



Massachusetts Fire Incident Reporting System

2024 Annual Report



Massachusetts Department of Fire Services
State Fire Marshal Jon M. Davine

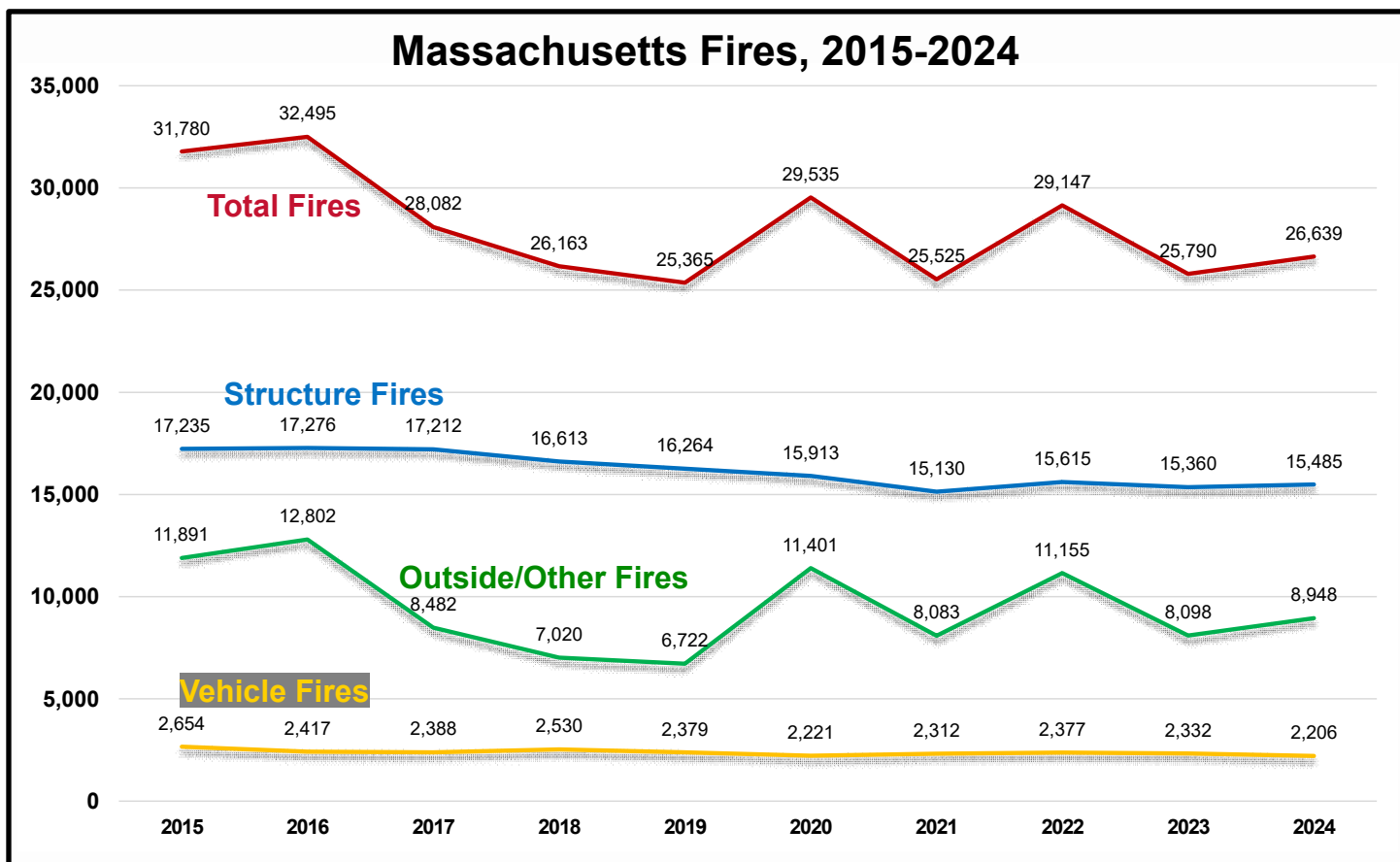


MFIRS 2024 Annual Report

Massachusetts Department of Fire Services



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MFIRS 2024 Annual Report

Massachusetts Department of Fire Services

A Message from the State Fire Marshal

The Massachusetts Department of Fire Services coordinates training, education, prevention, code development, investigation, enforcement, and emergency response to assist and support the fire service in the protection of life and property. We also help the residents of Massachusetts create safer communities; promote and enhance firefighter safety; and provide a fire service leadership presence in the Executive Office of Public Safety & Security in the interests of fire-related policy and legislation.

On behalf of the agency and our personnel, I would like to thank Governor Maura Healey, Lt. Governor Kim Driscoll, Secretary of Public Safety & Security Gina K. Kwon, and the Legislature for supporting DFS as we help make Massachusetts a safer place to live, work, and visit.

A key component of our public safety mission involves gathering fire-related data. M.G.L. c. 148, s. 2, requires that Massachusetts fire departments report any fire or explosion resulting in human casualty or dollar loss to the Office of the State Fire Marshal. All told, 352 departments reported at least one incident to the Massachusetts Fire Incident Reporting System, or MFIRS, during 2024. Another three certified that they had no fires that met the criteria. These reports were analyzed by Derryl Dion of the Department of Fire Services' Fire Safety Division, allowing us to share the salient data with you.

This document summarizes tens of thousands of reports related to 2024 incidents in order to provide data on the total fire experience, to identify fire problems, and to inform local, regional, and statewide strategies to address them. Fire data is valuable to fire safety education programs, code enforcement efforts, building inspection prioritization, licensing, certification, fire investigations, and overall resource allocation. If you're interested in additional data not reflected in this summary report, please contact the DFS Fire Safety Division.

Gathering and utilizing this data would not be possible without the participation, cooperation, and hard work of Massachusetts firefighters, their departments, and the committed staff at DFS. I am deeply grateful for their efforts.


Jon M. Davine
State Fire Marshal

MFIRS 2024 Annual Report

Massachusetts Department of Fire Services



Executive Summary

26,639 Fire and explosion incidents: Massachusetts fire departments reported 15,485 structure fires, 2,206 vehicle fires, and 8,948 outside/other fires to MFIRS in 2024. Collectively, these fires caused 53 civilian deaths, 200 civilian injuries, 335 fire service injuries, and an estimated dollar loss of \$312.6 million in property damage. The total number reflects a 3% increase over 2023.

Civilian fire deaths increased 18% from 2023: 53 civilians died in 49 fires in 2024, an 18% increase from the 45 fire deaths reported in 2023. People aged 65 or older accounted for 43% of fire deaths overall and 51% of residential fire deaths. Nearly 75% of these deaths took place at home. There were no fire-related fire service deaths.

Civilian and firefighter injuries fell to their lowest levels in modern history: Fires caused 200 civilian injuries in 2024, down slightly from the 215 reported in 2023. The most common type of civilian injury was smoke inhalation. Fires also caused 335 firefighter injuries, a 21% decrease from 2023. The most common types of firefighter injuries were strains or sprains.

Unsafe cooking was the leading cause of residential fires: 40% of all fires and 71% of residential fires were caused by unattended and other unsafe cooking practices. These fires accounted for 28 civilian injuries, 22 firefighter injuries, and one civilian fire death in 2024.

Electrical events were the leading cause of fire injuries: For the first time in decades, electrical fires injured more people than cooking fires, accounting for 31 civilian injuries, 36 firefighter injuries, and eight civilian fire deaths.

Smoking materials were the leading cause of fatal fires: The improper disposal of cigarettes and other smoking materials was the leading cause of fatal fires, accounting for 12 fire deaths – about 23% of the total.

Alarms operated in 60% of residential fires: Smoke or heat alarms operated in 60% of the residential fires reported in 2024. Based on these reports, smoke alarm performance was undetermined in 2,595 incidents. Smoke alarm performance was determined in 31 of the year's 39 residential fire deaths: alarms were present and operated in just 19 of these cases.

Unprecedented fall brush fire season: Historically, Massachusetts' brush fire season peaks in April and May and winds down as the year ends. In 2024, these fires were relatively low until October and November, when the number skyrocketed. In total, natural vegetation fires rose from 4,208 in 2023 to 4,650 in 2024.

Fires by Incident Type

Massachusetts fire departments reported 26,639 fire and explosion incidents in 2024, an increase of about 3.3% over the previous year. These fires include 15,485 structure fires, 2,206 motor vehicle fires, and 8,948 outside and other fires. Collectively, they caused 53 civilian deaths, 200 civilian injuries, 335 fire service injuries, and an estimated dollar loss of \$312.6 million in property damage.

The following sections go into greater detail on each category. Because most fires, fire injuries, and fire deaths take place at home, we will look at residential fires most closely.

Structure Fires

The National Fire Incident Reporting System and MFIRS define a structure as “an assembly of materials forming a construction for occupancy or use to serve a specific purpose. This includes, but is not limited to, buildings, open platforms, bridges, roof assemblies over open storage or process areas, tents, air-supported structures, and grandstands.” Any fire occurring inside or on a structure, whether or not the structure itself becomes involved, is considered a structure fire.

Massachusetts fire departments reported 15,485 structure fires in 2024, an increase of less than 1% over 2023. The rates of structure fire injuries, deaths, and dollar losses are illustrated as percentages of all fires in **Table 1** and broken down by type of occupancy in **Table 2**.



Massachusetts fire departments reported 15,485 structure fires in 2024.

Building Fires

In 2024, 15,383 building fires accounted for 99.3% of all Massachusetts structure fires. They were more common in the colder months, especially November (1,539 fires), and less common in warmer months, especially July (1,041 fires).

Smoke Alarms: Smoke or heat alarms operated in 8,872 of the year’s building fires. In 15% of building fires, reflecting fires confined to a non-combustible container, the alarms did not alert the occupants. Alarms were not present in 3% of reported building fires, the fire was not large enough to trigger an alarm in another 3%, and alarms were present but did not operate in 0.5%. Alarm performance was undetermined in 21% of building fires.

Automated Extinguishing Systems (AES): There were 182 fires in buildings protected by fire sprinklers or other AES that were large enough to activate the system. AES were effective in 75.8% of these incidents. In 22.5% of these fires, the system failed to operate because the fire began in an area not protected by the system, the AES was shut off, or for other reasons. AES performance in protected buildings is illustrated in **Figure 1**.

Residential Building Fires

12,789 residential fires accounted for nearly half of all fires and more than 80% of building fires in 2024. These fires caused 39 civilian deaths, 146 civilian injuries, 221 fire service injuries, and an estimated dollar loss of \$224.2 million. The total number of reported residential building fires increased by 71, or 1%, from the 12,718 reported in 2023. Year after year, they represent the greatest share of fires, injuries, and deaths.

Residential occupancies include the following groups:

- **1- and 2-family homes:** One- or two-family dwellings, detached manufactured homes, mobile homes, and duplexes
- **Multifamily dwellings:** Apartments, condominiums, townhouses, rowhouses, and tenements

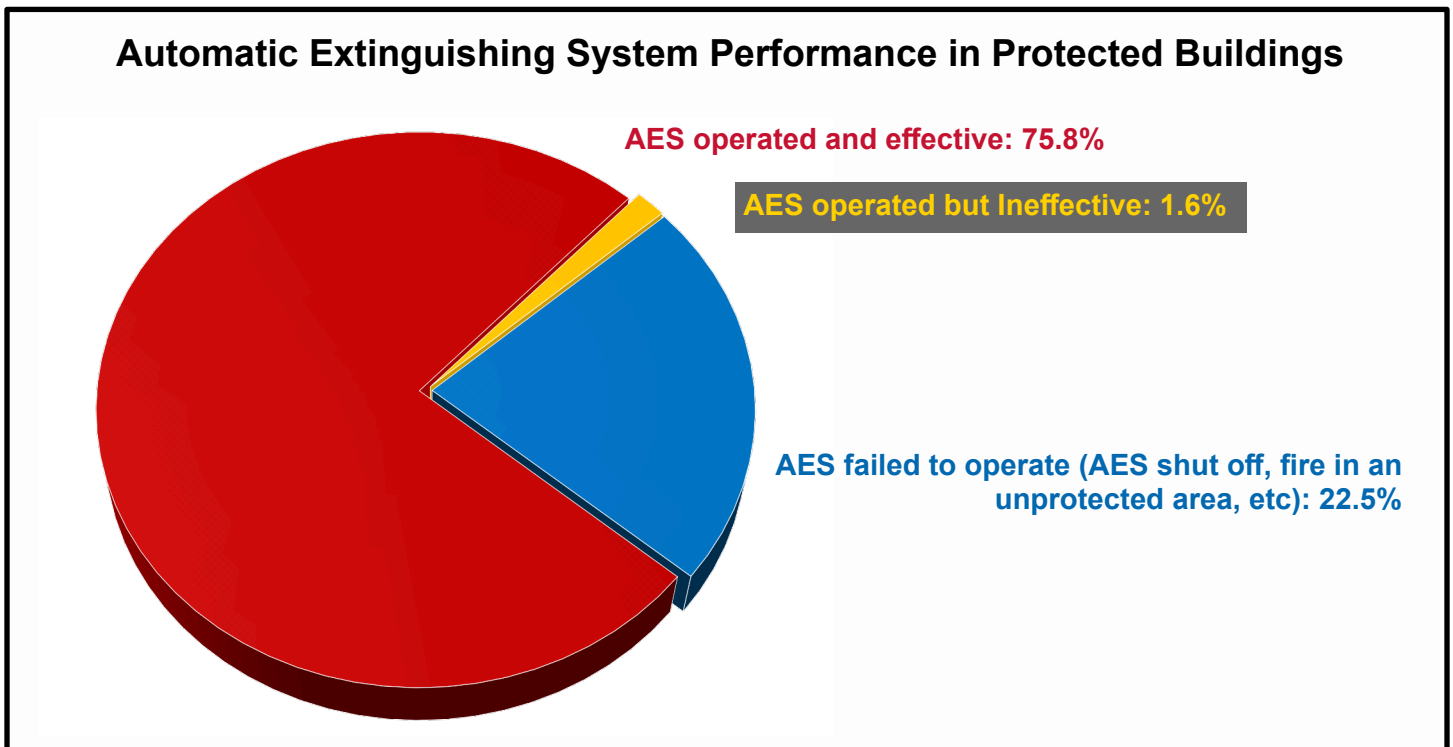
Table 1: Structure fire injuries, deaths, and dollar losses

	Total Fires	Structure Fires	Percent of Total
All Fires	26,639	15,485	58.10%
Civilian Injuries	200	166	83.00%
Firefighter Injuries	335	269	80.20%
Civilian Deaths	53	41	77.30%
Firefighter Deaths	0	0	0.00%
Dollar Loss	\$312.6M	\$277.7M	88.80%

Table 2: Structure fire injuries, deaths, and dollar losses by occupancy

Type of Occupancy	# of Fires	FF Injuries	Civilian Injuries	FF Deaths	Civilian Deaths	Dollar Loss
Residential	12,789	221	146	0	39	\$224,190,608
<i>Apartments</i>	5,970	105	70	0	16	\$76,550,774
<i>1- & 2-Family Homes</i>	4,232	104	67	0	22	\$135,696,653
<i>All Other Residential</i>	2,587	12	9	0	1	\$11,943,181
Public Assembly	710	6	3	0	0	\$10,155,851
Mercantile, Business	606	22	3	0	0	\$10,861,243
Institutional	339	2	1	0	1	\$1,592,803
Special Properties	283	6	2	0	0	\$4,598,124
Storage Properties	227	8	3	0	0	\$11,501,702
Educational	217	4	1	0	0	\$389,278
Manufacturing	87	0	1	0	0	\$4,895,050
Basic Industry	66	0	1	0	0	\$3,171,850
Unclassified	59	0	0	0	0	\$5,713,010
Total	15383	269	161	0	40	\$277,069,519

Figure 1: AES Performance in Protected Buildings



- **Boarding and rooming houses:** Residential hotels and shelters
- **Hotels, motels:** Commercial hotels, motels, or inns
- **Residential board and care:** This category includes long-term care facilities and half-way houses but excludes nursing facilities
- **Dormitories:** Dormitory-type residences, sorority or fraternity houses, nurses' quarters, military barracks, monasteries/convents, bunk houses, and workers' barracks
- **Residential, other:** Any type of residential occupancy that is not defined above.

Unsafe cooking practices were by far the most common cause of residential fires, with an average of 71% of fires in all types of dwellings. Because about 80% of residential fires took place in one- and two-family homes and multifamily homes, many of the accompanying figures will focus on these occupancies.

Confined Fires: About 80% of the year's residential fires were confined to ovens, furnaces, boilers, chimneys, and other noncombustible containers. Confined cooking fires were the most common, accounting for 69% of all residential fires in 2024. Fuel burners and boilers accounted for 5%, while chimney/flue fires and trash/rubbish fires each accounted for 3%.

Smoke Alarms: Working smoke alarms are the first line of defense against fires at home. While they do not suppress fires as sprinklers and other Automatic Extinguishment Systems do, they alert residents to danger and give them more time to escape.

Smoke or heat alarms operated in 60% of all residential fires in 2024. Alarm status was undetermined in 20% of fires. In the remaining incidents, the fire was confined to a non-combustible container, too small to activate an alarm, or alarms were not present. In less than 1% of residential fires, smoke alarms were present but failed to operate because the batteries were missing, disconnected, or dead; because of a power failure, shutoff, or disconnect; because of lack of maintenance; because of improper installation or placement; or for undetermined reasons.



Single-family homes had the lowest rate of working smoke alarms.

Table 3 shows that one- and two-family homes were the least likely residential occupancies to have operating smoke alarms in 2024. Dormitories were the most likely to have operating smoke alarms.

Nearly 80% of all residential fires took place in one- and two-family homes and multifamily homes. As shown in **Figure 3**, smoke alarm operation varied significantly between these two types of occupancies. Alarms were more likely to be present and more likely to operate in multifamily homes than in one- and two-family homes.

Figure 4 also highlights the statistical difference between one- and two-family homes and multifamily homes in smoke alarm status. Excluding fires that were too small to activate an alarm or were confined to non-combustible containers, smoke alarms failed to operate in 39 fires in one- and two-family homes and in 30 fires in multifamily homes. **Figure 5** illustrates the reasons for alarm failures in these two types of occupancies.

Automatic Extinguishing System (AES) Performance: Most Massachusetts homes are not protected by fire sprinklers or other Automatic Extinguishing Systems. The AES field was completed in only 2,976 of the year's 12,789 residential fire incident reports. In 83% of these incidents, there was no AES present. Of the 228 residential fires in which AES were present and operation could be determined, 59.2% were too small to activate the system. The system functioned effectively in 33.3% of fires, did not operate in 6.5% of fires, and operated ineffectively in 0.8%.

Table 3: Residential structure fire injuries, deaths, and dollar losses

Residential Occupancy	# of Fires	FF Injuries	Civilian Injuries	FF Deaths	Civilian Deaths	Dollar Loss
Multifamily/Apartment	5,970	105	70	0	16	\$76,550,774
1- & 2-Family Homes	4,232	104	67	0	22	\$135,696,653
Dormitories	551	0	1	0	0	\$362,068
Rooming Houses	504	1	1	0	1	\$814,380
Residential Board & Care	200	0	0	0	0	\$216,114
Hotels & Motels	172	1	3	0	0	\$3,742,997
Unclassified	1,160	10	4	0	0	\$6,807,622
Total	12,789	221	146	0	39	\$224,190,608

Figure 2: Residential Fire Causes: One- and Two Family vs. Multifamily

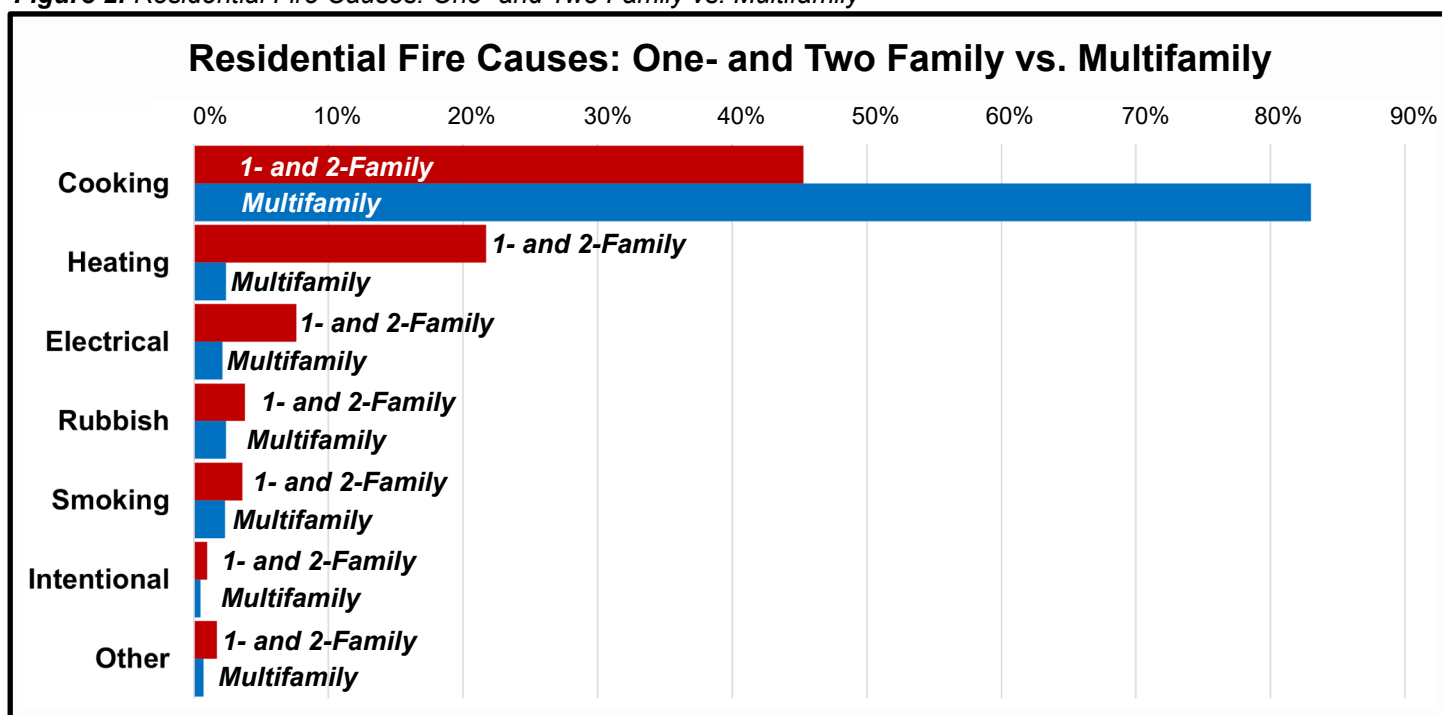
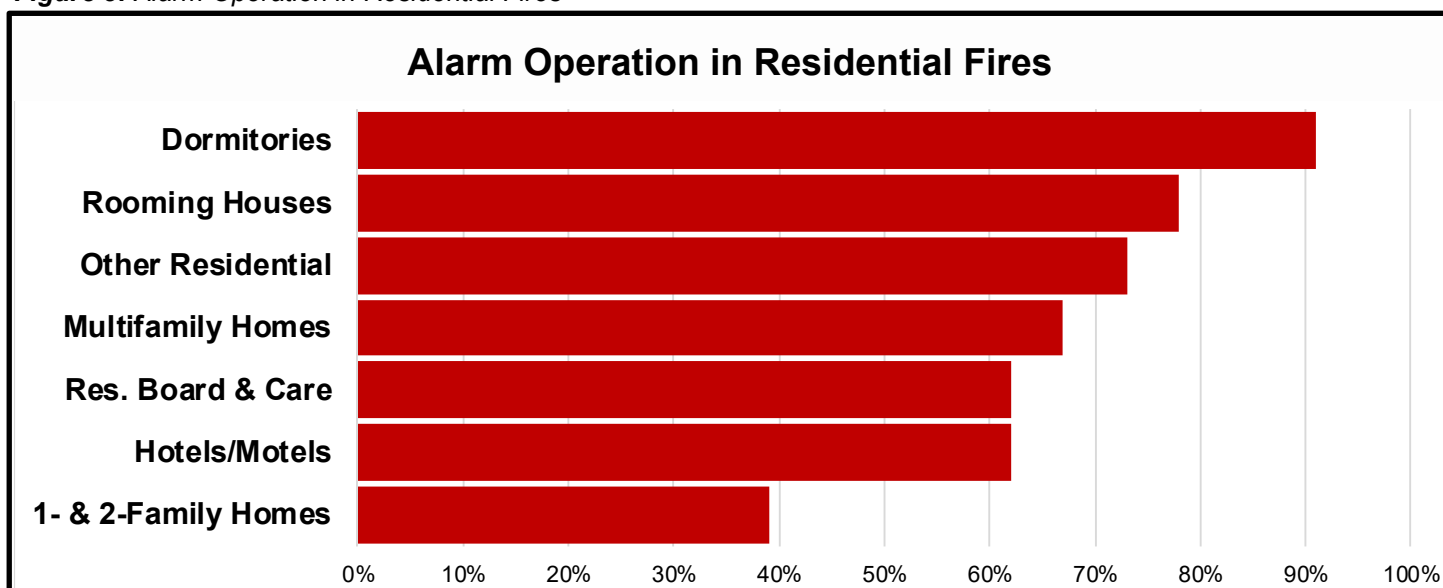


Figure 3: Alarm Operation in Residential Fires





Firefighters examine an electric vehicle during a Massachusetts Firefighting Academy course.

Motor Vehicle Fires

A motor vehicle fire is any fire that occurs outside of a structure and involves a car, truck, boat, airplane, construction equipment, or other mobile property not being used as a permanent structure. Local fire departments reported 2,206 motor vehicle fires to MFIRS in 2024. These incidents accounted for 8% of all reported fires and reflect a decrease of about 5% from 2023. Of these fires, 20% were caused by some type of mechanical failure or malfunction; 2% were considered intentionally set; and 47% resulted from other accidental causes. In 31% of the motor vehicle fires the cause was undetermined or not reported. Motor vehicle fires at gas stations and sales, service, or repair facilities accounted for 195 of the year's incidents.

Collectively, these vehicle fires caused seven civilian deaths, 13 civilian injuries, 13 fire service injuries, and \$30 million in estimated property damages. Four deaths were the result of a motor vehicle crash with an ensuing fire. One person died when smoking materials started a fire in the vehicle. The causes of two fatal vehicle fires were undetermined.

Outside and Other Fires

Outdoor fires are the most variable category from year to year. Large increases and decreases are not uncommon and are often linked to weather patterns. In 2024, local fire departments reported 8,948 outside and other fires and explosions to MFIRS, an increase of nearly 11%. These fires caused five civilian deaths, 21 civilian injuries, 53 fire service injuries, and an estimated dollar loss of \$5 million.

When considering these numbers, however, it's important to note that they are likely an

undercount of the true extent of outdoor fires. Fire departments are only required to report fires and explosions resulting in a dollar loss or human casualty. Because many outdoor fires are "no-loss" incidents that do not cause property damage or injury, these voluntarily-reported figures likely do not reveal the true total.

Even among reported fires, the overwhelming majority of outside and other fires are relatively small, with 91% burning less than one acre. Most are quickly extinguished and not reported by the DCR Bureau of Forest Fire Control & Forestry, which submits data for inclusion in state and federal wildfire reporting programs.

The largest category of outside and other fires reported in 2024 were the 4,650 natural vegetation fires. This category includes forest, woods, or wildland fires; brush, grass, or brush and grass mix fires; and unclassified natural vegetation fires. They collectively caused one civilian death, six civilian injuries, 40 fire service injuries, and an estimated dollar loss of \$390,937. These reported fires burned 6,416 acres in 2024.

Historically, Massachusetts' brush fire season begins in the early spring as the snowpack recedes and more direct sunlight can dry surface fuels unobstructed by leaves overhead. Fires tend to peak in May before declining through the rest of the year. As **Figure 6** shows, this pattern was turned on its head in 2024, with fires remaining below average until the fall. A lengthy drought, unseasonably warm weather, and many sunny, windy days contributed to an unprecedented fall fire season.



Natural vegetation fires are normally most common in the spring but skyrocketed during the fall of 2024.

Figure 4: Alarm Status by Occupancy Type

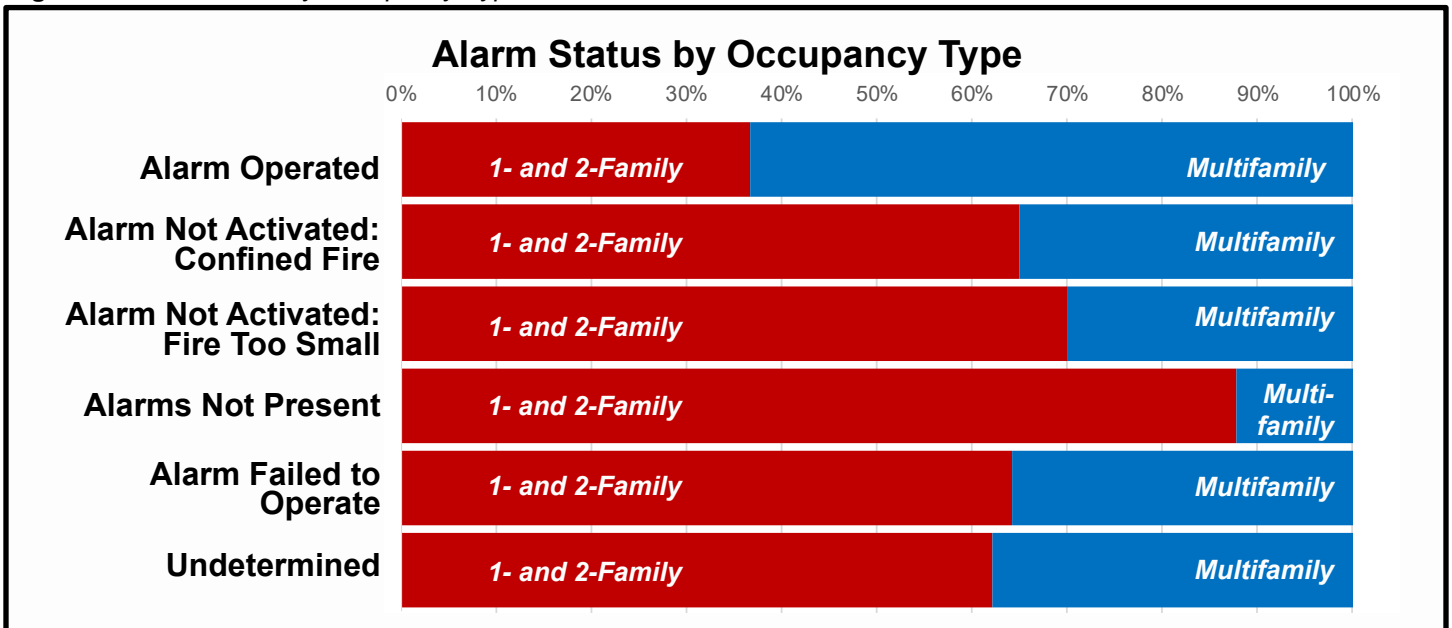


Figure 5: Reason for Alarm Failure by Occupancy Type

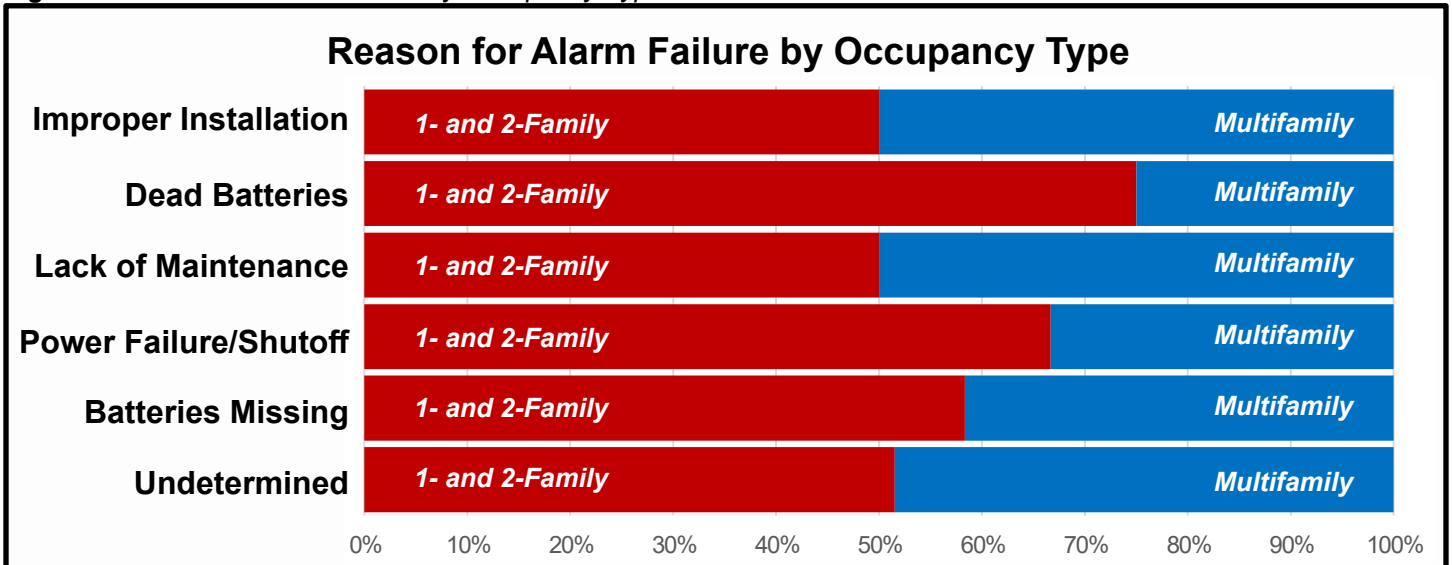
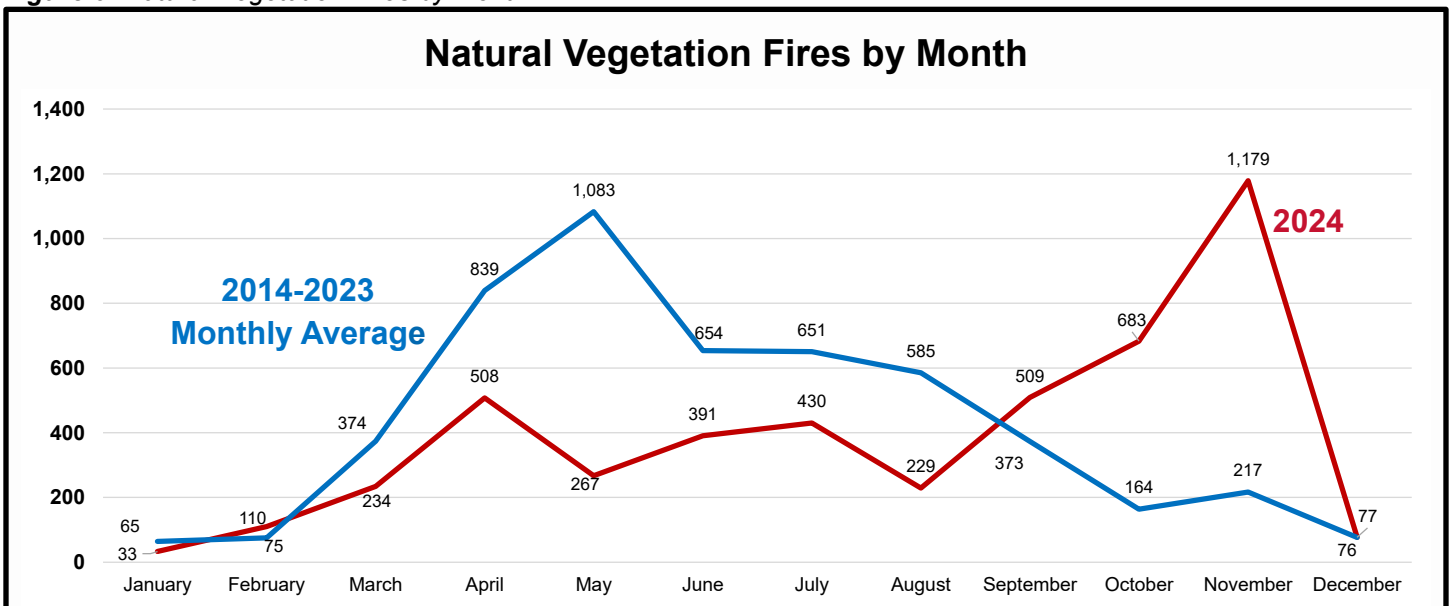


Figure 6: Natural Vegetation Fires by Month



Fire Deaths

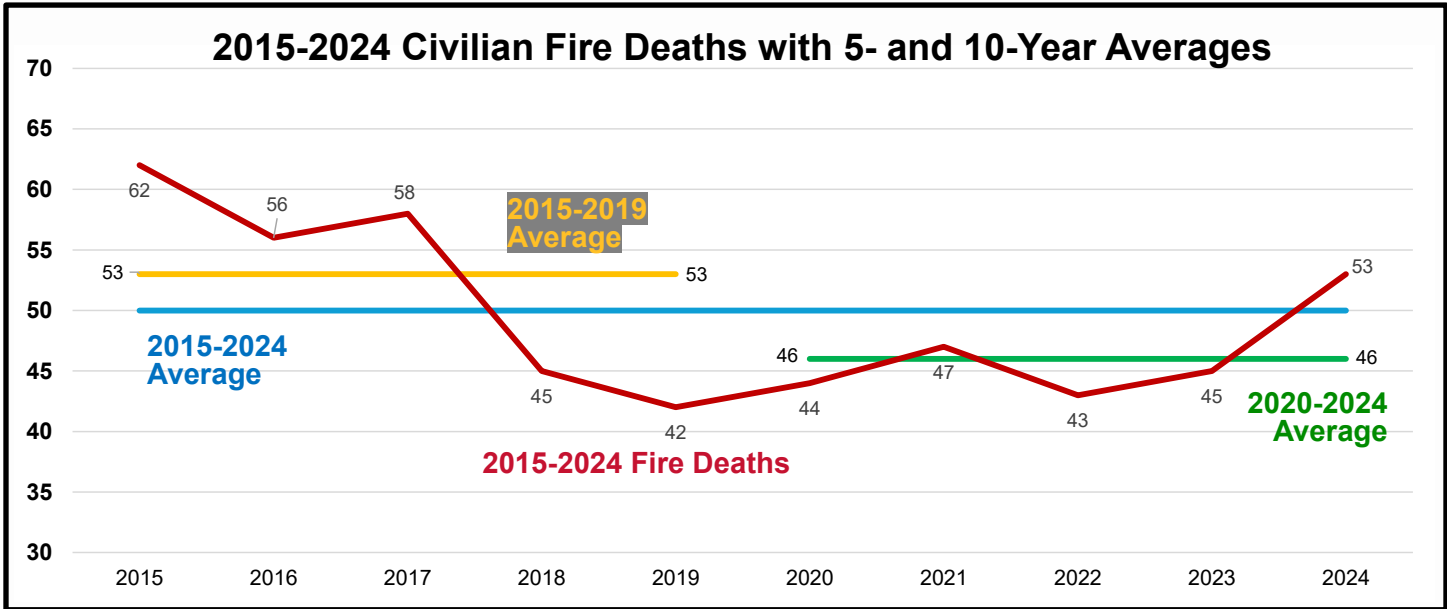


Figure 7: Civilian Fire Deaths, 2015-2024

There were 53 civilian fire deaths and zero fire-related firefighter deaths in 2024. This is eight more than the 45 recorded in 2023. There were four multiple-fatality fires: three occurred in residences and claimed two lives each, and one occurred after a motor vehicle collision and also claimed two lives.

Civilian Fire Deaths

Figure 7 illustrates the number of civilian fire deaths for the past ten years in relation to the five-year averages from 2015-2019 and 2020-2024. On average, there were 53 fatalities from 2015-2019 and 46 from 2020-2024. The 53 fire deaths in 2024 are 15% above the current five-year average and 6% above the 10-year average. **Figure 8** breaks them down by property use.

Age and Relative Risk: As shown in **Figure 10**, older adults had the greatest risk of dying in a fire relative to their representation in Massachusetts' population. Adults 85 or older account for 2% of the population but 9% of the fire deaths, for a relative risk of 4.1. Those between the ages of 75 and 84 accounted for 5% of the population and 9% of the fire deaths, for a relative risk of 1.9. Older adults between the ages of 65 and 74 had a relative risk of 2.4. Children aged 9 and under had a relative risk of 0, with no fatalities reported.

Child Fire Deaths: Four children died in fires in 2024, a 100% increase from 2023. Since a small number of incidents can create large year-to-

year statistical changes at this level, it is helpful to look at the long-term trend in **Figure 11**.

In late 1995, the Student Awareness of Fire Education (SAFE) program was established to deliver fire safety education to school-age children. In the 26 years before the program was launched, there were an average of 22.3 child fire deaths per year. During the 29 full years since the SAFE program's inception, the average has fallen to 4.3 per year.

This 81% decline in child fire deaths is significantly larger than the 53% decline in fire deaths overall. The one step that Massachusetts undertook to improve fire safety for this age group that *did not occur for all other age groups during the same time period* is consistent, comprehensive, statewide, school-based fire safety education through the SAFE program. In 2024, DFS delivered more than \$1 million in SAFE funding and almost \$500,000 in funds for older adult fire and life safety.

Fatal fires are most common in the overnight hours when most people are sleeping. The hours from 10:00 p.m. and 7:00 a.m. accounted for 58% of fire deaths in 2024. Of people who died during daytime fires, 41% were directly involved in the fire's ignition, and 47% were older adults. **Figure 12** shows the fire death frequency by time of day on the 24-hour clock. Midnight to 1:00 a.m. is represented by 0000; 1:01 a.m. to 2:00 a.m. is represented by 0100, etc.

Figure 8: 2024 Fire Deaths by Property Use

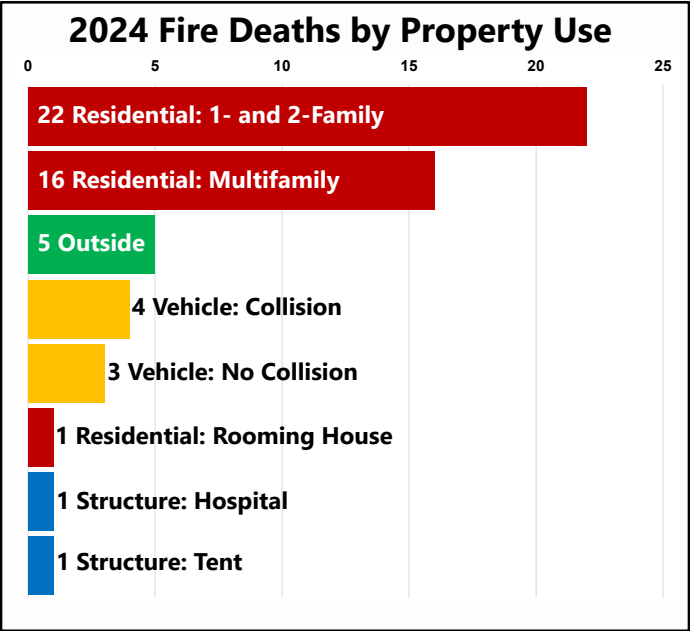


Figure 9: 2024 Residential Fire Deaths by Cause

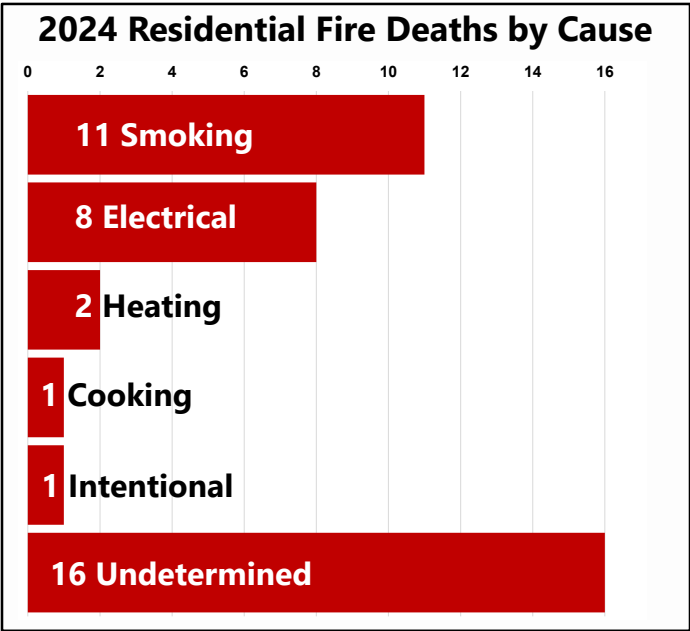


Figure 10: Age and Relative Risk of Fire Death

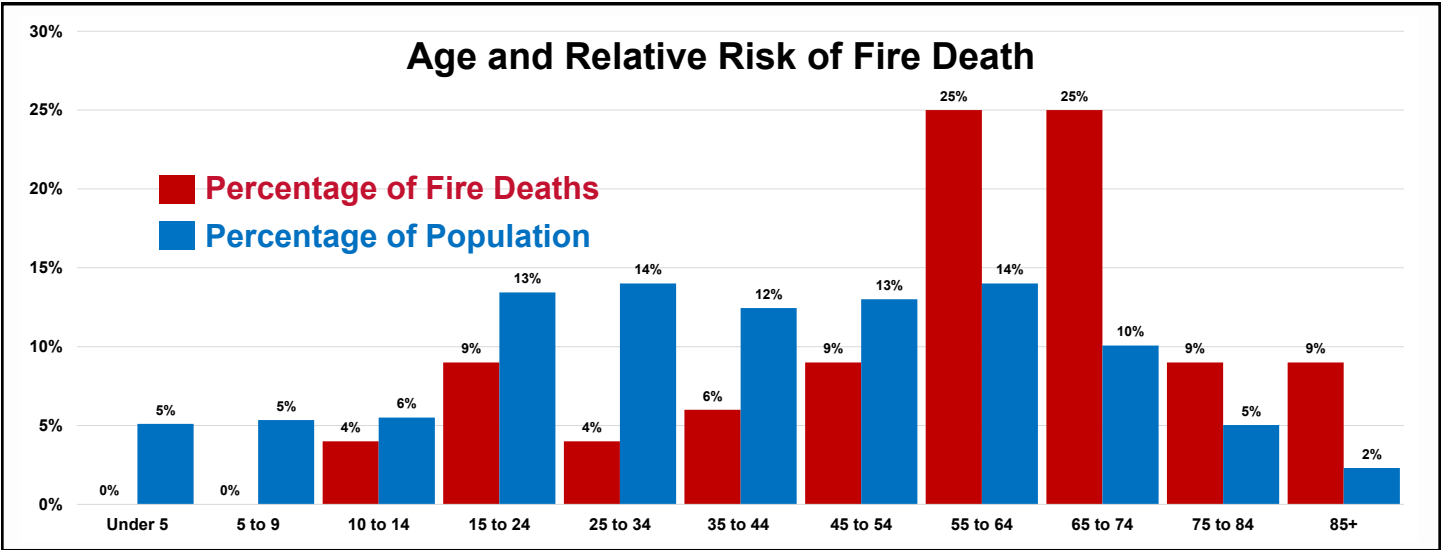
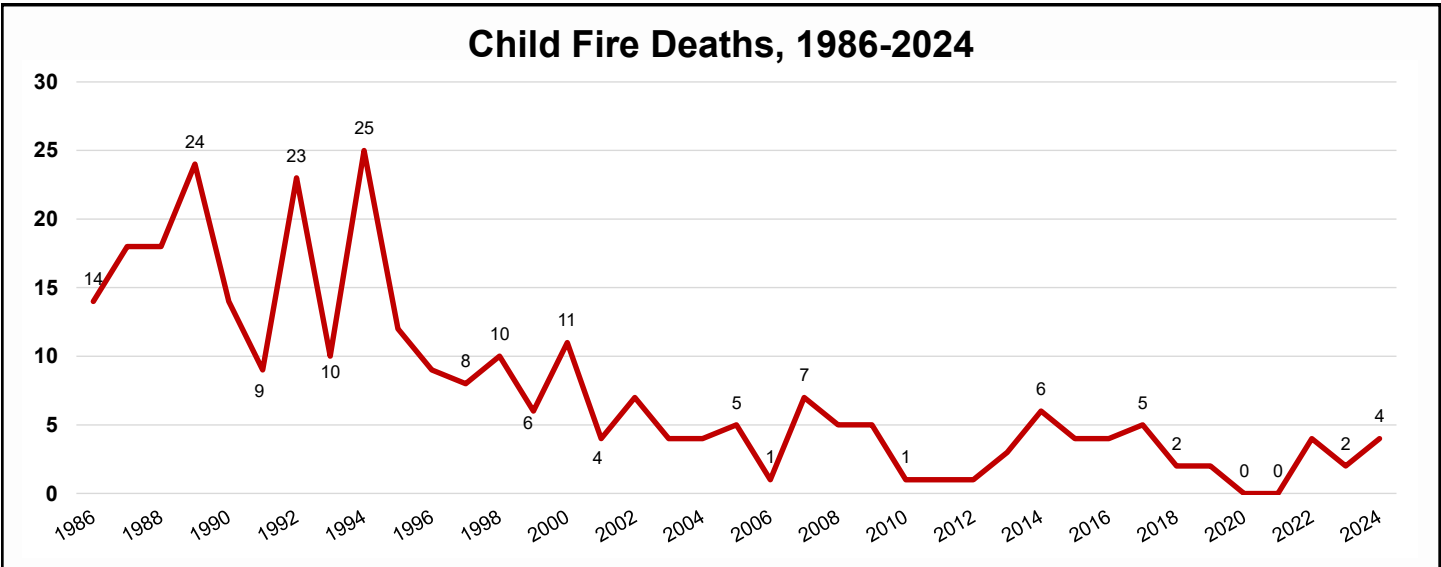


Figure 11: Child Fire Deaths, 1986-2024





Structure fires accounted for 77.3% of fire deaths in 2024.

Structure Fire Deaths

In 2024, there were 41 deaths in 38 fatal structure fires. All but two of these structure fire deaths occurred in residential occupancies. Two non-residential structure fires – one in a tent and one involving a vehicle colliding with a hospital – claimed one life each. About 54% of the victims suffered both burns and smoke inhalation. Another 28% suffered from smoke inhalation only, 5% had only thermal burns, and 5% suffered cardiac arrest. The remaining fatal injuries were unreported or undetermined.

Most fire deaths occur at home. In 2024, there were 39 fire deaths in 36 fatal residential building fires. These fires accounted for 74% of the year's fire deaths overall. They include 22 fire deaths in 22 one- and two-family dwellings; 16 fire deaths in 13 apartment fires; and one fire death in a rooming house fire. **Figure 9** illustrates the causes.

The improper use and disposal of smoking materials caused 11 fatal residential fires and 11 deaths, about 20% of all the year's fire deaths. While smoking-related fire deaths have been declining over the past several decades, they were once again the leading cause of fatal fires and fire deaths in Massachusetts.

Electrical fires, which were the leading cause of fire deaths in 2023, were the second-leading cause in 2024. They accounted for eight deaths. Heating fires were the third-leading cause, with two fatalities. Intentionally set fires and cooking fires each claimed one person's life.

The causes of 14 fires that took the lives of 16 Massachusetts residents could not be

conclusively determined after investigation. In most of these cases, investigators identified one or more likely causes for the fires but could not establish them conclusively or were unable to narrow them down to only one exact cause.

According to the National Fire Protection Association (NFPA) 921, *Guide for Fire and Explosion Investigations*, Chapter 16.2.4, whenever the cause of a fire cannot be proven, the proper classification is "undetermined." Chapter 16.2.5 advises that "Undetermined" is also acceptable when multiple fire causes or ignition factors cannot be eliminated, leaving the investigator with most probable causes."

Smoke Alarm Performance: Alarm performance was determined in connection with 31 of the year's 39 residential fire victims. Fewer than half of these victims were protected by working smoke alarms.

No alarms were present in the fires that claimed nine residents' lives. In the cases of three deaths, smoke alarms were present but had missing or disconnected batteries. Alarm performance was undetermined in eight fatalities.

Smoke alarm performance varied by type of residential occupancy. One- and two-family homes, where most fire deaths occurred, were least likely to have working smoke alarms.

Human Factors: Local fire departments reported a *Human Factor Contributing to Injury* for 23 fire deaths. Almost one-third of these victims were asleep; 21% had a physical disability; 18% were possibly impaired by a drug or chemical; 18% were possibly impaired by alcohol; 7% were unconscious; and 4% were unattended or unsupervised.

Nine residents were trying to escape when they suffered their fatal injuries. Eight were sleeping, and two more were trying to control the fire. One victim was attempting a rescue, one was unable to act, and another was reportedly acting irrationally. Activity at time of death was undetermined or not reported for 17 victims.

Motor Vehicle Fire Deaths

In 2024, six motor vehicle fires killed seven civilians. These incidents accounted for 12% of the fatal fires and 13% of all civilian fire deaths. Four of these involved motor vehicle collisions, one death involved smoking materials, and the causes of two fatal fires were undetermined.

Figure 12: 2024 Fire Deaths by Hour

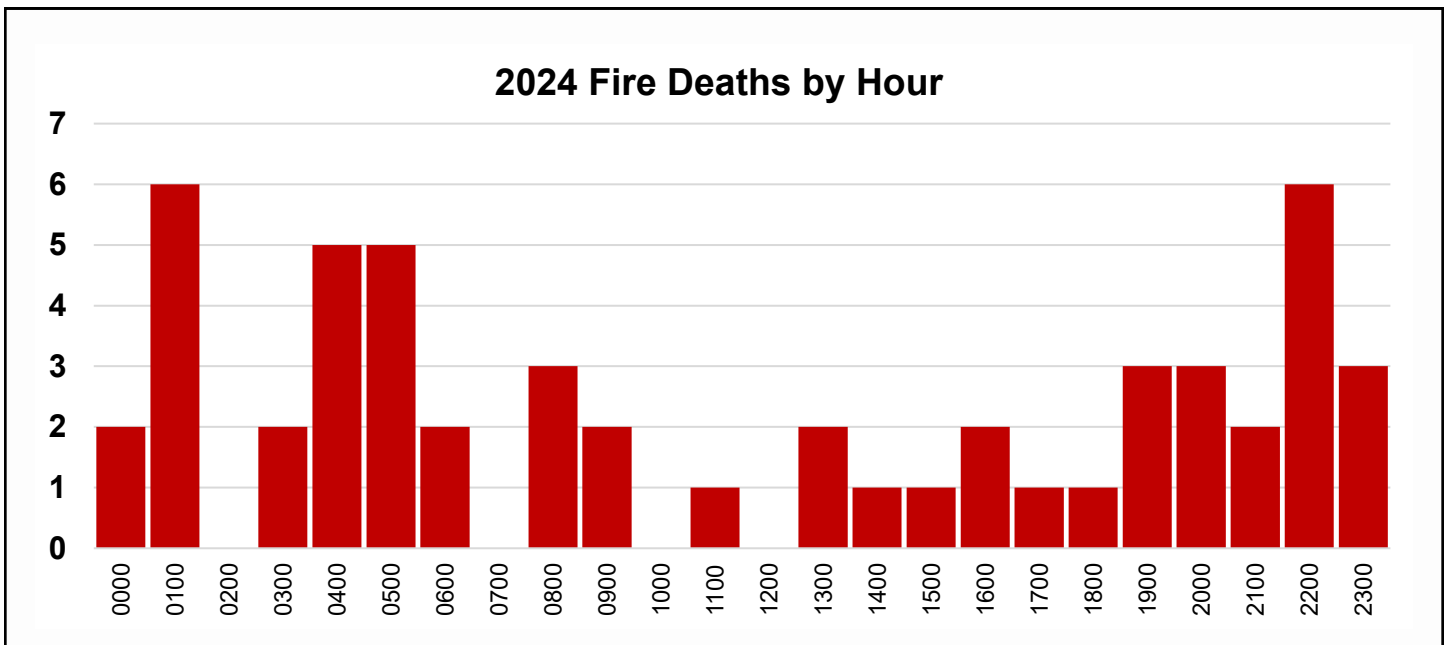


Table 4: 2024 Residential Fire Areas of Origin

Area of Origin	# of Incidents	# of Deaths
Living Room	15	16
Bedroom	6	6
Kitchen	5	5
Wall Assembly / Wall Space	2	2
Function Room, Other	1	2
Bathroom	1	1
Closet	1	1
Egress, Exit, Other	1	1
Structural Area, Other	1	1
Undetermined	3	4

Table 5: 2024 Smoke Alarm Performance by Residential Occupancy in Fatal Fires

Residential Occupancy	Fire Deaths	Alarms Operated	Missing or Disconnected Batteries	No Alarm Present	Alarm Status Undetermined
1- or 2-Family	22	9	1	6	6
Apartments	16	9	2	3	2
Rooming House	1	1	0	0	0
Total	39	19	3	9	8

Other Fatal Fires

In 2024, five people died in five outdoor fires. These incidents accounted for 10% of the fatal fires and 9% of the fire fatalities in

Massachusetts in 2024. Two of these incidents were suicides, one occurred while the victim was unlawfully burning rubbish, another involved a cooking fire, and the last one involved a hot or smoldering object.

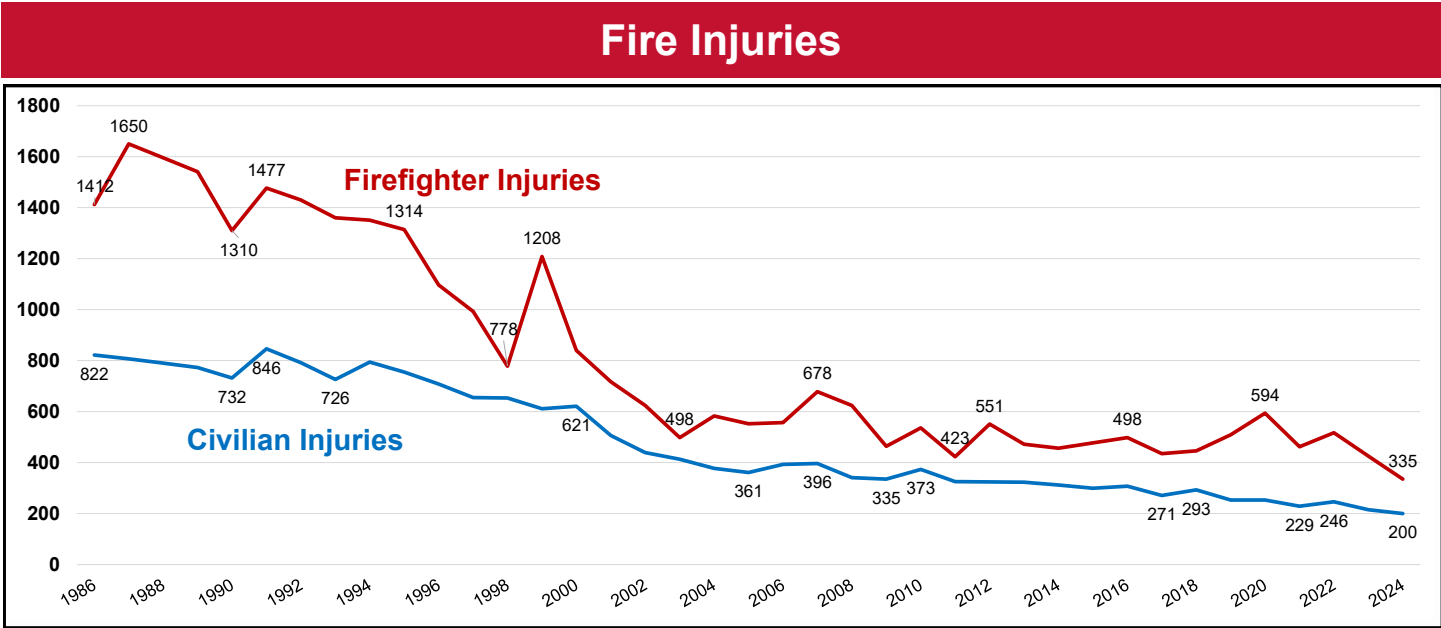


Figure 13: Massachusetts Fire Injuries, 1986-2024

Massachusetts fire departments reported 535 injuries attributed to fire incidents in 2024. These included 200 civilian injuries and 335 firefighter injuries, the lowest numbers in modern history.

Civilian Injuries

Fires in Massachusetts injured 200 civilians in 2024. Residential fires accounted for nearly 75% of them, with 146 reported injuries. Another 20 injuries occurred in businesses, places of assembly, and non-residential structures. Motor vehicle fires accounted for 13 injuries, while outside fires accounted for 21.

When the injury victim’s primary apparent symptom was reported, smoke inhalation was the leading symptom, accounting for 41% of known injuries. Burns were the second most common, followed by both burns and smoke inhalation. These three groups account for 86.3% of reported civilian injuries. As shown in Table 6, people were most commonly injured while attempting to control a fire.

Historically, cooking fires have caused the greatest number of fire-related civilian injuries in Massachusetts residential fires. In 2024, however, electrical fires were the leading cause, followed by cooking and smoking fires. Figure 14

shows the leading causes of civilian structure fire injuries in 2024.

Men accounted for 129 structure fire injuries and women accounted for 71. As shown in Figure 15, people aged 35-44 were the most commonly injured, followed by people aged 55-64.

Smoke Alarm Performance: Local fire departments reported smoke alarm performance in connection with 146 fire injuries. 55% of these injuries occurred where smoke alarms were present and operated. The fire was confined to a noncombustible container, such as a chimney or boiler, and did not activate the alarm in 4% of the incidents, the fire was too small to activate the alarm in 3% of the incidents, and the alarm failed to operate in 2%. There were no alarms present in 14% of the incidents and alarm status was undetermined in 22%.

Motor Vehicle Fire Injuries: There were 13 civilian motor vehicle fire injuries in 2024, accounting for 7% of all civilian fire injuries. When the cause was known, more than 80% of the injuries were attributed to exposure to fire products such as flame, heat, smoke, and other products of combustion. Burns accounted for 45% of injuries, followed by smoke inhalation. Emotional or psychological stress, strains or

Table 6: Victim Activity at Time of Fire-Related Injury, 2024

Victim Activity When Injured	Number of Injuries	Percent of Known Injuries
Fire Control	43	36.1%
Escaping	31	26%
Other	16	13.4%
Rescue Attempt	9	7.5%
Irrational Act	7	5.8%
Returning to Fire Before Control	4	3.3%
Sleeping	4	3.3%
Unable to Act	2	1.6%
Total	119	100%

Figure 14: Fire Causes of Civilian Structure Fire Injuries

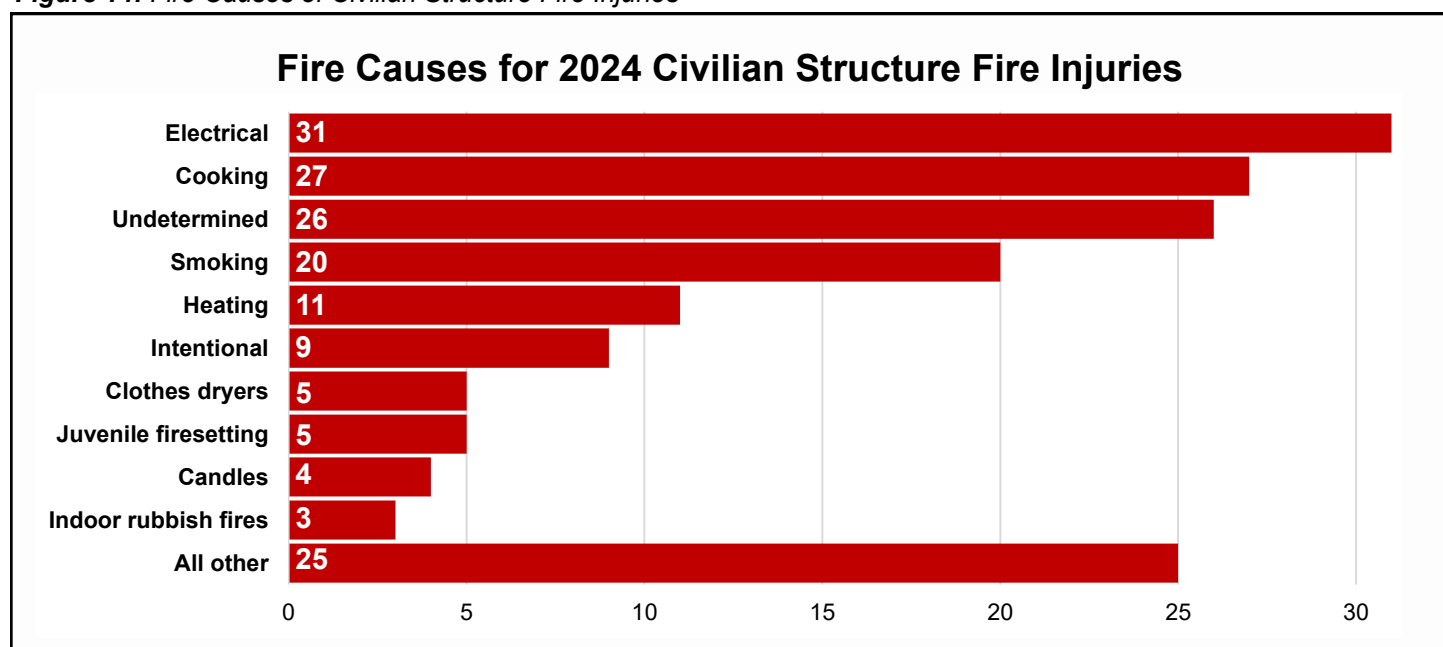
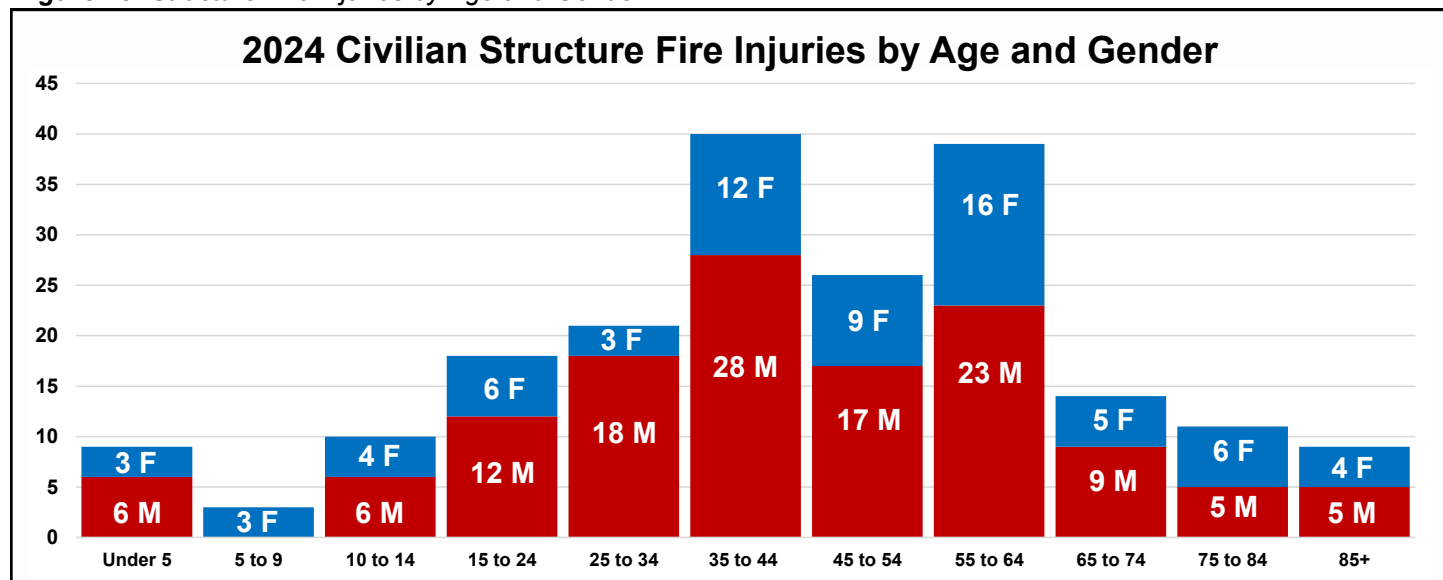


Figure 15: Structure Fire Injuries by Age and Gender



sprains, shock, and a combination of burns and smoke inhalation each accounted for one injury. More than half of the people injured in motor vehicle fires were hurt while escaping the fire. About a third were injured while attempting to control the fire.

Outside and Other Fires: Outdoor fires caused 21 civilian injuries in Massachusetts in 2024. Eight of them were caused by special outside fires, which include outdoor equipment fires and mailbox fires. Six were attributed to brush fires and seven were attributed to various other types of outdoor fires. Burns were the most common primary symptom, followed by smoke inhalation.

Fire Service Injuries

Massachusetts fire departments reported 335 fire-related injuries to firefighters in 2024. This is a decrease of 90, or 21%, from the 425 fire-related fire service injuries reported in 2023 and the lowest number in decades.

Although structure fires accounted for 58% of all fires, they accounted for 80.2% of fire service injuries. Another 15.8% of injuries were sustained at outside and other fires, and 3.8% occurred at motor vehicle fires.

The largest number of firefighter injuries took place at structure fires caused by electrical events. These 30 injuries represent 11% of firefighter injuries at structure fires. While cooking fires are the largest category of structure fires and historically the leading cause of civilian fire injuries, they were the second leading cause in 2024 and accounted for 19 fire service injuries. Heating equipment fires accounted for 11



Firefighters work in inherently dangerous environments.

injuries, smoking fires accounted for nine, and intentionally set fires accounted for six.

On average, there was one firefighter injury for every 58 structure fires. Fires in vacant buildings are significantly more dangerous however, accounting for one firefighter injury for every 16 fires.

NFIRS does not mandate reporting on non-fire injuries to fire service personnel, so this data is incomplete in MFIRS. However, it is important to remember that firefighters work in inherently dangerous environments and may be injured in any number of non-fire incidents, including hazardous materials response, rescues and extrications, EMS patient care, fire investigation, inspections, and other activities. Occupational cancer is not captured by MFIRS but remains the leading cause of death in the fire service, according to the International Association of Fire Fighters.

Fires by Incident Cause

In this section, we review the most common fire categories in Massachusetts. While the fire experience is not limited to these major categories, they represent the factors most likely to cause death, injury, and serious property damage.

Cooking Fires

Unsafe cooking practices and defective cooking equipment caused 10,676 fires, one civilian

death, 28 civilian injuries, 22 firefighter injuries and an estimated dollar loss of \$7.5 million. These fires accounted for 40% of all reported fires in 2024 and include 10,547 structure fires, 53 special outside fires, four brush fires, one motor vehicle fire, and 71 fires that could not be classified further.

Local fire departments reported 10,202 cooking fires that were confined to non-combustible containers such as pots and pans in 2024. These

Figure 16: Leading Causes of Fire-Related Injuries to Firefighters

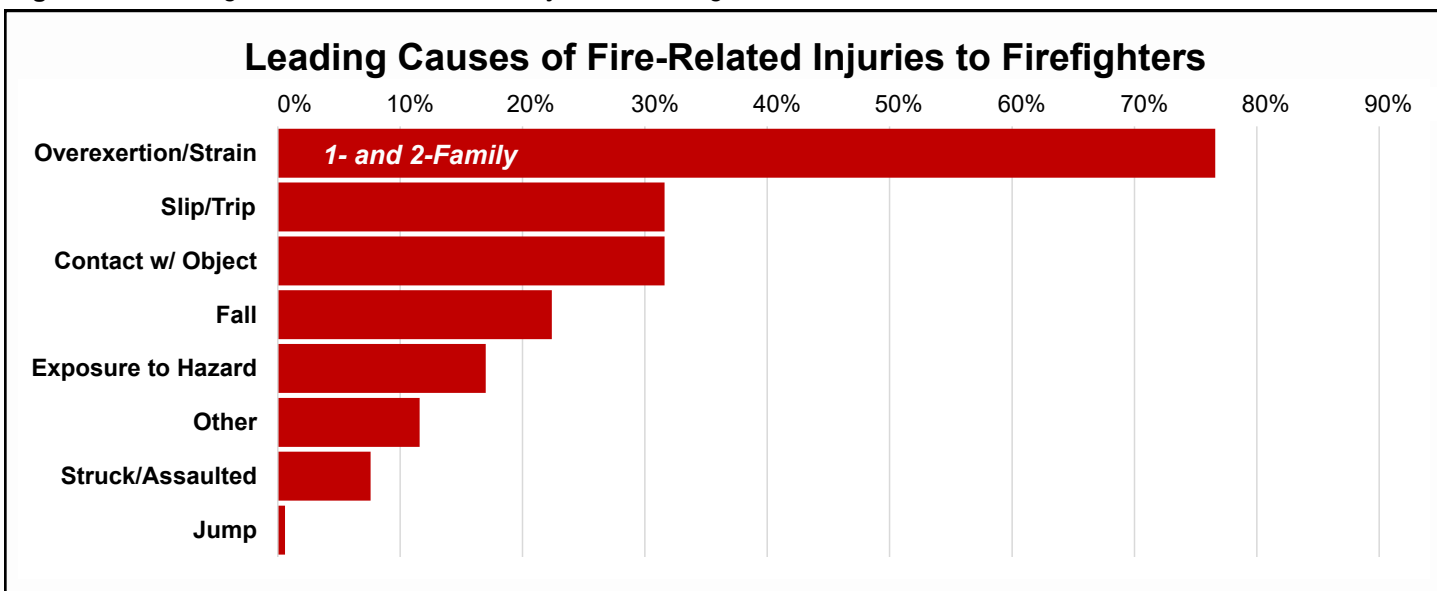


Figure 17: Primary Symptoms of Firefighter Injuries

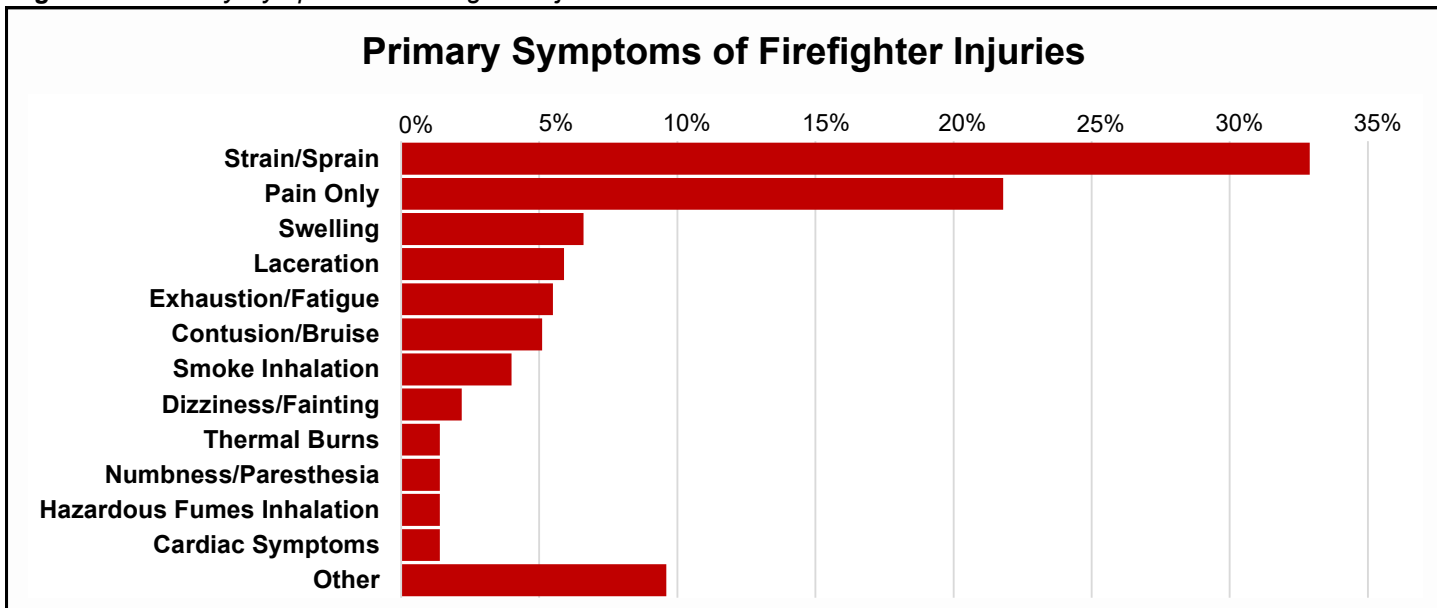


Table 7: Firefighter Injuries by Primary Body Part

Primary Body Part	# of Injuries	Primary Body Part	# of Injuries
Hand/Fingers	32	Wrist	6
Back (Except Spine)	30	Upper Leg	5
Knee	30	Lower Leg	5
Shoulder	25	Internal (Other)	5
Ankle	20	Abdomen	3
Hip, Lower Back, Buttocks	14	Upper Arm	3
Trachea/Lungs	12	Ear	2
Head (Other)	11	Pelvis/Groin	2
Multiple Body Parts (Whole Body)	10	Heart	2
Neck	9	Nose	1
Eye	8	Mouth	1
Elbow	8	Chest	1
Foot/Toes	7	Lower Arm	1
Spine (Except Back)	6	Multiple Body Parts (Upper Body)	1

fires represent the largest single share of fires in Massachusetts and increased by 1% from 2023.

Most cooking fires are the result of human error. When the MFIRS *Factors Contributing to Ignition* field was completed, the most common factor was unattended cooking. The second leading cause was combustible materials too close to the cooking equipment, followed by a failure to clean. When the *Activity at Time of Injury* field was completed, 65% of victims were attempting to control the fire and 15% were trying to escape the fire.

Analysis of this data prompted the Department of Fire Services to launch two public awareness campaigns. The “Stand By Your Pan” campaign encourages residents to remain in the kitchen when cooking on the stovetop, while the “Put a Lid On It” campaign provides guidance on safely extinguishing a stovetop fire.

While the number of residential cooking fires has declined by about 12% over the past 10 years, **Figure 18** shows that cooking fire injuries reached the lowest levels in decades in 2024. In fact, while cooking fires are historically the leading cause of civilian fire injuries in Massachusetts, they fell to second place in 2024 for the first time.

Heating Equipment Fires

Heating equipment was involved in 1,249, or 8%, of the 15,383 building fires in 2024. These fires caused two civilian deaths, 11 civilian injuries, 13 fire service injuries, and an estimated dollar loss of \$10.1 million. This is an 8% decrease from 2023.

Residential fires accounted for 1,136 heating fires in 2024, or nearly 91%. Predictably, these fires were most common in the winter and least common in the summer. As **Table 8** shows, just under 90% of these fires were confined to a furnace, chimney, or other noncombustible container.

Only one type of equipment per fire incident may be reported to MFIRS. For example, sparks from a wood stove may ignite a fire in the chimney. The recorded equipment involved might be either the chimney or the wood stove, but not both. When a fire results from an extension cord overloaded by the demands of a portable heater, the extension cord might be recorded instead of

the heater. Consequently, the totals for specific types of equipment should be considered underestimated.

Both of the year’s heating fire fatalities and most of the injuries resulted from unconfined fires. The most common power source for unconfined fires was electrical power, which accounted for about 55% of the incidents, followed by solid fuels such as wood or coal (19%) and gas fuels such as natural gas or propane (16.7%).

Electrical Fires

Local fire departments reported 638 structure fires caused by electrical events in Massachusetts in 2024. These fires caused eight civilian deaths, 31 civilian injuries, 36 fire service injuries, and an estimated dollar loss of \$45.5 million, accounting for 15% of the total dollar loss to fire in 2024.

More than three-quarters of the year’s electrical fires took place in residential occupancies. The most common area of origin was the kitchen.

Electrical fires were the second leading cause of structure fire deaths in 2024. Seven of these fires caused eight residential structure fire deaths. Electrical fires have been either the leading or second leading cause of structure fire deaths in the past 10 years. In 2024, for the first time in decades, they were also the leading cause of civilian injuries. This is the result of both a steady decrease in cooking fire injuries and a modest increase in civilian electrical fire injuries.

Electrical wiring or cable insulation was the item first ignited in about 24% of the year’s electrical fires. This category includes fixed wiring, wiring inside electronic items, extension cords, and appliance cords. Appliance housing or casing was the second leading item at 5%.

Smoking Fires

The improper use or disposal of smoking materials caused 1,398 fires in 2024, a decrease of about 5% from the previous year. These fires represented just 5.2% of the year’s fires in Massachusetts but accounted for 12 civilian fatalities – nearly 23% of the total. These fatalities include three that involved medical oxygen. Smoking fires also caused 24 civilian injuries, 10 fire service injuries, and \$16.7 million in damages.

Figure 18: Cooking Fire Injuries, 2001-2024

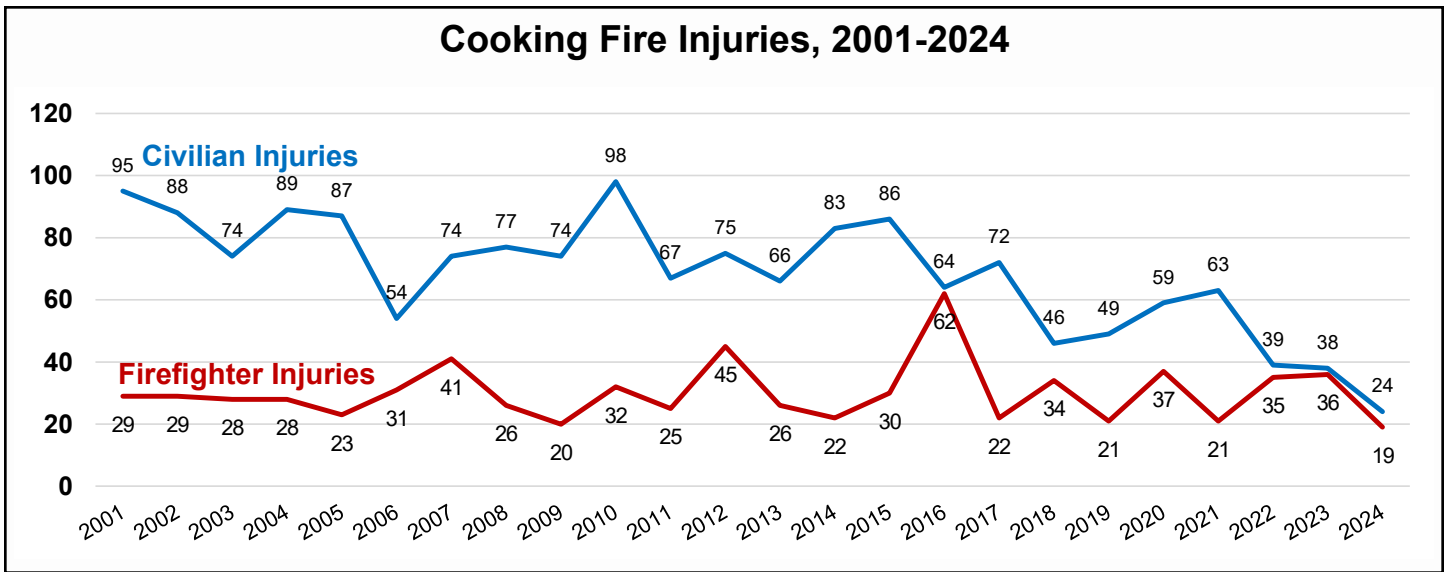


Figure 19: Heating Fire Injuries, 2001-2024

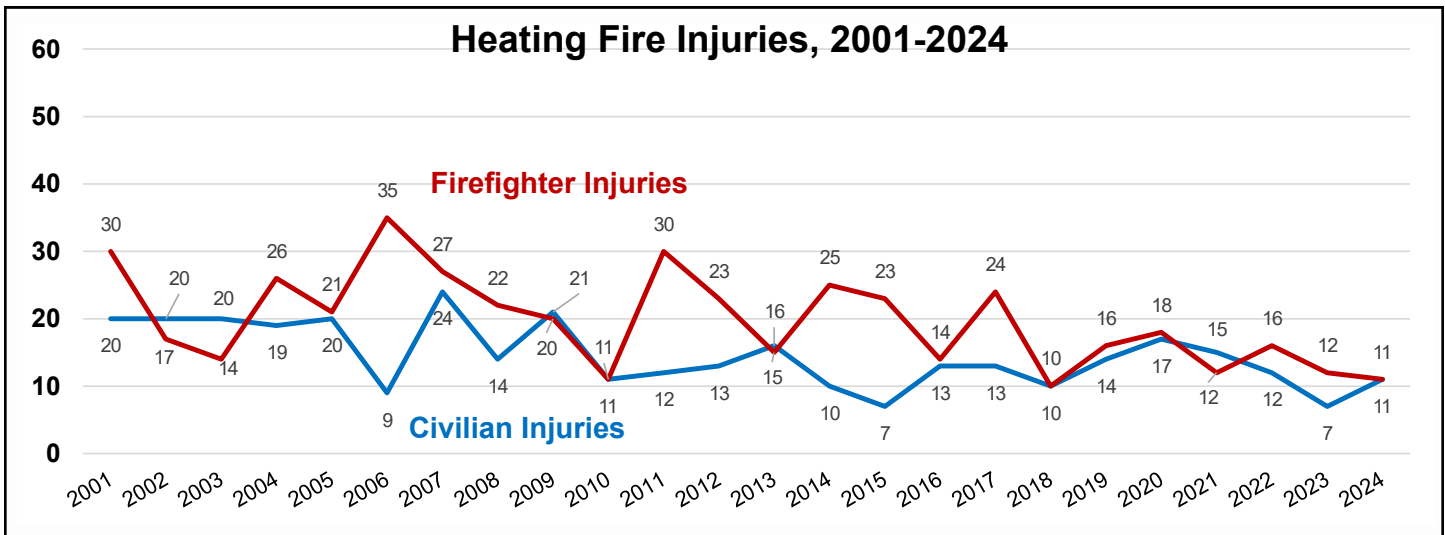


Table 8: 2024 Heating Fires by Equipment Involved

Heating Equipment	# of Fires	Firefighter Injuries	Civilian Injuries	Firefighter Deaths	Civilian Deaths	Dollar Loss
Central Heating Units	728	2	2	0	0	\$589,195
Chimney/Flue	415	2	1	0	1	\$4,181,145
Space Heaters	16	3	1	0	1	\$940,300
Fireplaces	5	2	1	0	0	\$128,525
Water Heaters	6	1	2	0	0	\$470,400
Other HVAC	19	2	1	0	0	\$1,493,002
Other	11	1	0	0	0	\$140,400
Total	1,249	13	11	0	2	\$10,066,672

More than 1,000 of the year's smoking fires, or 71.6%, took place outdoors. These fires accounted for one death, four injuries, and about \$95,500 in damages. The 320 smoking fires that took place in dwellings accounted for 11 civilian fatalities, 20 civilian injuries, 10 fire service injuries, and \$16.5 million in damages. The most common areas of origin for residential smoking fires were outdoor balconies, porches, and stairways, followed by bedrooms and living rooms.

Smoking materials caused 44 non-residential structure fires, most commonly in businesses and in places of assembly such as auditoriums, houses of worship, and ballrooms. Another 19 smoking fires occurred in vehicles, claiming one life but causing no other injuries.

Massachusetts' Fire Standard Compliant Cigarette law was passed to address the high rate of fires, injuries, fatalities, and property damage that occur when lit cigarettes ignite upholstery and bedding. The law requires cigarettes sold in Massachusetts to meet certain requirements for self-extinguishment. Prior to the law taking effect in 2008, about 70 such fires took place in Massachusetts each year, claiming an average of 5.3 lives annually. In the years since, the average number of smoking-related bedding and upholstery fires has fallen to about 25 per year, with fatalities declining to 2.8 annually. In 2024, 13 fires and three fatalities met these criteria.

Battery Fires

Battery fires are not a leading cause of fire injuries or deaths in Massachusetts, but they are a rapidly growing category. They are expected to increase further in the years ahead as lithium-ion batteries power more and more consumer devices and larger products such as vehicles and energy storage systems.

Local fire departments reported 49 battery fires to MFIRS in 2024, a 75% increase over 2023. These fires caused seven civilian injuries, two firefighter injuries, one civilian death, and about \$1.8 million in property damage. More than half of these fires took place in residential occupancies.

Because MFIRS mirrors the National Fire Incident Reporting System, it does not have a field for lithium-ion batteries, and some fires

related to these batteries are reported according to ancillary equipment such as chargers.

In late 2023, the Department of Fire Services launched an investigative checklist to gather better data on lithium-ion battery fires. Fire departments utilizing this checklist reported 128 fires that somehow involved lithium-ion batteries in 2024 -- including fires that injured an additional 13 civilians. **Figure 22** illustrates the enhanced reporting of lithium-ion battery fires through the checklist compared to traditional MFIRS reporting.

State Police fire investigators assigned to the State Fire Marshal's office use the checklist for all lithium-ion battery fires they investigate. Because its use by local fire departments is voluntary, however, the true number of lithium-ion battery fires is likely much higher.



A lithium-ion battery found at the scene of a 2024 fatal fire.

Undetermined / Under Investigation

Massachusetts fire departments reported the cause of ignition for 2,659 fires as *Undetermined*. The internationally recognized standard NFPA 921, *Guide for Fire and Explosion Investigations*, requires that the cause of a fire be entered as "Undetermined" when investigators are unable to rule out all but one potential cause. An additional 996 fires were still listed as still under investigation.

Figure 20: Residential Electrical Fire Injuries, 2001-2024

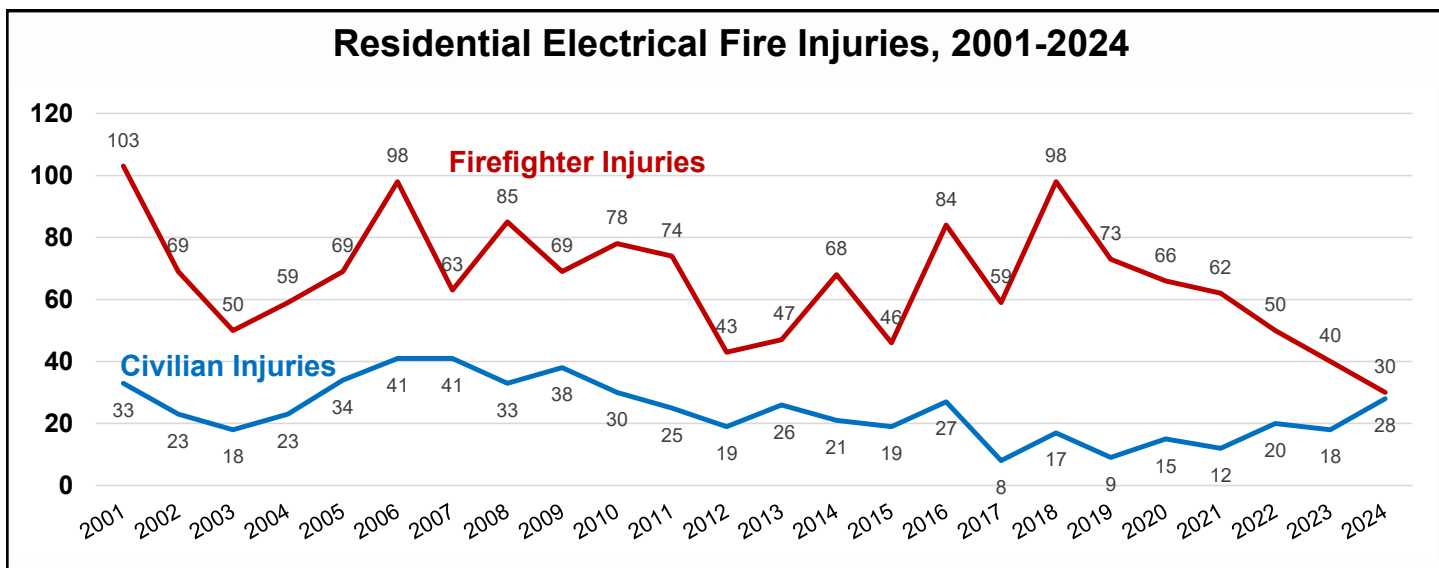


Figure 21: Residential Smoking Fire Deaths, 2001-2024

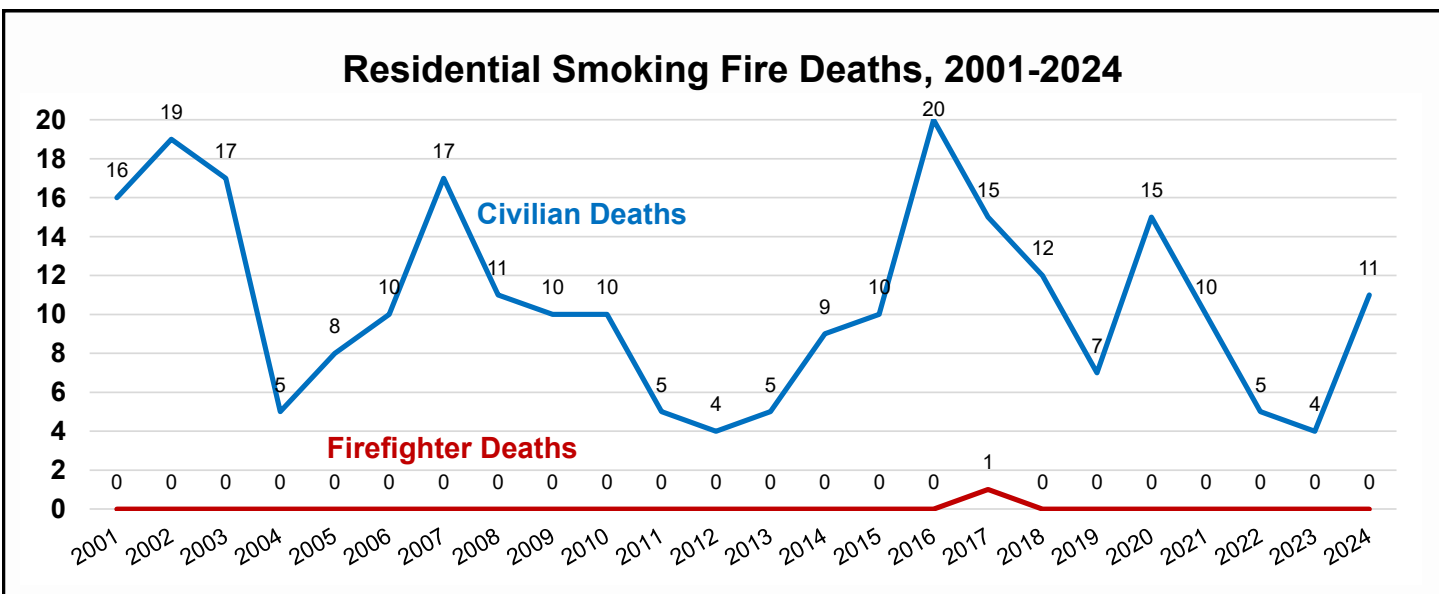
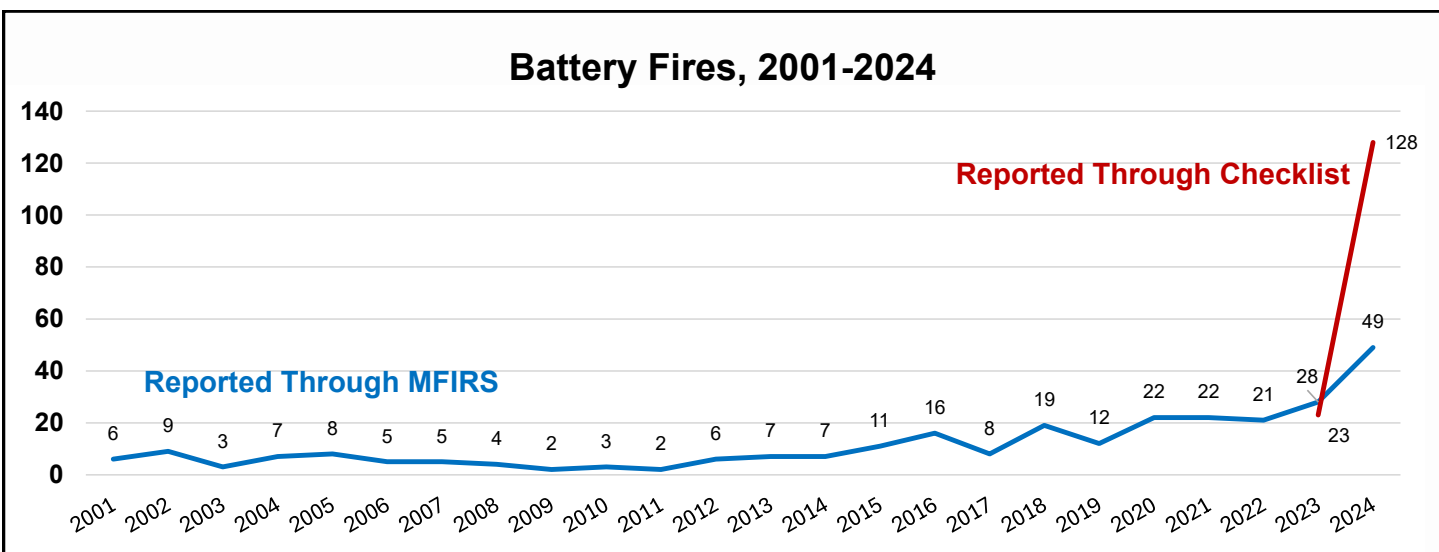


Figure 22: Battery Fires, 2001-2024



Intentionally Set Fires

Under MFIRS criteria, a fire is considered an arson if the cause of ignition is labeled as "intentional" and the age of the person responsible is entered as greater than 17 or left blank. In the case of wildland fires, a fire with the cause entered as "incendiary" is also considered arson. Of the 26,639 fire incidents reported to MFIRS in 2024, 658 met these criteria. This is an increase of 7% from the 613 reported in 2023.

The 137 structure fires, 40 motor vehicle fires, and 481 outside and other fires that were determined to be intentionally set caused four civilian deaths, which were all ruled suicides, as well as 11 civilian injuries and 10 fire service injuries. The estimated dollar loss was \$7.6 million.

Massachusetts law requires local fire departments to investigate any fire that causes a loss, such as property damage or personal injury.

When the local fire department is unable to determine the cause, or when the fire appears to be suspicious, the State Police Fire & Explosion Investigation Unit assigned to the State Fire Marshal's office is available to assist. State Police investigators led or supported 639 fire investigations in 2024 and determined that 116 of them were intentionally set. A total of 52 suspects were criminally charged in connection with these fires.

Intentionally set structure fires reported in 2024 caused two civilian deaths, nine civilian injuries, seven fire service injuries, and an estimated dollar loss of \$7.1 million. Residences accounted for about 60%, followed by places of assembly.

Outdoor and other fires were most common but caused relatively little damage aside from two suicides. They accounted for two civilian injuries, three fire service injuries, and about \$102,000 in property loss. Vehicle arsons accounted for no deaths or injuries but contributed to \$333,160 in property damage.

Non-Fire Incidents

Today's firefighters do much more than fight fires. They also respond to service calls, good intent calls, false alarms, and the special types of incidents that do not fit neatly into any of the other categories. These numbers have risen as more fire departments automate their reporting and voluntarily report all their incidents to MFIRS.

In 2024, 354 fire departments in Massachusetts reported 1,177,595 responses to MFIRS. This is a 1% increase from the number reported in 2023. Of these responses, 1,147,708 non-fire calls were voluntarily reported.

About 63% of these non-fire incidents were EMS and rescue calls, primarily EMS calls excluding vehicle collisions with injuries, followed by fire service assistance to EMS crews. The second leading category was false alarms and other false calls.

Of the total responses (including aid given) submitted by Massachusetts fire departments, about 3% were fires.

Carbon Monoxide Calls: In 2024, 336 fire departments voluntarily reported 17,564 carbon monoxide (CO) incidents to MFIRS. These calls included false alarms, alarm malfunctions, and 4,717 CO hazards, which reflect an identifiable carbon monoxide emergency, regardless of whether a CO alarm is activated or not.

Figure 24 illustrates the number of calls at which firefighters found elevated levels of carbon monoxide. Overall, CO calls have been on the rise since 2013, with spikes in some years related to significant weather events such as heavy snow that blocks exhaust vents or hurricanes that lead to increased generator use.

The overwhelming majority of carbon monoxide calls occurred in residential occupancies. Public assembly properties were the next leading property use categories for CO calls. Just over one-third of all the CO calls in 2024 took place during the colder months of November through February. Most occurred between the hours of 5:00 p.m. and 9:00 p.m.

Figure 22: Intentionally Set Fires, 2015-2024

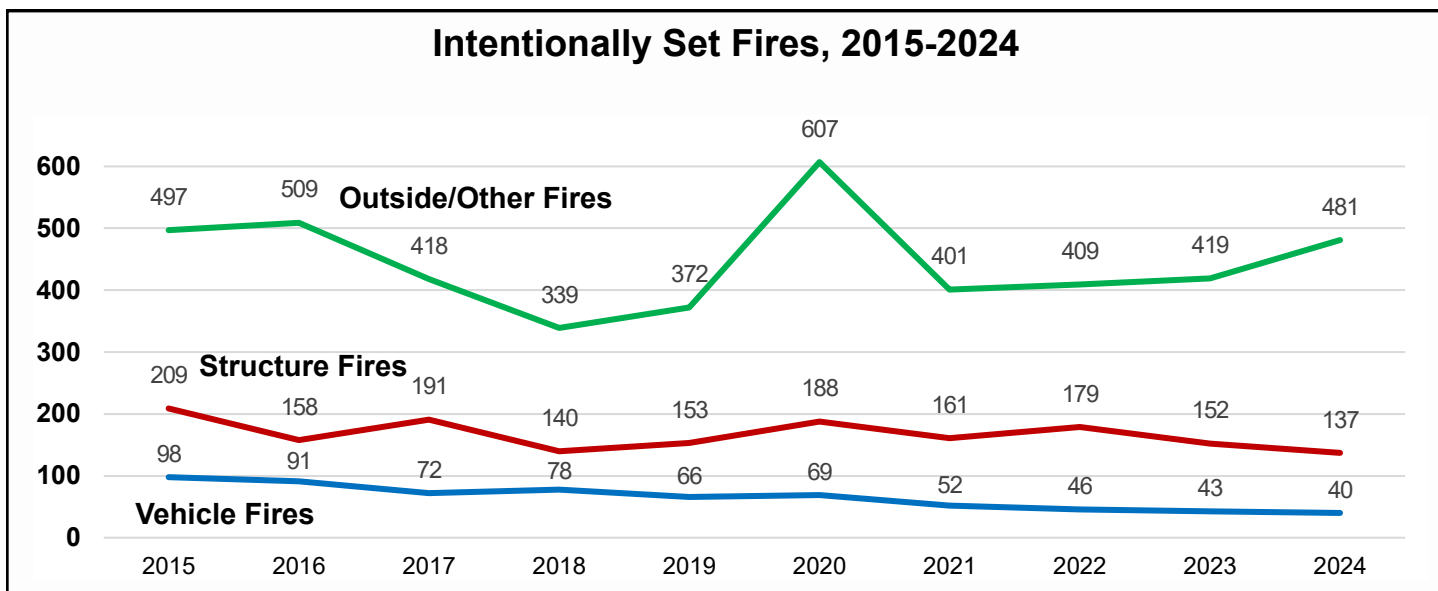


Figure 23: Leading Non-Fire Incidents, 2024

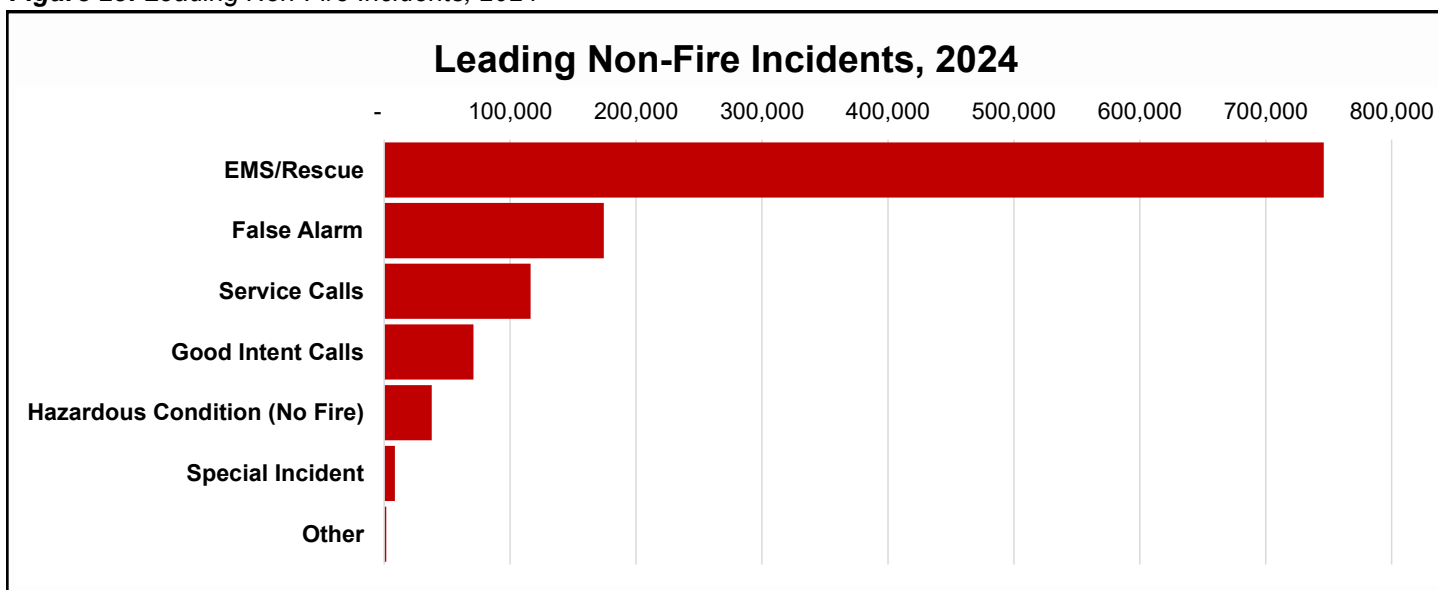
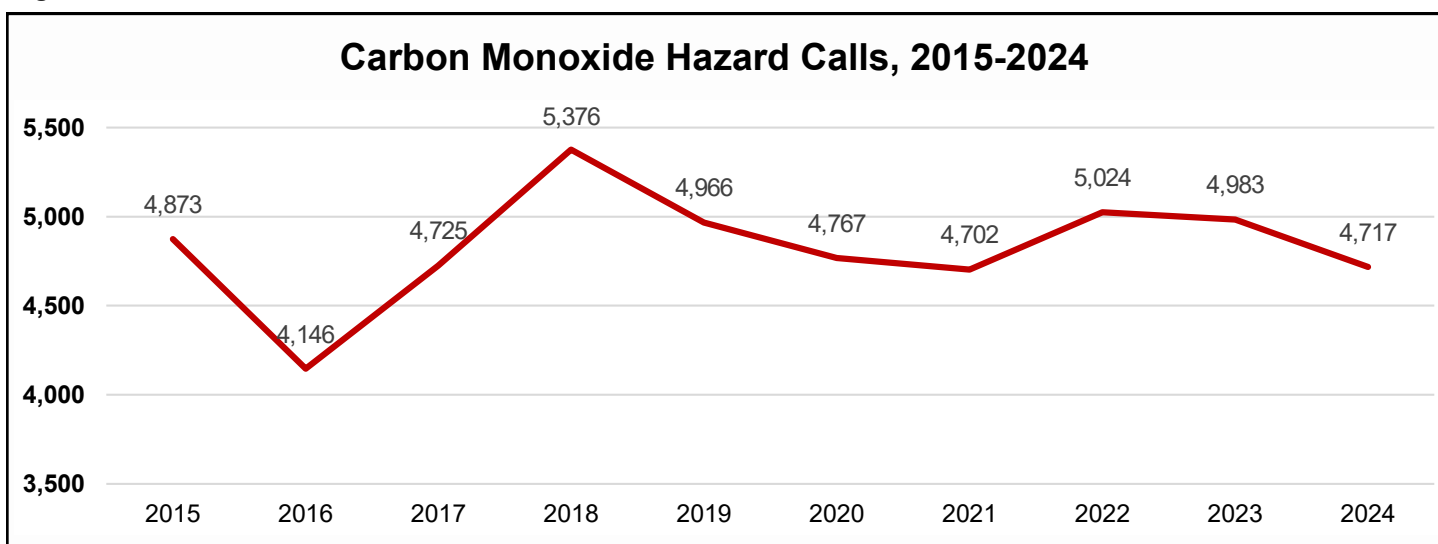


Figure 24: Carbon Monoxide Hazard Calls, 2015-2024



**The Massachusetts Department of Fire Services thanks the following fire departments,
which made this report possible by contributing to the Massachusetts Fire Incident
Reporting System in 2024:**

ABINGTON	BROOKFIELD	EASTHAMPTON	HOLDEN
ACTON	BROOKLINE	EASTON	HOLLAND
ACUSHNET	BUCKLAND	EDGARTOWN	HOLLISTON
ADAMS	BURLINGTON	EGREMONT	HOLYOKE
AGAWAM	CAMBRIDGE	ERVING	HOPEDALE
ALFORD	CANTON	ESSEX	HOPKINTON
AMESBURY	CARLISLE	EVERETT	HUBBARDSTON
AMHERST	CARVER	FAIRHAVEN	HUDSON
ANDOVER	CHARLTON	FALL RIVER	HULL
AQUINNAH	CHATHAM	FALMOUTH	HUNTINGTON
ARLINGTON	CHELMSFORD	FITCHBURG	HYANNIS
ASHBURNHAM	CHELSEA	FLORIDA	IPSWICH
ASHBY	CHESHIRE	FOXBOROUGH	JOINT BASE CAPE COD
ASHFIELD	CHESTER	FRAMINGHAM	KINGSTON
ASHLAND	CHESTERFIELD	FRANKLIN	LAKEVILLE
ATHOL	CHICOPEE	FREETOWN	LANCASTER
ATTLEBORO	CHILMARK	GARDNER	LANESBOROUGH
AUBURN	CLARKSBURG	GEORGETOWN	LAWRENCE
AVON	CLINTON	GILL	LEE
AYER	COHASSET	GLOUCESTER	LEICESTER
BARNSTABLE	COLRAIN	GOSHEN	LENOX
BARRE	CONCORD	GOSNOLD	LEOMINSTER
BECKET	CONWAY	GRAFTON	LEVERETT
BEDFORD	COTUIT	GRANBY	LEXINGTON
BELCHERTOWN	C.O.M.M.	GRANVILLE	LEYDEN
BELLINGHAM	CUMMINGTON	GREAT BARRINGTON	LINCOLN
BELMONT	DALTON	GREENFIELD	LITTLETON
BERKLEY	DANVERS	GROTON	LOGAN AIRPORT
BERLIN	DARTMOUTH DIST. #1	GROVELAND	LONGMEADOW
BERNARDSTON	DARTMOUTH DIST. #2	HADLEY	LOWELL
BEVERLY	DARTMOUTH DIST. #3	HALIFAX	LUDLOW
BILLERICA	DEDHAM	HAMILTON	LUNENBURG
BLACKSTONE	DEERFIELD	HAMPDEN	LYNN
BLANDFORD	DENNIS	HANCOCK	LYNNFIELD
BOLTON	DEVENS	HANOVER	MALDEN
BONDSVILLE	DIGHTON	HANSON	MANCHESTER
BOSTON	DOUGLAS	HARDWICK	MANSFIELD
BOURNE	DOVER	HARVARD	MARBLEHEAD
BOXBOROUGH	DRACUT	HARWICH	MARION
BOXFORD	DUDLEY	HATFIELD	MARLBOROUGH
BOYLSTON	DUNSTABLE	HAVERHILL	MARSHFIELD
BRAINTREE	DUXBURY	HAWLEY	MASHPEE
BREWSTER	EAST BRIDGEWATER	HEATH	MASSPORT HANSCOM
BRIDGEWATER	EAST BROOKFIELD	HINGHAM	MASSPORT
BRIMFIELD	EAST LONGMEADOW	HINSDALE	WORCESTER
BROCKTON	EASTHAM	HOLBROOK	MATTAPOISETT

**The Massachusetts Department of Fire Services thanks the following fire departments,
which made this report possible by contributing to the Massachusetts Fire Incident
Reporting System in 2024:**

MAYNARD	OAK BLUFFS	SHEFFIELD	WALTHAM
MEDFIELD	OAKHAM	SHELBURNE CTR	WARE
MEDFORD	ONSET	SHELBURNE FALLS	WAREHAM
MEDWAY	ORANGE	SHERBORN	WARREN
MELROSE	ORLEANS	SHIRLEY	WARWICK
MENDON	OTIS	SHREWSBURY	WASHINGTON
MERRIMAC	OXFORD	SHUTESBURY	WATERTOWN
METHUEN	PALMER	SOMERSET	WAYLAND
MIDDLEBOROUGH	PAXTON	SOMERVILLE	WEBSTER
MIDDLEFIELD	PEABODY	SOUTH DEERFIELD	WELLESLEY
MIDDLETON	PELHAM	SOUTH HADLEY #1	WELLFLEET
MILFORD	PEMBROKE	SOUTH HADLEY #2	WENDELL
MILLBURY	PEPPERELL	SOUTHAMPTON	WENHAM
MILLIS	PERU	SOUTHBOROUGH	WEST BARNSTABLE
MILLVILLE	PETERSHAM	SOUTHBRIDGE	WEST BOYLSTON
MILTON	PHILLIPSTON	SOUTHWICK	WEST BRIDGEWATER
MONROE	PITTSFIELD	SPENCER	WEST BROOKFIELD
MONSON	PLAINFIELD	SPRINGFIELD	WEST NEWBURY
MONTAGUE CENTER	PLAINVILLE	STERLING	WEST SPRINGFIELD
MONTEREY	PLYMOUTH	STOCKBRIDGE	WEST STOCKBRIDGE
MONTGOMERY	PLYMPTON	STONEHAM	WEST TISBURY
NAHANT	PRINCETON	STOUGHTON	WESTBOROUGH
NANTUCKET	PROVINCETOWN	STOW	WESTFIELD
NATICK	QUINCY	STURBRIDGE	WESTFORD
NEEDHAM	RANDOLPH	SUDBURY	WESTHAMPTON
NEW ASHFORD	RAYNHAM	SUNDERLAND	WESTMINSTER
NEW BEDFORD	READING	SUTTON	WESTON
NEW BRAINTREE	REHOBOTH	SWAMPSCOTT	WESTPORT
NEW MARLBOROUGH	REVERE	SWANSEA	WESTWOOD
NEW SALEM	RICHMOND	TAUNTON	WEYMOUTH
NEWBURY	ROCHESTER	TEMPLETON	WHATELY
NEWBURYPORT	ROCKLAND	TEWKSBURY	WHITMAN
NEWTON	ROCKPORT	THREE RIVERS	WILBRAHAM
NORFOLK	ROWLEY	TISBURY	WILLIAMSBURG
NORTH ADAMS	ROYALSTON	TOLLAND	WILLIAMSTOWN
NORTH ANDOVER	RUSSELL	TOPSFIELD	WILMINGTON
NORTH ATTLEBORO	RUTLAND	TOWNSEND	WINCHENDON
NORTH BROOKFIELD	SALEM	TRURO	WINCHESTER
NORTH READING	SALISBURY	TURNERS FALLS	WINDSOR
NORTHAMPTON	SANDISFIELD	TYNGSBOROUGH	WINTHROP
NORTHBOROUGH	SANDWICH	TYRINGHAM	WOBURN
NORTHBRIDGE	SAUGUS	UPTON	WORCESTER
NORTHFIELD	SAVOY	UXBRIDGE	WORTHINGTON
NORTON	SCITUATE	WAKEFIELD	WRENTHAM
NORWELL	SEEKONK	WALES	YARMOUTH
NORWOOD	SHARON	WALPOLE	