Key Findings

- Municipal fire departments in the United States responded to an estimated annual average of 52,260 intentionally set structure fires in the five-year period from 2014 to 2018.
- These fires caused an estimated 400 civilian deaths, 950 civilian injuries, and $815 million in direct property damage each year.
- Three in five intentionally set structure fires occurred in residential properties. Most of these occurred in homes.
- Intentional fires most often occurred in the late afternoon and early evening hours from 4 p.m. to 9 p.m.
- Intentional structure fires most often began with the ignition of rubbish, trash, or waste, accounting for just over one-fifth of the total number of intentional structure fires.
- Over one-third of the intentional structure fires were ignited in an outdoor area, either in an unclassified area or a lawn, field, or open area.
- Bedrooms and kitchens were the leading areas of origin inside structures, each accounting for 6 percent of the intentional structure fires.
- More than half of the intentional structure fires were ignited by either a lighter or match, and the fires ignited by a lighter accounted for more than half of all the civilian injuries.

Intentional Structure Fires

Municipal fire departments in the United States responded to an estimated annual average of 52,260 intentionally set structure fires in the five-year period from 2014 to 2018. These fires caused an estimated 400 civilian deaths, 950 civilian injuries, and $815 million in direct property damage each year. Intentional structure fires accounted for 11 percent of all the structure fires in 2014–2018, as well as 14 percent of the civilian deaths, 7 percent of the civilian injuries, and 8 percent of the direct property damage, as indicated in Figure 1.

As defined in the National Fire Incident Reporting System (NFIRS), intentional fires are fires caused by the deliberate misuse of a heat source or fires of an incendiary nature. Accordingly, arson fires are just one component of the intentional fires reviewed in this report. Specific attention is paid to intentional structure fires that have been reported to US fire departments. Summary data for intentional fires that involved vehicles or that occurred in outdoor areas are included in the supporting tables.

Intentional fires are more common in some types of structures than in others. As shown in Figure 2, three in five structure fires that were intentionally set occurred in residential properties. These fires caused most of the direct property damage associated with intentional structure fires. As indicated in the separate tables document, residential fires also accounted for nearly all the intentional fire deaths and injuries.

Most of the residential fires involved homes. A recent NFPA report on home structure fires shows that fires that were intentionally set were the fourth leading cause of home structure fires in 2014–2018, as well as the associated deaths, injuries, and direct property damage.
Outside or special properties, such as mailboxes or bridges, were the sites of just over one-fifth of the intentional fires, but accounted for insignificant shares of the deaths, injuries, and direct property damage. Intentional fires were substantially less likely to involve other types of structures. Relatively small shares of the intentional fires occurred in storage facilities, mercantile or business structures, and assembly or educational properties. However, intentional fires in mercantile or business properties accounted for a disproportionately higher share of the direct property damage relative to the share of fires.

**Intentional Structure Fires by Year**

Figure 3 shows the estimated annual number of intentional structure fires each year for the 15-year period from 2004 to 2018.

As indicated by the data, the estimated annual number of intentional structure fires declined each year from 2005 to 2010, but it has shown substantial fluctuation in the years since, following a general upward trend. The number of intentional fires over the 15-year period ranged from a low of 46,300 in 2010 to a high of 55,700 in 2017.

Additional information on the deaths, injuries, and direct property damage associated with intentional fires by year is available in Table 5 of the accompanying tables.

**Figure 3. Intentional Structure Fires by Year, 2004–2018**

**Timing of Intentional Structure Fires**

**Time of Day**

Intentional structure fires were more likely to occur at certain times of the day than others. As shown in Figure 3, intentional fires most often occurred in the late afternoon and early evening hours from 4 p.m. to 9 p.m. While accounting for one-third of the fires during this time period, these fires caused much smaller shares of civilian deaths, injuries, and direct property damage. It’s likely that losses were lower because these fires were more likely to be readily detected than fires in the late and overnight time periods.

Intentional structure fires were less likely to occur in the overnight hours between midnight and 8 a.m., accounting for one-fifth of the total. These fires accounted for two in five civilian deaths, three in ten civilian injuries, and nearly half of the direct property damage. See Figure 4.
Day of the Week

Intentional structure fires showed little variation by the day of the week but were somewhat more likely to occur on Saturdays and Sundays, as shown in Figure 5. The fewest fires took place on Wednesdays and Thursdays.

Month

Intentional structure fires showed little variation by month, with the smallest share of fires occurring in February with 7 percent of the total. All the other months accounted for 8 or 9 percent of the annual total, as shown in Figure 6.

Heat Source

More than half of the intentional structure fires were ignited by either a lighter (31 percent) or match (22 percent) and the fires ignited by a lighter accounted for more than half of all the civilian injuries. Other leading heat sources included a flame or torch, hot ember or ash, and incendiary devices. Intentional fires ignited by incendiary devices accounted for a disproportionate share of civilian deaths. See Figure 7.
Area of Origin

Over one-third of the intentional structure fires were ignited in an outdoor area, either in an unclassified area (25 percent of total) or a lawn, field, or open area (10 percent). These fires were responsible for low shares of deaths, injuries, or direct property damage, as indicated in Figure 8. Bedrooms and kitchens were leading areas of origin inside the structure, each accounting for 6 percent of the intentional structure fires. Intentional fires originating in a bedroom produced the largest numbers of civilian deaths and injuries. Bathrooms and living rooms were also among the leading areas of origin, with the latter accounting for disproportionately higher shares of deaths and injuries relative to the share of fires.

Item First Ignited

Intentional structure fires most often began with the ignition of rubbish, trash, or waste, which accounted for just over one-fifth of the total number of intentional structure fires. However, these fires were associated with few deaths or injuries and little direct property damage. Paper materials, light vegetation, flammable and combustible liquids and gases, organic materials and mattresses, and bedding materials were other items most often first ignited in intentional structure fires. The fires involving the ignition of flammable and combustible materials accounted for the largest shares of deaths, injuries, and direct property damage, as shown in Figure 9. Fires involving the ignition of mattresses or bedding materials also resulted in disproportionately shares of deaths, injuries, and direct property damage.
Safety Tips to Prevent Intentional Fires

- Reduce temptation. Maintain grounds and keep trash and other combustible materials away from buildings.
- Keep doors and windows locked when no one is in the building.
- Board up abandoned properties.
- Store flammable liquids in an approved storage location.

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