The Massachusetts Fire Problem

Massachusetts
Fire Incident
Reporting System

2016
Annual Report

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Governor

Karyn E. Polito
Lieutenant Governor

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Secretary of Public Safety

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State Fire Marshal

Department of Fire Services
Division of Fire Safety • Fire Data and Public Education Unit

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ABOUT THE COVERS

The original drawings shown on the front and back covers are the year 2017, 1st and 2nd place winning entries of the 35th annual statewide Arson Watch Reward Program Poster Contest, sponsored by the Massachusetts Property Insurance Underwriting Association (MPIUA), on behalf of all property and casualty insurance companies of Massachusetts. The poster theme was "Fire Prevention – Everyone/Everyday".

A countywide contest was held for all students in grade 6-8. Twelve out of 14 counties participated with approximately 1,000 posters submitted. Posters were judged, and 1st and 2nd place county winners were chosen at MPIUA by an impartial panel of judges. All 1st place county winners were entered into the Massachusetts statewide contest. An award ceremony was held in honor of all county winners at the Sheraton Framingham Hotel on June 7, 2017, wherein the three state winners were announced and presented with their awards.

The front cover shows a drawing submitted by Ora Lin, a student at the Burncoat Middle School, Worcester, Massachusetts. Ora's poster was chosen as the 1st place winner in the Worcester county poster contest, and as a result, was automatically entered into the statewide contest, along with 11 other county winners, where it was chosen as the 1st place state winner.

The back cover shows a drawing submitted by Elena Batres Murcia, a student at the Cyrus Peirce Middle School, Nantucket, Massachusetts. Elena's poster was chosen as the 1st place winner in the Nantucket county poster contest and was also automatically entered into the statewide contest where it was chosen as the 2nd place state winner.

MPIUA has generously sponsored the printing of the 2016 Annual Report of the Massachusetts Fire Incident Reporting System (MFIRS), as well as, the use of the 1st and 2nd place posters for the covers, for the last 34years.

Massachusetts Fire Incident Reporting System

2016 Annual Report

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This report is also available in an electronic format through the Fire Data section of the Department of Fires Services website:

www.mass.gov/dfs/

Fireman's Prayer

When I am called to duty, God
Wherever Flames may rage
Give me the strength to save some life
Whatever Be its age
Help me embrace a little child
Before it is too late
Or save an older person from
The horror of that fate
Enable me to be alert and
Hear the weakest shout
And quickly and efficiently
To put the fire out
I want to fill my calling and
To give the best in me
To guard my every neighbor
And protect their property
And if according to your will
I have to lose my life
Please bless with your protecting hand
My children and my wife

-Unknown

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Executive Summary

Our Mission: *The mission of the Department of Fire Services, through coordinated training, education, prevention, investigation, and emergency response, to provide the citizens of Massachusetts with the ability to create safer communities; to assist and support the fire service community in the protection of life and property; to promote and enhance firefighter safety; and to provide a fire service leadership presence in the Executive Office of Public Safety and Security in order to direct policy and legislation on all fire related matters.*

December 2016

This is the *2016 Annual Report of the Massachusetts Fire Incident Reporting System* (MFIRS), which summarizes the Massachusetts fire experience for 2016. It is based on the 31,889 individual fire reports submitted by members of 366 fire departments and fire districts. It is this effort that makes it possible to look at the total fire experience, to identify our fire problems and to develop strategies to address these issues. One of the goals of the Division of Fire Safety is to provide the fire service and the public with accurate and complete information about the fire experience in Massachusetts.

16,955 Structure Fires, 2,357 Vehicle Fires, 12,577 Outside & Other Fires in 2016
There were 31,889 fire and explosion incidents reported by fire departments to the Massachusetts Fire Incident Reporting System (MFIRS) in 2016. The 16,955 structure fires, 2,357 motor vehicle fires, and 12,577 outside and other fires caused 56 civilian deaths, 295 civilian injuries, 483 fire service injuries, and an estimated dollar loss of $258.6 million in property damages.

Civilian Fire Deaths Down 15% From 2015
Fifty-six (56) civilians died in 45 Massachusetts fires in 2016. Civilian deaths decreased by six, or 10%, from the 62 fire deaths in 2015. Thirty (30) men, 22 women, and four children died in Massachusetts' fires. Of the 56 civilian deaths in fires in 2016, 45 occurred in residential structures. Over two-thirds, 68%, of civilians died at night, at home, while they were sleeping and did not have working smoke alarms or residential sprinklers. Nine (9) deaths occurred in seven motor vehicle fires. No one was killed in an outside fire in 2016. In 2016 there were 1.76 civilian deaths for every 1,000 fires.

Smoking Was Leading Cause of Fatal Fires in 2016
Smoking was the leading cause of fatal fires and civilian fire deaths in 2016. These fires caused 19, or 42%, of the residential civilian fire deaths. The second leading cause of residential civilian fire deaths was electrical problems, causing four deaths, or 9%, and arson was third with three, or 7% of residential fire deaths.

4 Child Fire Deaths
For the fourth time since 2009 (and fourth year in a row) more than one person under the age of 18 died in a fire. Of the 56 civilian deaths in fires in 2016, four, or 7%, were children. All four were eight-years old or younger and all died in residential fires.

Time for Residential Sprinklers
It is time for the fire service and its partners to move forward towards enacting legislation and regulation on residential sprinklers in the Commonwealth. Sprinklers have a long history of effectively protecting people's lives and property. We can reduce fire fatalities in the future by requiring them in newly constructed one- and two-family homes.

Structure & MV Fires Down & Outside & Other Fires Up in 2016
The total number of reported fires increased by 1% from 31,673 in 2015 to 31,889 in 2016. Structure fires decreased by 1% from 2015 to 2016. From 2015 to 2016, motor vehicle fires decreased by 11%. Outside, brush, and other fires increased by 6% during the same time period.

Although the law states that only fires where a loss is sustained must be reported, many fire departments are wisely reporting all of the fire incidents they respond to, giving a more accurate picture of the fire problem in Massachusetts. Many departments are also reporting the non-fire calls to which they respond. Emergency medical and rescue calls represent 59% of the 890,895 total responses that were reported to MFIRS in 2016. The total number of calls reported to MFIRS increased by 17,619, or 2% in 2016.

Cooking Was the Leading Cause of Residential Building Fires & Injuries
Seventy-two percent (72%) of all residential building fires were caused by unattended and other unsafe cooking practices in 2016. Seventy-three percent (73%) of residential fires originated in the kitchen. Cooking also caused the most fire-related civilian injuries Cooking fires caused 71, or 24% of all 2016 civilian fire injuries and two, or 4%, of residential fire deaths in 2016.

Alarms Operated in 63% of Residential Fires
Smoke or heat alarms operated in 8,958, or 63%, of the residential building fires in 2016. There were no working alarms in 3% of these incidents. Based on information reported, smoke alarm performance was undetermined in 3,490 incidents, or 25%, of Massachusetts' 2016 residential building fires.

Alarms Operated in 60% of Building Fires that Caused Injuries
Alarms operated in 60% of the building fires that caused injuries. When an occupant is alerted to the presence of fire, they may try to extinguish it, which could result in an injury. Or, the injury may have occurred as a result of escaping after the situation worsened. When alerted to the presence of a fire, occupants should vacate the building and notify the fire department as soon as possible, letting the professionals with the proper training and gear extinguish the fire.

Arson Down 8%
Seven hundred and forty-two (742) Massachusetts fires were considered arson in 2016. The 151 structure arsons, 88 motor vehicle arsons, and 503 outside and other arsons caused four civilian deaths, four civilian injuries, 15 fire service injuries, and an estimated dollar loss of $11.1 million. This is an 8% decrease in arson from the 803 reported in 2015.

Structure arsons decreased by 27%, and motor vehicle arsons decreased by 10% from 2015 to 2016. Overall, motor vehicle arsons have fallen by 99% since 1987. The steady decline of motor vehicle arsons can be explained by the enactment of the Burned Motor Vehicle Reporting Law. It took effect in 1987, and requires owners of burned motor vehicles to complete and sign a report that must also be signed by a fire official from the department in the community where the fire occurred, before they can collect on their fire insurance. Outside and other arsons increased by 1%.

Firefighters Injured at 1 of Every 9 Vacant Building Fires

One of the most dangerous types of fires for firefighters in 2016 were vacant building fires. Vacant building fires accounted for 33, or 7%, of all firefighter injuries in 2016. These 33 injuries also represent 8% of the number of firefighter injuries at all structure fires. On average there was one firefighter injury for every nine vacant building fires.

Conclusion

The lack of working smoke alarms or sprinkler systems are contributing factors to these tragedies. It is important to remember that properly maintained alarms provide an early warning of a fire, and residential sprinklers provide the opportunity to safely escape. It is important to make and practice an escape plan.

We would like to thank the Massachusetts Property Insurance Underwriting Association for printing this report and for their support throughout the year. We also wish to thank Governor Charles D. Baker and Public Safety and Security Secretary Daniel Bennett for their commitment and support to the Massachusetts fire service through the Department of Fire Services.

We also wish to recognize the efforts of the staff of the Fire Data and Public Education Unit, Cynthia Ouellette, coordinator; Derryl Dion, research analyst and Julie Bergeron, office support specialist, within the Fire Safety Divison who manage the Massachusetts Fire Incident Reporting System and prepared this report.

Peter J. Ostroskey
State Fire Marshal

Massachusetts Fire Departments

Today's firefighters do far more than fight fires. Many are emergency medical technicians or paramedics. All firefighters must be trained to offer first aid if they arrive first at an emergency. They are the first ones called to deal with hazardous materials incidents ranging from the suspected presence of carbon monoxide to a leaking propane truck. They may be called to rescue a child that fell through ice or that locked himself in the bathroom. They get people out of stuck elevators and wrecked cars. They test and maintain their equipment, ranging from self-contained breathing apparatus to hydrants to hoses and trucks. They know the basics of construction, electricity and chemistry. Some undertake the calling of fire prevention and become inspectors or public fire educators. They report their fire incidents through the Massachusetts Fire Incident Reporting System so we can spot trends, problems and successes.

When most people think of the fire department, they think of fire trucks, sirens and flames. Actually, the priority of a fire department is to prevent fires. If prevention fails, then the alarm comes in and the trucks roll.

Fire Department Enforces M.G.L. Chapter 148 and 527 CMR
Fire departments are legally required to enforce the provisions of 527 Code of Massachusetts Regulations (CMR). This contains regulation sections on fireworks, dry cleaning, oil burners, gas stations, liquid propane, plastics, transportation of flammable liquids, above ground storage tanks, electrical systems, explosives, storage of flammable substances, marine fueling, model rockets, lumber yards, bulk plants, tentage, salamanders, flammable decorations and curtains, cannon or mortar firing, fire extinguishers, smoke alarms, obstructions and hazards, combustible fibers, rubbish handling, crop ripening, pesticide storage, welding and storage, carbon monoxide, and unvented appliances. Fire departments must also enforce the laws contained in Massachusetts General Law Chapter 148.

Inspectors must know the regulations they are enforcing and they must know how to apply the regulations to situations in the community. They must communicate information about weaknesses in plans they review, educate people on violations and perform follow-up inspections. Just as firefighters are sent to the Massachusetts Firefighting Academy to learn the principles of suppression, fire prevention personnel must go to classes to learn the ins and outs of the regulations. These functions also produce a corresponding amount of documentation that is critical to be maintained.

Firefighters Teach the Community Fire and Burn Prevention
Firefighters go out in the community to teach children, seniors and interested community groups how to protect themselves from fire and burns. The statistics in this report are critical to these educators in developing injury prevention programs. As we review our reported calls it may lead to a better-rounded prevention program.

The S.A.F.E. Program

The Student Awareness of Fire Education or S.A.F.E. Program was implemented in fiscal year 1996. The Legislature appropriated $1,078,666 to fund public fire education grants. These grants provide local fire departments with funding to educate children about the dangers associated with fire, particularly fires caused by smoking. Any city or town, whose fire department is committed to working with school systems, public health or other community agencies to develop a well-conceived and coordinated fire safety education program message, is invited to apply for these grants. In fiscal year 2017, 234 fire departments shared the $1,047,163 in S.A.F.E. funding.

Turners Falls Young Hero - Daniel Widmer

On Tuesday, September 27, 2016, 8-year-old Daniel Widmer was at home sleeping when he suddenly awoke and saw a glow of fire outside of his bedroom. Daniel quickly alerted his family and together they were able to get out of the house safely, including the family pet dog. Once outside they gathered at the meeting place across the street. When the fire department arrived they were able to control the fire and save the house from further damage. Chief John Zellman believes that Daniel's actions saved the lives of his family. Daniel was just one of the 20 young heroes recognized by the S.A.F.E. Program in FY 2017.

The Senior S.A.F.E. Program

With the success of the S.A.F.E. Program, the Senior SAFE Program was implemented in fiscal year 2015. The Legislature approved and $600,000 was funded through the Fire Standard Compliant Cigarette (CFSC) Program to fund public fire education grants to improve the fire and life safety of older adults throughout the Commonwealth. The primary mission of this program is to educate older adults on how to address the unique fire and life safety risks of their age group. The Senior SAFE Program is designed to create a partnership between older adults and fire departments through established providers of senior support services such as councils on aging, senior centers, visiting nurse associations, or other similar agencies. In fiscal year 2017, 220 fire departments shared the $600,000 in Senior SAFE funding.

Golden Hero Award - New Salem - Barbara Haydocy

On August 11, 2016, 74-year old Barbara Haydocy was at home. She noticed a tradesman working on her neighbor's house. Barbara would see him from time to time, and bring him muffins when it was cold. A short time later she saw her distraught neighbor calling 9-1-1 and waving for her to come over. Barbara rushed to assist and saw the tradesman

slumped against the wall of the garage. She had recently completed a CPR class. She leapt into action, began CPR and had her neighbor count out the compressions in order to keep her calm. Shelburne Control dispatch center gave instructions over the phone, and provided updates on the emergency response. When the New Salem firefighters arrived they were impressed that Barbara was performing CPR and comforting her neighbor at the same time. New Salem, and small towns like it, rely on community members to step up and serve as emergency responders, and help their neighbors when they are in need. On August 11, 2016, Barbara Haydocy heard that call, and without hesitation, was there when she was needed the most.

2016 PFALSE of the Year - Mrs. Ellen Kennedy, JFK Middle School, Northampton
Mrs. Ellen Kennedy is an 8th grade science teacher who uses her science curriculum as a vehicle for teaching key fire and life safety lessons such as burn treatment, the fire tetrahedron, and the effects of smoke and drugs on the human body. She inserts fire safety in her lessons throughout the year. She has played a key role in establishing a relationship between 8th graders at the John F. Kennedy Middle School and the Northampton Fire/Rescue Department. She prepares the youngsters to participate in the annual Fire Safety Field Day which includes demonstrations that apply the scientific theory they have learned in the classroom. Examples include an egg drop experiment which teaches inertia, motion and gravity, using the fire department ladder truck, and a force of water demonstration. She also promotes the Arson Watch Reward Program's annual fire safety poster contest and the school has had several winners. Her leadership has forged a good relationship between the middle school and the fire department, overcoming internal and external obstacles to provide fire safety at this developmental age. Her passion for fire prevention has been noticed by the school administration team. She hopes this results in an opportunity to branch out to other classrooms in Northampton's other schools.

79 MA Departments Receive $26.2 Million in Federal Grants
Seventy-nine (79) local Massachusetts fire departments received $22.8 million in federal grants during fiscal year 2016.

In the fifteenth year of the Federal Assistance to Firefighters Grant program, 60 Massachusetts fire departments received $8.3 million. Fifty-three (53) departments received $6 million for fire operations and firefighter safety. Seven (7) departments received $2.2 million for the purchase of firefighting vehicles.

Seventeen (17) fire departments were awarded $13 million in Federal SAFER grants that allow for the hiring and recruitment of more firefighters, and two fire departments were awarded $185,921 for fire prevention programs. In addition, the Massachusetts Firefighting Academy at the Department of Fire Services also received a grant of $426,087 for equipment. North Adams Fire Department as the lead agency, received a regional grant for $452,900 for personal protective equipment.

The National Fire Protection Association (NFPA) based in Quincy, Massachusetts received two grants, one for $1.5 million for Fire Prevention and another for $684,364

also for Fire Prevention. The Home Fire Sprinkler Coalition in Massachusetts also received a $550,524 grant for Fire Prevention.

98% of Massachusetts Fire Departments Participated in MFIRS

By law, fire departments are required to report any fire or explosion resulting in a human casualty or dollar loss to the Office of the State Fire Marshal. This is done through the Massachusetts Fire Incident Reporting System (MFIRS). Three hundred and fifty (350), or 95.6%, of Massachusetts' fire departments reported at least one incident to MFIRS during 2014. Eight (8), or 2.2%, certified that they had no fires that met the criteria. As an added incentive to comply with the law, a community had to be participating in MFIRS to be eligible for the federal FIRE Act and SAFER grants and state S.A.F.E. and Senior SAFE grant funding.

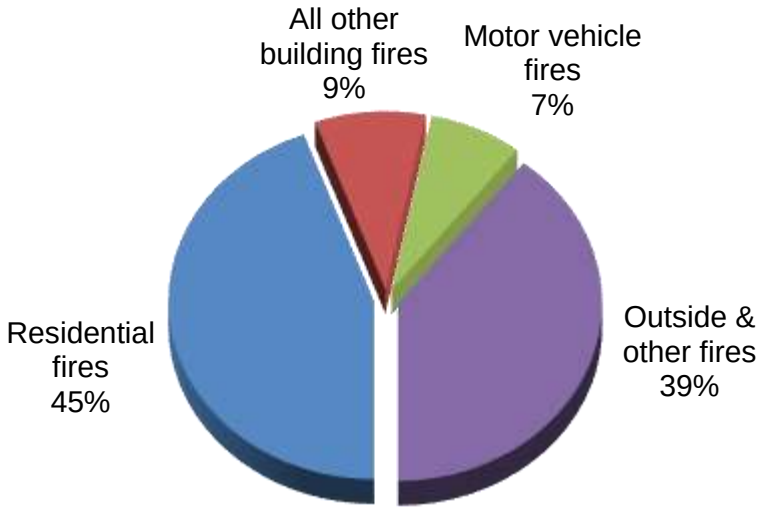
Fires by Incident Type

16,955 Structure Fires, 2,357 Vehicle Fires, 12,577 Outside & Other Fires in 2016

There were 31,889 fire and explosion incidents reported by fire departments to the Massachusetts Fire Incident Reporting System (MFIRS) in 2016. The 16,955 structure fires, 2,357 motor vehicle fires, and 12,577 outside and other fires caused 56 civilian deaths, 295 civilian injuries, 483 fire service injuries, and an estimated dollar loss of $258.6 million in property damages.

The following graph depicts the percentage of the major types of fires as part of the whole Massachusetts fire problem. In 2016, 53% of all reported fires were structure fires. The majority of fires were in people's homes. Forty-five percent (45%) of all fires in the Commonwealth and 84% of all structure fires occurred in someone's home; only 9% of all fires, and 16% of all structure fires, occurred in a type of building other than a residence. Seven percent (7%) were reported motor vehicle fires, while 39% were classified as outside and other fires.

2016 Fires by Incident Type



16,955 Structure Fires, 47 Civilian Deaths & 258 Civilian Injuries
Massachusetts fire departments reported 16,955 structure fires to the Massachusetts Fire Incident Reporting System (MFIRS) in 2016. These fires killed 47 civilians and caused 258 civilian injuries, 417 fire service injuries, and an estimated $234.6 million in property damage. Structure fires accounted for 53% of the total incidents and 84% of the civilian deaths in 2016. Structure fires dropped 1% from the previous year. There were 151 structure arsons in 2016. Structure fires in the Massachusetts Fire Incident Reporting System include any fires that occur inside or on a structure.

2,357 Motor Vehicle Fires Account for 7% of Reported Fires
The 2,357 motor vehicle fires caused nine civilian deaths, 13 civilian injuries, 16 fire service injuries, and an estimated $18.2 million in property damage. These incidents accounted for 7% of the reported 31,889 fires in 2016. Motor vehicle fires accounted for 16% of civilian fire deaths. Motor vehicle fires decreased by 11% from 2015. There were 88 motor vehicle arsons in 2016. According to MFIRS, a motor vehicle fire is defined as one involving a car, truck, boat, airplane, construction equipment or other mobile property that does not occur inside a structure.

12,577 Brush, Trash, and Other Outside Fires
The 12,577 outside and other fires caused 24 civilian injuries, 50 fire service injuries, and an estimated dollar loss of $5.8 million. The 7,834 trees, grass and brush fires, 2,862 outside rubbish fires, 948 special outside fires, 80 cultivated vegetation or crop fires, and 853 other fires accounted for 39% of the total fire incidents in 2016, and none of the civilian fire deaths. These fires were up 6% from the 11,842 outside and other fire incidents reported in 2015. There were 503 outside and other arsons in 2016. Fire

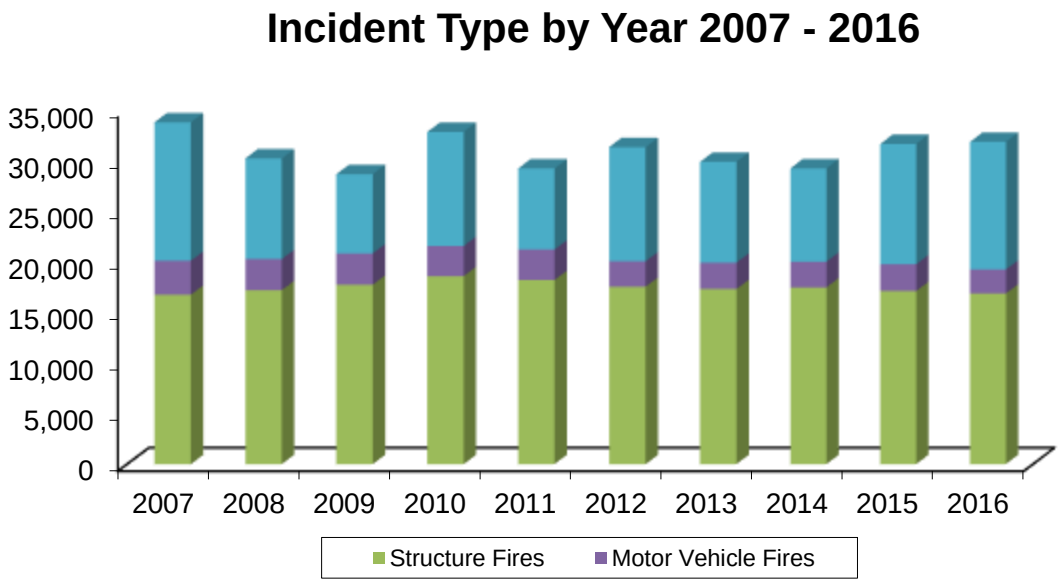
departments are required to report any fire or explosion resulting in a dollar loss or human casualty to MFIRS. Fires that do not result in a loss may be reported. Many fire departments, particularly those that submit data electronically, voluntarily report these fires. These figures should be considered an underestimate of the "no loss" fire incidents to which fire departments actually responded.

The following table indicates the total number of fires and the subsequent breakdown into structure fires, motor vehicle fires and outside and other fires for the years 2007 through 2016. The total number of fire incidents in 2016 increased by 1% from the 31,673 incidents reported in 2015. Overall, fires have been on a slightly decreasing trend since 2007.

Year	Total Fires	Structure Fires	Vehicle Fires	Other Fires
2016	31,889	16,955	2,357	12,577
2015	31,673	17,187	2,644	11,842
2014	29,273	17,549	2,528	9,196
2013	29,921	17,393	2,597	9,931
2012	31,362	17,618	2,511	11,233
2011	29,263	18,274	3,016	7,973
2010	32,823	18,656	2,978	11,189
2009	28,707	17,819	3,081	7,807
2008	30,254	17,269	3,085	9,900
2007	33,806	16,837	3,346	13,623

The following graph depicts the same numbers in a different manner. It shows what portion of the fire problem each incident type represents. Since 2001[1], the number of structure fires steadily increased, peaking in 2010, and since have been declining. During the past 10 years motor vehicle fires have steadily declined. However, the trend for outside and other fires seems to be developing a 'wave' pattern where the number of these types of fires rises or 'crests' every two to three years mostly due to the dry and hot weather patterns in the spring and summer that allow for an increased vulnerability of vegetation to brush fires.

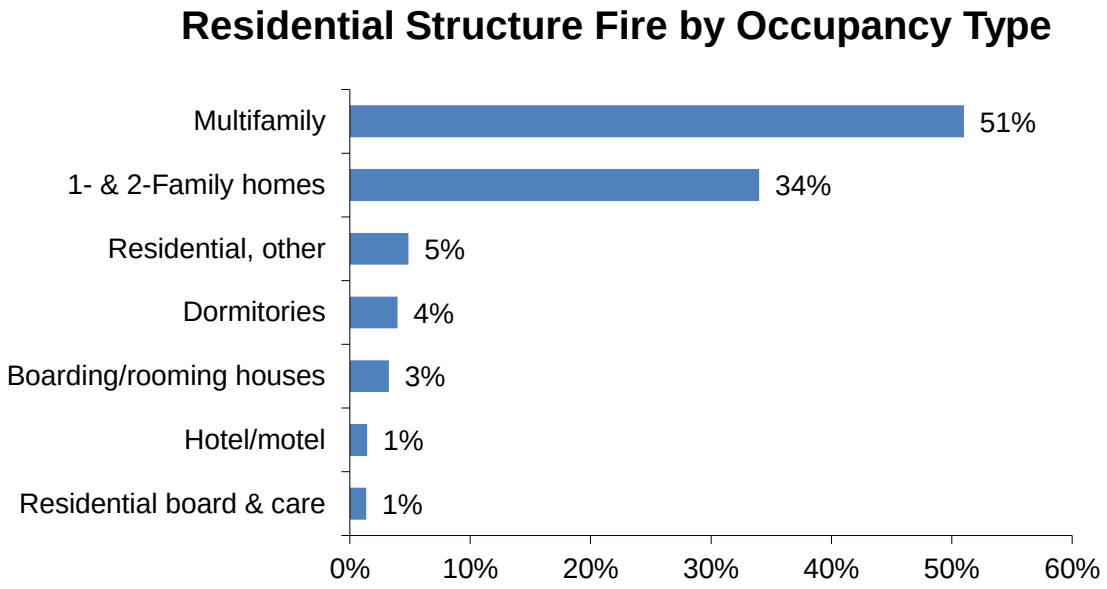
[1] 2001 was the first year of MFIRS v5.0.



Residential Building Fires

84% of Building Fires Occurred in Residential Occupancies
Massachusetts fire departments reported that 14,174, or 84%, of the 16,832 building fires occurred in residential occupancies. These fires caused 45 civilian deaths, 233 civilian injuries, 361 fire service injuries and an estimated dollar loss of $177 million. The average dollar loss per fire was $12,501. The total number of reported residential building fires decreased by 305, or 2%, from the 14,479 reported in 2015.

Over 1/2 of All Residential Fires Occur in Apartments
Over half, or 51%, of all residential building fires in 2016 occurred in multifamily apartment buildings. Thirty-four percent (34%) of these fires happened in one- or two-family homes. Dormitories accounted for 4% of residential fires in Massachusetts. Three percent (3%) occurred in rooming houses; and residential board and care facilities; and hotels or motels each accounted for 1% of the residential building fires in 2016. Five percent (5%) of residential building fires occurred in unclassified residences.



The following table shows the statistics for fires, firefighter and civilian casualties and the estimated dollar loss by residential occupancy.

RESIDENTIAL BUILDING FIRES

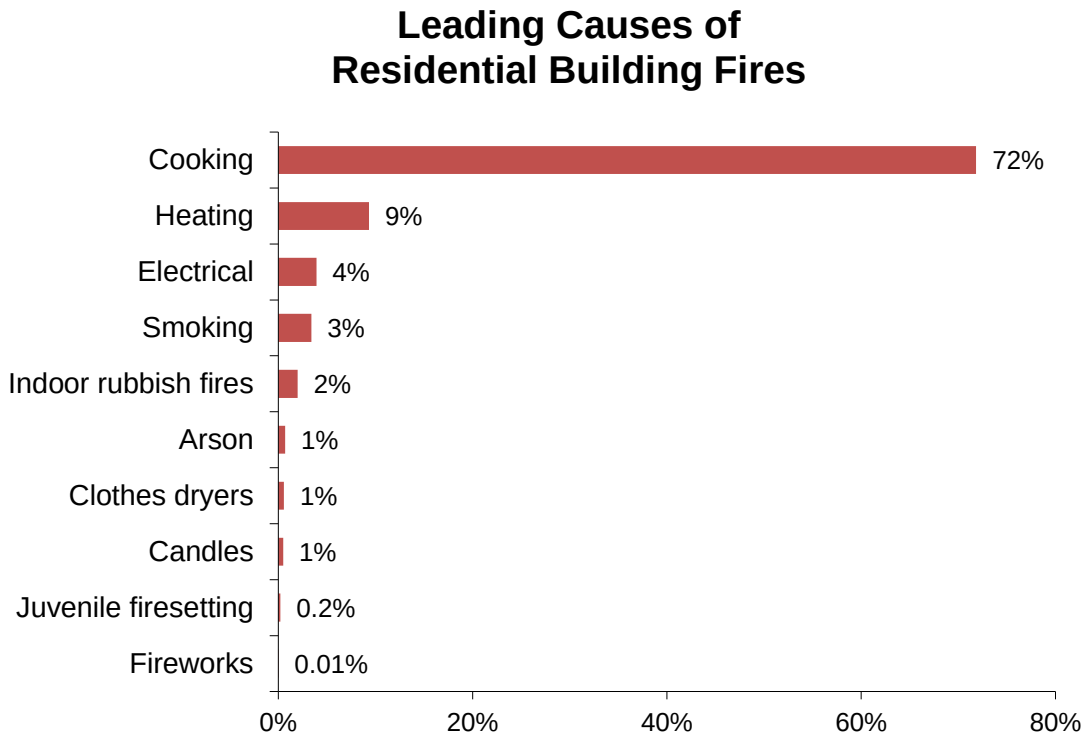
Occupancy	# of Fires	% of Total	Injuries FF	Injuries Civ	Deaths FF	Deaths Civ	Dollar Loss
1- & 2-Family homes	4,783	34%	195	123	0	35	$105,812,046
Multifamily	7,191	51%	148	104	0	10	63,675,921
Rooming houses	452	3%	0	2	0	0	644,077
Hotels & motels	195	1%	7	1	0	0	3,648,398
Residential board & care	191	1%	1	0	0	0	662,301
Dormitories	5,796	4%	4	0	0	0	126,648
Unclassified	766	5%	6	3	0	0	2,620,623
Total	**14,174**	**100%**	**361**	**233**	**0**	**45**	**$177,190,014**

Residential Occupancy Sub-Group Definitions

- **1- & 2-Family**: This category includes one- or two-family homes, detached, manufactured homes, mobile homes and duplexes.
- **Multifamily dwellings**: This category includes apartments, condominiums, townhouses, rowhouses and tenements.
- **Boarding, rooming houses**: This category includes residential hotels and shelters.
- **Hotels, motels**: This occupancy group includes commercial hotels, motels or inns.
- **Residential board and care**: This category includes long-term care and half-way houses. Excluded are nursing facilities (Property Use code = 311).
- **Dormitories**: This category includes dormitory type residences and sorority or fraternity houses. It also includes nurses' quarters, military barracks, monasteries/convents, dormitories, bunk houses and workers' barracks.
- **Residential, other**: Any type of residential occupancy that is not defined above.

Cooking Causes Almost 3/4 of Residential Building Fires

The leading causes of residential building fires in 2016 were cooking, heating, electrical problems, indoor rubbish fires, smoking, arson, candles, clothes dryer fires, juvenile firesetting, Christmas tree fires, and fireworks. Cooking was the leading cause of residential building fires, accounting for 10,181, or 72%, of the 14,174 incidents. Heating equipment accounted for 1,322, or 9%, of the total fires. Electrical problems caused 555, or 4%, of incidents. The unsafe use and disposal of smoking materials accounted for 481, or 3%, of these incidents. Indoor rubbish fires were the cause of 283, or 2%, of residential building fires. Arson accounted for 98, or 1%, of residential building fires. Clothes dryer fires were the cause for 83, or 1%, of these incidents. One percent (1%), or 71, were caused by candles. Juvenile firesetting accounted for 31, or less than 1%, of residential building fires. Fireworks caused two, accounting for less than 1% of these fires in Massachusetts in 2016.



2016 MA Home Fires Confined to Non-Combustible Containers

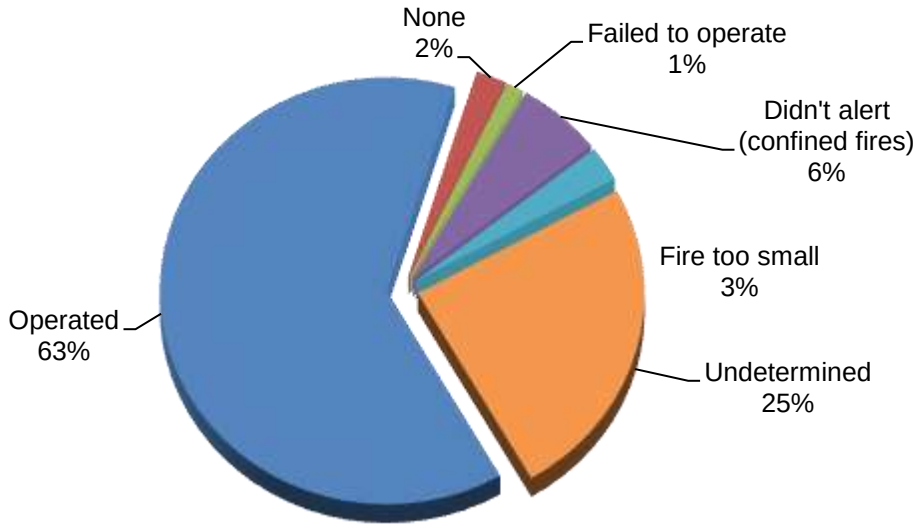
Incident Type	# of Incidents	% Residential Fires	% Confined to Non-combustible containers	Dollar Loss	Average Dollar Loss
Cooking fires	979	69%	87%	$ 715,938	$ 73
Chimney or flue fires	496	3%	4%	$ 95,358	$ 394
Incinerator overload or malfunction	4	0.03%	0.04%	$ 250	$ 63
Fuel burner/boiler malfunction, fire	663	5%	6%	$ 162,953	$ 253
Commercial compactor fire, confined to rubbish	5	0.04%	0.04%	$ 11,002	$ 2,200
Trash or rubbish fire	264	2%	2%	$ 47,114	$ 178
Total	11,201	79%	100%	$ 1,132,615	$ 101

Alarms Operated in 63% of Fires

Smoke or heat alarms operated in 8,958, or 63%, of the residential building fires in 2016. In 6% of these fires[2], the alarms did not alert the occupants. Alarms were present but did not operate in 1% of these incidents. In 2% of these fires, no alarms were present at all. The fire was too small to trigger the alarm in 3% of the residential fires. Smoke alarm performance was undetermined in 3,490 incidents, or 25%, of Massachusetts' 2016 residential building fires.

[2] These represent confined fires where it was reported that the alarm did not alert the occupants.

Smoke Detector Status in Residential Fires



All Houses Must Have Alarms
All houses must have smoke alarms under either the state fire or building codes. Under the provisions of Massachusetts General Law Chapter 148, Section 26E, all buildings containing one to five dwelling units built prior to 1975 must be equipped with approved smoke alarms. Under M.G.L. Chapter 148 Section 26F, the fire department verifies compliance with the law. The State Building code has required all new homes built since 1975 to have smoke alarms.

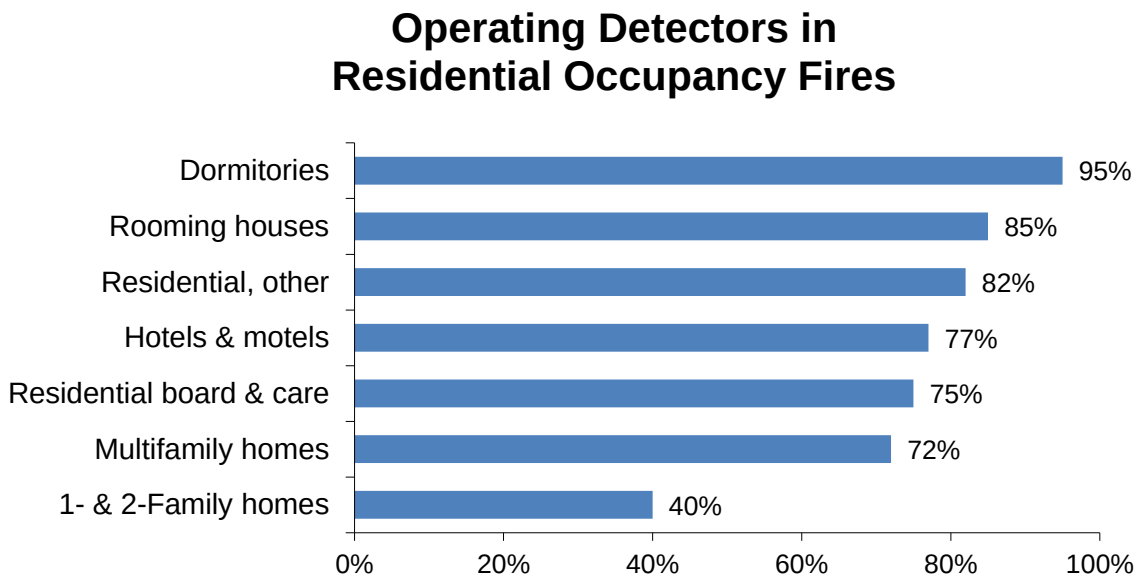
New Homes Must Have Alarms in Bedroom Areas
At a minimum, smoke alarms should be installed on every floor of the home and at the bottom of the basement stairwell. The Massachusetts Building Code requires smoke alarms within the bedroom area in all *new* residential occupancies. When a bedroom door is shut, it can help prevent the spread of fire from room to room. Unfortunately, a shut door also makes it harder to hear a smoke alarm sounding in the hallway. People who sleep with their bedroom door closed should install an alarm inside their bedroom. After alarms are installed, they need to be regularly tested and maintained. All it can do is sound the alarm. Everyone needs to develop and practice the escape routes they would use in the event of a fire.

Smoke Alarms That Are 10 Years Old or Older Should Be Replaced
Studies have indicated that like any other appliance in your household, smoke alarms do not last forever. The life span for a typical smoke alarm, whether it is battery-powered or hard-wired, is 10 years. Smoke alarms that are 10 years old should be replaced. The manufacture date is stamped or marked on the back of the alarm. If there is no date, the alarm should be replaced because it is already more than 10 years old. Alarms should be

tested monthly and the batteries should be replaced twice a year. Alarms should be kept free of dust and never painted over.

40% of Failed Alarms Had No Batteries or Dead Ones
Of the 177 fires where smoke alarms were present but failed to operate, 49, or 28%, failed because the batteries were either missing or disconnected. Twenty-two (22), or 12%, did not operate because of dead batteries. Sixteen (16), or 9%, failed because of a power failure, shutoff or disconnect. Eight (8) alarms, or 4%, failed from a lack of maintenance such as not cleaning dust from the alarm or painting over the alarm. Four (4) alarms, or 2%, failed because they were defective. Four (4), or 2%, failed from improper installation or placement. For 75 cases, or 42%, the reason the alarm failed was not determined.

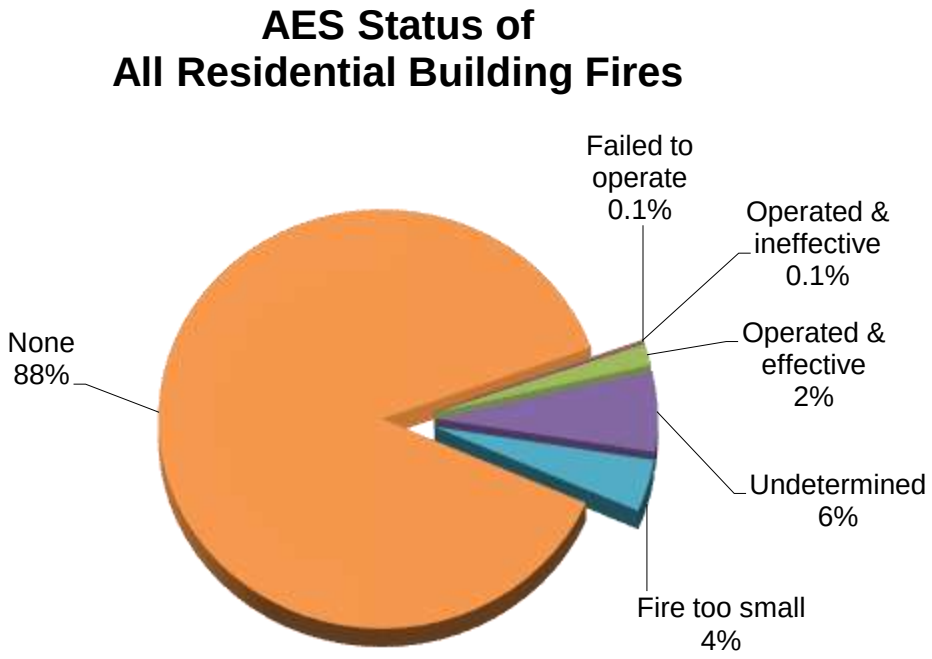
1- & 2-Family Homes Had Lowest Percentage of Operating Alarms
One- and two-family homes were the least likely residential occupancies to have operating smoke alarms. Dormitories were the most likely residential occupancy to have operating smoke alarms in 2016. Rooming houses were the second most likely residence to have working smoke alarms. Unclassified residences and hotels or motels and residential board and care facilities were the next most likely residential occupancies to have operating smoke alarms. The following chart shows the percentage of operating smoke alarms in fires in residential occupancies.



AES Present in Only 6% of Residential Building Fires
In 2016, only 3,653 residential fire incident reports completed the automatic extinguishing system field. This was 26% of all residential building fires.

In these fires where system performance was reported, automatic extinguishing systems (AES) were reported present and operated effectively in 60, or 2%, of the 3,653

residential building fires. AES were present and operated ineffectively in four, or 0.1%, of these fires. In five, or 0.1%, of the fires in residential occupancies, the system did not operate. In 147, or 4%, the fire was too small to activate the system. In 3,210, or 88%, of the cases, there were no systems present or installed. AES performance was not classified in 227, or 6%, of the incidents involving residential building fires.



Only You Can Make Your Home Safer for You and Your Family
Efforts to reduce the incidence of fire and fire deaths must be focused on home fire safety to have the greatest impact. Increased maintenance of smoke alarms, installation of residential sprinklers, practicing home escape plans coupled with safer products such as self-extinguishing cigarettes, upholstered furniture that meets the California flammability standard, and flame resistant sleepwear for all ages can help make homes and the families who live in them safer from fire.

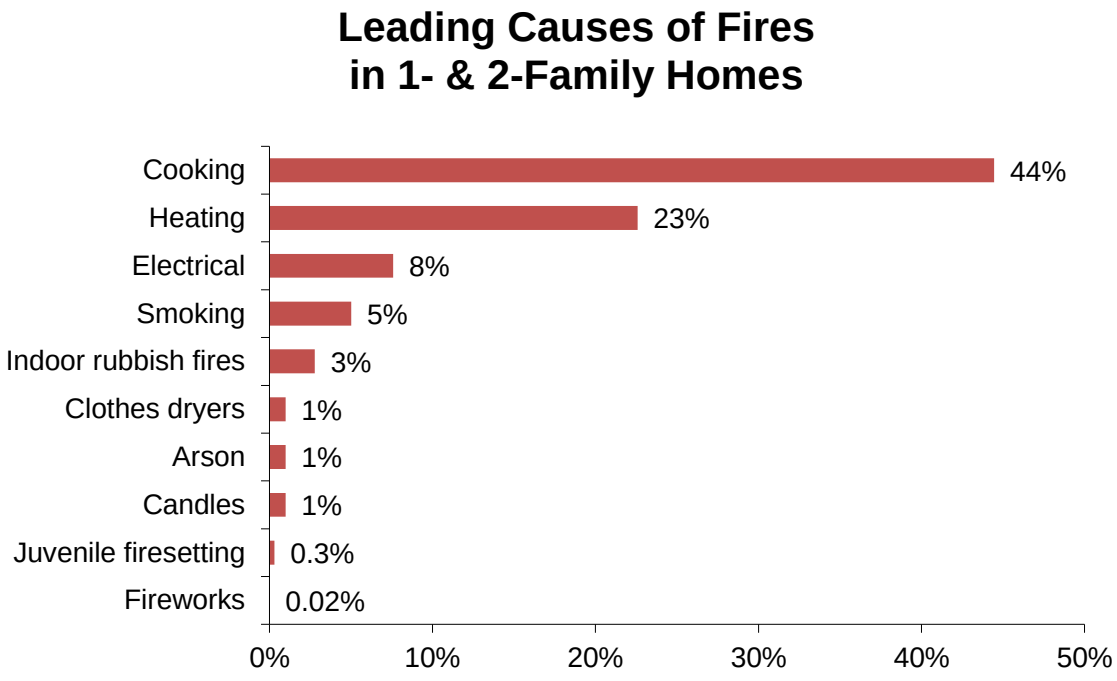
Fires in One- and Two-Family Homes

4,783 Fires, 35 Civilian Deaths & $105.8 Million in Damage
Four thousand seven hundred and eighty-three (4,783) building fires in one- and two-family homes caused 35 civilian deaths, 123 civilian injuries, 195 fire service injuries, and an estimated $105.8 million in property damage. In 2016, 34% of the Commonwealth's 14,174 residential building fires occurred in one- and two-family homes. The average dollar loss from these types of fires was $22,123. Fires in one- and two-family homes were down by 236, or 5%, from 5,019 in 2015.

More fire deaths occurred in one- and two-family homes than all the other residential occupancies combined.

Cooking & Heating Were the Leading Causes of Fires in 1- & 2-Family Homes
Cooking caused 44% of incidents occurring in one- and two-family homes. Heating equipment caused 23% of these fires. Eight percent (8%) of one- and two-family residential building fires were caused by electrical problems. The unsafe and improper use of smoking materials caused 5% and indoor rubbish fires caused 3% of these fires. Clothes dryers, arson and candles each caused 1% of these fires. Juvenile-set fires and fireworks each accounted for less than 1% of the fires in one- and two-family homes in 2016.

Cooking is the leading cause of fires overall in every residential occupancy. Since 2008 cooking has overtaken heating equipment as the leading cause of fires in one- and two-family homes.

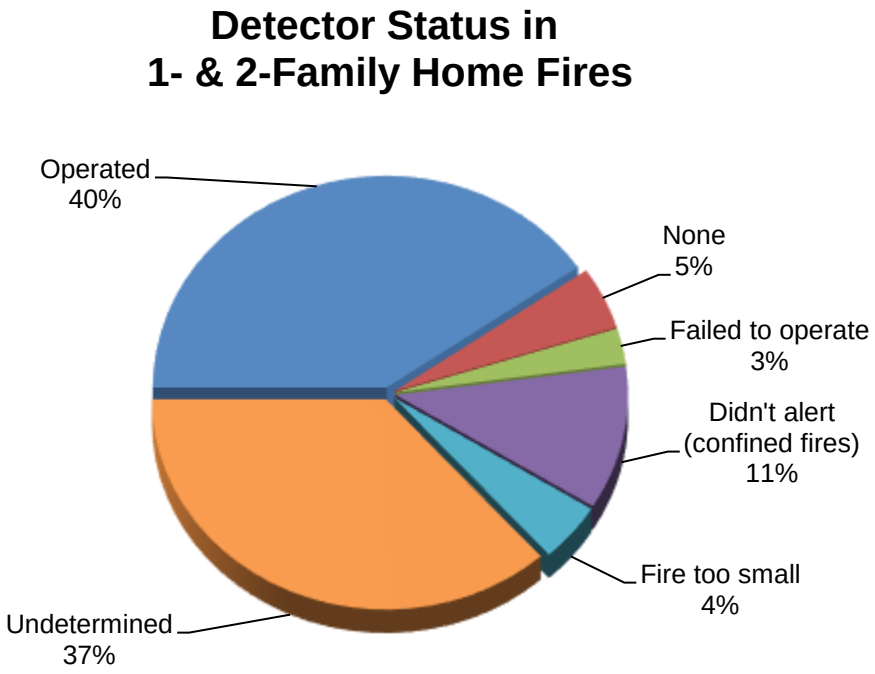


1- & 2-Family Home Fires Confined to Non-Combustible Containers

Incident Type	# of Incidents	% 1- & 2-Family Home Fires	% Confined to Non-combustible containers	Dollar Loss	Avg. Dollar Loss
Cooking fires	1,966	41%	64%	$ 233,733	$ 114
Chimney or flue fires	463	10%	15%	$ 190,336	$ 411
Incinerator overload or malfunction	3	0.1%	0.1%	$ 250	$ 83
Fuel burner/boiler malfunction, fire	510	11%	17%	$ 108,799	$ 213
Commercial compactor fire, confined	0	0%	0%	$	$
Trash or rubbish fire	121	3%	4%	$ 24,029	$ 199
Total	3,063	64%	100%	$ 560,162	$ 179

Alarms Alerted Occupants in 40% of Fires

Smoke or heat alarms operated and alerted the occupants in 1,750, or 40%, of the one- and two-family home fires in 2016. In 11% of these fires[3], the alarms did not alert the occupants. Alarms were present but did not operate in 3% of these incidents. In 5% of these fires, no alarms were present at all. The fire was too small to trigger the alarm in 4% of these residential fires. Smoke alarm performance was undetermined in 1,750 incidents, or 37%, of Massachusetts' 2016 one- and two-family fires.



[3] These represent confined fires where it was reported that the alarm did not alert the occupants.

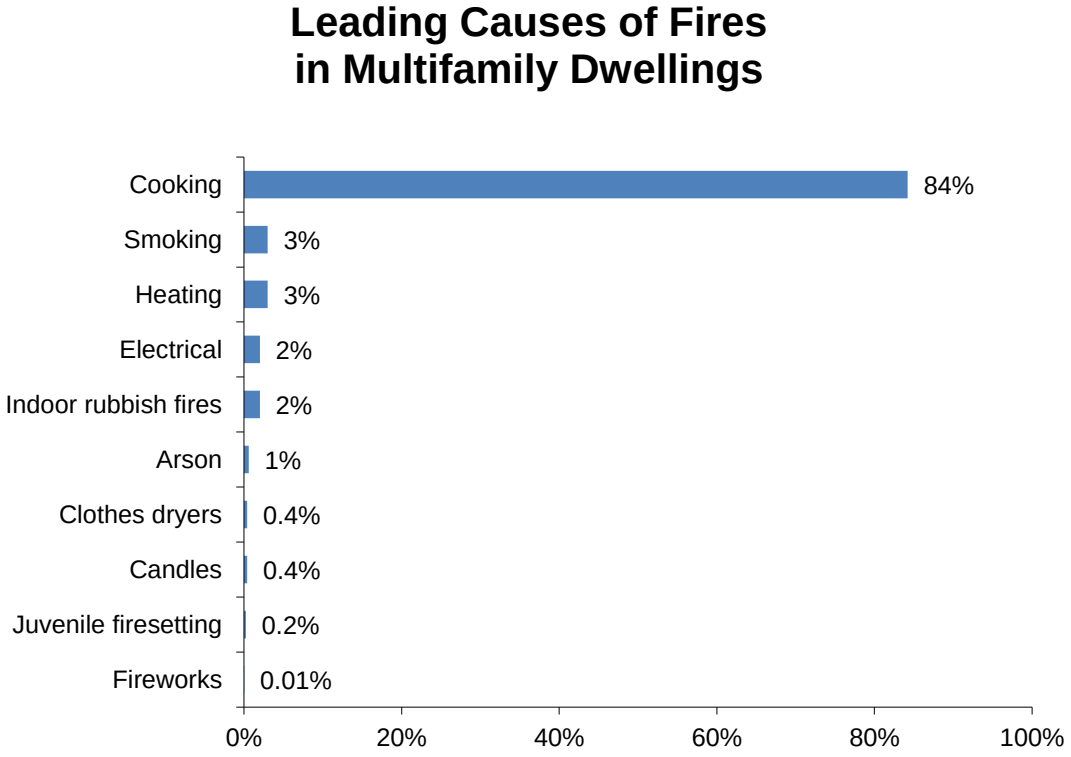
44% of Failed Alarms Had No Batteries or Dead Ones
Of the 130 fires where smoke alarms were present but failed to operate, 38, or 29%, failed because the batteries were either missing or disconnected. Nineteen (19), or 15%, did not operate because of dead batteries. Ten (10), or 8%, failed because of a power failure, shutoff or disconnect. Six (6) alarms, or 5%, failed from a lack of maintenance. Three (3) alarms, or 2%, failed because they were defective. Two (2), or 2%, failed from improper installation or placement. For 52 cases, or 40%, the reason the alarm failed was not determined.

Multifamily Home Fires

7,191 Fires, 10 Civilian Deaths & $63.4 Million in Damage
Seven thousand one hundred and ninety-one (7,191), or 51%, of the Commonwealth's 14,174 residential building fires occurred in multifamily dwellings in 2016. These 7,190 fires caused 10 civilian deaths, 104 civilian injuries, 148 fire service injuries, and an estimated dollar loss of $63.4 million. The average dollar loss per fire was $8,855. Fires in apartments were down by 120, or 2%, from 7,311 in 2015.

This residential occupancy category includes apartments, condominiums, townhouses, rowhouses and tenements.

Unsafe Cooking Caused Over 84% of Apartment Fires
Eighty-four percent (84%) of the fires in apartments were caused by unsafe cooking in 2016. Smoking and heating each accounted for 3% of apartment fires. Electrical fires and indoor rubbish fires were each responsible for 2% of these fires. Arsons caused 1% of the fires in these dwellings. Clothes dryers, candles, juvenile-set fires and fireworks each caused less than 1% of the fires in multifamily homes in 2016.



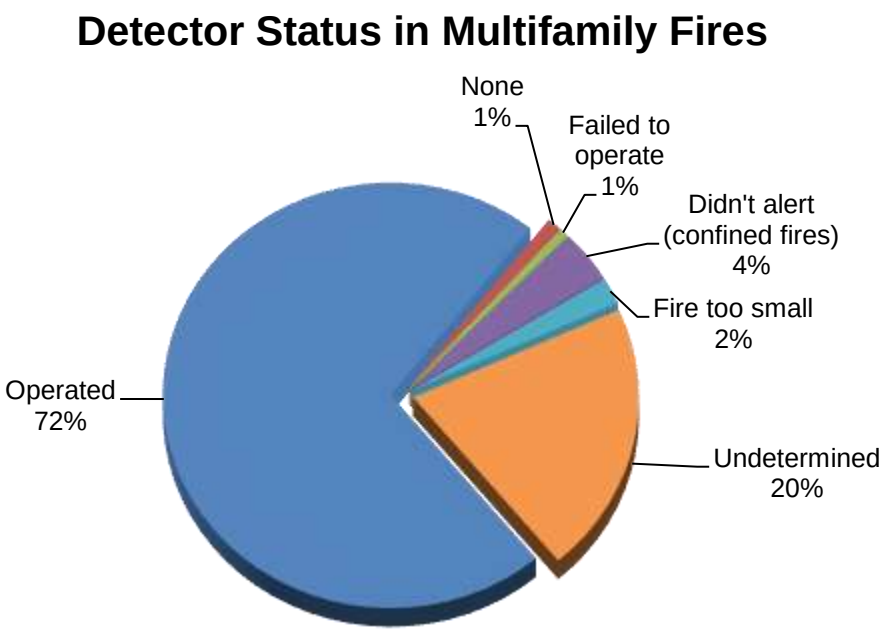
Multifamily Home Fires Confined to Non-Combustible Containers

Incident Type	# of Incidents	% Multifamily Home Fires	% Confined to Non-combustible containers	Dollar Loss	Avg. Dollar Loss
Cooking fires	5,844	81%	96%	$ 347,880	$ 60
Chimney or flue fires	26	0.4%	0.4%	$ 3,020	$ 116
Incinerator overload or malfunction	1	0.01%	0.02%	$ 0	$ 0
Fuel burner/boiler malfunction, fire	106	1%	2%	$ 40,650	$ 383
Commercial compactor fire, confined	5	0.1%	0.1%	$ 11,002	$ 2,200
Trash or rubbish fire	117	2%	2%	$ 22,335	$ 191
Total	6,099	85%	100%	$ 424,887	$ 70

Alarms Alerted Occupants in Almost 3/4 of Fires

Smoke or heat alarms operated and alerted the occupants in 5,157, or 72%, of the multifamily fires in 2016. In 4% of these fires[4], the alarms did not alert the occupants. Alarms were present but did not operate in 1% of these incidents. In 1% of these fires, no alarms were present at all. The fire was too small to trigger the alarm in 2% of these residential fires. Smoke alarm performance was undetermined in 1,484 incidents, or 20%, of Massachusetts' 2016 multifamily fires.

[4] These represent confined fires where it was reported that the alarm did not alert the occupants.



20% of Failed Alarms Failed Due to Missing Batteries
Of the 46 fires where smoke alarms were present but failed to operate, nine, or 20%, failed because the batteries were either missing or disconnected. Six (6), or 13%, failed because of a power failure, shutoff or disconnect. Three (3), or 7%, did not operate because of a dead batteries. One (1), or 2%, failed because it was defective. Two (2), or 4%, didn't operate because of a lack of maintenance. Another two, or 3%, failed from improper installation or placement. For 23 cases, or 50%, the reason the alarm failed was not classified or undetermined.

All Other Residential Fires

2,200 Fires, 6 Civilian Injuries, 18 Fire Service Injuries & $7.7 Million in Damages
There were 2,200 reported fires in all the other residential property types in 2016. These 2,200 fires caused six civilian injuries, 18 fire service injuries and an estimated $7.7 million in damages. The average dollar loss per fire was $3,501. These fires increased by 51, or 2%, from 2,149 reported in 2015. Only 16% of the 14,173 residential building fires in 2016 occurred in rooming houses, hotels or motels, residential board and care facilities and dormitories or barracks.

The following table shows the breakout of the reported number of fires, casualties and dollar loss of these other residential occupancies

All Other Residential Fires by Property Use

Property Use	# of Incidents	Fire Service Injuries	Civilian Injuries	Fire Service Deaths	Civilian Deaths	Dollar Loss	% of Residential	Average Dollar Loss
Residential, other	766	6	3	0	0	$2,620,623	5%	$ 3,421
Boarding/rooming houses	452	0	2	0	0	$ 644,077	3%	$ 1,425
Hotel/motel	195	7	1	0	0	$3,648,398	1%	$ 18,710
Residential board & care	191	1	0	0	0	$ 662,301	1%	$ 3,468
Dormitories	596	4	0	0	0	$ 126,648	4%	$ 212
All Other Residential	2,200	18	6	0	0	$7,702,047	16%	$ 2,149

Cooking Was the Leading Cause of These Fires

Cooking was the leading cause of these fires. Cooking caused over 90% of fires in all the other residential occupancies except hotels and motels where it caused 82% of the fires.

Hotel-Motel Safety

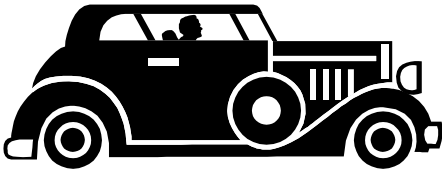
It is important to consider fire safety when selecting accommodations.

- Choose lodging equipped with sprinklers and smoke alarms in each room.
- If you are hearing impaired, you may request a room with an appropriate smoke alarm with a flashing strobe light.
- Think about fire safety when checking into a hotel or motel. Count the number of doors down the hall to the nearest fire exit staircase. Remember to never use the elevator in case of a fire. Travelers should test the smoke alarm in their room.
- It is recommended that you keep the room key, eyeglasses and a flashlight on the night table. If a fire occurs or a fire alarm sounds, take them with you and go out the door. However, before opening the door, test the door with the back of your hand. If the door feels cool, open the door a crack. Be ready to close the door if hot air, flames, or smoke rush through the crack. If this does not occur, yet the hall is hazy with smoke, crawl down the hall counting the doors to the nearest stairway exit. If this exit cannot be reached, turn around and count the doors back to your room. Unlock the door and re-enter.
- If it is unsafe to leave the room during a fire: Fill the tub with cold water; stuff wet towels around the door to keep the smoke out; if possible, open a window and hang a sheet outside to signal for help; cover your face with a wet cloth and stay low if smoke gets in the room; do not jump.
- Try to call out to emergency services on a cell phone or house phone and advise the emergency dispatcher of your exact location within the hotel.

Motor Vehicle Fires

2,357 Motor Vehicle Fires Account for 7% of All Reported Fires

Motor vehicle fires accounted for 7% of total reported fire incidents. The 2,357 motor vehicle fires in 2016 were a decrease of 11% from the 2,644 motor vehicle fires reported in 2015. They caused nine, or 16%, of the civilian fire deaths, 13 civilian injuries, 16 fire service injuries, and an estimated property damage of $18.2 million.



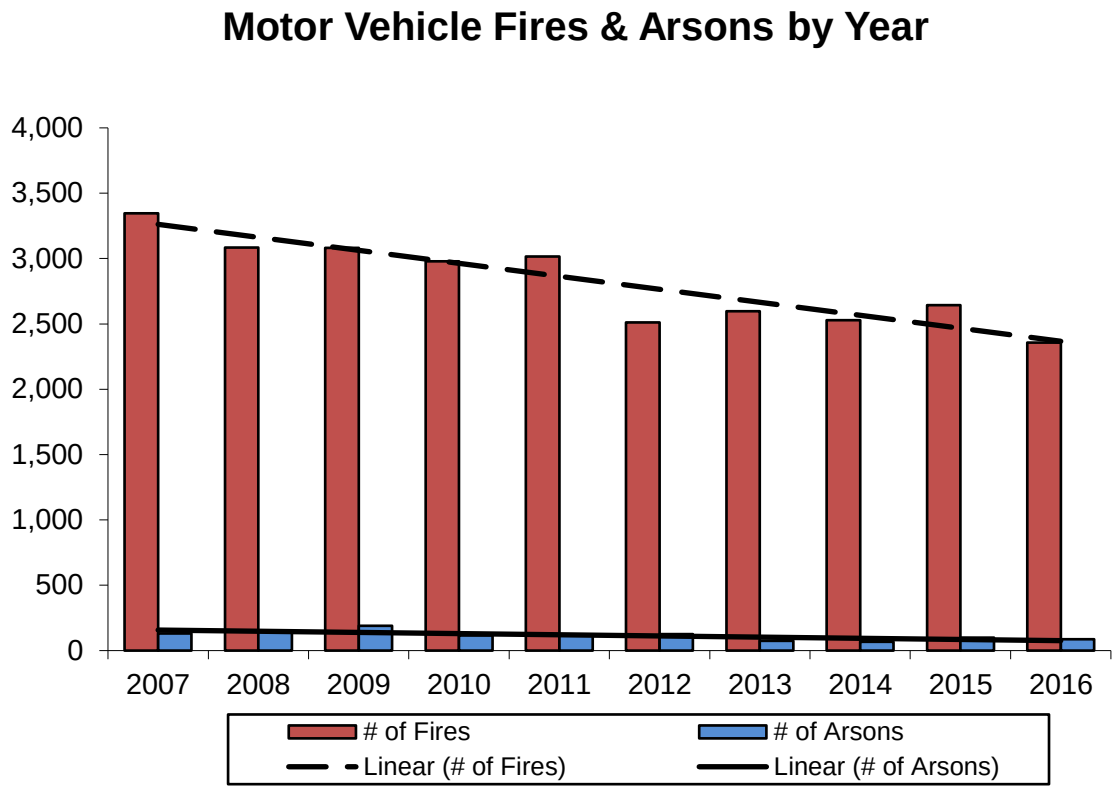
According to MFIRS, a motor vehicle fire is defined as any fire involving a car, truck, boat, airplane, construction equipment or other mobile property (not being used as a permanent structure) that occurs outside of a structure.

The table below shows the number of vehicle fires and vehicle arsons and the percentage of vehicle fires caused by arson for the past decade.

VEHICLE FIRES AND VEHICLE ARSONS BY YEAR

Year	Vehicle Fires	Vehicle Arsons	% Arsons
2016	2,357	88	3.7%
2015	2,644	98	3.7%
2014	2,528	68	2.7%
2013	2,597	75	2.9%
2012	2,512	126	5.0%
2011	3,016	124	4.1%
2010	2,978	116	3.9%
2009	3,081	189	6.1%
2008	3,085	151	4.9%
2007	3,346	131	3.9%

The following graph illustrates the data in the previous table.

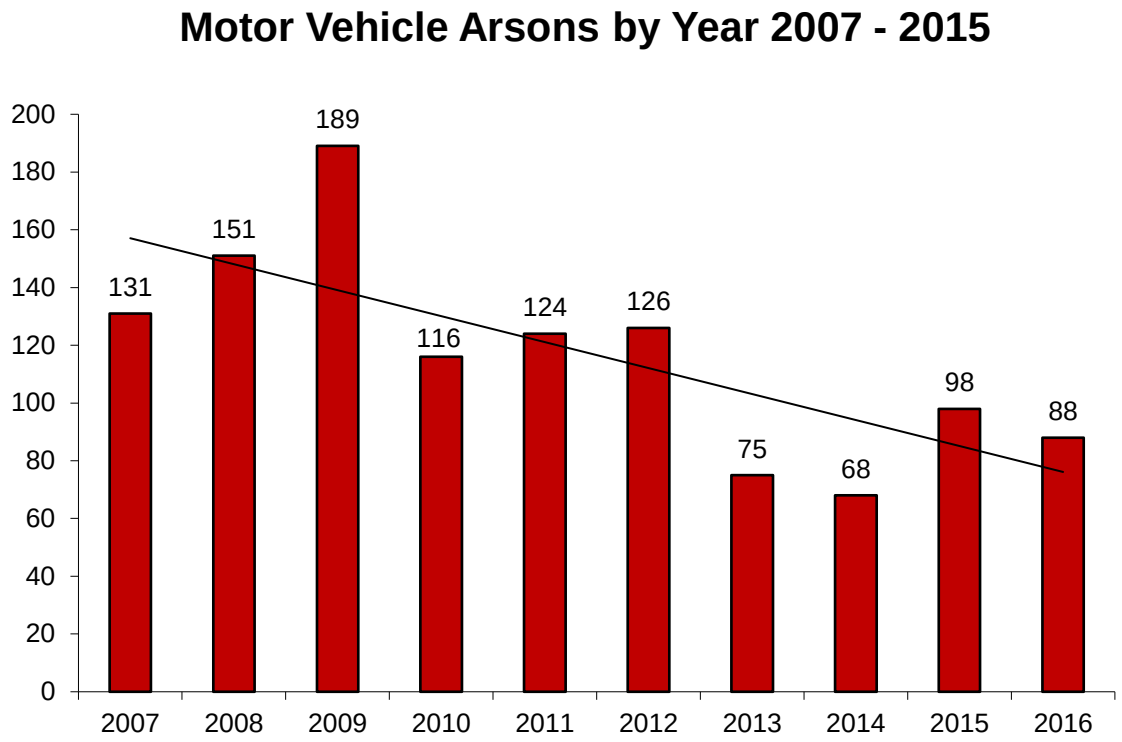


9 Motor Vehicle Fire Deaths
There were nine civilian fire deaths in five motor vehicle fires in 2016. There were eight deaths in four motor vehicle crashes with ensuing fire. The other motor vehicle fire death was a singular death by self-immolation.

Mechanical Failures Caused Almost 1/4 of Massachusetts Motor Vehicle Fires
Of the 2,357 motor vehicle fires in 2016, 22% were caused by some type of mechanical failure or malfunction; 4% were considered intentionally set; and 39% resulted from other accidental causes. The cause was undetermined or not reported in 35% of the motor vehicle fires.

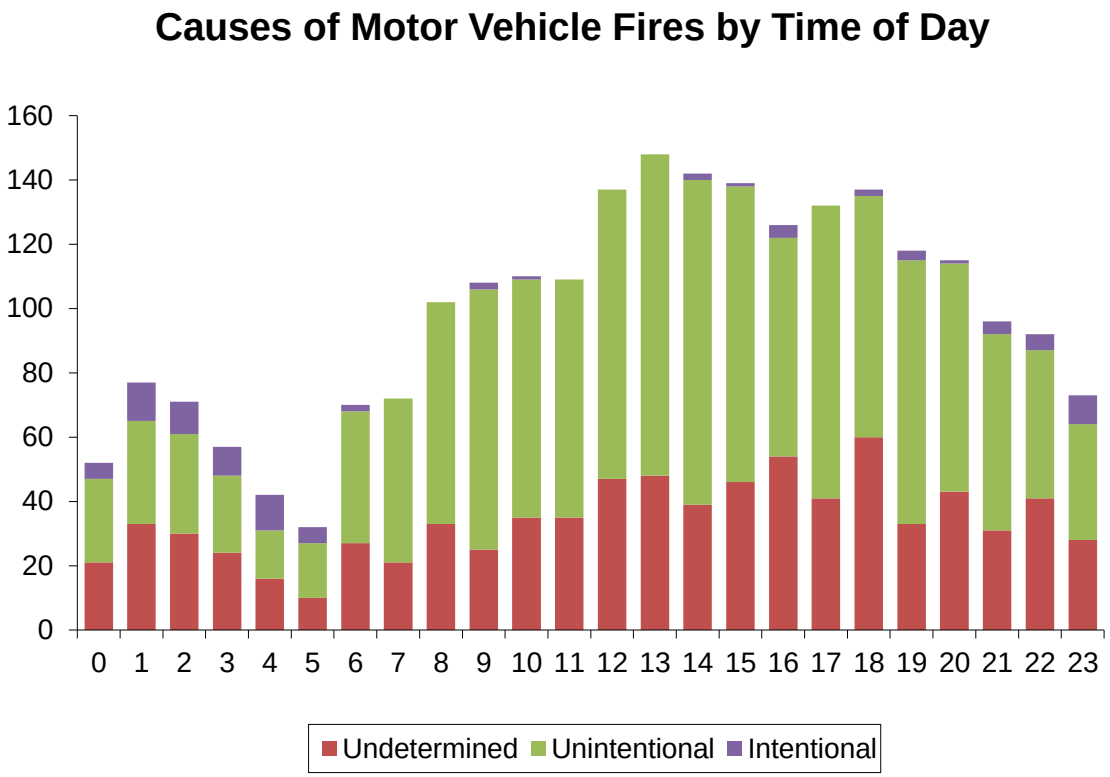
Motor Vehicle Arsons Decreased by 10%
In 2016, there were 88 reported motor vehicle arsons. This is a decrease of 10% from the 98 reported in 2015. These 88 arsons caused one civilian death by suicide, one fire service injury and an estimated dollar loss of $549,963.

The following graph depicts the drop in motor vehicle arsons from 2007 to 2016.



Unintentional Fires Occur During Day and Early Evening

Motor vehicle fires of different causes occur at different times of the day. As the following graph shows, accidental or unintentional fires are more common during the day and early evening. Incendiary fires are generally set in darkness. The graph on the next page shows fire frequency by time of day on the 24-hour clock for the causes of motor vehicle fires. Midnight to 1:00 a.m. is represented by 0, 1:00 a.m. to 2:00 a.m. is represented by 1, etc.



Worcester Has Largest Loss Motor Vehicle Fire

In 2016 there were no reported motor vehicle fires that had an estimated dollar loss over $1 million. The largest loss motor vehicle fire accounted for 2% of the total dollar loss of all motor vehicle fires.

- On August 28, 2016, at 11:24 p.m., the Worcester Fire Department responded to a freight truck fire in the parking lot of a business. The fire started in the cargo area where linens were loaded. Two (2) firefighters were injured at this fire. Total estimated damages were $400,000.

What Should You Do if You Have a Car Fire?

1. Pull over to the side of the road and stop as soon as possible. For automobiles with an automatic transmission put the vehicle in Park; for cars with a manual transmission, set the parking brake and put it in gear. Fire can disable a car's electrical system in seconds. Power steering and brakes can be harder to use than normal.
2. Turn off the ignition. You want to make sure no more gasoline is pumped to the fire.
3. Get everyone out of the car.
4. Move away and call 911. Do not open the hood or trunk. You risk injury, and give the fire more oxygen.

Unless you're trained, let firefighters handle it. They wear protective clothing and are trained to handle pressurized systems, exploding bumpers, etc. Chemicals in the fire extinguisher can be compacted. To be effective, they must be used correctly. You don't want to practice in a panic situation.

Gasoline Deserves Respect

There were 38 motor vehicle fires at gas and service stations in 2016. There were 49 motor vehicle fires at facilities used for motor vehicle or boat sales, service or repairs. Many of these fires were started by gasoline or gasoline fumes. Gasoline is so much a part of our lives that we don't think about it. However, it is a very dangerous substance and certain measures should be taken to minimize the chances of an incident.

Gas Station Safety

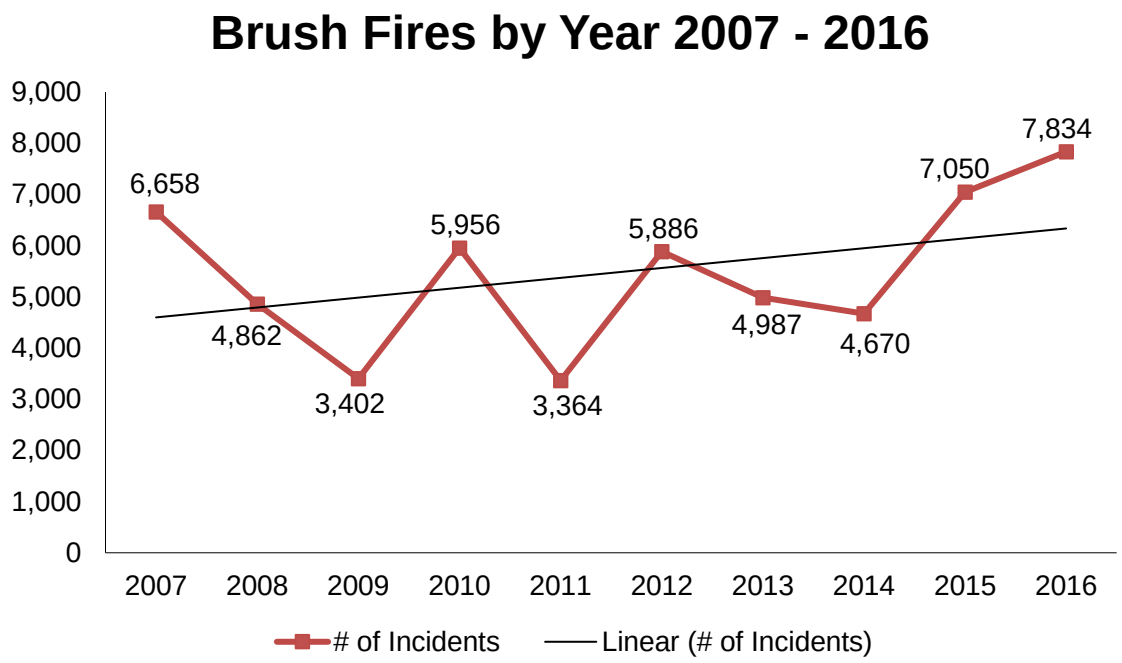
- Turn off your car when you get gas.
- At self-service stations, remember to put the nozzle back and your gas cap on before driving off. Monitor the fueling; do not get back in the vehicle.
- Gasoline vapors burn at a very low temperature. These fumes are heavier than air, and can travel a distance to find a spark. Keep anything that could provide heat to start a fire away from gasoline. A spark or a lit cigarette is enough to ignite the invisible fumes that may linger on clothing.
- If you need to carry or store gasoline, use an approved container.
- When filling an approved container, place it on the ground to prevent static electricity build–up which could ignite the gasoline vapors. Make sure that the nozzle is always in contact with the container when filling.
- Make sure the approved container is in a secured, upright position away from passenger areas, and that the fill and vent openings are tightly closed. At home, always store these containers in safe, secure areas – outside of living areas – away from ignition sources such as pilot lights.

Outside and Other Fires

12,577 Brush, Trash, & Other Outside Fires Up 6%

The 12,577 outside and other fires and explosions caused 24 civilian injuries, 50 fire service injuries, and an estimated dollar loss of $5.8 million. The 7,834 trees, grass and brush fires, 2,862 outside trash fires, 948 special outside fires, 80 cultivated vegetation or crop fires, and 853 other fires accounted for 39% of the total fire incidents in 2016. These fires increased by 6% from the 11,842 incidents reported in 2015.

These types of fires are the most variable categories of fires from year to year. Large increases and decreases are not uncommon and are often dependent on the weather. If it is a dry spring or summer, the number of outside fires usually increases. In 2016, the reported number of brush fires increased by 784 or 11%, from the 7,050 reported in 2015. It seems that 2016 was a particularly dry year.



Fire departments are required to report any fire or explosion resulting in a dollar loss or human casualty to MFIRS. Fires that do not result in a loss may be reported. Many fire departments, particularly those that submit data electronically, voluntarily report these fires. These figures should be considered an underestimate of the "no-loss" fire incidents to which fire departments actually responded.

The 12,577 reported outside and other fires include:

- 7,834 natural vegetation fires (tree, grass, and brush fires) that caused six civilian injuries, 34 fire service injuries, and an estimated dollar loss of $1.5 million; this is an 11% increase from the 7,050 incidents reported in 2015. There were a reported 1,879 acres burned in 2016.
- 2,862 trash fires that caused two civilian injuries, 11 fire service injuries and an estimated dollar loss of $268,751; this is a 2% decrease from the 2,909 incidents reported in 2015.
- 948 special outside fires (including outside, storage, equipment, mailbox fires and outside gas or vapor explosions) that caused six civilian injuries and an estimated dollar loss of $658,899; this is a 7% increase from the 888 incidents reported in 2015.

- 80 cultivated vegetation or crop fires that caused one fire service injury and an estimated dollar loss of $11,461; this is a 33% increase from the 60 incidents reported in 2015.
- 853 other fires that could not be classified further which caused 10 civilian injuries, four fire service injuries, and an estimated dollar loss of $3.4 million; this is a 9% decrease from the 935 incidents reported in 2015.

503 Brush, Trash & Other Outside Arsons
There were 503 reported brush, trash and other outside arsons in 2016. There were 273 natural vegetation arsons, 73 outside rubbish arsons, 96 special outside arsons, five cultivated vegetation or crop arson, and 56 arsons that could not be classified any further. These 503 arsons caused two civilian injuries, one fire service injury and $84,711 in estimated damages.

3,149 Fires with Cause Still Under Investigation or Undetermined
In 2016, 194 outside and other fires were still listed as 'Cause Under Investigation'. There were 2,955 fires where the *Cause of Ignition* was listed as 'Undetermined'.

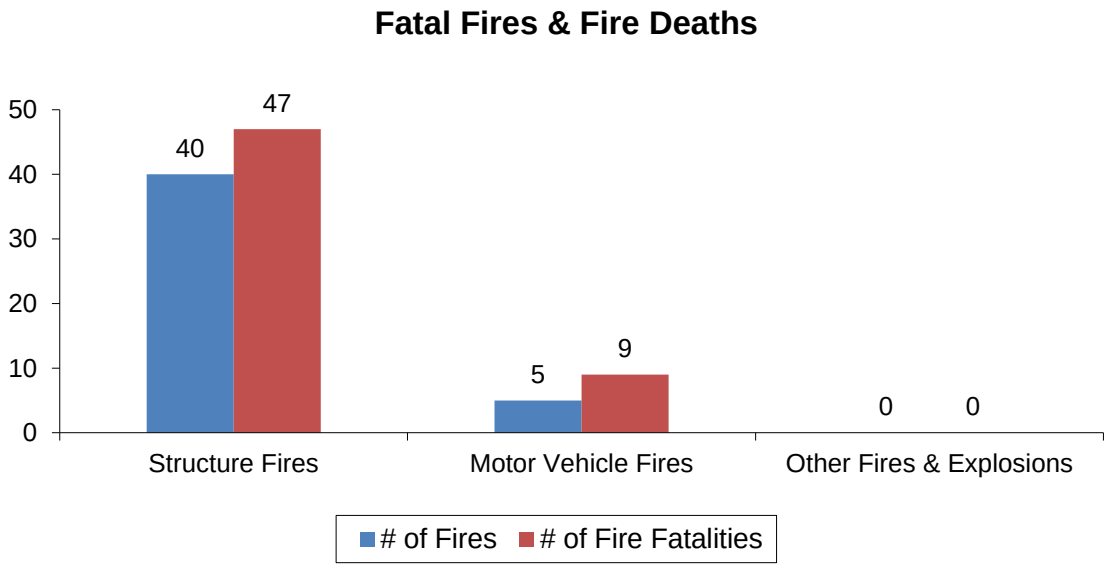
Large Loss Outside and Other Fire
- On January 7, 2016, at 3:25 a.m., the Milton Fire Department was called to an electrical fire in an area around an electrical distribution node. No one was injured at this fire. Damages from this fire were estimated to be $1 million.

2016 Massachusetts Fire Deaths

Civilian Fire Deaths

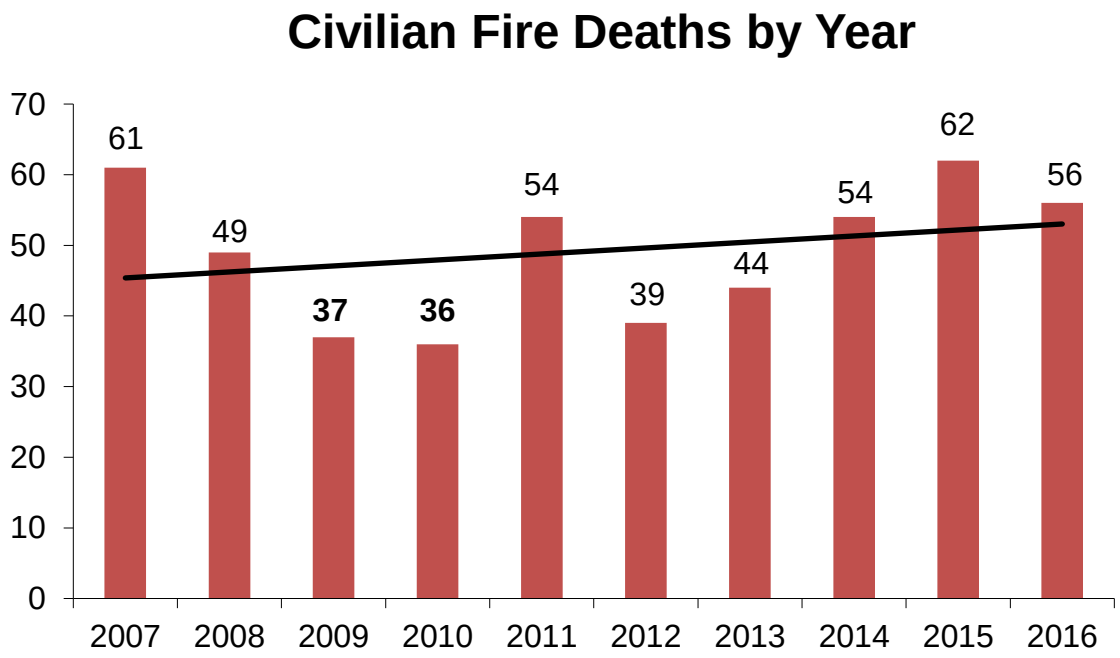
56 Civilians Died in Massachusetts Fires
Fifty-six (56) civilians died in 45 Massachusetts fires during 2016. This is a 10% decrease from the 62 civilian fire deaths recorded in 2015. Forty-seven (47) civilians died in 40 structure fires. Nine (9) people died in five motor vehicle fires. No one died in an outside fire in Massachusetts in 2016. In 2016, there were 8.6 fire deaths per one million population in Massachusetts which is down from 9.5 fire deaths per one million population in 2015.

The following graph shows the number of fatal fires and the number of civilian fire deaths in structure fires, motor vehicle fires and other fires and explosions.



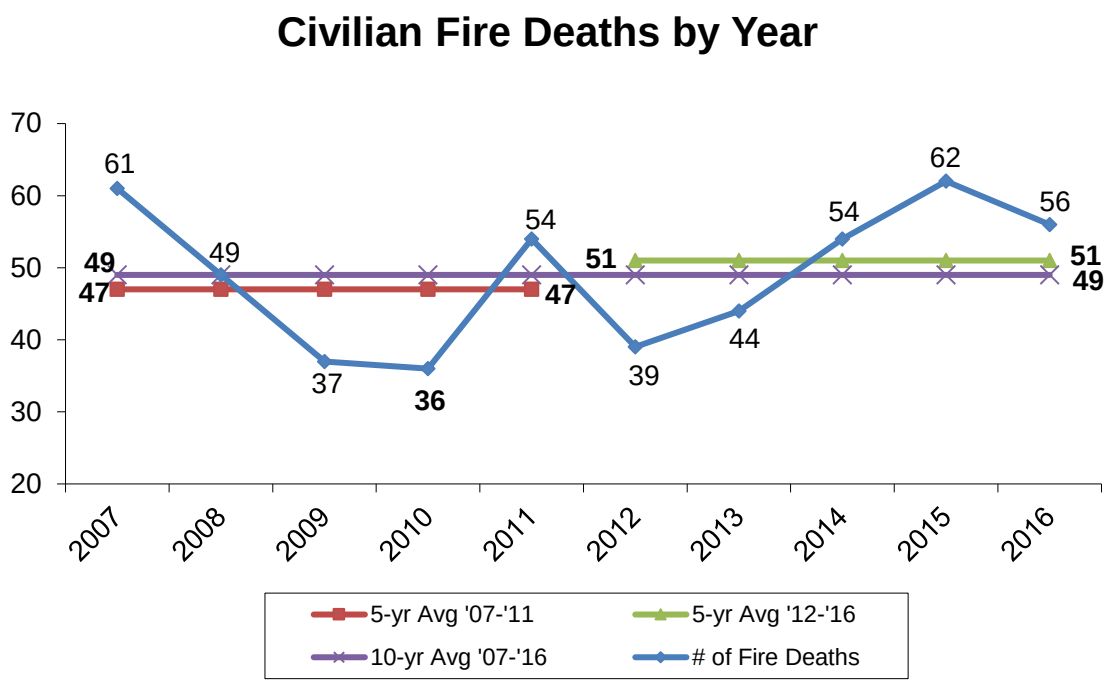
Fire Deaths Decrease 10% from 2015

The 56 civilian fire deaths reported in 2016 were a decrease of six, or 10%, from the 62 reported in 2015. Even though we had the three lowest annual number of civilian fire deaths on record during the past 10 years, 2009, 2010 and 2012, the following chart shows the trend of civilian fire deaths for the past decade slight increasing. However, civilian fire deaths have decreased by 47% from the high of 105 in 1990.



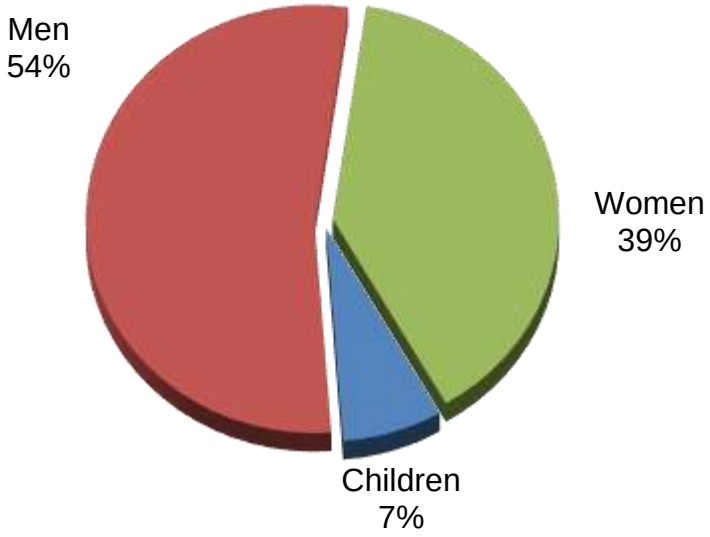
2016 Is Above the 5 & 10 - Year Averages
Because the number of fire deaths fluctuates from year to year and may be influenced by uncontrollable outside factors such as high energy costs for heating, it is helpful to look at averages over five- and 10-year periods. The following graph illustrates the number of fire deaths for the past 10 years in relation to the five-year average for fire deaths for the periods from 2007 through 2011 and from 2012 through 2016. The average number of fire deaths per year from 2007 through 2011 was 47 deaths. The average number of fire deaths per year from 2012 through 2016 was 51 deaths. The graph also depicts the relationship of the number of fire deaths in relation to the 10-year average of 49 deaths for the same time period. Three (3) of the last five years have been above the 10-year and five-year average.

Note that the following chart starts at 20 rather than the traditional zero value. This is so the reader can concentrate on the sometimes subtle changes in the figures. The 56 fire deaths in 2016 are 10% above the five-year average and 14% above the 10-year average.



30 Men, 22 Women and 4 Children Under 18 Died from Fires in 2016
Of the 56 fire deaths, 30, or 54%, were men, 22, or 39%, were women and four, or 7%, were children under 18. The following pie chart illustrates the above figures.

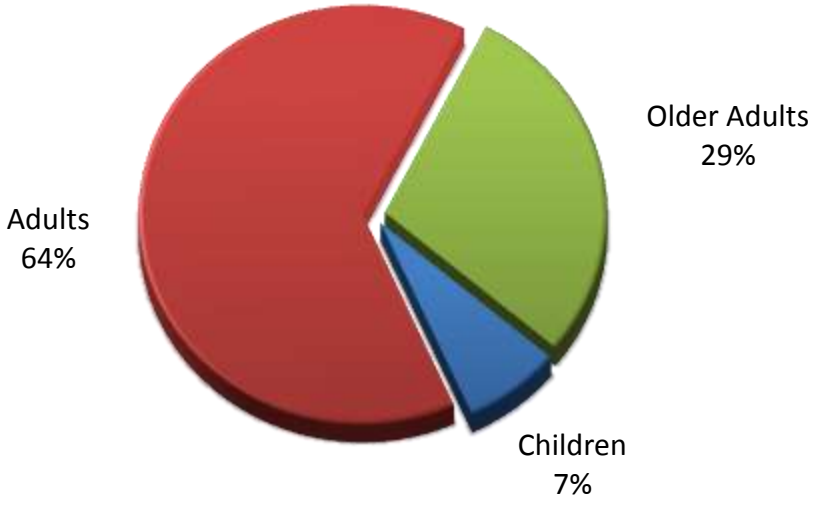
Civilian Fire Deaths by Gender



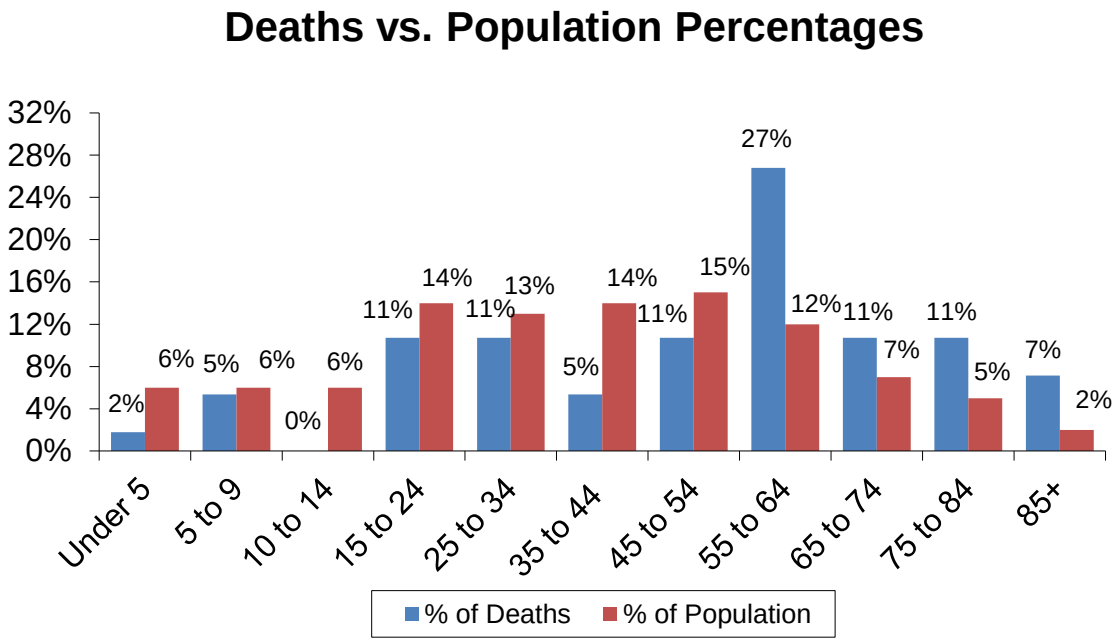
Over 1/4 of Fire Deaths were Over 65

Sixteen (16), or 29%, of the civilian fatal fire victims were over 65 years of age. This included eight elderly men and eight elderly women. Four (4), or 7%, of the civilian fatal fire victims were under 18 years old. Thirty-six (36), or 64%, were adults between 18 and 65 years of age. The following pie chart illustrates the above figures.

Civilian Fire Deaths by Age



Older Adults at Great Risk for Fire Death
Older adults, especially those over the age of 85, had the greatest risk of dying in a fire. Adults over the age 85 account for 2% of the population but 7% of the fire deaths. The risk of fire death for these adults is 3.6. The following graph shows the percentage of fire deaths versus population percentage by age groups in 2016. Other older adults, between the ages of 75 and 84, accounted for 5% of the population but 11% of the fire deaths. Their risk of fire death at 2.1 is just below that of the group of older adults over 84. Older adults between the ages of 65 and 74 were 1.5 times more likely to die in a fire in Massachusetts. The risk of a fire death for all older adults over the age of 65 was 2.0

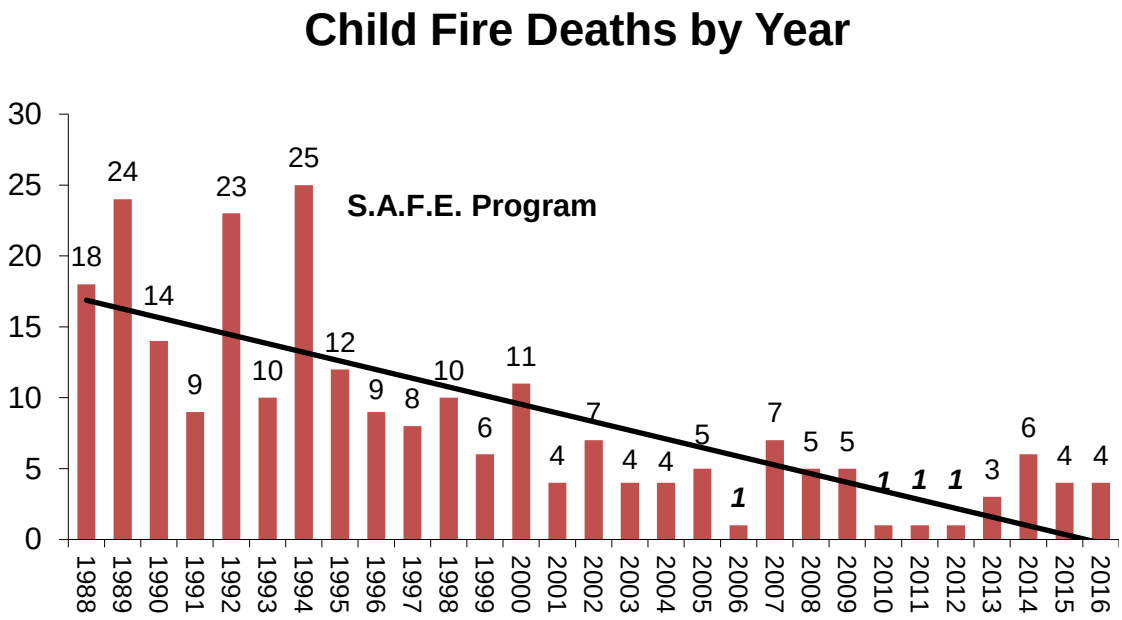


How to Read the Preceding Chart
If an age group represents 10% of the population, we expect it to account for 10% of the fire deaths. If it accounts for a higher percentage of fire deaths than it does for the overall population, that group is at a higher risk of dying in a fire. If the age group accounts for a lower percentage of fire deaths than it does for the overall population, then that group is at a lower risk of dying in a fire.

The percentages of the population in each age group were calculated using data from the 2010 Census from the U.S. Census Bureau.

Children Now at Lower Risk of Dying in Fires in the Commonwealth
Contrary to national trends, children are no longer at a disproportionate risk of dying in fires in Massachusetts. The following graph illustrates the number of child (age <18) fire fatalities in Massachusetts from 1988 through 2016. You can see a definite downward trend in the number of fire related deaths to children from a high of 25 in 1994 to a low of one in 2006, 2010, 2011 and 2012. According to United States Fire Administration

statistics, children under 10 accounted for an estimated 7% of all fire-related deaths nationally in 2015.[5] In 2016, children under 10 accounted for four, or 7%, of the Massachusetts fire-related deaths.



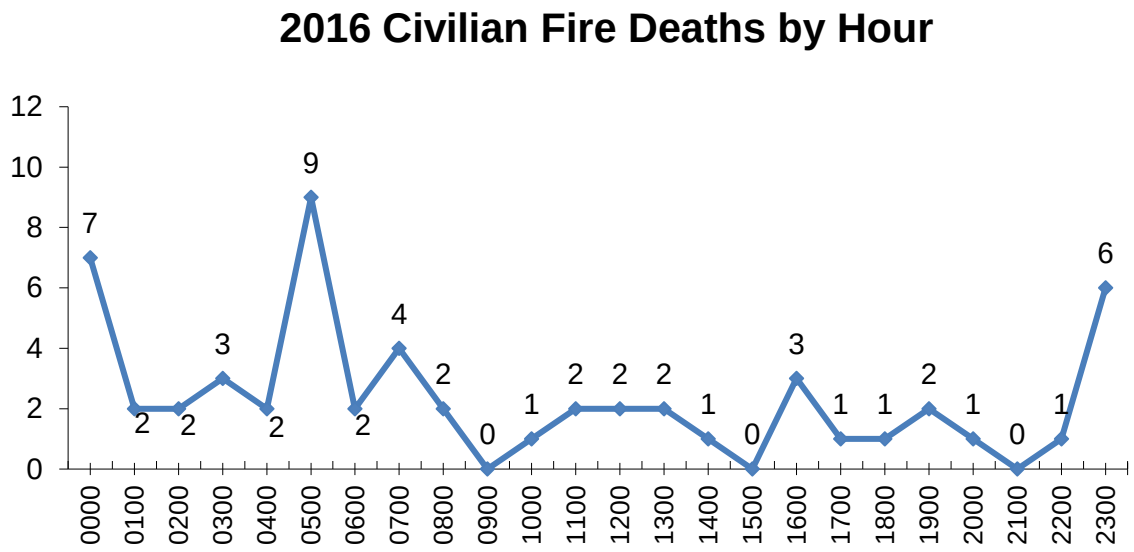
Child Fire Deaths Drop 2/3 Since the Start of the S.A.F.E. Program
Total fire deaths of children under age 18 have fallen by 67% since the start of the S.A.F.E. Program in the fall of 1995.

Average Annual Child Deaths Down 72%
Since fire death numbers fluctuate quite a bit from year to year, it is helpful to look both at the trendline in the graph above, and averages over several years. During the 21 full years where the S.A.F.E. Program has been in effect, from 1996 to 2016, the average number of child fire deaths per year has been 5.0. In the 21 years prior to the S.A.F.E. Program, 1974 to 1994, the average number of child fire deaths per year was 19.0. This 72% drop in the average number of child fire deaths is significant when compared to the 45% drop in the average number of all fire deaths during the same time period.

The one thing that is happening in Massachusetts to improve fire safety for this age group, which is not happening for all other age groups, is consistent, comprehensive, statewide, school-based fire safety education[6].

[5] Source: United States Fire Administration's **Fire Risk in 2015, Topical Fire Research Series, Vol. 18 – Issue 6 September 2017.** Most recent national data available.
[6] Based upon the success of the SAFE program, the Senior SAFE program was launched in 2014 to provide funding to local fire departments to improve fire & life safety to older adults through education that addresses the unique fire risks to this age group.

Over 2/3 of People Died in Fires at Night
Over two-thirds of the people died in fires died at night, when people are usually asleep. Thirty-eight (38), or 68%, of the fire victims died in fires that occurred between 10:00 p.m. and 7:00 a.m. Smoke alarms are the key to notifying occupants to danger whether they are asleep or awake, but they cannot guarantee escape. The vast majority (83%) of the people who died during 'daytime' fires were intimately involved in ignition, and almost half were older adults who may have had limited mobility. The following graph 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.



Structure Fire Deaths

In 2016, there were 47 structure fire deaths in 40 fatal fires. All but two of the structure fire deaths occurred in residential occupancies. In 2016, two non-residential structure fires killed two civilians. One (1) of these deaths occurred in a mixed use building where the fire started in the non-residential section of the building but the victim was in the residential section of the building and the other occurred in a shed.

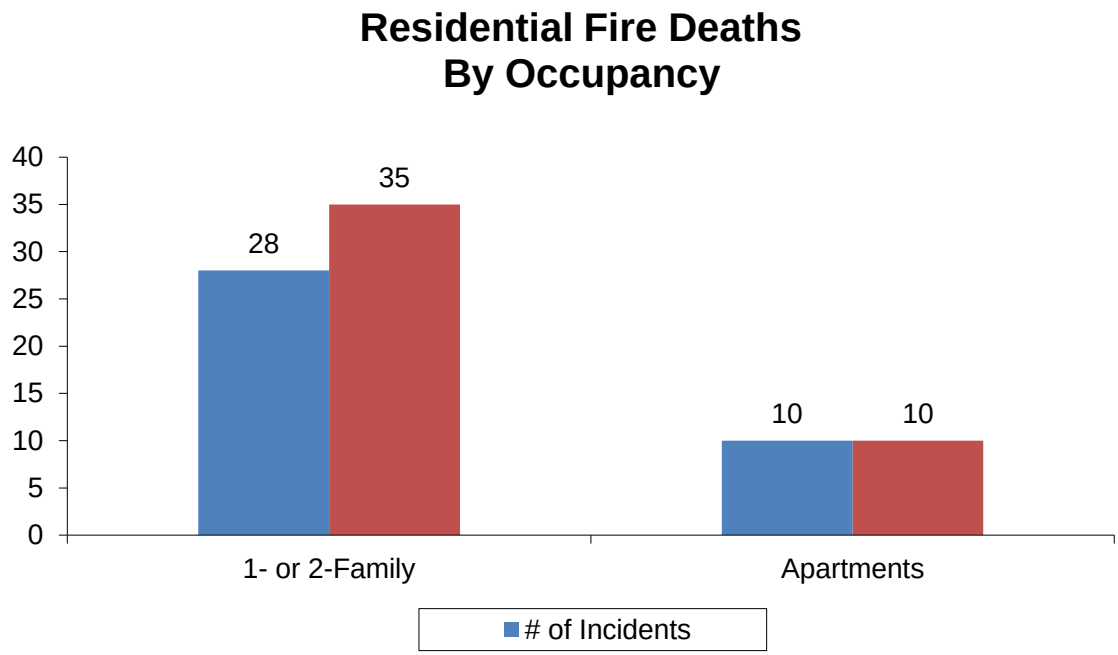
- On January 11, 2016, at 4:05 p.m., the Boston Fire Department responded to a fatal fire in a mixed use property. The building was a single-family home with a dentist office inside of it. The fire was started by an unattended bunsen burner inside the dentist office. The victim, a 55-year old man and son of the dentist was injured attempting to extinguish the fire. He was transported to a local hospital where he succumbed to his injuries days later. The victim's 83-year old father and a firefighter were also injured at this fire. It was undetermined if alarms were present; and the building did not have any sprinklers. The estimated dollar loss was $500,000.

- On November 23, 2016, at 12:47 p.m., the Charlton Fire Department responded to a fatal heating fire in a shed with a woodstove inside. The victim was a 91-year old man whose clothing ignited as he was too close to the woodstove. First arriving firefighters discovered the victim's body outside of the burning shed. No one else was injured at this fire. The shed did not have alarms. Damages from this fire were estimated to be $5,000.

Residential Building Fire Deaths

Most Fire Deaths Occur in the Home
The majority of fire deaths occur in residential occupancies. We focus our analysis on these deaths because it is where prevention can yield the greatest results or have the most impact.

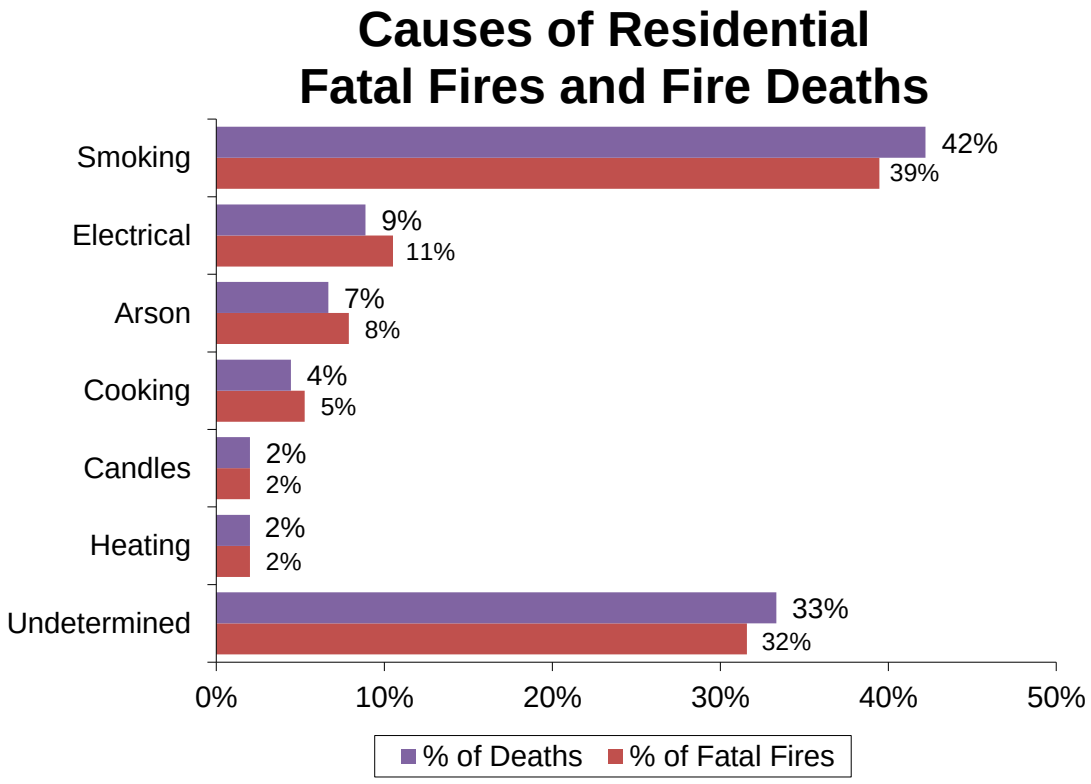
In 2016, there were 45 fire deaths in 38 fatal residential building fires. This represents 96% of the structure fire deaths and 80% of all fire deaths. Thirty-five (35) fire deaths occurred in 28 fires in one- and two-family dwellings; and 10 fire deaths occurred in 10 apartment fires. Typically more fatal fires and associated deaths occur in one- and two-family homes than occur in apartment fires or other residential occupancies.



Smoking Fires Are Leading Cause of Fire Deaths
In 2016, the improper disposal of smoking materials was the leading cause of residential fire deaths and fatal residential fires. These fires accounted for 19, or 42%, of residential fire deaths. Electrical problems were the second leading cause of fire deaths, accounting

for four, or 9%, of residential fire deaths. Arson[7] accounted for three, or 7%; and cooking was the cause of two, or 4% of residential fire deaths. Candles and heating each caused one, or 2%, of these fire deaths. Fifteen (15), or 33%, of these deaths occurred in fires where no cause could be determined or multiple causes could not be ruled out.

The following graph illustrates the number of residential building fire deaths and the number of fatal residential building fires by cause. The classifications are ranked by the percentage of fire deaths that they caused.



19 Fatal Smoking Fires Cause 19 Deaths in Homes
In 2016, the improper use and disposal of smoking materials caused 19, or 42%, of residential building fire deaths and 15, or 39%, of fatal residential building fires.

6 Elderly Fire Deaths Caused by Smoking
In 2016, six of the older adult fire deaths were caused by the improper disposal of smoking materials while at home. In 2015, two older adults were killed in smoking fires; in 2014, one older adult was killed in a smoking fire and in 2013 three older adults were killed in fatal fires. In 2012 no one over the age of 65 died in a smoking fire. In 2010 six older adults died in smoking-related fires. In 2009, seven older adults died in smoking-related fires. In 2008, four older adults died in smoking fires and in 2007, nine older adults died in a smoking-related fire. In 2006 only one older adult died in one of these

[7] Two of the three arson fire deaths were self-immolations.

fires; in 2005 there were two of these deaths; and in 2004 there were no fire deaths to older adults caused by smoking at home.

You will note some common threads as you read the following summaries of the fatal fires caused by smoking materials, such as people falling asleep in the living room on upholstered furniture, or in bed while smoking, and with no working smoke alarms in the building.

- On January 9, 2016, at 5:17 a.m., the Rehoboth Fire Department was called to a fatal smoking fire in a single-family home. The victim, a 43-year old woman, possibly impaired by alcohol, ignited her clothing while she fell asleep smoking in the living room. She escaped the building with her clothes on fire. She was transported to a local hospital where she succumbed to her injuries. No one else was injured at this fire. Alarms were present and operated. Sprinklers were not present. Damages were estimated to be $60,000.

- On February 6, 2016, at 12:52 p.m., the North Andover Fire Department was called to a fatal smoking fire in a two-family home. The fire was started by a cigarette in the living room. The victim, a 63-year old woman, who was possibly impaired by alcohol fell asleep while smoking. No one else was injured at this fire. Alarms were present but did not operate because of missing batteries. There were no sprinklers. Damages from this fire were estimated to be $330,000.

- On February 14, 2016, at 6:23 p.m., the Fall River Fire Department was called to a fatal smoking fire in a 3-unit apartment building. The victim was a 61-year old male. One (1) firefighter was also injured at this fire. Alarms were present but they failed to operate. There were no sprinklers. Damages from this fire were estimated to be $150,000.

- On February 20, 2016, at 7:38 a.m., the Natick Fire Department was called to a fatal smoking fire in a single-family home. The fire was started by a cigarette lighter in the bedroom. The victim was a 72-year old man who was asleep and possibly impaired by alcohol. No one else was injured at this fire. Battery powered smoke alarms were present but did not operate because of missing batteries. There were no sprinklers. Damages from this fire were estimated to be $200,000.

- On March 5, 2016, at 3:47 a.m., the Boston Fire Department was called to a fatal smoking fire in a 58-unit apartment building. The fire was caused by a smoking materials on the living room sofa in a second floor apartment. The victim, a 67-year old woman, was in the area of origin. No one else was injured at this fire. Alarms were present and operated. There was a partial sprinkler system present but it was not reported if it operated. Damages from this fire were estimated to be $250,000.

- On March 12, 2016, at 6:15 a.m., the Boston Fire Department was called to a fatal smoking fire in a 20-unit apartment building. The fire was started by smoking materials in the bathroom. The victim, a 61-year old woman, was in the area of origin

and discovered by firefighters while they were extinguishing the fire. There were two other civilians injured at this fire. Alarms were present and alerted the residents. The building did have a partial sprinkler system present but it was not reported if it operated. Damages from this fire were estimated to be $100,000.

- On March 13, 2016, at 1:42 p.m., the Oxford Fire Department was called to a fatal smoking fire in a (trailer) single-family home. The fire was started by a cigarette igniting the victim's clothes while he was asleep. The victim was a 55-year old man who was possibly impaired by alcohol and intimately involved with the ignition. The fire was out upon firefighters' arrival. It was undetermined if there were any alarms. Damages from this fire were estimated to be $200.

- On April 8, 2016, at 5:32 a.m., the Bondsville Fire Department in Palmer was called to a fatal smoking fire in a single-family home. The fire was started by a cigarette lighter in the living room. The victim was a 69-year old man that was in the area of origin. Two other civilians were injured at this fire. Alarms were present but they did not operate because of missing batteries. The home did not have any sprinklers. Damages from this fire were estimated to be $16,000.

- On May 8, 2016, at 5:51 a.m., the Fall River Fire Department was called to a fatal smoking fire in a 3-unit apartment building. The fire was started by a cigarette igniting the furniture in the living room. The victim, who was intimately involved with the start of the fire, was a 61-year old man. He was possibly impaired by alcohol and asleep at the time of the fire but did try to escape. He was overcome by the heat and smoke. There were no other injuries at this fire. Alarms were present and operated. The home did not have sprinklers. Damages from this fire were estimated to be $180,000.

- On May 14, 2016, at 3:15 a.m., the Northbridge Fire Department was called to a fatal smoking fire in a two-family home. The fire was started by a cigarette in a first floor function room. The victims, a 21-year old woman and a 22-year old woman, were sleeping at the start of the fire. They were overcome by the heat and smoke as they attempted to escape. There were no other injuries at this fire. Alarms were not present and the building did not have sprinklers. The fire spread to a neighboring building. Damages from both fires were estimated to be $460,000.

- On June 23, 2016, at 10:37 a.m., the Hudson Fire Department was called to a fatal smoking fire in a single-family home. The fire was started by smoking materials igniting the furniture in the living room. The victim, who was intimately involved with the start of the fire, was a 76-year old physically disabled woman. There were no other injuries at this fire. Alarms were present but it was undetermined if they operated. The home did not have sprinklers. Damages from this fire were estimated to be $125,000.

- On September 25, 2016, at 5:16 a.m., the Greenfield Fire Department was called to a fatal smoking fire in a single-family home. The fire was started by a cigarette igniting

the bedding in a first floor bedroom. There were four victims. A 48-year old man, his 49-year old wife, a 28-year old adult son and his 5-year old son were killed by this fire. There were no other injuries at this fire. It was undetermined if alarms were present. The home did not have sprinklers. Damages from this fire were not estimated.

- On November 22, 2016, at 2:47 a.m., the Erving Fire Department was called to a fatal smoking fire in a single-family home. The fire was started by a cigarette on an exterior porch. The victim, a 1-year old girl, was sleeping at the time of the fire. There were no other injuries at this fire. Alarms were present and operated. The building did not have sprinklers. Damages from this fire were not estimated.

- On November 28, 2016, at 7:02 p.m., the Tewksbury Fire Department was called to a fatal smoking fire in a single-family home. The fire was started by a cigarette lighter igniting the clothing on the victim. The victim, who was intimately involved with the start of the fire, was an 84-year old man who was physically disabled. There was one other injury at this fire. Alarms were present and operated. The home did not have sprinklers. Damages from this fire were estimated to be $130,000.

Smoking on Oxygen

Using home oxygen increases the risk of fires and burns. When more oxygen is in the air, fires will burn hotter and faster. In 2016, one person died in a fire who was using oxygen while smoking.

- On October 4, 2016, at 4:17 a.m., the Chelsea Fire Department was called to a fatal smoking fire in a 3-unit apartment building. The fire was started by the victim smoking while using home oxygen. The victim, an 86-year old man, was the only object that was burned. EMS crews transported him to a local hospital where he later succumbed to his injuries. There were no other injuries at this fire. Alarms were present but did not operate because the fire was too small. The home did not have sprinklers. Damages from this fire were not estimated.

4 Fatal Electrical Fires Cause 4 Deaths

Four (4) people died in four residential electrical fires in 2016. Electrical fires accounted for 9% of residential fire deaths and 11% of fatal residential fires. Electrical fires were the leading cause of fire deaths in 2014.

- On January 19, 2016, at 7:44 p.m., the Scituate Fire Department was called to a fatal electrical fire in a single-family home. The fire was started by arcing in the kitchen. The victim, a 42-year old man, was sleeping and possibly impaired by alcohol at the time of the fire. One (1) firefighter was injured at this fire. Alarms were not present and there were no sprinklers. The fire caused an estimated $400,000 worth of damage.

- On March 1, 2016, at 8:20 a.m., the Leominster Fire Department was called to a fatal electrical fire in a single-family home. Electrical wiring in the living was the cause of

the fire. There was also a significant fuel load in the home because of excessive clutter. The victim, a 90-year old woman, was asleep at the time of the fire. She was transported to a local hospital where she succumbed to her injuries. Three (3) firefighters were also injured at this fire. Alarms were present and they did not operate because of dead batteries. There were no sprinklers in the home. Damages were not estimated.

- On March 8, 2016, at 7:20 a.m., the West Newbury Fire Department was called to a fatal electrical fire in a single-family home. The fire was started by arcing in a washing machine in the basement. The victim, an 82-year old man, was sleeping in his second floor bedroom at the time of the fire. Three (3) firefighters were also injured at this fire. There were no alarms present, and there were no sprinklers. The fire caused an estimated $500,000 worth of damage.

- On May 19, 2016, at 7:06 a.m., the Beverly Fire Department was called to a fatal electrical fire in an apartment building. The fire was caused by a lamp in the living room being too close to combustibles. The victim, a 78-year old man, was overcome while trying to escape. He was transported to a local hospital where he later succumbed to his injuries. No one else was injured at this fire. Alarms were present and alerted the occupants. Sprinklers were not present in the home. Damages were estimated to be $430,000.

3 Fatal Arson Fires Caused 3 Deaths

Three (3) fatal arson fires, or 8% of fatal residential building fires, caused three, or 7%, of the residential building fire deaths in 2016. Two (2) of the three fires were self-immolations.

- On February 17, 2016, at 8:16 p.m., the Plymouth Fire Department was called to a fatal self-immolation fire in a single-family home. The victim, a 64-year old man, ignited gasoline on the first floor. No one else was injured at this fire. Alarms were present but it was undetermined if they operated. The victim was intimately involved with the ignition of the fire. The home was not sprinklered. Damages from this fire were estimated to be $500,000. The fire spread to one of the vehicles parked near the home, causing another $12,000 in damages.

- On November 5, 2016, at 8:39 a.m., the Boston Fire Department was called to a fatal arson fire in a vacant and unsecured single-family home. The victim, a 29-year old woman, was trapped inside the building and discovered by firefighters. No one else was injured at this fire. It was undetermined if alarms were present. The home was not sprinklered. Damages from this fire were estimated to be $350,000. The fire spread to four other nearby buildings causing another $40,000 in estimated damages.

- On December 23, 2016, at 5:31 p.m., the Brewster Fire Department was called to a fatal self-immolation fire in a single-family home. The victim, a 31-year old man, started the fire in a first floor bedroom. No one else was injured at this fire. It was undetermined if alarms were present, but the victim was intimately involved with the

ignition of the fire. The home was not sprinklered. Damages from this fire were estimated to be $250,000.

2 Killed in 2 Cooking Fires
Two (2) people died in two fatal residential cooking fires in 2016. Cooking fires accounted for 4% of residential fire deaths and 5% of fatal fires in residential buildings.

- On September 25, 2016, at 2:37 a.m., the Lowell Fire Department was called to a fatal cooking fire in a 60-unit apartment building. A stove fire extended to the cabinets in a third floor apartment. The victim, a 78-year old woman, was sleeping at the time of the fire. She was overcome by the smoke attempting to escape, was found by firefighters and transported to a local hospital, where she succumbed to her injuries. No one else was injured at this fire. Alarms were present and operated. The building was not sprinklered. Damages from this fire were not estimated.

- On November 23, 2016, at 1:19 p.m., the Attleboro Fire Department was called to a fatal cooking fire in a 6-unit apartment building. The victim, a 77-year old woman, poured isopropyl alcohol on a turkey, lit it with a match and her clothing ignited. Only the victim and the turkey were burned. She was transported to a local hospital and succumbed to her injuries a week later. No one else was injured at this fire. Alarms were present but the fire was too small to activate them. The building was not sprinklered. Damages from this fire were not estimated.

1 Fatal Candle Fire Caused 1 Death
One (1) fatal candle fire, or 2% of fatal residential building fires, caused one, or 2%, of the residential building fire deaths in 2016.

- On February 5, 2016, at 10:53 p.m., the Avon Fire Department was dispatched to a fatal candle fire in a single-family home. There was a power outage due to the heavy snow fall for nine hours prior to the report of the fire. The sole occupant of the home, a 56-year old woman, discovered the fire and called 911. Arriving firefighters found her outside of the home with respiratory distress. She refused medical treatment. She did state that she left a candle she was using for light unattended in the kitchen. The candle ignited nearby paper products. She passed away a week later from respiratory failure due to smoke inhalation. No one else was injured at this fire. Alarms were present but they failed to operate. The building did not have any sprinklers Damages from this fire were estimated to be $199,694.

1 Fatal Heating Fire Caused 1 Death
One (1) fatal heating fire, or 2% of fatal residential building fires, caused one, or 2%, of the residential building fire deaths in 2016.

- On September 26, 2016, at 7:53 a.m., the Fitchburg Fire Department responded to a fatal heating fire at a single-family home. Wood pellets fell over onto the water heater starting the fire. The victim, a 53-year old woman who was possibly impaired by alcohol, was sleeping. Firefighters found the victim and transported her to a local

hospital where she succumbed to her injuries. No one else was injured at this fire. There were no fire alarms and the building did not have any sprinklers. Damages from this fire were estimated to be $35,000.

12 Fatal Fires of Undetermined Cause

Twelve (12) fatal residential building fires that took the lives of 15 Massachusetts residents in 2016 remain undetermined. These represent 39% of the fatal residential fires, and 42% of the residential fire deaths in 2016. The cause of over one-third of all residential fire deaths could not be definitely determined after investigation. According to the National Fire Protection Association (NFPA) standard 921, Chapter 16.2.4, whenever the cause of a fire cannot be proven, the proper classification is "undetermined." NFPA 921, 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."

- On January 28, 2016, at 11:35 p.m., the Groton Fire Department was dispatched to a fire in a single-family home of undetermined cause. The victims were a 66-year old man and 55-year old woman. One (1) firefighter was also injured at this fire. It was undetermined if alarms were present. The building was not sprinklered. Damages from this fire were estimated to be $151,000.

- On February 10, 2016, at 12:12 a.m., the Fitchburg Fire Department was called to a fatal fire in a two-family home of undetermined cause. The fire started in a second floor bedroom. It is believed that the victims, 62 and 58-year old sisters were sleeping at the time of the fire. Their 60-year old brother was injured attempting to rescue them. Alarms were not present and the building was not sprinklered. Damages from the blaze were estimated to be $15,000.

- On February 11, 2016, at 2:09 p.m., the Attleboro Fire Department was called to a fatal fire in a single-family home of undetermined cause. The fire originated in the first floor living room on the couch. The victim was a 59-year old woman who was trying to escape when she was injured. She was transported to a local hospital where she succumbed to her injuries. No one else was injured at this fire. Alarms were not present, and the building was not sprinklered. Damages from the blaze were not estimated.

- On February 16, 2016, at 11:43 a.m., the Orange Fire Department was dispatched to a fire in a single-family mobile home of undetermined cause. The victim, a 56-year old man, was discovered just inside the front door. No one else was injured at this fire. Smoke alarms were present but they failed to operate. The building was not sprinklered. Damages from this fire were estimated to be $40,000.

- On February 21, 2016, at 5:16 a.m., the Wales Fire Department was dispatched to a fire in a single-family home of undetermined cause. The fire started in a greenhouse attached to the house near a space heater plugged into an electrical cord. Investigators could not rule out an electrical malfunction or combustibles too close to the heater.

The victim was a 91-year old woman. There were no other injuries associated with this fire. Alarms were not present. The building was not sprinklered. Damages from this fire were estimated to be $127,200.

- On March 5, 2016, at 4:45 p.m., the Orange Fire Department was called to a fatal fire in a single-family home of undetermined cause. The fire originated in a second floor closet. The victims, 6 and 8-year old girls were in the general area of origin of the fire and were overcome by the smoke as they tried to escape. The cause of the fire was either electrical or juvenile fireseting. Three (3) other civilians were injured at this fire. Alarms were present and operated. The building was not sprinklered. Damages from the blaze were estimated to be $170,000.

- On April 14, 2016, at 11:39 a.m., the Upton Fire Department was dispatched to a fire in a 5-unit apartment building of undetermined cause. The victim was a 57-year old man. There were no other injuries associated with this fire. It was undetermined if alarms were present; and the building was not sprinklered. Damages from this fire were estimated to be $250,000.

- On April 24, 2016, at 6:53 a.m., the Dudley Fire Department was called to a fatal fire in a mobile home (trailer) of undetermined cause. There were multiple causes that could not be ruled out. It is believed that the victim, a 61-year old man, was somehow involved in the ignition of the fire. No one else was injured at this fire. It was undetermined if alarms were present. The building was not sprinklered. Damages from the blaze were estimated to be $125,000. The fire also spread to a nearby building causing another $135,000 in estimated damages.

- On June 7, 2016, at 11:09 a.m., the New Bedford Fire Department was called to a fatal fire in a 4-unit apartment building of undetermined cause. First arriving firefighters found the victim, a 50-year old woman, with burn injuries to over half her body inside her apartment. There were no signs of any active fire except some burned clothes in a sink. The patient was transported to a local hospital where she succumbed to her injuries weeks later. No one else was injured at this fire. Alarms were present but it was undetermined if they operated. The building was not sprinklered. Damages from the fire were not estimated.

- On August 8, 2016, at 5:09 a.m., the West Bridgewater Fire Department was called to a fatal fire in a two-family home of undetermined cause. The fire started in the first floor kitchen. The victim, a 54-year old man, is believed to have been sleeping when the fire began but was somehow involved with starting the fire. Three (3) firefighters were injured at this fire. It was undetermined if alarms were present. The building was not sprinklered. Damages from the blaze were estimated to be $364,500.

- On October 30, 2016, at 12:34 a.m., the Dedham Fire Department was called to a fatal fire in a single-family home of undetermined cause. The fire started on the first bedroom. The victim, a 68-year old woman, was believed to be in the area of origin and somehow involved in starting the fire. Two (2) firefighters were injured at this

fire. Alarms and sprinklers were not present. Damages from the blaze were not estimated.

- On December 8, 2016, at 4:13 a.m., the Pittsfield Fire Department responded to a fatal fire in a mixed use building of undetermined cause. The building contained a restaurant as well as two apartments. The fire began in the bedroom of the victim. The victim, a 74-year old man was sleeping at the time of the fire. First arriving firefighters pulled the victim out of the building and transported him to a local hospital where he succumbed to his injuries about a week later. One (1) firefighter was injured at this fire. Alarms were present and alerted the other occupants. The building did not have any sprinklers. Damages from this fire were estimated to be $250,000.

Bedroom or Living Room is the Area of Origin for Over 1/2 of Fire Victims
Given that most fatal fires occur at night, and that many people fall asleep in their living rooms, it is not surprising that 51% were killed in fires that started in bedrooms or living rooms; 12 victims, or 27%, died in fires that began in the bedroom, and 11, or 24%, succumbed to fires that originated in the living room. Five (5) victims, or 11%, died when the area of origin was the kitchen. Unclassified function rooms were the area of origin of the fire for three, or 7%, of the residential fire deaths in 2016. A closet was the area of origin for two, or 4%, of the residential fire deaths. A bathroom, a bar area, an exterior balcony, a heating room, a maintenance area, a basement, and a garage were each the area of origin of the fire for one, or 2%, of the residential fire deaths in 2016. Five (5) victims, or 11%, died in fires where the area or origin was undetermined or not classified.

44% of Deaths Involved Smoking Materials as a Heat Source
Of the 45 residential building fire deaths, 44% involved smoking materials; 27% from cigarettes, 7% from undetermined smoking materials, 7% from lighters, 2% from pipes or cigars, and 2% from matches. Eight percent (8%) were classified as heat from operating equipment; 4% from arcing, 2% from radiated or conducted heat from operating equipment, and 2% from sparks, embers or flames from operating equipment. Candles caused 4%; and an incendiary device and heat from another fire were each the heat source in 2% of these deaths. The *Heat Source* was undetermined or unclassified in 15 deaths, or 40%, of the residential building fire deaths in 2016.

Upholstered Sofa or Chair Was the Leading Item 1st Ignited
Of the 45 residential building fire deaths, upholstered sofas or chairs were the item first ignited in 18% of these deaths. Bedding was the item first ignited in 9% and wearing apparel on a person for 7% of residential fire deaths. A mattress or pillow was the item first ignited in 4%, and multiple items were also involved in 4%. Wood chips, flammable liquid or gas, uncontained, unclassified furniture or utensils, magazines or newspaper, unclassified soft goods or wearing apparel, a structural member or framing, and an unclassified structural component were each the item first ignited in 2% of these fire deaths. The item first ignited was undetermined or unclassified in 19, or 42%, of the residential building fire deaths in 2016.

Alarm Operation Undetermined for 1/3 of Residential Fire Victims
Of the 45 people who died in residential building fires in 2016, the smoke alarm performance was reported for 33 of the victims. Victims were not alerted by smoke alarms in 15 fires that killed 17 people, or 38% of the victims. No alarms were present at all in eight fires that were responsible for 10, or 22%, of the deaths. In seven deaths, or 16%, there were alarms present but they failed to operate.

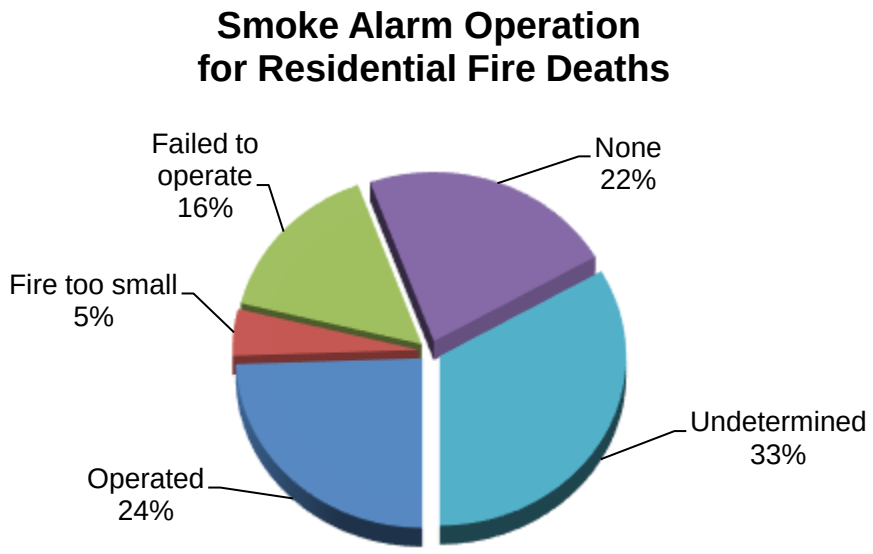
Eleven (11) people died in 10 separate residential fires with alarms that did operate, accounting for 24% of fatal fire victims. It is important to remember that alarms provide an early warning of a fire. They do not guarantee an escape if exits are blocked or an individual's clothing ignites. A fire that appears small when discovered can quickly grow beyond an individual's ability to control or escape it.

Two (2) people, or 4%, died in two fires where the fire was too small to activate the alarm.

In 2016, six of the 10 fatal residential fire victims whose smoke alarms operated were in the area of origin. Four (4) of these victims were intimately involved with ignition; all four were smoking.

In 2016 there were no victims that were not in the area of origin but were involved in the ignition of the fires. While smoke alarms cannot by themselves save a person who is directly involved in the ignition, they can alert other occupants to the danger and give them precious time to escape to safety.

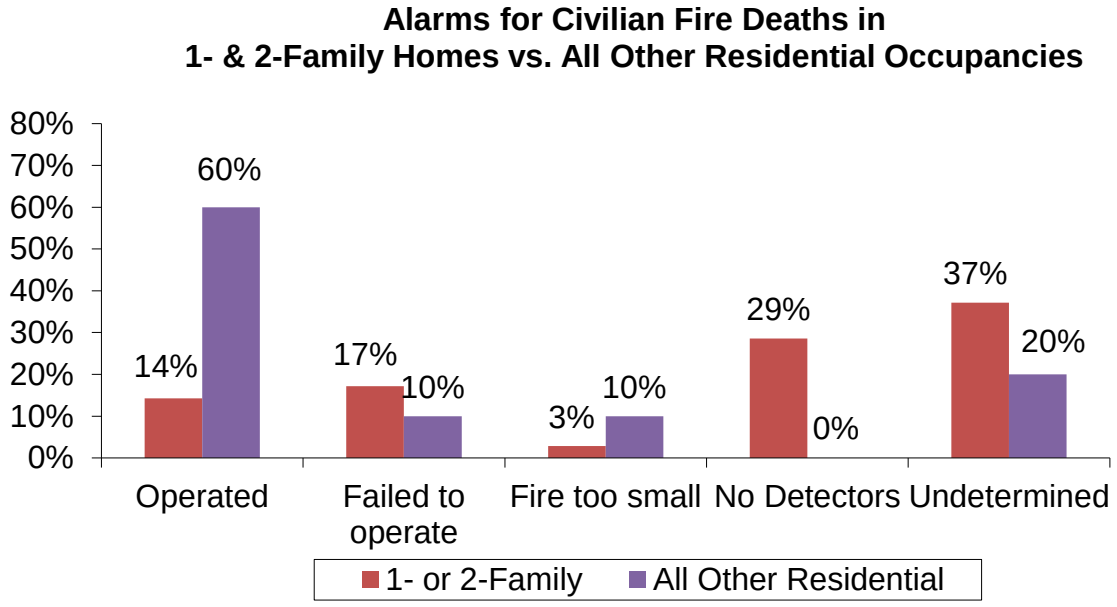
Alarm performance was undetermined in 11 residential building fires that killed 15 people, accounting for 33% of the residential building fire deaths in 2016. In three of these fires and three deaths the alarms were present but it was undetermined if they operated. The pie chart shows the smoke alarm status as a percentage of the civilian residential building fire deaths in 2016.



No Working Smoke Alarms in 46% of Fire Deaths in 1 & 2-Family Homes
In 2016, you were more likely to die in a fire in a one- and two-family home than in any other residence and one without a working smoke alarm. There were 250% more fire deaths in one- and two-family homes than all other residential occupancies combined. Thirty-five (35) people died in 28 one- and two-family dwelling fires in 2016. Sixteen (16), or 46%, of the fire deaths in one- and two-family homes occurred in fires with no alarms at all or with alarms that failed to operate. Of these deaths, one occurred in a home where smoke alarms failed to work while the other five deaths were in homes where there were no smoke alarms present. Five (5) deaths, or 14%, occurred in homes where the smoke alarms operated. Two (2), or 6%, of these deaths occurred when the fire was too small to activate the alarm. Thirteen (13) deaths, or 37%, occurred in 15 fires where smoke alarm performance was undetermined.

Other Residential Occupancies More Likely to be Protected by Smoke Alarms
Ten (10) people died in 10 apartment fires in 2016. The alarm performance was known for eight of the victims. Six (6) people died in fires where smoke alarms were present and working. One person was killed in a fire where the alarm failed to operate, and another person died when the fire was too small to activate the alarm. Two (2) people died in two fires where alarm operation was undetermined.

The following graph illustrates the alarm status and the percentage of deaths between 1- and 2-family homes and all other residential occupancies.



7 Alarms Failed
Of the seven residential fire deaths where smoke alarms were present but failed to operate, three failed to operate because of missing batteries, one failed because the battery was dead, and it was undetermined why the other three alarms failed.

40% of Older Adults Died in Fires with No Working Alarms
Six (6), or 40%, of the 15 senior residential fire deaths had no working smoke alarms. Five (5) senior deaths, or 34%, occurred where there were operating alarms. Two (2) seniors, or 13%, died in fires where the fire was too small to activate the alarm. Two (2) seniors, or 13%, died in fires where the alarm presence or operation could not be determined. Because of their age, older adults may have mobility and hearing impairments making escape from a fire more difficult. Earlier warning and/or residential sprinklers may have allowed them to escape or survive the fire.

Sleeping Led Human Factors Contributing to Injury[8]
Of the 45 fatal residential building fire victims, 20 had a *Human Factor Contributing to Injury* reported in MFIRS. Thirty-three percent (33%) of the victims were asleep; 20% were possibly impaired by alcohol; 7% were unconscious; 4% were bedridden or had another physical handicap; 4% were possibly impaired by a drug or chemical; 4% were unattended or unsupervised persons; and 2% were possibly mentally disabled. Thirty-four (34), or 56%, of the 45 civilian fire deaths did not report a human factor contributing to injury.

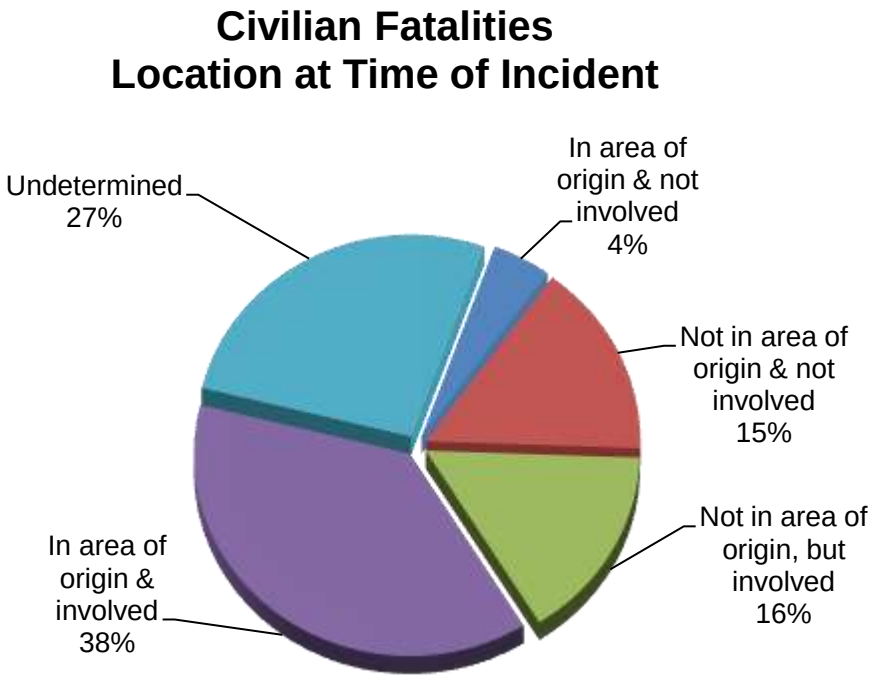
27% of Victims Were Escaping When They Were Overcome
Twelve (12), or 27%, of the 45 fatal fire victims were trying to escape when they incurred their fatal injuries. Ten (10), or 22%, were sleeping when they were fatally injured. Two (2) victims, or 4%, were unable to act; and another two victims, or 4%, were acting irrationally when they were injured. Activity at time of death was undetermined or not reported for 19, or 42%, victims of fatal residential fires in 2016. Working smoke alarms combined with a home escape plan are essential to escape a fire.

90% of the Victims Suffered Burns, Smoke Inhalation or Both
Burns or smoke inhalation was the primary apparent symptom for 41, or 90%, of the victims; 28, or 62%, suffered burns and smoke inhalation; 11, or 24%, suffered from smoke inhalation only, and two, or 4%, just had thermal burns. Cardiac arrest was the reported primary apparent symptom for one, or 2%, of these victims. There were three deaths, or 7%, where the primary apparent symptom was undetermined or not reported.

Over 1/2 of All Fatalities Were Somehow Involved in Ignition
Twenty-four (24), or 53%, of the residential fatal fire victims were somehow involved with the start of the fire that eventually killed them. Seventeen (17), or 38%, of these victims were in the area of origin and intimately involved with the ignition of the fire that killed them, and seven, or 16%, of these victims were not in the area of origin but were somehow involved in starting these fires; such as a person who is smoking and exits the room, leaving the cigarette behind unattended, or a person who forgets that they started cooking on the stove. Two (2), or 4%, were in the area of origin but not involved in the fire's ignition. Seven (7), or 16%, of the victims were not in the area of origin and not

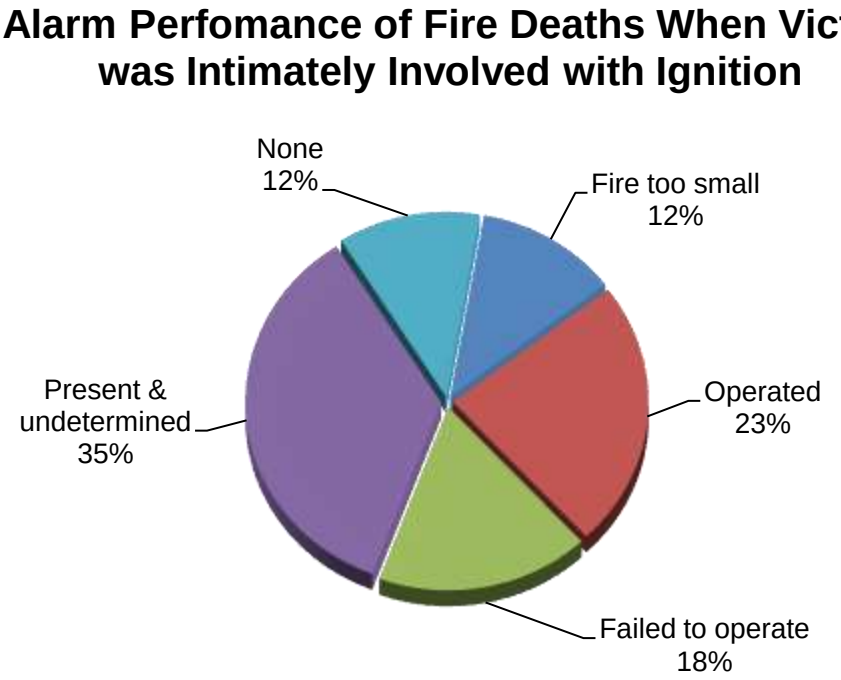
[8] Some fields in version 5 allow for multiple entries. Therefore the number of entries may be greater than the actual number of incidents being analyzed.

involved with the ignition of the fire that claimed their lives. The *Location at Time of Incident* was unknown for 12, or 27%, of the residential fatal fire victims.



24% of Alarms Operated When the Victim Was Intimately Involved in Ignition
There were 17 victims that were reportedly in the area of origin and involved with the ignition of the fire that killed them. It is most probable that no amount of early warning would have saved any of these victims. This is where fire prevention and education become key components in saving lives. Four (4), or 24%, of these 17 victims actually had a working smoke alarm in their home at the time of the fire. Two (2), or 13%, did not have any smoke alarms. In three of these deaths, or 18%, there were alarms present in the home but they failed to operate. In two, or 12%, of these deaths the fire was too small to activate the alarm. In one of these deaths, or 6%, alarms were present, but it was undetermined if they operated. It was undetermined in five, or 29%, of these deaths if there were any alarms.

For the four victims who were involved with the ignition and where the alarms operated were, the cause was smoking. One (1) of these victims was an older adult who was physically disabled.



Fatal Motor Vehicle Fires

In 2016, five motor vehicle fires killed nine civilians. Motor vehicle fire deaths are determined subsequent to the autopsy of the victim. When smoke is found in the lungs, it is an indication the victim survived the impact of the collision and was killed by the fire and not the crash[9]. Four (4) of these fires and the eight of the accompanying deaths involved motor vehicle crashes. One (1) involved the lone victim dying by suicide.

4 Motor Vehicle Crashes Kill 8 Occupants
Four (4) motor vehicle fires and the subsequent eight deaths were caused by motor vehicle crashes. These incidents accounted for 9% of the fatal fires and 9% of the fire fatalities in the Commonwealth in 2016.

- On February 10, 2016, at 1:28 a.m., the Milton Fire Department was called to a fatal motor vehicle crash with ensuing fire. Two (2) of the three occupants of the vehicle, a 32-year old man and a 35-year old man, were trapped in the vehicle and died in the fire. A third occupant was transported to a hospital with severe injuries. One (1) firefighter was also injured at this fire. Damages from this fire were estimated to be $5,000.

[9] The medical examiner determines the cause of death using a full array of scientific procedures this is just one criteria.

- On October 6, 2016, at 11:06 p.m., the Middleborough Fire Department was called to a fatal motor vehicle crash with ensuing fire on Interstate 495. The car crashed into the trees on the side of the highway. The driver was not able to escape the car. The victim, a 58-year old man died at the scene. Damages were estimated to be $4,500.

- On October 24, 2016, at 12:15 a.m., the Middleborough Fire Department was called to a fatal motor vehicle crash with ensuing fire on Interstate 495. The two cars crashed into one another. The driver and sole occupant of the first car was killed by the trauma of the collision. The four men in the second car were not able to escape the car. The victims were an 18-year old man, two 19-year old men, and a 20-year old man. Damages were estimated to be $4,000.

- On October 26, 2016, at 11:31 p.m., the Worcester Fire Department was called to a fatal motor vehicle crash with ensuing fire. The driver of the car, and only occupant, a 28-year old man, was trapped inside the car and could not escape or be rescued. Damages were not estimated.

1 Suicide Kills 1 Occupant
One (1) motor vehicle fire was death by suicide. This incident accounted for 2% of the fatal fires and 2% of the fire fatalities in the Commonwealth in 2016.

- On August 14, 2016, at 11:30 p.m., the North Attleboro Fire Department was dispatched to a motor vehicle fire in a parking lot. It is believed that the driver and only occupant of the vehicle set the car on fire in a suicide attempt. The car burst into flames and the victim, a 28-year old man was trapped inside the vehicle and could not be rescued. No one else was injured in this fire. Damages from this fire were not estimated.

Other Fatal Fires

In 2016, there were no outside fires that killed any civilians.

Multiple Fire Deaths

For statistical purposes, a fire is considered a multiple death fire if it kills three or more people. In 2016, there was two multiple death fires in Massachusetts. The first was a fire in Greenfield on September 25, 2016 that killed three adults and one child. The second was a motor vehicle crash with ensuing fire in Middleborough on October 24, 2016 that killed all four occupants of one of the cars.

Civilian Fire Deaths - Conclusion

56 Civilians Died in Massachusetts Fires – 10% Decrease
In 2016, there were 45 fatal fires in Massachusetts with 56 accompanying fatalities. This is a 10% decrease from the 62 deaths reported in 2015. Of these 56 deaths, 45 occurred in residential fires.

Majority of Fire Deaths Occur in Residential Occupancies
We focus our analysis on residential fire deaths because it is where prevention can have the most impact. Forty-five (45) of the 47 fatal structure fire victims died in residential building fires. Thirty-five (35) of these deaths occurred in one- or two-family homes, accounting for 63% of all fire deaths.

Smoking Fires Are Leading Cause of Fire Deaths
In 2016, smoking fires were the leading cause of residential fire deaths and fatal residential fires. These fires accounted for 19, or 42%, of residential fire deaths. Electrical fires were the second leading cause of fire deaths, accounting for four, or 9%, of residential fire deaths. Arson caused three, or 7% of residential fire deaths.

4 Children Died in a Fire
Four (4) children under the age of 18 died in fires in Massachusetts in 2016. A one-year old girl and five-year old boy died in separate smoking residential fires. A six-year old girl and an eight-year old girl died in a fire of undetermined cause that was most probably juvenile-set.

29% of All Fire Deaths are Older Adults
Sixteen (16) older adults died in fires, accounting for 29% of all fire deaths in Massachusetts in 2016. Historically, the lack of working smoke alarms is a significant factor in senior fire deaths. In 2016, five of the 15 senior residential fire deaths had working smoke alarms; three of the deaths occurred in a fire with no alarms at all; another three occurred in fires where the alarms did not operate; two happened where the fire was too small to activated the alarm and in the other two deaths it was undetermined if alarms were present or if they operated.

Older Adults at Significant Risk for Fire Death
Older adults, especially those over the ages of 75 had a significant risk of dying in a fire. The risk of fire death for adults over the age of 85 is 3.6 and those adults between the ages of 75 and 84 is 2.1. Older adults between the ages of 65 and 74 were 1.5 times more likely to become a fire-related fatality.

Over 2/3 of People Died in Fires While They Slept
Over two-thirds of the people who died in fires died while they slept. Thirty-eight (38), or 68%, of the fire victims died in fires that occurred between 10:00 p.m. and 7:00 a.m.

24% of Fatalities Had Working Smoke Alarms
Twenty-four percent (24%) of the residential fire victims had a working smoke alarm. Many of these victims could have possibly survived if they had residential sprinklers to help them. Fifty-one percent (51%) of the victims died in fires that began in either the bedroom or living room. Upholstered sofa and chairs were the leading item first ignited. Also, when *Primary Apparent Symptom* was reported, 90% of the victims suffered burns, smoke inhalation or both.

42% of Fatalities Were in the Area of Origin
Nineteen (19), or 42%, of all the civilians that died in residential fires were reported to be in the area of fire origin. Seventeen (17) victims were intimately involved in the ignition of the fire that killed them. It is most probable that no amount of early warning would have saved any of these victims. This is where fire prevention and education become key components in saving lives.

3 Suicides – Continues Tragic Trend
In past years there were a tragic number of people who used fire to take their own lives. In 2016, there were three confirmed deaths by suicide. All three were by self-immolation; two at home and one in a motor vehicle. In 2015 there were 6, in 2014 there were 5, in 2013 there were 4 self-immolations and in 2012 there were 12 self-immolations. In 2011 there were four self-immolations and in 2010 there were five self-immolations. In 2009 there were six self-immolations, in 2008 there were three self-immolations, five in 2007, two in 2006, and four in 2005. In 2004, there were eight suicides by self-immolation.

Civilian Injuries

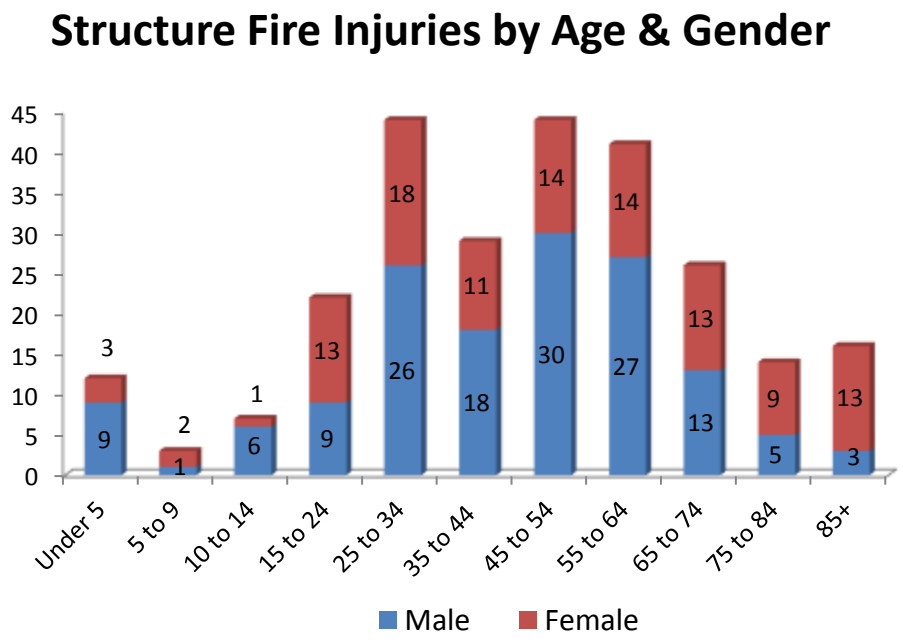
295 Civilians Injured in Fires in 2016 – Mostly at Home

Massachusetts' fires injured 295 civilians in 2016. Two hundred and fifty-eight (258), or 87%, of civilian injuries occurred in structure fires. Two hundred and thirty-three (233) injuries occurred in residential building fires, accounting for 79% of all injuries and 90% of all structure fire injuries. Thirteen (13), or 4%, occurred in motor vehicle fires. Twenty-four (24), or 8%, of civilian injuries occurred in outside and other fires. Special outside fires accounted for six, or 2%, of all civilian injuries, and brush fires also accounted for six, or 2%, of civilian fire injuries. Outside rubbish fires accounted for two, or 1% of all civilian fire injuries. Ten (10), or 3%, of civilian injuries were caused by unclassified fires.

Structure Fire Injuries

Of the 258 civilian injuries resulting from structure fires where gender was reported, 147, or 57%, were men and 111, or 43%, were women. Overall, 24 children under 18 years of age, 178 adults aged 18 to 64 years old, and 56 older adults over the age of 65, were

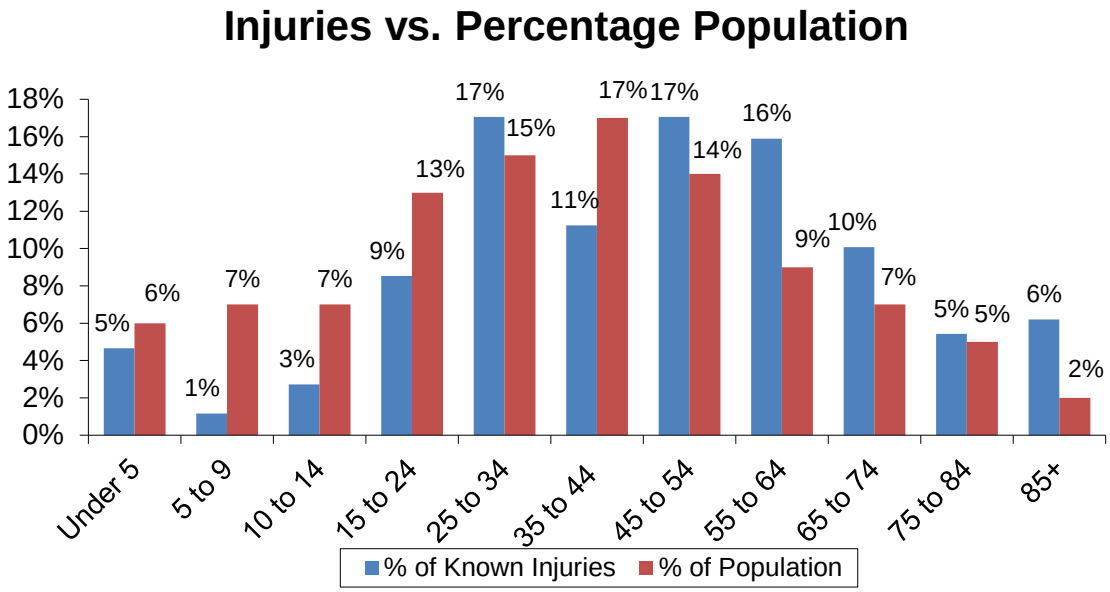
injured in structure fires in 2016. The following chart illustrates the structure fire injuries by age and gender in 2016.



Adults 45 to 64 at High Risk for Fire Injury

Adults between the ages of 45 and 54 represent 14% of the population and yet they accounted for 17% of the injuries in 2016. Adults between the ages of 55 and 64 represent 9% of the Massachusetts population, yet they accounted for 16% of the injuries at structure fires in 2016. People in these age groups are most at risk being injured in a fire because they are more likely to try and control the fire. In these age groupings, 31% were injured trying to escape and 23% of the fire-related injuries were incurred while trying to control the fire.

The following graph shows the percentage of injuries by age group and the percent of the population that age group represents in Massachusetts. When the percentage of injuries is greater than the percentage of population, that group is at a greater risk for being injured in a fire.



83% of Injuries Were Directly Related to Exposure to Fire Products
Of the 232 civilian injuries in structure fires where the *Cause of Injury* was known, 83% were directly linked to exposure to fire products. The *Cause of Injury* was not reported or Undetermined in two civilian fire injuries. These were excluded from the percentage calculations

Cause of Injury	# of Injuries	% Known Injuries
Other	11	5%
Exposed to fire products	192	83%
Exposed to hazmat or toxic fumes	14	6%
Jumped in escape attempt	0	0%
Fell, slipped or tripped	4	2%
Caught or trapped	2	1%
Structural collapse	0	0%
Struck by or contact w/object	3	1%
Overexertion	5	2%
Multiple causes	1	0.4%
Total Known	232	100%

84% of Injuries Were Due to Smoke Inhalation or Burns or Both
Of the 224 civilian injuries in structure fires where the *Primary Apparent Symptom* was known, 84% were caused by smoke inhalation, burns or both. The nature of injury was undetermined or not reported in 34 civilian fire injuries. These were excluded from the percentage calculations.

Primary Apparent Symptom	# of Injuries	% Known Injuries
Smoke inhalation	97	43%
Burns only, thermal	55	25%
Burns & smoke inhalation	37	17%
Breathing difficulty, shortness of breath	9	4%
Hazardous fumes inhalation	5	2%
Burn, scald	4	2%
Cut or laceration	4	2%
Cardiac symptoms	3	1%
Pain only	3	1%
Burn, electrical	1	0.4%
Contusion, bruise	1	0.4%
Emotional/psychological stress	1	0.4%
Numbness or tingling	1	0.4%
Shock	1	0.4%
Strain or sprain	1	0.4%
Swelling	1	0.4%
Total Known	224	100%

28% Injured While Trying to Control the Fire

Of the 208 victims for whom A*ctivity at Time of Injury* was known, 28% were attempting to control the fire. There were 50 injuries where the activity at time of injury was unknown; these were excluded from the percentage calculations.

Activity When Injured	# of Injuries	% Known Injuries
Fire control	59	28%
Escaping	58	28%
Other	30	14%
Sleeping	21	10%
Rescue attempt	15	7%
Irrational Act	10	5%
Unable to act	7	3%
Return to vicinity of fire after control	4	2%
Return to vicinity of fire before control	4	2%
Total known	205	100%

The key to preventing these injuries is to make and practice a home escape plan, remember to get out and stay out, and leave firefighting to the professionals. They have the training, equipment and protective clothing to do the job.

41% of Victims Were Asleep Just Before the Injury

Of the 69 victims for which the *Human Factor Contributing to the Injury* was known, 41% were asleep. Fire sprinklers can provide the extra time to escape to safety for people who are impaired, have a disability, are very young or are very old.

The following table is a cross tabulation which allows us to know what the person was doing when injured and what was either their physical or mental state shortly before becoming a victim.

CIVILIAN INJURIES BY ACTIVITY AND PRIOR CONDITION

Human Factors Contributing to Injury

Activity At Injury	Asleep	Uncon-scious	Possibly Impaired		Mentally Disabled	Physically		Unsuper-vised
			Alcohol	Drugs		Disabled	Restrained	
Escaping	7	0	2	0	0	2	0	0
Rescue attempt	2	0	0	0	0	0	0	1
Fire control	2	0	2	1	0	0	0	2
Return before fire control	0	0	0	0	0	0	0	0
Return after fire control	0	0	0	0	0	0	0	0
Sleeping	12	1	1	0	0	1	0	0
Unable to act	1	0	0	0	0	5	0	0
Irrational action	0	0	1	1	2	0	0	1
Other	0	0	1	0	0	0	0	1
Unknown	3	0	0	1	0	3	0	3
Total	27	1	7	3	2	11	0	8

Most Injured People Usually Asleep When Fire Started & Then Slept Through Fire

Historically when both of the fields, *Activity When Injured* and *Human Factors Contributing to Injury*, were completed, the majority of civilian fire injuries occurred when people were asleep at the time of injury and were still asleep at the time of the fire. The other leading cause is when someone was asleep, awoke and attempted to escape.

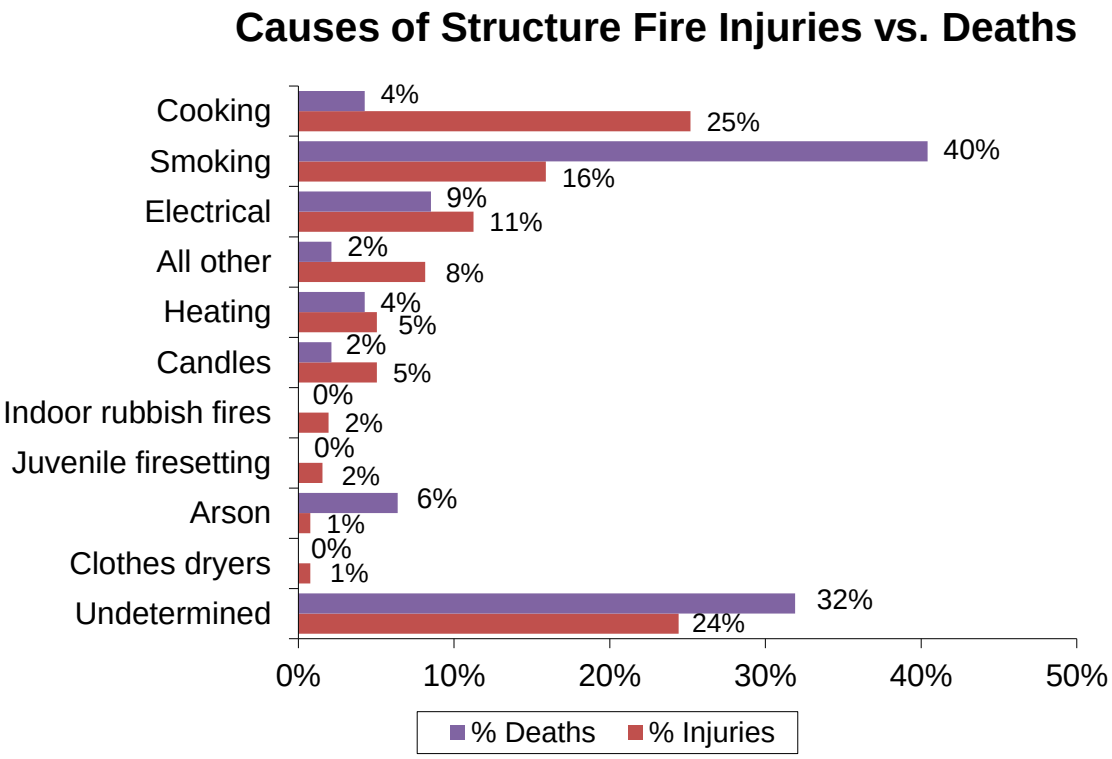
52% of All Victims Were Involved With the Ignition of the Fire

Fifty-two percent (52%) of all victims were involved with the ignition of the fire that injured them. The *Location at Time of Incident* was undetermined or not reported in 60 civilian fire injuries. These were excluded from the percentage calculations.

Location at Time of Incident	# of Injuries	% Known Injuries
In area of origin & not involved	50	25%
Not in area of origin & not involved	46	23%
Not in area of origin & involved	18	9%
In area of origin & involved	84	42%
Total Known	198	100%

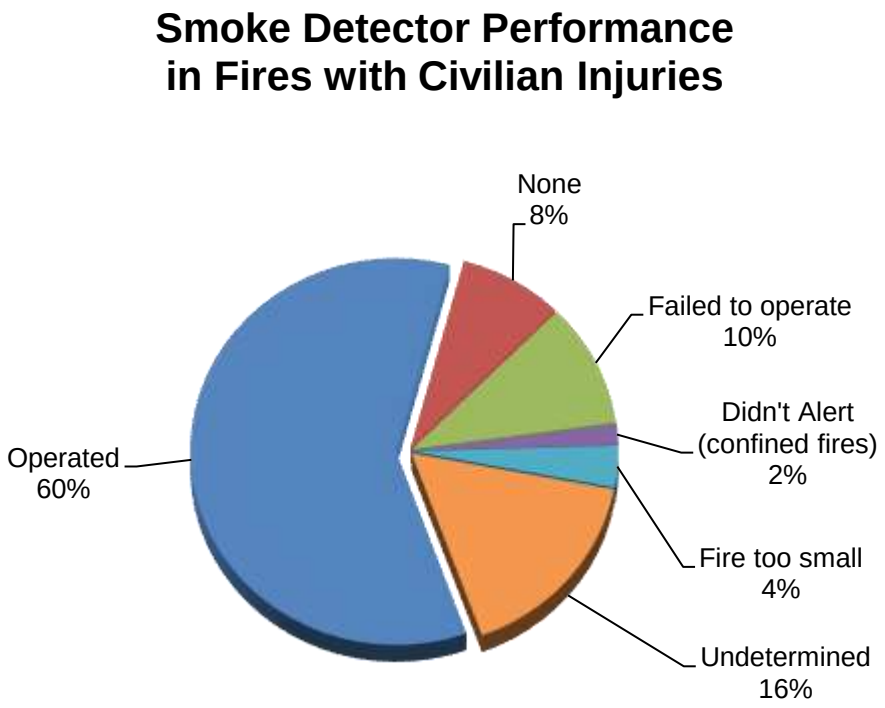
Cooking Fires Were the Leading Cause of Injuries in Structure Fires

The leading cause of fire-related injuries is most often not the leading cause of fire-related deaths. Cooking fires caused one quarter, 25% of civilian fire injuries and only 4% of civilian fire deaths.



Alarms Operated in 60% of Civilian Injuries

Of the 231 injuries where alarm status was reported, 60% occurred where smoke alarms were present and operated. Smoke alarm performance was undetermined in 38 injuries, or 16% of all injuries. The presence of operating smoke alarms generally gives the victims the time needed to escape the byproducts of the fire: heat, flame and smoke; or alerts them to the fire and they are injured trying to extinguish it.



Motor Vehicle Fire Injuries

There were 13 motor vehicle fire injuries in 2016, accounting for 4% of all civilian fire injuries. Eleven (11) of these injuries were to men and two were to women. Ninety percent (90%) of the injuries were caused by exposure to fire products, when the cause was known.

Cause of Injury	# of Injuries	% Known Injuries
Exposed to fire products	7	90%
Struck by or contact w/object	1	10%
Multiple causes	0	0%
Total	8	100%

When the *Primary Apparent Symptom* was reported, 67% of these were reported as burns only,

Primary Apparent Symptom	# of Injuries	% Known
Burns only, thermal	6	67%
Breathing difficulty, shortness of breath	1	11%
Strain or sprain	1	11%
Numbness, tingling	1	11%
Total	9	100%

Where the *Activity at Time of Injury* was known, 30% were trying to extinguish the fire. There were seven injuries where the activity at time of injury was unknown; these injuries were excluded from the percentage calculations.

Activity at Time of Injury	# of Injuries	% Known
Other	2	33%
Escaping	1	17%
Rescue attempt	0	0%
Fire control	1	17%
Returning to vicinity before fire control	1	17%
Sleeping	0	0%
Unable to act	1	17%
Irrational act	0	0%
Total	6	100%

The causes of motor vehicle fires that injured civilians in 2016 included fuel spills, collisions, arson, and mechanical malfunctions. See the Motor Vehicle Fire section for safety tips in the event of a car fire.

Outside and Other Fire Injuries

Twenty-four (24), or 8%, of civilian fire injuries occurred in outside and other fire incidents in 2016. Six (6), or 25%, of civilian injuries were caused by brush fires.

Incident Type	# of Injuries	% of Outside & Other Fire Injuries	% Total Injuries
Fire - Other	10	42%	3%
Brush Fire	6	25%	2%
Outside rubbish fire	2	8%	1%
Special outside fire	6	25%	2%
Total	24	100%	8%

Sixty-three percent (63%) of the civilian victims were men and 37% were women.

Burns accounted for 59%, of the injuries to this group, when the *Primary Apparent Symptom* was known. There were three injuries where the activity at time of injury was unknown; these were excluded from the percentage calculations.

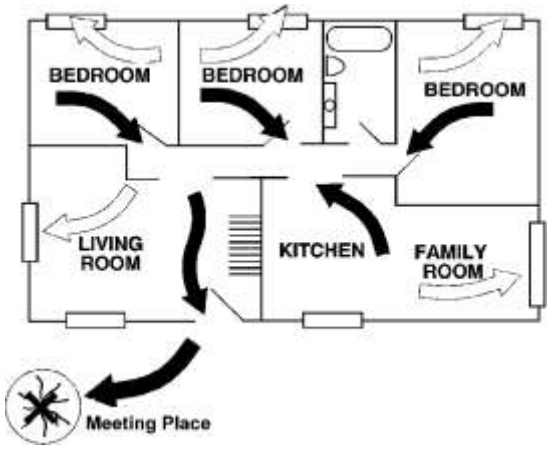
Primary Apparent Symptom	# of Injuries	% Known
Smoke inhalation	4	18%
Breathing difficulty, shortness of breath	2	9%
Burns and smoke inhalation	2	9%
Burns only: thermal	10	45%
Burn, scald	1	5%
Burn, electrical	2	9%
Contusion, bruise	1	5%
Total	41	100%

The victims were intimately involved with the ignition in 65% of these injuries where *Location at Ignition* was known. There were four injuries where the activity at time of injury was unknown; these were excluded from the percentage calculations.

Location at Ignition	# of Injuries	% Known Injuries
Other	0	0%
In area of origin & not involved	6	30%
Not in area of origin & not involved	1	5%
Not in area of origin & involved	1	5%
In area of origin & involved	12	60%
Total	20	100%

Safety Practices Are the Best Prevention Methods

In a typical nighttime fire, there is a window of 1-3 minutes in the average home after the smoke alarm sounds for the family to get out safely. In a few minutes, heat and toxic gases make escape impossible. To survive a fire, one must install and maintain smoke alarms, and when possible install sprinklers. Make and practice an escape plan. These types of basic fire safety practices are ignored by too many Massachusetts residents and result in fires, injuries, and deaths.



Home Escape Plan

- Practice your home escape plan with the whole family at least twice a year.
- Hold a nighttime drill to test if your children will react properly to a smoke alarm activation. Adjust your escape plan accordingly.
- Plan two ways out of each room. The easy way out is probably a door and the second way out might be a window.
- If you plan for a child or a senior to exit a window, make sure they can open it easily.
- If you can't get out, close your door and go to the window and signal for help.

- Teach children to never hide under beds or in closets.
- If you must go through smoke, crawl low. The coolest, cleanest air will be about 18 inches off the ground.
- Have a meeting place outside where everyone will meet. Be able to tell the fire department if everyone is out safely.
- Get out and stay out; don't go back into a burning building for anything.
- Telephone the fire department from a neighbor's house or use the fire alarm emergency box or a cell phone at a safe distance from the building.

Smoke Alarms

- Install smoke alarms on every level and outside each sleeping area.
- Test smoke alarms monthly.
- Replace the batteries twice a year if you don't have 10-year sealed lithium batteries in your alarms.
- Never disable your alarm.
- Replace alarms every 10 years.

Cooking Safety

- Put a lid on a grease fire to smother it, then turn off the heat.
- Wear short or tight fitting sleeves when cooking. Loose sleeves easily catch fire.
- Never throw water on a grease fire. Water will only spread the fire around.
- Never move a burning pan. You can too easily ignite your clothes or spill the fire onto someone or something else.
- Stand by your pan! Never leave cooking unattended.

Safe Smoking

- Quit!
- Never smoke in bed.
- Use large ashtrays with center rests so cigarettes fall into the ashtray, not on the floor.
- Never throw cigarettes into mulch or flower pots.
- Restrict smoking to outdoors.
- Do not smoke in homes or buildings where medical oxygen is used. Oxygen soaks into clothes, rugs, furniture, hair and bedding, creating an oxygen enriched environment, which make fires start more easily and burn more rapidly, even when the oxygen is "turned off."

Dryer Safety

- Clean the filter screen after each load.
- Stay home while the dryer is in use.
- Clean vents to outside.
- Vacuum the motor area periodically.
- Clean dryer vents regularly.

2016 Firefighter Deaths

No Fire-Related Firefighter Deaths in 2016
In 2016, there were no fire-related fire service fatalities in the Commonwealth of Massachusetts.

Fire Service Injuries

483 Firefighters Injured in 2016
In 2016, 483 firefighters were injured while fighting the 31,889 reported fires in Massachusetts. On average, one firefighter was injured at one of every 66 fires in 2016. Four hundred and seventeen (417) firefighters were injured at structure fires. Sixteen (16) firefighters were injured at motor vehicle fires. Fifty (50) firefighters were injured at outside and other fires. This is an increase of 10, or 2%, from the 473 fire-related fire service injuries reported in 2015.

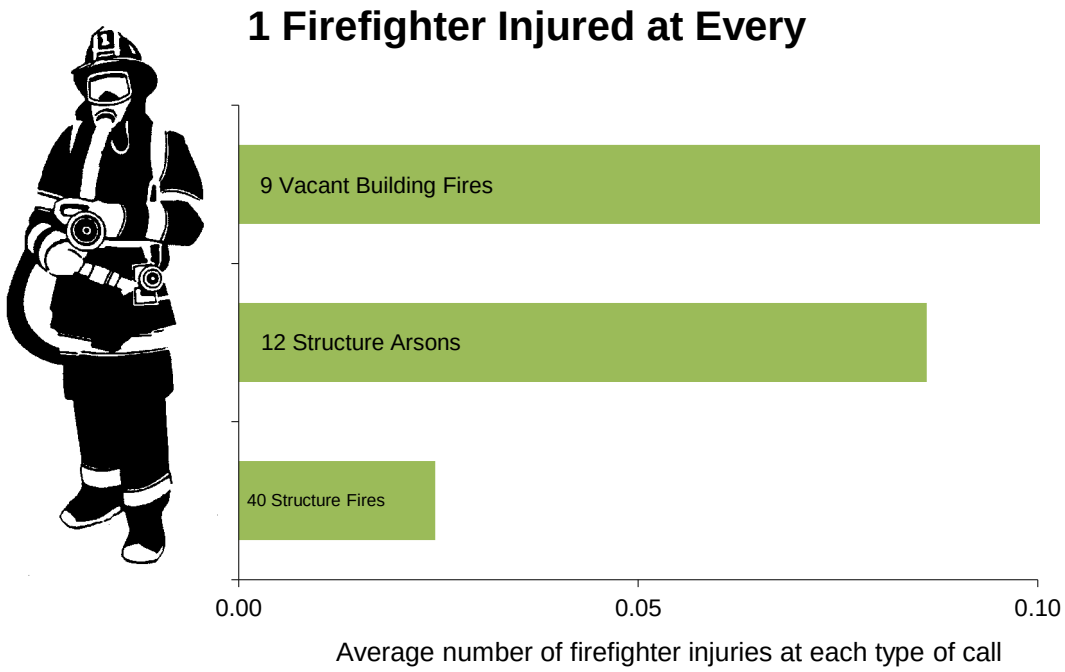
86% of Firefighter Injuries Occurred at Structure Fires
Firefighters were injured more frequently at structure fires than any other fire incident type. Eighty-six percent (86%) of firefighter injuries occurred at structure fires, while structure fires only accounted for 53% of all fires.

Electrical Fires Caused the Most Injuries at Structure Fires
The largest number of firefighter injuries took place at structure fires caused by electrical problems. Ninety-four (94), or 23%, of structure fire firefighter injuries occurred at electrical fires. Even though cooking fires are the leading cause of structure fires and civilian fire injuries, fires caused by cooking accounted for 64, or 15%, of fire service injuries at structure fires. Smoking fires accounted for 34, or 8%, of structure fire firefighter injuries.

Firefighters Injured at 1 of Every 9 Vacant Building Fires
One of the most dangerous types of fires for firefighters in 2016 were vacant building fires. Vacant building fires accounted for 33, or 7%, of all firefighter injuries. These 33 injuries also represent 8% of the number of firefighter injuries incurred fighting structure fires in 2016. On average there was one firefighter injury for every nine vacant building fires; one firefighter injury for every 12 structure arsons; and one firefighter injury for every 41 structure fires[10].

[10] On average there were 0.12 firefighter injuries at every vacant building fire; there were only 0.09 reported firefighter injuries per structure arson in 2016; and there were 0.02 reported firefighter injuries per structure fire in the Commonwealth in 2016.

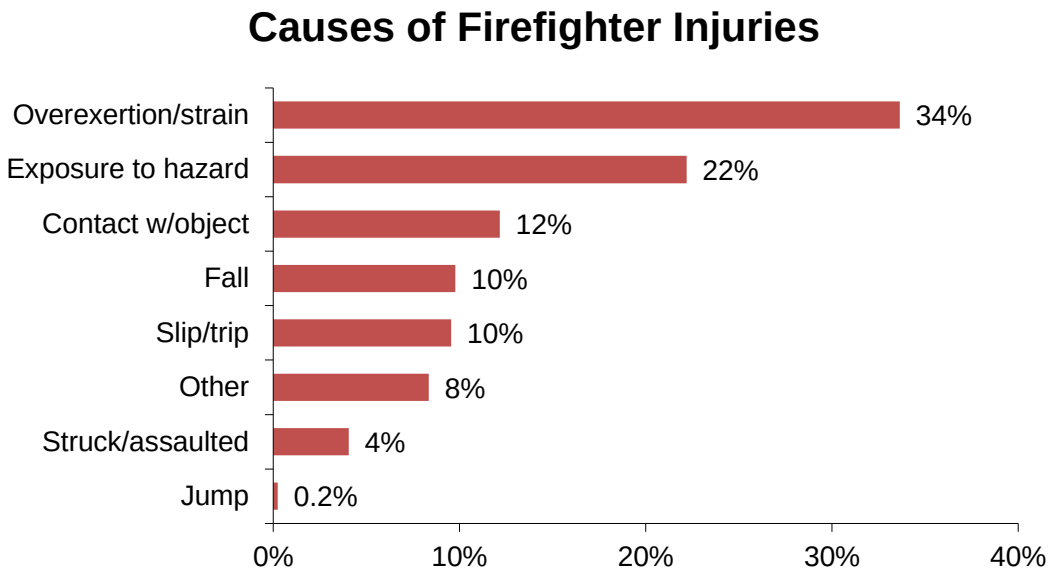
The following graph illustrates this.



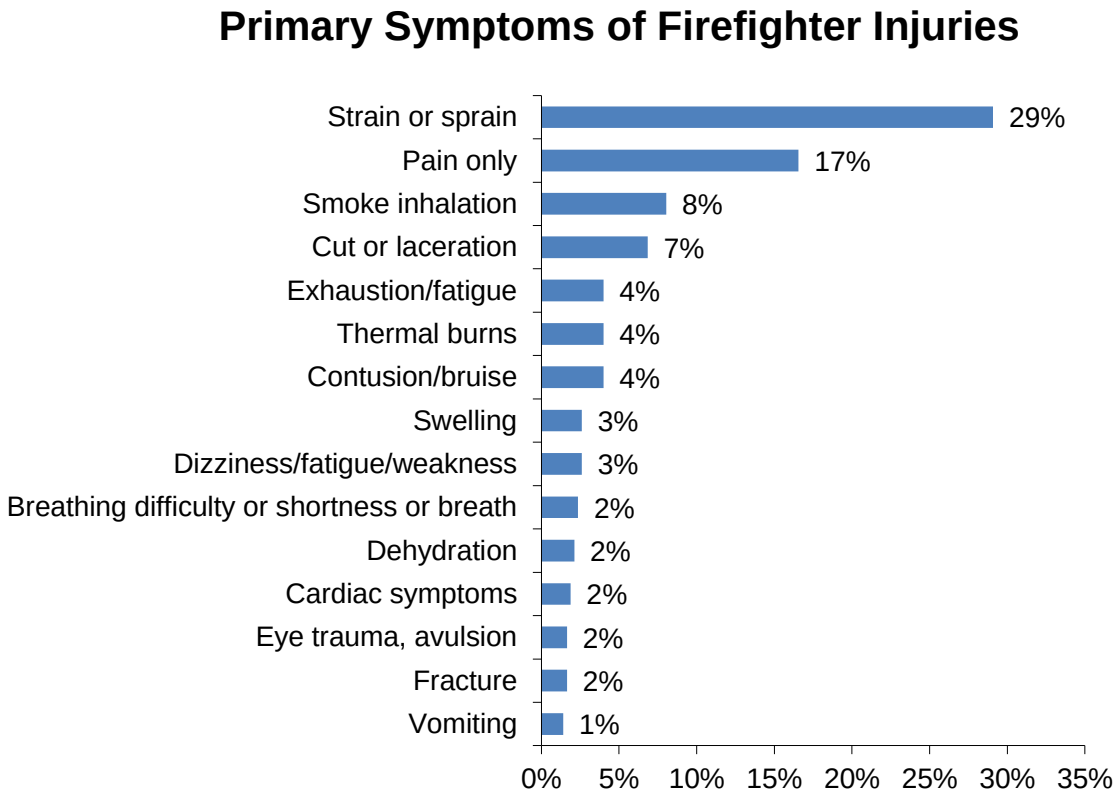
Over 3/4 of Firefighter Injuries Minor
Seventy-six percent (76%) of reported firefighter injuries were minor.

Severity	# of FF Injuries	% of FF Injuries
Report only, including exposure	220	46%
First aid only	71	15%
Treated by physician, not a lost time injury	74	15%
Lost time injury, moderate severity	113	23%
Lost time injury, severe	4	1%
Lost time injury, life threatening	1	0.2%
Total Known	483	100%
Minor	365	76%

Over 1/3 of Injuries from Overexertion or Strain
Over one-third, 34%, of all reported firefighter injuries were from overexertion or strains.



29% Experienced Sprains or Strains & 17% of Firefighters Reported Pain
The leading *Primary Symptoms* for firefighter injuries were strains or sprains and only pain.

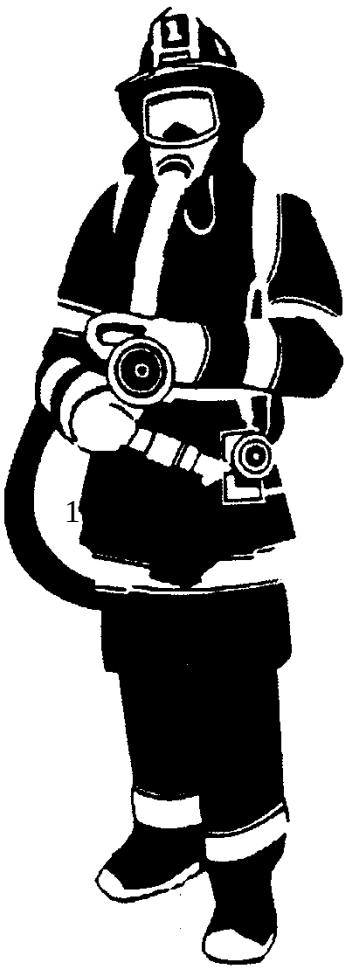


Firefighters Face Other Risks in Addition to Fires
The Massachusetts Fire Incident Reporting System (MFIRS) generally only collects information about injuries at fires. Firefighters face many other dangerous situations in addition to those found at fires. Many are also injured while controlling hazardous materials incidents, performing rescues and extrications, performing emergency medical services, investigations, inspections and other activities.

Almost 1/4 of All Firefighter Injuries Were To the Trunk Part of the Body
Firefighting is a very strenuous and potentially dangerous job. It requires a person to lift heavy loads and put large amounts of stress on their body. Seventy-nine (79), or 22%, of all firefighter injuries were to the trunk part of the body that includes the lower back. The chart below shows the distribution of firefighter injuries by body part. The percentages given are the ratio of the number of reported primary apparent symptoms for each given body part grouping.

Leading Firefighter Injuries by Part of Body

Eyes (9)	
Avulsion	67%
Pain only	11%
Exhaustion/fatigue	11%
Trunk (79)	
Pain only	35%
Strain or sprain	34%
Smoke inhalation	6%
Internal (27)	
Smoke inhalation	41%
Breathing difficulty	19%
Exhaustion/fatigue	11%
Cardiac symptoms	11%
Vomiting	7%
Nausea	7%
Hand, Fingers (42)	
Cut, laceration	36%
Strain or sprain	19%
Thermal burns	10%
Swelling	7%
Contusion/bruise	7%
Legs (14)	
Strain or sprain	40%
Fracture	40%



Ears & Face (14)	
Disorientation	21%
Pain only	14%
Cut or laceration	14%
Contusion/bruise	14%
Back & Spine (29)	
Strain or sprain	62%
Pain only	34%
Arms (21)	
Strain or sprain	62%
Thermal burns	14%
Pain only	14%
Contusion/bruise	5%
Cut or laceration	5%
Wrists (15)	
Strain or sprain	43%
Swelling	37%
Contusion/bruise	17%
Knees (35)	
Strain or sprain	43%
Pain only	37%
Feet & Toes (5)	
Fracture	40%

Fire in Framingham Injures 30 Firefighters – Most Fire Service Injuries

- On August 10, 2016, at 10:51 a.m., the Framingham Fire Department was called to an electrical fire in a multi-unit apartment building at 1610 Worcester Rd. The fire was caused by arcing in a microwave oven in a second floor kitchen. Thirty (30) firefighters and three civilians were injured at this fire. Alarms were present and alerted the occupants. Sprinklers were not present. Damages from this fire were estimated at $25,000.

Saugus Fire Injures 12 Firefighters –2nd Most Fire Service Injuries

- On January 6, 2016, at 4:39 a.m., the Saugus Fire Department was dispatched to a fire of undetermined cause in a single-family home. Twelve (12) firefighters were injured. Alarms were not present and the building did not have any sprinklers. Damages from this fire were estimated to be $500,000.

Arson Fires

742 Arsons - 151 Structures, 88 Vehicles, 503 Other Arsons

Seven hundred and forty-two (742), or 2%, of the 31,889 fire incidents reported to the Massachusetts Fire Incident Reporting System were considered to be intentionally set, or for the purpose of analysis, arson[11]. The 151 structure arsons, 88 motor vehicle arsons, and 503 outside and other arsons caused four civilian deaths, accounting for 7% of civilian fire deaths, four civilian injuries and 15 fire service injuries. The estimated dollar loss from arsons was $11.1 million. The average dollar loss per arson fire was $14,901. Total arson was down by 8% from the 803 in 2015.

776 Fires with Cause Still Under Investigation

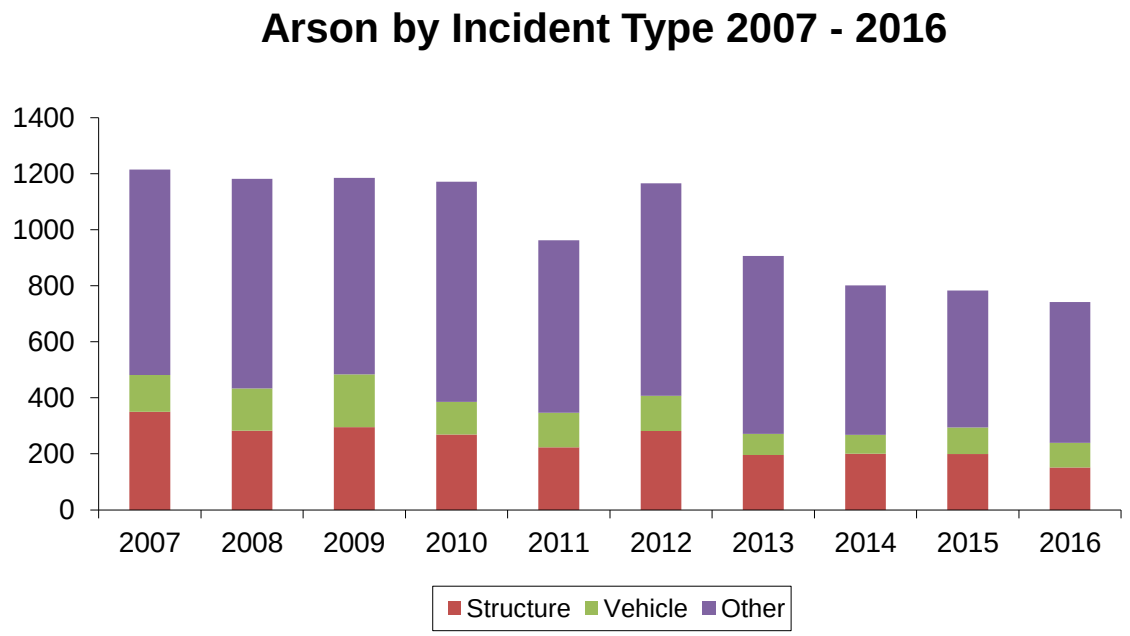
In 2016, 776 Massachusetts fires were still listed as 'Cause Under Investigation'. There were 4,463 fires where the *Cause of Ignition* was listed as 'Undetermined'. It is important that fire departments update their fire incident reports when either a cause is determined or its cause is deemed to be undetermined after investigation.

The following table and chart shows the total number of reported arsons for the past 10 years. The total is then broken down into the total number of reported structure, vehicle and all other types of arsons along with that subtotal's percentage of the total number of arsons. It also illustrates that all arsons, including structure and outside and other arsons are at an all-time low.

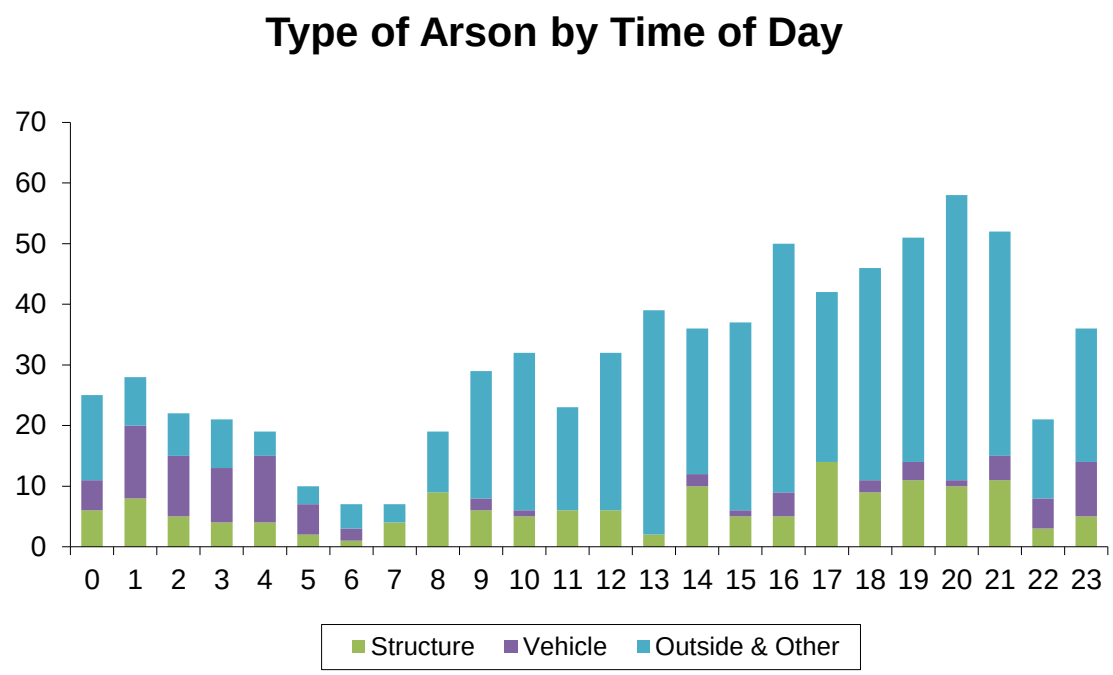
[11] In MFIRS v5 a fire is considered an arson if the Cause of Ignition = 1 (Intentional) and the Age of Person (Fire Module) is greater than 17 or if the field is blank; or if the Wildland Module is used, the Wildland Fire Cause = 7 (Incendiary) and the Age of the Person (Wildland Module) is greater than 17 or if the field is left blank.

ARSONS BY YEAR

Year	Total Arsons	Structure Arsons	% All Arsons	Vehicle Arsons	%All Arsons	Other Arsons	% All Arsons
2016	742	151	20%	88	12%	503	68%
2015	803	208	25%	98	12%	497	62%
2014	810	203	25%	68	8%	539	67%
2013	907	196	22%	75	8%	636	70%
2012	1,169	284	24%	126	11%	759	65%
2011	976	224	23%	124	10%	628	67%
2010	1,189	269	23%	116	10%	804	66%
2009	1,196	295	25%	189	16%	712	59%
2008	1,180	283	24%	151	13%	746	64%
2007	1,213	349	28%	131	11%	733	61%



The following chart illustrates the types of arsons by the time of day they occur. Midnight to 1:00 a.m. is represented by 0, 1:00 a.m. to 2:00 a.m. is represented by 1, etc. Arson is most likely to occur between the hours of 4:00 p.m. to 10:00 p.m. The peak times for structure arsons were 4:00 p.m. and 10:00 p.m. Motor vehicle arsons were most likely to occur between 11:00 p.m. and 4:00 a.m. Outside and other arsons peaked from 1:00 p.m. to 11:00 p.m.



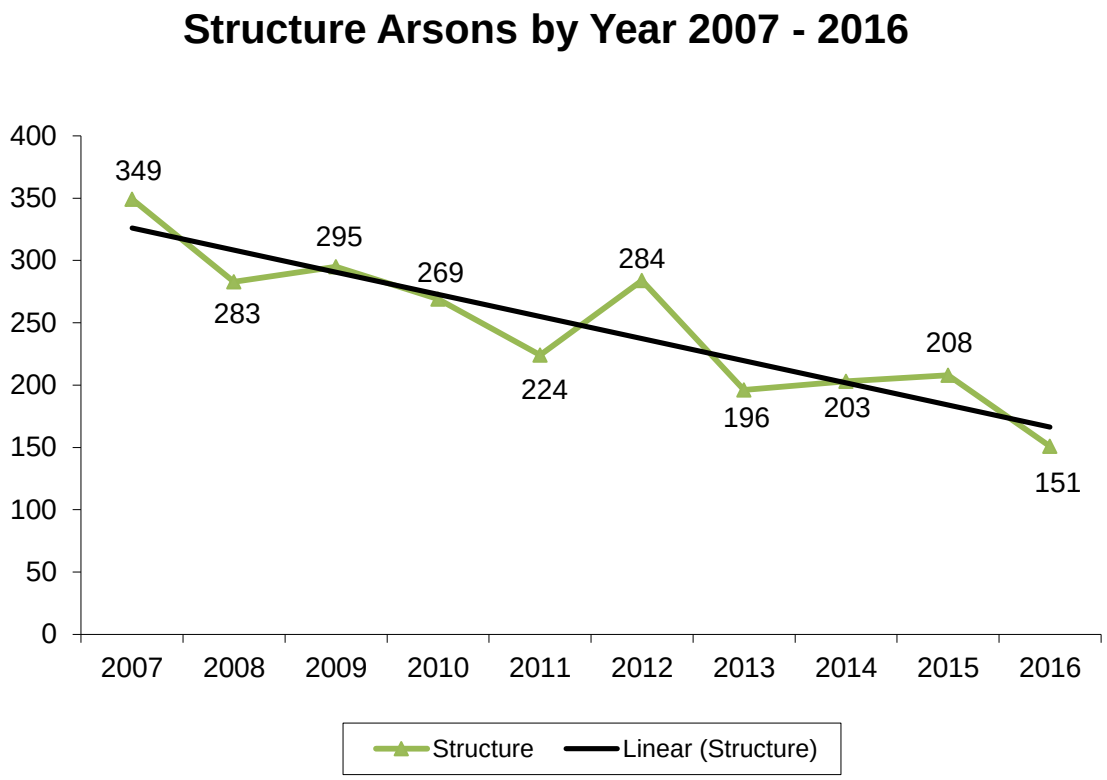
Structure Arson

151 Arsons, 3 Civilian Deaths, 2 Civilian Injuries, 13 Fire Service Injuries
In 2016, there were 151 reported structure arsons. They caused three civilian deaths, two civilian injuries, 13 fire service injuries and an estimated dollar loss of $10.4 million. These 151 incidents accounted for 1% of the 16,955 structure fires in 2016, and were down 27% from the 208 reported structure arsons in 2015.

There were three civilian deaths in structure arsons in 2016. Two (2) of these deaths were suicides; and one was a homicide. The two civilian injuries accounted for 1% of the overall civilian injuries and 1% of all civilian injuries at structure fires. The 13 fire service injuries accounted for 3% of the total fire service injuries and 3% of the injuries firefighters sustained at all structure fires in 2016. The estimated dollar loss for structure arsons was $10,421,598, accounting for 4% of the overall dollar loss and 4% of the estimated dollar loss in all reported structure fires. The average loss per structure arson was $69,017.

In 2016, 416 Massachusetts structure fires were still listed as ‘Cause Under Investigation’. There were 866 structure fires where the *Cause of Ignition* was listed as ‘Undetermined’.

Structure Arsons Decrease
Structure arsons decreased by 57, or 27%, from the 208 reported in 2015.



Structure Arson Down 57% Since 2007
Structure arsons have been on a downward trend since 1991 when 1,974 structure arsons were reported to MFIRS. Structure arsons have decreased by 57% since 349 were reported in 2007. The above chart shows the trend of structure arsons in the past decade.

Building Arsons
In 2016, there were 147 building arsons. These 147 arsons accounted for 97% of all the structure arsons in Massachusetts. These building arsons caused all civilian deaths, all civilian and fire service injuries and all but $250 of the estimated dollar loss.

2/3 of Building Arsons Occurred in Residences
Ninety-eight (98), or 67%, of the 147 building arsons occurred in residential occupancies. Educational facilities accounted for 8% of these arsons and storage facilities accounted for 7%. The following table shows the number of structure arsons, civilian deaths, civilian injuries, fire service injuries, dollar loss and the percentage of the total structure arsons for each occupancy type.

BUILDING ARSON BY OCCUPANCY TYPE

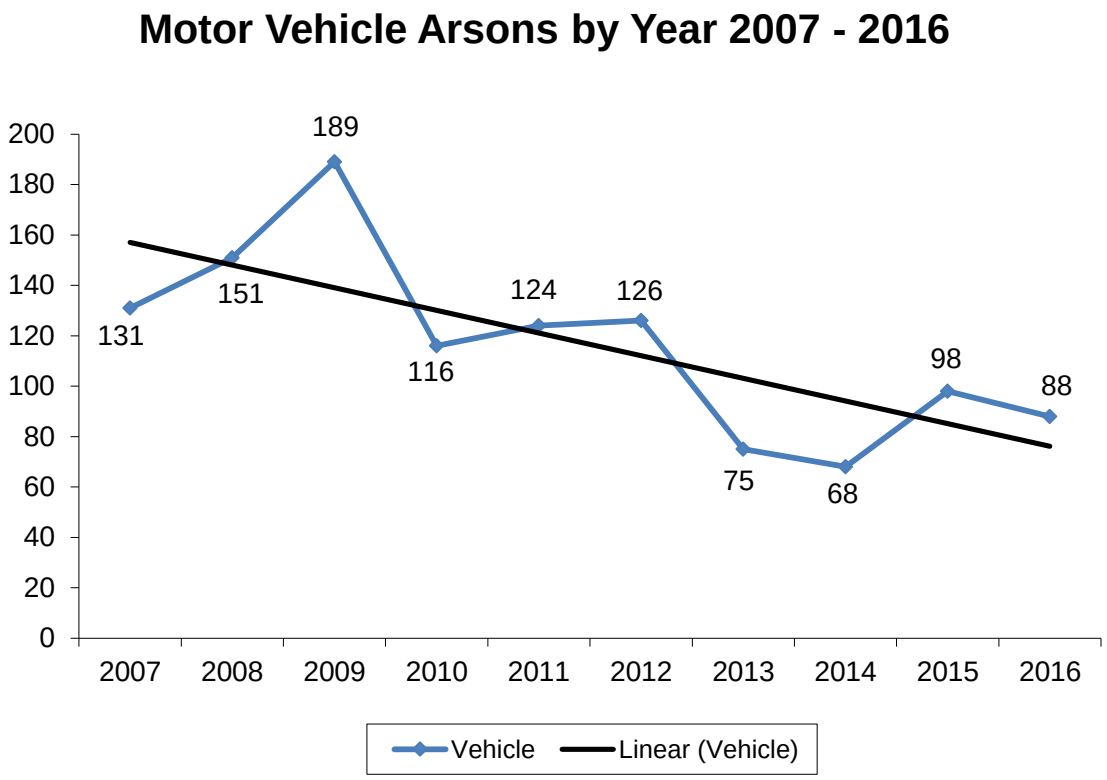
Occupancy	Building Arsons	Percent of Total	Injuries FF	Injuries Civ	Deaths FF	Deaths Civ	Dollar Loss
Assembly	6	4%	0	0	0	0	$ 40,000
Educational	12	8%	0	0	0	0	$ 784,001
Institutional	7	5%	0	0	0	0	$ 3,430
Residential	**98**	**67%**	**7**	**2**	**0**	**3**	**$4,791,817**
1- & 2-Family	*45*	*31%*	*5*	*2*	*0*	*3*	*$2,611,267*
Multifamily	*43*	*29%*	*1*	*0*	*0*	*0*	*$2,041,550*
All Other Residential	*10*	*7%*	*1*	*0*	*0*	*0*	*$ 139,000*
Mercantile, business	4	3%	0	0	0	0	$4,002,500
Basic Industry	0	0%	0	0	0	0	$ 0
Manufacturing	3	2%	0	0	0	0	$ 0
Storage	10	7%	6	0	0	0	$ 789,600
Special Properties	7	5%	0	0	0	0	$ 10,000
Unclassified	0	0%	0	0	0	0	$ 0
Total	**147**	**100%**	**13**	**2**	**0**	**3**	**$10,421,348**

Motor Vehicle Arson

88 Arsons – 1 Civilian Death & $549,963 in Damages

Eighty-eight (88), or 3%, of the 2,357 vehicle fires were considered intentionally set in 2016. There was one civilian death by suicide in a motor vehicle arson in 2016. These arsons caused one fire service injury and an estimated dollar loss of $549,963, accounting for less than 1% of the overall fire dollar loss and 3% of the dollar loss associated with all the 2016 motor vehicle fires. The average loss per vehicle arson was $6,250. Passenger cars and vans accounted for 85% of the 88 motor vehicle arsons.

In 2016, 166 Massachusetts motor vehicle fires were still listed as 'Cause Under Investigation'. There were 642 motor vehicle fires where the *Cause of Ignition* was listed as 'Undetermined'.



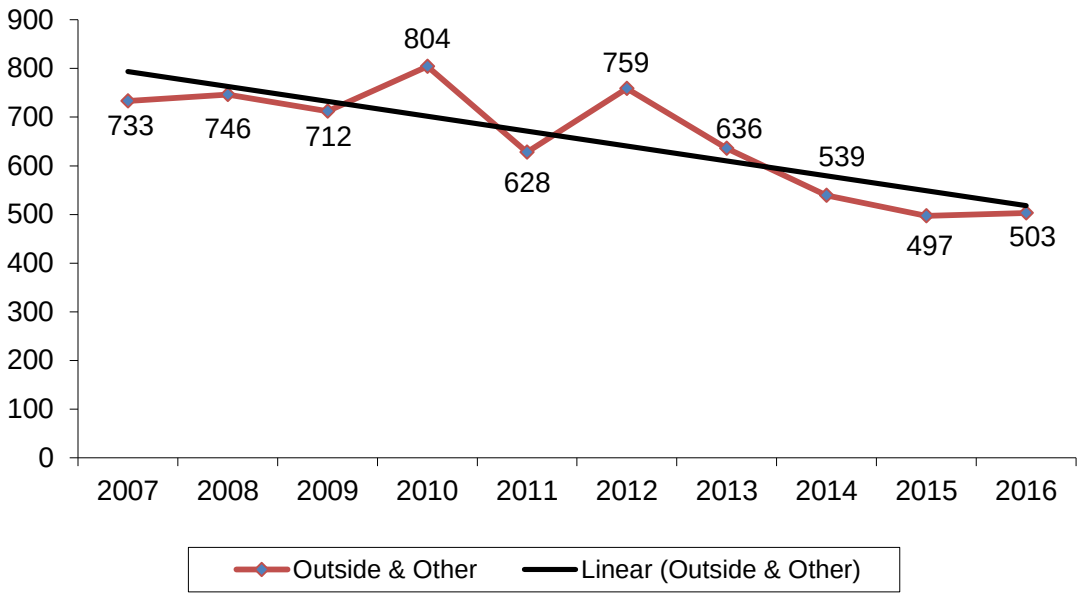
Motor Vehicle Arsons Decrease
Motor vehicle arsons decreased in 2016. These 88 arsons are a decrease of 10, or 10%, from the 98 reported in 2015. This continues the overall downward trend since 2009.

Outside and Other Arson

503 Arsons –2 Civilian Injuries
Five hundred and three (503), or 4%, of the total outside and other fires were considered intentionally set in 2016. These arsons caused two civilian injuries accounting for 1% of the total civilian injuries, 8% of civilian injuries in all outside and other fires; and one fire service injury. The estimated dollar loss for these arsons was $84,711. The average loss per outside and other arson was $168.

In 2016, 194 outside and other fires were still listed as 'Cause Under Investigation'. There were also 2,955 outside and other fires where the *Cause of Ignition* was listed as 'Undetermined'. This is an 18% increase from the previous year when 2,507 outside and other fires were undetermined.

Outside & Other Arsons by Year 2007 - 2016



Outside & Other Arsons Up Slightly

Outside and other arsons increased by six, or 1%, from the 497 reported in 2015. Brush arsons increased by nine, or 3%; outside rubbish arsons decreased by one, or 1%; special outside arsons remained the same with 96 reported in 2016 as well as in 2015; cultivated vegetation or crop arsons increased by five, or 250%; and unclassified arsons decreased by two, or 29%, from those reported in 2015.

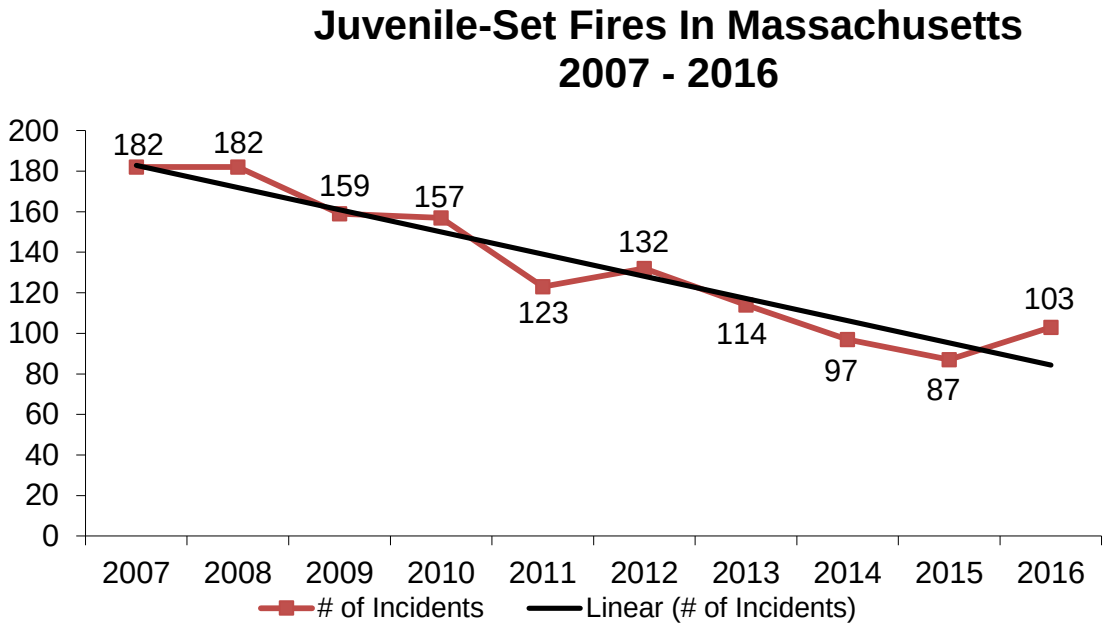
Sturbridge Had Largest Loss Arson in 2016

There was one reported arson where the dollar loss was greater than $1 million in 2016. There were 15 other arsons with a dollar loss between $100,000 and $999,999, totaling $5.2 million, or 47% of the total estimated dollar loss from arson.

- On September 27, 2016, at 5:25 p.m., the Sturbridge Fire Department was called to an intentionally set fire in a Walmart on U.S. Rte. 20. Three (3) separate fires were started inside the store. No one was injured at this fire. It was undetermined if alarms were present. The building did have sprinklers but the fires were discovered before they could activate them. Damages from this fire were estimated to be $4 million in damaged contents.

Juvenile-set Fires

Children Playing With Fire Caused 103 Fires & 6 Civilian Injuries
In 2016, children playing[12] with matches, lighters and other heat sources caused 103 reported fires, six civilian injuries, two fire service injuries and an estimated dollar loss of $965,649. The average dollar loss per fire was $9,375. These fires were up 18% from 87 incidents in 2015.



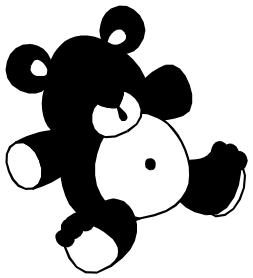
38 Structure Fires, 1 Motor Vehicle Fire & 64 Outside & Other Fires
The 103 fires set by children and youth included: 38 structure fires, one motor vehicle fire, 42 brush, tree or grass fires, six outside rubbish fire, three special outside fires, and 13 fires that could not be classified further.

42% of All Juvenile-set Building Fires Occur in 1- or 2-Family Homes
Forty-two percent (42%) of the 38 building fires caused by juveniles occurred in multi-family homes; 39% occurred in one or two-family homes; 11% occurred in elementary schools, 5% occurred in high schools, junior high schools or middle schools. Eighteen percent (18%) of the juvenile-set fires started in bathrooms; 18% in kitchens and 16% began in bedrooms.

[12] The U.S. Fire Administration (USFA) determines the codes for the National Fire Incident Reporting System (NFIRS) & uses the code children playing to describe juvenile-set fires. We fully realize this term is inadequate to describe all child and youth-set fires & try to limit use of the phrase to describe the codes used to report these fires.

56% of Fires Set by Juveniles Using Smoking Materials
Fifty-six percent (56%), of juvenile-set fires were started by smoking materials[13]. Thirty-one percent (31%) of the fires were started using lighters and 20% were started with matches. One percent (1%) of the fires set by children were started with cigarettes. Fireworks and hot embers or ash each caused 8% of these fires. This demonstrates a need for education to both parents and children on the danger of matches and lighters, the use of illegal fireworks, and safe candle use.

Heat Source	# of Incidents	% Known
Lighter	31	34%
Match	18	20%
Fireworks	7	8%
Hot ember or ash	7	8%
Heat from other open flame or smoking materials	6	7%
Hot or smoldering object, other	4	4%
Other	4	4%
Flame/torch used for lighting	3	3%
Radiated or conducted heat from operating equipment	3	3%
Explosives, fireworks, other	2	2%
Cigarette	1	1%
Flying brand, ember, spark (from another fire)	1	1%
Heat from operating equipment, other	1	1%
Incendiary device	1	1%
Sunlight	1	1%



Juvenile-set Fire in Apartment Building in Barre
In 2016, there were five juvenile-set fires that caused over a $100,000 in estimated damages. These five fires caused an estimated total dollar loss of $774,509, or 80%, of the total dollar loss for all juvenile-set fires.

- On May 14, 2016, at 5:09 a.m., the Barre Fire Department was called to a fire in a four-unit apartment building caused by a youth playing in the attic. Two (2) firefighters were injured at this fire. Alarms were not present, and the building was not sprinklered. Total damages were estimated to be $225,000.

Parents and Caregivers Must Protect Children from Themselves
Parents and caregivers must take steps to protect children from the dangers of fire.

- Make sure that all matches and lighters are stored out of children's reach.
- If you need a lighter, buy one that is child resistant. Since 1994, all disposable butane lighters and most novelty lighters are required to be able to resist the efforts of 85% of children under five who try to operate them in a specified test. Some are easier to use than others. If one brand is cumbersome, switch to another. *Do not disable the child-resistant feature.*

[13] Smoking materials includes cigarettes, pipes, cigars, cigarette lighters, matches, and heat from unspecified smoking materials.

- Supervise young children at all times. Teach children the safe uses of fire, including birthday candles and barbecuing. When a child is old enough, let him or her light the candles while you watch. It is only safe for children to use fire when adults are present.
- If your child seems overly curious about fire or has set a fire, call your local fire department and ask if they have a juvenile firesetting intervention program. Don't assume the child will 'grow out of it.' Juvenile firesetting is dangerous and must be addressed by trained professionals.

- Parents who smoke should keep their lighters on their person at all times, not on the table or in a purse.
- Fireworks are illegal in Massachusetts. Adults should leave the fireworks to the professionals in order to protect everyone's children.

Tip of the Iceberg
These fires should be considered just the tip of the iceberg. Juvenile firesetting intervention programs have found that only one in 10 juvenile-set fires is actually reported to the fire department.

Cooking Fires

Cooking Caused 11,963 Fires, 2 Civilian Deaths & 71 Civilian Injuries
Cooking fire were the leading cause of residential building fires. Unattended cooking, other unsafe cooking practices and defective cooking equipment caused 11,963 fires, two civilian deaths, 71 civilian injuries, 65 firefighter injuries and an estimated dollar loss of $10.8 million. The average dollar loss per fire was $903. Cooking fires accounted for 38% of the total 31,889 fires that occurred in 2016.

Ninety-eight percent (98%) of the fires caused by cooking occurred in structures. The 11,963 fires included: 11,780 structure fires, 71 special outside fires, six brush fires, three motor vehicle fires and 103 fires that could not be classified further.

Confined Cooking Fires Account for 36% of Total Fires
The majority of cooking fires, 11,332, were confined to a non-combustible container. These fires represent 36% of the total fires that occurred and is the largest single cause of fires in Massachusetts. Confined cooking fires decreased by 0.4% from the 11,372 reported in 2015.

75% of Cooking Fires in Buildings Were Unintentional
In 1,403, or 75%, of the 1,861 cooking fires in buildings where the *Cause of Ignition* was reported, it was reported as unintentional. The 10,102, or 84%, of all cooking fires were

fires contained to non-combustible containers that did not require having a cause reported.[14]

Cause of Ignition	# of Incidents	% of Total	% Completed
Confined fire, no fire module completed	10,102	84%	
Other	2	0.02%	0.1%
Intentional	22	0.2%	2%
Unintentional	1,403	12%	75%
Failure of equipment or heat source	90	1%	5%
Act of nature	0	0%	0%
Under investigation	15	0.1%	1%
Undetermined	329	3%	18%
Total	11,963	100%	
Total Known	1,861		

Unattended Cooking Starts 10% – Stand by Your Pan!

Human error was responsible for the majority of cooking fires. Ten percent (10%) of cooking fires, where *Factors Contributing to Ignition* was completed, were caused by unattended cooking. Eighty-four percent (84%) of cooking fires were confined fires where this data is not collected. This data has led to our "Stand By Your Pan" cooking safety campaign.

Factor Contributing to Ignition	# of Cooking Fires	% Known
Confined fire, no fire module completed	10,102	
None	1,140	64%
Equipment unattended	173	10%
Too close to combustibles	88	5%
Failure to clean	85	5%
Misuse of material or product, other	65	4%
Other	35	2%
Accidentally turned on, not turned off	24	1%
Abandoned materials	23	1%
Mechanical failure, malfunction, other	20	1%
Equipment not operated properly	17	1%
Electrical failure, malfunction, other	15	1%
Operational deficiency, other	14	1%

Cooking Was the Leading Cause of Injury in Fires in 2016

[14] A fire contained to a non-combustible container has a special incident type code. If one of these codes is used then only a Basic Form is completed and the Cause of Ignition field on the Fire Module does not have to be populated. A fire department may still elect to complete the Fire & Structure Fire Modules and all associated fields if it wishes.

Cooking was the leading cause of injury in all types of fires in 2016. This is not surprising considering that almost three-fourths, or 73%, of residential fires start in the kitchen. Of the 71 cooking fire injuries, 49% of victims were male and 51% were female. None of victims were under age 10. People aged 25 to 54 accounted for 41% of the people injured in cooking fires.

Age	% of Known Injuries	% of Population	Difference
Under 5	0%	6%	-6%
5 to 9	0%	7%	-7%
10 to 14	3%	7%	-4%
15 to 24	15%	13%	2%
25 to 34	11%	15%	-4%
35 to 44	11%	17%	-6%
45 to 54	18%	14%	4%
55 to 64	11%	9%	2%
65 to 74	8%	7%	1%
75 to 84	11%	5%	6%
85+	10%	2%	8%

85% of Victims in Room or Area of Fire Origin

Of the 61 cooking fire injuries where location at ignition is known, 85% of the victims were injured in the room or area of fire origin.

Location at Time of Incident	# of Cooking Fire Injuries	% Known
Not reported	5	
In area of origin and not involved	22	36%
Not in area of origin and not involved	6	10%
Not in area of origin but involved	3	5%
In area of origin and involved	30	49%
Undetermined	5	
Total	71	
Total Known	61	100%

55% of Cooking Injuries Occurred When Trying to Control Fire

Of the 58 cooking fire injuries for which activity at time of injury was known, 55% of victims were attempting to control the fire; of the 32 victims injured while attempting to control the fire, 56% were male. This data has led to our “Put A Lid On It” cooking safety campaign.

Activity When Injured	# of Cooking Fire Injuries	% Known
Not reported	6	
Other	9	16%
Escaping	3	14%
Rescue attempt	0	3%
Fire control	32	51%
Return to vicinity of fire before control	1	5%
Return to vicinity of fire after control	3	0%
Sleeping	2	8%
Unable to act	5	0%
Irrational act	3	3%
Undetermined	7	
Total	71	
Total Known	61	100%

43% of All Cooking Injuries Were Breathing Related

Stovetop fires tend to produce a lot of smoke and when people choose to attempt to extinguish them, they run a great risk of being overcome by toxic smoke. Forty-three percent (43%) of all cooking injuries were breathing related. Of the 65 cooking fire injuries where nature of injury was known, 34% suffered only from smoke inhalation; 5% suffered from burns and smoke inhalation; and 5% suffered from breathing difficulty or shortness of breath.

Primary Apparent Symptom	# of Cooking Fire Injuries	% Known
Not reported	6	
Smoke inhalation	22	34%
Hazardous fumes inhalation	4	6%
Breathing difficulty/shortness of breath	3	5%
Burns & smoke inhalation	3	5%
Burns only; thermal	28	43%
Scald	4	6%
Cut or laceration	3	2%
Total	71	
Total Known	65	100%

2 Civilian Fire Deaths in 2016[15]

While cooking is the leading cause of residential building fires, it usually isn't the leading cause of civilian fire deaths. There were two civilian fire deaths attributed to cooking

[15] One of these two fatal fires is not coded in MFIRS as a cooking fire. The elderly female victim was basting a turkey with ethanol when it ignited, catching her clothing on fire. The victim was transported to a local hospital and succumbed to her injuries a couple of weeks later.

fires in 2016, accounting for 4% of residential fire deaths and 4% of all civilian fire deaths.

The importance of responding correctly to a clothing ignition – Stop, Drop and Roll – cannot be overemphasized. Older adults, who often are more afraid of falling than of fire, are historically the age group with the highest risk of being injured in a cooking fire. They must be persuaded that they can indeed safely lower themselves to the ground and roll to smother the flames.

- **Stand by your pan!** Never leave cooking, boiling, broiling, or frying unattended.
- **Put a lid** on a grease fire to smother it, and then turn off the heat.
- Never move a burning pan. You can too easily ignite your clothes or spill the fire onto someone or something else.
- Wear short or tight fitting sleeves when cooking. Loose sleeves can easily catch fire.
- Stop, Drop and Roll if clothing ignites, no matter how young or old.
- Never throw water on a grease fire. Water will only spread the fire around.

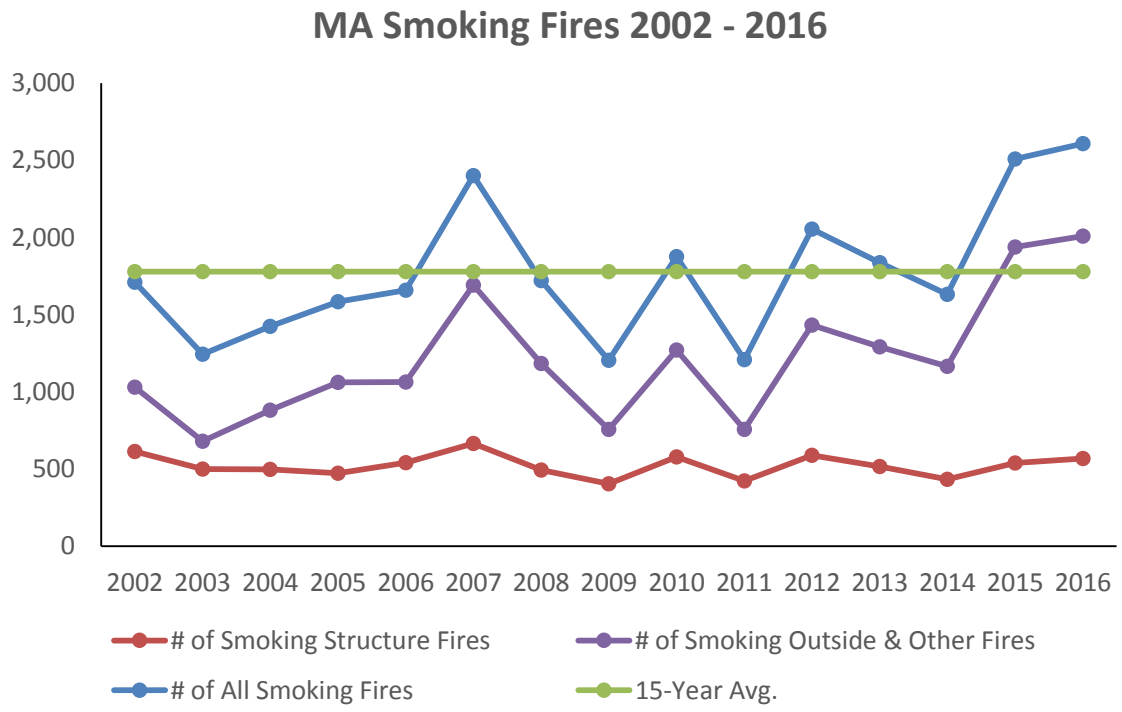
Fires Caused by Smoking

Smoking Caused 8% of Fires and 34% of Deaths
During 2016, 2,607, or 8%, of the 31,889 reported fire incidents were caused by the improper use or disposal of smoking materials. These 2,607 fires caused 19, or 34%, of the 56 civilian deaths and 19, or 40%, of the 47 structure fire deaths; 44 civilian injuries, 36 fire service injuries, and an estimated dollar loss of $23.1 million. The average dollar loss per fire was $2,508. The number of smoking fires increased by 99, or 4%, from 2,508 in 2015.

569 Structure Fires – Up 6% From 2015
The 2,607 fires caused by smoking included 569 structure fires, up 30 from 539, or 6%, in 2015.

Incident Type	# of Smoking Fires	Fire Service Injuries	Civilian Injuries	Fire Deaths	Civilian Deaths	Dollar Loss
Fire, other	93	0	2	0	0	$ 67,795
Structure fires	567	34	41	0	18	$ 22,612,973
Mobile property used as a structure fires	2	0	0	0	1	$ 2,050
MV fires	30	0	0	0	0	$ 233,450
Brush fires	1,678	1	1	0	0	$ 39,507
Outside rubbish fires	93	1	0	0	0	$ 61,867
Special outside fires	131	0	0	0	0	$ 82,615
Cultivated vegetation or crop fires	13	0	0	0	0	$ 5,950
Total	2,607	36	44	0	19	$ 23,106,207

Over the last 15-years, smoking fires have been showing an upward trend. 2016 had the highest number of reported smoking fires in the past 15 years. The majority of these were outside fires. The lowest number of recorded smoking fires since 1986 was 1,204 in 2009 and is far below the 15-year average of 1,778 smoking fires. In 2016, as well as 2007, 2010 and 2012 there were sudden spikes in the number of smoking-related fires, predominantly outdoor brush fires caused by smoking materials. In those years the weather conditions were dry and made it easier for brush type fires to get started as we can see in the dramatic increases statewide in brush fires.



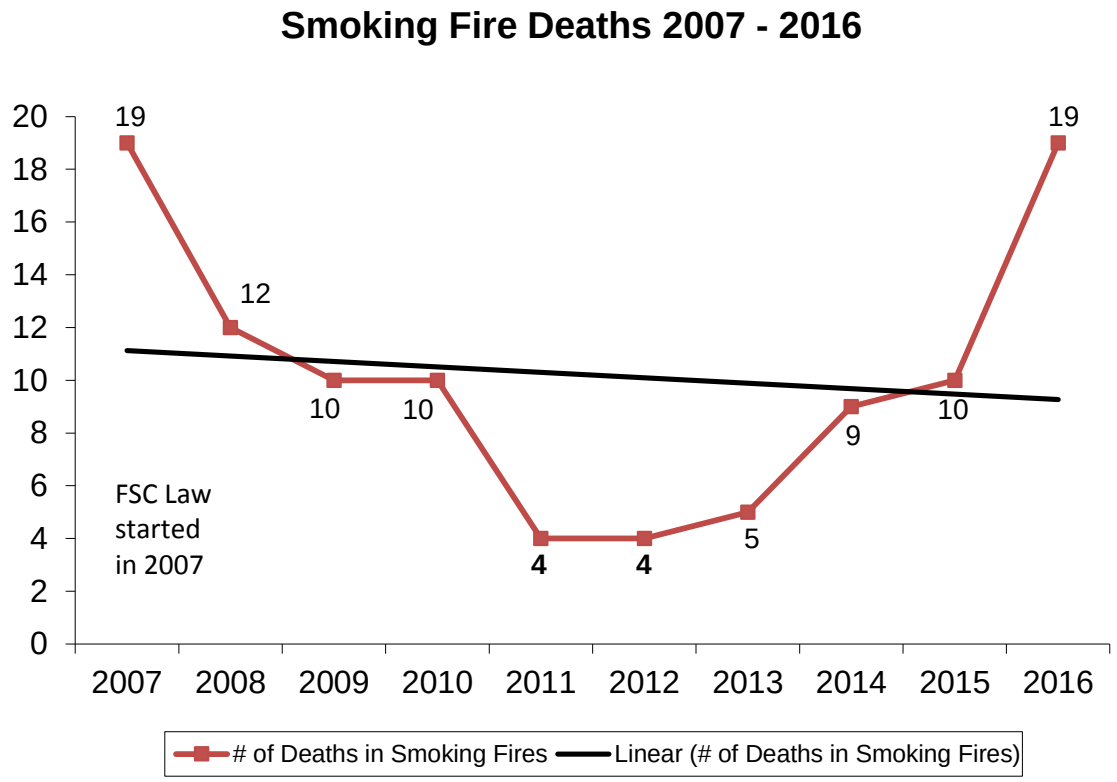
87% of All Smoking Building Fires Occurred in Residences
Four hundred and eighty (480), or 87% of all smoking-related building fires, occurred in residential occupancies. The occupancies with the next highest percentages of smoking-related building fires in Massachusetts in 2016 were basic mercantile and business facilities at 20.

There are statutes that prohibit smoking in public places. These laws have forced smokers to smoke outside where they may not be as careful disposing of their cigarettes or cigars.

Property Use	# of Smoking Fires	% of Smoking Fires	Fire Service Injuries	Civilian Injuries	Fire Deaths	Civilian Deaths	Dollar Loss
Assembly	13	2%	1	0	0	0	$ 682,950
Educational	2	0.4%	0	1	0	0	$ 2
Institutional	8	1%	0	0	0	0	$ 600
Residential	480	87%	33	41	0	19	$ 20,628,085
Mercantile, business	20	4%	0	0	0	0	$ 1,169,015
Basic Industry	2	0.4%	0	0	0	0	$ 1,000
Manufacturing, processing	1	0.2%	0	0	0	0	$ 20,000
Storage properties	17	3%	0	0	0	0	$ 62,500
Special properties	6	1%	0	0	0	0	$ 800
Total Known	549	100%	34	42	0	10	$ 22,564,952

Smoking Leading Cause of Fire Deaths - Elders at Risk
The 569 smoking-related structure fires caused all 19 of the smoking-related fire deaths, 41 civilian injuries, 34 fire service injuries, an estimated dollar loss of $22.6 million and an average dollar loss of $39,745. Smoking fires accounted for 38% of the fatal structure fires and 40% of structure fire deaths in 2016. The unsafe and improper use of smoking materials caused 39% of residential structure fire deaths and 42% of fatal residential structure fires. Six (6), or 40%, of the 15 home fire deaths to seniors (over 65) were caused by smoking.

2016 Smoking Fire Deaths
In 2016, 19 people died in smoking-related fires of all types. These 19 deaths are above the 10-year average of 10 smoking-related fire deaths per year since 2007. After a high-water mark of 19 deaths in 2007, smoking-related fire deaths dropped drastically after the Fire Standard Cigarette (FSC) Law took effect later that year. In 2011 and 2012 there were four smoking-related fire deaths, the lowest number on record. However, smoking fire deaths are again on the rise in Massachusetts. It is possible since more smoking fires are starting on building exteriors, that fires are getting a foothold on the building before smoke alarms inside can alert the occupants.



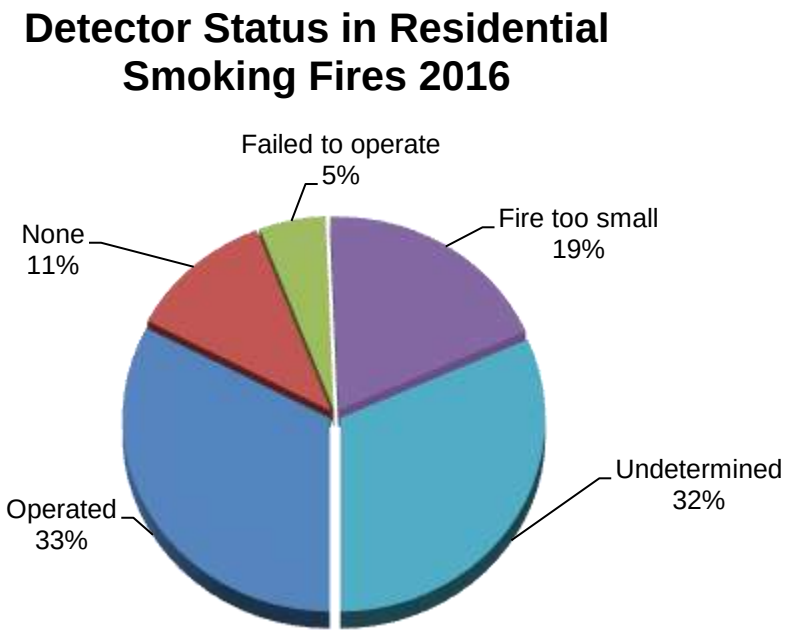
Working Alarms in 40% Fatal Smoking Fires
Six (6) of the 15 smoking fatal fires occurred in a structure where smoke alarms were present and operated. Four (4) occurred in fires where the alarm failed to operate; another occurred where there were no alarms. In one fire, the alarm was present but it was undetermined if the alarm operated; in another the fire was too small to activate the alarm; and it was undetermined in two fires if there were any alarms.

Over half, 11, of these 19 victims were intimately involved with the ignition; and four other victims, while not in the area of origin when the fire began, were involved in starting it. The smoke alarms helped prevent these fires from claiming any additional lives.

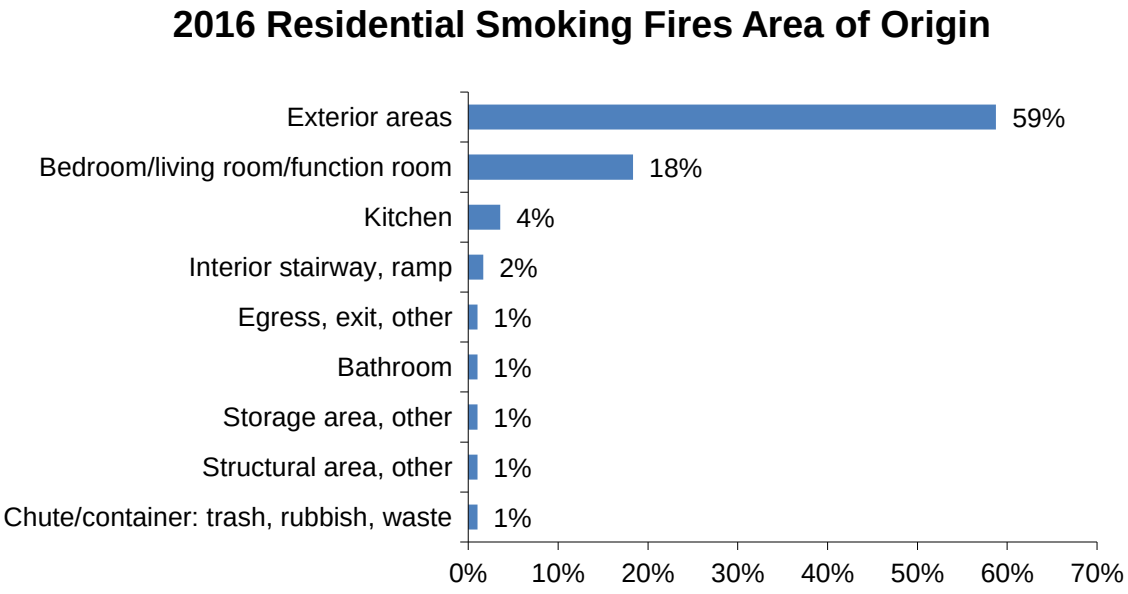
For a listing of all the smoking-related fire deaths in 2016, please refer to the *2016 Massachusetts Fire Deaths* section of this report.

Smoking on Oxygen
There was one fire death in 2016 that involved the use of oxygen while smoking.

1/3 of Building Smoking Fires Occurred had Operating Alarms
Of the 569 smoking-related building fires, 480, or 87%, occurred in residences. Smoke alarms operated in 33% of the smoking-related residential structure fires.



59% of Smoking Fires in the Home Start in the Exterior
Continuing the growing trend, 59% of all residential smoking fires started outside the home, not inside. Historically the bedroom and living room were where most smoking fires start. As more people smoke outside the home in areas like balconies, exterior stairways or enclosed porches, we see more smoking fires beginning in these areas. These exterior area of origins accounted for 282, or 59%, of all residential smoking fires.



Fire Standard Compliant Cigarettes
In January 2007, the Fire Standard Compliant (FSC) Cigarette legislation or 'fire safe cigarette' law, making it mandatory for cigarette manufacturers to start selling only the fire standard compliant type of cigarettes in Massachusetts, took effect. There is no federal standard for self-extinguishing cigarettes despite nearly 20 years of proposed legislation. On January 1, 2013, every state had implemented their own state law banning the sale of ordinary cigarettes.

Fire safe cigarettes meet an established cigarette fire safety performance standard based on ASTM E2187, Standard Test Method for Measuring the Ignition Strength of Cigarettes. It requires that no more than 25% of 40 cigarettes tested burn their full length when placed on 10 layers of standard filter paper. These cigarettes are designed to be less likely to ignite upholstered furniture and mattresses, historically the item first ignited in most fatal smoking fires.

Smoking Fires Ignite Exterior Sidewall Covering & Rubbish
The most common item first ignited by smoking fires in the home was exterior sidewall coverings, accounting for 13% of residential smoking fires. The second leading cause was rubbish, trash or waste, accounting for 10% of these smoking fires. Fire standard compliant cigarettes cannot prevent every cigarette from causing a fire, and not every smoking fire is caused by a cigarette.

Item 1st Ignited	# of Incidents	%
Exterior sidewall covering	61	13%
Rubbish, trash, waste	47	10%
Organic materials, other	38	8%
Undetermined	36	8%
Exterior trim, appurtenances	34	7%
Structural member, framing	32	7%
Upholstered sofa, chair	28	6%
Structural component, finish, other	28	6%
Light vegetation	25	5%
Other	19	4%
Chips, includes wood chips	16	3%
Bedding	14	3%
Box, carton, bag	14	3%
Mattress, pillow	12	3%

Furniture Should Meet CA Flammability Standard
Another safety aspect to think about is purchasing only upholstered furniture that meets the California flammability standard, because many smoking-related fires start by igniting upholstery.

Smokers Should Always Use Non-Flammable Ashtrays or Containers
Until they can quit, smokers should use deep ashtrays, store ashes in metal containers and never smoke in bed. Families should consider banning smoking inside the house for health and fire safety reasons. Children of smokers often have easy access to matches and lighters. Adults must keep these tools out of the reach of small children. If smokers are going to smoke on an exterior balcony, deck or porch, they should also be using an appropriate metal or other non-combustible container to collect the ashes and properly extinguish their smoking materials such as a bucket of sand. In 2016, 13% of these fires ignited organic materials or light vegetation, mostly potted plants on balconies or porches or mulch used for landscaping.

Think of Flame Retardant Sleepwear for Adults
State and federal regulations require most children's sleepwear to be flame-retardant. However, no such requirements apply to adult clothing. Physically disabled and elderly people may not be able to easily 'Stop, Drop and Roll' if their clothing ignites.

Everyone Needs a Working Smoke Alarm at Home
While everyone needs at least one working smoke alarm on every level of their home, this is even more important for smokers and their families because of the high risk of fire death. Placing an alarm inside every bedroom increases the probability that if a fire occurs, residents will wake up in time to escape. A cigarette accidentally left on a sofa places the smoker and everyone else in the building at risk. A smoke alarm's warning may enable a smoker to live long enough to quit.

Never Smoke Where Oxygen is in Use
Smoking should never be permitted in a home where oxygen is in use. The oxygen-enriched environment increases the speed at which the fire will burn once it starts. "Most materials will ignite at considerably lower temperatures in oxygen-enriched environments than in air, and once ignited, combustion rates are greater in oxygen-enriched environments."[16]

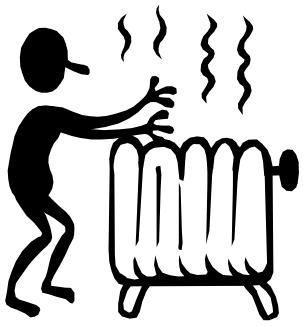
Oxygen can saturate clothing, rugs, upholstery, and facial hair thus increasing the fire danger even when the home oxygen system is "turned off".

Illegal to Throw Cigarettes Out Car Window
The improper disposal of smoking materials has been a major problem for the fire service for years. Massachusetts General Law Chapter 148 Section 54 states, "Whoever drops or throws from any vehicle while the same is upon a public or private way running along or near forest land or open fields, or, except as permitted by law, drops, throws, deposits or otherwise places in or upon forest land, any lighted cigarette, cigar, match, live ashes or other flaming or glowing substance, or any substance or thing which in and of itself is likely to cause a fire, shall be punished by a fine of not more than one hundred dollars or by imprisonment for not more than thirty days."

[16] *Fire Protection Handbook*, 19th edition, 2003, National Fire Protection Association, pg. 8-134, Quincy, MA.

Mulch Regulation Implemented in 2012
Since more people are being forced to smoke in outside areas of their homes and other buildings, cigarettes are finding their way into adjacent landscaped areas; most of which are filled with mulch, a combustible material. On September 1, 2012 a new regulation on mulch safety took effect in the Commonwealth that prohibits the new application of mulch within 18 inches around combustible exteriors of buildings (such as wood or vinyl but not brick or concrete). Residential buildings with less than six units are exempted from this regulation, but all homeowners may also wish to adopt this safety practice. It is also important to note that FSC cigarettes were not designed to prevent igniting mulch-type materials.

Heating Equipment Fires



1,506 Fires, 2 Civilian Deaths & 13 Civilian Injuries
Massachusetts fire departments reported that some form of heating equipment was involved in 1,506, or 9%, of the 16,885 building fires in 2016. These heating equipment fires caused two civilian deaths, 13 civilian injuries, 14 fire service injuries, and an estimated dollar loss of $11.6 million. The average loss per fire was $7,709. This is a 9% decrease from the 1,661 fires reported in 2015.

84% of All Heating Fires Were Confined Fires
In 2016, 84% of heating fires were confined to the container of origin. Seven hundred and forty (740), or 49%, of all heating related building fires in Massachusetts were coded as 'fuel burner/boiler malfunction, fire contained'. Five hundred and twenty-five (525), or 35%, were determined to be chimney or flue fires, confined to the chimney or flue.

The number of contained heating fires fell in 2016. Confined heating equipment fires decreased by 176 incidents, or 12%, from the 1,441 reported in 2015.

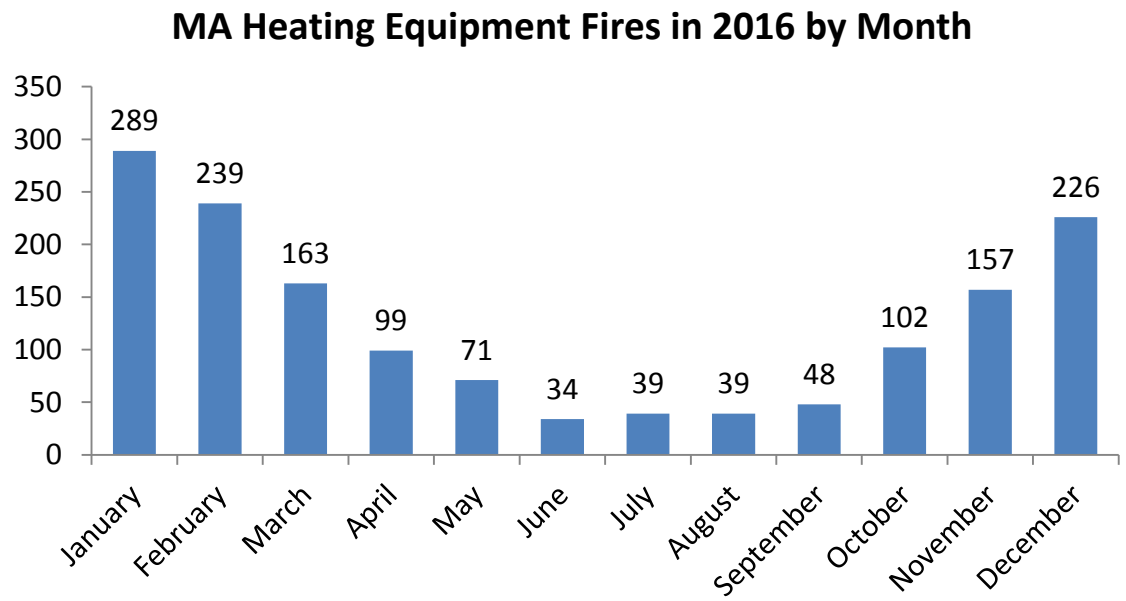
Types of Heating Equipment
Only one type of equipment per fire incident may be reported to MFIRS. Consequently, the totals for specific types of equipment should, in many cases, be considered underestimates. For example, sparks from a wood stove may ignite a fire in the chimney. The recorded equipment 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.

The following table shows the number of fires caused by each of the leading types of heating equipment, the percentage of heating equipment fires for each type of equipment, the number of civilian and fire service deaths and injuries, and the estimated dollar loss for each type of heating equipment.

HEATING EQUIPMENT FIRES

Heating Equipment Involved	# of Heating Fires	% of Heating Fires	Fire Service Injuries	Civilian Injuries	Fire Service Deaths	Civilian Deaths	Dollar Loss
Central heating units	773	51%	2	2	0	0	$ 3,519,155
Confined	*704*	*47%*	*1*	*0*	*0*	*0*	*$ 270,155*
Furnace, central heating unit	*40*	*3%*	*1*	*2*	*0*	*0*	*$ 3,157,000*
Boiler (power, process, heating)	*29*	*2%*	*0*	*0*	*0*	*0*	*$ 92,000*
Chimney, flue	541	36%	5	1	0	0	$ 1,028,328
Confined	*499*	*33%*	*4*	*1*	*0*	*0*	*$ 192,828*
Fireplace, chimney, other	*10*	*1%*	*0*	*0*	*0*	*0*	*$ 44,000*
Chimney connector, vent connection	*6*	*0.4%*	*0*	*0*	*0*	*0*	*$ 368,500*
Chimney, brick, stone, masonry	*14*	*1%*	*0*	*0*	*0*	*0*	*$ 209,500*
Chimney, metal, incl. stovepipe	*12*	*1%*	*1*	*0*	*0*	*0*	*$ 213,500*
Space heaters	28	2%	1	0	0	0	$ 875,130
Portable space heaters	*14*	*1%*	*0*	*0*	*0*	*0*	*$ 671,600*
Fireplace	17	1%	0	0	0	1	$ 354,502
Fireplace, masonry	*1*	*0.1%*	*0*	*0*	*0*	*0*	*$ 30,000*
Fireplace insert/stove	*13*	*1%*	*0*	*0*	*0*	*1*	*$ 274,502*
Fireplace factory built	*3*	*0.2%*	*0*	*0*	*0*	*0*	*$ 50,000*
Water heater	17	1%	1	1	0	1	$ 744,650
Heating, vent. & air cond,. other	67	4%	3	0	0	0	$ 2,563,902
All other reported equipment	12	1%	0	0	0	0	$ 181,450
Total	**1,560**	**100%**	**14**	**13**	**0**	**2**	**$ 11,610,192**

Most Heating Fires Occur During Colder Months
Sixty-seven percent (67%) of all heating equipment fires occurred during the months of January through April, and December.



Furnaces Should Be Cleaned and Checked Annually

- Homeowners should have furnaces cleaned and checked annually to ensure that they are working well.
- Keep a 3-foot clear space around the furnace.
- Combustible materials such as trash or supplies should never be stored near heating equipment.
- Only licensed trades people may install oil, gas, or electric heating units.
- Regulations about oil burners may be found in 527 CMR 1.11.

Have Chimneys Cleaned Annually to Remove Creosote

Creosote is a black, tar-like by-product of fire. It can accumulate in a chimney and cause a fire. Chimneys should be cleaned at the start of each heating season and checked monthly for soot build-up. They should also be checked for loose mortar. Keep the temperature in the recommended range when using wood or coal stoves. Use chimney guards to prevent animals from nesting in your chimney. Have the chimney inspected by a professional after a fire before using your chimney again.

Install Wood Stoves According to Building Code Standards

A homeowner must obtain a building permit prior to installing a wood, pellet or coal stove and the installation must be inspected upon completion. In general, the stove should be at least three feet away from walls, ceilings and furnishings. If the flue does not draw properly, deadly levels of carbon monoxide may accumulate in the home.

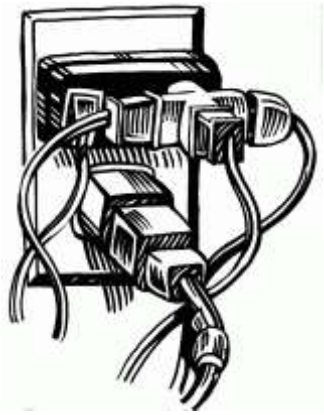
- Keep the temperature within the manufacturer's suggested range. Wood and coal stoves should be operated at moderate heat. If the fire is too low, creosote may accumulate in the chimney and eventually cause a fire. If the fire is too hot, nearby combustibles or creosote in the chimney could ignite.
- Only burn fuels intended for use in these stoves. Other items may cause overheating and the release of toxic gases. Never use gasoline or flammable liquids to stoke the fire — doing so could cause a flash fire or explosion.
- Install and regularly test smoke and carbon monoxide alarms.
- Have your chimney cleaned and inspected for creosote build-up before each heating season, and check it at least once a month during the season.
- Place ashes in a covered metal container until they are completely cool. Store them outdoors, away from the house, porch or other outside buildings. Hot ashes may stay "live" for 24 hours or longer.

Space Heater Safety

- When buying a heater, look for one that has been tested and labeled by a nationally recognized testing company.
- Keep the heater three feet away from drapes, furniture or other things that can burn. Place it on a level surface away from areas where a person or a pet might bump it and knock it over.
- Plug space heaters directly into the wall outlet.

- If you must use an extension cord, make sure it is a heavy-duty cord marked with a power rating as least as high as that on the label of the heater itself and plug it directly into a wall outlet.
- Never leave a space heater unattended or running while you sleep.
- Keep electric heaters away from water. Never use them near a sink or in the bathroom.
- Do not use space heaters to thaw pipes. They were not designed for this task. Space heaters must be kept at least three feet away from any combustibles including walls and wall coverings.

Electrical Fires



719 Electrical Fires Caused 4 Civilian Deaths
Local fire departments reported that there were 719 structure fires caused by electrical problems in Massachusetts in 2016. These fires caused four civilian deaths, 29 civilian injuries, 94 fire service injuries and an estimated dollar loss of $42 million, accounting for 16% of the total dollar loss to fire in 2016. The average loss per fire was $58,444.

Electrical Fires Were the 2nd Leading Cause of Fire Deaths
Electrical fires were the second leading cause of structure fire deaths in 2016. Four (4) fatal electrical fires, or 11% of fatal structure fires caused four, or 9%, of structure fire deaths in 2016. Electrical fires have been either the leading or second leading cause of structure fire deaths in the past five years.

The criteria to qualify for an electrical equipment fire includes all fires caused by electrical problems or malfunctions. Specifically, it needs to be coded as *Heat Source* – 'Arcing' or - *Factors Contributing to Ignition* – 'Equipment overloaded' or – 'Electrical failure malfunction' or to have *Equipment Involved in Ignition* in the 200 series – 'Electrical distribution, lighting and power transfer equipment'.

Unspecified Electrical Failure Responsible for 18% of Electrical Fires[17]
One hundred and thirty-one (131), or 18%, of electrical fires were caused by an unclassified electrical failure or malfunction.

[17] *Factors Contributing to Ignition* is one of the fields in version 5 that allows for multiple codes. Two factors contributing to ignition may be coded. For example, in the case of a malfunctioning electrical heater, we can capture not only the electrical malfunction, but also a contributing factor such as: was the heater too close to combustibles; did the automatic control fail; was it knocked over; was it worn out; or was the equipment overloaded. This field also is not a mandatory field, although fire departments are strongly encouraged to complete it, should it apply to the incident. Because of these factors, the percentages may not add up to 100%.

Factor Contributing to Ignition	# of Electrical Fires	% of Electrical Fires
Electrical failure, malfunction, other	131	18%
Unspecified short-circuit arc	40	6%
Short circuit arc from defective, worn insulation	26	4%
Arc from faulty contact, broken conductor	13	2%
Arc, spark from operating equipment	13	2%
Equipment overloaded	12	2%
Short circuit arc from mechanical damage	11	2%
Mechanical failure, malfunction, other	8	1%
Too close to combustibles	8	1%

Equipment	# of Incidents	Fire Service Injuries	Civilian Injuries	Fire Service Deaths	Civilian Deaths	Dollar Loss
Electrical service, wiring, meter box and circuit breaker	200	28	3	0	2	$ 15,560,425
Ventilation and air conditioning	52	6	2	0	0	$ 3,625,530
Lamp, lighting	51	5	2	0	1	$ 2,280,102
Kitchen & cooking equipment	39	32	4	0	0	$ 1,535,736
Cord, plug	23	2	5	0	0	$ 1,353,775
Heating equipment	23	0	2	0	0	$ 294,200
Household appliances (non-cooking)	20	4	0	0	1	$ 1,041,201
Transformer, generator, battery, charger	18	1	3	0	0	$ 1,589,331
Electronic & other electrical equipment	13	3	2	0	0	$ 466,700
Electrical distribution, lighting & power transfer, other	7	0	0	0	0	$ 507,000
Shop tools & industrial equipment	4	0	0	0	0	$ 183,500
Commercial & medical equipment	2	0	0	0	0	$ 61,000
Decorative lighting, signs	2	0	0	0	0	$ 2,500
Garden tools & agricultural equipment	1	0	0	0	0	$ 0
Total Known Equipment	455	81	23	0	4	$ 28,501,000
Not reported (Null)	64	0	0	0	0	$ 2,939,750
Unclassified (Other)	4	0	0	0	0	$ 42,000
None	24	0	2	0	0	$ 1,301,710
Undetermined	8	2	0	0	0	$ 1,666,500
Total Unspecified	100	2	2	0	0	$ 5,949,960

Over 3/4 of Electrical Fires Occurred in Residential Occupancies
Over three-quarters of electrical fires occurred in residential occupancies. Of the 719 electrical fires, 555, or 77%, were in residential occupancies.

Occupancy	# of Electrical Fires	% of Known Electrical Fires
Residential	522	77%
Mercantile, business	56	8%
Storage properties	29	4%
Assembly	21	3%
Institutional	18	3%
Manufacturing, processing	15	2%
Educational	13	2%
Basic industry	8	1%
Special properties	4	1%
Total Known	719	100%

12% of Electrical Fires Began in Bedrooms
Eighty-six (86), or 12%, of electrical fires began in bedrooms. The following table shows the leading *Areas of Origin* of the electrical fires in Massachusetts in 2016.

Area of Origin	# of Electrical Fires	% of Electrical Fires
Bedroom	86	12%
Kitchen	73	10%
Ceiling & floor assembly	39	5%
Bathroom	38	5%
Living room	30	4%
Wall assembly, concealed wall space	29	4%
Attic	26	4%
Wall surface, exterior	23	3%
Substructure area, crawl space	42	3%
Garage, carport	18	3%
Function room, other	18	3%
Laundry room	14	2%

Electrical Wiring Was the Item First Ignited in Almost 1/4 of Electrical Fires
Electrical wiring or cable insulation was the item first ignited in 172, or 24%, of electrical fires. This includes fixed wiring, wiring inside electronic items, extension cords and appliance cords. The following table shows the leading *Item 1st Ignited* of the electrical fires in Massachusetts in 2016.

Item 1st Ignited	# of Electrical Fires	% of Electrical Fires
Electrical wire, cable insulation	172	24%
Structural member, framing	83	12%
Undetermined	61	8%
Appliance housing or casing	28	4%
Thermal, acoustical insulation w/in wall, partition, floor/ceiling	25	3%
Structural component, finish, other	24	3%
Other	21	3%
Exterior sidewall covering, surface, finish	19	3%
Interior wall covering	17	2%
Furniture, utensils, other	12	2%
Bedding	9	1%
Cooking materials	9	1%

Large Loss Electrical Fires

There were five large loss ($1 million+) electrical fires in 2016. These five fires caused an estimated $5.9 million in damages, accounting for 14% of the total dollar loss from electrical structure fires in 2016. There were 111 fires with estimated damages between $100,000 and $999,999.

- On December 16, 2016, at 6:38 a.m., the Boston Fire Department was called to an electrical fire in a 9-unit apartment building. The fire was started by a short-circuit in the first floor ceiling. There were no injuries associated with this fire. Alarms were present and alerted the occupants. The building was not sprinklered. Damages were estimated to be $2.1 million.

Electrical Fire with Most Fire Service Injuries

- On August 10, 2016, at 10:51 a.m., the Framingham Fire Department was called to an electrical fire in a multi-unit apartment building at 1610 Worcester Rd. The fire was caused by arcing in a microwave oven in a second floor kitchen. Thirty (30) firefighters and three civilians were injured at this fire. Alarms were present and alerted the occupants. Sprinklers were not present. Damages from this fire were estimated at $25,000.

Watch For Warning Signs

People should watch for warning signs of electrical problems. These include:

- Fuses blowing or circuit breakers tripping frequently.
- Unusually warm or faulty outlets or switches.
- A vague smell of something burning.
- A sizzling sound in the wall.

Any of these signs may indicate a potential problem. Contact a licensed electrician if you notice any of these signs, or contact the local fire department. Many departments now

have new technologies such as thermal imaging cameras that can 'see' heat inside walls to detect potential problems before they expand and extend to other parts of the building.

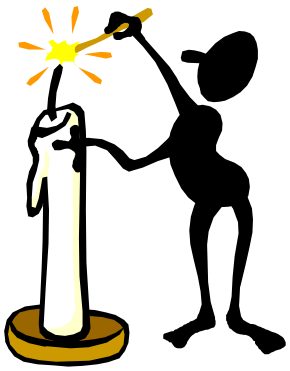
Fuses and circuit breakers are safety devices. They blow or trip when the amount of current cannot safely travel through the wires, which is why frequent blowing or tripping is a warning sign. *Trying to bypass the fuse or circuit breaker protection is an invitation to danger.*

Electrical Systems Pose Unseen Dangers
Just as all systems need maintenance and inspection, so does electrical wiring. As switches, receptacles and connections age, heat is generated and the risk of fires inside walls and at poor connections greatly increases. Because wiring is often hidden behind walls, electrical faults may be hard to detect, except by properly trained electricians.

Have Electrical Systems Examined by a Licensed Electrician Every 10 Years
Have electrical systems examined by a licensed electrician every 10 years. A good electrician will look for electrical faults, check for warm switch plates and receptacles, and analyze the use of electricity to see if additional capacity is needed. It is important to help our homes keep up with the electrical demands of our changing lifestyles, changes in society and new technologies.

Candle Fires

98 Candle Fires Caused 1 Civilian Death
In 2016, candles caused 98 fires of all types. These fires caused one civilian death, 15 civilian injuries and an estimated dollar loss of $3.4 million in damages. There was an 8% decrease from the 107 fires of all types started by candles in Massachusetts in 2015.



80% of Candle Fires are Structure Fires
Of the 98 candles fires in 2016, 78, or 80%, were classified as structure fires. None were reported as motor vehicle fires. Twenty (20), or 20%, were outside or other fires; five, or 5%, were special outside fires; one, or 1%, was a brush fire, and 14, or 14%, were unclassified fires.

Candle Fires Happen Most During the Holidays
Between 2007 and 2016, the days of the year on which most candle fires occurred were:

1. December 25 (Christmas) and November 3 = 13 candle fires.
2. December 24 (Christmas Eve) and December 12 = 12 candle fires
3. December 31 (New Year's Eve) and December 14 = 11 candle fires.
4. November 23, December 19 and January 9 = 10 candle fires;

Scituate Has Largest Loss Candle Fire

- On May 30, 2016, at 12:33 p.m., the Scituate Fire Department was called to a candle fire in a single-family home. The candle ignited nearby curtains. Three (3) people were injured at this fire, one critically. Alarms were present and alerted the occupants. The building was not sprinklered. Damages from the blaze were estimated to be $445,000.

95% of Candle Fires Occurred in Homes

Of the 75 candle fires that occurred in buildings, all but four, or 95% were residential fires. Candles caused 71 residential building fires, one civilian death, 13 civilian injuries and an estimated dollar loss of $3.4 million. Two (2) candle fires, or 3%, occurred each in public assembly properties and institutional facilities.

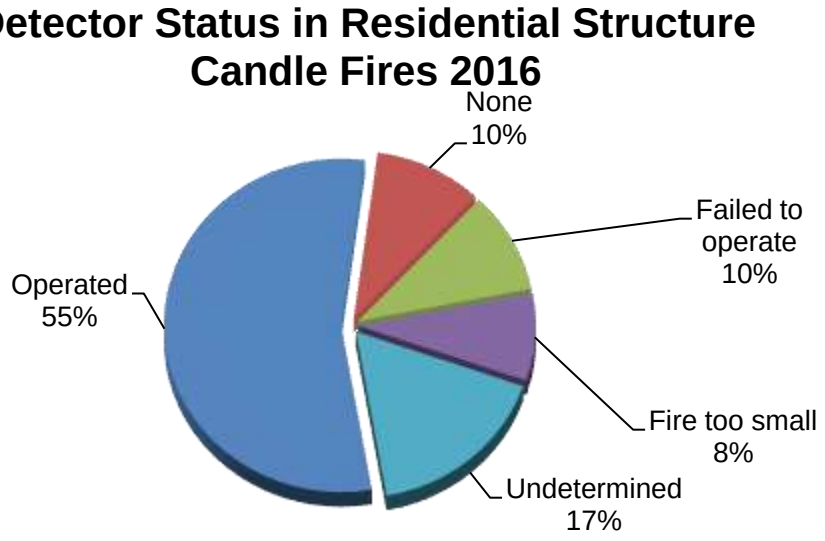
39% of Candle Fires in Homes Occurred in the Bedroom

Of the 71 candle fires in residential structures, 39% occurred in the bedroom and 18% occurred in the living room. The following table is a list of the leading *Area of Origin* for residential candle fires.

Area of Origin	# of Residential Candle Fires	% of Residential Candle Fires
Bedroom	28	39%
Living room	9	13%
Kitchen	8	11%
Bar area, cafeteria	6	8%
Bathroom	6	8%
Exterior balcony, unenclosed porch	4	6%

Smoke Alarms Operated in Over 1/2 of Candle Fires in Homes

Of the 71 candle fires in homes, smoke alarms operated in 55% of these fires.



If you are going to be burning candles with an open flame in your home make sure that your smoke alarms are working properly. Consider switching to flameless candles, especially if children or pets are around.

Candle Safety Tips

- Burn candles in the center of a 1-foot **Circle of Safety,** free of anything that can burn.
- Stay in the same room with burning candles; do not leave unattended.
- Burn candles on a non-combustible surface such as a ceramic saucer or plate.
- Be sure to snuff out candles before falling asleep, going out, or leaving the room.
- Teach everyone in the family the rules of safe candle use.
- Keep candles out of reach of small children and pets.

More information on candle fire safety can be found on our webpage at http://www.mass.gov/dfs.

Fireworks Incidents

127 Incidents Involving Fireworks Caused $135,292 in Damages
There were 127 fire and explosion incidents reported that involved fireworks in 2016. This is a 102% increase of fire and explosion incidents from the 63 reported in 2015. Incidents involving fireworks caused an estimated $135,292 in property damages. The average dollar loss per fireworks incident was $1,503.

Eighty-one percent (81%) of the fireworks incidents were brush fires.

A fireworks explosion without fire is coded as an Incident Type 243 – Fireworks explosion (no fires). In 2016, 37 such incidents were reported.

54% of Fireworks Fires Occurred the Week of July 4th
Forty-nine (49), or 54%, of the 90 fireworks-caused fires in 2016 took place during the week of the 4th of July. Twenty-five (25) occurred on July 4th.

Largest Loss Fireworks Fire –Plymouth Barge Fire

- On July 4, 2016, at 9:26 p.m., the Plymouth Fire Department was dispatched to a fireworks fire on the barge in Plymouth Harbor that was being used for the town's annual display. The fire was caused by one of the fireworks misfiring. No one was injured at this fire. Damages were estimated at $75,000.

Refer to M–BIRS Annual Report for More Information about Fireworks Injuries
For more information about the causes of burn injuries, please refer to the *Massachusetts Burn Injury Reporting System — 2016 Annual Report.* According to Massachusetts General Law (MGL) Chapter 112, Section 12A, the treatment of all burn injuries extending over 5% or more of a person's body surface area must be reported immediately to the State Fire Marshal. All burn reports received by the Division Fire Safety are reviewed for possible suspicious circumstances. Gasoline burns, burns on the hands and arms or other unusual scenarios are referred for further investigation.

There were five fireworks-related burn injuries reported to M-BIRS in 2016. These five victims were between four and 56-years old. Since we started collecting burn injury reports in M-BIRS in 1984, the average number of fireworks-related burns per year is 10. The highest number of reported fireworks-related burns occurred in 1989, with 45 reported burn injuries.

Grill Fires

92 Incidents Involving Grills Caused 3 Civilian Injuries
In 2016, there were 92 fires and explosion incidents reported to the Massachusetts Fire Incident Reporting System (MFIRS) involving open fired grills. These incidents caused three civilian injuries and an estimated dollar loss of $1.1 million. This is an 11% decrease from the 103 grill fires in 2015.

More than three-quarters, or 82%, of these incidents occurred in the months of May to September when people are most likely to use their outdoor grills.

Gas Grill Fires
Of the 92 grill incidents, 81, or 88%, of the grills were gas grills. Solid

fuels such as charcoal briquettes powered four grills, or 10% of these fires. Two (2), or 2%, were electrically powered. The 81 gas grill incidents caused three civilian injuries and $589,919, or 52% of the total damages.

Holliston Had Largest Loss Grill Fire
Two (2) incidents caused $1.1 million, or 93% of the total damages caused by grill fires in 2016.

- On May 28, 2016, at 7:12 p.m., the Holliston Fire Department was called to a fire in a two-family home. The fire was started by the gas grill on the first floor porch No one was injured in this fire. It was undetermined if alarms were present. The building was not sprinklered. Damages from the blaze were estimated to be $565,900.

- On May 29, 2016, at 10:25 p.m., the Boston Fire Department was called to a gas grill fire at a two-family home. The heat from the grill ignited the exterior wall and the fire spread. No one was injured at this fire. Alarms were present and alerted the occupants. The building was not sprinklered. Damages from the blaze were estimated to be $500,000.

Refer to MBIRS Annual Report for More Information about Grill Injuries
For more information about the causes of burn injuries, please refer to the *Massachusetts Burn Injury Reporting System — 2016 Annual Report.* According to Massachusetts General Law (MGL) Chapter 112, Section 12A, the treatment of all burn injuries extending over 5% or more of a person's body surface area must be reported immediately to the State Fire Marshal. Four (4) civilians, including a 22-year old man, a 44-year old woman, a 57-year old man, a 63-year old man, and a 68-year old man were reported to M-BIRS in 2016 with burn injuries from a grill. Two (2) of the injuries occurred in August, and one each in February, May and July.

Grill Safety
Follow these safety tips when using a grill:

- Use all barbecue grills away from the house in the backyard.
- Supervise children whenever any grill is in use.
- Never use gasoline on any grill!

Gas Grill Safety

- Keep all LP-gas outside, 10 feet away from building openings such as doors, windows, and dryer vents and 20 feet from air intake vents. Gas grill containers must be kept at least five feet away from possible ignition sources such as air conditioners, compressors, cars, and pilot lights.
- LP-gas grills are not permitted inside or on balconies above the first floor of any building where people live. LP-gas is heavier than air and sinks. A leaky grill could pose a hazard to people below.
- Make sure all connections are tight and secure.

Charcoal Grill Safety

- Use only charcoal lighter fluid to start charcoal grills.
- Once the coals have been lighted, never add more lighter fluid to the fire — flames may travel up the stream of lighter fluid resulting in serious burns.
- Only use charcoal grills outside.

Carbon Monoxide Incidents

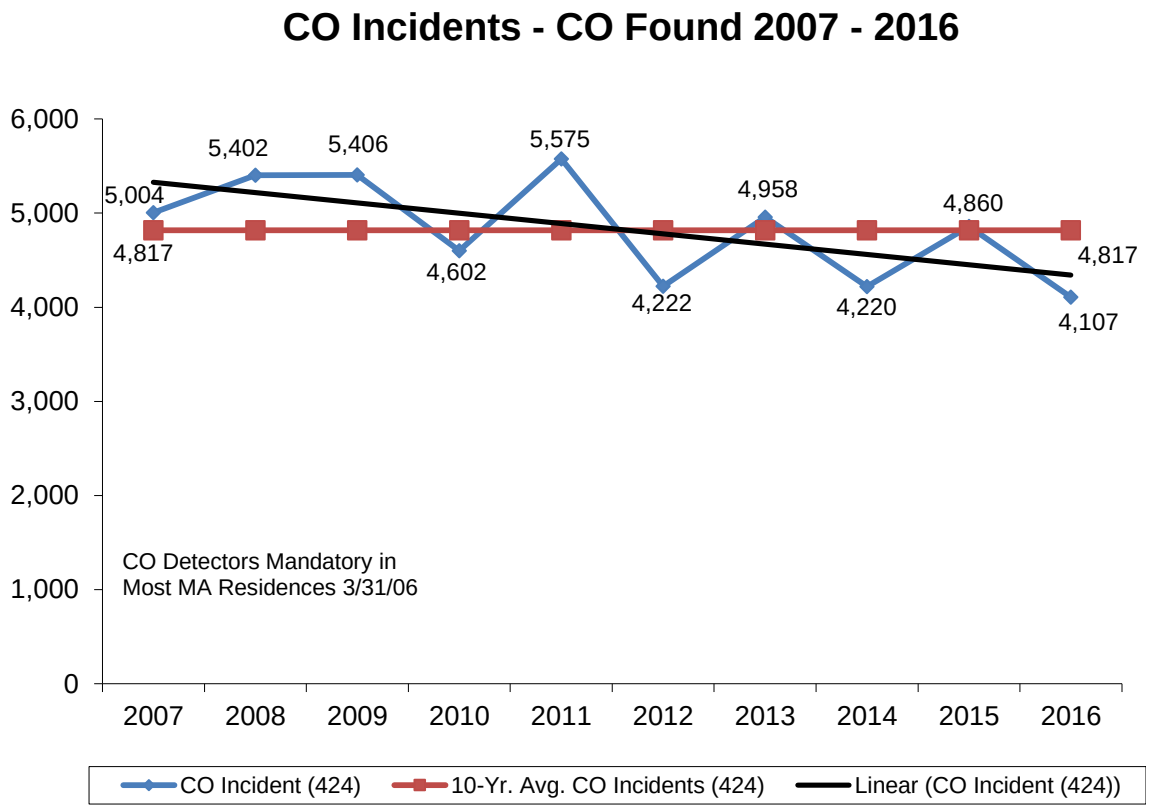
In 2016, 306 fire departments voluntarily reported 14,397 carbon monoxide (CO) incidents: hazards[18], carbon monoxide alarm activation due to malfunction[19], and carbon monoxide alarm activation – no CO[20]. A CO hazard is an identifiable carbon monoxide emergency whether or not a CO alarm activated, the presence of CO was confirmed, and some corrective action was indicated. Fire departments responded to 4,107 confirmed CO hazard incidents.

10% Decrease from 2015

Overall, since the institution of Nicole's Law in 2006, which made CO alarms mandatory in most residential occupancies throughout the Commonwealth, all three types of CO calls have increased. In 2016, however, the number of reported carbon monoxide incidents decreased by 1,618 calls, or 10%, from the 16,015 calls reported in 2015. One reason for this decline is that in 2015, at the height of the "Snowmageddon" snow storms between February 15 and 18, there were 193% more CO found incidents than the same four days the previous year.

CO calls of all types increased in 2006 to a high of 19,770 in 2013. This confirms the need to have these life-saving devices in people's homes as a way to avert potential lethal calls. The following chart illustrates the number of calls where carbon monoxide was discovered by responding fire service personnel and the increasing trend in the number of these calls.

[18] Carbon monoxide hazards = Incident Type – 424.
[19] Carbon monoxide detector activation due to a malfunction = Incident Type – 736.
[20] Carbon monoxide detector activation, no CO = Incident Type – 746.



92% of All CO Incidents Occur in Residences

Ninety-two percent (92%) of all carbon monoxide calls occurred in residential occupancies. Public assembly and mercantile and business properties were the next leading property use categories for CO calls, each accounting for 2% of the incidents.

Property Use	# of CO Calls	% of CO Calls
Assembly	312	2%
Educational	132	1%
Institutional	283	2%
Residential	13,204	92%
Mercantile & business	304	2%
Basic industry	14	0.1%
Manufacturing & processing	17	0.1%
Storage	54	0.4%
Special properties	53	0.4%
Unclassified	24	0.2%
Total	14,397	100%

44% of All CO Calls Occur During the Winter

Forty-four percent (44%) of all the CO calls that occurred in 2016 happened during the colder months of November through February. Most CO calls occurred between the hours of 5:00 p.m. and 9:00 p.m.

These seem to be the times when most people are awake and doing things around the house or coming home from work or school. This would also be the time that people would turn the heat up. Heating equipment is the leading cause of carbon monoxide incidents.

According to the U.S. Consumer Product Safety Commission (CPSC), an acceptable level of CO is a 15 PPM average over a time span of eight hours or a 22 PPM average for an hour. If you have 1,000 PPM for over thirty minutes, it puts you at a high level of danger in the form of a collapse into a coma or permanent brain damage.

Power Outages = Low Batteries
Whenever there is a prolonged power outage, you should change the battery in plug-in CO alarms. When the power goes out the backup battery powers the unit for a couple of days. Many people misinterpret the low battery warning 'beep' as an active detection of CO and call the fire department tying up emergency resources that may be needed elsewhere. After three of the latest major disasters to hit Massachusetts, the 2011 Halloween snowstorm, the 2013 February blizzard and the 2015 "Snowmeggadon" all CO calls increased by 345%, 621% and 123% respectively from the previous year. Specifically, CO Alarm Activation and Malfunction calls increased by 279% in the days following the Halloween snowstorm; by 414% following the blizzard; and by 78% following "Snowmeggadon".

Mapping the Fire Experience

Boston & Worcester Had the Most Reported Fires
Boston reported having the most fires, with 6,052 in 2016. Worcester had the second highest number of reported fires at 1,426. Cambridge (1,048), Springfield (782), Brockton (629), and Framingham (599) rounded out the top six communities in the Commonwealth in terms of reported fires.

However if we look at the number of reported fires compared to the total population of the individual community we get a different picture. One would expect that the bigger cities and towns to have more fires because of their populations. When we calculate the rate of reported fires for every 10,000 people in a given municipality, the ranking changes. Usually the top communities in terms of number of reported fires fall towards the bottom of the rankings. Communities with one, two or three reported fires take over the top spots. These communities may have a rate that far exceeds that actual number of fires that they reported. For example towns like Alford, Warwick and Hancock all reported less than 20 fires in 2016 but their small populations cause them to have a high fires per 10,000 population.

For a listing and breakdown of the number of reported fires and arsons by community, please go to the appendix.

The map titled, *2016 Fires per 10,000 Population by Community,* on page 104, displays the rate of reported fires by community for every 10,000 of that community's population. The map's legend indicates which group a municipality belongs. Cities and towns that are blank reported no fires or failed to report at all.

Topsfield, with 104 total fires, had the highest rate of 170 reported fires per 10,000 population. Fitchburg was the next highest with 548 total fires and 136 fires per 10,000 population; Gardner had 232 fires and 115 fires per 10,000 population; Great Barrington had 113, and Holyoke had 112 fires per 10,000 population. Rates may exceed total actual reported fires.

Boston & Cambridge Had the Most Reported Structure Fires
Boston reported having the most structure fires, with 4,098 in 2016. Cambridge had the second highest number of reported structure fires at 903. Worcester (827), Framingham (455), and Springfield (371) rounded out the top five communities in the Commonwealth in terms of reported structure fires.

The map titled *2016 Structure Fires per 10,000 Population by Community*, on page 105, displays the rate of reported structure fires by community for every 10,000 of that community's population. Cities and towns that are blank did not report any structure fires or failed to report at all.

Topsfield, with 80 structure fires, had the highest rate of 131 structure fires per 10,000 population. Great Barrington was the next highest with 68 structure fires and 98 structure fires per 10,000 population; Gardner had 93; Fitchburg had 90; and Cambridge had 86 structure fires per 10,000 population.

Boston & Cambridge Had the Most Reported Residential Building Fires
Boston reported having the most residential building fires, with 3,508 in 2016. Cambridge had the second highest number of reported building fires at 742. Worcester (708), Framingham (386), and Springfield (327) rounded out the top five communities in the Commonwealth in terms of reported residential building fires.

The map titled *2016 Residential Building Fires per 10,000 Population by Community*, on page 106, displays the rate of reported building fires by community for every 10,000 of that community's population. Cities and towns that are blank did not report any residential building fires or failed to report at all.

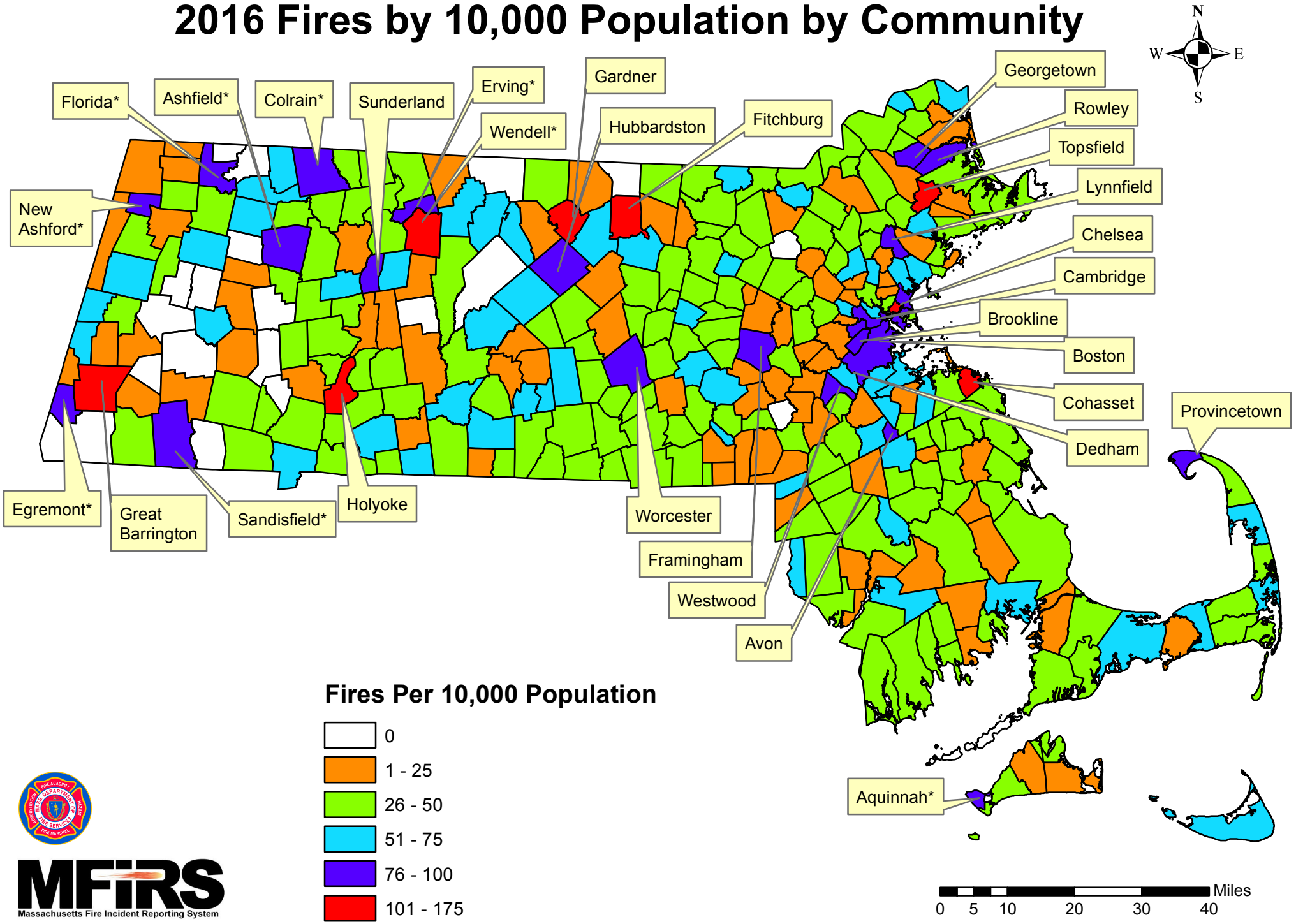
Topsfield, with 69 residential building fires, had the highest rate of 113 residential building fires per 10,000 population. Next highest was Fitchburg with 81 residential building fires per 10,000 population; Gardner had 79; Great Barrington had 73; Cambridge had 71, and Aquinnah had 64 residential building fires per 10,000 population.

Boston & Holyoke Had the Most Reported Arsons
Boston reported having the most arsons, with 117 in 2016. Holyoke had the second highest number of reported arsons at 39. Springfield (24), Lawrence (21), and Taunton (20) rounded out the top five communities in the Commonwealth in terms of reported arsons.

The map titled *2016 Arsons per 10,000 Population by Community,* on page 107, displays the rate of the total reported arsons by community for every 10,000 of that community's population. Cities and towns that are blank had no reported of arsons or failed to report at all.

Ware, with 13 arsons, had the highest rate of any department reporting more than five arsons, with 13 reported arsons per 10,000 population. Next highest was Holyoke with 10 arsons per 10,000 population and Lynnfield also had 10, Merrimac had eight; and Medfield had six arsons per 10,000 population.

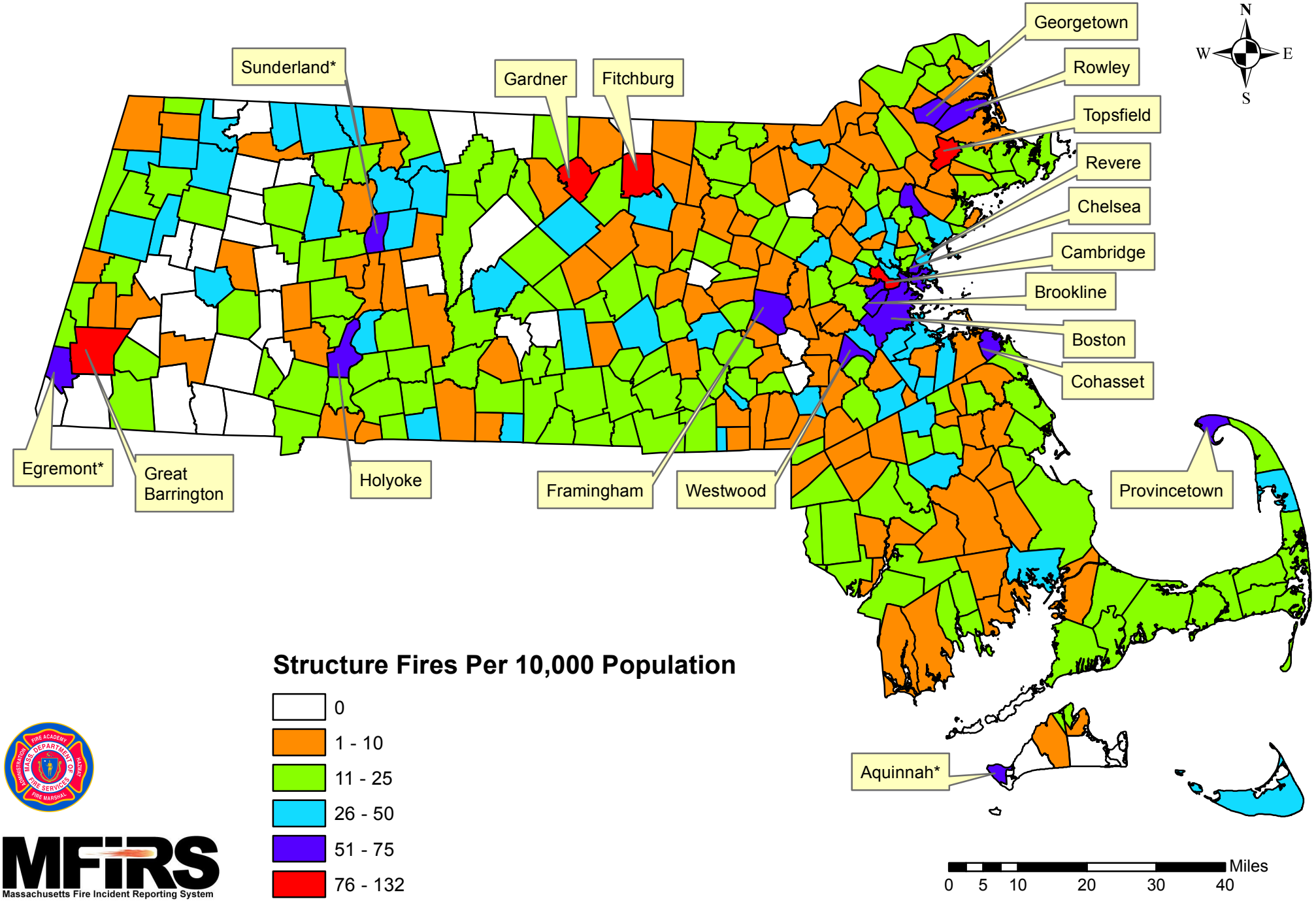
2016 Fires by 10,000 Population by Community



MFIRS
Massachusetts Fire Incident Reporting System

*These departments reported 15 fires or less in 2016.

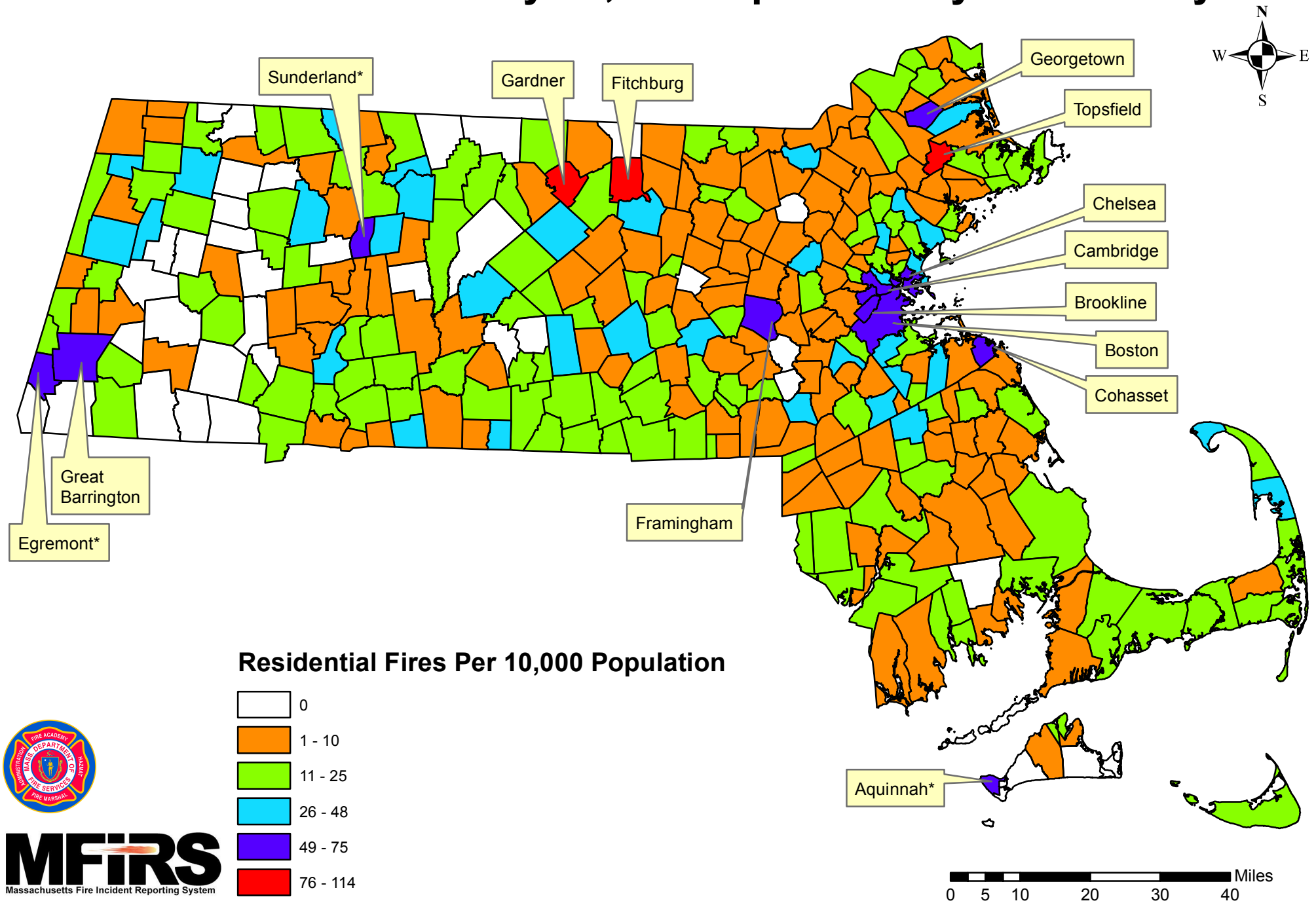
2016 Structure Fires by 10,000 Population by Community



MFIRS
Massachusetts Fire Incident Reporting System

*These departments reported 15 or less structure fires in 2016.

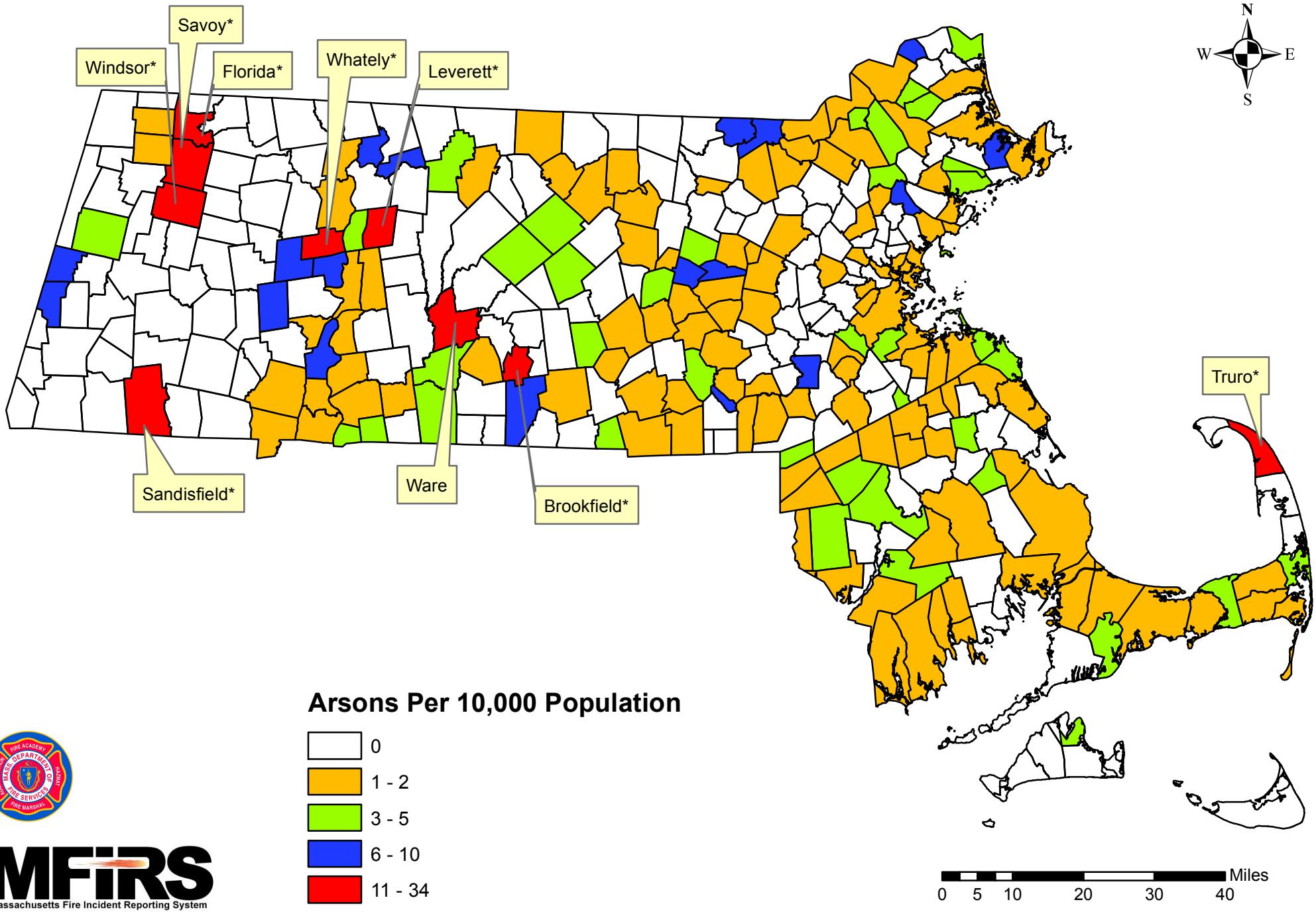
2016 Residential Fires by 10,000 Population by Community



MFIRS
Massachusetts Fire Incident Reporting System

*These departments reported 15 or less residential fires in 2016.

2016 Arsons by 10,000 Population by Community



MFIRS
Massachusetts Fire Incident Reporting System

*These departments reported 5 or less arsons in 2016.

DFS – Springfield Campus

Appendix

2016 Fire Experience By Community

Community	Total Fires	Structure Fires	Vehicle Fires	Other Fires	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Abington	71	19	7	45	0	0	0	0	$691,274
Acton	55	22	5	28	0	0	0	0	$156,356
Acushnet	28	18	5	5	0	0	0	0	$33,400
Adams	32	25	2	5	0	0	0	1	$1,212,998
Agawam	77	26	8	43	0	1	0	2	$687,760
Alford	1	1	0	0	0	0	0	0	$100,000
Amesbury	45	19	3	23	0	0	0	0	$451,100
Amherst	75	27	4	44	0	1	0	2	$1,581,434
Andover	80	29	7	44	0	0	0	0	$65,450
Aquinnah	3	2	1	0	0	0	0	0	$814,000
Arlington	93	43	7	43	0	1	0	0	$366,227
Ashburnham	14	3	0	11	0	0	0	0	$0
Ashby	0	0	0	0	0	0	0	0	$0
Ashfield	15	3	1	11	0	0	0	0	$0
Ashland	43	12	1	30	0	0	0	0	$0
Athol	60	27	5	28	0	1	0	1	$422,604
Attleboro	130	50	17	63	2	0	0	1	$679,037
Auburn	71	23	15	33	0	1	0	0	$201,205
Avon	43	3	10	30	1	0	0	0	$392,894
Ayer	28	14	3	11	0	0	0	2	$726,000
Barnstable Fire Districts									
Barnstable	*30*	*7*	*2*	*21*	*0*	*0*	*0*	*1*	*$84,652*
Cotuit	*18*	*5*	*2*	*11*	*0*	*0*	*0*	*0*	*$0*
C.O.M.M.	*51*	*23*	*1*	*27*	*0*	*0*	*0*	*0*	*$390,839*
Hyannis	*135*	*51*	*11*	*73*	*0*	*2*	*0*	*2*	*$549,270*
West Barnstable	*16*	*4*	*3*	*9*	*0*	*0*	*0*	*0*	*$13,901*
Barre	36	9	0	27	0	0	0	2	$243,600
Becket	0	0	0	0	0	0	0	0	$0
Bedford	31	11	1	19	0	0	0	0	$138,227
Belchertown	8	2	0	6	0	0	0	0	$0
Bellingham	40	11	6	23	0	1	0	0	$633,650
Belmont	140	78	3	59	0	5	0	0	$5,543,750
Berkley	15	4	3	8	0	0	0	0	$386,100
Berlin	21	0	4	17	0	0	0	0	$17,149
Bernardston	7	2	0	5	0	0	0	0	$351,000
Beverly	142	43	12	87	1	1	0	2	$2,180,850

2016 Arson Experience By Community

Community	Total Fires	Structure Fires	Vehicle Fires	Other Fires	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Abington	1	0	0	1	0	0	0	0	$0
Acton	0	0	0	0	0	0	0	0	$0
Acushnet	1	0	0	1	0	0	0	0	$0
Adams	1	1	0	0	0	0	0	0	$2,500
Agawam	4	0	0	4	0	0	0	0	$40
Alford	0	0	0	0	0	0	0	0	$0
Amesbury	0	0	0	0	0	0	0	0	$0
Amherst	1	0	0	1	0	0	0	0	$100
Andover	1	0	0	1	0	0	0	0	$20
Aquinnah	0	0	0	0	0	0	0	0	$0
Arlington	5	0	0	5	0	0	0	0	$0
Ashburnham	0	0	0	0	0	0	0	0	$0
Ashby	0	0	0	0	0	0	0	0	$0
Ashfield	0	0	0	0	0	0	0	0	$0
Ashland	0	0	0	0	0	0	0	0	$0
Athol	2	1	0	1	0	0	0	0	$0
Attleboro	2	1	1	0	0	0	0	0	$0
Auburn	3	0	0	3	0	0	0	0	$0
Avon	2	0	0	2	0	0	0	0	$0
Ayer	1	0	0	1	0	0	0	0	$0
Barnstable Fire Districts									
Barnstable	*2*	*0*	*0*	*2*	*0*	*0*	*0*	*0*	*$0*
Cotuit	*2*	*0*	*0*	*2*	*0*	*0*	*0*	*0*	*$0*
C.O.M.M.	*1*	*1*	*0*	*0*	*0*	*0*	*0*	*0*	*$75,000*
Hyannis	*2*	*0*	*0*	*2*	*0*	*0*	*0*	*0*	*$0*
West Barnstable	*2*	*1*	*0*	*1*	*0*	*0*	*0*	*0*	*$1*
Barre	2	0	0	2	0	0	0	0	$0
Becket	0	0	0	0	0	0	0	0	$0
Bedford	0	0	0	0	0	0	0	0	$0
Belchertown	0	0	0	0	0	0	0	0	$0
Bellingham	1	1	0	0	0	0	0	0	$160,000
Belmont	0	0	0	0	0	0	0	0	$0
Berkley	0	0	0	0	0	0	0	0	$0
Berlin	2	0	1	1	0	0	0	0	$5,003
Bernardston	0	0	0	0	0	0	0	0	$0
Beverly	9	0	0	9	0	0	0	0	$0

2016 Fire Experience By Community

Community	Total Fires	Structure Fires	Vehicle Fires	Other Fires	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Billerica	130	33	13	84	0	1	0	1	$904,159
Blackstone	20	4	1	15	0	0	0	0	$210,500
Blandford	4	0	0	4	0	0	0	0	$0
Bolton	22	6	5	11	0	0	0	0	$34,950
Boston	5,979	4,096	252	1,631	4	8	0	4	$48,354,497
Bourne	16	14	0	2	0	1	0	0	$90,200
Boxborough	26	3	1	22	0	2	0	0	$44,500
Boxford	19	4	3	12	0	0	0	0	$285,792
Boylston	11	3	1	7	0	0	0	0	$38,000
Braintree	89	20	12	57	0	0	0	0	$723,760
Brewster	26	11	3	12	1	0	0	0	$538,600
Bridgewater	127	71	13	43	0	0	0	0	$2,351,900
Brimfield	21	8	5	8	0	0	0	0	$114,950
Brockton	629	348	57	224	0	17	0	12	$4,956,644
Brookfield	17	7	1	9	0	0	0	0	$0
Brookline	442	346	7	89	0	1	0	4	$3,025,190
Buckland	5	0	1	4	0	0	0	0	$2,000
Burlington	122	23	16	83	0	0	0	1	$2,724,357
Cambridge	1,048	903	15	130	0	1	0	7	$2,025,825
Canton	34	15	8	11	0	3	0	1	$318,000
Carlisle	0	0	0	0	0	0	0	0	$0
Carver	2	2	0	0	0	0	0	0	$20,000
Charlemont	7	1	1	5	0	0	0	0	$0
Charlton	51	25	12	14	1	2	0	0	$379,760
Chatham	17	8	1	8	0	2	0	0	$4,000
Chelmsford	39	15	14	10	0	2	0	1	$321,285
Chelsea	359	248	17	94	1	0	0	33	$4,604,053
Cheshire	6	5	1	0	0	0	0	0	$53,000
Chester	2	2	0	0	0	0	0	0	$0
Chesterfield	0	0	0	0	0	0	0	0	$0
Chicopee	176	85	13	78	0	8	0	6	$1,575,510
Chilmark	4	0	0	4	0	0	0	0	$3,000
Clarksburg	2	2	0	0	0	0	0	0	$346,500
Clinton	66	34	2	30	0	0	0	0	$308,630
Cohasset	78	52	4	22	0	0	0	0	$876,530

2016 Arson Experience By Community

Community	Total Fires	Structure Fires	Vehicle Fires	Other Fires	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Billerica	0	0	0	0	0	0	0	0	$0
Blackstone	0	0	0	0	0	0	0	0	$0
Blandford	0	0	0	0	0	0	0	0	$0
Bolton	1	0	1	0	0	0	0	0	$500
Boston	117	19	8	90	1	1	0	0	$1,011,841
Bourne	1	0	0	1	0	0	0	0	$0
Boxborough	0	0	0	0	0	0	0	0	$0
Boxford	1	0	0	1	0	0	0	0	$2,000
Boylston	2	0	0	2	0	0	0	0	$0
Braintree	1	1	0	0	0	0	0	0	$0
Brewster	1	1	0	0	1	0	0	0	$250,000
Bridgewater	0	0	0	0	0	0	0	0	$0
Brimfield	0	0	0	0	0	0	0	0	$0
Brockton	4	2	0	2	0	0	0	0	$12,020
Brookfield	4	2	0	2	0	0	0	0	$0
Brookline	1	0	0	1	0	0	0	0	$0
Buckland	0	0	0	0	0	0	0	0	$0
Burlington	0	0	0	0	0	0	0	0	$0
Cambridge	0	0	0	0	0	0	0	0	$0
Canton	0	0	0	0	0	0	0	0	$0
Carlisle	0	0	0	0	0	0	0	0	$0
Carver	0	0	0	0	0	0	0	0	$0
Charlemont	0	0	0	0	0	0	0	0	$0
Charlton	2	0	0	2	0	0	0	0	$0
Chatham	1	0	0	1	0	0	0	0	$0
Chelmsford	1	0	1	0	0	0	0	0	$0
Chelsea	5	1	3	1	0	0	0	0	$12,100
Cheshire	0	0	0	0	0	0	0	0	$0
Chester	0	0	0	0	0	0	0	0	$0
Chesterfield	0	0	0	0	0	0	0	0	$0
Chicopee	3	0	1	2	0	0	0	0	$5,110
Chilmark	0	0	0	0	0	0	0	0	$0
Clarksburg	0	0	0	0	0	0	0	0	$0
Clinton	1	0	0	1	0	0	0	0	$0
Cohasset	3	0	0	3	0	0	0	0	$0

2016 Fire Experience By Community

Community	Total Fires	Structure Fires	Vehicle Fires	Other Fires	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Colrain	13	5	0	8	0	0	0	0	$13,750
Concord	67	18	5	44	0	0	0	0	$625,500
Conway	7	5	0	2	0	0	0	0	$320,000
Cummington	2	0	0	2	0	0	0	0	$0
Dalton	25	17	3	5	0	1	0	2	$249,000
Danvers	142	20	12	110	0	0	0	1	$391,655
Dartmouth Fire Districts									
Dartmouth #1	*18*	*8*	*3*	*7*	*0*	*0*	*0*	*0*	*$216,400*
Dartmouth #2	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Dartmouth #3	*73*	*23*	*10*	*40*	*0*	*0*	*0*	*0*	*$980,670*
Dedham	181	86	13	82	1	1	0	4	$41,100
Deerfield Fire Districts									
Deerfield	*2*	*0*	*0*	*2*	*0*	*0*	*0*	*0*	*$0*
South Deerfield	*6*	*1*	*2*	*3*	*0*	*0*	*0*	*0*	*$0*
Dennis	74	27	4	43	0	2	0	1	$809,035
Devens	13	4	2	7	0	0	0	0	$46,003
Dighton	18	6	5	7	0	0	0	0	$169,500
Douglas	33	11	1	21	0	0	0	0	$514,004
Dover	12	4	0	8	0	0	0	0	$0
Dracut	74	27	7	40	0	0	0	1	$368,482
Dudley	32	18	2	12	1	2	0	0	$176,150
Dunstable	17	6	2	9	0	0	0	2	$140,150
Duxbury	50	17	6	27	0	1	0	2	$27,500
East Bridgewater	37	14	2	21	0	0	0	1	$162,350
East Brookfield	11	4	1	6	0	0	0	0	$21,500
East Longmeadow	46	21	5	20	0	0	0	1	$568,500
Eastham	23	9	1	13	0	3	0	4	$772,002
Easthampton	44	18	6	20	0	2	0	1	$383,510
Easton	54	19	7	28	0	1	0	0	$994,260
Edgartown	2	0	0	2	0	0	0	0	$0
Egremont	12	8	1	3	0	0	0	0	$0
Erving	15	7	1	7	1	0	0	0	$0
Essex	17	8	2	7	0	1	0	1	$826,000
Everett	140	53	8	79	0	3	0	3	$1,405,078
Fairhaven	56	19	7	30	0	3	0	6	$685,202

2016 Arson Experience By Community

Community	Total Fires	Structure Fires	Vehicle Fires	Other Fires	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Colrain	0	0	0	0	0	0	0	0	$0
Concord	3	0	0	3	0	0	0	0	$0
Conway	0	0	0	0	0	0	0	0	$0
Cummington	0	0	0	0	0	0	0	0	$0
Dalton	0	0	0	0	0	0	0	0	$0
Danvers	2	0	0	2	0	0	0	0	$0
Dartmouth Fire Districts									
Dartmouth #1	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Dartmouth #2	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Dartmouth #3	*4*	*2*	*0*	*2*	*0*	*0*	*0*	*0*	*$150*
Dedham	7	0	0	7	0	0	0	0	$0
Deerfield Fire Districts									
Deerfield	*1*	*0*	*0*	*1*	*0*	*0*	*0*	*0*	*$0*
South Deerfield	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Dennis	4	1	0	3	0	0	0	0	$0
Devens	0	0	0	0	0	0	0	0	$0
Dighton	0	0	0	0	0	0	0	0	$0
Douglas	1	0	0	1	0	0	0	0	$0
Dover	0	0	0	0	0	0	0	0	$0
Dracut	3	0	0	3	0	0	0	0	$0
Dudley	0	0	0	0	0	0	0	0	$0
Dunstable	2	0	0	2	0	0	0	0	$150
Duxbury	0	0	0	0	0	0	0	0	$0
East Bridgewater	1	0	0	1	0	0	0	0	$0
East Brookfield	0	0	0	0	0	0	0	0	$0
East Longmeadow	4	0	0	4	0	0	0	0	$0
Eastham	0	0	0	0	0	0	0	0	$0
Easthampton	2	0	0	2	0	0	0	0	$0
Easton	2	0	0	2	0	0	0	0	$0
Edgartown	0	0	0	0	0	0	0	0	$0
Egremont	0	0	0	0	0	0	0	0	$0
Erving	1	1	0	0	0	0	0	0	$0
Essex	2	0	0	2	0	0	0	0	$0
Everett	2	1	0	1	0	0	0	0	$500
Fairhaven	1	0	0	1	0	0	0	0	$0

2016 Fire Experience By Community

Community	Total Fires	Structure Fires	Vehicle Fires	Other Fires	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Fall River	437	254	58	125	2	19	0	6	$5,378,026
Falmouth	96	33	11	52	0	2	0	2	$620,670
Fitchburg	548	364	21	163	4	3	0	2	$1,694,570
Florida	7	2	4	1	0	0	0	0	$42,000
Foxborough	50	12	11	27	0	0	0	1	$715,000
Framingham	599	455	28	116	0	4	0	43	$1,956,210
Franklin	71	12	15	44	0	1	0	1	$440,000
Freetown	48	16	13	19	0	0	0	0	$213,200
Gardner	232	189	7	36	0	0	0	0	$169,057
Georgetown	63	49	0	14	0	0	0	0	$552,000
Gill	7	1	0	6	0	0	0	0	$0
Gloucester	115	65	4	46	0	1	0	5	$2,692,300
Goshen	3	2	0	1	0	0	0	0	$0
Gosnold	0	0	0	0	0	0	0	0	$0
Grafton	8	5	2	1	0	0	0	0	$37,000
Granby	19	8	2	9	0	1	0	0	$526,899
Granville	4	0	1	3	0	0	0	0	$0
Great Barrington	79	67	2	10	0	1	0	3	$363,400
Greenfield	68	40	5	23	4	6	0	5	$330,675
Groton	48	13	0	35	2	0	0	3	$735,300
Groveland	25	5	1	19	0	0	0	0	$63,850
Hadley	6	3	3	0	0	0	0	0	$283,500
Halifax	23	7	1	15	0	0	0	1	$1,268,800
Hamilton	16	9	0	7	0	0	0	0	$105,340
Hampden	38	20	0	18	0	0	0	0	$1,750,300
Hancock	1	1	0	0	0	0	0	0	$0
Hanover	61	21	1	39	0	0	0	0	$114,000
Hanson	40	9	1	30	0	0	0	0	$429,000
Hardwick	15	10	1	4	0	0	0	0	$6,000
Harvard	19	6	2	11	0	0	0	0	$13,100
Harwich	55	27	5	23	0	4	0	1	$553,600
Hatfield	13	2	0	11	0	0	0	0	$2,000
Haverhill	270	112	25	133	0	3	0	10	$1,659,953
Hawley	2	0	0	2	0	0	0	0	$0
Heath	5	2	1	2	0	1	0	0	$4,880
Hingham	80	20	5	55	0	8	0	1	$435,708

2016 Arson Experience By Community

Community	Total Fires	Structure Fires	Vehicle Fires	Other Fires	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Fall River	22	13	9	0	0	0	0	1	$1,021,961
Falmouth	0	0	0	0	0	0	0	0	$0
Fitchburg	4	2	2	0	1	0	0	0	$796,600
Florida	1	1	0	0	0	0	0	0	$0
Foxborough	0	0	0	0	0	0	0	0	$0
Framingham	2	2	0	0	0	0	0	0	$125,000
Franklin	3	1	1	1	0	0	0	0	$0
Freetown	2	0	2	0	0	0	0	0	$47,000
Gardner	1	0	1	0	0	0	0	0	$19,500
Georgetown	2	0	0	2	0	0	0	0	$0
Gill	1	0	0	1	0	0	0	0	$0
Gloucester	1	1	0	0	0	0	0	1	$150,000
Goshen	0	0	0	0	0	0	0	0	$0
Gosnold	0	0	0	0	0	0	0	0	$0
Grafton	0	0	0	0	0	0	0	0	$0
Granby	0	0	0	0	0	0	0	0	$0
Granville	0	0	0	0	0	0	0	0	$0
Great Barrington	0	0	0	0	0	0	0	0	$0
Greenfield	2	0	0	2	0	0	0	0	$0
Groton	0	0	0	0	0	0	0	0	$0
Groveland	3	0	0	3	0	0	0	0	$0
Hadley	1	1	0	0	0	0	0	0	$8,000
Halifax	0	0	0	0	0	0	0	0	$0
Hamilton	0	0	0	0	0	0	0	0	$0
Hampden	0	0	0	0	0	0	0	0	$0
Hancock	0	0	0	0	0	0	0	0	$0
Hanover	0	0	0	0	0	0	0	0	$0
Hanson	3	0	0	3	0	0	0	0	$0
Hardwick	0	0	0	0	0	0	0	0	$0
Harvard	0	0	0	0	0	0	0	0	$0
Harwich	2	1	0	1	0	0	0	0	$1,000
Hatfield	2	0	0	2	0	0	0	0	$0
Haverhill	4	2	1	1	0	0	0	0	$33,000
Hawley	0	0	0	0	0	0	0	0	$0
Heath	0	0	0	0	0	0	0	0	$0
Hingham	3	0	0	3	0	0	0	0	$0

2016 Fire Experience By Community

Community	Total Fires	Structure Fires	Vehicle Fires	Other Fires	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Hinsdale	0	0	0	0	0	0	0	0	$0
Holbrook	52	28	3	21	0	1	0	0	$832,025
Holden	36	20	3	13	0	1	0	0	$135,150
Holland	11	8	0	3	0	0	0	0	$11,000
Holliston	7	7	0	0	0	0	0	0	$1,792,900
Holyoke	445	262	36	147	0	2	0	4	$185,450
Hopedale	35	19	0	16	0	1	0	1	$225,100
Hopkinton	78	22	6	50	0	0	0	0	$1,128,295
Hubbardston	33	13	3	17	0	0	0	1	$350,505
Hudson	74	24	1	49	1	3	0	2	$960,250
Hull	25	4	3	18	0	0	0	0	$368,500
Huntington	0	0	0	0	0	0	0	0	$0
Ipswich	35	12	2	21	0	0	0	0	$138,450
Joint Base C. C.	7	2	1	4	0	0	0	0	$0
Kingston	59	17	9	33	0	0	0	0	$413,500
Lakeville	25	8	3	14	0	0	0	0	$193,300
Lancaster	21	4	3	14	0	0	0	1	$420,000
Lanesborough	11	4	1	6	0	1	0	0	$8,000
Lawrence	253	72	31	150	0	2	0	14	$5,884,551
Lee	3	3	0	0	0	3	0	0	$0
Leicester	31	7	7	17	0	1	0	0	$446,500
Lenox	24	10	7	7	0	1	0	0	$46,300
Leominster	257	142	8	107	1	1	0	3	$306,559
Leverett	10	6	0	4	0	0	0	0	$70,000
Lexington	27	13	6	8	0	0	0	1	$392,311
Leyden	3	2	0	1	0	0	0	0	$0
Lincoln	30	28	0	2	0	0	0	0	$10,046
Littleton	27	11	6	10	0	0	0	0	$250,010
Logan Airport FD	73	2	18	53	0	0	0	0	$97,350
Longmeadow	42	15	8	19	0	0	0	0	$426,065
Lowell	544	337	21	186	1	1	0	1	$2,290,252
Ludlow	64	33	7	24	0	4	0	0	$1,391,675
Lunenburg	40	14	3	23	0	0	0	1	$411,950
Lynn	459	323	23	113	0	2	0	3	$386,662
Lynnfield	112	61	7	44	0	0	0	3	$654,154

2016 Arson Experience By Community

Community	Total Fires	Structure Fires	Vehicle Fires	Other Fires	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Hinsdale	0	0	0	0	0	0	0	0	$0
Holbrook	0	0	0	0	0	0	0	0	$0
Holden	0	0	0	0	0	0	0	0	$0
Holland	0	0	0	0	0	0	0	0	$0
Holliston	0	0	0	0	0	0	0	0	$0
Holyoke	39	8	4	27	0	0	0	0	$70,025
Hopedale	4	0	0	4	0	0	0	0	$0
Hopkinton	1	0	0	1	0	0	0	0	$5,500
Hubbardston	2	0	0	2	0	0	0	0	$0
Hudson	10	1	0	9	0	1	0	0	$3,500
Hull	3	0	0	3	0	0	0	0	$2,000
Huntington	0	0	0	0	0	0	0	0	$0
Ipswich	1	0	0	1	0	0	0	0	$0
Joint Base C. C.	0	0	0	0	0	0	0	0	$0
Kingston	1	0	1	0	0	0	0	0	$0
Lakeville	2	1	0	1	0	0	0	0	$0
Lancaster	0	0	0	0	0	0	0	0	$0
Lanesborough	0	0	0	0	0	0	0	0	$0
Lawrence	27	7	7	13	0	0	0	3	$378,751
Lee	0	0	0	0	0	0	0	0	$0
Leicester	4	0	0	4	0	0	0	0	$0
Lenox	0	0	0	0	0	0	0	0	$0
Leominster	2	0	0	2	0	0	0	0	$0
Leverett	2	0	0	2	0	0	0	0	$0
Lexington	0	0	0	0	0	0	0	0	$0
Leyden	0	0	0	0	0	0	0	0	$0
Lincoln	0	0	0	0	0	0	0	0	$0
Littleton	0	0	0	0	0	0	0	0	$0
Logan Airport FD	0	0	0	0	0	0	0	0	$0
Longmeadow	4	0	0	4	0	0	0	0	$0
Lowell	9	3	0	6	0	0	0	0	$63,350
Ludlow	0	0	0	0	0	0	0	0	$0
Lunenburg	0	0	0	0	0	0	0	0	$0
Lynn	13	5	2	6	0	0	0	0	$53,702
Lynnfield	6	1	0	5	0	0	0	2	$300,000

2016 Fire Experience By Community

Community	Total Fires	Structure Fires	Vehicle Fires	Other Fires	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Malden	133	60	3	70	0	1	0	1	$215,000
Manchester	21	11	3	7	0	0	0	0	$184,000
Mansfield	61	14	15	32	0	3	0	1	$492,000
Marblehead	31	14	2	15	0	0	0	1	$513,389
Marion	16	1	3	12	0	0	0	0	$89,500
Marlborough	116	31	11	74	0	3	0	0	$808,360
Marshfield	79	35	4	40	0	1	0	0	$0
Mashpee	42	20	5	17	0	0	0	0	$830,200
Mattapoisett	13	1	1	11	0	0	0	0	$40,000
Maynard	21	9	1	11	0	0	0	0	$118,100
Medfield	17	5	0	12	0	0	0	0	$6,100
Medford	242	143	16	83	0	1	0	3	$592,100
Medway	51	22	5	24	0	0	0	0	$1,032,162
Melrose	23	12	5	6	0	0	0	1	$177,100
Mendon	4	1	1	2	0	0	0	0	$0
Merrimac	38	15	4	19	0	0	0	0	$0
Methuen	163	44	19	100	0	0	0	0	$3,156,300
Middleborough	88	22	24	42	5	1	0	0	$525,480
Middlefield	3	2	0	1	0	1	0	0	$57,500
Middleton	64	12	2	50	0	0	0	0	$295,010
Milford	118	41	14	63	0	0	0	5	$879,392
Millbury	56	29	6	21	0	1	0	0	$332,825
Millis	0	0	0	0	0	0	0	0	$0
Millville	10	8	1	1	0	0	0	0	$520,000
Milton	191	128	21	42	4	1	0	4	$1,173,750
Monroe	0	0	0	0	0	0	0	0	$0
Monson	22	5	1	16	0	1	0	0	$100,300
Montague Fire Districts									
Montague Center	*10*	*5*	*0*	*5*	*0*	*0*	*0*	*0*	*$8,000*
Turners Falls	*32*	*19*	*2*	*11*	*0*	*0*	*0*	*1*	*$429,525*
Monterey	2	1	1	0	0	0	0	0	$430,000
Montgomery	0	0	0	0	0	0	0	0	$0
Nahant	16	9	1	6	0	1	0	0	$20,000
Nantucket	52	27	4	21	0	0	0	0	$5,120,000
Natick	107	29	8	70	1	0	0	0	$1,118,201
Needham	59	11	4	44	0	0	0	1	$1,051,250

2016 Arson Experience By Community

Community	Total Fires	Structure Fires	Vehicle Fires	Other Fires	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Malden	0	0	0	0	0	0	0	0	$0
Manchester	0	0	0	0	0	0	0	0	$0
Mansfield	1	0	0	1	0	0	0	0	$0
Marblehead	0	0	0	0	0	0	0	0	$0
Marion	0	0	0	0	0	0	0	0	$0
Marlborough	1	0	0	1	0	0	0	0	$0
Marshfield	2	1	0	1	0	1	0	0	$0
Mashpee	4	2	0	2	0	0	0	0	$643,500
Mattapoisett	0	0	0	0	0	0	0	0	$0
Maynard	1	1	0	0	0	0	0	0	$0
Medfield	7	0	0	7	0	0	0	0	$0
Medford	0	0	0	0	0	0	0	0	$0
Medway	2	1	0	1	0	0	0	0	$4
Melrose	0	0	0	0	0	0	0	0	$0
Mendon	0	0	0	0	0	0	0	0	$0
Merrimac	5	0	0	5	0	0	0	0	$0
Methuen	8	0	1	7	0	0	0	0	$0
Middleborough	0	0	0	0	0	0	0	0	$0
Middlefield	0	0	0	0	0	0	0	0	$0
Middleton	2	0	0	2	0	0	0	0	$0
Milford	1	0	0	1	0	0	0	0	$0
Millbury	0	0	0	0	0	0	0	0	$0
Millis	0	0	0	0	0	0	0	0	$0
Millville	0	0	0	0	0	0	0	0	$0
Milton	6	0	0	6	0	0	0	0	$0
Monroe	0	0	0	0	0	0	0	0	$0
Monson	4	0	0	4	0	0	0	0	$0
Montague Fire Districts									
Montague Center	*2*	*1*	*0*	*1*	*0*	*0*	*0*	*0*	*$0*
Turners Falls	*1*	*0*	*0*	*1*	*0*	*0*	*0*	*0*	*$0*
Monterey	0	0	0	0	0	0	0	0	$0
Montgomery	0	0	0	0	0	0	0	0	$0
Nahant	1	0	0	1	0	0	0	0	$0
Nantucket	0	0	0	0	0	0	0	0	$0
Natick	0	0	0	0	0	0	0	0	$0
Needham	0	0	0	0	0	0	0	0	$0

2016 Fire Experience By Community

Community	Total Fires	Structure Fires	Vehicle Fires	Other Fires	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
New Ashford	2	1	0	1	0	0	0	0	$0
New Bedford	445	213	49	183	1	8	0	1	$1,912,592
New Braintree	1	1	0	0	0	0	0	0	$215,000
New Marlborough	5	3	0	2	0	0	0	0	$0
New Salem	4	2	1	1	0	0	0	0	$10,000
Newbury	9	1	1	7	0	0	0	0	$0
Newburyport	13	10	0	3	0	1	0	2	$1,619,050
Newton	204	86	8	110	0	0	0	4	$1,567,250
Norfolk	54	40	1	13	0	3	0	0	$558,706
North Adams	29	4	4	21	0	0	0	1	$27,651
North Andover	127	67	5	55	1	4	0	0	$1,226,957
North Attleboro	67	21	14	32	1	0	0	0	$314,200
North Brookfield	1	0	1	0	0	0	0	0	$0
North Reading	46	13	7	26	0	3	0	0	$509,500
Northampton	73	36	9	28	0	3	0	0	$1,138,100
.Northborough	45	9	7	29	0	1	0	1	$367,616
Northbridge	54	23	2	29	2	0	0	0	$532,050
Northfield	13	6	1	6	0	0	0	0	$189,200
Norton	48	10	11	27	0	0	0	0	$866,447
Norwell	45	9	7	29	0	0	0	0	$135,000
Norwood	143	42	3	98	0	1	0	1	$933,004
Oak Bluffs	22	3	5	14	0	0	0	0	$5,001
Oakham	9	3	0	6	0	0	0	0	$11,100
Orange	48	19	3	26	3	4	0	1	$876,300
Orleans	36	14	6	16	0	0	0	0	$1,063,300
Otis	1	1	0	0	0	0	0	0	$0
Oxford	66	22	9	35	1	0	0	0	$421,446
Palmer Fire Districts									
Bondsville	*15*	*6*	*1*	*8*	*1*	*3*	*0*	*1*	*$40,700*
Palmer	*38*	*17*	*9*	*12*	*0*	*0*	*0*	*0*	*$249,984*
Three Rivers	*13*	*2*	*1*	*10*	*0*	*0*	*0*	*0*	*$0*
Paxton	19	9	1	9	0	0	0	0	$267,800
Peabody	49	35	2	12	0	0	0	0	$1,260,180
Pelham	0	0	0	0	0	0	0	0	$0
Pembroke	17	8	5	4	0	0	0	0	$68,700
Pepperell	35	15	2	18	0	1	0	2	$249,646

2016 Arson Experience By Community

Community	Total Fires	Structure Fires	Vehicle Fires	Other Fires	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
New Ashford	0	0	0	0	0	0	0	0	$0
New Bedford	13	6	6	1	0	1	0	1	$130,695
New Braintree	0	0	0	0	0	0	0	0	$0
New Marlborough	0	0	0	0	0	0	0	0	$0
New Salem	0	0	0	0	0	0	0	0	$0
Newbury	1	0	0	1	0	0	0	0	$0
Newburyport	0	0	0	0	0	0	0	0	$0
Newton	0	0	0	0	0	0	0	0	$0
Norfolk	1	1	0	0	0	0	0	0	$1,100
North Adams	1	0	0	1	0	0	0	0	$1,000
North Andover	7	3	0	4	0	0	0	0	$60,581
North Attleboro	1	0	1	0	1	0	0	0	$0
North Brookfield	0	0	0	0	0	0	0	0	$0
North Reading	5	0	0	5	0	0	0	0	$0
Northampton	0	0	0	0	0	0	0	0	$0
Northborough	2	0	0	2	0	0	0	0	$4
Northbridge	2	0	0	2	0	0	0	0	$0
Northfield	0	0	0	0	0	0	0	0	$0
Norton	6	0	1	5	0	0	0	0	$2,025
Norwell	2	1	0	1	0	0	0	0	$35,000
Norwood	2	1	0	1	0	0	0	0	$0
Oak Bluffs	2	0	1	1	0	0	0	0	$2,500
Oakham	0	0	0	0	0	0	0	0	$0
Orange	2	0	0	2	0	0	0	0	$0
Orleans	2	0	0	2	0	0	0	0	$0
Otis	0	0	0	0	0	0	0	0	$0
Oxford	0	0	0	0	0	0	0	0	$0
Palmer Fire Districts									
Bondsville	*1*	*0*	*0*	*1*	*0*	*0*	*0*	*0*	*$0*
Palmer	*1*	*0*	*0*	*1*	*0*	*0*	*0*	*0*	*$0*
Three Rivers	*3*	*0*	*0*	*3*	*0*	*0*	*0*	*0*	*$0*
Paxton	0	0	0	0	0	0	0	0	$0
Peabody	0	0	0	0	0	0	0	0	$0
Pelham	0	0	0	0	0	0	0	0	$0
Pembroke	0	0	0	0	0	0	0	0	$0
Pepperell	0	0	0	0	0	0	0	0	$0

2016 Fire Experience By Community

Community	Total Fires	Structure Fires	Vehicle Fires	Other Fires	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Peru	0	0	0	0	0	0	0	0	$0
Petersham	0	0	0	0	0	0	0	0	$0
Phillipston	10	3	1	6	0	0	0	0	$0
Pittsfield	263	135	21	107	1	3	0	7	$1,232,942
Plainfield	0	0	0	0	0	0	0	0	$0
Plainville	47	20	5	22	0	1	0	1	$76,390
Plymouth	246	74	24	148	1	2	0	4	$1,651,667
Plympton	4	1	0	3	0	0	0	1	$0
Princeton	7	3	1	3	0	0	0	0	$5,550
Provincetown	23	16	0	7	0	0	0	0	$80,000
Quincy	591	298	25	268	0	1	0	13	$948,460
Randolph	193	120	15	58	0	0	0	0	$522,622
Raynham	76	14	16	46	0	0	0	2	$1,173,500
Reading	77	34	9	34	0	0	0	0	$48,500
Rehoboth	43	18	7	18	1	0	0	0	$513,000
Revere	423	233	17	173	0	4	0	7	$1,419,337
Richmond	9	1	1	7	0	0	0	0	$0
Rochester	1	1	0	0	0	0	0	0	$900,000
Rockland	78	11	7	60	0	1	0	0	$487,404
Rockport	23	17	3	3	0	0	0	0	$0
Rowe	0	0	0	0	0	0	0	0	$0
Rowley	56	33	3	20	0	0	0	0	$39,000
Royalston	0	0	0	0	0	0	0	0	$0
Russell	7	2	1	4	0	0	0	0	$415,500
Rutland	26	6	7	13	0	0	0	1	$366,150
Salem	174	59	10	105	0	2	0	0	$728,270
Salisbury	55	15	3	37	0	0	0	1	$239,000
Sandisfield	9	0	0	9	0	0	0	0	$0
Sandwich	76	34	7	35	0	0	0	1	$394,750
Saugus	164	58	18	88	0	2	0	22	$1,273,510
Savoy	3	3	0	0	0	0	0	0	$15,000
Scituate	65	23	3	39	1	4	0	2	$1,114,430
Seekonk	86	23	13	50	0	2	0	2	$697,855
Sharon	47	23	5	19	0	1	0	1	$474,401
Sheffield	0	0	0	0	0	0	0	0	$0

2016 Arson Experience By Community

Community	Total Fires	Structure Fires	Vehicle Fires	Other Fires	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Peru	0	0	0	0	0	0	0	0	$0
Petersham	0	0	0	0	0	0	0	0	$0
Phillipston	0	0	0	0	0	0	0	0	$0
Pittsfield	15	8	2	5	0	0	0	1	$11,500
Plainfield	0	0	0	0	0	0	0	0	$0
Plainville	2	0	0	2	0	0	0	0	$0
Plymouth	6	3	0	3	1	0	0	0	$626,000
Plympton	1	0	0	1	0	0	0	0	$0
Princeton	0	0	0	0	0	0	0	0	$0
Provincetown	0	0	0	0	0	0	0	0	$0
Quincy	11	0	1	10	0	0	0	0	$11,250
Randolph	0	0	0	0	0	0	0	0	$0
Raynham	0	0	0	0	0	0	0	0	$0
Reading	1	0	0	1	0	0	0	0	$0
Rehoboth	3	1	0	2	0	0	0	0	$0
Revere	1	0	0	1	0	0	0	0	$500
Richmond	1	0	0	1	0	0	0	0	$0
Rochester	0	0	0	0	0	0	0	0	$0
Rockland	3	1	0	2	0	0	0	0	$12,000
Rockport	0	0	0	0	0	0	0	0	$0
Rowe	0	0	0	0	0	0	0	0	$0
Rowley	0	0	0	0	0	0	0	0	$0
Royalston	0	0	0	0	0	0	0	0	$0
Russell	0	0	0	0	0	0	0	0	$0
Rutland	2	0	0	2	0	0	0	0	$0
Salem	3	0	0	3	0	0	0	0	$270
Salisbury	1	0	0	1	0	0	0	0	$5,000
Sandisfield	2	0	0	2	0	0	0	0	$0
Sandwich	1	1	0	0	0	0	0	0	$10,000
Saugus	0	0	0	0	0	0	0	0	$0
Savoy	1	1	0	0	0	0	0	0	$5,000
Scituate	4	1	0	3	0	0	0	0	$2,500
Seekonk	2	1	0	1	0	0	0	0	$5,150
Sharon	2	2	0	0	0	0	0	0	$86,500
Sheffield	0	0	0	0	0	0	0	0	$0

2016 Fire Experience By Community

Community	Total Fires	Structure Fires	Vehicle Fires	Other Fires	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Shelburne Fire Districts									
Shelburne Center	*3*	*1*	*1*	*1*	*0*	*0*	*0*	*0*	*$15,100*
Shelburne Falls	*3*	*2*	*0*	*1*	*0*	*0*	*0*	*0*	*$200*
Sherborn	9	0	1	8	0	0	0	0	$0
Shirley	3	2	0	1	0	0	0	0	$0
Shrewsbury	150	77	17	56	0	0	0	0	$729,200
Shutesbury	2	1	1	0	0	0	0	0	$2,200
Somerset	43	18	10	15	0	2	0	0	$747,250
Somerville	413	309	12	92	0	7	0	22	$3,107,250
South Hadley Fire Districts									
South Hadley #1	*54*	*25*	*4*	*25*	*0*	*0*	*0*	*0*	*$105,800*
South Hadley #2	*51*	*44*	*2*	*5*	*0*	*0*	*0*	*0*	*$93,700*
Southampton	12	4	1	7	0	0	0	0	$325,000
Southborough	36	10	4	22	0	0	0	1	$1,247,501
Southbridge	49	30	6	13	0	1	0	3	$489,589
Southwick	56	22	2	32	0	0	0	0	$580,000
Spencer	62	44	5	13	0	1	0	1	$423,000
Springfield	782	371	87	324	0	5	0	40	$3,560,196
Sterling	24	7	3	14	0	0	0	2	$158,000
Stockbridge	1	1	0	0	0	0	0	0	$4,000
Stoneham	138	73	7	58	0	0	0	0	$105,000
Stoughton	138	99	8	31	0	4	0	0	$716,900
Stow	20	6	1	13	0	0	0	0	$36,300
Sturbridge	44	14	5	25	0	1	0	1	$4,880,813
Sudbury	32	11	2	19	0	2	0	7	$1,412,600
Sunderland	34	22	1	11	0	0	0	0	$500
Sutton	41	16	7	18	0	0	0	2	$1,013,300
Swampscott	38	16	0	22	0	0	0	1	$1,698,050
Swansea	78	33	16	29	0	1	0	2	$0
Taunton	218	76	21	121	0	0	0	0	$2,604,312
Templeton	8	6	1	1	0	1	0	0	$84,400
Tewksbury	90	19	11	60	1	1	0	3	$496,250
Tisbury	16	6	4	6	0	0	0	0	$18,600
Tolland	0	0	0	0	0	0	0	0	$0
Topsfield	104	80	5	19	0	0	0	0	$347,450
Townsend	31	6	2	23	0	0	0	0	$378,391
Truro	10	4	0	6	0	0	0	0	$102,000

2016 Arson Experience By Community

Community	Total Fires	Structure Fires	Vehicle Fires	Other Fires	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Shelburne Fire Districts									
Shelburne Center	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Shelburne Falls	*1*	*1*	*0*	*0*	*0*	*0*	*0*	*0*	*$200*
Sherborn	0	0	0	0	0	0	0	0	$0
Shirley	0	0	0	0	0	0	0	0	$0
Shrewsbury	1	0	0	1	0	0	0	0	$0
Shutesbury	0	0	0	0	0	0	0	0	$0
Somerset	0	0	0	0	0	0	0	0	$0
Somerville	5	0	5	0	0	0	0	0	$0
South Hadley Fire Districts									
South Hadley #1	*5*	*0*	*0*	*5*	*0*	*0*	*0*	*0*	*$0*
South Hadley #2	*2*	*1*	*1*	*0*	*0*	*0*	*0*	*0*	*$40,100*
Southampton	0	0	0	0	0	0	0	0	$0
Southborough	1	0	0	1	0	0	0	0	$0
Southbridge	0	0	0	0	0	0	0	0	$0
Southwick	1	0	0	1	0	0	0	0	$0
Spencer	0	0	0	0	0	0	0	0	$0
Springfield	24	11	7	6	0	0	0	7	$594,450
Sterling	1	0	1	0	0	0	0	0	$2,500
Stockbridge	0	0	0	0	0	0	0	0	$0
Stoneham	0	0	0	0	0	0	0	0	$0
Stoughton	0	0	0	0	0	0	0	0	$0
Stow	1	0	0	1	0	0	0	0	$0
Sturbridge	5	1	0	4	0	0	0	0	$4,000,500
Sudbury	1	0	0	1	0	0	0	0	$0
Sunderland	1	0	0	1	0	0	0	0	$0
Sutton	1	1	0	0	0	0	0	0	$302,200
Swampscott	1	0	0	1	0	0	0	0	$0
Swansea	1	0	0	1	0	0	0	0	$0
Taunton	20	1	2	17	0	0	0	0	$11,000
Templeton	0	0	0	0	0	0	0	0	$0
Tewksbury	0	0	0	0	0	0	0	0	$0
Tisbury	0	0	0	0	0	0	0	0	$0
Tolland	0	0	0	0	0	0	0	0	$0
Topsfield	0	0	0	0	0	0	0	0	$0
Townsend	4	0	0	4	0	0	0	0	$2
Truro	0	0	0	0	0	0	0	0	$0

2016 Fire Experience By Community

Community	Total Fires	Structure Fires	Vehicle Fires	Other Fires	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Tyngsborough	29	6	10	13	0	0	0	0	$290,900
Tyringham	0	0	0	0	0	0	0	0	$0
Upton	21	10	2	9	1	0	0	0	$639,500
Uxbridge	53	23	8	22	0	6	0	1	$478,770
Wakefield	54	39	11	4	0	1	0	2	$310,000
Wales	1	1	0	0	1	0	0	0	$127,200
Walpole	50	24	4	22	0	2	0	2	$937,850
Waltham	249	79	14	156	0	2	0	7	$1,207,475
Ware	41	11	3	27	0	3	0	2	$496,612
Wareham Fire Districts									
Onset	*45*	*27*	*3*	*15*	*0*	*1*	*0*	*0*	*$45,000*
Wareham	*106*	*33*	*21*	*52*	*0*	*3*	*0*	*1*	*$556,850*
Warren	23	4	3	16	0	0	0	0	$146,650
Warwick	1	0	1	0	0	0	0	0	$17,000
Washington	0	0	0	0	0	0	0	0	$0
Watertown	50	20	2	28	0	1	0	3	$379,140
Wayland	29	8	1	20	0	0	0	1	$1,336,307
Webster	62	31	10	21	0	0	0	0	$500,045
Wellesley	60	25	3	32	0	0	0	0	$154,910
Wellfleet	19	7	3	9	0	0	0	0	$34,325
Wendell	9	4	1	4	0	0	0	0	$117,500
Wenham	6	2	0	4	0	0	0	0	$129,200
West Boylston	38	17	4	17	0	0	0	0	$87,500
West Bridgewater	27	10	5	12	1	0	0	4	$715,000
West Brookfield	1	0	1	0	0	0	0	0	$0
West Newbury	17	10	2	5	1	1	0	3	$563,800
West Springfield	91	47	8	36	0	1	0	1	$209,075
West Stockbridge	7	2	4	1	0	0	0	0	$16,700
West Tisbury	3	1	0	2	0	0	0	0	$0
Westborough	135	81	12	42	0	2	0	0	$376,163
Westfield	150	64	18	68	0	3	0	4	$1,241,330
Westford	71	15	2	54	0	0	0	1	$665,332
Westhampton	6	1	0	5	0	0	0	0	$30,000
Westminster	43	18	10	15	0	1	0	0	$426,800
Weston	38	12	5	21	0	0	0	0	$727,700
Westport	62	9	13	40	0	1	0	1	$927,601

2016 Arson Experience By Community

Community	Total Fires	Structure Fires	Vehicle Fires	Other Fires	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Tyngsborough	6	0	5	1	0	0	0	0	$63,000
Tyringham	0	0	0	0	0	0	0	0	$0
Upton	2	0	0	2	0	0	0	0	$0
Uxbridge	2	1	1	0	0	0	0	0	$600
Wakefield	0	0	0	0	0	0	0	0	$0
Wales	0	0	0	0	0	0	0	0	$0
Walpole	0	0	0	0	0	0	0	0	$0
Waltham	2	1	0	1	0	0	0	0	$10,000
Ware	13	2	0	11	0	0	0	1	$95,002
Wareham Fire Districts									
Onset	*1*	*0*	*0*	*1*	*0*	*0*	*0*	*0*	*$0*
Wareham	*1*	*0*	*0*	*1*	*0*	*0*	*0*	*0*	*$0*
Warren	1	0	0	1	0	0	0	0	$30,000
Warwick	0	0	0	0	0	0	0	0	$0
Washington	0	0	0	0	0	0	0	0	$0
Watertown	0	0	0	0	0	0	0	0	$0
Wayland	0	0	0	0	0	0	0	0	$0
Webster	6	0	1	5	0	0	0	0	$1,600
Wellesley	0	0	0	0	0	0	0	0	$0
Wellfleet	0	0	0	0	0	0	0	0	$0
Wendell	0	0	0	0	0	0	0	0	$0
Wenham	1	0	0	1	0	0	0	0	$0
West Boylston	0	0	0	0	0	0	0	0	$0
West Bridgewater	1	0	0	1	0	0	0	0	$0
West Brookfield	0	0	0	0	0	0	0	0	$0
West Newbury	0	0	0	0	0	0	0	0	$0
West Springfield	4	0	0	4	0	0	0	0	$0
West Stockbridge	1	0	0	1	0	0	0	0	$0
West Tisbury	0	0	0	0	0	0	0	0	$0
Westborough	2	0	0	2	0	0	0	0	$0
Westfield	1	1	0	0	0	0	0	0	$70,000
Westford	1	0	0	1	0	0	0	0	$0
Westhampton	1	0	0	1	0	0	0	0	$0
Westminster	1	0	0	1	0	0	0	0	$0
Weston	0	0	0	0	0	0	0	0	$0
Westport	3	0	1	2	0	0	0	0	$5,500

2016 Fire Experience By Community

Community	Total Fires	Structure Fires	Vehicle Fires	Other Fires	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Westwood	142	80	9	53	0	1	0	1	$234,500
Weymouth	319	149	17	153	0	3	0	9	$3,221,095
Whately	11	2	2	7	0	0	0	0	$0
Whitman	18	7	0	11	0	0	0	0	$132,100
Wilbraham	31	18	4	9	0	1	0	0	$146,940
Williamsburg	10	5	0	5	0	0	0	1	$125,700
Williamstown	7	2	2	3	0	0	0	0	$1,400
Wilmington	95	26	8	61	0	0	0	0	$294,150
Winchendon	37	23	3	11	0	0	0	1	$340,375
Winchester	37	19	1	17	0	1	0	0	$528,500
Windsor	8	1	1	6	0	0	0	0	$0
Winthrop	80	48	0	32	0	0	0	0	$399,975
Woburn	243	99	20	124	0	1	0	1	$3,428,879
Worcester	1,426	827	88	511	1	13	0	26	$11,210,503
Worthington	1	1	0	0	0	0	0	1	$160,000
Wrentham	13	4	2	7	0	0	0	0	$24,364
Yarmouth	59	30	9	20	0	0	0	0	$345,000

2016 Arson Experience By Community

Community	Total Fires	Structure Fires	Vehicle Fires	Other Fires	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Westwood	1	0	0	1	0	0	0	0	$0
Weymouth	2	1	0	1	0	0	0	0	$200
Whately	2	0	0	2	0	0	0	0	$0
Whitman	0	0	0	0	0	0	0	0	$0
Wilbraham	1	1	0	0	0	0	0	0	$1,500
Williamsburg	2	1	0	1	0	0	0	0	$0
Williamstown	0	0	0	0	0	0	0	0	$0
Wilmington	0	0	0	0	0	0	0	0	$0
Winchendon	1	0	1	0	0	0	0	0	$10,000
Winchester	0	0	0	0	0	0	0	0	$0
Windsor	3	0	0	3	0	0	0	0	$0
Winthrop	0	0	0	0	0	0	0	0	$0
Woburn	4	1	0	3	0	0	0	0	$200
Worcester	16	8	7	1	0	0	0	1	$282,626
Worthington	0	0	0	0	0	0	0	0	$0
Wrentham	0	0	0	0	0	0	0	0	$0
Yarmouth	3	0	0	3	0	0	0	0	$0

2016 Fires By Incident Type

Incident Type	Total Fires	% of Total	Civilian Deaths	Civilian Inj.	Fire Service Deaths	Fire Service Inj.	Dollar Loss
Structure Fires	16,955	53%	47	258	0	417	$234,563,914
Vehicle Fires	2,357	7%	9	13	0	16	18,215,915
Brush Fires	7,834	25%	0	6	0	34	1,526,654
Outside Rubbish Fires	2,862	9%	0	2	0	11	268,751
Special Outside Fires	948	3%	0	6	0	0	658,899
Cult. Veg. & Crop Fires	80	0.3%	0	0	0	1	11,461
Other Fires	853	3%	0	10	0	4	3,361,438
Total Fires	**31,889**	**100%**	**56**	**295**	**0**	**483**	**$258,607,032**

2016 Arsons* By Incident Type

Incident Type	Total Fires	% of Total	Civilian Deaths	Civilian Inj.	Fire Service Deaths	Fire Service Inj.	Dollar Loss
Structure Arsons	151	20%	3	2	0	13	$10,421,598
Vehicle Arsons	88	12%	1	0	0	1	549,963
Brush Arsons	273	37%	0	0	0	1	4,270
Outside Rubbish Arsons	73	10%	0	0	0	0	5,879
Special Outside Arsons	96	13%	0	1	0	0	48,942
Cult. Veg. & Crop Arsons	5	1%	0	0	0	0	0
Other Arsons	56	8%	0	1	0	0	25,620
Total Arsons	**742**	**100%**	**4**	**4**	**0**	**15**	**$11,551,245**

*For statistical purposes in MFIRS v5 a fire is considered an arson if the Cause of Ignition = 1 (Intentional) and the Age of Person (Fire Module) is greater than 17 or if the field is blank; or if the Wildland Module is used, the Wildland Fire Cause = 7 (Incendiary) and the Age of the Person (Wildland Module) is greater than 17 or if the field is left blank.

2016 Fires by County

County	Total Fires	Structure Fires	Vehicle Fires	Other Fires	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Barnstable	829	346	75	408	1	16	0	12	$7,276,344
Berkshire	548	301	55	192	1	10	0	14	4,148,891
Bristol	2,034	816	305	913	7	32	0	21	18,880,214
Dukes	50	12	10	28	0	0	0	0	840,601
Essex	2,870	1,308	209	1,353	3	21	0	65	28,312,749
Franklin	341	158	26	157	8	11	0	7	2,722,830
Hampden	2,134	1,033	215	886	2	29	0	59	13,382,435
Hampshire	369	168	30	171	0	11	0	7	5,204,955
Middlesex	6,131	3,354	350	2,427	6	48	0	126	45,155,094
Nantucket	51	26	4	21	0	0	0	0	5,120,000
Norfolk	3,154	1,638	213	1,303	4	25	0	43	19,942,109
Plymouth	2,075	820	215	1,040	8	39	0	29	17,893,607
Suffolk	6,914	4,627	304	1,983	5	12	0	44	54,875,212
Worcester	4,389	2,348	346	1,695	11	41	0	56	34,851,181
Total	**31,889**	**16,955**	**2,357**	**12,577**	**56**	**295**	**0**	**483**	**$258,607,032**

2016 Arsons by County

County	Total Arsons	Structure Arsons	Vehicle Arsons	Other Arsons	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Barnstable	28	8	0	20	1	0	0	0	$979,501
Berkshire	26	11	2	13	0	0	0	1	20,000
Bristol	78	21	20	37	1	1	0	2	796,070
Dukes	2	0	1	1	0	0	0	0	2,500
Essex	100	17	10	73	0	0	0	0	677,824
Franklin	16	3	0	13	0	0	0	0	200
Hampden	94	21	12	61	0	0	0	7	741,125
Hampshire	24	5	1	18	0	0	0	1	143,202
Middlesex	72	10	11	51	0	1	0	0	271,202
Nantucket	0	0	0	0	0	0	0	0	0
Norfolk	54	9	2	43	0	0	0	0	259,054
Plymouth	41	10	2	29	1	1	0	0	689,520
Suffolk	123	20	11	92	1	1	0	0	1,024,441
Worcester	84	16	16	52	0	0	0	1	5,451,633
Total	**742**	**151**	**88**	**503**	**4**	**4**	**0**	**15**	**$11,056,272**

2016 Fires, Arsons and Deaths by County and by Population*

County	Population	Total Fires	Fires per 1,000 Pop.	Fire Deaths	Deaths per 1,000 Fires	Deaths per 10,000 Pop.	Total Arsons	Arsons per 1,000 Pop.
Barnstable	215,888	829	3.8	1	1.2	0.05	28	0.1
Berkshire	131,219	548	4.2	1	1.7	0.08	26	0.2
Bristol	548,285	2,034	3.7	7	3.4	0.13	78	0.1
Dukes	16,535	50	3.0	0	0.0	0.00	2	0.1
Essex	743,159	2,870	3.9	3	1.0	0.04	100	0.1
Franklin	71,372	341	4.8	8	23.5	1.12	16	0.2
Hampden	463,490	2,134	4.6	2	0.9	0.04	94	0.2
Hampshire	158,080	369	2.3	0	0.0	0.00	24	0.2
Middlesex	1,503,085	6,131	4.1	6	1.0	0.04	72	0.05
Nantucket	10,172	51	5.0	0	0.0	0.00	0	0.0
Norfolk	670,850	3,154	4.7	4	1.3	0.06	54	0.1
Plymouth	494,919	2,075	4.2	8	3.9	0.16	41	0.1
Suffolk	722,023	6,914	9.6	5	0.7	0.07	123	0.2
Worcester	798,552	4,389	5.5	11	2.5	0.14	84	0.1
Massachusetts	**6,547,629**	**31,889**	**4.9**	**56**	**1.8**	**0.09**	**742**	**0.1**

*Population statistics based on 2010 U.S. Census Bureau data.

2016 Non-Fire Responses by County and by Incident Type

County	Total Non-Fire Responses	Overpressure Rupt. & Explos. (No-fire)	Rescue EMS Incidents	Hazardous Conditions (No-fire)	Service Calls	Good Intent Calls	False Alarm Calls	Severe WX[1] & Natural Disaster	Special Incident Type
Barnstable	51,237	44	36,856	1,930	3,679	2,361	6,109	38	220
Berkshire	11,589	7	6,772	720	1,534	634	1,845	22	55
Bristol	66,740	58	45,054	2,572	4,115	4,103	10,359	31	448
Dukes	927	4	95	77	53	146	543	0	9
Essex	96,934	80	55,353	3,735	15,128	6,272	15,569	63	734
Franklin	7,722	8	4,444	374	939	590	822	33	212
Hampden	42,275	60	24,131	1,821	3,498	5,976	6,630	16	143
Hampshire	13,343	22	9,005	572	826	771	2,074	21	52
Middlesex	187,432	143	110,661	9,861	19,782	11,294	29,978	119	5,639
Nantucket	2,885	7	1,274	239	125	133	1,102	4	1
Norfolk	86,479	84	52,951	5,421	8,387	5,805	11,976	111	1,744
Plymouth	83,906	81	57,667	4,378	6,898	5,088	9,457	120	217
Suffolk	105,331	81	56,981	4,775	14,074	9,126	17,898	21	2,375
Worcester	98,574	91	65,881	3,822	8,557	6,506	12,503	68	1,146
Massachusetts	**855,374**	**770**	**527,125**	**40,552**	**87,595**	**58,805**	**126,865**	**667**	**12,995**

[1] WX is the abbreviation for Weather.

MFIRS
Massachusetts Fire Incident Reporting System

Department of Fire Services
www.mass.gov/dfs
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