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Grill Fires

FINDINGS

- Each year, an average of 6,500 grill fires result in nearly $27 million in property loss.
- Most grill fires are associated with residences.
- Grill fires increase during the warm-weather months, corresponding to increased outdoor recreational activities.
- As the public increases its use of gas grills, the number of gas grill fires has increased significantly, with a corresponding drop in charcoal fires.
- Mechanical failure or malfunction is by far the leading ignition factor for grill fires.

Sources: NFPA and NFIRS

Each year, the fire service responds to an estimated 6,500 grill fires. These fires account for 150 civilian injuries, less than 5 civilian deaths, and $27.6 million in property loss (Figure 1).[1] Together, these three areas account for two-thirds of all residential grill fires. Of these grill fires, 71% occur in residential areas.[2] In residential areas, 63% of grill fires occur outside the structure, while 32% percent are coded as "structure fires."[3] This report examines the characteristics of all grill fires, with specific focus on outdoor grill fires occurring in residential areas—the most common type of grill fire.

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

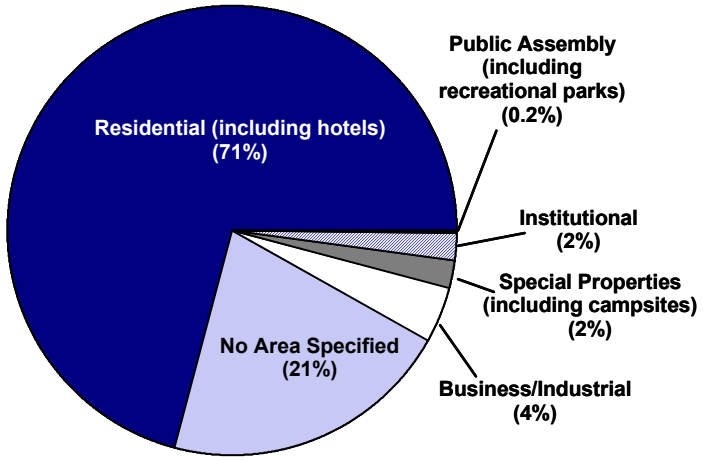
MEASURE	ALL FIRES	GRILL FIRES
Dollar Loss/Fire	$5,619	$4,831
Injuries/1,000 Fires	15.7	26.4
Fatalities/1,000 Fires	2.4	0.4

Source: NFIRS only

Loco Cookers, EX1024
IPR2024-00642
Loco Crazy Good Cookers, Inc. v. North Atlantic Imports, LLC

Grill fires occur in two main areas: areas associated with residences and areas that have no specific association but which are generally outside (Figure 2). More than 70% of grill fires occur in residential areas, associated with either the outdoor area or the residence itself. Twenty percent of grills fires occur in areas not specifically associated with any property area. Less than 1% percent occur in campsites or recreational areas.

Figure 2. General Property Types for Grill Fires

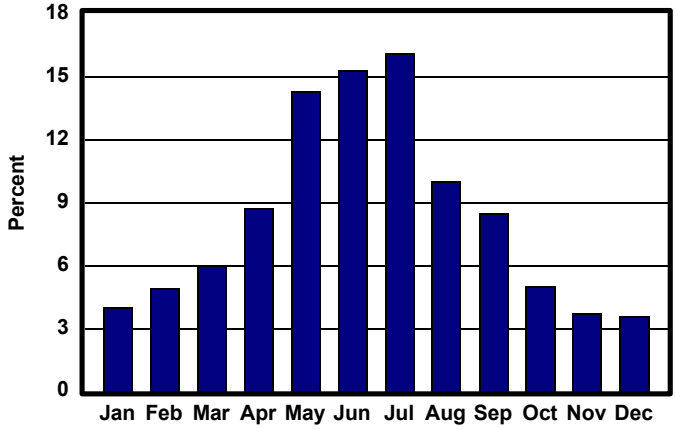


Source: NFIRS only

Grill fires occur most frequently during the summer months, their percentages increasing significantly in May (increasing from 9% in April to 14% in May) (Figure 3). They reach a peak in July (16%) and decrease again in August (10%), and continue to slowly decrease as the weather gets cooler. This pattern correlates with warm-weather outdoor recreational activities.

Figure 3. Grill Fires by Month

(3-year average, NFIRS data 1996–98)



Source: NFIRS only

Nearly a third of residential grill fires start on a court, terrace, or patio (Figure 4). Lawns and other nearby open areas account for an additional 27% of fire locations, and exterior balconies or open porches account for 21%. Some areas where residential grill fires start (specifically balconies or porches of apartments or condominiums) violate fire codes in many jurisdictions.

Figure 4. Area of Fire Origin for Residential Grill Fires

(3-year average, NFIRS data 1996–98)

AREA OF FIRE ORIGIN	PERCENT
Court, Terrace, Patio	29
Lawn Field, Open Area	27
Exterior Balcony, Open Porch	21
Garage, Carport, Vehicle Storage Area	5

Source: NFIRS only

Figure 5 lists the general ignition factors for all grill fires. The leading ignition factor is a result of some mechanical failure, such as a part failure, leak, or break and lack of maintenance (43%). Other leading ignition factors for outdoor grill fires include "operational deficiency" (primarily leaving the grill unattended), misuse of the material ignited (combustible material was too close to the heat), and misuse of the heat of ignition itself (inadequate control of the open fire and abandoned materials).

Figure 5. Ignition Factors for Grill Fires

(3-year average, NFIRS data 1996–98)

IGNITION FACTOR	PERCENT
Mechanical Failure, Malfunction	43
Operational Deficiency	16
Misuse of Material Ignited	16
Misuse of Heat of Ignition	15
Natural and Other Ignition Factors	4
Incendiary or Suspicious	3
Design, Construction, Installation Deficiency	3

Source: NFIRS only

Grill fires have increased nearly two times from 1985 to 1998. The increase mirrors the increase in purchase and usage of grills—especially gas and electric—over this period.[4] Gas grills are involved in four times as many outdoor fires as structure fires. However, most deaths, injuries, and dollar loss from grill fires are from fires that originate in or spread to structures.[5]

Fires involving charcoal grills have decreased four and a half times as more homeowners switch to LP (propane) grills. These gas grills have a higher percentage of mechanical failures/malfunctions than charcoal grills.[6]

EXAMPLES

- A gas grill fire broke out on June 14, 1998, in Buffalo, New York. The fire injured three people and two firefighters and caused nearly $1 million damage to a nearby apartment building and its contents, leaving eight families homeless. An improperly threaded connection on a propane gas tank located on a wooden deck of an outdoor grill sparked the fire.[7]

- A fire was ignited in April 1998 in Bangor, Maine when a 5-year-old boy ignited a gas grill. The fire destroyed a shed and its contents.[8]

- A ruptured line or tank on a propane grill triggered an explosion followed by a fire in September 1996 in Buffalo, New York, resulting in $91,500 damage to nearby homes.[9]

CONCLUSION

Many outdoor grill fires could be prevented through periodic maintenance and routine product inspection. Also, homeowners should be made aware of the need for vigilance while cooking on a grill.

For further information, contact your local fire department or the USFA.

NOTES:

1. National estimates are based on National Fire Incident Reporting System (NFIRS) data (1996–1998) and the National Fire Protection Association's (NFPA) annual survey, *Fire Loss in the United States.*
2. Based on 1996–1998 NFIRS data, 3-year averages.
3. Based on 1996–1998 NFIRS data, 3-year averages. A fire may be coded as a structure fire while the heat of ignition originated from outside the structure.
4. "Grill Statistical Data," Barbeque Industry Association (http://www.bbgind.org).
5. *U.S. Home Cooking Fire Patterns and Trends,* NFPA, June 2001.
6. Idem.
7. *The Buffalo News,* June 14, 1998.
8. *Bangor Daily News,* April 14, 1998.
9. *The Buffalo News,* September 3, 1996.

CLICK TO REVIEW THE DETAILED METHODOLOGY USED IN THIS ANALYSIS

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