			

Sums may not equal totals due to rounding errors.
Source: Crime in the United States, Table 15. Available at: https://ucr.fbi.gov/crime-in-the-u.s/2014/crime-in-the-u.s.-2014/tables/table-15. Accessed May 15, 2017.

Table 24.
Percent of Arson Offenses Cleared by Arrest or Exceptional Means, by Region by Year
1984-2014

Year	Nation	Northeast	Midwest	South	West
1984	17	15	13	22	16
1985	17	13	16	22	15
1986	15	12	13	20	15
1987	16	13	13	20	15
1988	15	12	12	21	14
1989	15	11	14	20	14
1990	15	11	11	21	15
1991	16	12	13	21	16
1992	15	13	11	21	13
1993	15	13	12	20	15
1994	15	10	14	21	15
1995	16	11	16	20	15
1996	16	14	16	20	15
1997	18	16	16	22	15
1998	16	17	15	20	13
1999	17	17	18	19	14
2000	16	17	15	18	14
2001	16	20	15	18	14
2002	17	20	15	19	14
2003	17	21	16	19	14
2004	17	22	15	19	15
2005	18	22	17	19	16
2006	18	23	16	21	15
2007	18	24	16	20	16
2008	18	24	16	19	16
2009	19	25	16	20	16
2010	19	24	16	21	17
2011	19	23	16	19	18
2012	20	24	17	23	19
2013	21	27	18	22	19
2014	22	27	18	23	20

*Source: FBI Crime in the United States Series, Table 26.

Table 25.
Percent of Arson Arrests by Age
2014

Age	Fires
Under 10	2%
10 to 12	6%
13 to 14	12%
15	6%
16	5%
17	4%
18	3%
19	3%
20	3%
21	3%
22	3%
23	2%
24	2%
25-29	10%
30-34	9%
35-39	7%
40-44	6%
45-49	5%
50-54	5%
55-59	3%
60-64	2%
65 and over	1%
Ages under 15	19%
Ages under 18	34%
Ages 18 and over	66%
Total	100%

*Source: FBI Crime in the United States Series, Table 38

Table 26.
Percent of Arson Arrests by Age
1980-2014

Year	Under 10	10 to 12	13 to 14	15	16	17	All Under 18
1980	7	7	11	7	6	6	44
1981	7	8	11	5	5	6	42
1982	6	7	9	5	5	5	37
1983	7	7	10	5	4	4	37
1984	8	8	12	6	5	4	43
1985	7	7	12	6	5	4	41
1986	7	7	11	6	5	4	40
1987	7	8	11	6	5	4	41
1988	8	9	12	6	4	4	43
1989	8	9	13	5	4	4	43
1990	7	10	12	6	5	4	44
1991	7	11	14	6	5	4	47
1992	6	11	15	7	5	5	49
1993	6	10	16	7	5	5	49
1994	7	12	18	7	6	5	55
1995	6	12	17	7	5	5	52
1996	7	12	17	7	6	5	53
1997	6	11	16	7	6	5	50
1998	6	12	17	7	6	5	52
1999	7	12	17	8	5	5	54
2000	6	13	16	7	6	5	53
2001	5	11	15	7	6	5	49
2002	5	11	15	7	6	5	49
2003	3	10	18	9	6	5	51
2004	3	10	17	8	7	5	50
2005	3	9	17	8	6	5	49
2006	3	9	16	8	7	5	49
2007	3	9	16	8	6	5	47
2008	3	8	15	8	6	6	47
2009	2	8	16	7	5	6	44
2010	3	8	13	7	5	5	41
2011	2	8	14	7	6	5	41
2012	2	8	12	6	5	4	37
2013	2	6	12	6	5	4	35
2014	2	6	12	6	5	4	34

Source: FBI Crime in the United States Series, Table 38

Table 27.
U.S. Arson Offense Rates by Size of Community
1993-2014

Year	Cities under 10,000	10,000 to 24,999	25,000 to 49,999	50,000 to 99,999	100,000 to 249,999	250,000 or more
1993	28	26	34	41	63	86
1994	31	28	37	43	66	84
1995	35	29	36	42	60	83
1996	30	27	36	41	50	84
1997	28	24	31	36	52	78
1998	28	22	28	34	43	75
1999	26	21	27	33	43	71
2000	24	19	26	31	40	67
2001	27	21	25	32	38	62
2002	25	20	24	29	39	59
2003	22	20	23	28	35	53
2004	22	19	23	26	30	49
2005	21	18	23	24	30	46
2006	22	19	22	26	30	45
2007	21	18	21	24	29	41
2008	21	18	20	23	26	39
2009	19	14	17	20	22	32
2010	21	14	16	19	22	32
2011	20	13	15	17	21	33
2012	30	13	16	17	22	31
2013	20	11	12	15	18	28
2014	16	11	12	13	17	22

Note: FBI rates include non-structure fires (i.e., vehicles, outdoor fires) as well as structures. The FBI uses cities and other communities; the NFPA uses population coverage areas of fire departments. The FBI figures for cities under 10,000 population and rural counties may not correspond exactly to rates for communities of 2,500 to 9,999 and under 2,500 population, the definitions used in the NFPA survey. The FBI also reports rates for suburban counties and areas. As of 2003, FBI statistics replace rural counties with non-metropolitan counties. NFPA statistics are for incendiary fires through 2000 and for intentional fires from 2001 on.

Source for Part B: FBI and U.S. Census Bureau resident population statistics.

Appendix A. How National Estimates Statistics Are Calculated

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

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

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

Methodology may change slightly from year to year.

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

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

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

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

proportion of the total U.S. population that it makes sense to survey all of them. Most respond, resulting in excellent precision for their part of the final estimate.

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

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 or through NFPA's Research, Data and Analytics Division.

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

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

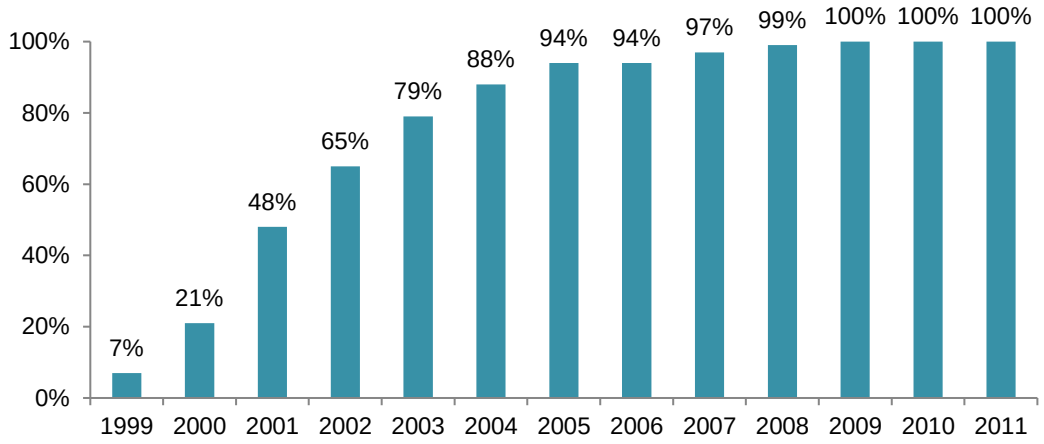
From 1999 data on, analyses are based on scaling ratios using only data originally collected in NFIRS 5.0:

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.

Figure A.1. Fires Originally Collected in NFIRS 5.0 by Year



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.

Because this analysis focused on fatalities only, no distinction was made between confined and non-confined fires.

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.

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 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.

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.

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

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

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

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

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

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

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

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

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

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

Code Grouping	**EII Code**	**NFIRS definitions**
Central heat	132	Furnace or central heating unit
	133	Boiler (power, process or heating)
Fixed or portable space heater	131	Furnace, local heating unit, built-in
	123	Fireplace with insert or stove
	124	Heating stove
	141	Heater, excluding catalytic and oil-filled
	142	Catalytic heater
	143	Oil-filled heater
Fireplace or chimney	120	Fireplace or chimney
	121	Fireplace, masonry
	122	Fireplace, factory-built
	125	Chimney connector or vent connector
	126	Chimney – brick, stone or masonry
Code Grouping	**EII Code**	**NFIRS definitions**
	127	Chimney-metal, including stovepipe or flue
Fixed wiring and related equipment	210	Unclassified electrical wiring
	211	Electrical power or utility line

	212	Electrical service supply wires from utility
	213	Electric meter or meter box
	214	Wiring from meter box to circuit breaker
	215	Panel board, switch board or circuit breaker board
	216	Electrical branch circuit
	217	Outlet or receptacle
	218	Wall switch
	219	Ground fault interrupter
Transformers and power supplies	221	Distribution-type transformer
	222	Overcurrent, disconnect equipment
	223	Low-voltage transformer
	224	Generator
	225	Inverter
	226	Uninterrupted power supply (UPS)
	227	Surge protector
	228	Battery charger or rectifier
	229	Battery (all types)
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
Code Grouping	**EII Code**	**NFIRS definitions**
	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

Equipment was not analyzed separately for confined fires. Instead, each confined fire incident type was listed with the equipment or as other known equipment.

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

Area of Origin. Two areas of origin: bedroom for more than five people (code 21) and bedroom for less than five people (code 22) are combined and shown as simply "bedroom." Chimney is no longer a valid area of origin code for non-confined fires.

Rounding and percentages. The data shown are estimates and generally rounded. An entry of zero may be a true zero or it may mean that the value rounds to zero. Percentages are calculated from unrounded values. It is quite possible to have a percentage entry of up to 100% even if the rounded number entry is zero. The same rounded value may account for a slightly different percentage share. Because percentages are expressed in integers and not carried out to several decimal places, percentages that appear identical may be associated with slightly different values.

Appendix B. Methodology and Definitions Used in "Leading Cause" Tables

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

Cooking equipment and heating equipment are calculated by summing fires identified by equipment involved in ignition and relevant confined fires. Confined fires will be shown if they account for at least 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 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 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.

Confined fires are excluded from the tallies of the remaining categories of fires involving equipment.

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

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

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.

The following are selected published incidents involving intentional fires. Included are short articles from the "Firewatch" or "Bi-monthly" columns in *NFPA Journal* or it predecessor *Fire Journal* and incidents from either the Large-Loss Fires report or Catastrophic Multiple-Death Fires report. If available, investigation reports or NFPA Alert Bulletins are included and provide detailed information about the fires.

It is important to remember that this is anecdotal information. Anecdotes show what can happen; they are not a source to learn about what typically occurs.

NFPA's Fire Incident Data Organization (FIDO) identifies significant fires through a clipping service, the Internet and other sources. Additional information is obtained from the fire service and federal and state agencies. FIDO is the source for articles published in the "Firewatch" column of the NFPA Journal and many of the articles in this report.

Arson fire destroys church and its contents, Ohio

Firefighters responded to an early morning report of a possible structure fire to find heavy smoke emitting from a church roof, with firebrands discharging from the same area. Incident command ordered a second alarm shortly after initial units reached the scene at 6:31 a.m., while also requesting police assistance for traffic control and two additional command officers.

The church property consisted of four adjoining buildings. An assessment of the primary building indicated that it was fully involved from the basement to the roof, but heavy fire conditions prevented assessment of an adjoining structure. Incident command mounted a defensive strategy to contain the fire to the two buildings already involved.

One pumper was positioned at the south side of the structure to provide an aerial attack while crews from a second pumper established a water supply. A third pumper was positioned at a rear corner of the building to prepare master stream operations. Two additional pumpers supported these positions. A captain assigned to safety officer duties rotated crews for the duration of operations.

Aerial operations were initiated from a second location with the arrival of a ladder truck from a mutual assistance company, while crews used hand lines for exposure protection and suppression activities. When conditions permitted, the two exposed structures were investigated for possible fire extension in the roof, which was accomplished through a ventilation cut in the roof after the interior ceiling proved too difficult to open. Minor extension was found and extinguished with a hand line.

The fire was brought under control at 9:25 p.m., approximately three hours after operations began. Newspaper reports indicated that the state fire marshal determined the cause of the fire to be arson.

The church and its contents, collectively valued at $7 million, were a total loss.

Richard Campbell, "Firewatch," *NFPA Journal*, July/August.

Boy dies after starting fire in bedroom closet, Pennsylvania
A 10-year-old boy died after becoming trapped on an upper level of his family's house by a fire he set in a bedroom closet.

The single-family, three-story dwelling where the fire occurred was constructed of wood framing, with a brick exterior and asphalt shingle roof. The house, which was 40 feet long and 15 feet wide, had smoke alarms on each level but none had batteries. There were no sprinklers.

An occupant of the house called 911 to report the fire at 4:28 p.m. and firefighters arrived within minutes to extinguish the blaze.

Investigators determined that the victim used a lighter to ignite combustibles in a second-floor bedroom closet and then climbed the stairs to the third floor. The fire spread throughout the room and traveled up the stairwell to the third floor, where it blocked his exit. He died of burns.

The house, valued at $25,000, had losses estimated at $10,000. Its contents, valued at $10,000, sustained losses of $2,000.

Kenneth J. Tremblay, "Firewatch", *NFPA Journal*, September/October.

Mercantile building burns in suspicious fire, New Hampshire
A multi-tenant, mixed construction mercantile building sustained losses estimated at $1.5 million, although the efforts of firefighters and fire separations between the occupancies helped prevent more severe fire damage.

The single-story building was occupied by a commercial laundry, a roller-skating rink, an electrical supply company, and three retail stores. It was originally built in the 1940s and had been added onto in the 1970s. The older portion of the building, which was being demolished so the structure could be renovated, had concrete block walls, a wooden floor deck over a crawl space, and a wood-truss roof. The building's ceiling was 20 feet (6 meters) high, but wood-frame mezzanines had been created in some sections, lowering the ceiling in those areas. The larger, newer section of the structure had concrete block walls, with steel, open-web trusses and a metal deck roof covered by rubber membrane. A monitored fire detection system included heat detectors, manual pull stations, and some smoke detectors. There were no sprinklers.

The fire alarm system activated at 2:31 a.m., and responding firefighters saw heavy smoke coming from the building. The first-arriving officer established command and ordered a second alarm, while engine companies established a water supply for the master streams and large-diameter hose lines.

Firefighters tried to limit fire spread to internal exposures, but once the roof failed about 15 minutes into the operation, they began a defensive attack with exterior hose streams. They finally managed to extinguish the fire some 13 hours later.

Although investigators could not determine the cause of the fire, they considered it suspicious. It started in one of the stores at the rear of the older building and spread into the skating rink and the electrical supply company at the front of the structure, burning for some time before it managed to activate heat detectors on the bottom cord of the truss.

Although the separations between the building's occupancies helped limit fire spread, damage to the structure, which was valued at $1 million, was estimated at $900,000. Damage to its contents, valued at $750,000, was estimated at $500,000.

Kenneth J. Tremblay, "Firewatch", *NFPA Journal*, July/August.

Sprinkler controls nursing home fire, North Carolina
Nursing home staff responding to a fire alarm saw smoke coming from under a resident's door. Before they could attack the fire with their portable extinguishers, however, a sprinkler activated and put the flames out.

The single-story nursing home, which measured 200 feet (61 meters) by 132 feet (40 meters), provided 24-hour skilled nursing care. It was equipped throughout with a fire alarm and detection system that included smoke detectors with battery back-up. A full-coverage wet-pipe sprinkler system had also been installed.

The fire department responded to the fire alarm at 6:36 p.m. When firefighters arrived three minutes later, nothing was showing from the building, although they saw the remains of a burned chair outside the building under the window of the room of origin. When they entered the nursing home, they found that the staff had begun relocating residents to another nursing facility.

Investigators determined that a recliner in the room had been intentionally ignited by one of the room's residents. The chair was not properly rated for use in a nursing home.

Damage to the nursing home, valued at more than $4.4 million, was estimated at $25,000. Damage to the contents was estimated at $3,000. Two facility employees were treated for smoke exposure at the scene.

Kenneth J. Tremblay, 2015, "Firewatch", *NFPA Journal*, May/June.

Two die in house fire, Virginia
A 36-year-old woman and her 18-month-old son died in their single-family row house in a fire that investigators determined was intentionally set by the female victim.

The two-and-a-half story, wood-frame house, which measured approximately 30 feet (9 meters) by 20 feet (6 meters), had a hardwired smoke detector on the second floor, but investigators could not determine whether it operated during the fire.

A passerby saw smoke and flames coming from the house and reported the fire to a nearby fire station at 7:40 a.m. Responding firefighters found the woman trapped by flames on the porch roof and immediately raised a 24-foot (7-meter) ground ladder in an effort to rescue her. However, she became extremely combative and had to be forcibly prevented from re-entering the burning house. It took several firefighters to remove her from the roof. As crews advanced a hose line into the house, they found the child and removed him to the front yard, where he and his mother were treated for burns and smoke inhalation.

Upon entering the house, the investigators found the entire dwelling in disarray. Furniture throughout had been overturned and what appeared to be powdered laundry detergent had been strewn over everything. They determined that the fire began in the master bedroom on the second floor, where they found evidence of discarded cigarette butts, incense, and disposable lighters.

Investigators learned that the mother, who was suffering from a mental illness, was distraught over an impending eviction and had threatened to burn down her home.

Damage to the home, valued at $98,000, was estimated at $21,000.

Kenneth J. Tremblay, 2015, "Firewatch", *NFPA Journal*, May/June.

Sprinkler suppresses incendiary fire in nursing home, Oregon
A single sprinkler extinguished a fire on the second-floor landing of a stairwell in a nursing home before firefighters arrived.

The two-story, wood-frame building, which covered an area of approximately 40,000 square feet (3,716 square meters), had an NFPA 72-compliant fire detection system and an NFPA 13 Automatic fire sprinkler system that provided full coverage.

A central station alarm company monitored both the fire alarm system and water flow.

The fire department received the alarm at 12:25 p.m. By the time firefighters responded, they found that the sprinklers had already extinguished the blaze.

Investigators determined that someone had deliberately ignited a decorative grass plant on the landing. Fire damage was limited to the plant.

The building, which was valued at $4,127,000, sustained an estimated $11,000 in property damage. There were no injuries.

Kenneth J. Tremblay, 2014, "Firewatch", *NFPA Journal*, May/June.

Man dies in fire he started intentionally, Connecticut
A 43-year-old man died of smoke inhalation in a fire he intentionally set by igniting books and magazines in his apartment.

The victim's apartment was in a two-story, 50-unit, wood-frame apartment building, which was 84 feet (25 meters) long and 31 feet (9 meters) wide. The building had an automatic fire detection system that provided coverage in the common hallways, as well as battery-operated smoke alarms in the individual apartments. There were no sprinklers.

The fire department received the alarm at 1:38 a.m. from an occupant who called 911 after hearing the fire alarm sound. Firefighters extinguished the fire, which was limited to the unit or origin, and soon after they arrived.

Investigators determined that the victim placed a phone book and some magazines on top of the stove and set them on fire with a lighter. He also set fire to plastic CDs and CD cases in the living room.

The building, which was valued at $1.6 million, sustained damage estimated at $54,000. Damage to the building's contents was estimated to be around $4,000.

Kenneth J. Tremblay, 2014, "Firewatch", *NFPA Journal*, March/April.

Sprinklers control intentionally set fires in discount store, Texas
A 33-year-old man was accused of using a water gun filled with lighter fluid to start seven separate fires in a discount store after telling store employees to leave the building before he "blew the place up."

The store, which was located in a single-story strip mall with other retailers on either side, had concrete and brick walls and a metal roof with a built-up surface. It was protected by a NFPA 13-compliant, monitored wet-pipe sprinkler system and an NFPA 72-compliant fire alarm system.

The fire department was notified of the water flow alarm at 1:32 p.m., and fighters arrived two minutes later to find smoke coming from the building and the suspect in police custody. When they entered the store, they found a few fires still burning, but six sprinklers had already brought the rest of them under control.

Investigators found that the man had set seven fires in the retail display area and two in a rear receiving area by spraying the lighter fluid and igniting it.

The building, valued at $180,000, were destroyed by fire, smoke, and water. No one was injured.

Kenneth J. Tremblay, 2013, "Firewatch", *NFPA Journal*, November/December.

Sprinkler controls fire in school, Virginia
A student intentionally ignited paper towels and toilet paper in the boys' bathroom at his middle school, starting a fire that activated a single sprinkler, which limited fire damage to $1,000.

The two-story, steel-frame school had concrete block walls and a steel truss roof covered with a metal deck and a built-up roof surface. A monitored fire detection system and drypipe sprinkler system protected the entire property.

Smoke from the fire activated smoke detectors, and the waterflow alarm was tripped shortly after noon. Responding firefighters were met at the front door by the assistant principal, who reported smoke in the building. Crews found a fire smoldering in the first-floor bathroom and used a water can to extinguish the still burning paper towel dispenser.
Investigators determined that the boy deliberately used smoking materials to set fire to the paper towels and toilet paper.

The school, valued at almost $24 million dollars, sustained less than $1,000 damage.

Kenneth J. Tremblay, 2013, "Firewatch", *NFPA Journal*, May/June.

Suicide by fire, Ohio
A man suffering from mental illness committed suicide by scattering paper around his rented single-family house and setting it on fire.

The two-story, wood-frame house had a battery-operated smoke alarm in the basement but no sprinklers.

The victim, who had started a fire in the house on a previous occasion, had stopped taking his medication and was reported to be delusional. When police officers who had been asked to check on the man's welfare knocked on the door, he confronted them with a hedge trimmer and quickly

slammed the door shut. However, the officers managed to see wads of toilet paper and unrolled toilet paper strewn about the floor. While police were still outside, the man set the paper on fire.

The officers kicked the door in when they smelled smoke and were met by flames. Fire crews called to the scene found the victim in the dining room, overcome by smoke and heat.

The fire destroyed the house, which was valued at $95,000, and its contents, valued at $7,000.

Kenneth J. Tremblay, 2013, "Firewatch", *NFPA Journal*, May/June.

Sprinkler douses school fire, Utah
A sprinkler extinguished a fire set by an elementary school student in a classroom recycling bin.

The two-story elementary school's fire alarm system, which included smoke detectors and water flow alarm, was monitored by a central station alarm company, and a wet-pipe sprinkler system provided full coverage.

The student, who had just been reprimanded, was briefly left alone in a classroom. As he left the room he dropped a lighted match into the recycling bin, igniting the contents. Heat and flames spread to coats and backpacks hung above it, and smoke traveled from the classroom to the hallway, activating a smoke detector that sounded an internal alarm and notified the fire department at 2:10 p.m.

Firefighters arrived to find smoke on the second floor and were investigating its source when the sprinkler activated and extinguished the fire. Investigators and the school staff spoke to the student, who confessed to starting the fire.

Neither the value of the building and its contents nor the amount of damage was reported.

Kenneth J. Tremblay, 2013, "Firewatch", *NFPA Journal*, March/April.

Sprinklers foil suicide attempt, Florida
A 49-year-old woman staying at a substance abuse treatment center slashed her wrists and started a fire in her bedroom in an attempt to take her own life. However, the fire activated a sprinkler, which controlled the fire until firefighters arrived to extinguish it.

The treatment center was located in a three-story building that had concrete block walls and poured concrete floors. An NFPA 13 automatic fire sprinkler system provided full coverage, and hardwired smoke detectors had been installed both in and outside every bedroom in the facility.

Firefighters responded to the water-flow alarm from the central station alarm company at 8:45 p.m. and used a single 1¾-inch hose line to extinguish the blaze.

Investigators determined that the woman used a cigarette to start the fire in a pile of bedding she dumped on the floor next to her bed. As the fire grew, it spread to the mattress, pillow, and other bedding before the sidewall sprinkler activated. Upon hearing the alarm, occupants entered the room and dragged the woman outside to a landing, where she was treated before she was taken to the hospital. She survived her self-inflicted injuries. The fire department noted that “the sprinkler system activated properly…greatly lessening the damage to the building and contents and possibly saving the victim’s life.”

The building, valued at $333,000, sustained damage estimated at $10,000. Its contents, valued at $1,332,000, sustained $30,000 in damage.

Kenneth J. Tremblay, 2013, "Firewatch", *NFPA Journal*, January/February.

Man burns down home, commits suicide, Washington
A man committed suicide after deliberately setting his home on fire, as he had told relatives he would.

The single-story, wood-frame house, which was 40 feet (12 meters) long and 24 feet (7 meters) wide, was unsprinklered, and investigators were unable to determine whether it had any smoke alarms.

The fire department received two 911 calls reporting an explosion and fire at 2:34 a.m., and firefighters arrived four minutes later to find heavy fire coming from the front and rear of the house. The incident commander ordered a defensive attack to prevent the fire from spreading, and firefighters used three large-diameter hose lines to knock the fire down.

During his size-up, the incident commander found the victim's body sitting in a chair on a patio at the rear of the house with a gasoline container by his feet. His head injuries were consistent with a self-inflicted gunshot wound, and a gun was found on the ground under the victim's chair. After the fire was extinguished, the area around the home and the house itself became a crime scene.

Based on the degree of damage and evidence collected at the scene, investigators determined that the victim had poured an accelerant throughout the house and introduced a competent ignition source in the kitchen, which was the point of origin. The sudden ignition of flammable vapors caused a pressure wave that blew glass and building debris some 86 feet (26 meters) from the front of the house and 40 feet (12 meters) from the rear.

A family member told investigators that the man, whose age was not reported, had sent an e-mail stating he was going to burn down the house and take his life.

The house, valued at $75,000, and its contents, valued at $15,000, were completely destroyed.

Kenneth J. Tremblay, 2012, "Firewatch", *NFPA Journal*, November/December.

Child dies in house fire, Illinois
A five-year-old boy died and his 45-year-old mother was injured in a house fire that investigators believe was intentionally set.

The exterior walls of the three-story, wood-frame, single-family house, which was 40 feet (12 meters) long and 30 feet (9 meters) wide, were covered with vinyl siding. A smoke alarm had been installed in the basement near the stairway to the first floor. There were no sprinklers.

The home's occupants called 911 at 9:59 p.m. to report the fire, and firefighters arrived at the scene a minute later. By the time they extinguished the fire, it had done significant property damage. Although investigators could not determine the exact ignition scenario, they believe it was intentionally set on the rear porch and spread into the home from there.

The boy died of smoke inhalation, and his mother, who suffered from burns and smoke inhalation, sustained additional injuries when she fell or rolled off the front porch.

Damage to the house, valued at $75,000, was estimated at $60,000. Damage to its contents, valued at $40,000, was estimated at $30,000.

Kenneth J. Tremblay, 2012, "Firewatch", *NFPA Journal*, November/December.

Sprinklers control arson fire, Vermont
A fire intentionally set in a two-story office building that was closed for the night damaged an office and some adjacent space until sprinklers operated and prevented it from spreading from the area of origin.

The office building, which was 150 feet (45 meters) long and 70 feet (21 meters) wide, was of ordinary construction. It had smoke detectors and a wet-pipe sprinkler system.

The fire department received the municipal fire alarm at 3:03 a.m. when the smoke detection system activated. When firefighters arrived, they could not see any smoke or fire coming from the building. Upon investigation, however, they noticed light smoke in the foyer.

When they entered the building, they smelled fuel and initially suspected a furnace problem. They then saw water coming down the stairs and heavier smoke. Eventually, fire crews found a small fire burning in an office cubicle. The incident commander ordered a full first alarm and later asked for a second alarm. After firefighters extinguished the blaze, they shut down the sprinkler system and began their investigation.

When the investigators found signs of forced entry at the back of the building and were told by the first-in officer that he had noticed a fuel-like smell, they brought in resources from other jurisdictions and an arson dog. They determined that the fire started in two separate areas, near which the dog detected hydrocarbons. A review of the security tape showed an individual carrying something in each hand near the point of origin. A flash occurred while the individual was outside of camera range, and the camera caught the person hastily moving toward the exit. Estimates of damage to the building, which was valued at $1.6 million, were not reported. There were no injuries.

Kenneth J. Tremblay, 2012, "Firewatch", *NFPA Journal*, November/December.

Single-family home fire kills six, Washington
Date: April
Time of Alarm: 1:39 a.m.
Number of Deaths: 6

Number of Stories, Occupancy Type, Construction Type
This was a one-story, 1,925-square-foot (179-square-meter), single-family home of unprotected wood-frame construction, and it was occupied by one adult and five children.

Smoke Alarm and Other Protection Devices
There were no smoke alarms or automatic suppression system.

Fire Origin and Path
This incendiary fire was set in the living/dining area of this sparsely-furnished home as a murder/suicide. According to a Bureau of Alcohol, Tobacco and Firearms investigation report, gasoline and lighter fluid were spread on the floor throughout the dining/living area and on the walls. The floors in the area were non-absorbent wood laminate, which caused the liquids to pool, creating a large surface area of gasoline that produced vapors. Natural air currents and the functioning hot air furnace caused the vapors to disperse and mix, resulting in a fuel rich mixture at the floor. The introduction of an open flame resulted in a deflagration with an over-pressure event.

Contributing Factors and Victim Locations
When firefighters arrived, the house was 50 percent involved in fire, and a rear wall was pushed out. A primary search of the uninvolved area revealed no one. All six victims were found in the dining/living area, where they had been sleeping in a tent set up for the children.

Stephen G. Badger, 2012, "Catastrophic Multiple-Death Fires for 2011", NFPA Fire Analysis and Research, Quincy, MA.

Sprinklers control incendiary fire in retail store, Tennessee
A retail store's sprinklers helped contain a fire that started when someone used an open flame device to ignite combustibles in three separate areas, creating thick, black smoke that forced employees and customers to flee the building.
The single-story, steel-frame store, which sold general goods and clothing, had brick exterior walls. The building had a sprinkler system, but its type and coverage were not reported, nor was the presence or absence of fire detection or alarm equipment.

The fire department received a 911 call at 3:08 p.m., and arriving firefighters found staff and customers fleeing from the smoke coming from one of the store's entrances. They extinguished fires in three places.

Investigators determined that the fire was of incendiary origin and had been started in a fixed display of toilet paper, an end cap displaying paper napkins, and a fixed display of mops. They noted moderate to extensive heat damage to shelving and merchandise, and mild to moderate smoke and water damage to areas near the points of ignition.

Structural damage was estimated at $5,000, and damage to the store's contents was estimated at $10,000. There were no injuries.

Kenneth J. Tremblay, 2012, "Firewatch" *NFPA Journal*, July/August.

Sprinklers prevent major loss at vacant property, Utah
A single sprinkler extinguished a fire started unintentionally by a homeless person who was using a loading dock at a vacant retail store as a living space.

The building, which had once housed an electronics store, had concrete block walls covered by brick veneer and a steel- and wood-framed roof. A wet-pipe sprinkler system protected the building, and a dry-pipe sprinkler covered the loading dock.

By the time firefighters responded to a 911 call from a passerby, the sprinkler had already brought the fire under control.

Upon investigation, they found that a transient had set up camp under the loading dock's stairs. Evidently, the mattress he was using ignited, and the fire spread to truck bumper pads installed around the loading dock door. Heat collecting under the canopy fused the dry-pipe sprinkler, which extinguished the fire in the bumper pads and confined the remainder to the area below the stairs

The building, valued at $500,000, sustained $500 in damage. There were no injuries.

Kenneth J. Tremblay, 2012, "Firewatch," *NFPA Journal,* March/April.

Fire at vacant manufacturing plant blamed on arson, Wisconsin

Firefighters responding to a 911 call reporting a fire at a vacant manufacturing plant discovered that the building contained a number of empty plastic gasoline jugs, pointing to a possible arson fire.

The two-story building, which covered and area of 2,500 square feet (232 square meters), was constructed in the 1970s as a vinyl window manufacturer, with concrete block walls, lightweight steel parallel cord trusses, and wooden roof additions. Wooden mezzanines had been built inside under the 20-foot (6 meter) ceiling.

The plant originally had a wet-pipe sprinkler system, but it had been converted to a dry-pipe system supported by a portable air compressor due to lack of power and heat. A fire detection system using smoke and heat detectors had also been installed, but it, too, had been deactivated due to lack of power. The building had a history of utility shut-offs due to nonpayment.

Although the plant was not occupied at the time of the fire, homeless people often used it for shelter.

A passerby called 911 at 6:18 p.m. to report smoke coming from the building. When firefighters arrived, they found a column of black smoke coming from the center of the structure. Walking around the plant, the operations officer discovered a burning rag near a service door that had been propped open and smoke about 3 feet (0.9 meters) off the floor. He also saw a gasoline can about 12 feet (4 meters) inside the building.

Because of the strong probability of arson, the large amount of smoke and heat, concerns about structural integrity or booby traps, and the threat to firefighter safety, defensive tactics were recommended, as were evidence preservation efforts. Companies were ordered to support the sprinkler system using the fire department connection, as engine and ladder companies began to advance hose lines.

When support of the sprinkler system had little effect on the fire, firefighters found that the outside screw and yoke valve was shut. When the valve was opened, at least 20 sprinklers operated.

Once the fire was brought under control, firefighters found 16 fuel containers and multiple points of origin. Investigators later found more points of origin, as well as the remains of bedding, furniture, and other evidence of vagrants.

The value of the building and its contents was not reported.

Kenneth J. Tremblay, 2012, "Firewatch," *NFPA Journal,* January/February.

Sprinkler controls incendiary fire in department store, California
A single dry-pipe sprinkler operated and controlled a fire at a large department store, limiting damage to the building, which was occupied by shoppers at the time.

The single-story department store covered an area of approximately 10,000 square feet (929 square meters). It was equipped with a monitored fire detection and suppression system.

The alarm company reported a water flow alarm to the fire department at 4:36 a.m. When firefighters arrived four minutes later, they found smoke coming from the store's garden center.

Fire crews forced open a door in the chain link fence along the perimeter and advanced a hose line into the area, where they encountered cold smoke and a single operating sprinkler. They quickly extinguished the blaze, which had burned shelving racks containing flower pots and packaged potting soil, and activated the in-store ventilation system to clear the area of smoke.

Investigators later determined that the fire was incendiary.

The loss was estimated at $1,000.

Kenneth J. Tremblay, 2012, "Firewatch," *NFPA Journal*, January/February.

Sprinkler extinguishes incendiary fire at school, New Jersey
A sprinkler controlled a fire that was intentionally set in a second-floor boy's bathroom at a high school, limiting damage to the room. The roof and floor of the two-story, steel-frame school were constructed of open web steel bar joists. The metal deck roof had a rolled rubber and asphalt surface. A fire detection system provided full coverage, and a wet-pipe sprinkler system protected the science wing, which was where the fire started.

Firefighters received the alarm at 2:30 p.m. and found that a sprinkler had already extinguished the blaze. The building's fire walls and doors and the fire-rated ceiling prevented the fire from spreading.

Investigators determined that an unknown student used either a match or a lighter to set fire to a plastic toilet paper holder and that the resulting fire spread along the bathroom wall to the ceiling. There was a delay in extinguishment because the sprinkler nearest the fire had been installed with its shipping cap still in place. However, a second sprinkler near the door to the corridor activated and extinguished the blaze.

The school, which was valued at $10 million dollars, sustained $50,000 in damage. Its contents, valued at $5 million, sustained a loss of $25,000. There were no injuries.

Kenneth J. Tremblay, 2012, "Firewatch," *NFPA Journal*, January/February.

Fire started to cover murder, Kansas
Firefighters responding to a fire in a 24-unit apartment discovered the body of a woman who had been killed before the fire began.

Two occupants on the second floor of the unsprinklered, three-story, wood-frame building discovered the fire, one person when her carbon monoxide detector woke her and the other when her smoke detector operated, and both called 911. The first alarm was received at 4:54 a.m.

Arriving firefighters found nothing showing outside the building but, after talking to one of the callers, discovered the fire in a neighboring unit.

When they entered the apartment, they saw fire and smoke and began to evacuate occupants from the units on the floor above.

Crews advancing a hose line into the unit of origin noted two fires, one in the living room and one in the bedroom, where they discovered the victim's body. When they'd extinguished the two fires, they found a gasoline can in the living room and sealed the apartment for investigators.

The investigators determined that the woman had suffered severe head trauma and died before the perpetrator poured a trail of gasoline from the bedroom to the living room and ignited it with a lighter.

Damage to the building, valued at $500,000, was estimated at $40,000; damage to its contents was estimated at $10,000. There were no injuries.

Kenneth J. Tremblay, 2011, "Firewatch," *NFPA Journal*, January/February.

Sprinklers control fire in furniture warehouse, Virginia
Sprinklers controlled a fire in a furniture warehouse until firefighters arrived to extinguish it.

The single-story, steel-frame building, which was 1,500 feet (457 meters) long and 400 feet (122 meters) wide, had masonry walls and a steel-frame roof covered by metal decking topped with foam insulation and a rubber membrane. The building was protected by a wet-pipe sprinkler system with a monitored water flow alarm.

Firefighters received the alarm at 11:59 a.m. and had begun to respond when the warehouse manager canceled the alarm four minutes later. At 12:08 p.m., however, the manager called back to confirm that there was a fire, and firefighters once again responded. Despite the initial cancellation, the volunteers had continued to respond to fire department headquarters, so the cancellation did not cause a delay in response.

When fire crews arrived at the scene, they learned from employees that the fire was in the center of an aisle with stacked boxes of furniture. The employees had tried unsuccessfully to control the blaze using portable extinguishers, but the flames spread from the furniture to the roof, causing four sprinklers to operate and contain the fire. Because of the stacked storage, the seat of the fire was shielded from the sprinklers' discharge. Wearing SCBA, the firefighters used forklifts to remove furniture and extinguished the fire using hose lines.

Investigators suspect that the fire was intentionally set by someone who used an open-flame device to ignite the cardboard boxes.

Manual fire doors were closed during the fire, limiting fire damage to the immediate area. Estimates of property damage were not reported.

Kenneth J. Tremblay, 2011, "Firewatch," *NFPA Journal*, January/February.

Sprinkler extinguishes intentional fire in hospital, Florida
A single sprinkler extinguished a fire that a 58-year-old man set by igniting a paper towel dispenser in a single-occupant restroom at a hospital.

The 10-story hospital was constructed of steel and concrete, and had concrete block walls. The structure was protected by a fire detection system and a wet-pipe sprinkler system.

Firefighters responding to the alarm at 6:10 a.m. arrived 8 minutes later. Security personnel directed them to the second floor, where they found that a sprinkler had already extinguished the blaze.

Security cameras caught the man smoking near the bathroom just before the fire started. Investigators determined that he used his lighter to ignite the paper towels and that the fire spread to the wall-mounted dispenser. The sprinkler extinguished the blaze before it could spread to anything else.

The building and its contents, which were valued at more than $25 million dollars, sustained $24,000 in damage. There were no injuries. Police arrested the perpetrator

Kenneth J. Tremblay, 2011, "Firewatch," *NFPA Journal*, March/April.

Sprinklers confine warehouse fire to area of origin, Illinois

A warehouse that was subdivided into a number of different occupancies was spared significant damage when several sprinklers operated and confined to the area of origin a fire that had been set intentionally.

The single-story, steel-frame warehouse had a metal bar joist roof and steel decking covered by a tar and gravel roof 30 feet (9 meters) above grade. A wet-pipe sprinkler system provided full coverage, but the warehouse's fire and water flow alarms, though operational, were not monitored by a central station company.

The business in which the fire started was closed for the night, but another portion of the building was occupied, and the workers there called 911 at 3:54 a.m. to report that they saw smoke in the structure. Police arrived before the fire department and reported heavy smoke showing from the building, as did the first-in engine company. Advancing a hose line through a door on the side of the building, fire crews tried to establish a water supply using a private hydrant. However, the water pressure was poor.

Five to eight minutes after the first engine arrived, the building's exterior water motor gong sounded as the first sprinkler began operating. Firefighters made a trench cut in the roof to ventilate the warehouse as additional engine companies backed up the first engine, established a water supply, and supported the sprinkler system.

Investigators determined that a person or persons unknown intentionally set the fire in a section of the warehouse that was used by a company that sold palletized plastic bottles shrink-wrapped in plastic to food companies. The fire was started at the base of one pallet and spread to several others before the sprinklers operated and controlled the blaze.

Valued at $5 million, the warehouse sustained an estimated $500,000 in property damage. Its contents, valued at $3 million, sustained an estimated $1 million in damage. The fire department reported no injuries.

Kenneth J. Tremblay, 2011, "Firewatch", *NFPA Journal*, May/June.

Sprinkler extinguishes incendiary school fire, Arizona
A single sprinkler extinguished an incendiary fire at an occupied school, limiting property damage in the $4.3 million structure to roughly $43,000.

The single-story school, built in 2008, was constructed of masonry walls on a concrete slab with a prefabricated wooden truss roof covered by wood decking and a built-up roof surface. The interior partitions of the building were wood-framed. The school's fire alarm system, which included smoke detectors, and its wet-pipe sprinkler system were monitored by an alarm company.

Someone started the fire in the men's bathroom by setting paper towels alight in a large plastic waste barrel. Smoke from the fire tripped the smoke detector and the sprinkler, which extinguished the fire before firefighters responded to the 8 a.m. alarm.

There were no injuries.

Kenneth J. Tremblay, 2011, "Firewatch," *NFPA Journal*, July/August.

Sprinkler controls incendiary fire in college classroom, Pennsylvania
Sprinklers controlled an incendiary fire in a college classroom, and the building's fire alarm system alerted occupants, who safely evacuated. The building was open and classes were in session at the time of the fire.

The three-story, steel-frame building had concrete block walls and a wooden roof with a built-up surface. The building had an automatic detection system, but its type and coverage were not reported. A partial wet-pipe sprinkler system was monitored by a central station alarm company.

An unknown person deliberately ignited paper in a classroom in which teaching supplies were kept. The fire spread through the room until heat activated two sprinklers in the hallway, which confined the fire to the room of origin.

The building, valued at $5 million, sustained $100,000 in damage. Its contents, valued at $1 million, sustained damage estimated at $50,000. There were no injuries.

Kenneth J. Tremblay, 2010, "Firewatch", *NFPA Journal*, March/April.

Sprinkler controls incendiary fire in shopping mall, Tennessee
A single sprinkler operated during an incendiary fire, sparing a multi-million-dollar shopping mall significant damage.

The two-story, steel-frame mall had concrete floors and walls and contained 1.3 million square feet (121,000 square meters) of floor space. It was protected by a wet-pipe sprinkler system and had a fire detection system that provided smoke detection, elevator recall, and occupant notification, as well as a water flow alarm.

A mall employee discovered the fire shortly after it began in a first-floor housekeeping break room. He notified mall security, which met firefighters responding to the 5:30 p.m. water flow alarm and directed them to the site of the blaze.

Investigators determined that the fire began when an unknown individual used a match or a lighter to ignite a plastic bag on a housekeeping cart in the break room, which was located under a wooden mezzanine. The fire consumed the bag and its contents and began to spread to the underside of the mezzanine before it was subdued by a sprinkler.

The fire did approximately $10,000 in damage to the building, which was valued at $120,000 million, and its contents, valued at $60 million. There were no injuries.

Ken Tremblay, 2010, "Firewatch", *NFPA Journal*, May/June.

Four dead in apartment building fire, Michigan
An early morning fire spread from the second floor of a four-story apartment building, trapping and killing a 38-year-old woman and three men, ages 44, 53, and 63.

The unsprinklered building was constructed of heavy timber construction with a brick exterior and a flat roof covered by a rubber membrane. It had only local smoke alarms, which operated as designed, alerting the residents, most of whom were asleep at the time.
The fire began in a second-floor laundry room and spread throughout the building. The 44-year-old man was found on the third floor. The locations of the woman and the other two men were not reported.

The building, valued at $750,000, and its contents, valued at $60,000, were destroyed. A resident of the building has been charged with setting the fire and is awaiting trial.

Ken Tremblay, 2010, "Firewatch," *NFPA Journal*, July/August.

Two intentional fires in foreclosed home, Arizona
An intentionally set fire substantially damaged the second floor of a large, single-family house. Although the house, which was under foreclosure, had a fire sprinkler system, it failed to operate because the water had been shut off due to nonpayment.

The two-story wood-frame home, which covered approximately 5,900 square feet (548 square meters), was vacant at the time of the fire. All it contained was some trash and an upholstered couch. Hardwired smoke detectors were located in the common areas and bedrooms, but they had been disabled by lack of electricity.

A neighbor noticed the fire and called 911 at 11:58 p.m. Firefighters arrived minutes later to find heavy smoke and flames coming from the second floor, and extinguished the blaze using a tower ladder and several monitor nozzles.

Investigators found evidence that a door had been forced open before the firefighters arrived. They also determined that an accelerant poured on the second floor and in the first floor hallway had been ignited by an unknown ignition source. The fire consumed some of the remaining contents before it spread through structural floor and ceiling voids to the attic.

The home, valued at $1 million, incurred $200,000 in damage.

Two nights later, the house was destroyed by a second fire. By the time firefighters were summoned to the property at 8:05 p.m., flames were visible on both floors of the structure, and they had to use more than 160,000 gallons (606,000 liters) of water to extinguish the blaze.

Investigators found that the lock on the natural gas supply valve had been broken and that valves on the gas line in the laundry room had been opened before an accelerant poured in a first-floor hallway was ignited. The fire spread up the open stairs and vented through the roof, which had been opened during the previous fire.

Ken Tremblay, 2009, "Firewatch," *NFPA Journal*, September/October.

Incendiary fire destroys abandoned building, North Carolina
An intentionally set fire damaged a large abandoned manufacturing building that had been condemned and was slated for demolition. It was being used for storage, and its contents provided the fire's fuel.
The three-story building, which was 300 feet (91 meters) long and 150 feet (46 meters) wide, was constructed of heavy timber with dimensional structural wood framing and brick walls. Its flat roof was covered by tar roofing material. A sprinkler system had been installed, but previous freeze-ups and falling timbers had caused the piping to break, rendering it useless.

A passerby called 911 at 6:26 p.m., and fire companies arriving four minutes later fought the blaze defensively because of the existing structural problems. Investigators determined that someone had ignited plastics and rolls of paper stored on the first floor near the middle of the warehouse.

There were no injuries.

Ken Tremblay, 2009, "Firewatch," *NFPA Journal*, September/October.

Intentionally set fire kills two, Louisiana
A 20-year-old man and an 8-month-old baby boy died of smoke inhalation when they were trapped by an intentionally set fire in their unsprinklered manufactured home. Three other occupants escaped.

The single-story, wood-frame home, which was 16 feet (5 meters) wide and 80 feet (24 meters) long, had a smoke alarm that failed to operate.

Investigators determined that someone intentionally ignited clothing and a mattress in a middle bedroom and that the fire spread out of the room into the hallway. Three of the occupants managed to escape and called 911 from a cell phone, but the man and the baby were in the master bathroom with the door closed. By the time he discovered the fire, it had blocked the door to the hallway; furniture partially blocked a bathroom window. Firefighters found the man lying in the doorway between the bedroom and bathroom and the baby lying up against the tub.

The home, which was valued at $25,000, and its contents, valued at $8,000, were destroyed.

Ken Tremblay, 2009, "Firewatch," *NFPA Journal*, November/December.