

HOME AND NON-HOME FIRES INVOLVING TORCHES, BURNERS AND SOLDERING EQUIPMENT

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Abstract

This report provides statistics on home fires involving torches, burners and soldering equipment. In 2003-2006, there were an estimated 5,600 structure fires per year reported to U.S. fire departments, with associated annual losses of 22 civilian deaths, 223 civilian injuries, and \$208 million in direct property damage.

These estimates are based on data from the U.S. Fire Administration's (USFA's) National Fire Incident Reporting System (NFIRS) and the National Fire Protection Association's (NFPA's) annual fire department experience survey.

Keywords: Fire statistics, home fires, lighter, torch, welding, soldering, burner.

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Executive Summary

In 2006, an estimated 4,900 reported U.S. structure fires involving torches, burners and soldering equipment resulted in 21 civilian deaths, 210 civilian injuries, and \$154 million in direct property damage.

In 2003-2006, there were an estimated 5,600 torch, burner and soldering equipment fires per year, with 2,200 fires per year in homes and 3,400 fires per year in properties other than homes. The home fires consisted of 200 fires per year reported as confined fires¹ and 2,000 fires per year reported as non-confined fires. The non-home fires consisted of 500 fires per year reported as confined fires and 2,900 fires per year reported as non-confined fires. Torch, burner and soldering equipment fires accounted for 0.6% of total 2003-2006 home structure fires, 0.3% of associated civilian deaths, 0.9% of associated civilian injuries, and 1.8% of associated direct property damage. Torch, burner and soldering equipment fires also accounted for 2.4% of total 2003-2006 non-home structure fires, 5.4% of associated civilian deaths, 4.9% of associated civilian injuries, and 3.5% of associated direct property damage.

Most 2003-2006 non-confined home torch, burner and soldering equipment structure fires (79%) and most 2003-2006 non-confined non-home torch, burner and soldering equipment fires (77%) cite as factor contributing to ignition either cutting or welding too close to combustibles or the very similar heat source too close to combustibles.

Cutting and welding too close is cited for 36% of the home fires but for 57% of the non-home fires. This reflects the fact that cutting or welding torches are a smaller share of home torch and burner fires than of non-home torch and burner fires. Other factors cited include equipment not being operated properly (6% of home fires and 3% of non-home fires).

Half of 2003-2006 non-confined home torch, burner and soldering equipment structure fires began with ignition of structural member or framing (28%) or insulation within structural area (22%). Other leading items first ignited were exterior wall covering or finish (7%), unclassified item first ignited (6%), and exterior roof covering or finish (6%). Non-home torch, burner and soldering equipment fires showed more diversity in first items ignited. The leading items were flammable or combustible gas or liquid (12%), exterior roof covering (11%), structural member or framing (11%), and insulation within structural area (10%).

Excluding concealed spaces and exterior areas, the leading areas of origin for torch, burner and soldering equipment fires are different in home and non-home settings. For non-confined 2003-2006 home torch, burner and soldering equipment structure fires, bathrooms (15% of fires) rank second behind wall assembly or concealed space (18% of

¹ All statistics are estimates using fires reported by municipal fire departments to the National Fire Incident Reporting System (NFIRS) or the NFPA survey. Since 1999, NFIRS has divided reporting into non-confined and confined fires, with few incident details required for confined fires. Estimates of confined fires with detailed incident characteristics involve allocation of large numbers of unknowns, are calculated separately, and are subject to much more uncertainty. There are six type of confined fires – confined to fuel burner or boiler, cooking vessel, chimney or flue, trash, incinerator, or commercial compactor.

fires), and kitchens (7% of fires) rank fourth behind crawl space or substructure space (8% of fires). The share for kitchens primarily reflects their 26% share of burner fires, which may reflect some fires involving stovetop burners. The burners included in the torch group are meant to be separate burners like Bunsen burners.

For non-confined 2003-2006 non-home torch, burner and soldering equipment structure fires, maintenance or paint shop or area (7% of fires) ranked second behind exterior roof surface (14% of fires), and processing or manufacturing area of workroom (7% of fires) ranked fourth just behind wall assembly or concealed space (also 7% of fires).

Most (73%) 2003-2006 non-confined non-home torch, burner and soldering equipment structure fires began during the daytime hours when non-home properties are most likely to be occupied (between 9:00 a.m. and 6:00 p.m.). For home fires, roughly the same share of fires (74%) fell between 9:00 a.m. and 6:00 p.m. For homes, a slightly larger share (54%) fell in the afternoon hours of noon to 6:00 p.m. than for non-home fires (47%).

Nearly a third (32%) of 2003-2006 non-confined non-home torch, burner and soldering equipment structure fires occurred in properties that were not occupied and operating at the time. For home fires, the percentage (18%) was much lower. Much of the difference involved the greater involvement of cutting torches in non-home fires in buildings being demolished, sitting idle, or under major renovation.

Safety Tips

- Anyone using torches, burners or soldering equipment should be trained in and comply with the requirements of NFPA 51B, *Fire Prevention During Welding, Cutting, and Other Hot Work*.

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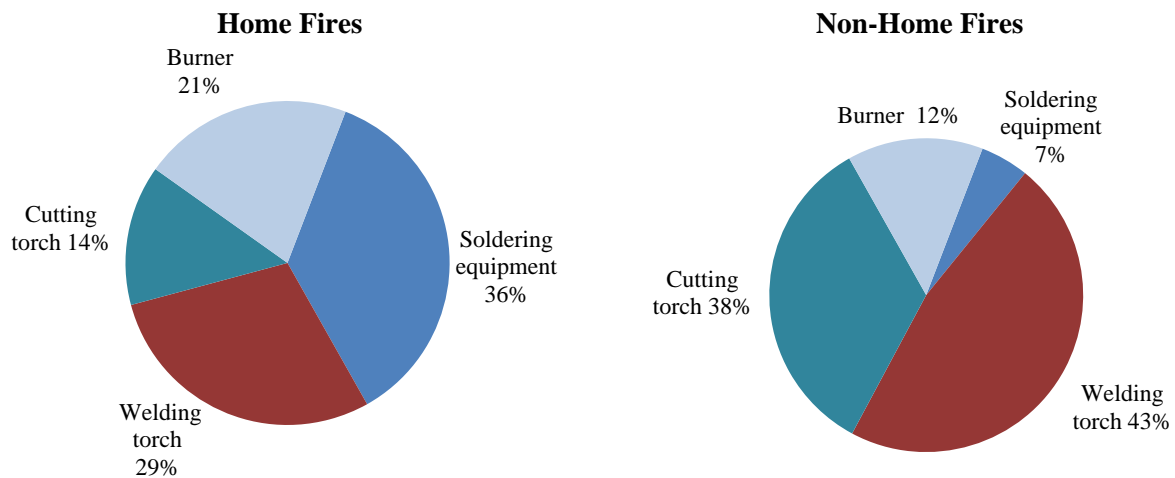


Torch, Burner, and Soldering Equipment

In 2003-2006, an estimated 5,580 reported U.S. structure fires per year 2,210 homes* and 3,370 in non-homes involved torches, burners or soldering equipment. These Fires resulted in:

- 22 civilian deaths per year, 7 in homes and 15 in non-homes.
- 223 civilian injuries per year, 119 in homes and 103 in non-homes.
- \$208 million in direct property damage per year, \$110 million in homes and \$98 million in non-homes.
- 760 of these fires per year were reported as confined fires, 250 in homes and 510 in non-homes.

Fires Involving Torches, Burners, or Soldering Equipment by Type of Equipment Annual Average of 2003-2006 Structure Fires Reported to U.S. Fire Departments (Including Fires Reported as Confined Fires)



- Soldering equipment was the leading equipment involved for home fires involving torches or burners.
- Welding torch was the leading equipment involved in non-home fires involving torches or burners.
- Heat source too close to combustible and cutting or welding too close were the most frequently cited factors contributing to ignition in both home and non-home non-confined torch and burner structure fires.

*Homes are dwellings, duplexes, manufactured homes, apartments, townhouses, rowhouses, and condominiums.

Estimates are derived from the U.S. Fire Administration National Fire Incident Reporting System (NFIRS) Version 5.0 and NFPA's annual fire department experience survey.

Reporting of most incident details is optional for confined fires, which is why separate analysis of them involves allocation of a large number of unknowns.

