



RESEARCH



Fires in Dormitory-Type Properties

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Key Findings

- United States fire departments responded to an estimated average of 3,379 structure fires in dormitories, fraternity houses, sorority houses, and barracks each year during 2017–2021.
- Fires in dormitory-type properties caused an annual average of 23 civilian injuries and \$12 million in direct property damage during that period.
- There was an average of two civilian fatalities per year over the five-year period.
- Most of these fires occurred in unclassified dormitory-type occupancies, with smaller shares of the fires occurring in barracks, dormitory properties, and 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 9 out of 10 fires.
- Unattended equipment was the most common factor contributing to the ignition of these fires.
- Approximately 9 out of 10 fires (88 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 that occurred on weekdays 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 a greater share of the injuries and direct property damage.
- February, 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.

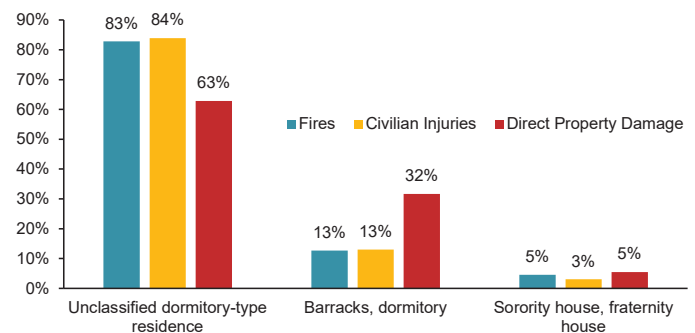
Structure Fires in Dormitory-Type Properties

This report includes 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 with 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 2017–2021, US fire departments responded to an estimated average of 3,379 structure fires in dormitories, fraternity houses, sorority houses, and barracks each year. These fires caused an annual average of 23 civilian injuries and \$12 million in direct property damage. There was an average of two civilian fatalities per year over the five-year period. Due to low numbers, civilian deaths are not included in any further analysis.

Most fires occurred in unclassified dormitory-type occupancies (83 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 in the [supporting tables](#). Totals do not equal 100 percent due to rounding.)

Figure 1. Structure Fires in Dormitory-Type Properties by Property Use: 2017–2021 Annual Averages

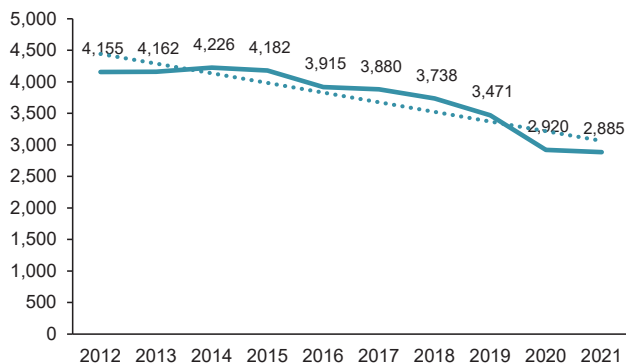


Fires in Dormitory-Type Properties by Year

As shown in Figure 2, the number of structure fires that occur annually in dormitory-type properties has steadily declined since 2012. The sharp drop in the 2020 and 2021 numbers can most likely be attributed to a large percentage of colleges and universities operating remotely.

Table 1 in the [tables accompanying this report](#) shows the annual fires and losses caused by fires in dormitory-type properties since 1999. The data indicates that the number of annual fires was at its peak in 2014 (4,226). The annual number of fires in these properties has steadily declined since that year with the sharp drop-off occurring in 2020.

Figure 2. Structure Fires in Dormitory-Type Properties by Year: 2012–2021



Timing of Fires in Dormitory-Type Properties

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

Figure 3. Structure Fires in Dormitory-Type Properties by Day of Week: 2017–2021 Annual Averages

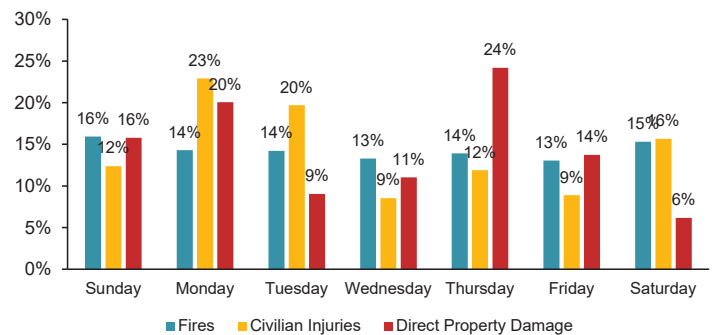
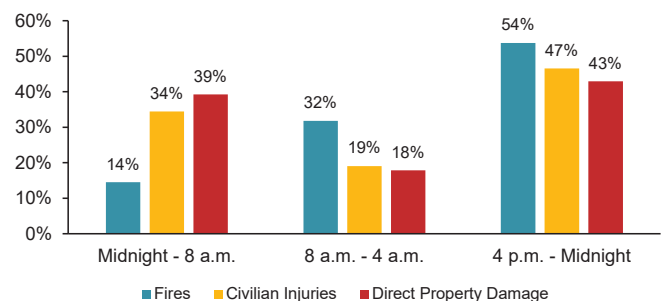
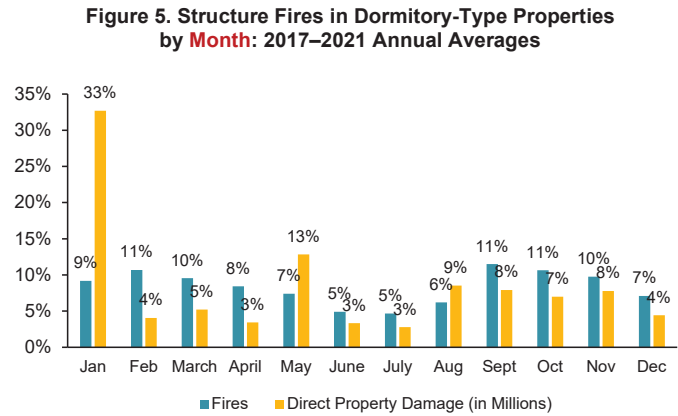


Figure 4 shows that the peak time of day for fires in dormitory-type properties was between 4 p.m. and midnight; over half of the fires occurred during this time (54 percent). Fires were least likely to occur between midnight and 8 a.m., but these fires accounted for disproportionate shares of the injuries 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.

Figure 4. Structure Fires in Dormitory-Type Properties by Time of Day: 2017–2021 Annual Averages

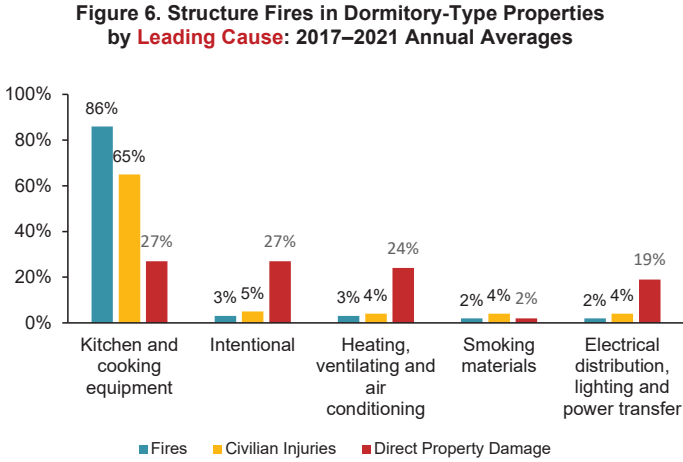


February, September, and October were the peak months for fires in dormitory-type properties, and the lowest number of fires was recorded in June and July. As indicated in Figure 5, direct property damage was disproportionately high relative to the share of fires in January, May, and August when dormitory-type properties have lower occupancy. This was not true, however, for July, which saw the fewest fires. See Table 2 for additional details.



Leading Causes of Fires in Dormitory-Type Properties

Cooking equipment was involved in nearly 9 out of 10 reported fires in dormitory-type properties (86 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. Intentionally set fires accounted for 27 percent of the property damage. Fires involving heating, ventilating, and air conditioning equipment and those involving electrical distribution, lighting, and power transfer equipment accounted for 24 percent and 19 percent of the fires, respectively. See Figure 6.

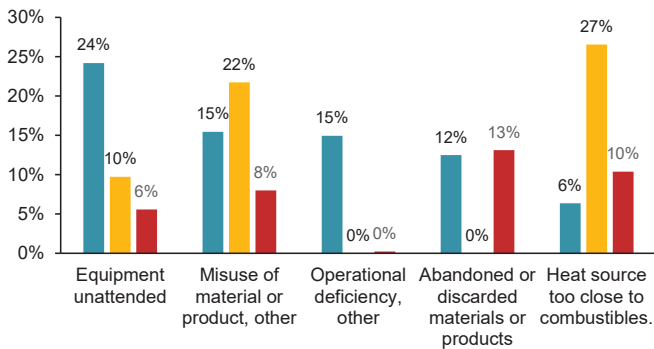


Factors Contributing to Fires in Dormitory-Type Properties

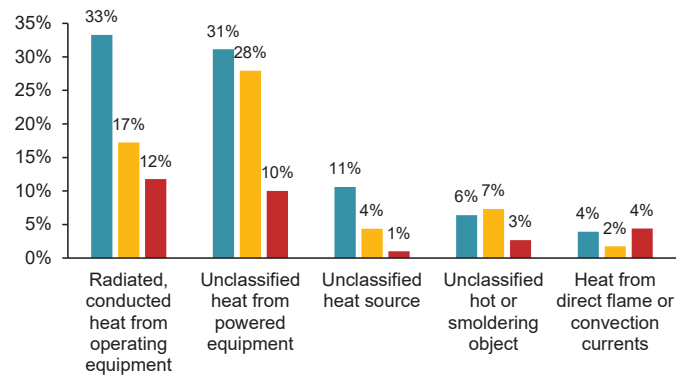
Unattended equipment was the most common factor that contributed to the ignition of these fires. Figure 7 shows that unattended equipment was a factor in roughly one quarter (24 percent) of all the fires, and these fires accounted for 1 in 10 (10 percent) of the civilian injuries and 6 percent of the property damage.

Unclassified misuse of a material or product was a factor in 15 percent of the fires and accounted for more than a fifth (22 percent) of the civilian injuries. Abandoned or discarded materials were a factor in 12 percent of the fires but none 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 27 percent of the injuries.

**Figure 7. Structure Fires in Dormitory-Type Properties
by Factor Contributing to Ignition: 2017–2021 Annual Averages**



**Figure 8. Structure Fires in Dormitory-Type Properties
by Heat Source: 2017–2021 Annual Averages**



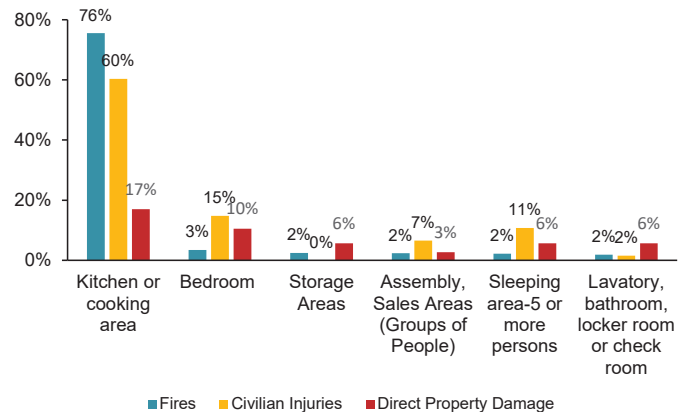
Heat Sources of Fires in Dormitory-Type Properties

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 approximately one-third (33 percent) of the fires, while approximately 3 in 10 fires (31 percent) were started by unclassified heat from powered equipment and 1 in 10 (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 (76 percent) fires in these properties began in the kitchen or cooking area, accounting for 60 percent of the civilian injuries and 17 percent of the direct property damage, as shown in Figure 9. Bedrooms (3 percent) and other sleeping areas (2 percent) together accounted for 5 percent of the fires. These fires were associated with just over one-fourth (26 percent) of the civilian injuries and 16 percent of the direct property damage. Smaller shares of the fires originated in lavatories or bathrooms, assembly areas, and storage areas (Figure 9 and Table 10).

**Figure 9. Structure Fires in Dormitory-Type Properties
by Area of Origin: 2017–2021 Annual Averages**



Additional information

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.

Acknowledgments

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 makes this analysis possible. Their contributions allow us to estimate the size of the fire problem.

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

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