Christmas Tree Fires

From 2016 to 2020, US fire departments responded to an estimated average of 160 home\(^1\) structure fires per year that began with the ignition of Christmas trees. These fires caused an annual average of two civilian deaths, 11 civilian injuries, and $12 million in direct property damage.

Fires that begin with the ignition of Christmas trees are a very small but notable part of the US fire problem. These fires account for less than 0.1 percent of reported home fires, 0.1 percent of home fire deaths and injuries, and 0.2 percent of direct property damage resulting from home fires. Although the number of home fires beginning with Christmas trees is small, it is significant if you consider that these items are generally in use for a short time each year and are not present in many homes.

Home Christmas Tree Fires by Month

Not surprisingly, three-quarters of the Christmas tree fires occurred in December or January. See Figure 1. The longer a natural tree is kept up after Christmas, the more likely it is to dry out and ignite. Some January fires may have occurred after the tree was taken down.

Home Christmas Tree Fires by Time of Day

Christmas tree fires are more common between 3 p.m. and midnight, as shown in Figure 2, accounting for half of the fires. Another 26 percent of the fires occurred between 9 a.m. and 3 p.m.

Area of Origin of Home Christmas Tree Fires

Approximately two out of every five home Christmas tree fires started in the living room, family room, or den (Figure 3). These fires also accounted for three out of four injuries (73 percent) and over half of the direct property damage associated with Christmas tree fires (55 percent). Fires that began in unclassified function areas (10 percent), bedrooms (5 percent), and kitchens (5 percent) accounted for smaller shares of the fires.

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\(^1\) Homes include one- or two-family homes and apartments or other multifamily housing.
Figure 3. Home Christmas Tree Fires by Area of Origin: 2016–2020 Annual Averages

Factors Contributing to Home Christmas Tree Fires

Electrical failure or malfunction (34 percent) and heat sources placed too close to trees (20 percent) led to more than half of the home Christmas tree fires. The misuse of a material or product led to almost one in ten fires (9 percent), while abandoned or discarded materials or playing with a heat source each led to 6 percent of the fires. See Figure 4.

Figure 4. Home Christmas Tree Fires by Factor Contributing to Ignition: 2016–2020 Annual Averages

Trends in Home Christmas Tree Fires

Home Christmas tree fires have followed a distinct downward trend over the past 20 years, but with year-to-year fluctuations, as shown in Figure 4. Fires in this period ranged from a high of 280 fires in 2007 to a low of 130 fires in both 2016 and 2017. There were 180 Christmas tree fires in homes in 2020.

Equipment Involved in the Ignition of Home Christmas Tree Fires

Electrical distribution or lighting equipment was involved in more than two out of five home Christmas tree fires (44 percent). This equipment included lamps, bulbs or lighting (19 percent), wiring or related equipment (19 percent), and cords or plugs (6 percent). Heating equipment accounted for another 13 percent of these fires, particularly space heaters (6 percent). See Table A.

Table A. Home Christmas Tree Fires by Equipment Involved in Ignition: 2016–2020 Annual Averages

<table>
<thead>
<tr>
<th>Equipment Involved</th>
<th>Fires</th>
<th>Civilian Injuries</th>
<th>Direct Property Damage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical distribution &amp; lighting equipment</td>
<td>44%</td>
<td>47%</td>
<td>50%</td>
</tr>
<tr>
<td>Lamp, bulb, or lighting</td>
<td>19%</td>
<td>12%</td>
<td>37%</td>
</tr>
<tr>
<td>Wiring and related equipment</td>
<td>19%</td>
<td>35%</td>
<td>2%</td>
</tr>
<tr>
<td>Cords or plugs</td>
<td>6%</td>
<td>0%</td>
<td>10%</td>
</tr>
<tr>
<td>Heating equipment</td>
<td>13%</td>
<td>0%</td>
<td>20%</td>
</tr>
<tr>
<td>Fixed or portable space heater</td>
<td>6%</td>
<td>0%</td>
<td>7%</td>
</tr>
</tbody>
</table>
Figure 5. Home Christmas Tree Fires by Year:
2002–2020 Annual Averages

More comprehensive data is available in Table 1 in the accompanying tables document, and it shows a dramatic decline in the estimated number of Christmas tree fires from 1980 through the late 1990s, falling from a high of 850 in 1980 to 270 in 1998.

Safety Tips
NFPA’s Winter holiday safety tips provides tips specifically about Christmas tree safety, safe holiday decorating, and other holiday activities.

Methodology
Unless otherwise specified, the statistics in this analysis are national estimates of fires reported to US municipal fire departments and so exclude fires reported only to federal or state agencies or industrial fire brigades. These estimates are projections based on the detailed information collected in Version 5.0 of the US Fire Administration’s National Fire Incident Reporting System (NFIRS 5.0) and the National Fire Protection Association’s (NFPA’s) annual fire department experience survey.

Christmas trees were identified by NFIRS 5.0 Item First Ignited code 41. Homes were captured by property use codes in the 410–429 range. Structure fires were identified by incident types 110–129.

NFIRS 5.0 includes a category of structure fires collectively referred to as “confined fires” identified by incident type. These include confined cooking fires, confined chimney or flue fires, confined trash fires, confined fuel burner or boiler fires, confined commercial compactor fires, and confined incinerator fires (incident type 113–118). Losses are generally minimal in these fires, which, by definition, are assumed to have been limited to the object of origin. Although causal data is not required for these fires, it is sometimes present. The percentage of unknown data is much higher for confined fires than non-confined fires.

Casualty and loss projections can be heavily influenced by the inclusion or exclusion of one unusually serious fire. Property damage has not been adjusted for inflation. Fires are rounded to the nearest ten, civilian deaths and injuries to the nearest one, and direct property damage to the nearest hundred thousand. For more information, see “How NFPA's National Estimates are Calculated for Home Structure Fires.”

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 make this analysis possible. Their contributions enable 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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