

# **U.S. Fire Administration TOPICAL FIRE RESEARCH SERIES**

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## **Fraternity and Sorority House Fires**

### **FINDINGS**

- Fires in fraternity/sorority houses are five times more costly on average than those that occur in dormitories.
- Arson is the leading cause of fraternity/sorority house fires; open flame is the next leading cause, with candles playing a major role.
- Fires in fraternity/sorority houses peak when the college or university is in session. Fires also peak on weekends.
- Smoke alarms operate nearly twice as often in fraternity/sorority house fires than in all residential structures.

Sources: NFPA and NFIRS

Each year in the United States, there are an estimated 150 fires in fraternity and sorority houses. From data reported to the National Fire Incident Reporting System (NFIRS), these fires are responsible for 10 civilian casualties and \$2.1 million in property loss annually.<sup>1</sup>

This report examines the characteristics of fires coded in NFIRS as specifically occurring in fraternity or sorority houses. The data do not distinguish between fraternity and sorority houses. Anecdotal evidence, however, suggests that fires are more common in fraternity houses than in sorority houses.

Figure 1 compares the loss measures for all residential structure and dormitory fires with those in fraternity and sorority houses. Fraternity/sorority house fires tend to cause more damage and injuries than other fires in residential structures and in dormitories. These fires are likely more damaging than dormitory fires because of regulations requiring dormitories to meet specific building codes (e.g., construction materials).

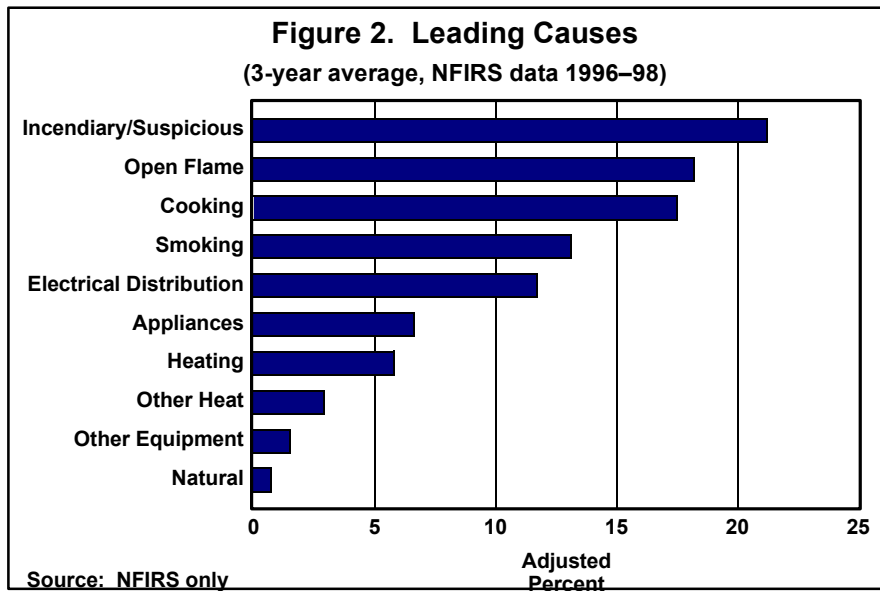
**Figure 1. Loss Measures for Structure Fires**  
(3-year average, NFIRS data 1996–98)

LOSS MEASURE	ALL RESIDENTIAL STRUCTURE FIRES	DORMITORY FIRES	FRATERNITY/SORORITY FIRES
Dollar Loss/Fire	\$11,271	\$3,045	\$15,808
Injuries/1,000 Fires	48.0	45.7	85.9
Fatalities/1,000 Fires	7.7	0	02

Source: NFIRS only

## CAUSES

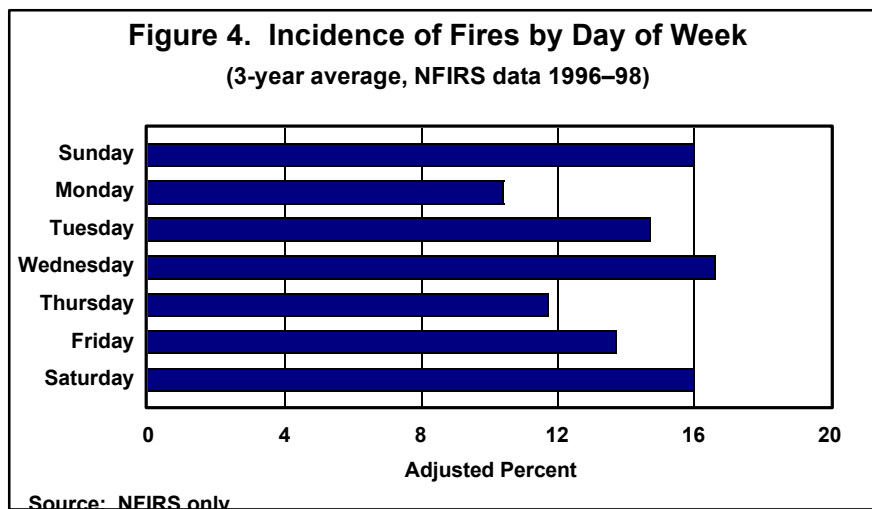
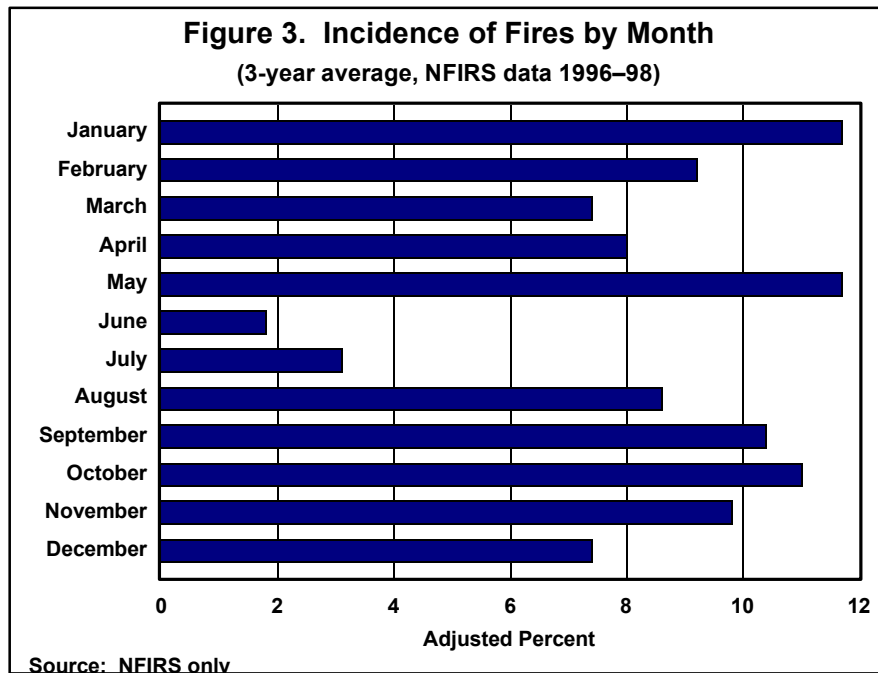
The leading cause of fraternity and sorority house fires is arson (incendiary/suspicious), with open flame and cooking ranked second and third (Figure 2). In contrast, cooking is the leading cause of general residential structure fires, followed by heating.



Arson fires in fraternity and sorority houses are particularly troubling, because they occur at a higher rate than in all residential structures (21% vs. 14%).

## WHEN FIRES START

Figures 3 and 4 illustrate the incidence of fraternity/sorority house fires by month and by day of week, respectively. As expected, there are fewer fires associated with months that universities are not in full session (e.g., summer). Peak months for fires are January, May, September, and October. Possible explanations for these peaks include graduation parties and “rush” events at the beginning of the fall and spring semesters.



Fraternity/sorority house fires fluctuate throughout the week, but they tend to peak on weekends and on Wednesdays. Weekends are times of increased social functions, and Wednesday is sometimes considered a day for “mid-week” activities.

## SOURCES OF IGNITION

Figure 5 lists the leading ignition sources for fraternity/sorority house fires. Gas-fueled equipment is most often involved in cooking fires; electrical equipment is involved in cooking and appliance fires. Candles play a predominant role in open flame fires.

<b>Figure 5. Leading Ignition Sources</b>	
<b>(3-year average, NFIRS data 1996–98, adjusted percentage)</b>	
<b>AREA OF FIRE ORIGIN</b>	<b>PERCENT OF FIRES</b>
Gas-Fueled Equipment	15
Candles	14
Cigarettes	12
Electrical Equipment	11

Source: NFIRS only

## SMOKE ALARM PERFORMANCE

Smoke alarms are more likely to operate in fraternity/sorority house fires than in all residential fires (Figure 6). This finding is related to the fact that the installation of smoke alarms are usually required in fraternity and sorority houses. Also, responsibility for the maintenance of these alarms most often rests with the educational institution rather than with the homeowner or fraternity/sorority student body itself.

<b>Figure 6. Smoke Alarm Performance</b>		
<b>(3-year average, NFIRS data 1996–98, adjusted percentage)</b>		
<b>SMOKE ALARM</b>	<b>FRATERNITY/ SORORITY HOUSE FIRES</b>	<b>ALL RESIDENTIAL STRUCTURE FIRES</b>
In Room, Operated	58	22
Not in Room, Operated	13	16
In Room, Did Not Operate	7	7
Not in Room, Did Not Operate	9	11
Fire Too Small To Activate	4	4
No Alarms Present	10	39

Source: NFIRS only

## **EXAMPLES<sup>3</sup>**

- In March 2000, a fire in an off-campus fraternity house killed three students. In October 1994, a fraternity house fire at the same university killed five students.<sup>4</sup>
- In December 1999, a 19-year-old freshman was killed while he slept in in fraternity house room. A burning candle ignited his bedding. Smoke alarms and fire suppression systems in the house were not operational at the time of the fire.<sup>5</sup>
- In October 1993, a fire at a sorority house killed a 20-year-old sophomore and injured two others. The house had smoke alarms, which operated properly.<sup>6</sup>
- In October 2001, a fire ignited by a candle destroyed a fraternity house. Smoke alarms in the house had been covered with plastic bags, which delayed the fire departments response.<sup>7</sup>

## **CONCLUSION**

In the wake of deadly fraternity and sorority house fires, many fire service and educational professionals have called for more stringent regulations requiring houses to have smoke alarms and sprinkler systems.

For further information on fraternity and sorority house fires, contact your local fire department or the USFA.

## **NOTES:**

1. National estimates are based on data from the National Fire Incident Reporting System (NFIRS) (1996-1998) and the National Fire Protection Association's (NFPA's) annual survey, *Fire Loss in the United States*.
2. Since deaths are rare and because this report represents statistical estimates based on a sample of fires, it is possible that the estimates reflect no deaths during a time period where a fatal fire occurred.
3. Although NFIRS data show that fatalities from fraternity/sorority fires are rare, these fires garner the most media attention. Thus, smaller fires that cause no casualties may not receive such attention.
4. "Fire Kills 3 in Off-Campus Fraternity at Bloomsburg U in PA," *St. Louis Post-Dispatch*, March 20, 2000.
5. "Death Prompts Suit Against Mizzou Fraternity," *St. Louis Post-Dispatch*, December 5, 1999.
6. "Cause of Fatal Sorority House Fire Still Undetermined," *Minneapolis Star-Tribune*, October 26, 1993.
7. "Fire Destroys UMASS Fraternity House," *The Boston Globe*, October 7, 2001.

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