Fires in Dormitory-Type Properties

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Key Findings

- United States fire departments responded to an estimated average of 3,840 structure fires in dormitories, fraternity houses, sorority houses, and barracks each year in 2015–2019.
- Fires in dormitory-type properties caused annual averages of 29 civilian injuries and $11 million in direct property damage during that period.
- There was an average of fewer than two civilian fatalities a year over the five-year period.
- Most of these fires occurred in unclassified dormitory-type occupancies, with smaller shares of the fires in barracks or dormitory properties and in sorority or fraternity houses.
- Approximately three out of four fires in these properties began in the kitchen or cooking area. Cooking equipment was involved in nearly nine out of 10 fires.
- Unattended equipment was the most common factor contributing to the ignition of these fires.
- Approximately nine out of 10 fires (89 percent) were classified as confined fires that did not extend beyond the object of origin.
- Saturday and Sunday were the peak days for these fires. However, fires occurring on weekdays generally accounted for larger shares of injuries.
- The peak time of day for fires in dormitory-type properties was between 4 p.m. and midnight when over half of the fires occurred.
- Fires were least likely to occur between midnight and 8 a.m., but these fires accounted for disproportionate shares of the injuries and direct property damage.
- September and October were the peak months for fires in dormitory-type properties, while the fewest number of fires were recorded in June and July.

Structure Fires in Dormitory-Type Properties

This report provides information about structure fires in dormitories, fraternity and sorority houses, monasteries, bunkhouses, barracks, and nurses’ quarters or related properties reported to local fire departments. In the National Fire Incident Reporting System (NFIRS), these are identified by property use codes 460–469. For convenience, they are collectively referred to in this report as dormitory-type properties. Estimates in this report were derived from NFIRS and the NFPA fire experience survey. For more information on the methodology used, see *How NFPA’s National Estimates Are Calculated for Fires*. Additional details can be found in the companion supporting tables.

During the five-year period of 2015–2019, US fire departments responded to an estimated average of 3,840 structure fires in dormitories, fraternity houses, sorority houses, and barracks each year. These fires caused annual averages of 29 civilian injuries and $11 million in direct property damage. There was an average of fewer than two civilian fatalities a year over the five-year period. Due to low numbers, civilian deaths are not included in this analysis. Most fires occurred in unclassified dormitory-type occupancies (82 percent), while 13 percent of the fires occurred in barracks or dormitory properties and 5 percent occurred in sorority or fraternity houses. (See Figure 1 and Table 12).

![Figure 1. Structure Fires in Dormitory-Type Properties by Property Use, 2015–2019 Annual Averages](chart)
Fires in Dormitory-Type Properties by Year

As shown in Figure 2, the number of structure fires occurring annually in dormitory-type properties increased between 2010 and 2014, then began a steady decline in the number of fires between 2015 and 2019.

Table 1 in the tables accompanying this report shows the annual fires and losses since 1980. The data indicates that the number of fires in these properties since 2003 has been higher than the 3,200 fires in 1980, the peak prior to 2000. The increasing number of fires in recent years is a departure from the decline in the number of fires in dormitory-type properties between 1980 and 1998. Much of the increase is likely due to the introduction of Version 5.0 of NFIRS in 1999, its gradual adoption, and a reduction in the data required from the fire service when reporting minor cooking fires in NFIRS 5.0.

Timing of Fires in Dormitory-Type Properties

Fires in dormitory-type property structures were more common on weekends than during the week. As shown in Figure 3, Saturday (15 percent) and Sunday (16 percent) were the peak days for these fires. However, the fires occurring on weekdays generally accounted for larger shares of injuries. This may potentially be because some occupants are away from their residences on weekends and a greater occupancy of residences during the week.

Figure 4 shows that the peak time of day for fires in dormitory-type properties was between 4 p.m. and midnight; over half of the fires occurred during this time (53 percent). Fires were least likely to occur between midnight and 8 a.m., but these fires accounted for disproportionate shares of the injuries and direct property damage. Occupants are more likely to be asleep during fires in the overnight hours, providing more time for fires to spread and become more destructive.
September and October were the peak months for fires in dormitory-type properties and the fewest number of fires were recorded in June and July. As indicated in Figure 5, direct property damage was disproportionately high relative to the share of fires in January, June, and August when dormitory-type properties have lower occupancy. This was not true, however, for July.

![Figure 5. Structure Fires in Dormitory-Type Properties by Month, 2015–2019 Annual Averages](image)

Leading Causes of Fires in Dormitory-Type Properties

Cooking equipment was involved in nearly nine out of ten reported fires in dormitory-type properties (87 percent). Although cooking equipment was involved in most of the fires, fires with other causes were responsible for disproportionately larger shares of the direct property damage and civilian injuries. Fires that were intentionally set represented 4 percent of the fires in dormitory-type properties but accounted for 27 percent of the direct property damage, while electrical distribution and lighting equipment represented just 2 percent of the fires but accounted for 11 percent of the direct property damage, as well as 5 percent of the civilian injuries. Fires caused by heating equipment accounted for 2 percent of the fires but 7 percent of the direct property damage. See Figure 6.

![Figure 6. Structure Fires in Dormitory-Type Properties by Leading Cause, 2015–2019 Annual Averages](image)

Factors Contributing to Fires in Dormitory-Type Properties

Unattended equipment was the most common factor contributing to the ignition of these fires. Figure 7 shows that unattended equipment was a factor in three out of ten (27 percent) fires, and these fires accounted for one in ten (10 percent) of the civilian injuries and 16 percent of the property damage. An unclassified misuse of a material or product was a factor in 16 percent of the fires and accounted for one-fifth (20 percent) of the civilian injuries. Abandoned or discarded materials were a factor in 14 percent of the fires but just 4 percent of the civilian injuries. A heat source that was too close to combustible materials was a factor in 7 percent of these fires but was responsible for 30 percent of the injuries.
Heat Sources for Fires in Dormitory-Type Properties

Radiated heat from operating equipment and unclassified heat from powered equipment were the leading heat sources in these fires. Radiated or conducted heat from operating equipment provided the heat source for just over one-third of the fires (35 percent), while approximately three in ten fires (28 percent) were started by unclassified heat from powered equipment and one in ten (11 percent) by an unclassified heat source, as indicated in Figure 8.

Area of Origin for Fires in Dormitory-Type Properties

Approximately three out of four (74 percent) fires in these properties began in the kitchen or cooking area, accounting for 60 percent of the civilian injuries and 14 percent of the direct property damage as shown in Figure 9. The second leading area of origin was the bedroom, which accounted for 6 percent of the fires, but these fires were associated with just over one-fifth (22 percent) of the civilian injuries and 13 percent of the direct property damage. Smaller shares of the fires originated in lavatories or bathrooms, lounges or living rooms, laundry rooms, or trash chutes or areas (Figure 9 and Table 10).
**Additional information**

The NFPA has additional resources available for those interested in safety issues in these properties. Combined information about fire incidents, safety tips, related articles, and links to other organizations can be found at www.nfpa.org/campussafety.

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