2012 Annual Report

Massachusetts Fire Incident Reporting System

Deval L. Patrick
Governor

Andrea J. Cabral
Secretary of Public Safety

Stephen D. Coan
State Fire Marshal

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

www.mass.gov/dfs • (978) 567-3380

ABOUT THE COVERS

The original drawings shown on the front and back covers are the year 2013 First and Second Place winning entries of the 31st 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 / EVERY DAY".**

A countywide contest was held for all students in grade 6-8. Twelve out of 14 counties participated with approximately 1,500 posters submitted. Posters were judged, and First and Second Place County Winners were chosen at MPIUA by an impartial panel of judges. All First Place County Winners were then entered into the Massachusetts Statewide Contest. An Award Ceremony was held in honor of all county winners at the Sheraton Framingham Hotel on May 30, 2013, wherein the three State Winners were announced and presented with their awards.

The front cover shows a drawing submitted by Elizabeth Ingram, a student at the Whitman Middle School, Whitman, Massachusetts. Elizabeth's poster was chosen as the First Place Winner in the Plymouth 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 First Place State Winner.

The back cover shows a drawing submitted by Nicholas Cefole, a student at the Overlook Middle School, Ashburnham, Massachusetts. Nicholas' poster was chosen as the First Place Winner in the Worcester County Poster Contest and was also automatically entered into the statewide contest where it was chosen as the Second Place State Winner.

MPIUA has generously sponsored the printing of the 2012 Annual Report of the Massachusetts Fire Incident Reporting System (MFIRS), as well as, the use of the first and second place posters for the covers, for the last 30 years.

Massachusetts Fire Incident Reporting System

2012 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

Foreword from the State Fire Marshal

Our Mission: *The mission of the Department of Fire Services is to provide the people of Massachusetts the ability to create safer communities through coordinated training, education, prevention, investigation, emergency response and leadership.*

December 2012

This is the *2012 Annual Report of the Massachusetts Fire Incident Reporting System* (MFIRS), which summarizes the Massachusetts fire experience for 2012. It is based on the 31,229 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.

Civilian Fire Deaths Down 28% From 2011

Thirty-nine (39) civilians died in 37 Massachusetts fires in 2012. Civilian deaths decreased by 18, or 28%, from the 54 fire deaths in 2011. Twenty-one (21) men, 17 women, and one child died in Massachusetts' fires. Only one person under the age of 18 died in a fire in 2012.

3rd Year in a Row with Only 1 Child Fire Death

For the third year in a row only one person under the age of 18 died in a fire. Of the 39 civilian deaths in fires in 2012, 25 were adults, 13 were older adults over the age of 65 and one was a child.

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.

0 Fire-Related Firefighter Deaths in 2012

There were no fire-related fire service fatalities in the Commonwealth of Massachusetts in 2012.

Declining Trend in Civilian Fire Deaths

Eight (8) of the lowest number of civilian fire deaths per year have occurred during the last 10 years. Our annual reports have measured the overall declining trend in fire deaths, and we're making substantial progress. We must continue our focus on prevention and education. Our annual reports have also measured the positive impact of smoke alarms in reducing fire deaths and multiple death fires, as well as the impact of smoking laws and tobacco control programs in reducing fires and fire deaths. The Student Awareness of Fire Education Program (S.A.F.E.) has had the planned impact of reducing child fire deaths. Seniors are the fastest growing share of our population, so our prevention efforts must be expanded to include them, not just shift existing resources to them.

Our relentless goal is to reduce the deaths, injuries and damage that fires cause in the Commonwealth, and to send each and every firefighter home safely at the end of the day. We must properly fund, staff and strengthen our fire prevention and public education efforts in order to fully compliment a community risk reduction plan. An important part is educating the public as to why fire codes are in place. They are generally the result of lessons learned from someone else's tragedy. It is imperative that we continue to educate the public at every stage of their lives as to what they can do to prevent a fire and to survive a fire should one occur. An effective community risk reduction program is best completed with partners and equally provides resources to all three components of the fire service: education, prevention, and suppression.

Suicides Were the Leading Cause of Fire Deaths
Continuing a trend started in 2011, for the second time in as many years and since records have been kept, smoking was not the leading cause of residential fire deaths and fatal residential building fires. In 2012, suicide by fire was the leading cause of residential fire deaths and fatal residential fires. These fires accounted for five, or 17%, of residential fire deaths. The careless disposal of smoking materials tied with electrical fires, the leading cause of fire deaths in 2011, and was the second leading cause of fire deaths each accounting for four, or 14%, of residential fire deaths.

Cooking Was the Leading Cause of Residential Building Fires & Injuries
Sixty-eight percent (68%) of all residential building fires were caused by unattended and other unsafe cooking practices in 2012. Sixty-nine percent (69%) of residential fires originated in the kitchen. Cooking also caused the most fire-related civilian injuries.

Stand by Your Pan & Put a Lid On It
Because cooking is the leading cause of fires and civilian fire injuries, in 2012 the Department of Fire Services continued its public awareness campaign on cooking safety that included television and radio spots and a toolkit for local fire chiefs that contained educational materials. The two main messages of this campaign are 'Stand by your Pan' and 'Put a Lid on it'.

We also wish to recognize the efforts of the staff of the Fire Data and Public Education Unit, Jennifer Mieth, manager; Derryl Dion, research analyst; Pavel Gorelik, programmer; and Usha Patel, data entry clerk, within the Division of Fire Safety who manage the Massachusetts Fire Incident Reporting System and prepared this report.

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 Deval L. Patrick and Public Safety and Security Secretary Andrea Cabral for their commitment and support to the Massachusetts fire service through the Department of Fire Services.

Stephen D. Coan
State Fire Marshal

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Executive Summary

"All…fires or explosions by which a loss is sustained shall be reported… to the State Fire Marshal on forms furnished by the department, and shall contain a statement of all facts relating to the cause and origin of the fire or explosion that can be ascertained, the extent of damage thereof, the insurance upon the property damaged, and such other information as may be required."

-Massachusetts General Laws, Chapter 148, Section 2.

Civilian Fire Deaths Down 28% From 2011
Thirty-nine (39) civilians died in 37 Massachusetts fires in 2012. Civilian deaths decreased by 18, or 28%, from the 54 fire deaths in 2011. Twenty-one (21) men, 17 women, and one child died in Massachusetts' fires. One (1) person under the age of 18 died in a fire in 2012. Of the 39 civilian deaths in fires in 2012, 29 occurred in residential structures. Fifty-six percent (56%) of civilians died at night, at home, while they were sleeping and did not have working smoke detectors or residential sprinklers. It is important to remember that detectors only provide an early warning of a fire. They do not guarantee an escape. Residential sprinklers provide the best opportunity to safely escape from a fire in your home. It is also important to make and practice an escape plan.

Six (6) deaths occurred in six motor vehicle fires and four people were killed in four outside fires in 2012.

0 Fire-Related Firefighter Deaths in 2012
There were no fire-related fire service fatalities in the Commonwealth of Massachusetts in 2012.

17,536 Structure Fires, 2,502 Vehicle Fires, 11,191 Outside & Other Fires in 2012
There were 31,229 fire and explosion incidents reported by fire departments to the Massachusetts Fire Incident Reporting System (MFIRS) in 2012. The 17,536 structure fires, 2,502 motor vehicle fires, and 11,191 outside and other fires caused 39 civilian deaths, 322 civilian injuries, 531 fire service injuries, and an estimated dollar loss of $257 million in property damages. In 2012 there were 1.25 civilian deaths for every 1,000 fires.

Structure Fires Down & Outside Fires Up in 2012
The total number of reported fires increased by 7% from 29,255 in 2011 to 31,229 in 2012. Structure fires decreased by 4% from 2011 to 2012. From 2011 to 2012, motor vehicle fires decreased by 17%. Outside, brush, and other fires increased by 40% 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 that 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 over half, or 58%, of the 763,004 total responses that were reported to MFIRS in 2012. The total number of calls reported to MFIRS decreased by 6,740, or 1% in 2012.

Cooking Was the Leading Cause of Residential Building Fires & Injuries
Sixty-eight percent (68%) of all residential building fires were caused by unattended and other unsafe cooking practices in 2012. Sixty-nine percent (69%) of residential fires originated in the kitchen. Cooking also caused the most fire-related civilian injuries.

Suicides Were the Leading Cause of Fire Deaths
Continuing a trend started in 2011, for the second time in as many years and according to available records, smoking was not the leading cause of residential fire deaths and fatal residential building fires. In 2012, suicide by fire was the leading cause of residential fire deaths and fatal residential fires. These fires accounted for five, or 17%, of residential fire deaths. The improper disposal of smoking materials tied with electrical fires, the leading cause of fire deaths in 2011, and was the second leading cause of fire deaths each accounting for four, or 14%, of residential fire deaths.

Detectors Operated in 63% of Fires
Smoke or heat detectors operated in 9,133, or 63%, of the residential building fires in 2012. There were no working detectors in 5% of these incidents. Based on information reported, smoke detector performance was undetermined in 3,349 incidents, or 23%, of Massachusetts' 2012 residential building fires.

Detectors Operated in 57% of Building Fires that Caused Injuries
Detectors operated in 57% of the building fires that caused injuries. This may be because when the occupant is alerted to the presence of the fire, they may try to extinguish it themselves and injure themselves during the escape after the situation has considerably 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 Up 18%
One thousand one hundred and thirty-five (1,135) Massachusetts fires were considered arson in 2012. This is an 18% increase in arson from the 962 reported in 2011. The 271 structure arsons, 114 motor vehicle arsons, and 750 outside and other arsons caused 12 civilian deaths, 16 civilian injuries, 27 fire service injuries, and an estimated dollar loss of $13.4 million.

Structure arsons increased by 22%. Motor vehicle arsons fell by 8% from 2011 to 2012, although motor vehicle arson has fallen by 98% 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 decreased by 20%.

Firefighters Injured at 1 of Every 5 Vacant Building Fires
One of the most dangerous types of fires for firefighters in 2012 was vacant building fires. Vacant building fires accounted for 56, or 11%, of all firefighter injuries in 2012. These 56 injuries also represent 12% of the number of firefighter injuries at all structure fires. On average there was one firefighter injury for every five vacant building fires.

Conclusion
Most people die in fires at night in the so-called safety of their own home. While the overall trend in the number of deaths continues to decline, electrical fires overtook smoking as the leading cause of all fatal fires. Cooking is something that we do everyday but it is still the leading cause of fires in the home and the leading cause of civilian fire injuries and we must all work to address this problem.

The lack of working smoke alarms or installation of sprinkler systems are contributing factors to these tragedies. It is important to remember that properly maintained detectors 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.

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
The fire department is 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 detectors, obstructions and hazards, combustible fibers, rubbish handling, crop ripening, pesticide storage, welding and storage, carbon monoxide, and unvented appliances. The fire department 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,

SAFE
STUDENT AWARENESS OF FIRE EDUCATION

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 2012, 206 fire departments shared the $1,079,500 in S.A.F.E. funding.

Oxford/Worcester Young Heroes – Michael & Arthur Trembly
On Friday, February 23, 2012 at 11:00 a.m. Michael and Arthur Trembly heard a loud banging noise coming from the second floor of their home. When the babysitter and the children investigated they noticed that there was a fire in the second floor bathroom and the ceiling fan had fallen to floor. Both children instructed the babysitter to shut the bathroom door to contain the fire and then exited the house safely. The children reside in a duplex and before gathering at the meeting place they had the presence of mind to notify their next door neighbor by banging loudly on her door. When she answered the children informed her of the emergency and assisted her to safety. Michael and Arthur recently moved to Oxford from Worcester and Chief Sheri Bemis of the Oxford Fire Department credits their actions to the fire and life safety education they received from the Worcester Fire Department.

Captain Jenifer Collins-Brown, Topsfield Fire Department
Captain Jenifer Collins-Brown has taken fire and life safety to a level beyond normal expectations. Whether it is in a classroom presentation at an elementary school, the Fire Department Explorer Post or the Council for the Aging, she epitomizes this lifestyle by sharing fire and life safety education with each person she meets and her enthusiasm is contagious. Captain Collins-Brown has a prevention program within the schools that has shown success with two recent "Young Heroes" — two 12-year old babysitters who took appropriate action when they smelled smoke. Her safety lifestyle not only includes fire safety within the classroom, but it also includes bicycle safety programs and fire and safety instruction to the elderly in a very concrete way. With the elderly, she goes out of her way to do routine safety lectures and also home visits, which include smoke and carbon monoxide detector testing and suggestions on falls prevention. Captain Collins-Brown mentors all thirty members of the Topsfield Fire Department on a day-to-day basis and has persuaded all of them to assist in her educational programs. Through her leadership, area fire departments staff a booth at the Topsfield Fair each year providing fire safety education to thousands of fair-goers. She is proactive, preventive and compassionate.

88 MA Departments Receive $33.6 Million in Federal Grants
Eighty-eight (88) local Massachusetts fire departments received $32.1 million in federal grants during fiscal year 2012.

In the tenth year of the Federal Assistance to Firefighters Grant program, 78 Massachusetts fire departments received $9 million. Seventy-three (73) departments received $7.4 million for fire operations and firefighter safety. Five (5) departments received $1.6 million for the purchase of firefighting vehicles.

Seven (7) fire departments were awarded $4.2 million in Federal SAFER grants that allow for the hiring and recruitment of more firefighters, and three fire departments were awarded $335,098 for fire prevention programs.

98.1% 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 forty-eight (348), or 95%, of Massachusetts' fire departments reported at least one incident to MFIRS during 2012. Twelve (12), or 3.3%, 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, SAFER grants and state S.A.F.E. funding.

More and more departments are automating fire incident reporting and other department functions. In 2012, 301, or 82%, of Massachusetts' fire departments submitted their data electronically.

Non-Fire Incidents

Fire Departments Do More Than Just Fight Fires

Massachusetts fire departments do much more than just fight fires. Over the past couple of decades they have branched out and taken on the added responsibilities for EMS responses, multiple types of specialized rescues, hazardous materials incidents, responding during and after natural disasters, as well as the typical service calls, good intent calls, false alarms and the special types of incidents that do not fit neatly into any of the other categories. These numbers have risen as more fire departments automate their reporting and have voluntarily reported all of their incidents to MFIRS.

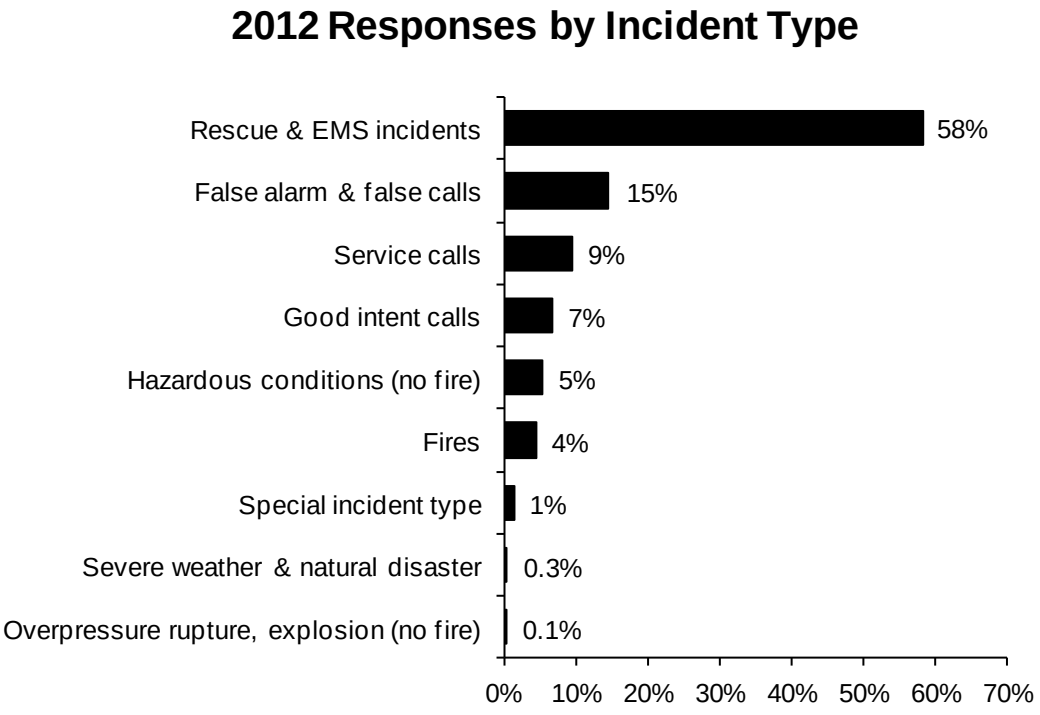
58% of All Massachusetts Calls Were EMS Incidents

In 2012, 348 fire departments in Massachusetts reported 763,004 responses[1] to MFIRS. Of these 763,004 responses, 729,909 non-fire calls were voluntarily reported.

Of these 729,909 non-fire incidents there were 44,790 (58%) reported rescue and emergency medical services (EMS) calls; 110,983 (15%) reported false alarms or false calls; 71,553 (9%) reported service calls such as lock-outs, water or smoke problems, unauthorized burning or public service assistance; 50,554 (7%) reported good intent calls; 40,329 (5%) reported hazardous condition calls with no fire; 9,772 (1%) reported special incident type calls such as citizen complaints; 1,981 (0.3%) reported severe weather and natural disaster incidents; and 947 (0.1%) reported overpressure rupture, explosion or overheat calls with no fire.

[1] These figures include responses in which fire departments gave mutual aid to other fire departments.

Thirty-three thousand and ninety-five[2] (33,095), or 4%, of the total responses submitted by Massachusetts fire departments were fires.



Most Large Cities Voluntarily Reported All of Their Incidents
Boston, the largest city in the Commonwealth, reported 66,256 non-fire incidents in 2012. The City of Worcester, the second largest city in Massachusetts, reported the second most non-fire incidents in 2012 with 27,070 incidents. The next five cities in terms of the number of non-fire calls reported were: Brockton with 20,059; Springfield with 14,080; Lowell with 13,283 calls; New Bedford with 12,992 calls; and Cambridge with 11,604 reported incidents in 2012.

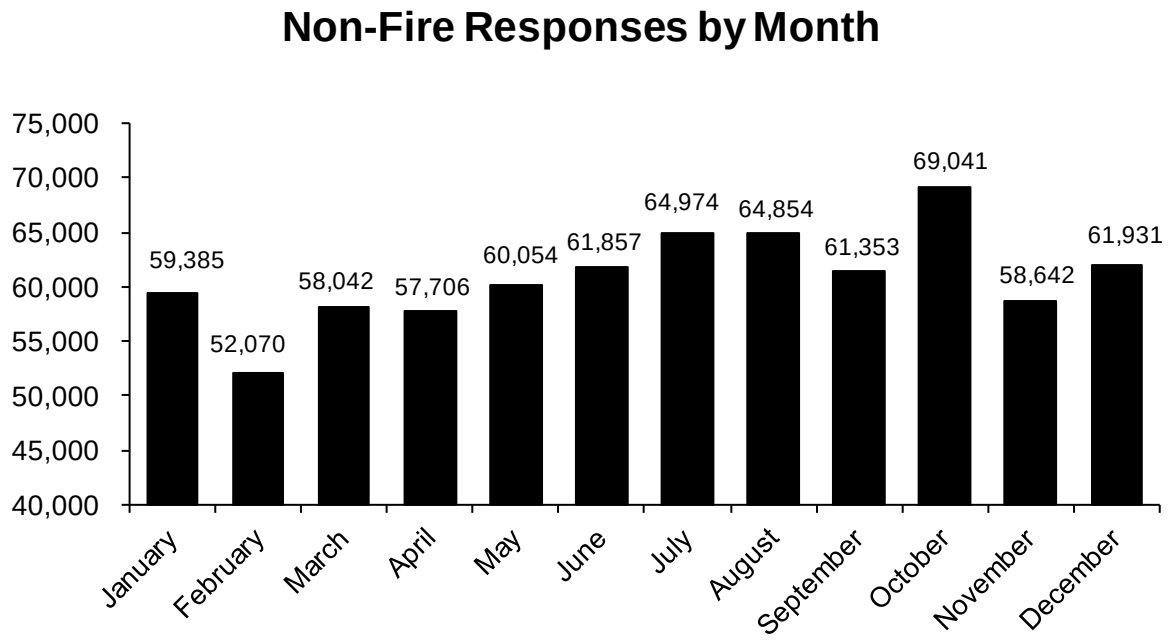
58% of All Fire Department Responses Were EMS Calls
Fifty-eight percent (58%) of all reported 2012 fire department responses in the Commonwealth were emergency medical service calls. The top four types of all calls were all EMS type incidents. Over one-third of all reported incidents, or 35%, were non-vehicle accident with injury - EMS calls. Twelve percent (12%) were calls where firefighters assisted the EMS crews. Four percent (4%) were classified as rescue, EMS call, other. Three percent (3%) of all reported incidents in 2012 were motor vehicle accidents with injuries. The fifth most reported call type in 2012 was alarm system sounded, no fire - unintentional, accounting for 2% of all reported incidents.

[2] This includes mutual aid given calls to other fire departments.

Middlesex, Suffolk & Essex Counties Reported Almost 1/2 of All Non-Fire Incidents
Middlesex, Suffolk and Essex Counties reported a combined 45% of all non-fire incidents to MFIRS in 2012. Middlesex County reported 21% of these types of incidents and Suffolk County reported 12%. Essex County submitted the third most non-fire calls, totaling 12% of all the 2012 non-fire incidents. Nantucket County reported 2,468 (0.3%) non-fire incidents and Dukes County[3] reported 358 non-fire incidents, accounting for 0.05% of all non-fire incidents reported to MFIRS in 2012.

For a complete breakdown of non-fire incidents by incident type and county, refer to the Appendix.

Non-Fire Incidents by Month
October was the month with the most reported non-fire incidents in 2012 (9%), followed by July (9%), and August (9%). February was the month with the least reported non-fire incidents (7%). Statistically these incidents are spread evenly from month to month. Eight (8) months each accounted for 8% of the incidents, three months each accounted for 9%, and one month accounted for 7% of the incidents. The average number of monthly reported non-fire incidents in 2012 was 60,826 calls.



Aid Given & Received
In 2012, Massachusetts fire departments reported that they received mutual or automatic aid at 11,826, or 2%, of all calls. They also reported that they gave mutual, automatic or other aid to other fire departments 16,496 times, or another 2% of all calls.

[3] Only 3 local fire departments in Dukes County, Aquinnah, Oak Bluffs and Tisbury reported non-fire incidents to MFIRS in 2012.

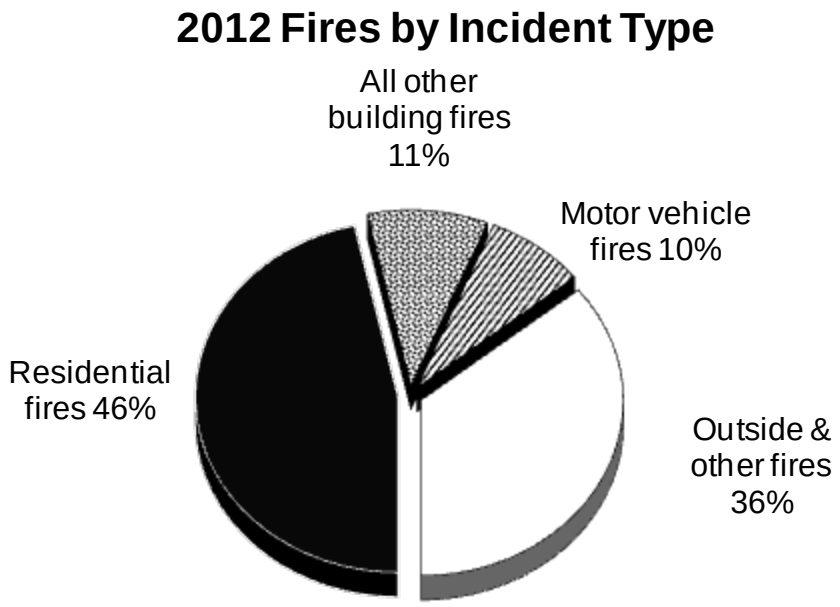
Plymouth County Fire Departments Received the Most Aid
Plymouth County fire departments reported receiving the most aid, accounting for 2,087 incidents, or 18%, of all aid received calls reported by Massachusetts fire departments in 2012. These 2,087 calls represent 3% of their total calls. Norfolk County accounted for 17% of all aid received calls, but these calls only accounted for 2% of their total calls. Middlesex County accounted for 14% of all aid received calls, but these calls only accounted for 1% of Middlesex County's total calls.

Norfolk County Gave the Most Aid
Norfolk County fire departments reported giving the most aid, accounting for 3,087 incidents, or 18%, of all aid given calls reported by Massachusetts fire departments in 2012. These 2,936 calls represent 4% of all of Middlesex County's reported calls in 2012. Middlesex County also accounted for 18% of all aid given calls in 2012, but these calls only accounted for 2% of their total calls. Plymouth County accounted for 12% of all aid received calls, but these calls only accounted for 3% of their total calls. Worcester County accounted for 12% of all aid received calls, but these calls only accounted for 2% of their total calls.

Fires by Incident Type

17,536 Structure Fires, 2,502 Vehicle Fires, 11,191 Outside & Other Fires
There were 31,229 fire and explosion incidents reported by fire departments to the Massachusetts Fire Incident Reporting System (MFIRS) in 2012. The 17,536 structure fires, 2,502 motor vehicle fires, and 11,191 outside and other fires caused 39 civilian deaths, 322 civilian injuries, 531 fire service injuries, and an estimated dollar loss of $257 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 2012, 56% of all reported fires were structure fires. The majority of fires were in people's homes. Forty-six percent (46%) of all fires in the Commonwealth and 83% of all structure fires occurred in someone's home; only 11% of all fires, and 17% of all structure fires, occurred in a type of building other than a residence. Ten percent (10%) were reported motor vehicle fires, while 36% were classified as outside and other fires.



17,536 Structure Fires, 29 Civilian Deaths & 267 Civilian Injuries
Massachusetts fire departments reported 17,536 structure fires to the Massachusetts Fire Incident Reporting System (MFIRS) in 2012. These fires killed 29 civilians and caused 267 civilian injuries, 471 fire service injuries, and an estimated $237 million in property damage. Structure fires accounted for 56% of the total incidents and 74% of the civilian deaths in 2012. Structure fires were down 4% from 2011. There were 271 structure arsons in 2012. Structure fires in the Massachusetts Fire Incident Reporting System include any fires that occur inside or on a structure.

2,502 Motor Vehicle Fires Account for 10% of Reported Fires
The 2,502 motor vehicle fires caused six civilian deaths, 17 civilian injuries, nine fire service injuries, and an estimated $15.4 million in property damage. These incidents accounted for 8% of the reported 31,229 fires in 2012. Motor vehicle fires accounted for 15% of civilian fire deaths. Motor vehicle fires were down 17% from 2011. There were 114 motor vehicle arsons in 2012. 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.

11,191 Brush, Trash, and Other Outside Fires
The 11,191 outside and other fires caused four civilian deaths, 38 civilian injuries, 51 fire service injuries, and an estimated dollar loss of $4.7 million. The 5,857 trees, grass and brush fires, 3,389 outside rubbish fires, 890 special outside fires, 46 cultivated vegetation or crop fires, and 1,009 other fires accounted for 36% of the total fire incidents in 2012, and 10% of civilian fire deaths. These fires were up 40% from the 7,974 outside and other fire incidents reported in 2011. There were 750 outside and other arsons in 2012. 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.

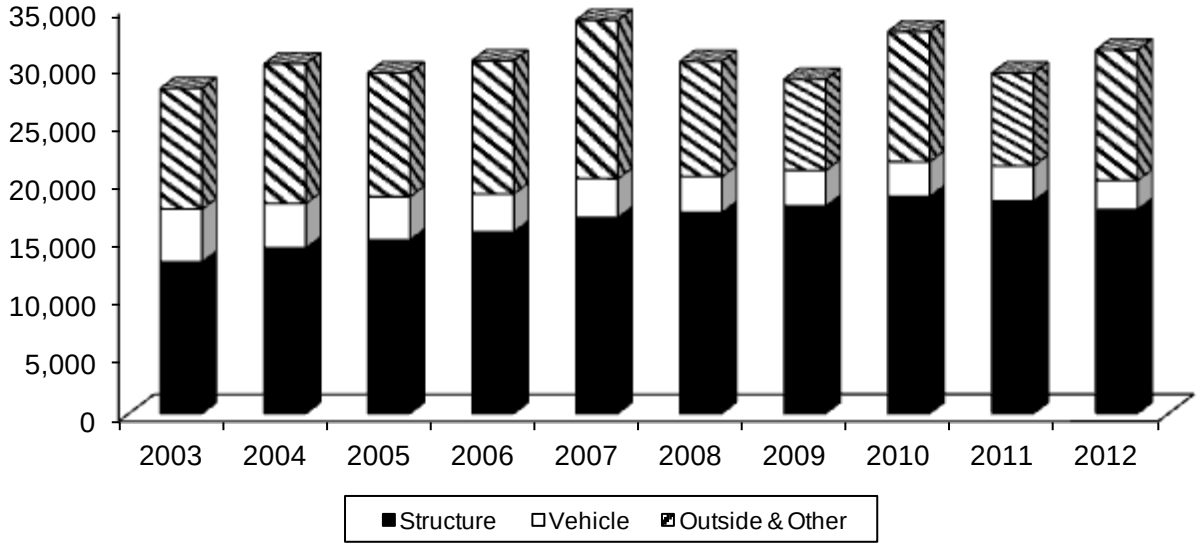
The following table indicates the total number of fires and the number of structure fires, motor vehicle fires and outside and other fires for the years 2003 through 2012. The total number of fire incidents in 2012 was up 7% from the 29,255 incidents reported in 2011. Overall, fires have been on an increasing trend since 2001. This is due to the increased number of departments that have automated their incident reporting and because of this automation, have begun to use the codes for confined fires inside of structures, Incident Types 113 – 118. In the past many of these confined fires may have been coded as smoke scares or other non-fire types of incidents.

Year	Total Fires	Structure Fires	Vehicle Fires	Other Fires
2012	31,229	17,536	2,502	11,191
2011	29,255	18,267	3,015	7,974
2010	32,817	18,653	2,978	11,186
2009	28,705	17,818	3,081	7,806
2008	30,254	17,269	3,085	9,900
2007	33,806	16,837	3,346	13,623
2006	30,324	15,607	3,270	11,447
2005	29,272	14,909	3,717	10,646
2004	30,057	14,226	3,831	12,000
2003	27,992	13,024	4,536	10,362

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[4], the number of structure fires steadily increased, but in 2012 they decreased. 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.

[4] 2001 was the first year of MFIRS v5.0.

Incident Type by Year 2003 - 2012



Structure Fires

17,536 Structure Fires Account for 56% of Reported Fires, 74% of Fire Deaths

The 17,536 structure fires caused 29 civilian deaths, 267 civilian injuries, 471 fire service injuries, and an estimated dollar loss of $237 million. The average structure fire caused $13,516 in property damage. Structure fires accounted for 56% of reported fires and 74% of the civilian fire deaths in 2012.

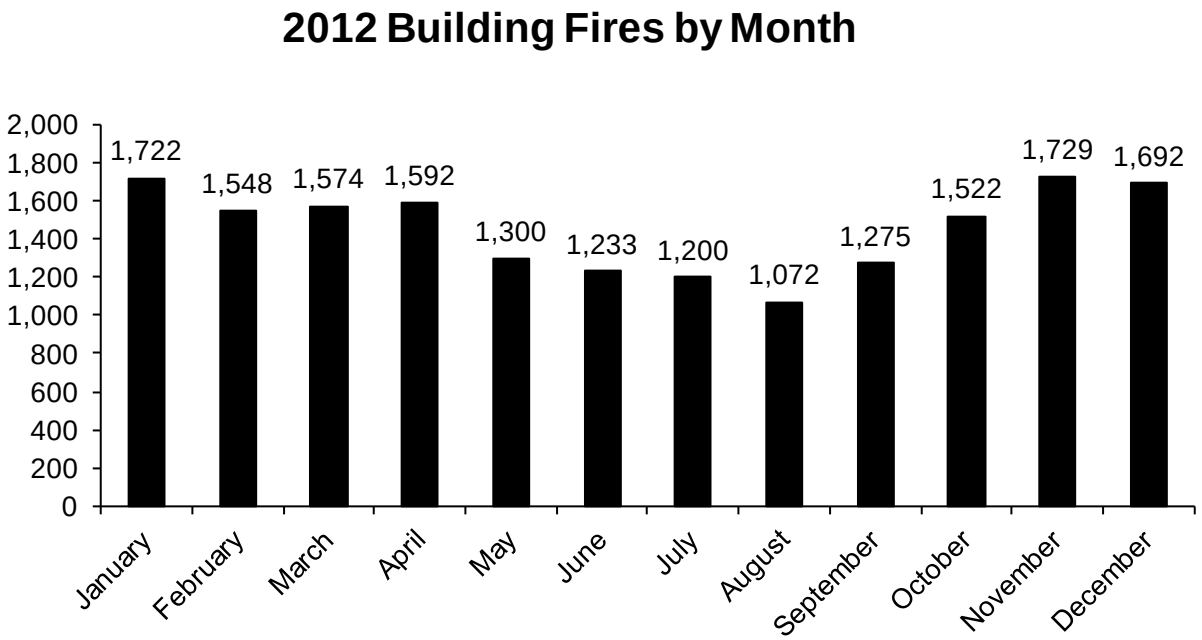
According to the MFIRS definition, any fire occurring inside or on a structure is considered a structure fire. This includes chimney fires, cooking fires, indoor waste basket fires, fires on a back porch, exterior trim fires, and vehicle fires that occur inside a garage that extend beyond the vehicle. The number of structure fires dropped by 731, or 4%, from the 18,267 reported in 2011.

Building Fires

Most, but not all structure fires occur in buildings. It is important to distinguish between the two because many structures that are not buildings like bridges, tunnels, and towers, do not have the same fire prevention and alarm devices that many buildings are required to have, and their inclusion in this discussion could skew the figures.

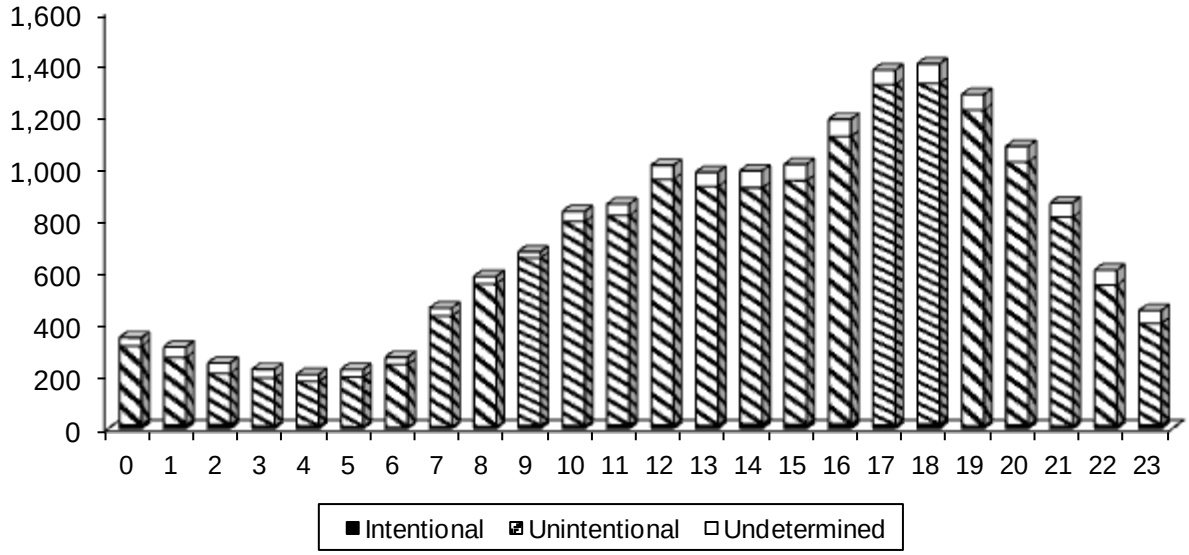
There were 17,459 building fires of different types in Massachusetts in 2012. These 17,459 building fires accounted for 99.6% of all structure fires in Massachusetts.

Building Fires Most Common in Colder Months
Heating equipment is the second leading cause of building fires. It is not surprising that November was the peak month for these incidents in 2012. January ranked second and December had the third largest number of building fires. The warmer months had significantly fewer building fires. The fewest fires occurred in August and July had the second lowest frequency of these incidents; June had the third lowest number of building fires in 2012.



Building Fires Most Common Around Dinner Time
Cooking is the leading cause of building fires. Predictably, building fires occurred most often around dinnertime. Intentionally set building fires were most common between 2:00 p.m. and 6:00 p.m. Unintentional building fires reached their lowest point between 3:00 a.m. and 5:00 a.m. and increased fairly steadily to a peak between 5:00 p.m. and 6:00 p.m.

Building Fires by Hour



The previous graph shows fire frequency by time of day on the 24-hour clock for building arsons, unintentional building fires and building fires of undetermined origin. A fire is considered arson when the ignition factor is incendiary or suspicious. Midnight to 1:00 a.m. is represented by 0, 1:00 a.m. to 2:00 a.m. is represented by 1, etc.

83% of Building Fires Occurred in Residential Occupancies

Eighty-three percent (83%) of the state's 17,459 building fires and all 29 civilian building fire deaths occurred in residential occupancies. The following table shows the number of building fires, civilian deaths, civilian injuries, fire service injuries, estimated dollar loss and the percentage of total building fires for each occupancy group. Institutional properties are those used for purposes such as medical or other treatment of persons suffering from physical or mental illness, disease, or infirmity; for the care of infants, convalescents, or aged persons; and for penal or corrective purposes. Industrial facilities, utilities, defense facilities, laboratories, agricultural and mining facilities are considered basic industries. Special properties include buildings such as outbuildings, bus stop shelters and toll booths.

Fitchburg & Lawrence Building Fires Have Most Injuries

- On June 5, 2012, at 8:38 a.m., the Fitchburg Fire Department was dispatched to a fire in a six-unit apartment building of undetermined cause. The fire began on a third story exterior stairway. There were six civilian injuries and one fire service injury associated with this fire. Detectors were present and operated, and sprinklers were not present. Damages from this fire were estimated to be $170,000.
- On December 7, 2012, at 10:56 p.m., the Lawrence Fire Department was dispatched to a fire in a two-family home of undetermined cause. The fire began on the second story. Six (6) civilians were injured at this fire. Detectors alerted the occupants of the building. There were no sprinklers.

BUILDING FIRES BY OCCUPANCY TYPE

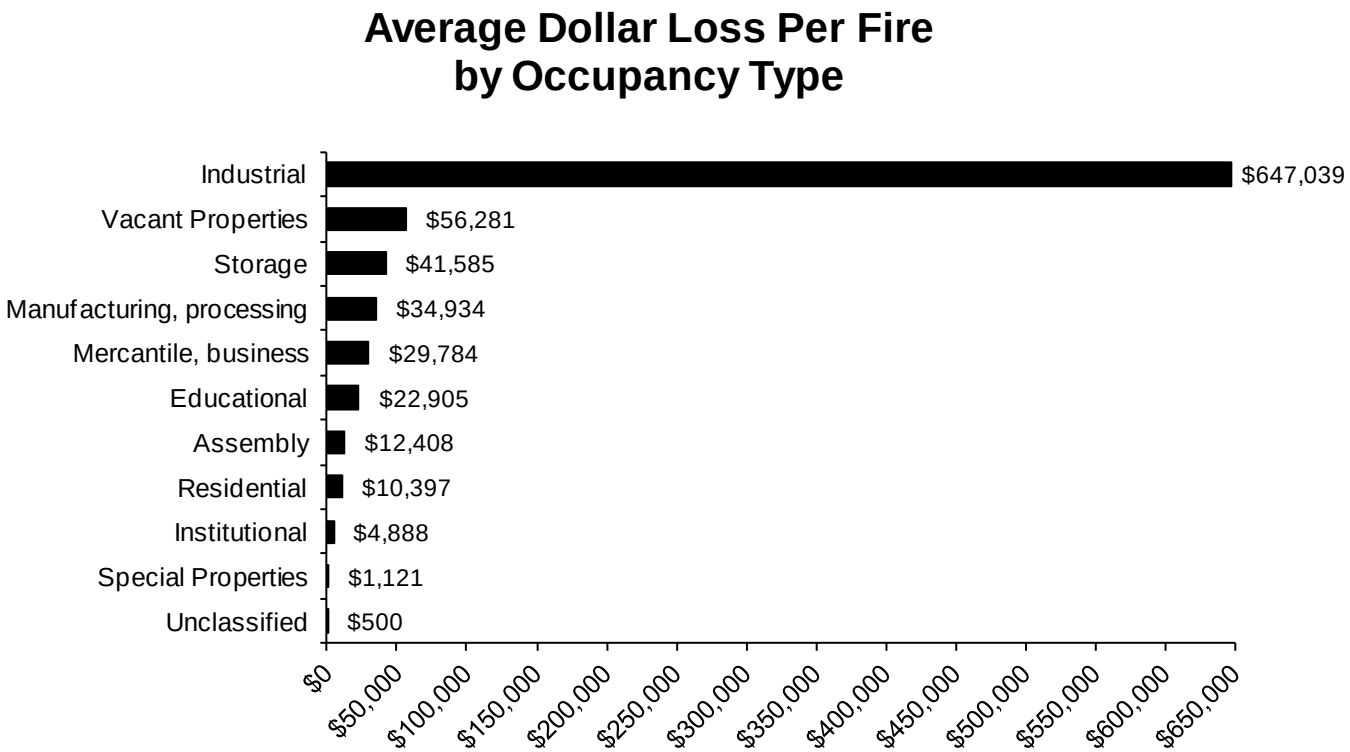
Occupancy	# of Fires	% of Total	Injuries FF	Injuries Civ	Deaths FF	Deaths Civ	Dollar Loss	Avg. Dollar Loss
Public assembly	660	4%	7	5	0	0	$8,189,530	$12,408
Educational	372	2%	2	1	0	0	8,520,476	22,904
Institutional	495	3%	1	6	0	0	2,419,407	4,888
Residential	**14,534**	**83%**	**351**	**239**	**0**	**29**	**151,113,522**	**10,397**
1- & 2-Family homes	*5,389*	*31%*	*218*	*114*	*0*	*15*	*97,271,712*	*18,050*
Apartments	*7,266*	*41%*	*126*	*116*	*0*	*13*	*48,793,398*	*6,715*
All other residential	*1,879*	*11%*	*7*	*9*	*0*	*1*	*5,048,412*	*2,687*
Mercantile, business	719	4%	67	3	0	1	21,414,604	29,784
Basic industry	48	0.3%	7	2	0	0	31,057,862	647,039
Manufact., processing	108	1%	7	0	0	0	3,772,831	34,934
Storage properties	231	1%	29	6	0	0	9,606,216	41,585
Special properties	255	1%	0	2	0	0	285,926	1,121
Unclassified	37	0.2%	0	1	0	0	11,500	311
Total	**17,459**	**100%**	**471**	**265**	**0**	**42**	**$236,391,874**	**$13,540**

Occupancy Group Definitions

- **Public assembly**: This category includes amusement and recreation places such as bowling alleys, skating rinks, ballrooms, gymnasiums, arenas, stadiums, playgrounds, places of worship, funeral parlors, clubs, libraries, museums, courtrooms, restaurants, taverns, passenger terminals, theatres and studios.
- **Educational**: This category includes classrooms from nursery school through college, and trade and business schools. Dormitories are considered residential.
- **Institutional**: This category includes institutions that care for the aged, the young, the sick or injured, the physically restrained, the physically inconvenienced and the mentally handicapped.
- **Residential**: This occupancy group includes one- and two-family homes, apartments, rooming, boarding or lodging houses, dormitories, hotels, motels and home hotels, and residential board and care facilities. Seasonal homes are included here.
- **Mercantile, business**: Retail establishments, service stations, laundries, offices, banks, medical offices and post offices are included in this category.
- **Basic industry**: This category includes nucleonics, energy production plants, laboratories, communications facilities, defense facilities, document facilities, utility and energy distribution systems, agriculture, forests, hunting and fishing, mining, and manufacturing of mineral products such as glass, clay or cement.
- **Manufacturing, processing**: Manufacturing that is not listed under Basic Industry is listed here.
- **Storage property**: This category includes warehouses, barns, garages and tool sheds.
- **Special property**: This category includes, dumps, sanitary landfills, recycling collection points, outbuildings, bus stop shelters, phone booths, bridges, roads, railroad properties, outdoor properties, water areas, aircraft areas and equipment operating areas outbuildings.

Industrial Facilities Have Highest Average Dollar Loss Per Fire
Industrial facilities had the highest dollar loss per fire of any property type. In 2012, the average dollar loss for a building fire at an industrial facility was $647,039. This is a 2,953% increase over the 2011 average dollar loss per industrial facility fire at $21,193 per fire[5]. Vacant properties[6] had the second highest dollar loss per fire for any property type. In 2012, the average dollar loss for a building fire in a vacant property was $56,281.

Storage facilities had the third highest average dollar loss at $41,585. Manufacturing and processing facilities had the next highest average dollar loss per fire at $34,934; mercantile and business properties were fifth with an average dollar loss per fire at $29,784. Educational properties were next with an average dollar loss of $22,905 and public assembly properties had an average dollar loss at $12,408 per fire. Residential properties had an average dollar loss per fire of $10,397. Institutional facilities had $4,888 per fire and special properties had $1,121 in average dollar loss per fire. Unclassified properties had the lowest average dollar loss at $500 per fire.



[5] This is mainly due to two large fires at electrical facilities in 2012. The first occurred at an electrical distribution facility in Boston on 3/13/12, causing $22 million in estimated damages and another fire at an electric generating plant in Revere on 10/5/12 that caused an estimated $7 million in damages.
[6] Vacant property is not an occupancy type. Any property use can be a vacant property if certain conditions are met. It is included here with the other property use categories to illustrate how dangerous and destructive fires in these types of buildings can be.

2012 Massachusetts Building Fires by Property Use

MFIRS Code	Property Use	# of Building Fires
	Assembly	**660**
100	Assembly, other	27
110	Fixed use recreation places, other	7
111	Bowling alley	2
113	Electronic amusement center	1
114	Ice rink: indoor, outdoor	4
116	Swimming facility: indoor or outdoor	2
120	Variable use amusement, recreation places	2
121	Ballroom, gymnasium	3
122	Convention center, exhibition hall	1
124	Playground	18
129	Amusement center: indoor/outdoor	1
130	Places of worship, funeral parlors	5
131	Church, mosque, synagogue, temple, chapel	90
134	Funeral parlor	3
140	Clubs, other	17
141	Athletic/health club	11
142	Clubhouse	9
143	Yacht Club	1
144	Casino, gambling clubs	1
150	Public or government, other	30
151	Library	6
152	Museum	7
155	Courthouse	6
160	Eating, drinking places	64
161	Restaurant or cafeteria	287
162	Bar or nightclub	30
171	Airport passenger terminal	3
173	Bus station	1
174	Rapid transit station	12
180	Studio/theater, other	1
181	Live performance theater	1
182	Auditorium or concert hall	1
183	Movie theater	5
185	Radio, television studio	1
	Educational	**372**
200	Educational, other	53
210	Schools, non-adult	19
211	Preschool	19
213	Elementary school, including kindergarten	67
215	High school/junior high school/middle school	102

MFIRS Code	Property Use	# of Building Fires
241	Adult education center, college classroom	72
254	Day care, in commercial property	33
255	Day care, in residence, licensed	7
	Health care, detention & correction	**495**
300	Health care, detention, & correction, other	40
311	24-hour care Nursing homes, 4 or more persons	115
321	Mental retardation/development disability facility	69
322	Alcohol or substance abuse recovery center	63
323	Asylum, mental institution	15
331	Hospital - medical or psychiatric	116
332	Hospices	1
340	Clinics, Doctors offices, hemodialysis centers	16
341	Clinic, clinic-type infirmary	7
342	Doctor, dentist or oral surgeon's office	18
361	Jail, prison (not juvenile)	15
363	Reformatory, juvenile detention center	9
365	Police station	11
	Residential	**14,534**
400	Residential, other	541
419	1 or 2 family dwelling	5389
429	Multifamily dwellings	7266
439	Boarding/rooming house, residential hotels	468
449	Hotel/motel, commercial	135
459	Residential board and care	214
460	Dormitory type residence, other	421
462	Sorority house, fraternity house	26
464	Barracks, dormitory	74
	Mercantile, Business	**719**
500	Mercantile, business, other	126
511	Convenience store	23
519	Food and beverage sales, grocery store	147
529	Textile, wearing apparel sales	3
539	Household goods, sales, repairs	18
549	Specialty shop	36
557	Personal service, including barber & beauty shops	21
559	Recreational, hobby, home repair sales, pet store	10
564	Laundry, dry cleaning	53
569	Professional supplies, services	5
571	Service station, gas station	18
579	Motor vehicle or boat sales, services, repair	40
580	General retail, other	20

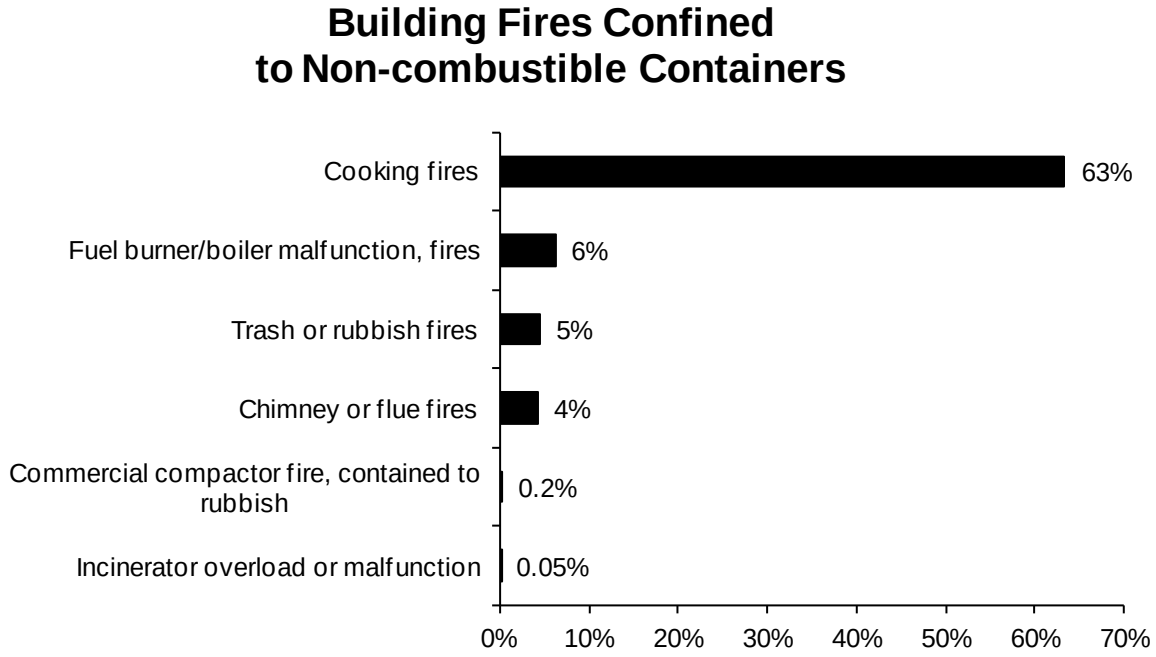
MFIRS Code	Property Use	# of Building Fires
581	Department or discount store	6
592	Bank	24
593	Office: veterinary or research	8
596	Post office or mailing firms	1
599	Business office	160
	Industrial, Utility, Defense, Agriculture, Mining	**48**
600	Utility, defense, agriculture, mining, other	7
610	Energy production plant, other	2
614	Steam or heat generating plant	2
615	Electric generating plant	5
629	Laboratory or science laboratory	16
642	Electrical distribution	2
647	Water utility	3
648	Sanitation utility	4
655	Crops or orchard	1
659	Livestock production	2
669	Forest, timberland, woodland	4
700	**Manufacturing, processing**	**108**
	Storage	**231**
800	Storage, other	24
807	Outside material storage area	3
808	Outbuilding or shed	65
819	Livestock, poultry storage	6
880	Vehicle storage, other	21
881	Parking garage, (detached residential garage)	44
882	Parking garage, general vehicle	13
888	Fire station	1
891	Warehouse	44
898	Dock, marina, pier, wharf	1
899	Residential or self storage units	9
	Outside or special property	**255**
900	Outside or special property, other	54
919	Dump, sanitary landfill	3
921	Bridge, trestle	7
922	Tunnel	1
926	Outbuilding, protective shelter	17
931	Open land or field	23
935	Campsite with utilities	1
936	Vacant lot	5
937	Beach	3

MFIRS Code	Property Use	# of Building Fires
938	Graded and cared-for plots of land	15
940	Water area, other	3
951	Railroad right of way	2
952	Railroad yard	2
960	Street, other	15
961	Highway or divided highway	3
962	Residential street, road or residential driveway	49
963	Street or road in commercial area	25
965	Vehicle parking area	22
981	Construction site	3
983	Pipeline, power line or other utility right of way	1
984	Industrial plant yard - area	1
	Other	**37**
000	Property Use, other	16
	Total Building Fires	**17,459**

79% of Building Fires Are Confined to Non-Combustible Containers[7]
Thirteen thousand seven hundred and one (13,701), or 79% of all building fires, were reported as confined to non-combustible containers in 2012. Eleven thousand forty-one (11,041) of the reported fires were cooking fires confined to a non-combustible container, accounting for 63% of building fires. One thousand and eighty-four (1,084), or 6%, were fires confined to a fuel burner or boiler malfunction. Seven hundred and eighty-nine (789), or 5% of these fires were contained rubbish fires. Seven hundred and forty-eight (748), or 4% of all building fires reported in 2012, were fires confined to a chimney or flue. Thirty-one (31), or less than 1%, were commercial compactor fires that were confined to the rubbish. Eight (8), or less than 1%, of these fires in the Commonwealth, were contained to an incinerator overload or malfunction.

Confined building fires decreased by 641 incidents, or 4%, from the 14,342 reported in 2011.

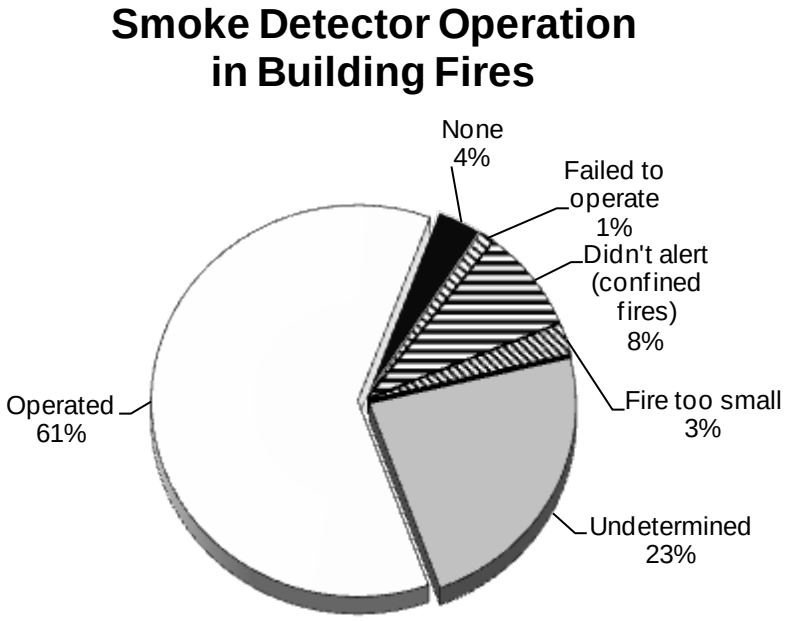
[7] In MFIRS v5 a fire in a building contained to a non-combustible container (Incident Type = 113-118) does not have to have a Fire Module completed. Therefore the following data fields do not need to be completed: Area of Origin, Detector Status, Item First Ignited, Heat Source, Factors Contributing to Ignition, Cause of Ignition, and Equipment Involved In Ignition. These incidents are not included in the analysis of these fields.



Detectors Operated in 61% of Building Fires

Smoke or heat detectors operated in 10,692, or 61%, of the building fires in 2012. In 8% of these fires[8], the detectors did not alert the occupants. Detectors were present but did not operate in 1% of these incidents. In 4% of these fires, no detectors were present at all. The fire was too small to trigger the detector in 3% of the fires. Smoke detector performance was undetermined in 3,123 incidents, or 23%, of Massachusetts' 2012 building fires.

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



The following table shows detector performance by occupancy type for building fires.

DETECTOR PERFORMANCE

	Operated	Failed to Operate	Didn't Alert (Conf.)	Fire Too Small	None	Unknown	Total
Public assembly	411	3	58	27	17	144	660
Educational	259	1	29	10	11	62	372
Institutional	402	4	12	5	4	68	495
Residential	9,133	190	1,187	346	329	3,349	14,534
Mercantile, business	356	4	67	38	57	197	719
Basic industry	21	1	5	1	10	10	48
Manufacturing	31	0	8	8	22	39	108
Storage properties	30	1	5	4	146	45	231
Special properties	30	0	82	2	18	123	255
Unclassified	19	0	5	0	3	10	37
Total	**10,692**	**204**	**1,458**	**441**	**617**	**4,047**	**17,459**

$22 Million Fire in Boston is Largest Loss Building Fire

- On March 13, 2012, at 6:30 p.m., the Boston Fire Department was called to an electrical fire in a six-story electrical distribution building at 40 Dalton St. It was undetermined if detectors were present. A partial automated extinguishing system was present, but it was not reported how it operated. The fire originated on the first floor in an electrical transformer. The fire caused a large area of Boston to be

under black out conditions and the Hilton and Sheraton Hotels had to be evacuated. There were no injuries associated with this fire and damages were estimated to be $22 million.

Revere Has 2nd Largest Loss Building Fire in 2012

- At 10:35 p.m., on October 5, 2012, the Revere Fire Department was called to an electrical fire at an electric generating plant. A spark from a malfunctioning electrical gas compressor ignited a filter. Two (2) firefighters were injured at this fire. Detectors were present and alerted the occupants. Sprinklers were present and contained the fire until fire personnel arrived. Damages from this blaze were estimated to be $7 million.

Overall, there were 28 large loss building fires reported to MFIRS in 2012 with a total combined dollar loss of $91.2 million, representing 39% of all the estimated dollar loss of Massachusetts' building fires in 2012.

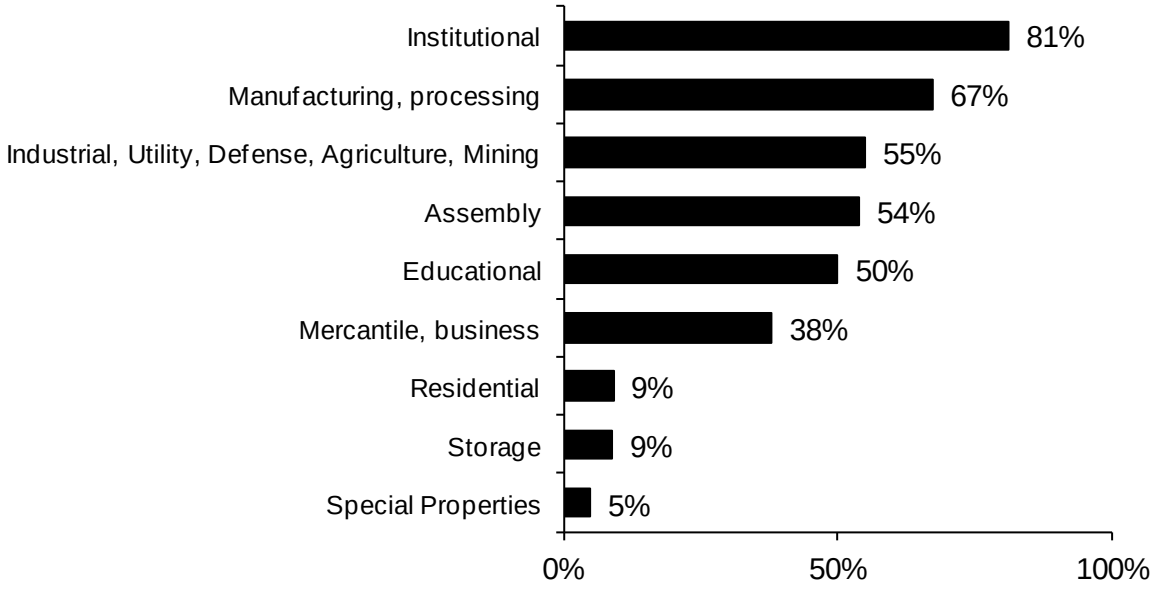
15% of Unconfined Fires Occurred in Buildings with AES

Overall, 555, or 15%, of the 3,656 unconfined[9] building fires in 2012 occurred in buildings that had automatic extinguishing systems (AES), regardless of whether the fire was large enough to activate the system. In MFIRS, an AES can be a wet or dry sprinkler system, a dry chemical system, a foam system, a halogen-type system, a CO_2 system, or some other fire suppression system.

The following chart lists the percentage of unconfined fires in buildings that were at least partially protected by an AES for that specific property use. Manufacturing and processing facilities and institutional properties were the most likely to have an AES. Eighty-one percent (81%) of the fires in health care, detention and correctional facilities; 67% of the fires in manufacturing or processing facilities; and 55% of the fires in basic industrial facilities occurred in buildings with an automatic extinguishing system. Fifty-four percent (54%) of the fires in public assembly facilities and 50% of the fires in educational facilities occurred in buildings with these systems, and 38% of the fires in mercantile and business properties occurred in buildings with an automatic extinguishing system. Nine percent (9%) of residential fires occurred in buildings with an automatic extinguishing system and another 9% of fires in storage facilities occurred in buildings protected by an automatic extinguishing system. Five percent (5%) of the fires in special properties occurred in an AES protected structure.

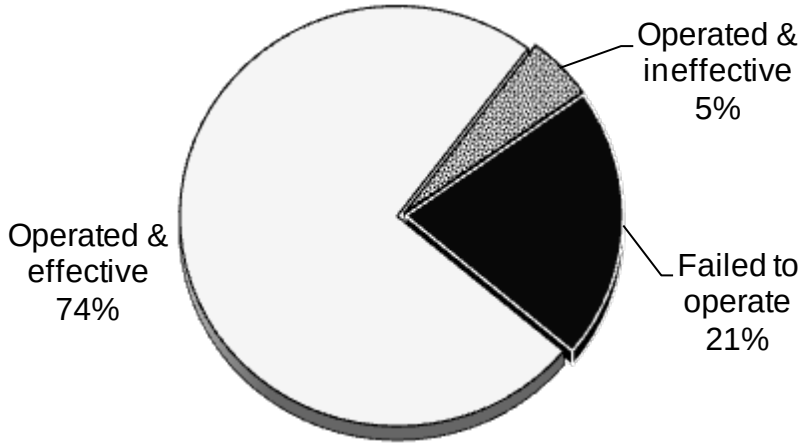
[9] In MFIRS v5 a fire in a building contained to a non-combustible container (Incident Type = 113-118) also does not have to have a Structure Fire Module completed. Therefore the fields concerned with detector and sprinkler presence and performance would not be completed. These incidents are not included in the analysis of these fields.

Fires in AES Protected Buildings by Property Use



AES Work in 79% of Building Fires When Installed & Maintained
AES were present and operated in 144, or 79%, of the 182 building fires in buildings protected by an automatic extinguishing system, which had a reported fire large enough for the AES to activate in Massachusetts in 2012. Of these 144 fires, the systems were effective in 135, or 74%, and ineffective in nine, or 5%, of these incidents. AES were present but failed to operate in 38, or 21%, of these 182 building fires. Some of the reasons for the automatic extinguishing system failures were reported to be: the fire was started in an area not protected by the system; the system was shut off; a lack of maintenance to the system; and manual intervention.

AES Status in AES Protected Buildings



The table below shows AES performance by occupancy group for those incidents where AES presence and performance were reported.

AUTOMATIC EXTINGUISHING SYSTEM PERFORMANCE

	Operated	Did Not Operate	Fire Too Small	None	Unknown	Total
Assembly	18	13	24	12	2	69
Educational	3	0	20	8	0	31
Institutional	51	2	19	4	0	30
Residential	71	12	107	73	4	267
Mercantile, business	18	6	46	18	1	89
Basic industry	3	1	3	4	0	11
Manufacturing	19	3	14	4	1	41
Storage properties	7	1	6	2	0	16
Special properties	0	0	1	0	0	1
Unclassified	0	0	0	0	0	0
Total	**144**	**38**	**240**	**125**	**8**	**555**

High Rise Buildings Must be Fully Equipped with Sprinklers

Evacuating a high-rise building while fighting a raging fire is a logistical nightmare for firefighters. Automatic sprinklers make these buildings much safer for residents, office workers, visitors and firefighters. Under the provision of MGL Chapter 148, Section 26A 1/2, all existing buildings of more than 70 feet in height above the mean grade had to be retrofitted by a fully protected adequate system of automatic sprinklers by March 30, 1998. This took effect in 1988. All new high rises are required to have automatic sprinklers.

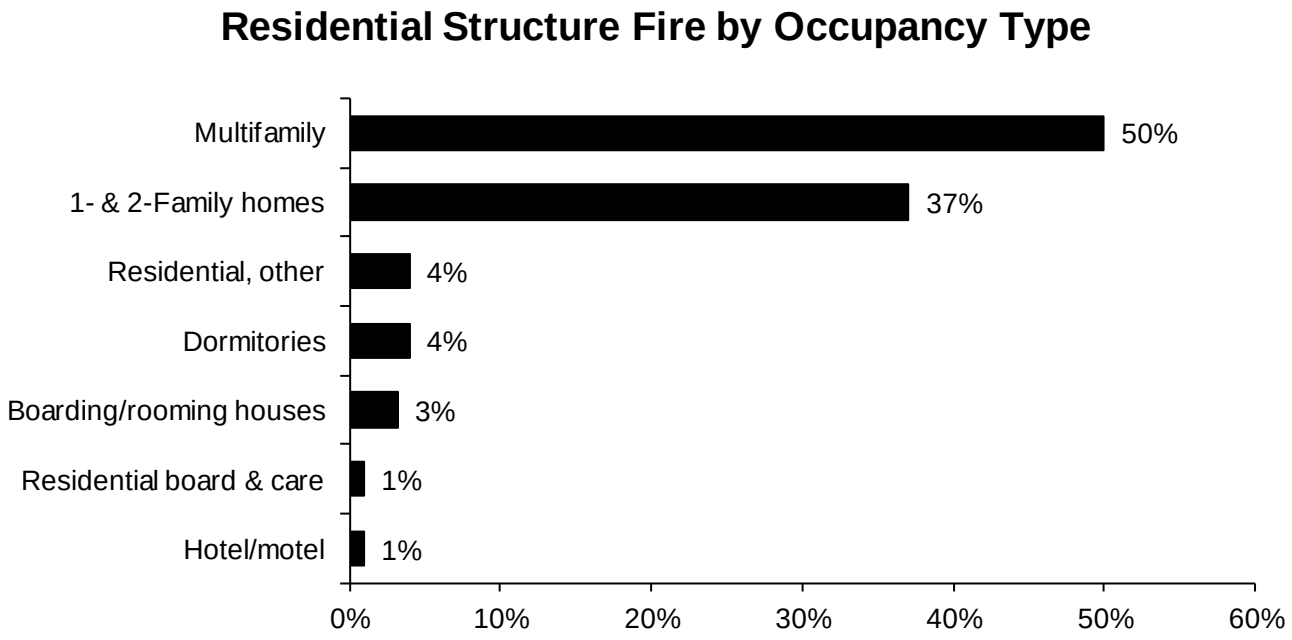
Written Permit Required from Fire Department before Disconnecting Sprinklers

Under the provisions of MGL Chapter 148, Section 27A, it is illegal to "…shut off, disconnect, obstruct, remove or destroy…any part of any sprinkler system, water main, hydrant, or other device used for fire protection…without first procuring a written permit from the head of the fire department." The head of the fire department is authorized to issue conditions necessary to provide protection from fire and the preservation of public safety. In the event of an emergency, the system may be shut down as long as the fire department head is immediately notified of the action and when the system is back in service. Violators may be punished by imprisonment for not more than one year and/or a fine of not more than $1,000.

Residential Building Fires

83% of Building Fires Occurred in Residential Occupancies
Massachusetts fire departments reported that 14,534, or 83%, of the 17,459 building fires occurred in residential occupancies. These fires caused 29 civilian deaths, 239 civilian injuries, 351 fire service injuries and an estimated dollar loss of $151.1 million. The average dollar loss per fire was $10,397. The total number of reported residential building fires decreased by 585, or 4%, from the 15,119 reported in 2011.

1/2 of All Residential Fires Occur in Apartments
Half, or 50%, of all residential building fires in 2012 occurred in multifamily apartment buildings. Thirty-seven percent (37%) of these fires happened in one- or two-family homes. Dormitories and unclassified residences each 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 2012.



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

RESIDENTIAL BUILDING FIRES

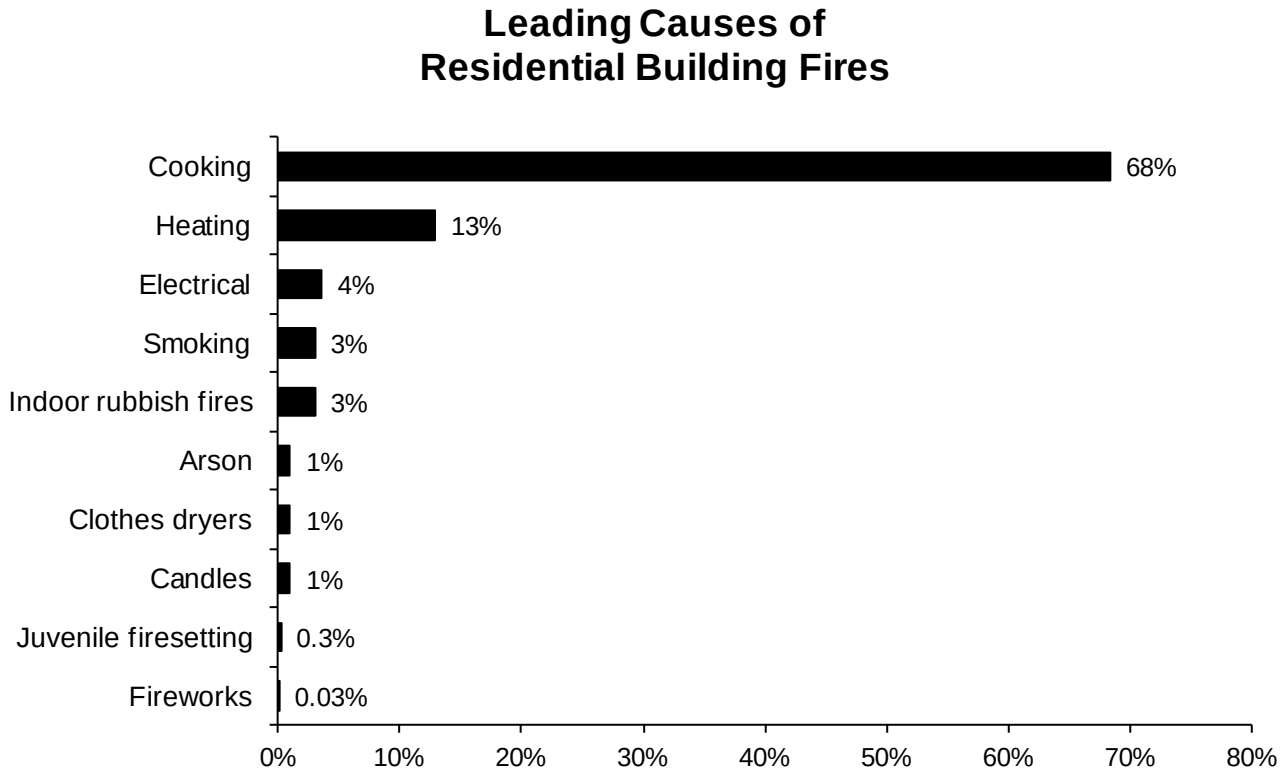
Occupancy	# of Fires	% of Total	Injuries FF	Injuries Civ	Deaths FF	Deaths Civ	Dollar Loss
1- & 2-Family homes	5,389	37%	218	114	0	15	$97,271,712
Multifamily	7,266	50%	126	116	0	13	48,793,398
Rooming houses	468	3%	2	1	0	0	1,949,843
Hotels & motels	135	1%	0	2	0	0	762,678
Residential board & care	214	1%	1	0	0	0	196,237
Dormitories	521	4%	0	0	0	0	215,921
Unclassified	541	4%	4	6	0	1	1,923,733
Total	**14,534**	**100%**	**351**	**239**	**0**	**29**	**$151,113,522**

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 Over 2/3 of Residential Building Fires

The leading causes of residential building fires in 2012 were cooking, heating, electrical problems, indoor rubbish fires, smoking, arson, candles, clothes dryer fires, juvenile firesetting, and fireworks. Cooking was the leading cause of residential building fires, accounting for 9,928, or 68%, of the 14,534 incidents. Heating equipment accounted for 1,878, or 13%, of the total fires. Electrical problems caused 520, or 4%, of incidents. The unsafe use and disposal of smoking materials accounted for 487, or 3%, of these incidents. Indoor rubbish fires were the cause of 409, or 3%, of residential building fires. Arson accounted for 168, or 1%, of residential building fires. Clothes dryer fires were the cause for 121, or less than 1%, of these incidents. One percent (1%), or 93, were caused by candles. Juvenile firesetting accounted for 38, or less than 1%, of residential building fires. Fireworks caused five, accounting for less than 1% of these fires in Massachusetts in 2012.



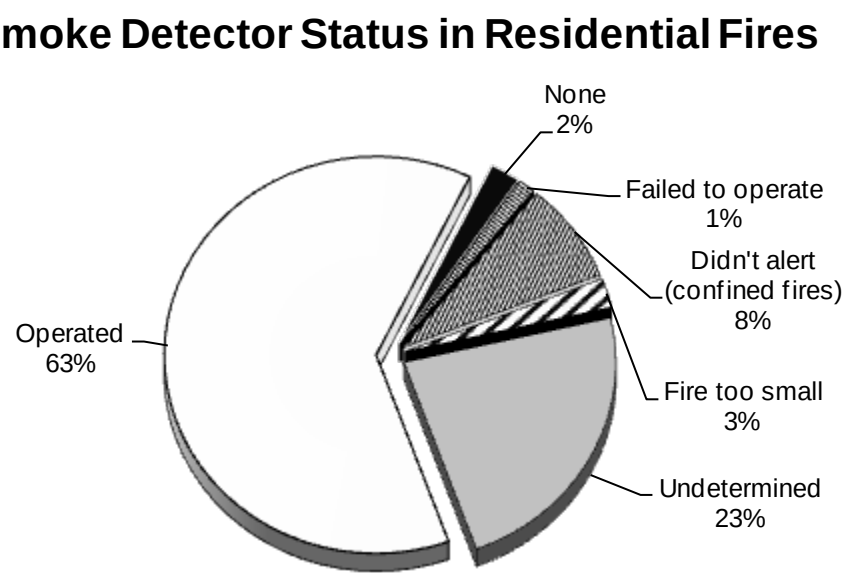
Over 2/3 of Residential Fires Started in the Kitchen
Sixty-nine percent (69%) of the residential building fires in 2012 started in the kitchen. Seven percent (7%) began in a heating room or area; 5% started in the chimney or flue; 2% began in the bedroom; 1% started on an exterior balcony or unenclosed porch; and another 1% started in the living room in Massachusetts residential building fires in 2012.

80% of Residential Building Fires Confined to Non-Combustible Containers[10]
Eleven thousand five hundred and seventy-seven (11,577), or 80%, of all residential building fires were reported as confined to non-combustible containers in 2012. Nine thousand four hundred and ninety (9,490) of the reported fires were cooking fires contained to a non-combustible container, accounting for 65% of residential building fires. Nine hundred and fifty-three (953), or 7%, were fires confined to a fuel burner or boiler malfunction. Seven hundred and twenty-one (721), or 5%, of all residential building fires reported in 2012 were fires confined to a chimney or flue. Three hundred and ninety-nine (399), or 3%, of these fires were contained rubbish fires. Ten (10), or less than 1%, of these fires in the Commonwealth were contained to an incinerator overload or malfunction. Four (4), or less than 1%, of the residential building fires in 2012 were commercial compactor fires confined to the rubbish inside the compactor.

[10] In MFIRS v5 a fire in a building contained to a non-combustible container (Incident Type = 113-118) does not have to have a Fire Module completed. Therefore the following data fields do not need to be completed: Area of Origin, Detector Status, Item First Ignited, Heat Source, Factors Contributing to Ignition, Cause of Ignition, and Equipment Involved In Ignition. These incidents are not included in the analysis of these fields.

The number of contained fires in residential occupancies fell in 2012. Confined fires decreased by 545 incidents, or 4%, from the 12,122 reported in 2011. This was mainly due to the decrease in reported cooking fires and oil burner or boiler malfunctions.

Detectors Operated in 63% of Fires
Smoke or heat detectors operated in 9,133, or 63%, of the residential building fires in 2012. In 8% of these fires[11], the detectors did not alert the occupants. Detectors were present but did not operate in 1% of these incidents. In 2% of these fires, no detectors were present at all. The fire was too small to trigger the detector in 3% of the residential fires. Smoke detector performance was undetermined in 3,349 incidents, or 23%, of Massachusetts' 2012 residential building fires.



All Houses Must Have Detectors
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 detectors. This statute took effect in March 2006. Under M.G.L. Chapter 148 Section 26F, the fire department verifies compliance with the law during a sale or transfer of ownership.

Newer Homes Must Have Detector in Bedroom Area
At a minimum, smoke detectors should be installed on every floor of the home and at the bottom of the basement stairwell. Since August 1997 the Massachusetts Building Code requires smoke detectors 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.

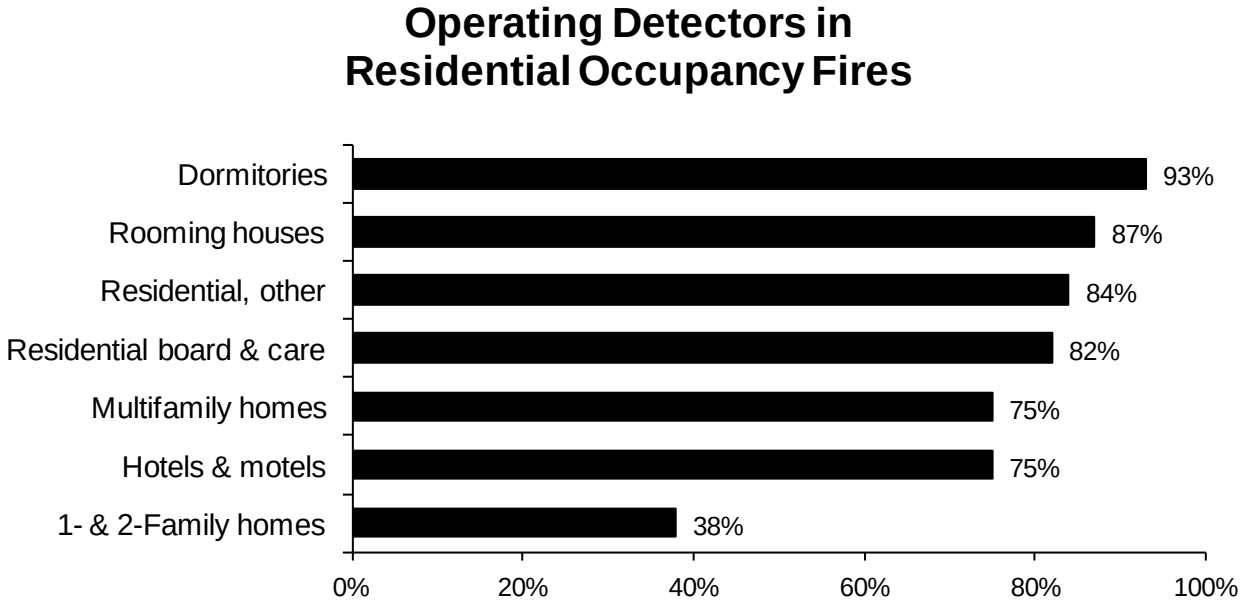
[11] These represent confined fires where it was reported that the detector did not alert the occupants.

Unfortunately, a shut door also makes it harder to hear a smoke detector sounding in the hallway. People who sleep with their bedroom door closed should install a detector inside their bedroom. After detectors are installed, they need to be regularly tested and maintained. All the detector 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 detectors do not last forever. The life span for a typical smoke detector, 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 detector. If there is no date, the detector should be replaced because it is already more than 10 years old. Detectors should be tested monthly and the batteries should be replaced twice a year. Detectors should be kept free of dust and never painted over.

37% of Failed Detectors Had No Batteries or Dead Ones
Of the 190 fires where smoke detectors were present but failed to operate, 51, or 27%, failed because the batteries were either missing or disconnected. Twenty (20), or 10%, did not operate because of dead batteries. Twenty-one (21), or 11%, failed because of a power failure, shutoff or disconnect. Eight (8) detectors, or 4%, failed from a lack of maintenance such as not cleaning dust from the detector or painting over the detector. Another eight units, or 4%, failed because they were defective. Six (6), or 3%, failed from improper installation or placement. For 76 cases, or 40%, the reason the detector failed was not determined.

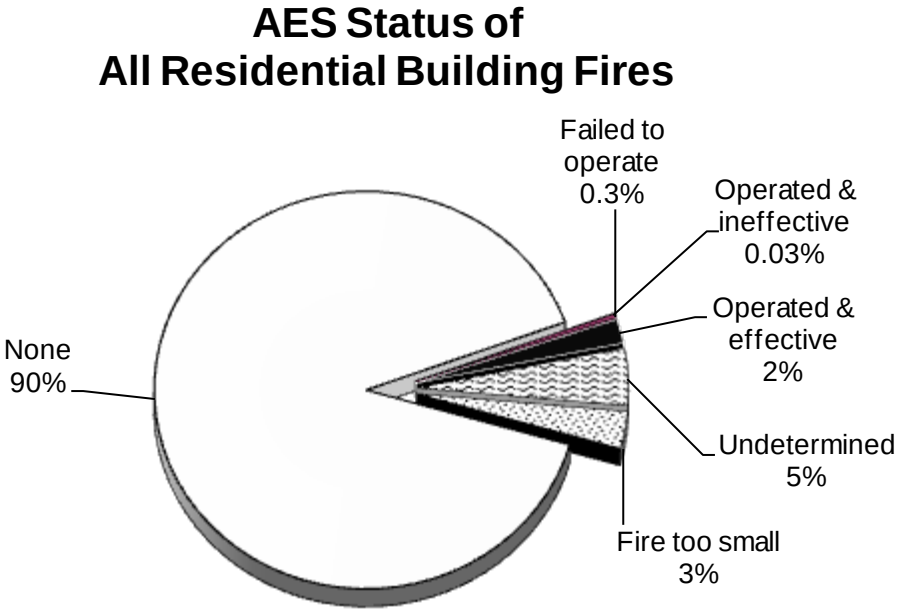
Only 38% of Fires 1- & 2-Family Homes Had Operating Detectors
One- and two-family homes were the least likely residential occupancies to have operating smoke detectors. Dormitories were the most likely residential occupancy to have operating smoke detectors in 2012. Rooming houses were the second most likely residence to have working smoke detectors. Unclassified residences and residential board and care facilities were the next most likely residential occupancies to have operating smoke detectors. The following chart shows the percentage of operating smoke detectors in fires in residential occupancies.



No Working Detectors for 24% of Residential Fire Victims
The smoke detector performance was reported for all of the 29 people who died in residential building fires in 2012. Victims were not alerted by smoke detectors in seven fires that killed seven people, or 24% of the victims. No detectors were present at all in four, or 14%, of the deaths. In three deaths, or 10%, there were detectors present but they failed to operate. Detector performance was undetermined in seven residential building fires that killed nine people, accounting for 31% of the residential building fire deaths in 2012.

AES Present in Only 5% of Residential Building Fires
In 2012, only 3,563 residential fires reported if the building had an automatic extinguishing system or not. This was only 25% of all residential building fires.

In fires where system performance was reported, automatic extinguishing systems (AES) were reported present and operated effectively in 70, or 2%, of the 3,563 residential building fires. AES were present and operated ineffectively in one, or 0.03%, of these fires. In 12, or 0.3%, of the fires in residential occupancies, the system did not operate. In 107, or 3%, the fire was too small to activate the system. In 3,207, or 90%, of the cases, there were no systems present or installed. AES performance was not classified in 166, or 5%, of the incidents involving residential building fires.



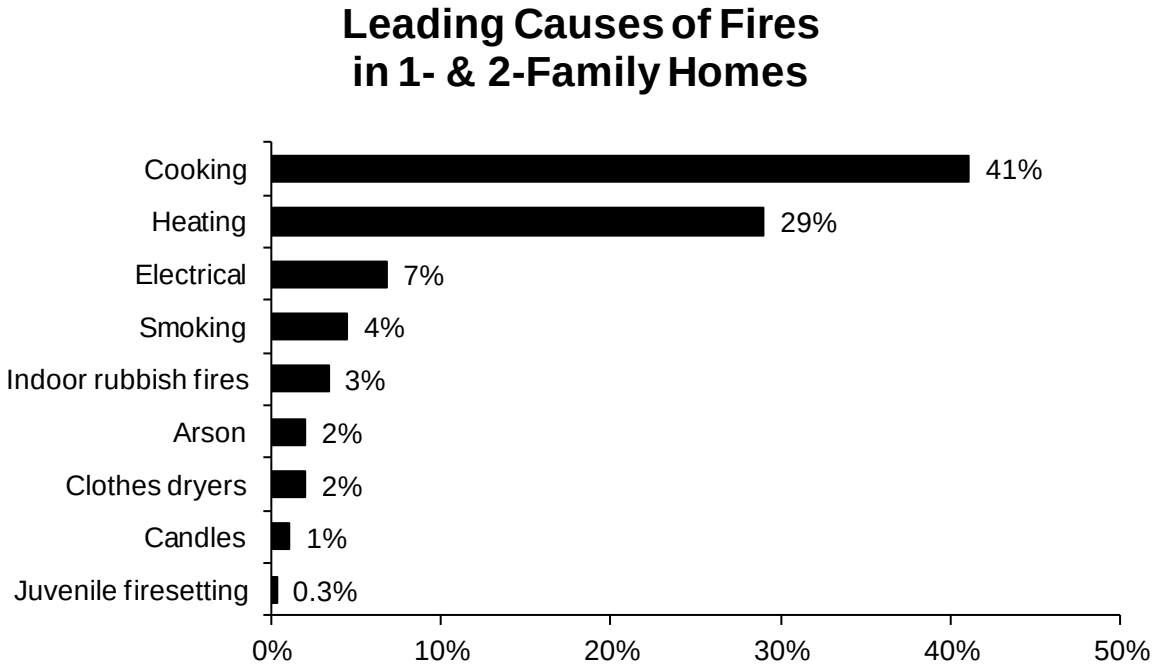
Only You Can Make Your Home Safer for You and Your Family
Eighty-three percent (83%) of building fires and 74% of fire deaths in 2012 took place in residential occupancies. Efforts to reduce the incidence of fire and fire deaths must be focused on home fire safety to have the greatest impact. Increased maintenance of smoke alarms, installation of residential sprinklers, practice of 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

5,389 Fires, 15 Civilian Deaths & $97.3 Million in Damage
Five thousand three hundred and eighty-nine (5,389) building fires in one- and two-family homes caused 15 civilian deaths, 114 civilian injuries, 218 fire service injuries, and an estimated $97.3 million in property damage. In 2012, 37% of the Commonwealth's 14,534 residential building fires occurred in one- and two-family homes. The average dollar loss from these types of fires was $18,050. Fires in one- and two-family homes were down by 351, or 6%, from 5,740 in 2011.

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 41% of incidents occurring in one- and two-family homes. Heating equipment caused 29% of these fires. Seven percent (7%) of one- and two-family residential building fires were caused by electrical problems. The unsafe and improper use of smoking materials caused 4% of these fires. Indoor rubbish fires caused 3% of these fires. Arson and clothes dryers each caused 2% of these fires. Candles caused 1% and juvenile-set fires, accounted for less than 1% of the fires in one- and two-family homes in 2012.



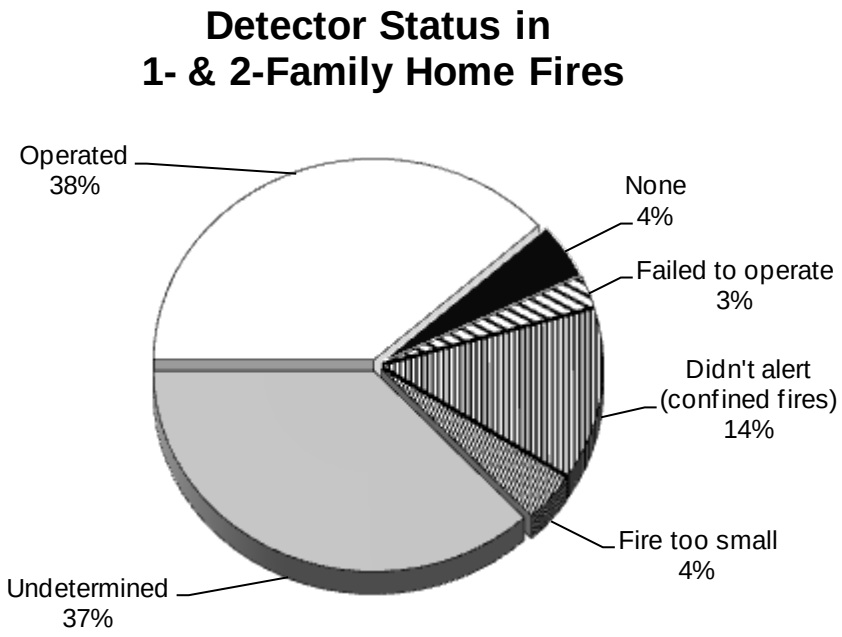
Cooking is the leading cause of fires overall in every residential occupancy. Since 2008 cooking has overtaken heating equipment as the leading cause of fires in one- and two-family homes.

43% of Fires in 1- & 2- Family Homes Started in the Kitchen
For fires in one- and two-family homes where area of origin is known, 43% started in the kitchen. The second leading area of origin was rooms or areas with heating equipment, accounting for 15% of these fires. Fourteen percent (14%) started in the chimney or flue; 3% started in the bedroom; and 2% each of these fires started in an exterior balcony or unenclosed porch, an exterior wall surface, the living room and the laundry room.

67% of 1- & 2-Family Fires Were Confined to Non-Combustible Containers[12]
Three thousand six hundred and thirty-three (3,633), or 67%, of all residential building fires in one- and two-family homes were reported as confined to non-combustible containers in 2012. Two thousand and thirteen (2,013) were cooking fires confined to a non-combustible container, accounting for 37% of all the residential building fires in one- and two-family homes. Seven hundred and fifty-one (751), or 14%, were fires confined to a fuel burner or boiler. Six hundred and ninety (690), or 14%, of all one- and two-family fires reported in 2012 were fires confined to a chimney or flue. One hundred and seventy-six (176), or 3%, of these fires were contained rubbish fires. Three (3), or less than 1%, of the one- and two-family building fires were contained to an incinerator overload or malfunction in 2012.

The number of contained fires decreased in 2012. Confined fires in one- and two-family homes decreased by 325 incidents, or 8%, from the 3,958 reported in 2011.

Detectors Alerted Occupants in 38% of Fires
Smoke or heat detectors operated and alerted the occupants in 2,069, or 38%, of the one- and two-family home fires in 2012. In 14% of these fires[13], the detectors did not alert the occupants. Detectors were present but did not operate in 3% of these incidents. In 4% of these fires, no detectors were present at all. The fire was too small to trigger the detector



[12] In MFIRS v5 a fire in a building contained to a non-combustible container (Incident Type = 113-118) does not have to have a Fire Module completed. Therefore the following data fields do not need to be completed: Area of Origin, Detector Status, Item First Ignited, Heat Source, Factors Contributing to Ignition, Cause of Ignition, and Equipment Involved In Ignition. These incidents are not included in the analysis of these fields.
[13] These represent confined fires where it was reported that the detector did not alert the occupants.

in 4% of these residential fires. Smoke detector performance was undetermined in 1,990 incidents, or 37%, of Massachusetts' 2012 one- and two-family fires.

38% of Failed Detectors Had No Batteries or Dead Ones
Of the 137 fires where smoke detectors were present but failed to operate, 37, or 27%, failed because the batteries were either missing or disconnected. Fifteen (15), or 11%, did not operate because of dead batteries. Fourteen (14), or 10%, failed because of a power failure, shutoff or disconnect. Six (6), or 4%, failed from improper installation or placement. Five (5) units, or 4%, failed because they were defective. Four (4) detectors, or 3%, failed from a lack of maintenance. For 56 cases, or 41%, the reason the detector failed was not determined.

Detectors Required in All One- and Two-Family Homes
Originally adopted as a local ordinance, and now mandatory through Nicole's Law, Massachusetts General Law Chapter 148, Section 26E (a) requires owners of existing one- and two-family homes built before 1975 to install smoke detectors outside each separate sleeping area and on the ceiling of each stairway leading to a floor above. Section 26F requires the seller of existing one- and two- family homes to equip the building with approved smoke detectors as provided in section 26E. The state building code requires all one- and two-family homes constructed after 1975 to have hardwired, interconnected smoke detectors outside each separate sleeping area and on the ceiling of each stairway leading to a floor above. In 1997, this was amended by requiring all newly constructed one- and two-family homes and any additions that included a bedroom to require the installation of smoke detectors inside all bedrooms per the Commonwealth's Building Code.

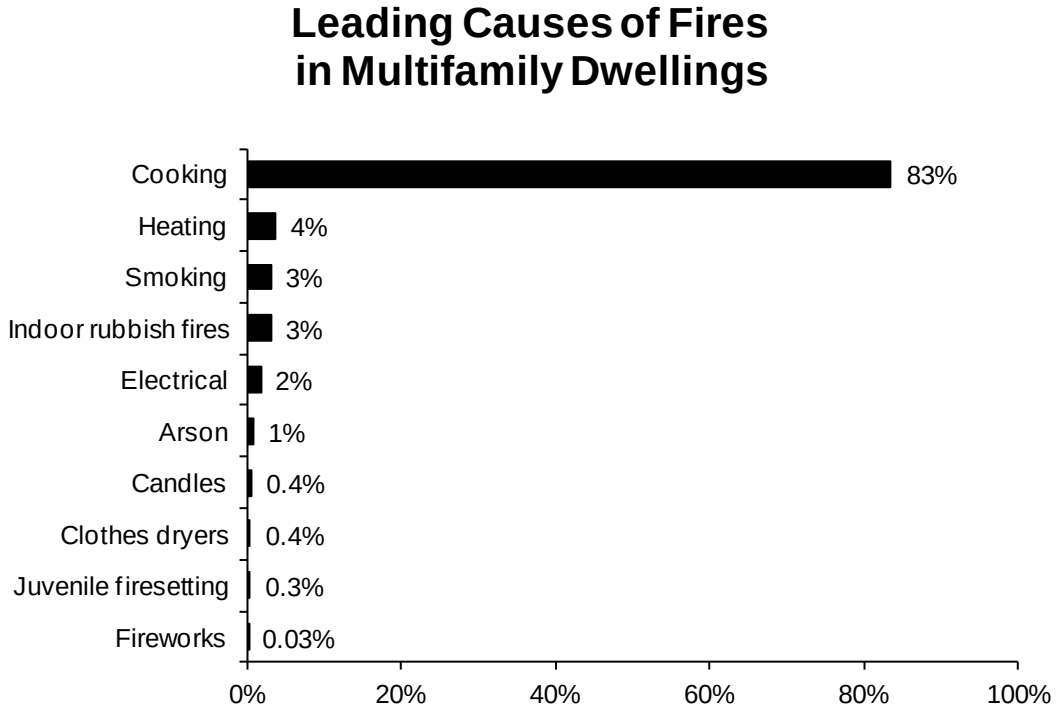
No AES Present in 99% of One- and Two-Family Building Fires
In 2012, in two, or less than 1%, of these incidents an automatic extinguishing system (AES) was present and operated effectively. In four, or less than 1% of the incidents, the fire was too small to activate the system. In 99% of the cases where AES status was known, there were no systems.

Multifamily Home Fires

7,266 Fires, 14 Civilian Deaths & $56.8 Million in Damage
Seven thousand two hundred and sixty-six (7,266), or 50%, of the Commonwealth's 14,534 residential building fires occurred in multifamily dwellings in 2012. These 7,266 fires caused 13 civilian deaths, 116 civilian injuries, 126 fire service injuries, and an estimated dollar loss of $48.8 million. The average dollar loss per fire was $6,715. Fires in apartments were down by 125, or 2%, from 7,391 in 2011.

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

Unsafe Cooking Caused Over 83% of Apartment Fires
Eighty-three percent (83%) of the fires in apartments were caused by unsafe cooking in 2012. Heating accounted for 4% of apartment fires. Smoking and indoor rubbish fires were each responsible for 3% of these fires. Electrical problems caused 2% of these fires. Arsons caused 1% of the fires in these dwellings. Candles, clothes dryers, juvenile-set fires and fireworks each caused less than 1% of the fires in multifamily homes in 2012.



84% of Apartment Fires Started in the Kitchen
For apartment fires where the *Area of Origin* is known, 84% started in the kitchen. Three percent (3%) began in the heating room or area; 1% started in the bedroom; 1% started in living rooms; and another 1% began on exterior balconies.

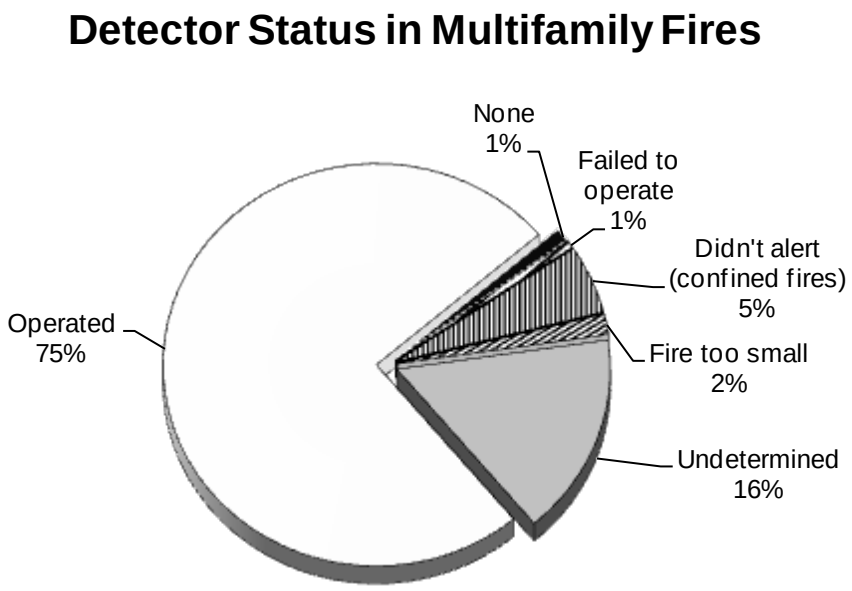
86% of Apartment Home Fires Confined to Non-Combustible Containers[14]
Six thousand two hundred and thirty-one (6,231), or 86%, of all building fires in apartments were reported as confined to non-combustible containers in 2012. Five thousand eight hundred and forty-one (5,841) were cooking fires contained to a non-combustible container, accounting for 80% of all the multifamily dwelling fires in 2012. One hundred and eighty-eight (188), or 3%, were fires confined to a fuel burner or boiler malfunction. One hundred and seventy-nine (179), or 3%, of these fires were contained

[14] In MFIRS v5 a fire in a building contained to a non-combustible container (Incident Type = 113-118) does not have to have a Fire Module completed. Therefore the following data fields do not need to be completed: Area of Origin, Detector Status, Item First Ignited, Heat Source, Factors Contributing to Ignition, Cause of Ignition, and Equipment Involved In Ignition. These incidents are not included in the analysis of these fields.

rubbish fires. Fourteen (14), or less than 1%, of apartment fires reported in 2012 were fires confined to a chimney or flue. Eight (8), or less than 1%, were commercial compactor fires confined to the garbage; and one, or less than 1%, was an incinerator overload or malfunction in a multifamily home fire in 2012.

Confined fires in apartments decreased by 113 incidents, or 2%, from the 6,344 reported in 2011.

Detectors Alerted Occupants in 3/4 of Fires
Smoke or heat detectors operated and alerted the occupants in 5,443, or 75%, of the multifamily fires in 2012. In 5% of these fires[15], the detectors did not alert the occupants. Detectors were present but did not operate in 1% of these incidents. In 1% of these fires, no detectors were present at all. The fire was too small to trigger the detector in 2% of these residential fires. Smoke detector performance was undetermined in 1,178 incidents, or 16%, of Massachusetts' 2012 multifamily fires.



28% of Failed Detectors Failed Due to Missing Batteries
Of the 47 fires where smoke detectors were present but failed to operate, 13, or 28%, failed because the batteries were either missing or disconnected. Five (5), or 11%, failed because of a power failure, shutoff or disconnect. Four (4), or 9%, didn't operate because of a lack of maintenance. Four (4), or 9%, did not operate because of dead batteries. Two (2), or 4%, failed because they were defective. For 19 cases, or 40%, the reason the detector failed was not classified or undetermined.

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

Apartments with 3+ Units Must Have Smoke Detectors
According to Massachusetts General Law Chapter 148, Section 26E, in buildings of three to five dwelling units, the detectors may be hard-wired or battery operated inside the units themselves. Detectors in common hallways and basements must be hard-wired. According to Massachusetts General Law Chapter 148, Section 26C, apartment houses containing six or more units must be equipped with hard-wired smoke detectors.

AES Present in Only 11% of Multifamily Dwelling Fires
Automatic extinguishing systems (AES) were present and operated effectively in 49, or 4%, of the 1,227 multifamily dwelling fires where system status was known in 2012. In one incident, or less than 1%, the system operated but was ineffective in suppressing the fire. In seven of the fires, or 1%, the AES did not operate. In 73, or 6%, of these incidents, the fire was too small to activate the system. In 1,097, or 89%, of the cases, there were no systems present or installed. In 81 incidents, AES status was unknown. These fires were excluded from the percentage calculations.

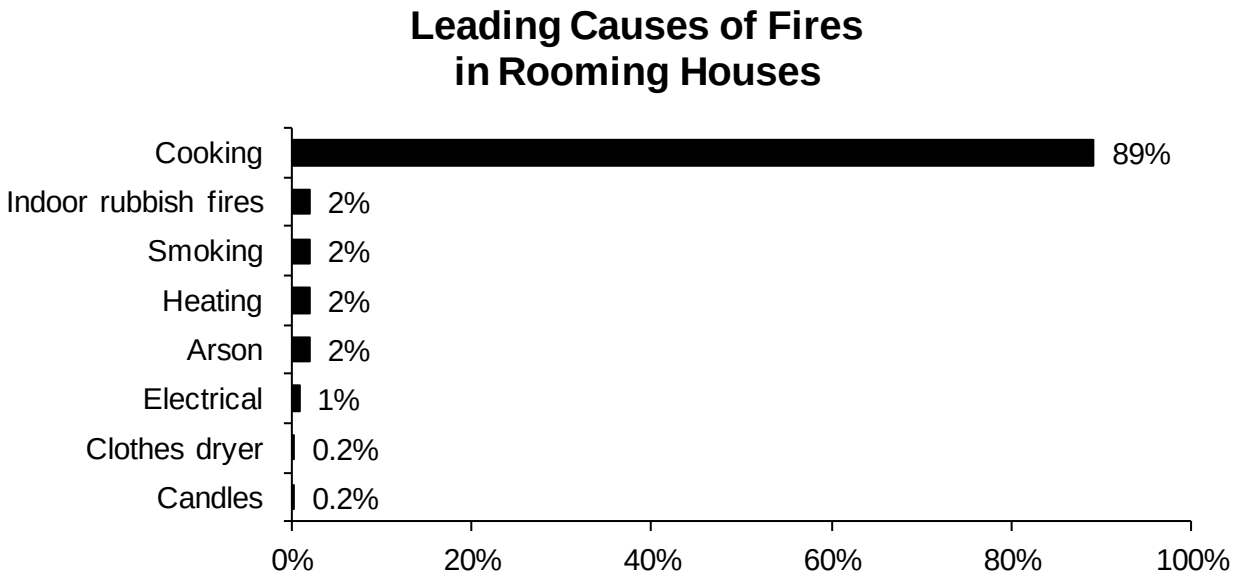
Apartments More Likely to Have Sprinklers Installed
Apartments are more likely than single-family dwellings to have sprinklers installed. Newly constructed apartments with three or more units are required by building codes to have them installed. Also, apartments are likely to be found in high-rise buildings that were required to be retrofitted with sprinklers by March 1998. Sprinklers were present in 11% of multifamily fires, but in less than 1% of fires in one- and two-family dwellings.

In 1998, the State Building Code required all newly built or substantially renovated buildings with three or more apartments with common egresses to be sprinklered.

Rooming House Fires

468 Fires, 1 Civilian Injury & $1.9 Million in Damages
Four hundred and sixty-eight (468) rooming, lodging, and boarding house fires were reported to the Massachusetts Fire Incident Reporting System (MFIRS) in 2012. These 468 fires caused one civilian injury, two fire service injuries and an estimated $1.9 million in damages. The average dollar loss per fire was $4,166. Three percent (3%) of the 14,534 residential building fires in 2012 occurred in rooming, boarding, or lodging houses. Fires in rooming houses were up by 1% from 465 in 2011.

Cooking Caused 89% of Rooming House Fires
Of the 468 incidents in rooming houses, cooking caused 89% of these fires. Indoor rubbish fires, smoking, heating equipment and arson each caused 2% of these fires. Electrical problems caused 1% and clothes dryers and candles each caused less than 1% of the fires in rooming houses in 2012.



91% of Rooming House Fires Were Confined to Non-Combustible Containers[16]
Four hundred and twenty-eight (428), or 91%, of all building fires in rooming houses were reported as confined to non-combustible containers in 2012. Four hundred and thirteen (413) were cooking fires contained to a non-combustible container, accounting for 88% of all the fires in rooming or boarding houses in 2012. Nine (9) fires, accounting for 2% of rooming house fires, were confined indoor rubbish fires. Three (3), or 1%, were fires confined to a fuel burner or boiler malfunction; and another three, or 1%, were confined to a commercial compactor.

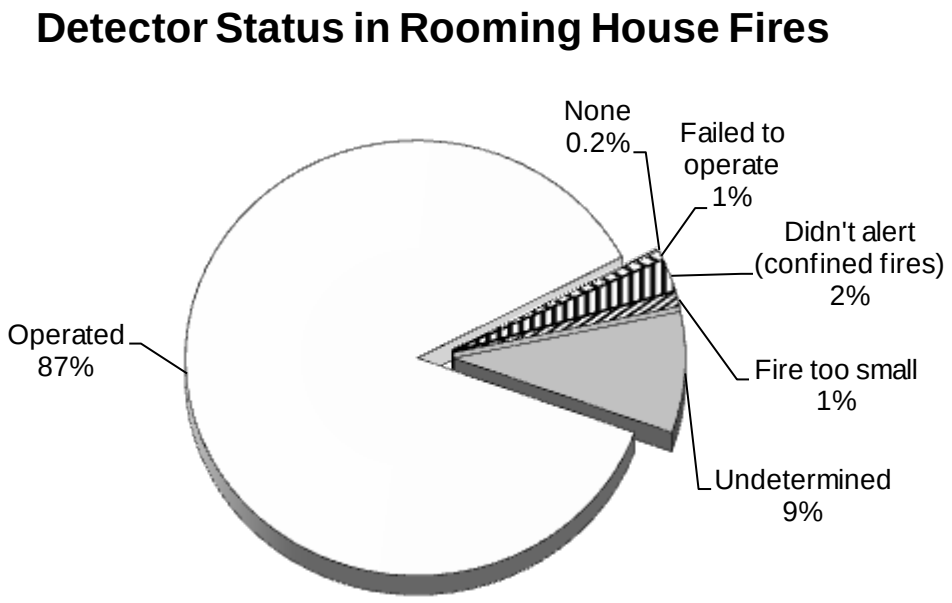
Confined fires in rooming houses decreased by one incident, or less than 1%, from the 429 reported in 2011.

90% of Rooming House Fires Started in the Bedroom
Ninety percent (90%) of rooming house fires started in the bedroom[17]. Kitchens, heating rooms or areas, exterior balconies, and chimneys or flues each accounted for 1% of these fires.

[16] In MFIRS v5 a fire in a building contained to a non-combustible container (Incident Type = 113-118) does not have to have a Fire Module completed. Therefore the following data fields do not need to be completed: Area of Origin, Detector Status, Item First Ignited, Heat Source, Factors Contributing to Ignition, Cause of Ignition, and Equipment Involved In Ignition. These incidents are not included in the analysis of these fields.

[17] 90% of the cooking fires in rooming houses were confined cooking fires. In most cases we assign the *Area of Origin* of a confined cooking fire to the kitchen. However in the case of rooming houses many of these fires probably occur in the residents' bedrooms when they are using hot plates, coffee makers or microwave ovens.

Detectors Alerted Occupants in 87% of Fires
Smoke or heat detectors operated and alerted the occupants in 406, or 87%, of the rooming house fires in 2012. In 2% of these fires[18], the detectors did not alert the occupants. In 1% of these fires, detectors were present but did not operate. In less than 1% of these fires detectors weren't present at all. The fire was too small to trigger the detector in 1% of these residential fires. Smoke detector performance was undetermined in 42 incidents, or 9%, of Massachusetts' 2012 rooming house fires.



Smoke Detectors Required in Rooming Houses
Smoke detectors are required in all rooming houses. Local communities may elect to adopt the provisions of Massachusetts General Law Chapter 148, Section 26H. This law mandates an adequate system of automatic sprinklers in every lodging or boarding house in the community. Sprinklers must be installed within five years after the provision is accepted. This was enacted after 15 people died in a Beverly rooming house fire on July 4, 1984.

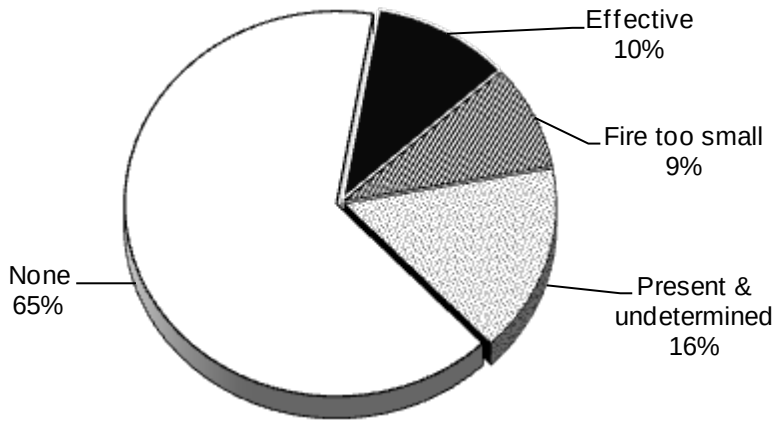
The decline in rooming house fires, especially fatal rooming house fires, is one of the great fire prevention success stories. Prior to the passage of Massachusetts General Law Chapter 148 Section 26H, rooming houses were known as "death traps' because of the large number of fire deaths that occurred in them every year. This is no longer true.

AES Present in Only 35% of Rooming House Residential Building Fires
AES were reported present in 20, or 35%, of the 57 rooming house fires where AES presence was known. In the other 37 incidents, or 65%, there were no systems present.

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

AES Effective in 10% of Rooming House Building Fires
In 10% of these rooming house building fires in 2012 where AES status was known, the AES operated effectively. The fire was too small to activate the automatic extinguishing system (AES) in 9% of these fires. In 16% of rooming house fires, systems were reported to be present but undetermined if they operated. In 65% of the cases, no system had been installed.

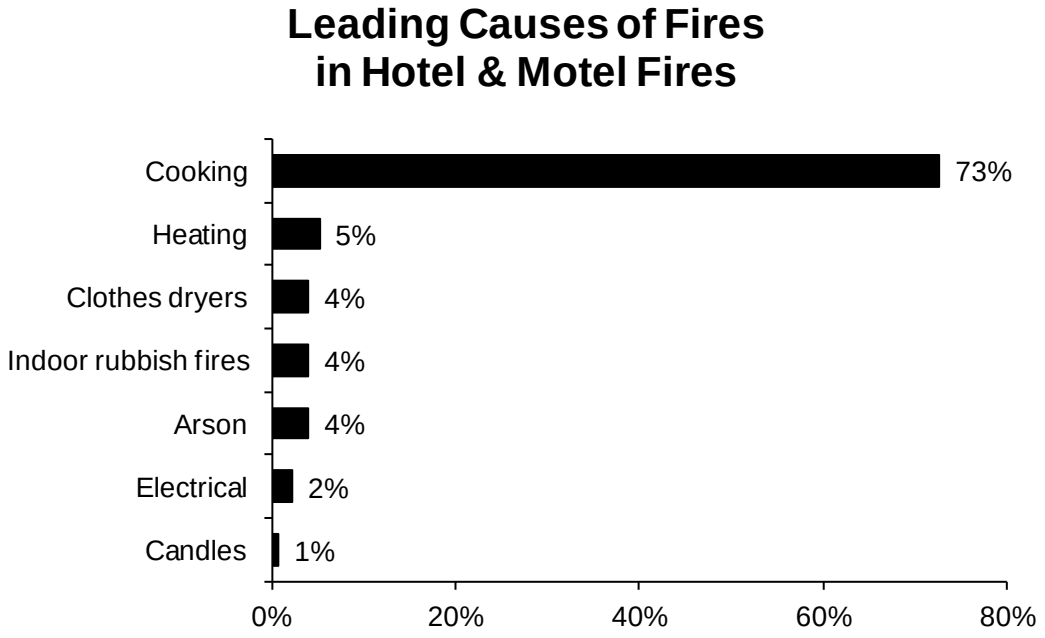
AES Operation in Rooming House Fires



Hotel and Motel Fires

135 Fires Caused 1 Civilian Injury & $916,472 in Damages
One hundred and thirty-five (135) building fires in hotels, motels and home hotels caused two civilian injuries and $762,678 in estimated property damages. The average dollar loss per fire was $5,649. In 2012, 1% of the 14,534 residential building fires occurred in hotels, motels, or home hotels. Fires in hotels and motels were down 4% from 140 in 2011.

Cooking Caused Almost 3/4 of Hotel & Motel Fires
Of the 135 fires in hotels and motels in 2012, cooking was the leading cause, accounting for 73%, of the fires in this occupancy. Heating equipment was responsible for 5% of these fires. Clothes dryers, indoor rubbish fires, and arsons each caused 4% of these fires. Electrical problems caused 2%; and candles caused 1% of the fires in Massachusetts hotels and motels in 2012.



73% of Hotel and Motel Fires Started in the Kitchen
For hotel and motel fires, 73% started in the kitchen. Three percent (3%) each began in a laundry room or bathroom. Two percent (2%) of these fires each began in heating rooms or unclassified service or equipment areas. One percent (1%) of these fires each started in chimneys or flues, substructure areas or machinery areas.

76% of Hotel or Motel Fires Confined to Non-Combustible Containers[19]
One hundred and three (103), or 76%, of all building fires in hotels and motels were reported as confined to non-combustible containers in 2012. Ninety-four (94) were cooking fires contained to a non-combustible container, accounting for 70% of these fires. Indoor rubbish fires caused five, or 4%, of the hotel and motel fires in 2012. Two (2) fuel burner or boiler malfunctions caused 1% of the fires in hotels and motels in 2012. Two (2), or 1%, of hotel or motel fires in 2012 were confined to a chimney or flue.

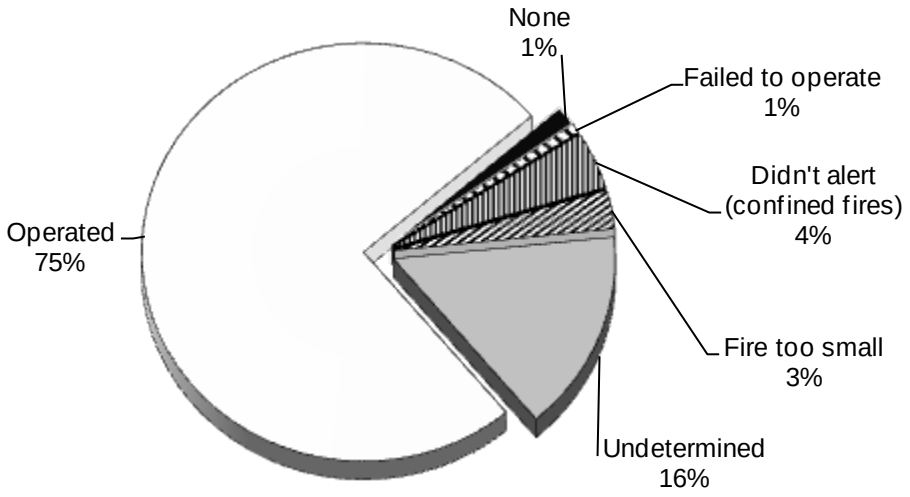
The number of contained fires fell in 2012. Confined fires in hotels and motels decreased by 14 incidents, or 12%, from the 117 reported in 2011.

Detectors Operated in 3/4 of Fires
Smoke or heat detectors operated in 101, or 75%, of the hotel or motel fires in 2012. In 4% of these fires[20], the detectors did not alert the occupants. Detectors were present but

[19] In MFIRS v5 a fire in a building contained to a non-combustible container (Incident Type = 113-118) does not have to have a Fire Module completed. Therefore the following data fields do not need to be completed: Area of Origin, Detector Status, Item First Ignited, Heat Source, Factors Contributing to Ignition, Cause of Ignition, and Equipment Involved In Ignition. These incidents are not included in the analysis of these fields.

did not operate in 1% of these fires. In 1% of these fires there were no detectors present at all. The fire was too small to trigger the detector in 3% of these residential fires. Smoke detector performance was undetermined in 21 incidents, or 16%, of Massachusetts' 2012 hotel or motel fires.

Detector Status in Hotel & Motel Fires



AES Absent in 1/2 of Hotel and Motel Residential Building Fires
Automatic extinguishing systems (AES) were present and operated effectively in two, or 5%, of the 26 hotel and motel building fires in 2012 where AES status was known. In two, or 5%, of these incidents the system failed to operate. In four, or 11% of these fires, a system was present but it was undetermined if it operated. In 10, or 28%, of these incidents, the fire was too small to activate the system. In 18, or 50%, of the cases, there were no AES.

State Regulations Require Quarterly Innholder Inspections
State regulations require local fire departments to conduct quarterly inspections of the premises specified in inn holder licenses.

Hotel-Motel Safety
It is important to consider fire safety when selecting accommodations.

- Choose lodging equipped with sprinklers and smoke detectors in each room.
- If you are hearing impaired, you may request a room with an appropriate smoke detector with a flashing strobe light.

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

- 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 detector 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.

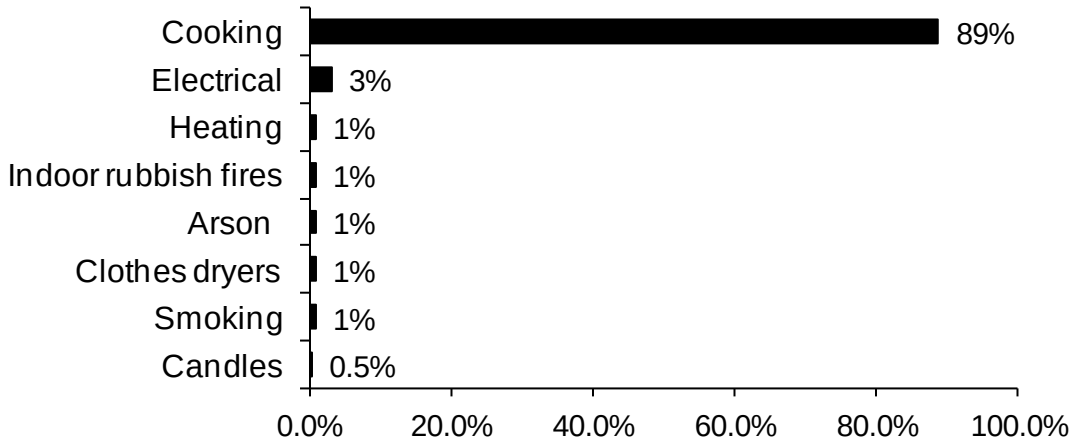
Residential Board & Care Fires

214 Fires Caused 1 Fire Service Injury & $196,237 in Damages
Two hundred and fourteen (214) residential board and care building fires caused one fire service injury and an estimated dollar loss of $196,237 in damages. The average dollar loss per fire was $917. In 2012, 1% of the 14,534 residential building fires occurred in residential board and care buildings. Fires in residential board and care facilities were up by 3% from 208 in 2011.

This *Property Use* code includes long term health care facilities, halfway houses and assisted care housing facilities. It excludes nursing homes.

Cooking Accounted for 89% Residential Board & Care Fires
In the 214 incidents of residential board and care building fires, the leading cause was cooking, accounting for 190 incidents, or 89%, of the fire incidents. Electrical problems caused 3% of these fires. Heating equipment, indoor rubbish fires, arson, clothes dryers, and smoking each caused 1% of these fires. Candles caused less than 1% of the fires in residential board and care facilities in 2012.

Leading Causes of Fires in Residential Board & Care Facility Fires



91% of Residential Board & Care Fires Started in the Kitchen
Of the 214 residential board and care building fires, 194, or 91%, started in the kitchen. Four (4), or 2%, started in a bedroom; and two each started in bathrooms or exterior wall surfaces, each accounting for 1% of these fires.

89% of Board & Care Fires Confined to Non-Combustible Containers[21]
One hundred and ninety-one (191), or 89%, of all building fires in residential board and care facilities were reported as confined to non-combustible containers in 2012. One hundred and eighty-seven (187) were cooking fires contained to a non-combustible container accounting for 87% of these fires. Three (3), or 1%, of these fires were contained rubbish fires. One (1), or less than 1%, of the fires in residential board and care facilities was confined to a fuel burner or boiler malfunction.

The number of contained fires decreased in 2012. Confined fires in residential board and care facilities decreased by two incidents, or 1%, from the 193 reported in 2011.

Detectors Operated in 82% of Fires
Smoke or heat detectors operated in 176, or 82%, of the residential board and care facility fires in 2012. There were no fires[22], where the detectors did not alert the occupants. Detectors were present but failed to operate in 1% of residential board and care fires.

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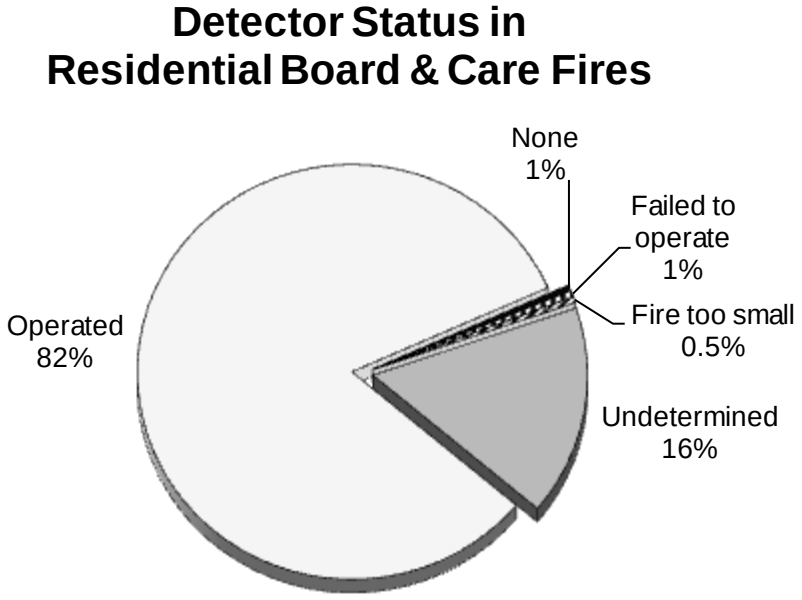
[21] In MFIRS v5 a fire in a building contained to a non-combustible container (Incident Type = 113-118) does not have to have a Fire Module completed. Therefore the following data fields do not need to be completed: Area of Origin, Detector Status, Item First Ignited, Heat Source, Factors Contributing to Ignition, Cause of Ignition, and Equipment Involved In Ignition. These incidents are not included in the analysis of these fields.

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

There were no detectors in 1% of these fires. The fire was too small to trigger the detector in less than1% of these residential fires. Smoke detector performance was undetermined in 35 incidents, or 16%, of Massachusetts' 2012 residential board and care facility fires.



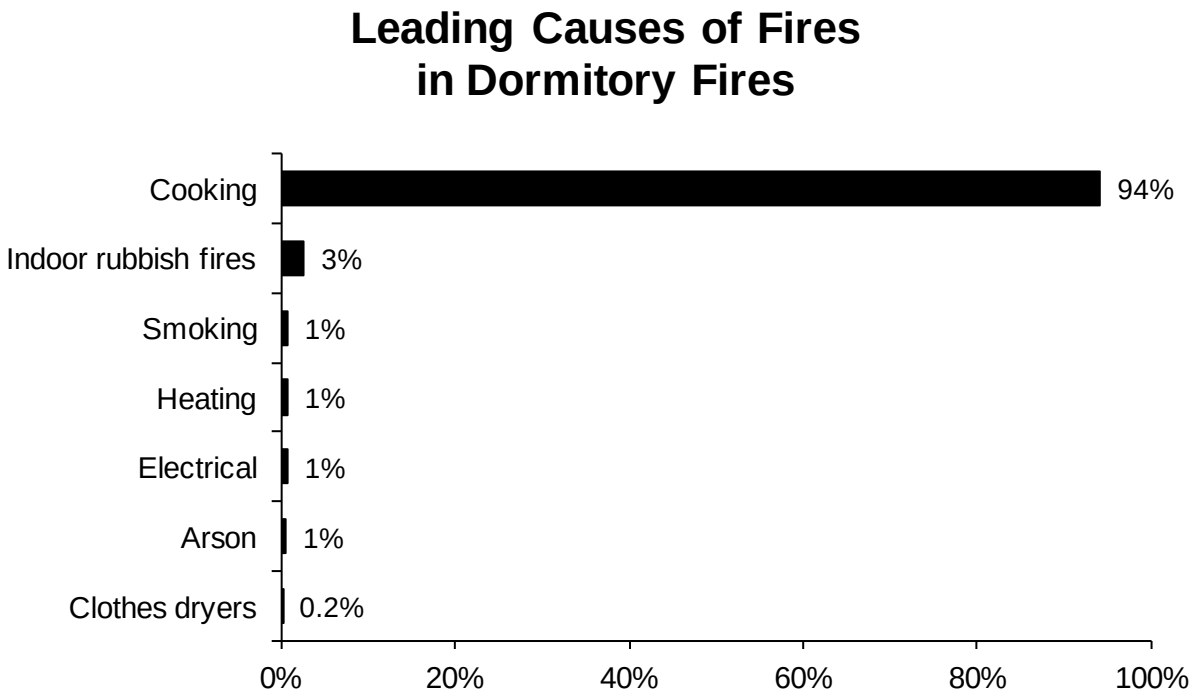
No AES in 66% of Residential Board & Care Building Fires
Automatic extinguishing systems (AES) were present and effective in three, or 9%, of the 35 residential board and care building fires where AES presence was known. An AES was present but it was undetermined if it operated in four, or 11%, of these incidents. The fire was too small to activate the system in five, or 14% of these fires. In 23, or 66%, of these incidents there were no systems present.

Dormitory Fires

521 Fires Caused $215,921 in Damages
Five hundred and twenty-one (521) dormitory building fires caused an estimated dollar loss of $215,921 in damages. The average dollar loss per fire was $414. In 2012, 4% of the 14,534 residential building fires occurred in dormitories. Fires in dormitories were down by 22, or 4%, from 543 in 2011.

Cooking Accounted for 94% of Dormitory Fires
In the 521 incidents of dormitory fires, the leading cause was cooking, accounting for 490, or 94%, of these fires. Indoor rubbish fires caused 3% of these fires. Smoking, heating equipment, electrical problems, and arsons were each responsible for 1% of these

incidents. Clothes dryers caused less than 1% of the Massachusetts dormitory fires in 2012.



94% of Dormitory Fires Started in the Bedrooms
For dormitory fires, 94% started in the bedrooms[23]. Kitchens, hallways, and heating rooms or areas were each the area of origin for 1% of dormitory fires.

97% of Dormitory Fires Confined to Non-Combustible Containers[24]
Five hundred and four (504), or 97%, of all building fires in dormitories were reported as confined to non-combustible containers in 2012. Four hundred and eighty-six (486) were cooking fires contained to a non-combustible container, accounting for 93% of all dormitory fires. It may be surmised that many if not all of these occurred in a kitchen, some may have been in the students' bedrooms. Indoor rubbish fires accounted for 14, or 3% of the fires in dormitories in 2012. Three (3), or 1%, of fires in Massachusetts'

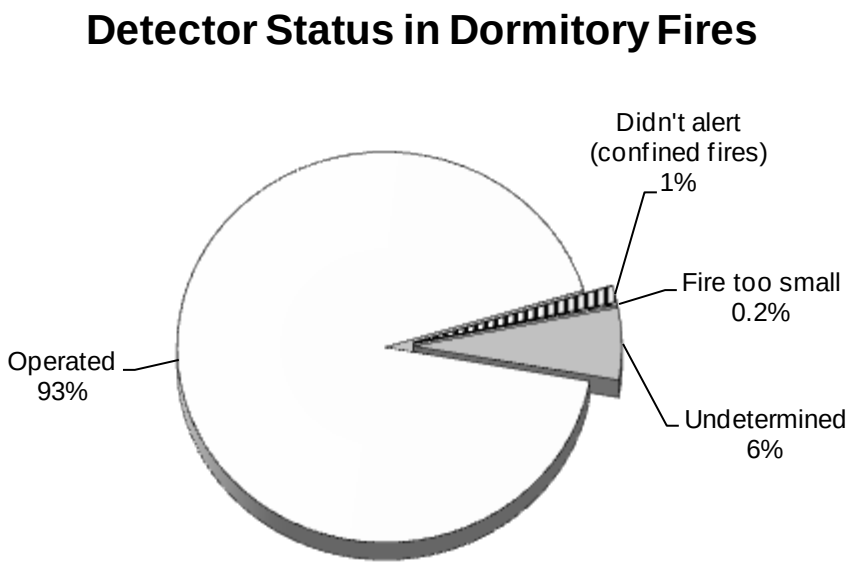
[23] 94% of the cooking fires in dormitories were confined cooking fires. In most cases we assign the *Area of Origin* of a confined cooking fire to the kitchen. However in the case of dormitories many of these fires probably occur in the students' bedrooms when they are using hot plates, coffee makers or microwave ovens.

[24] In MFIRS v5 a fire in a building contained to a non-combustible container (Incident Type = 113-118) does not have to have a Fire Module completed. Therefore the following data fields do not need to be completed: Area of Origin, Detector Status, Item First Ignited, Heat Source, Factors Contributing to Ignition, Cause of Ignition, and Equipment Involved In Ignition. These incidents are not included in the analysis of these fields.

dormitories in 2012 were confined to a fuel burner or boiler malfunction. One (1), or less than 1%, was confined to a chimney or flue.

The number of contained fires fell in 2012. Confined fires in dormitories decreased by 16 incidents, or 3%, from the 520 reported in 2011.

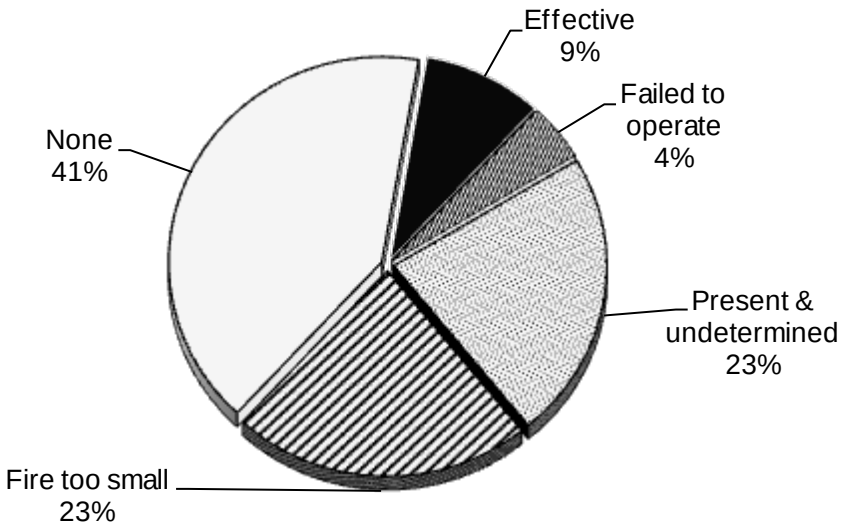
Detectors Operated in 93% of Fires
Dormitories have the highest percentage of operating smoke detectors of any residential occupancy in Massachusetts. Smoke or heat detectors operated and alerted the occupants in 482, or 93%, of the dormitory fires in 2012. In 1% of these fires[25], the detectors did not alert the occupants. There were no reported fires where the detectors were present but did not operate. There were no reported fires where detectors were not present. The fire was too small to trigger the detector in less than 1% of these fires. Smoke detector performance was undetermined in 31 incidents, or 6% of Massachusetts' 2012 dormitory fires.



AES Present in Only 59% of Dormitory Fires
Automatic extinguishing systems (AES) were present and operated effectively in two, or 9%, of the 22 building fires in dormitories where AES status was known. In one incident, or 4%, the system failed to operate. In 23% of these incidents, the fire was too small to activate the system. In 23% of these incidents, a system was present but it was undetermined if it operated. In nine, or 41%, of these incidents there were no systems present.

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

AES Status in Dormitory Fires



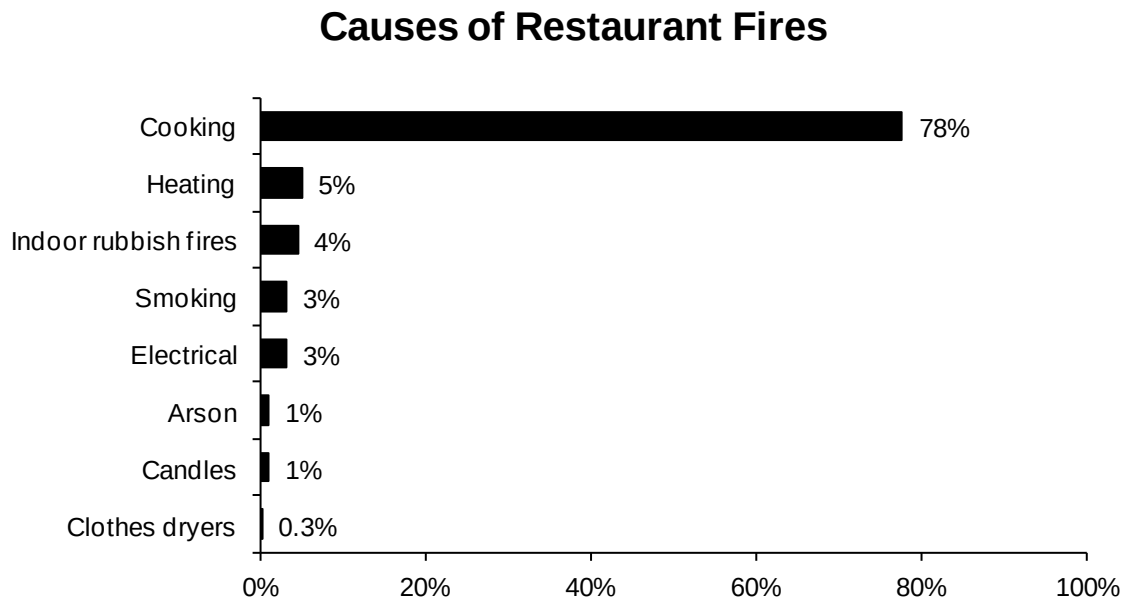
Almost 5 Times More False Alarms to Fire Calls in MA Dorms
In 2012, Massachusetts fire departments responded to 2,474 false alarm calls of all types in dormitory type residences. This means that there were 4.7 times as many false alarms as legitimate fire calls at these types of residences. One thousand four hundred and forty-six (1,446), or 58%, were unintentional system or detector operations; 671, or 27%, were system or detector malfunctions; 302, or 12%, were malicious or mischievous false alarms; and 55, or 2%, were unclassified false alarm calls.

Restaurant Fires

381 Fires, 3 Civilian Injuries & $2.6 Million in Damages
Three hundred and eighty-one (381) building fires in 2012 occurred in restaurants and other eating and drinking establishments, causing three civilian injuries, three fire service injuries and an estimated dollar loss of $2.6 million. The average dollar loss per fire was $6,885. In 2012, 2% of the 17,459 building fires in Massachusetts occurred in restaurants. Fires in restaurants were up 3% from 371 in 2011.

Over 3/4 of Restaurant Fires Caused by Cooking
Cooking caused 78% of the restaurant fires; heating equipment caused 5%; indoor rubbish fires accounted for 34 of these fires; smoking and electrical problems each

caused 3%; arsons and candles each caused 1% of these fires; and clothes dryers caused less than 1% of the fires in restaurants in 2012.



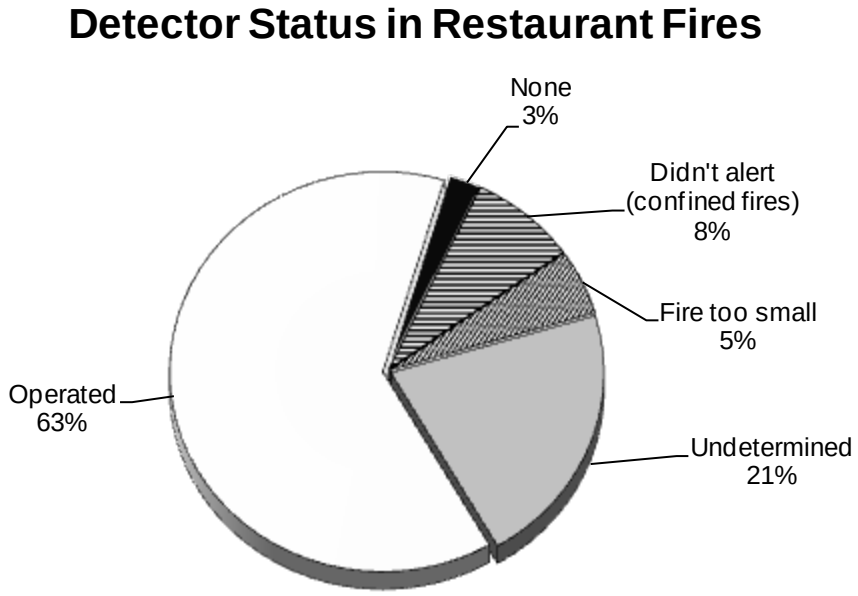
Over 3/4 of Restaurant Fires Started in the Kitchen
Three hundred and one (301), or 79%, of the 381 fires in restaurants, started in the kitchen. Two percent (2%) began in heating rooms or areas or on exterior wall surfaces. Chimneys or flues were each the area of origin for 1% of these fires.

79% of Restaurant Building Fires Confined to Non-Combustible Containers[26]
Three hundred and two (302), or 79% of all restaurant building fires, were reported as confined to non-combustible containers in 2012. Two hundred and seventy-one (271) were cooking fires contained to a non-combustible container, accounting for 71% of restaurant building fires. Seventeen (17), or 4%, of all restaurant building fires reported in 2012 contained rubbish fires. Eight (8), or 2%, were fires confined to a fuel burner or boiler malfunction. Five (5), or 1%, of restaurant fires were confined to chimneys or flues.

The number of contained fires increased in 2012. Confined fires in restaurants decreased by eight incidents, or 3%, from the 294 reported in 2011.

[26] In MFIRS v5 a fire in a building contained to a non-combustible container (Incident Type = 113-118) does not have to have a Fire Module completed. Therefore the following data fields do not need to be completed: Area of Origin, Detector Status, Item First Ignited, Heat Source, Factors Contributing to Ignition, Cause of Ignition, and Equipment Involved In Ignition. These incidents are not included in the analysis of these fields.

Detectors Operated in 63% of Fires
Smoke or heat detectors operated in 240, or 63%, of the restaurant fires in 2012. In 8% of these fires[27], the detectors did not alert the occupants. There were no reported fires where detectors were present but did not operate. In 3% of these fires, no detectors were present at all. The fire was too small to trigger the detector in 5% of the restaurant fires. Smoke detector performance was undetermined in 81 incidents, or 21%, of Massachusetts' 2012 restaurant fires.

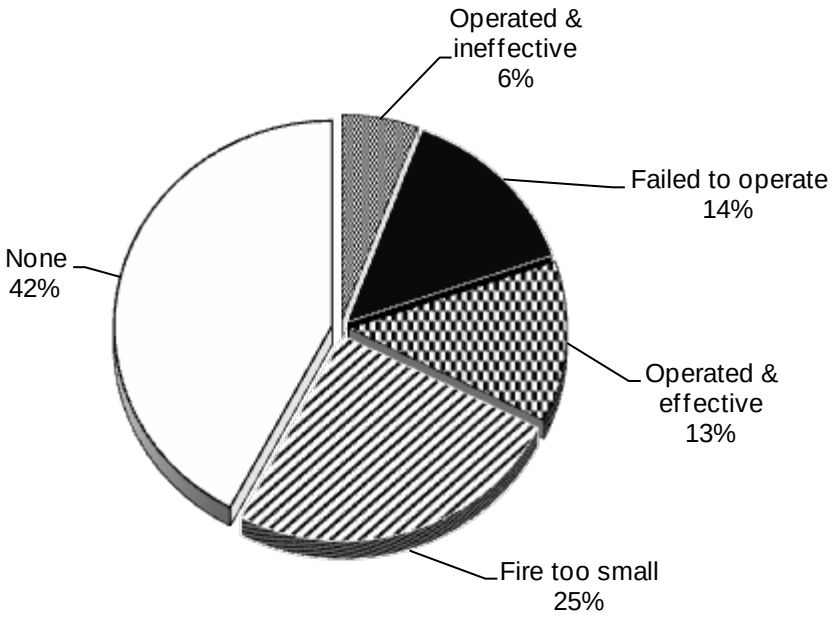


Restaurants Must Have Kitchen Exhaust & Fire Extinguishing Systems
According to Massachusetts 527 CMR 11, restaurants must have commercial kitchen exhaust systems and fire extinguishing systems installed and maintained in accordance with NFPA 96 for any cooking equipment that produces grease-laden vapors. An automatic fire extinguishing system would be the primary protection and portable fire extinguishers would be used as a secondary backup. These systems are usually located in the direct vicinity of, and specially designed for cooking equipment such as stoves, deep fryers and ovens. In 2010 this was changed from the previous standard, 527 CMR 10.03 (8).

No AES in 42% of Restaurant Fires
Automatic extinguishing systems (AES) were present and operated effectively in 13% of the 71 restaurant fires where AES status was known. In 6% of these fires, systems were present but operated ineffectively. In 14% of these fires, an AES was present but did not operate. In 25% of these fires, the fire was too small to activate the system. No AES equipment was present in 42% of the restaurant fires in 2012. AES status was unknown in 15 incidents. These incidents were excluded from the percentage calculations.

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

AES Status in Restaurant Fires



Commercial Cooking Exhaust System Cleaning Inspection License
Any person engaged in the cleaning and inspection of commercial cooking operations, as of January 1, 2010 must hold a Certificate of Competency issued by the State Fire Marshal. All cleaning and inspection that takes place must comply with the regulation. The regulation is based on the 2008 edition of NFPA 96.

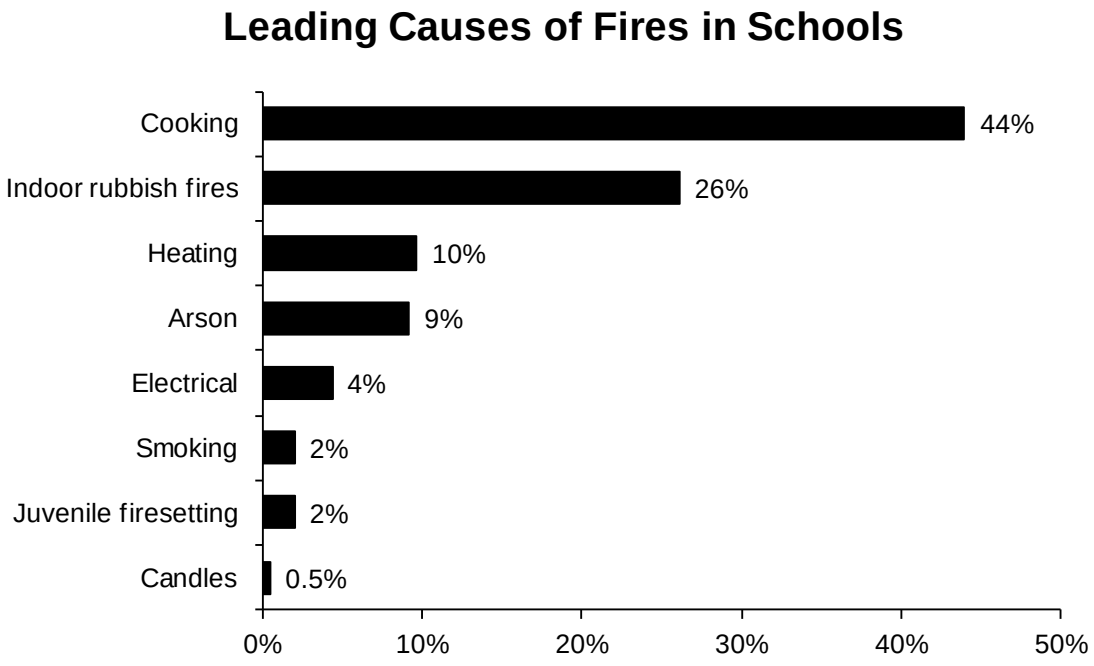
Boston Has Largest Loss Restaurant Fire

- On July 15, 2012, at 2:59 a.m., the Boston Fire Department was called to a fire in a restaurant. The cause of the fire was undetermined after the investigation was completed. No one was injured at this fire. Detectors were present and operated. It was undetermined if the building was sprinklered. Damages from this fire were estimated to be $350,000.

School Fires

207 Fires Caused 1 Civilian Injury & 8 Million in Loss
Two hundred and seven (207) building fires in schools caused one civilian injury, two fire service injuries and $8 million in property damages. The average dollar loss per fire was $38,857. In 2012, 1% of the building fires occurred in schools. Fires in schools remained the same with 207 reported in both 2011 and 2012.

44% of School Fires Were Cooking Fires
Forty-four percent (44%) of the 207 fires reported to have occurred in Massachusetts schools were caused by cooking. Twenty-six percent (26%) of the school fires were confined indoor rubbish fires for which no causal information was reported[28]. Problems with heating equipment accounted for 10% of these fires. Arsons caused 9% of these fires. Electrical problems accounted for 4% of these fires. Smoking and identified juvenile-set fires each accounted for 2% of the fires in schools. Candles caused less than 1% of the reported fires in schools in 2012. Smoking by students and faculty is generally prohibited in schools.



43% of School Fires Started in the Kitchen
Forty-three percent (43%) of the fires in schools started in kitchens; 8% started in a heating room or area; 7% began in a bathroom; and 2% started in assembly areas for 100 or more people. Many reports of school fires do not include the area of origin of the fire. The area of ignition for confined indoor rubbish fires is not required to be reported. In 2012, there were 54 reported confined indoor rubbish fires reported in Massachusetts schools, of which 40 did not report an area of origin.

Schools Required to Report Fires by Law
Beginning in September of 2006 with Chapter 80 of the Acts of 2006, An Act Relative to the Reporting of Fires in School, "…any school that provides instruction to pupils in any of grades 1 to 12, shall immediately report any incident involving the unauthorized

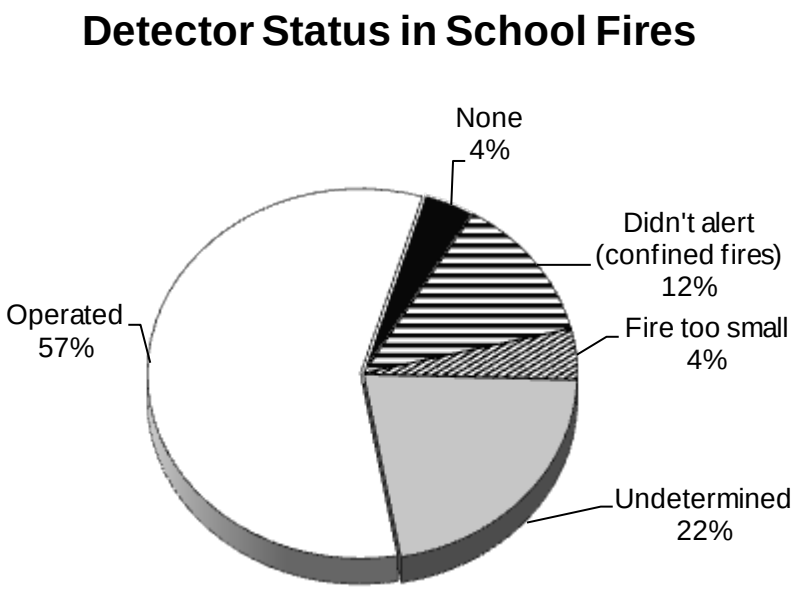
[28] Confined fires, like indoor rubbish fires, do not require causal information to be completed. However some reports do include this information and we are able to classify these fires as other types of fires like arsons or juvenile-set fires.

ignition of any fire within the school building or on school grounds to the local fire department." Upon receipt of this report from the school, the local fire department must then complete an MFIRS report.

78% of School Building Fires Confined to Non-Combustible Containers[29]
One hundred and sixty-one (161), or 78% of all school building fires, were reported as confined to non-combustible containers in 2012. Eighty-nine (89) were cooking fires contained to a non-combustible container, accounting for 43% of school fires. Fifty-four (54), or 26%, of all school fires were contained rubbish fires. Of these 54 confined rubbish fires, six were considered intentionally set or arson, and two were determined to be set by juveniles. Sixteen (16), or 8%, were fires confined to a fuel burner or boiler malfunction. One (1), or less than 1% was a fire confined to a chimney or flue; and one, or less than 1% was a confined commercial compactor fire.

Confined fires in schools increased by five incidents, or 3%, from the 156 reported in 2011.

Detectors Operated in 57% of Fires
Smoke or heat detectors operated in 119, or 57%, of the school fires in 2012. In 12% of these fires[30], the detectors did not alert the occupants. There were no reported fires where detectors were present but did not operate. In 4% of these fires, no detectors were present

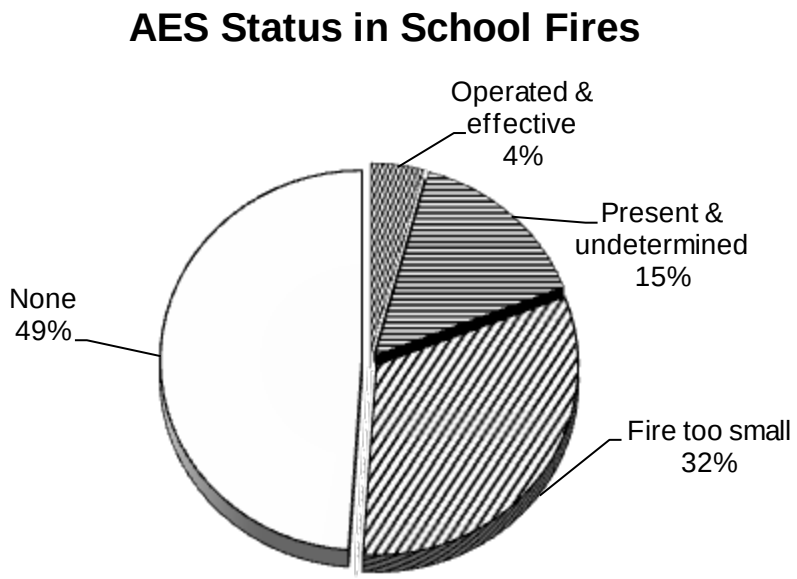


[29] In MFIRS v5 a fire in a building contained to a non-combustible container (Incident Type = 113-118) does not have to have a Fire Module completed. Therefore the following data fields do not need to be completed: Area of Origin, Detector Status, Item First Ignited, Heat Source, Factors Contributing to Ignition, Cause of Ignition, and Equipment Involved In Ignition. These incidents are not included in the analysis of these fields.
[30] These represent confined fires where it was reported that the detector did not alert the occupants.

at all. The fire was too small to trigger the detector in 4% of school fires. Smoke detector performance was undetermined in 45 incidents, or 22%, of Massachusetts' 2012 school fires.

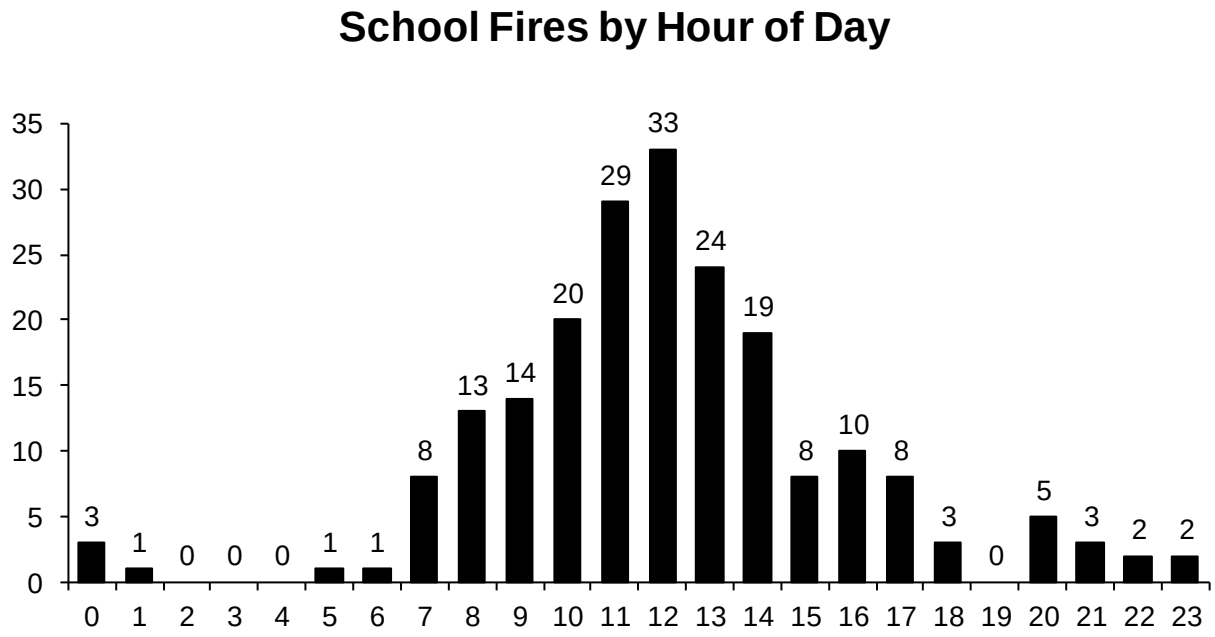
No AES in 49% of Fires in Schools

There were two school fires, or 4%, where automatic extinguishing systems (AES) were reported to have been present and operated effectively. In 32% of school fires, the fires were too small to trigger the system. An AES was present but it was undetermined if it operated in 15% of these fires. In 49% of the fires in schools, there were no systems.



Most School Fires Occur When School is in Session During Lunch

School fires generally occur during the school day. Seventy-seven percent (77%) of the school building fires occurred during the hours between 8:00 a.m. and 3:00 p.m. with a sharp increase between 9:00 a.m. and 12:00 p.m. The following graph shows the hour of alarm on the 24-hour clock. Midnight to 1:00 a.m. is represented by 0, 1:00 a.m. to 2:00 a.m. is represented by 1, etc. Eighty-seven percent (87%) of these fires occurred between Monday and Friday.



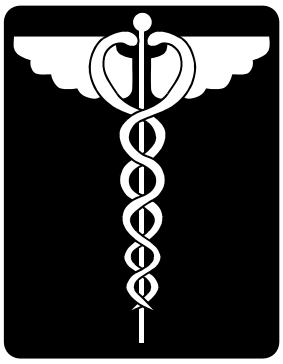
Schools Must Hold Fire Drills Four Times a Year
Effective fire prevention has undoubtedly contributed to the low injury rate at school fires. According to 527 CMR 10.09, fire drills must be conducted four times a year. The fire department must approve an evacuation plan developed by someone from the school system. All teachers must receive instructions about the plan. Students must be advised of the fire drill procedure or take part in a fire drill within three days after entering school.

Schools Must Have Updated Multi-hazard Evacuation Plan
Under Section 363 of Chapter 159 of the Acts of 2000, "…the superintendent of each school district shall, prior to the beginning of the school year, meet with the fire chief and the police chief of the city, town or district to formulate a school specific 'Multi-hazard evacuation plan' for each school under the superintendent's supervision…" These plans are to encompass evacuations for fires, natural disasters such as hurricanes and other storms, disasters where students and faculty may be injured, as well as shootings, bomb threats and terrorist activities. The plan should include the creation of a crisis response team (CRT); a chain of command for the CRT including substitutes; a communication plan; procedures for safe entry to and exit from the school for students, parents and staff; and policies for enforcing school discipline and maintaining a safe and orderly environment during the crisis that forced the evacuation. The superintendent and the chiefs should review this plan annually and any necessary changes should be implemented before the new school year begins. At the start of the new school year students should be instructed on how the plan affects them.

Rowe Had Largest Loss School Fire
- On August 4, 2012, at 3:37 p.m., the Rowe Fire Department was called to a fire at an elementary school started by a lightning strike. One (1) firefighter was injured at this

fire. Detectors were present but it was undetermined if they operated. The building was not sprinklered. Damages from this fire were estimated to be $7.8 million.

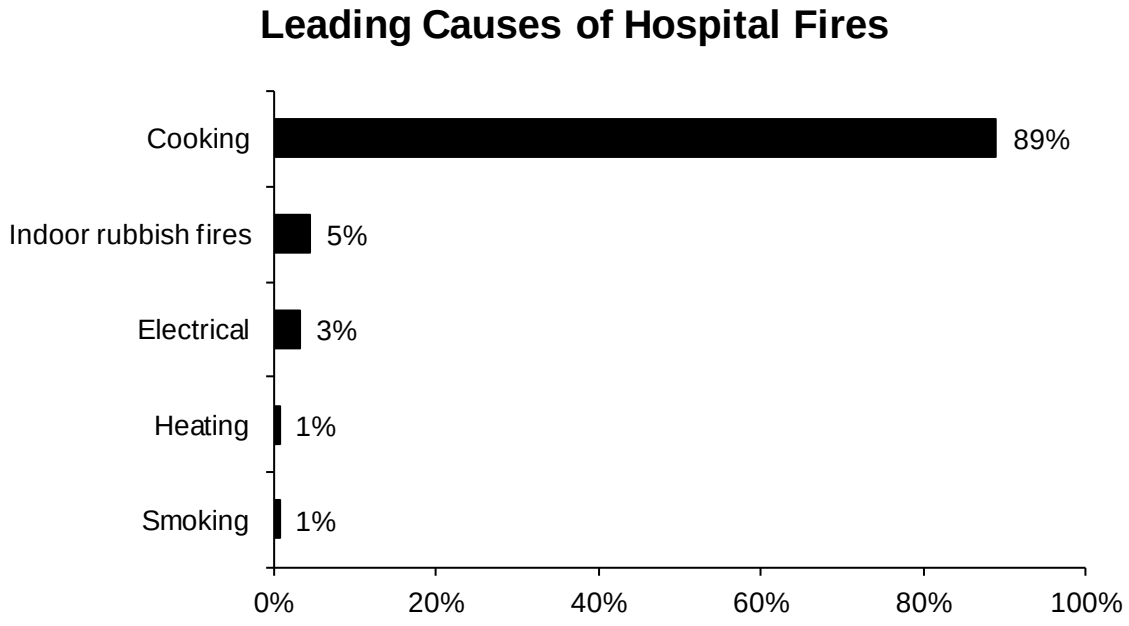
Fires in Hospitals



155 Fires Caused 1 FF Injury & $73,747 in Damages
One hundred and fifty-five (155) building fires in hospitals caused one fire service injury and an estimated dollar loss of $73,747. The average loss per fire was $476. In 2012, 1% of the 17,459 building fires occurred in hospitals. Fires in hospitals were down 8% from the 169 reported in 2011.

This property use section includes: mental institutions, including facilities for the criminally insane; medical, psychiatric and specialty hospitals where treatment is provided on a 24-hour basis; hospices; and clinics and clinic type infirmaries. It does not include doctor's or dentist's offices; nursing homes; alcohol or substance abuse centers; and mentally challenged/development disability facilities.

Cooking Caused 89% of Hospital Fires
Unattended cooking and other unsafe cooking practices caused 89% of the fires in hospitals in 2012. Indoor rubbish fires caused 5% of these fires. Electrical problems caused 3% of hospital fires. Heating and smoking each accounted for 1% of the fires in hospitals in 2012.

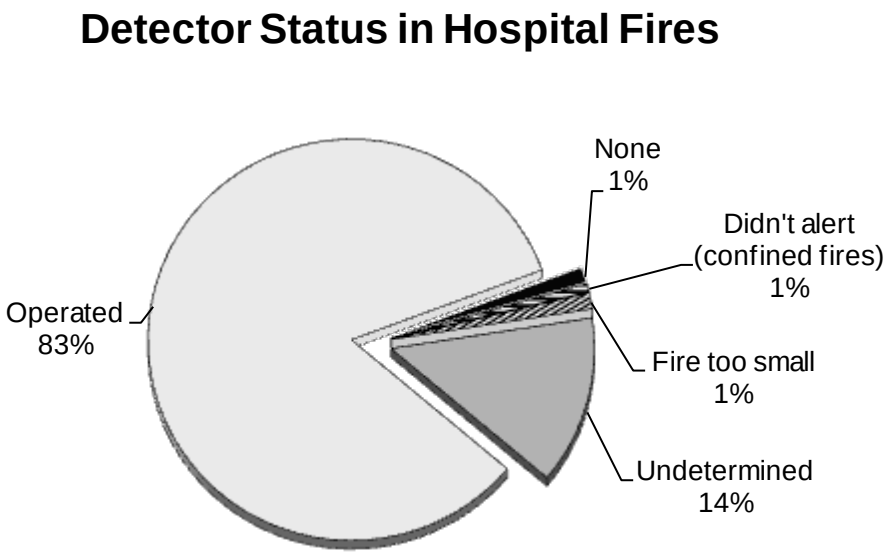


89% of Hospital Fires Began in the Kitchen
Eighty-nine percent (89%) of the fires in hospitals in 2012 started in the kitchen. One percent (1%) occurred each in wall assembly areas, bedrooms, machinery rooms, offices, service or equipment areas, storage areas, switchgear areas and an exterior wall surface.

93% of Hospital Building Fires Confined to Non-Combustible Containers[31]
One hundred and forty-four (144), or 93%, of all hospital building fires, were reported as confined to non-combustible containers in 2012. One hundred and thirty-seven (137), or 88%, of these fires were contained cooking fires. Seven (7) were confined indoor rubbish fires accounting for 5% of hospital fires.

The number of contained fires remained the same in 2012. One hundred and forty-four (144) confined fires were reported in 2011 and 2012.

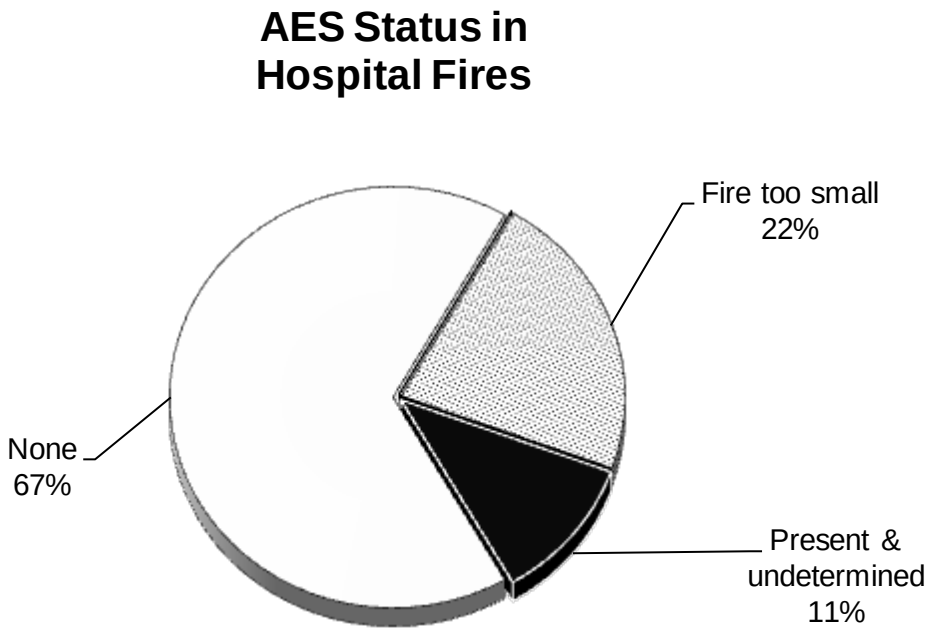
Detectors Operated in 83% of Fires
Smoke or heat detectors operated in 129, or 83%, of the hospital fires in 2012. In 1% of these fires[32], the detectors did not alert the occupants. The detectors failed to operate in 1% of these fires. In 1% of these fires, no detectors were present at all. The fire was too small to trigger the detector in 1% of the hospital fires. Smoke detector performance was undetermined in 21 incidents, or 14%, of Massachusetts' 2012 hospital fires.



[31] In MFIRS v5 a fire in a building contained to a non-combustible container (Incident Type = 113-118) does not have to have a Fire Module completed. Therefore the following data fields do not need to be completed: Area of Origin, Detector Status, Item First Ignited, Heat Source, Factors Contributing to Ignition, Cause of Ignition, and Equipment Involved In Ignition. These incidents are not included in the analysis of these fields.
[32] These represent confined fires where it was reported that the detector did not alert the occupants.

No AES in 2/3 of Fires

Of the 18 hospital fires where automatic extinguishing system (AES) performance was known, 67%, or nine, of the hospital fires had no systems. The fire was too small to activate the AES in four, or 22%, of these fires. An AES was present but its performance was unknown in two, or 11% of the fires in hospital facilities.



Boston Had Largest Loss Hospital Fire in 2012

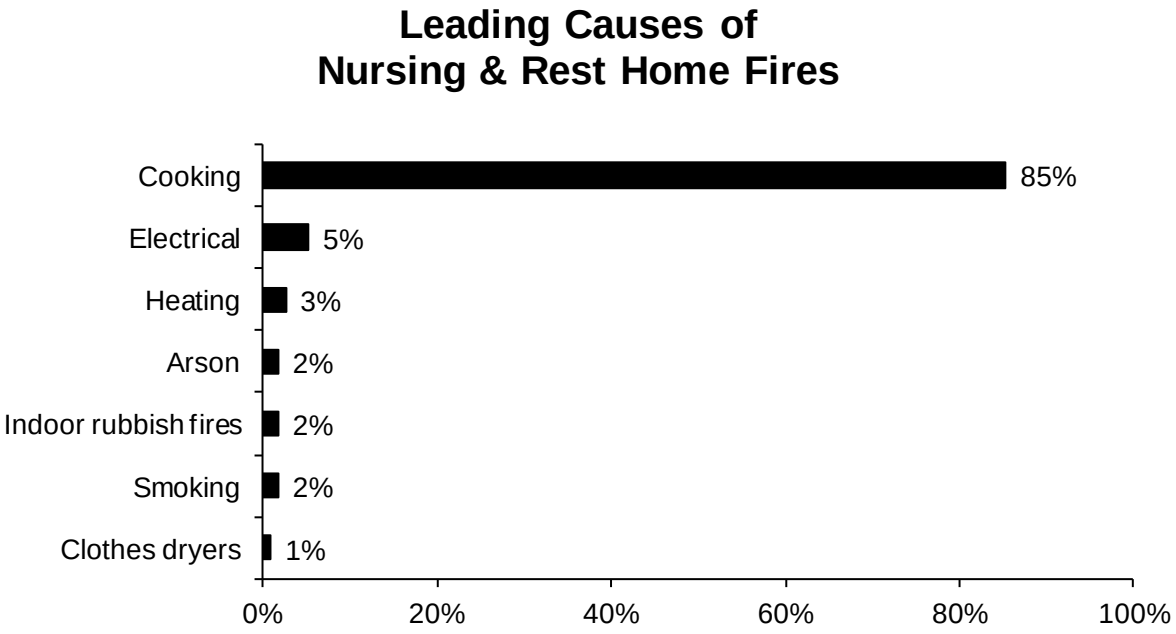
- On December 2, 2012, at 1:52 a.m., the Boston Fire Department was called to an electrical fire at Brigham and Women's Hospital. The fire was caused by an overheated motor in the HVAC system. The fire did not cause any injuries. Detectors were present and alerted the occupants. It was undetermined if the building was equipped with sprinklers. Damages from this fire were estimated to be $5,000.

Nursing Home and Rest Home Fires

115 Fires Caused 5 Civilian Injuries & $2.3 Million in Damages
One hundred and fifteen (115) building fires occurred in nursing homes and rest homes[33] during 2012. These fires caused five civilian injuries an estimated dollar loss of $2.3 million. The average loss per fire was $19,799. In 2012, 1% of the 17,459 building fires occurred in nursing homes and rest homes. Fires in nursing homes and rest homes decreased by 26% from the 155 fires reported in 2011.

This property use category includes only nursing homes licensed by the state that provide 24-hour nursing care for four or more people.

Cooking Caused 85% of Nursing Home Fires
Unattended cooking and other unsafe cooking practices caused 85% of the fires in nursing and rest homes. Electrical problems caused 5% of these fires. Heating equipment caused 3% of these fires. Arson, indoor rubbish fires and smoking each caused 2%; and clothes dryers caused 1% of nursing home fires in 2012.



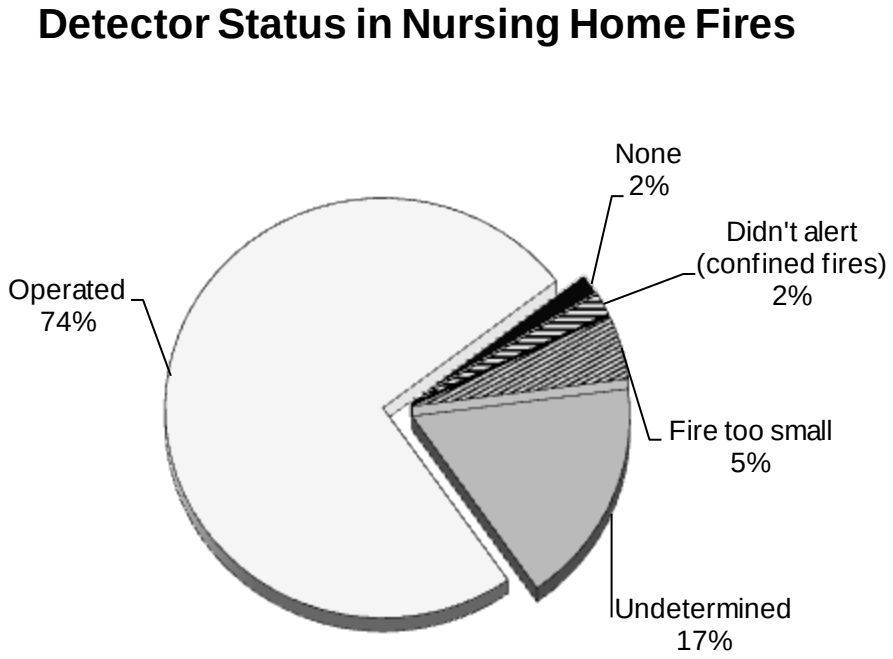
85% of Fires Began in the Kitchen
Eighty-five percent (85%) of the nursing and rest home fires began in the kitchen. Two percent (2%) each began in bedrooms and heating rooms or areas.

[33] In version 4 buildings with a Fixed Property Use code 312 – Care of the aged without nursing staff - was included in this count. However, with the conversion to version 5 codes, all v4 FPU = 312 have been converted to Property Use code 459 – Residential board and care.

90% of Nursing Home Fires Were Confined to Non-Combustible Containers[34]
One hundred and three (103), or 90%, of all nursing home building fires were reported as confined to non-combustible containers in 2012. Ninety-eight (98) of the reported fires were cooking fires contained to a non-combustible container accounting, for 85% of nursing home building fires. Two (2), or 2%, were fires confined to a fuel burner or boiler malfunction. There were two confined indoor rubbish fires in Massachusetts' nursing homes in 2012, accounting for 2% of these fires.

The number of contained fires in nursing homes dropped in 2012. Confined fires decreased by 33 incidents, or 24%, from the 136 reported in 2011.

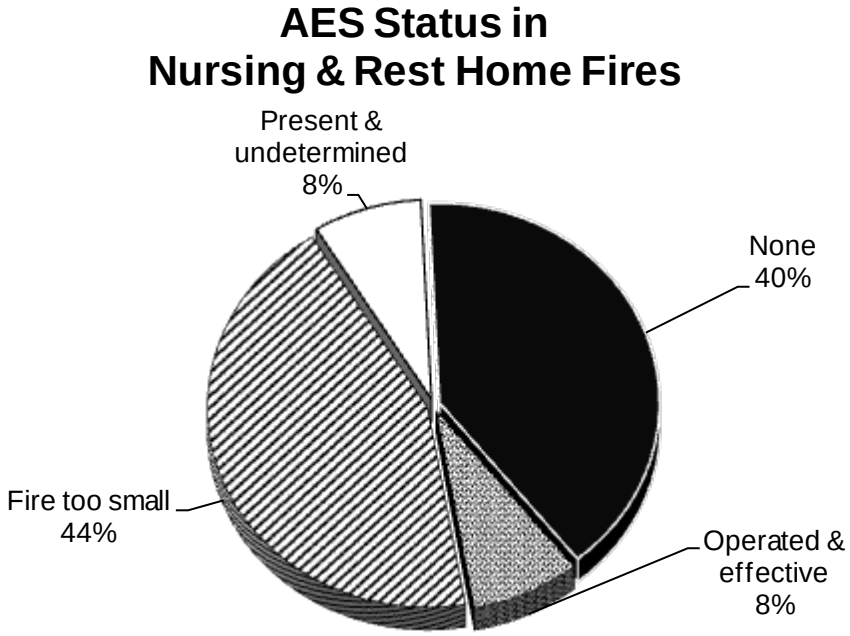
Detectors Operated in Almost 3/4 of Fires
Smoke or heat detectors operated in 90, or 74%, of the nursing home fires in 2012. In 2% of these fires[35], the detectors did not alert the occupants. There were no reported fires where the detectors were present but did not operate. In 2% of these fires, no detectors were present at all. The fire was too small to trigger the detector in 5% of the nursing home fires. Smoke detector performance was undetermined in 21 incidents, or 17%, of Massachusetts' 2012 nursing and rest home fires.



[34] In MFIRS v5 a fire in a building contained to a non-combustible container (Incident Type = 113-118) does not have to have a Fire Module completed. Therefore the following data fields do not need to be completed: Area of Origin, Detector Status, Item First Ignited, Heat Source, Factors Contributing to Ignition, Cause of Ignition, and Equipment Involved In Ignition. These incidents are not included in the analysis of these fields.
[35] These represent confined fires where it was reported that the detector did not alert the occupants.

AES Operated in 8% of Nursing Home Fires

Of the 25 nursing home fires where automatic extinguishing system (AES) performance was known or reported, systems were present and operated effectively in two, or 8%, of these fires. In 11 incidents, or 44% of the fires where AES presence was known, the fire was too small to activate the system. No systems were present in 10, or 40%, of these fires. In two of these incidents, or 8%, AES were present but their operation was undetermined.



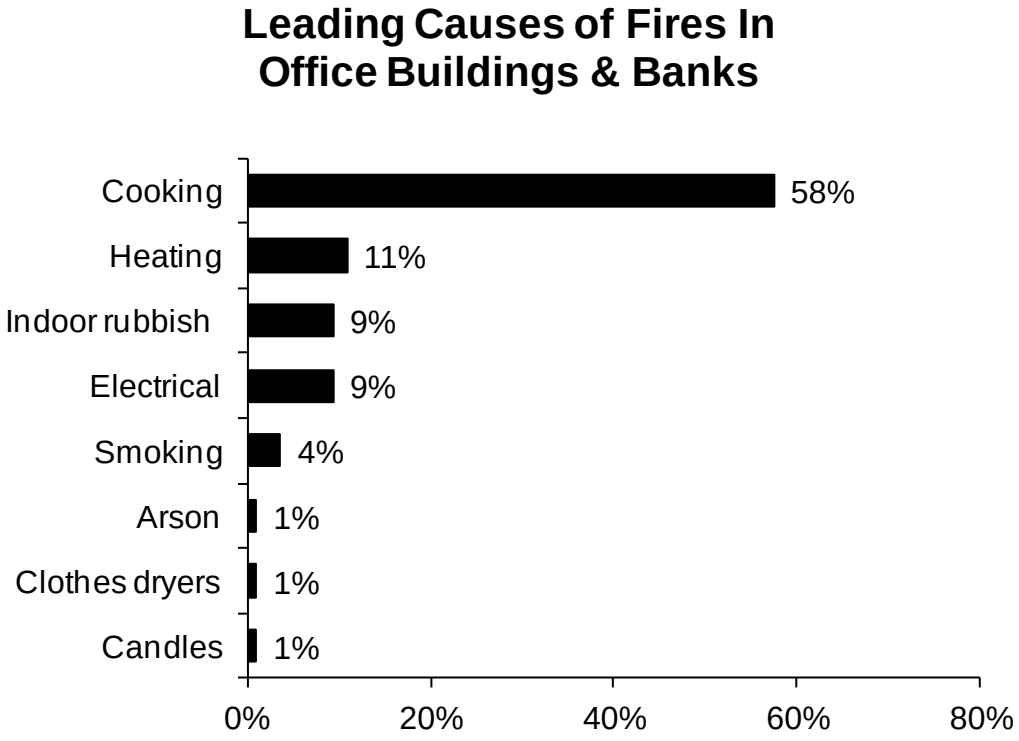
Braintree Has Largest Nursing Home Fire Loss

- On April 8, 2012, at 2:30 a.m., the Braintree Fire Department was called to a fire in a nursing home. The fire was started by a cigarette lighter accidentally igniting some organic material on a patio area. This fire caused $2.2 million in damages. Four (4) of the residents received minor injuries from this fire. Smoke detectors were present and alerted the staff and occupants. Sprinklers were present and actively suppressed the fire.

Office Building and Bank Fires

193 Fires, 1 FF Injury & $1.3 Million in Damages
One hundred and ninety-three (193) building fires occurred in offices and banks during 2012. These fires caused one fire service injury and an estimated dollar loss of $1.3 million. The average dollar loss per fire was $6,795. In 2012, 1% of the 17,459 building fires occurred in offices and banks. Fires in office buildings and banks were up 5% from 183 in 2011.

Cooking Caused 58% of Office & Bank Fires
Unattended cooking and other unsafe cooking practices caused 58% of the 193 fires in office buildings and banks in 2012. Heating equipment accounted for 11% of these fires. Indoor rubbish fires and electrical problems each caused 9% of the fires. Smoking caused 4% of these fires. Arson, clothes dryers and candles were each the cause of 1% of the fires in Massachusetts' office buildings and banks in 2012.

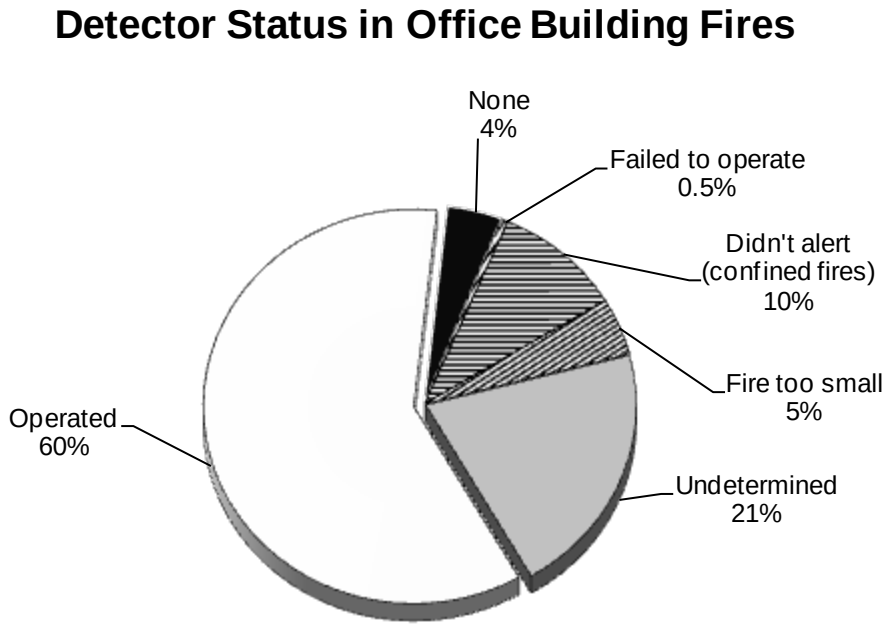


58% Office Building and Bank Fires Started in Kitchen
Fifty-eight percent (58%) of the fires in office buildings or banks started in the kitchen. Eight percent (8%) of these fires began in a heating room or area. Two percent (2%) each originated in bathrooms, ceiling and floor assemblies and unclassified service or

equipment areas. One percent (1%) each started in attics, machinery rooms, processing/manufacturing areas, switchgear areas and wall assemblies.

75% of Office Building Fires Are Confined to Non-Combustible Containers[36]
One hundred and forty-four (144), or 75%, of all office building and bank building fires were reported as confined to non-combustible containers in 2012. One hundred and nine (109) of the reported fires were cooking fires contained to a non-combustible container, accounting for 56% of office building fires. Sixteen (16), or 8%, were fires confined to a fuel burner or boiler malfunction. Seventeen (17), or 9%, of these fires were contained indoor rubbish fires. Two (2), or 1%, of these fires were confined to chimneys. Confined fires in offices increased by 10 incidents, or 7%, from the 134 reported in 2011.

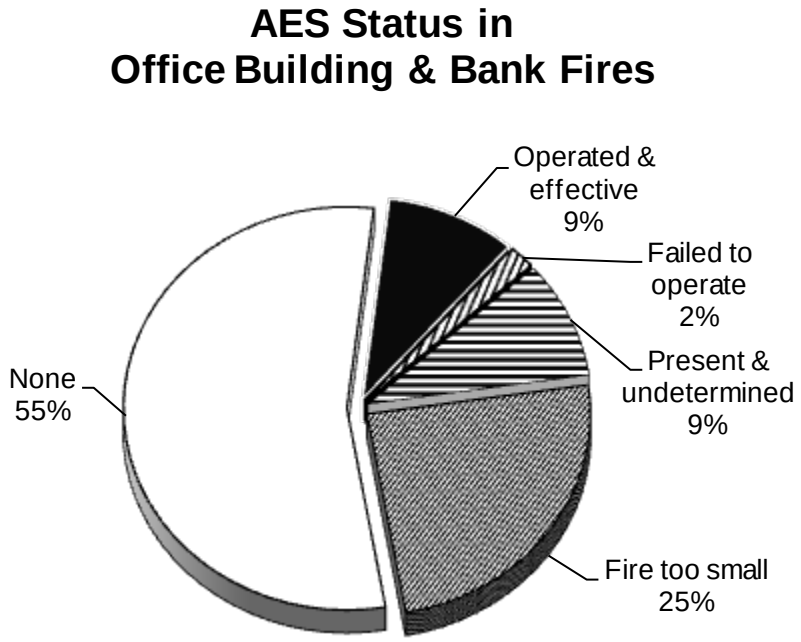
Detectors Operated in 60% of Fires
Smoke or heat detectors operated and alerted the occupants in 116, or 60%, of the office building fires in 2012. In 10% of these fires[37], the detectors did not alert the occupants. In 4% of these fires, no detectors were present at all. In 0.5% of these fires the detectors failed to operate. The fire was too small to trigger the detector in 5% of the office building fires. Smoke detector performance was undetermined in 40 incidents, or 21%, of the fires in Massachusetts' office buildings.



[36] In MFIRS v5 a fire in a building contained to a non-combustible container (Incident Type = 113-118) does not have to have a Fire Module completed. Therefore the following data fields do not need to be completed: Area of Origin, Detector Status, Item First Ignited, Heat Source, Factors Contributing to Ignition, Cause of Ignition, and Equipment Involved In Ignition. These incidents are not included in the analysis of these fields.
[37] These represent confined fires where it was reported that the detector did not alert the occupants.

55% of Office Buildings and Banks Had No AES

No automatic extinguishing systems (AES) were installed in 29, or 55%, of the 53 fires occurring in office buildings and banks where AES performance was known. Systems were present and operated effectively in five, or 9%, of these incidents. A system was present but failed to operate in one, or 2%, of these fires. The fire was too small to activate the system in 13, or 25%, of these incidents. AES were present but it was undetermined if they operated in five, or 9%, of the total number of office building and bank fires.



Bridgewater Has Largest Loss Office Building Fire

- On March 10, 2012, at 5:40 a.m., the Bridgewater Fire Department responded to a fire in a business office of undetermined cause. The fire originated in a first floor wall assembly. No one was injured at this fire. Detectors were present and operated. The building was not sprinklered. Damages from this fire were estimated to be $400,000.

Vacant Building Fires

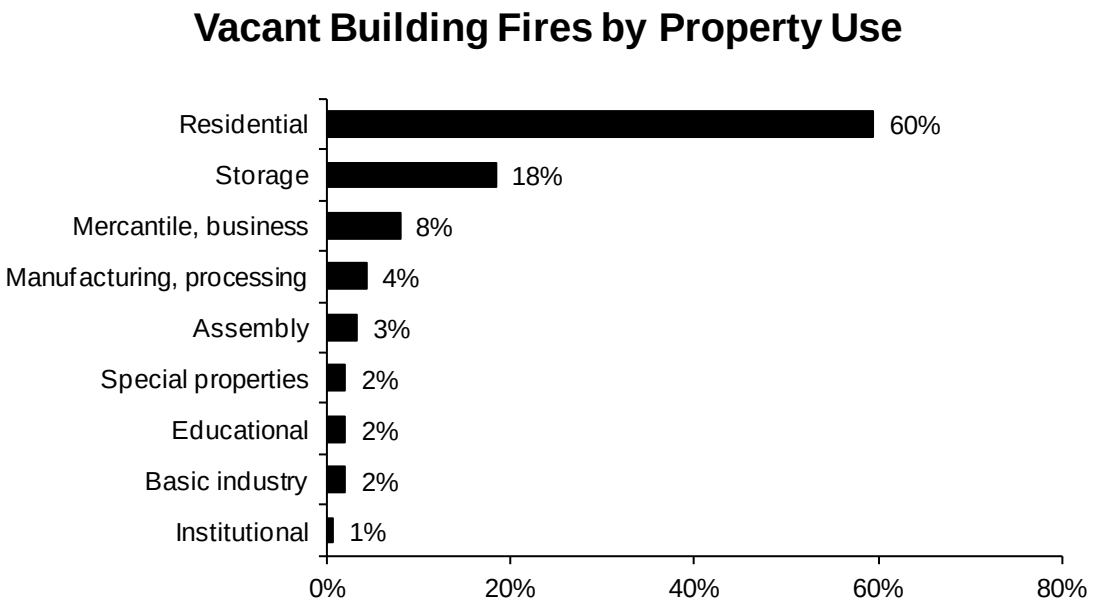
304 Fires Caused 56 Fire Service Injuries & $17.1 Million in Damages
Three hundred and four (304) building fires occurred in buildings that were vacant, under construction or demolition[38]. These 304 fires caused four civilian injuries, 56 firefighter injuries and an estimated $17.1 million in damages. The average dollar loss per vacant building fire was $56,281. The number of fires in vacant buildings increased by 25, or 9%, from the 279 reported in 2011.

19% of Vacant Buildings Fires Were Arsons
Fifty-seven (57), or 19%, of the fires in vacant buildings were considered arson. These 57 arsons caused 14 firefighter injuries and $2.4 million in damages. In 2012, 21%, of the total 271 Massachusetts building arson fires occurred in vacant buildings.

46% of Vacant Building Fires Undetermined
Forty-six percent (46%) of vacant building fires were undetermined. Fifty-two (52), or 17%, of the 304 vacant building fires were undetermined after investigation. Eighty-nine (89), or 29%, were coded as still under investigation.

60% of All Vacant Building Fires Were Residential
Out of the 304 vacant building fires, 181, or 60%, occurred in residential occupancies. This is a decrease of 16, or 8%, from the 197 that were reported in 2011. Fifty-six (56), or 18%, happened in storage facilities; 24, or 8%, happened at mercantile or business locations; 13, or 4%, happened at manufacturing or processing locations; 10, or 3%, were in public assembly properties; seven, or 2%, occurred in special properties; six, or 2%, were at educational facilities; five, or 2%, occurred at institutional facilities; and two, or 1%, happened at institutional facilities.

[38] In version 4 a vacant building was defined by having a Fixed Property Use code in the subsection of construction, unoccupied properties, between 910 & 919. However in version 5, the Property Use is separate from the Building Status. In v5 a building is considered vacant if the Building Status is coded: 1-Under Construction; 3-Idle, not routinely used; 4-Under major renovation; 5-Vacant, secured; 6-Vacant, unsecured; & 7-Being demolished. The building use is coded separately in the Property Use field.



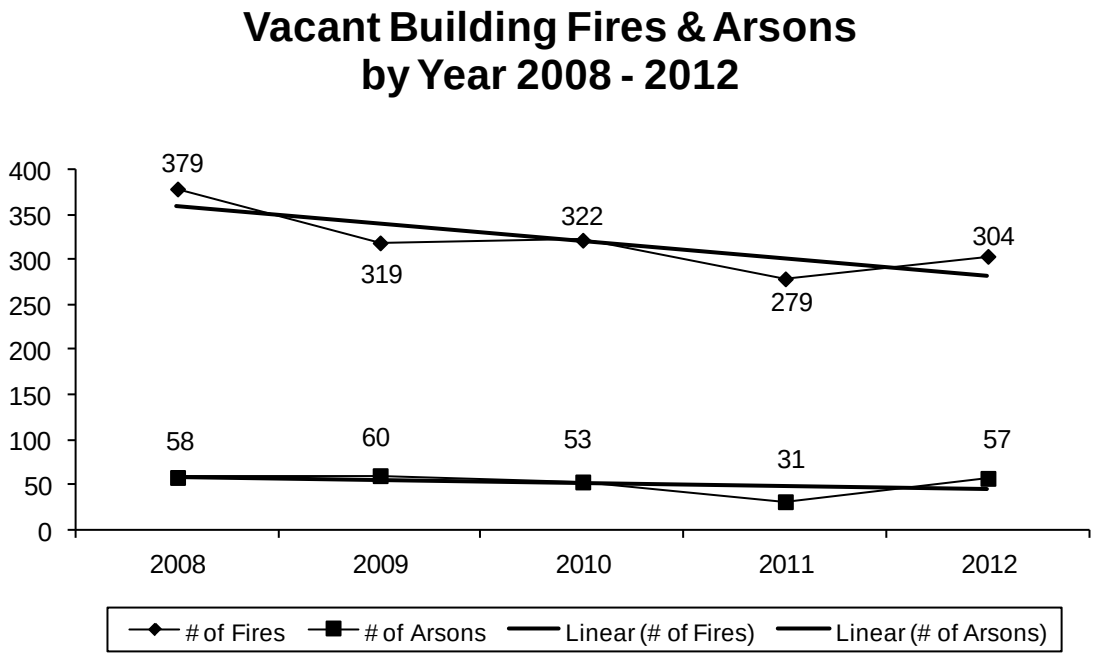
63% of All Vacant Building Arsons Occurred in Residential Buildings
Sixty-three percent (63%) of the 57 vacant building arsons in 2012 occurred in residential occupancies. Fourteen percent (14%) took place in storage facilities; public assembly properties accounted for 7%; 5% happened in special properties; 4% occurred in mercantile or business properties; 4% happened in manufacturing or processing facilities; and 2% each occurred in educational facilities and public assembly properties.

The following table illustrates the trend in vacant building fires and arsons over the past decade.

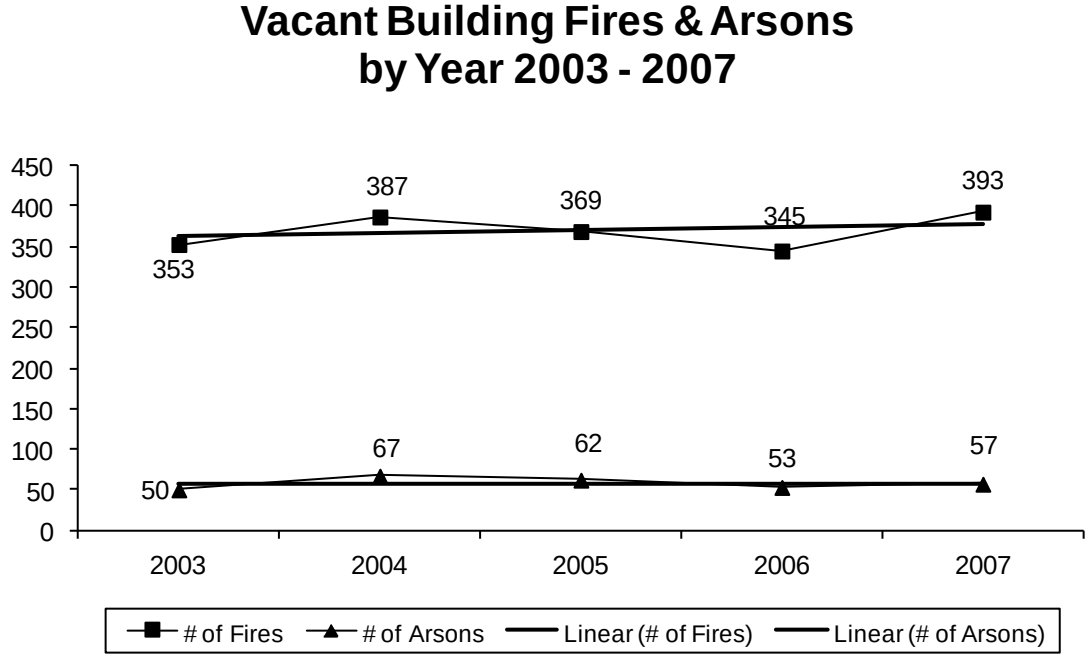
FIRES AND ARSONS IN VACANT BUILDINGS

Year	# of Fires	# of Arsons	% Arsons
2012	304	57	19%
2011	279	31	11%
2010	322	53	16%
2009	319	60	19%
2008	379	58	15%
2007	393	57	15%
2006	345	53	15%
2005	369	62	17%
2004	387	67	17%
2003	353	50	14%

From 2008 through 2012, the number of vacant building fires and arsons seems to be decreasing.



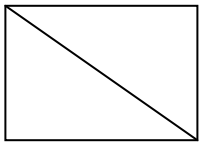
The following graph shows an upward trend in vacant building fires and a level trend in vacant building arsons between 2003 and 2007.



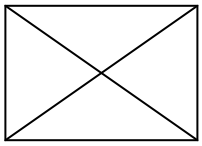
Communities Have Gone on the Offensive Against Vacant Buildings
Some communities have gone on the offensive against vacant buildings. In the aftermath of the December 3, 1999 Worcester Cold Storage Warehouse Fire, where six firefighters lost their lives, there has been an increased awareness of the dangers of abandoned and vacant buildings. This heightened awareness led to pre-incident planning including increased inspections, stricter adherence to building and fire codes along with tighter security around these buildings, more frequent patrols of areas where these buildings are located, tougher fines for owners who fail to keep vacant buildings secured, and the taking of these properties by the municipality through a variety of means. It also led to many changes in firefighting practices such as deciding when to use an offensive attack strategy placing firefighters inside the building, or a defensive strategy by setting up master stream devices and fighting the fire from the outside.

The City of Worcester took the lead. It has marked vacant buildings with large placards for firefighters and other public safety personnel. These placards identify vacant buildings and either warn personnel to proceed with extreme caution when entering these buildings or that the building is off limits and a defensive, exterior attack is recommended.

These standards are now mandatory throughout the Commonwealth. Under both the Building Code (780 CMR 121.7 & 8) and the Fire Code (527 CMR 10.13 (7)), vacant buildings must be secured and marked with the following symbols.



Interior hazards exist. Interior operations should be conducted with extreme caution.



Interior and/or exterior hazards exist. Consideration should be given to conduct operations from the exterior only.

Neither of these symbols limit the incident commander in directing the operations he deems necessary.

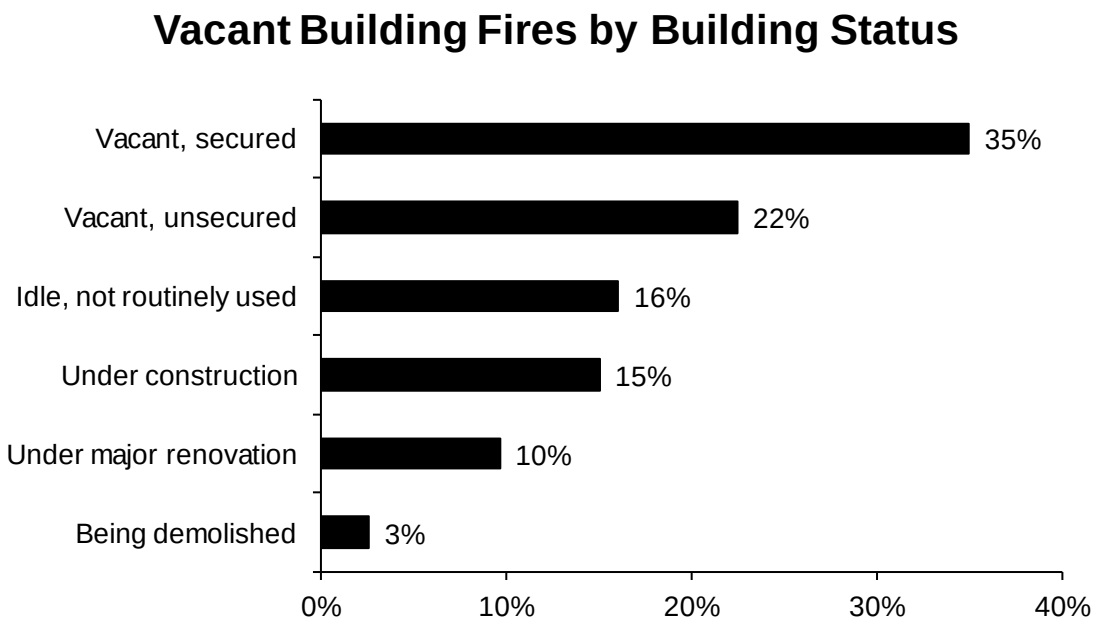
Vacant Buildings Also Threaten Community
Vacant buildings also pose a serious threat to the surrounding community. They become targets for vandalism. Children may find them attractive play spaces. Drug users or dealers may utilize the space for their activities. The homeless may seek shelter and set fires to keep warm. Arsonists may consider these buildings to be easy targets. All of these activities threaten the safety of the neighborhood and surrounding homes.

A more recent development in vacant buildings is urban mining. Urban mining is when someone scavenges the metal wiring and plumbing in a building and sells it for scrap. In

some instances the thieves do not know what they are cutting or disconnecting and may start a fire. In many ways vacant building fires "tax" the finances of the municipalities where they are located.

Effective Boarding Up Is Key to Protection
Removing furniture, contents and debris from the interior of the building, building officials insisting that all openings to the building are securely boarded up according to USFA, National Arson Prevention Initiative Board Up Procedures, preferably from the inside, and periodic security checks can reduce the risk of fire in any vacant building and the inherent risk to firefighters called to fight one. Local officials and building owners must ensure that these buildings are adequately secured to prevent entry into these buildings. This is a community's first line of defense in the battle to prevent arson and to maintain housing stock.

Over 1/3 Were Vacant and Secured Buildings
Of the 304 fires in vacant buildings in 2012, 106, or 35%, were in vacant buildings that were secured. Sixty-seven (67), or 22%, of these fires occurred in vacant buildings that were unsecured. Forty-nine (49), or 16% of these fires took place in buildings that were idle or not routinely used; 45, or 15% were under construction; 29, or 10%, happened in buildings undergoing major renovations; and eight, or 3%, of the fires in these buildings occurred in buildings that were in the process of being demolished.

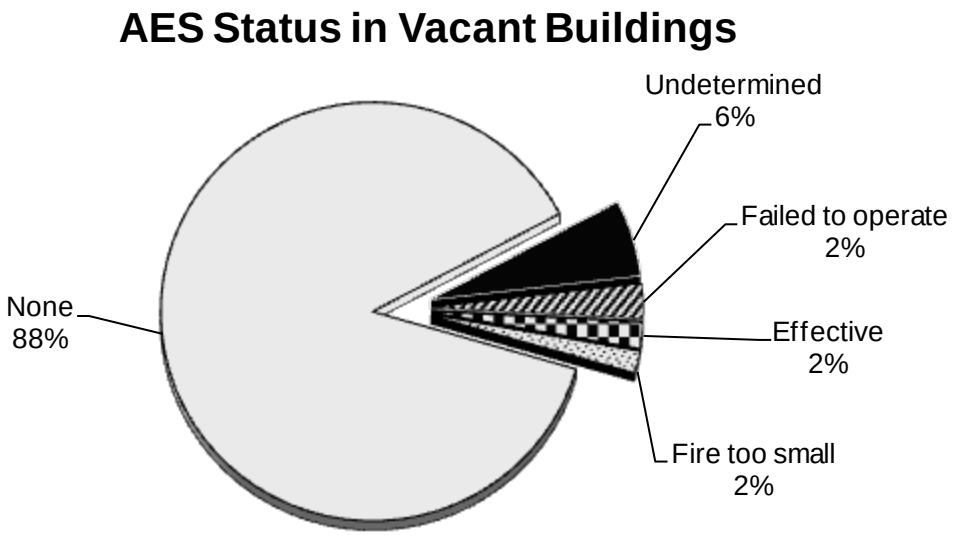


Almost 1/2 of All Vacant Building Arsons Occurred in Secured Buildings
Twenty-seven (27), or 47%, of these arsons occurred in vacant and secured buildings. Five (5), or 19%, of the arsons involving vacant and secured buildings reported having the fire start on the exterior of the building. Nineteen (19), or 33% of all vacant building

arsons in 2012, occurred in unsecured vacant buildings. Six (6), or 11%, occurred in idle buildings that are not routinely used. Buildings under construction accounted for three, or 5%, of vacant building arsons; and two vacant building arsons, or 4%, occurred in buildings undergoing major renovations.

88% Vacant Buildings Had No AES

No automatic extinguishing systems (AES) were installed in 88% of the 304 fires occurring in vacant buildings where AES presence was known. In 2% of these incidents, the fire was too small to activate the system. The AES failed to operate in 2% of these incidents. Systems were present and operated effectively in 2% of these incidents. AES performance was not known in 6% of the building fires in vacant buildings in 2012.



Sprinklers Must Be Maintained

When the sprinkler systems are present, they must be maintained. If the head of the fire department decides to grant a request under MGL Chapter 148, Section 27A to disconnect the system, extra precautions should be taken.

Firefighters Injured at 1 of Every 5 Vacant Building Fires

One of the most dangerous types of fires for firefighters in 2012 was vacant building fires. Vacant building fires accounted for 56, or 11%, of all firefighter injuries in 2012. These 56 injuries also represent 12% of the number of firefighter injuries at all building fires. On average there was one firefighter injury for every five vacant building fires.

Large Loss Vacant Building Fires

In 2012, there were two vacant building fires that had an estimated dollar loss greater than $1 million. These fires accounted for $2.25 million in estimated damages, or 13%, of all vacant building dollar loss estimates in 2012. In 2011 there were three vacant building fires with more than $1 million in damages.

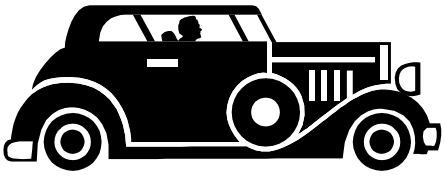
- On May 9, 2012, at 11:16 p.m., the Bourne Fire Department was dispatched to a building fire in a single-family seasonal home that was not being used. The cause of the fire was not determined. It was undetermined if detectors were present and the building was not sprinklered. No one was injured at this fire and damages were estimated at $1.2 million.

- On March 18, 2012, at 3:44 a.m., the Holyoke Fire Department was dispatched to a building fire in a warehouse that was being demolished. The cause of the fire was not determined. It was undetermined if detectors were present and the building was not sprinklered. No one was injured at this fire and damages were estimated at $1.5 million.

Motor Vehicle Fires

2,502 Motor Vehicle Fires Account for 8% of All Reported Fires

Motor vehicle fires accounted for 8% of total reported fire incidents. The 2,502 motor vehicle fires in 2012 were a decrease of 17% from the 3,015 motor vehicle fires reported in 2011. They caused six, or 15%, of the civilian fire deaths, 17 civilian injuries, nine fire service injuries, and an estimated property damage of $15.4 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.

25 Years of the Burned Motor Vehicle Reporting Law

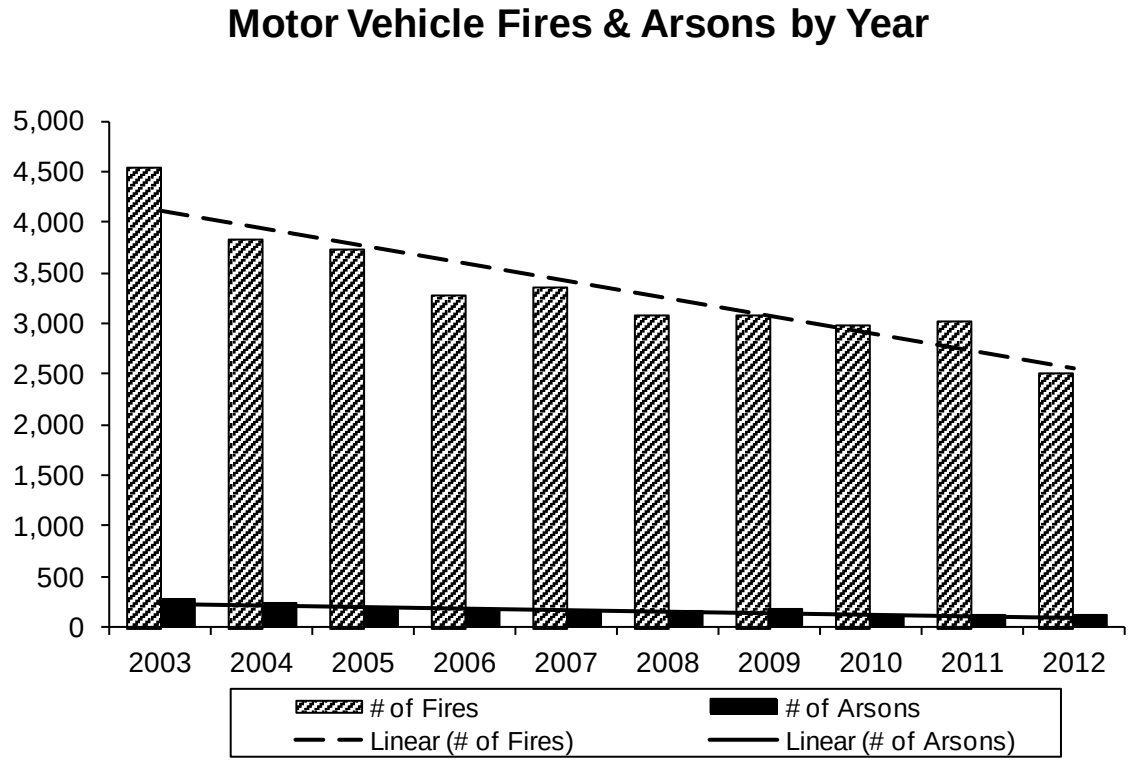
The Massachusetts Fire Incident Reporting System identified motor vehicle fires and motor vehicle arson as a major problem in 1985. The Burned Motor Vehicle Reporting Law took effect in August of 1987. The law requires owners of burned motor vehicles to complete and sign a report that must also be signed by a fire official from the department in the community where the fire occurred. This law has been effective in reducing motor vehicle fires overall and vehicle arsons in particular. Since it took effect in 1987, motor vehicle arsons have decreased by 98% from a high of 5,116 in 1987 to a low of 114 in 2012. The percentage of motor vehicle fires that are arsons has also dropped by 27% in the past decade from 6.2% in 2002 to 4.6% in 2012.

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
2012	2,502	114	4.6%
2011	3,015	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%
2006	3,270	159	4.9%
2005	3,717	184	5.0%
2004	3,825	227	5.9%
2003	4,533	280	6.2%

The following graph illustrates the data in the previous table.



6 Motor Vehicle Fire Deaths

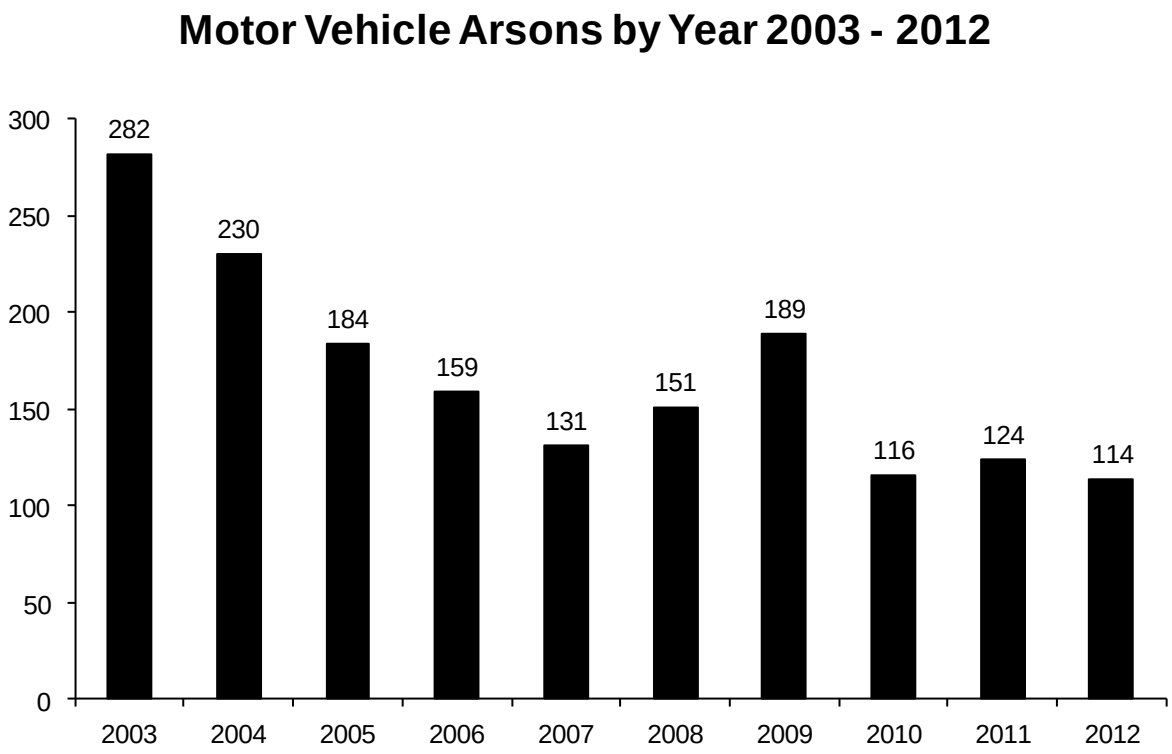
There were six civilian fire deaths in six motor vehicle fires in 2012. Four (4) of these deaths were successful attempts of self-immolation. One (1) of these deaths was an

airplane crash with ensuing fire. The other death involved a person working on a motor vehicle in his back yard with gasoline while smoking.

Mechanical Failures Caused 1/4 of Massachusetts Motor Vehicle Fires
Of the 2,997 motor vehicle fires in 2012, 25% were caused by some type of mechanical failure or malfunction; 5% were considered intentionally set; and 35% resulted from other accidental causes. The cause was undetermined or not reported in 35% of the motor vehicle fires.

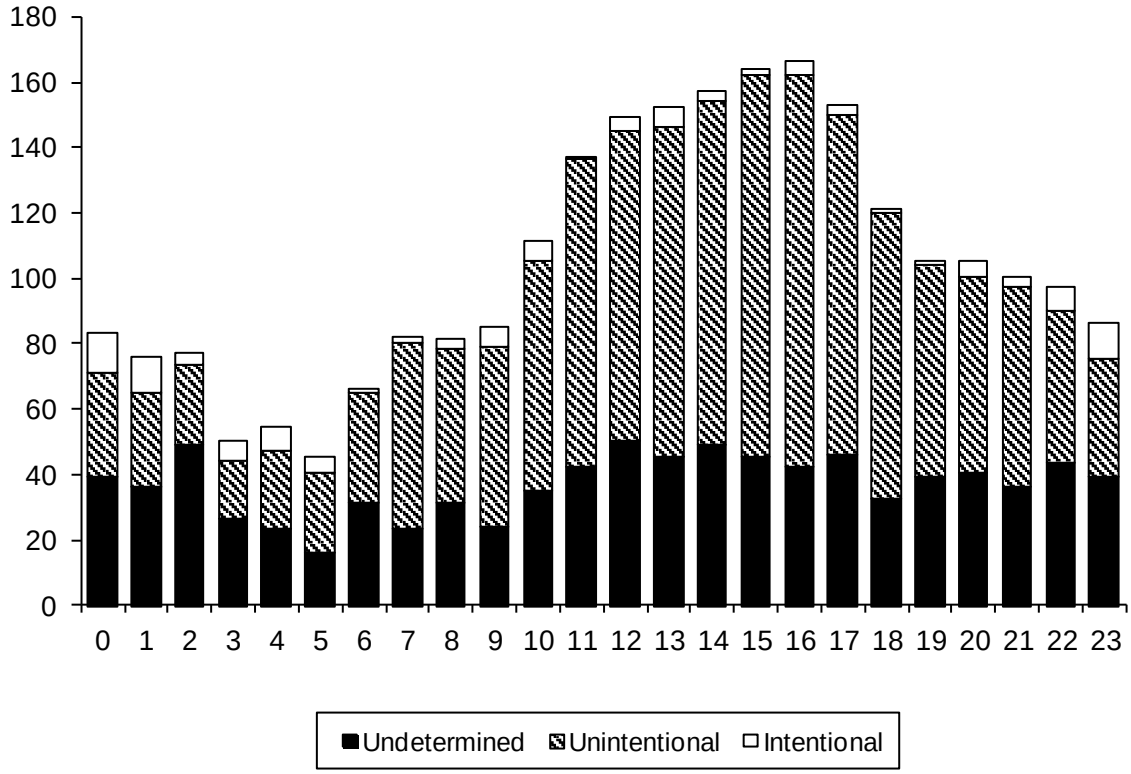
Motor Vehicle Arsons Decreased by 8%
In 2012, there were 114 reported motor vehicle arsons. This is a decrease of 8% from the 124 reported in 2011. These 114 arsons caused four civilian deaths, which were successful suicides, one civilian injury and an estimated dollar loss of $1.2 million.

The following graph depicts the drop in motor vehicle arsons from 2003 to 2012.



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 below 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.

Causes of Motor Vehicle Fires by Time of Day



55% of Massachusetts Motor Vehicle Fires Involved Automobiles
Automobiles and vans accounted for 55% of the 2,502 motor vehicle fires; 2% were trucks weighing less than one ton; and 2% were trucks weighing more than one ton.

Marshfield Has Largest Loss Motor Vehicle Fire

- On December 20, 2012, at 12:16 a.m., the Marshfield Fire Department was dispatched to a boat fire at a vehicle storage area. It was determined that the boat was intentionally set on fire. No one was damaged at this fire. Total estimated damages were $550,000.

Car Fire Safety Tips
Regular maintenance is the best way to prevent car fires. Leaking gasoline, oil and hydraulic fluids can catch fire. Electrical problems can cause short circuits and heat build-up. A properly operating catalytic converter can reach 1,100° F. It can get even hotter if the car has worked hard or needs a tune-up. If other parts come in contact with it, they can ignite. Catalytic converters on parked cars will sometimes ignite a pile of leaves or dried grass underneath.

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; or 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 32 motor vehicle fires at gas and service stations in 2012. There were 37 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.

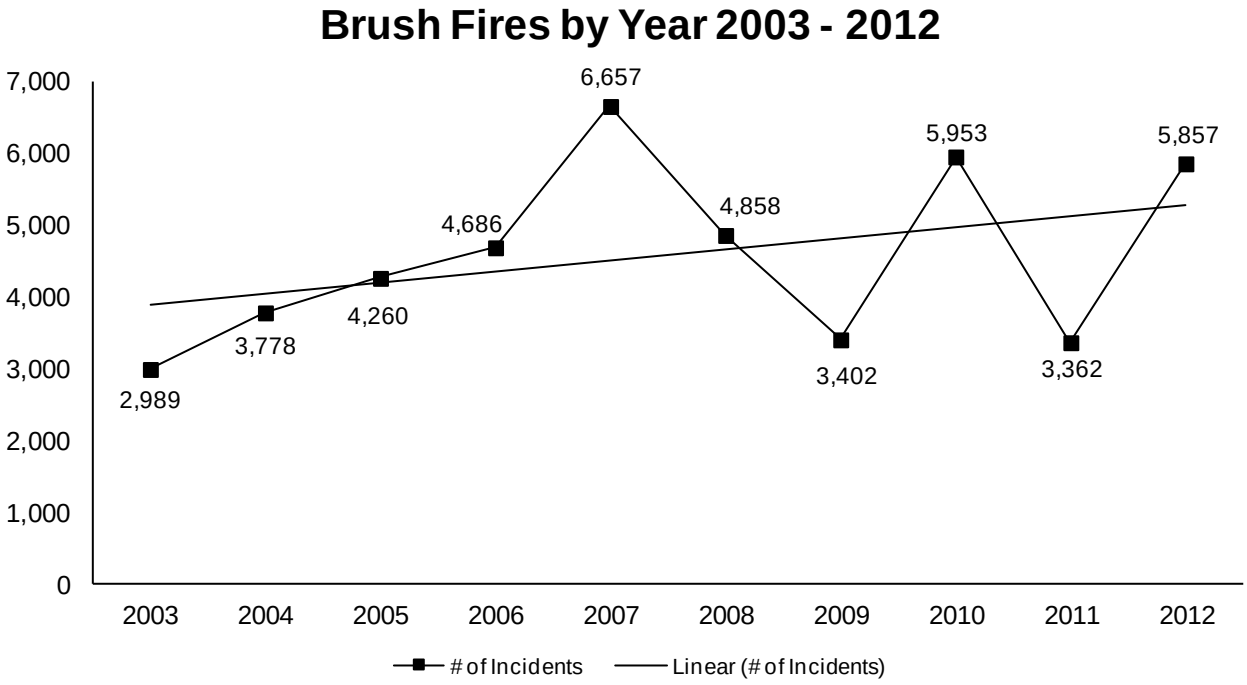
Gas Station Safety

- 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

11,191 Brush, Trash, & Other Outside Fires Up 40%
The 11,191 outside and other fires and explosions caused four civilian deaths, 38 civilian injuries, 51 fire service injuries, and an estimated dollar loss of $4.7 million. The 5,857 trees, grass and brush fires, 3,389 outside trash fires, 890 special outside fires, 46 cultivated vegetation or crop fires, and 1,009 other fires accounted for 36% of the total fire incidents in 2012. These fires increased by 40% from the 7,974 incidents reported in 2011.

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 2012, the reported number of brush fires increased by 2,495 or 74%, from the 3,362 reported in 2011. 2012 had an abnormally dry winter and spring.



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 11,191 reported outside and other fires include:

- 5,857 natural vegetation fires (tree, grass, and brush fires) that caused six civilian injuries, 32 fire service injuries, and an estimated dollar loss of $705,457; this is a 74% increase from the 3,362 incidents reported in 2011.

- 3,389 trash fires that caused one civilian injury, six fire service injuries and an estimated dollar loss of $205,112; this is a 16% increase from the 2,918 incidents reported in 2011.

- 890 special outside fires (including outside, storage, equipment, mailbox fires and outside gas or vapor explosions) that caused four civilian deaths, 13 civilian injuries, two fire service injuries and an estimated dollar loss of $491,211; this is a 19% increase from the 750 incidents reported in 2011.

- 46 cultivated vegetation or crop fires that caused one civilian injury, and an estimated dollar loss of $50; this is a 64% increase from the 18 incidents reported in 2011.

- 1,009 other fires that could not be classified further which caused 18 civilian injuries, 10 fire service injuries, and an estimated dollar loss of $3.3 million; this is a 10% increase from the 916 incidents reported in 2011.

750 Brush, Trash & Other Outside Arsons

There were 750 reported brush, trash and other outside arsons in 2012. There were 391 natural vegetation arsons, 89 outside rubbish arsons, 173 special outside arsons, one cultivated vegetation or crop arson, and 96 arsons that could not be classified any further. These 750 arsons caused three civilian deaths, eight civilian injuries, three fire service injuries and $59,329 in estimated damages.

2,506 Fires with Cause Still Under Investigation or Undetermined

In 2012, 284 outside and other fires were still listed as 'Cause Under Investigation'. There were 2,222 fires where the *Cause of Ignition* was listed as 'Undetermined'.

Large Loss Outside and Other Fire

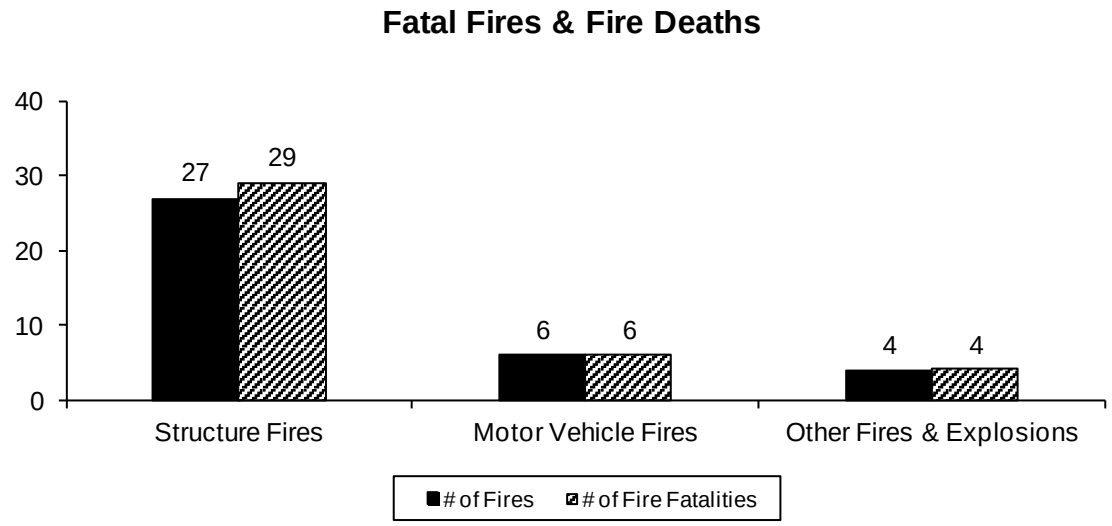
- On September 15, 2012, at 12:10 a.m., the Ayer Fire Department was called to a fire at a tire shredding facility. The fire started at the base of the conveyor belt outside in the plant yard and quickly spread to the tires moving up the conveyor belt. One (1) firefighter was injured at this fire. Damages from this fire were estimated to be $220,000.

2012 Massachusetts Fire Deaths

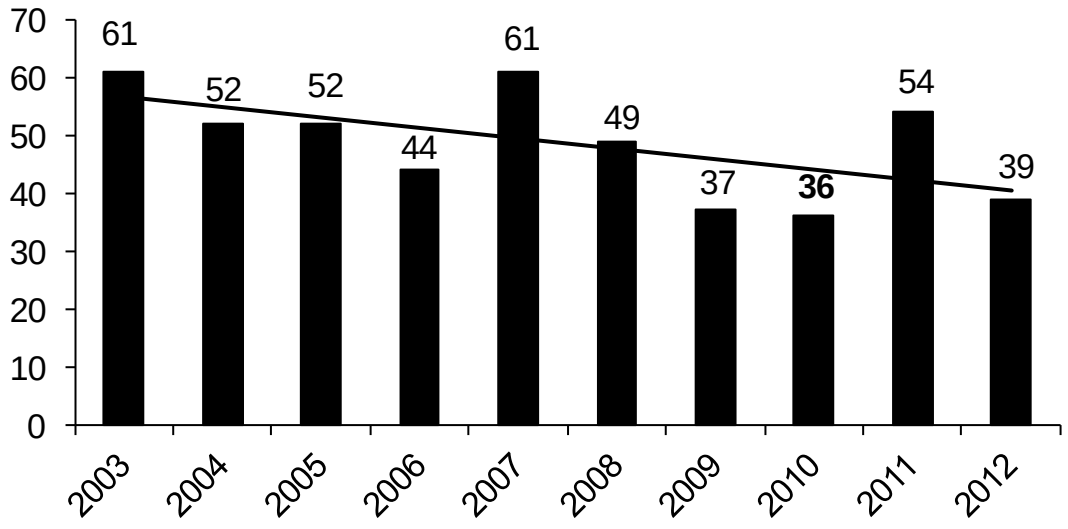
Civilian Fire Deaths

39 Civilians Died in Massachusetts Fires
Thirty-nine (39) civilians died in 37 Massachusetts fires during 2012. This is a 28% decrease from the 54 civilian fire deaths recorded in 2011. Twenty-seven (27) civilians died in 29 structure fires. Six (6) people died in 6 motor vehicle fires. Four (4) people died in four outside fires in Massachusetts in 2012. In 2012, there were 6.0 fire deaths per one million population in Massachusetts down from 8.2 fire deaths per one million population in 2011.

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 28% from 2011
The 39 civilian fire deaths reported in 2012 were a decrease of 15, or 28%, from the 54 reported in 2011. The following chart shows the trend of civilian fire deaths for the past decade on a general decline. Civilian fire deaths have decreased by 63% from the high of 105 in 1990.

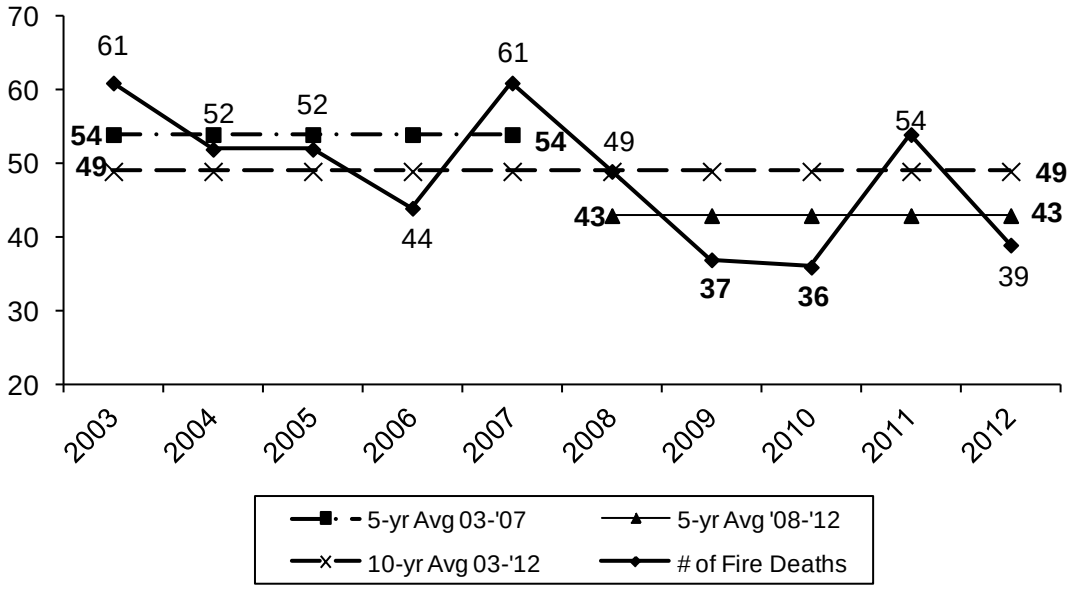


2012 Is Below Both the 10- & 5-Year Averages

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 2003 through 2007 and from 2008 through 2012. The average number of fire deaths per year from 2003 through 2007 was 54 deaths. The average number of fire deaths per year from 2008 through 2012 was 43 deaths. This was mainly due to three of the five years having record low fire deaths from 2008 through 2012. 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. Four (4) of the last five years have been equal to or below the 10-year average and three of the last five years have been below the five-year average.

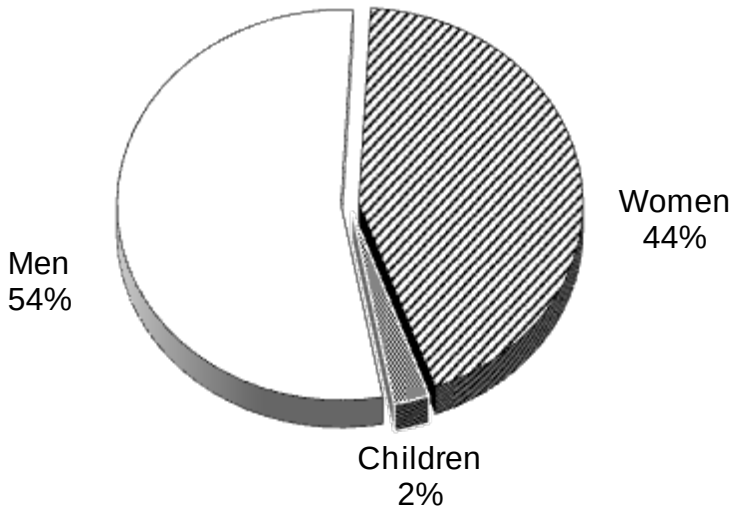
Note that the following chart starts at 20 rather than the traditional zero value. This is so the reader can concentrate on the sometimes subtle changes in the figures. The 39 fire deaths in 2012 are 9% below the five-year average and 20% below the 10-year average.

Civilian Fire Deaths by Year

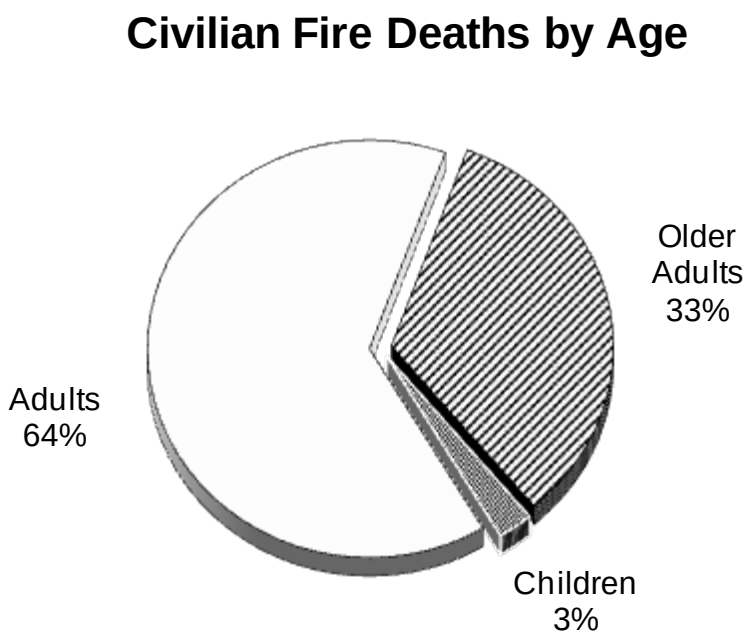


21 Men, 17 Women and 1 Child Under 18 Died from Fires in 2012
Of the 39 fire deaths, 21, or 54%, were men, 17, or 44%, were women and one, or 2%, was a child under 18. The following pie chart illustrates the above figures.

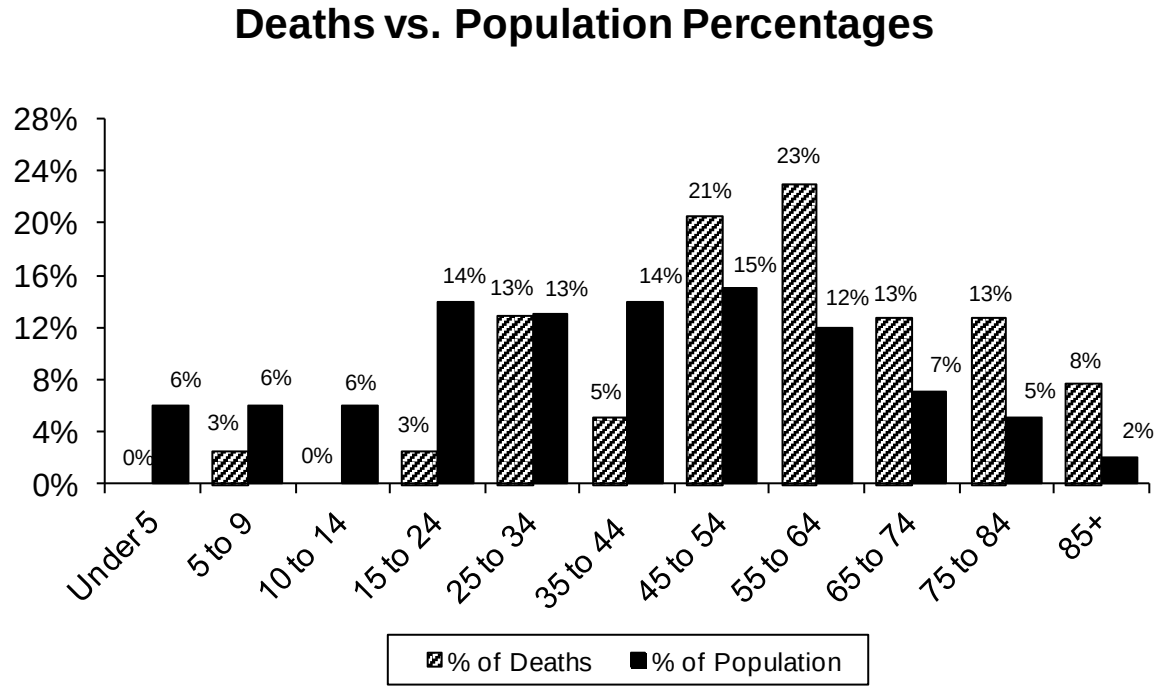
Civilian Fire Deaths by Gender



1/3 of Fire Deaths were Over 65
Thirteen (13), or 33%, of the civilian fatal fire victims were over 65 years of age. This included seven elderly men and six elderly women. One (1), or 3%, of the civilian fatal fire victims was under 18 years old. Twenty-five (25), or 64%, were adults between 18 and 65 years of age. The following pie chart illustrates the above figures.



Older Adults at Great Risk for Fire Death
Older adults, especially those over the age of 75, had the greatest risk of dying in a fire. Adults over the age 85 account for 2% of the population but 8% of the fire deaths. The risk of fire death for these adults is 3.8. This means that these adults were over three and a half times as likely to be fire-related fatalities. The following graph shows the percentage of fire deaths versus population percentage by age groups in 2012. Other older adults, between the ages of 75 and 84, accounted for 5% of the population but 13% of the fire deaths. Their risk of fire death at 2.6 is just below that of the group of older adults over 84.



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.

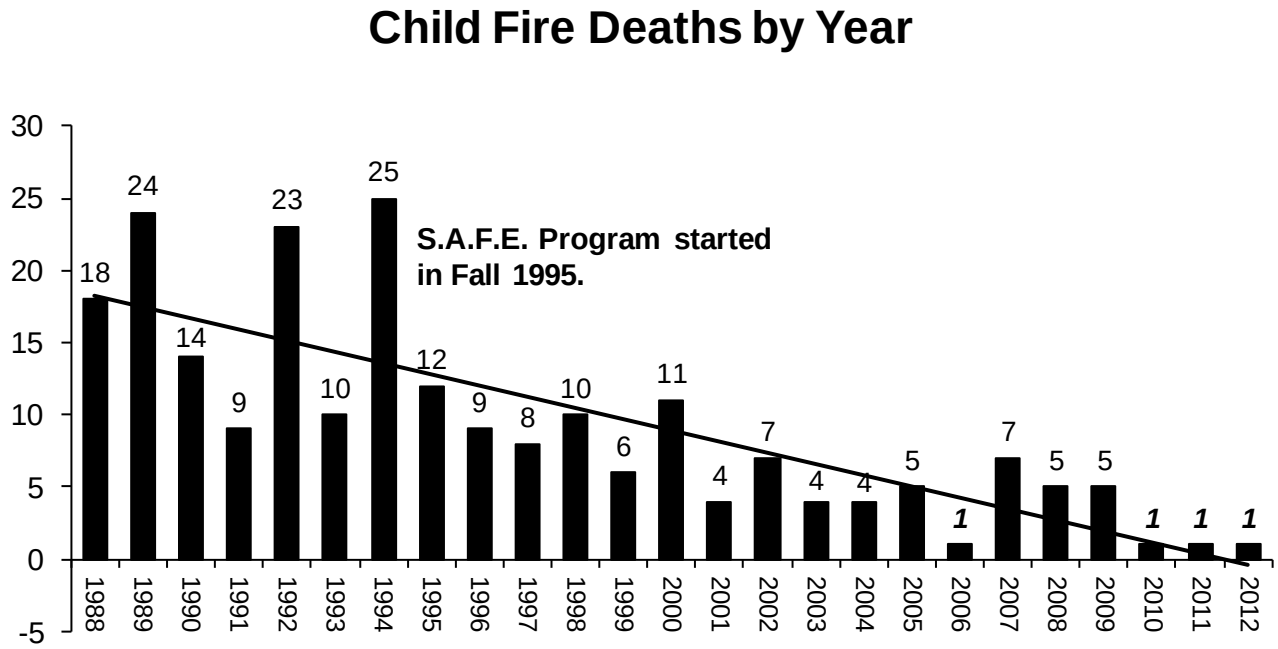
The percentages of the population in each age group were calculated using data from the 2010 Census from the U.S. Census Bureau.

Children Under 14 & Young Adults 15 to 24 Had the Lowest Risk of Fire Deaths
Only one person under the age of 18 died in a fire in 2012. Children under the age of five had a below average risk of dying in a fire. Children under five years old accounted for 6% of the population and none of fire deaths in 2012. Children between the ages of five and nine accounted for 6% of the total population and 3% of all fire deaths. Adolescents between 10 and 14 years of age accounted for none of the deaths while accounting for 6% of the population. Young adults ages 15 to 24 accounted for 3% of the fire deaths and 14% of the population; adults between the ages of 25 to 34 accounted for 13% of the fire deaths and 13% of the population. Adults between the ages of 35 and 44 accounted for 5% of the fire fatalities and account for 14% of the population; people ages 45 to 54 accounted for 21% fatal fire victims and 15% of the Massachusetts population. Victims between the ages of 55 to 64 accounted for 23% of the fatal fire deaths and 12% of the population; and older adults between the ages of 65 and 74 accounted for 13% of the fire fatalities in Massachusetts in 2012, but only 7% of the population. Older adults between the ages of 75 and 84 had the second greatest risk of dying in a fire; they accounted for

13% of the fire deaths in 2012, and only 5% of the population, making them four times more likely to die in a fire, and adults over the age of 84 represent 2% of the total population but accounted for 8% of the deaths making them just over four and a half times more likely to die in a fire.

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 2012. 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 10% of all fire-related deaths nationally in 2007.[39] In 2012, children under 10 accounted for one of the Massachusetts fire-related deaths.

Child Fire Deaths Drop 89% Since the Start of the S.A.F.E. Program
Fire deaths of children under age 18 have fallen by 89% since the start of the S.A.F.E. Program in the fall of 1995.

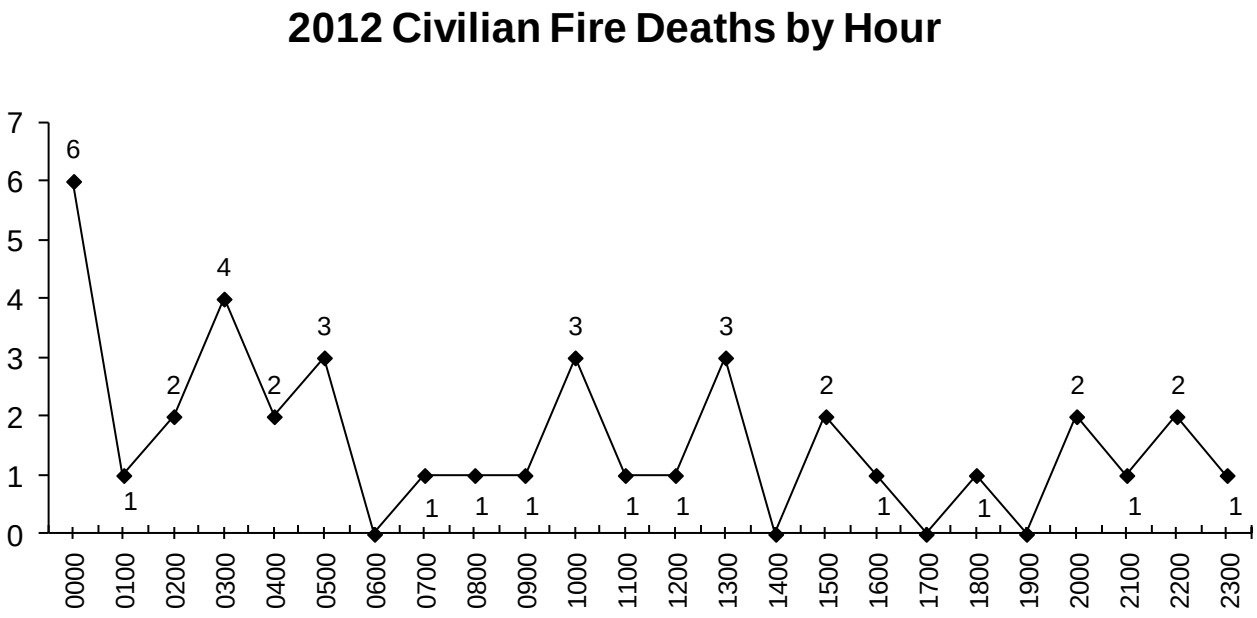


[39] Source: United States Fire Administration's **Fire Risk in 2007, Topical Fire Research Series, Vol. 11 – Issue 8 February 2011** and **Fire Risk to Children in 2007, Topical Fire Research Series, Vol. 11 – Issue 9 February 2011.** Most recent national data available.

Average Annual Child Deaths Down 62%
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 at averages over several years. During the 17 full years where the S.A.F.E. Program has been in effect, from 1996 to 2012, the average number of child fire deaths per year has been 5.2. In the 14 years prior to the S.A.F.E. Program, 1982 to 1994, the average number of child fire deaths per year was 17.6. This 70% drop in the average number of child fire deaths is significant when compared to the 43% 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 exclusively for this age group, which is not happening for all other age groups, is consistent, comprehensive, statewide, school-based fire safety education.

Over 1/2 of People Died in Fires While They Slept
Over half of the victims died in fires that occurred at night, when people are usually asleep. Twenty-two (22), or 56%, 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. Over half of the people who died during 'daytime' fires were intimately involved in ignition, and half of those were elderly which may have has 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.



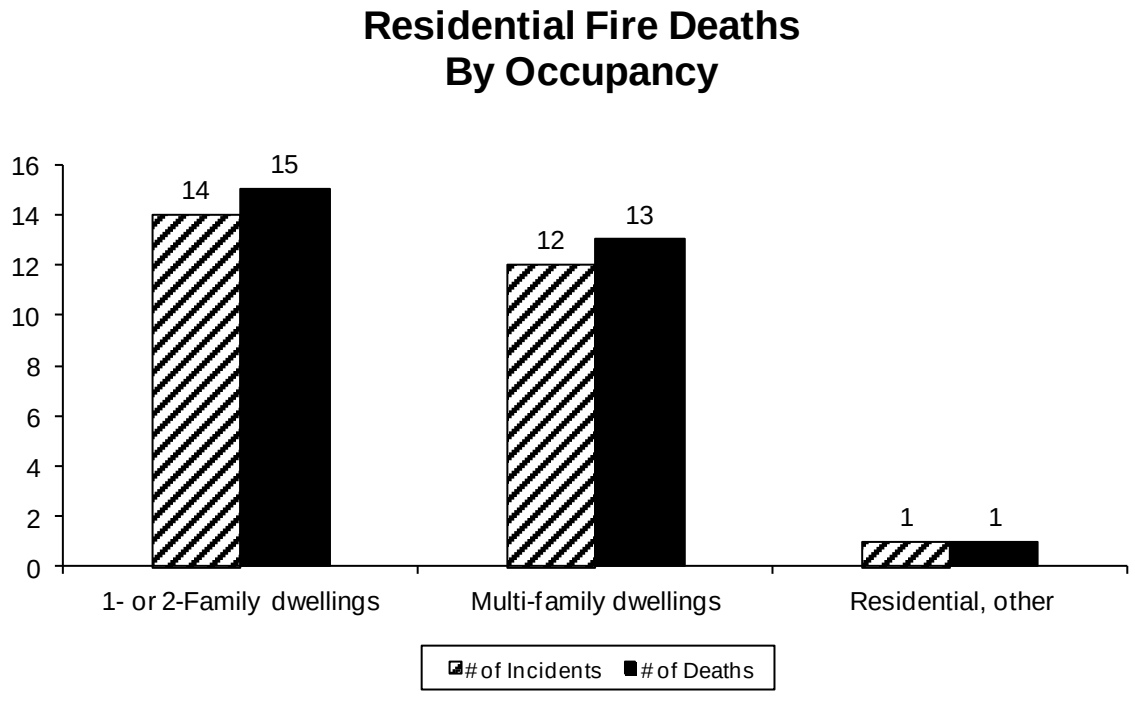
Structure Fire Deaths

In 2012, there were 29 structure fire deaths in 27 fatal fires. All of the structure fire deaths occurred in residential occupancies. One person under the age of 18 died in a structure fire in Massachusetts.

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.

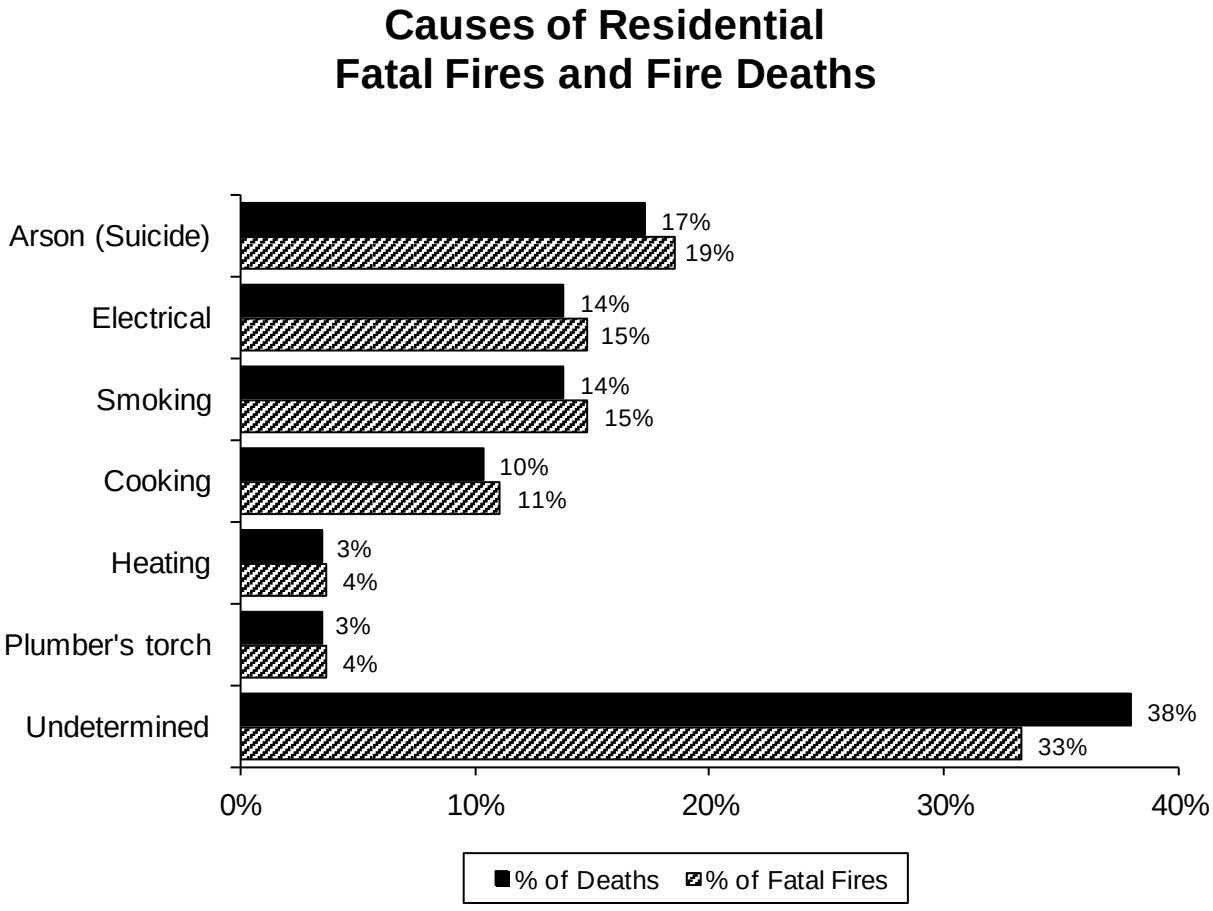
In 2012, there were 29 fire deaths in 27 fatal residential building fires. This represents all of the structure fire deaths and 74% of all fire deaths. Fifteen (15) fire deaths occurred in 14 fires in one- and two-family dwellings; 13 fire deaths occurred in 12 apartment fires; and one death occurred in a fire in an unclassified residence. Typically more fatal fires and associated deaths occur in one- and two-family homes than occur in apartment fires. The graph below shows the number of fatal fire incidents and the number of civilian fatalities associated with various types of residential occupancies in 2012.



Suicide Fires Are Leading Cause of Fire Deaths
Continuing a trend started in 2011, for the second time in as many years and since records have been kept, smoking was not the leading cause of residential fire deaths and fatal residential building fires. In 2012, suicide by fire was the leading cause of residential fire deaths and fatal residential fires. These fires accounted for five, or 17%, of residential fire deaths. Careless disposal of smoking materials tied with electrical fires, the leading cause of fire deaths in 2011, as the second leading cause of fire deaths, each accounting for four, or 14%, of residential fire deaths. Cooking caused three deaths, or 10% of residential fire deaths. Heating equipment fires and a plumber's torch each caused one, or 3%, of these fire deaths. Eleven (11), or 38%, of these deaths occurred in fires where no cause could be determined or multiple causes could not be ruled out.

For years, smoking has been far and away the leading cause of fatal fires and fire deaths in Massachusetts, with no other cause coming close except in 1999, 2005 and 2011. In 1999, cooking and smoking tied as the leading causes of fires that kill. In 2005 and 2011, electrical fires were the leading cause of residential fire deaths.

In 2012 cooking was the leading cause of residential fires in Massachusetts but was the third leading cause of fatal residential fires and fire deaths. Residential fires caused by the improper use or disposal of smoking materials was the fifth leading cause of fires in the home.



The previous 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.

5 Fatal Arson Fires (Suicides) Cause 5 Deaths

Five (5) people died in five residential arson fires in 2012. Arson accounted for 17% of fire deaths and 19% of the fatal fires in residential buildings. All five fires were successful suicide attempts. The victims tampered with their home's natural gas or propane lines to cause explosions in three fires; and the other victims committed suicide by self-immolation. Self-immolation is considered arson because the fire is intentionally set.

- On March 18, 2012, at 4:23 p.m., the Eastham Fire Department responded to a fatal arson fire in a single-family home. The victim, a 33-year old woman, ignited the fire herself in a successful attempt at self-immolation. No one else was injured at this fire. Detectors were present and operated. Damages from this fire were estimated at $355,000.

- On May 21, 2012, at 3:58 a.m., the Longmeadow Fire Department was called to a fatal arson fire in a single-family home. The victim of a suicide, a 67-year old woman, set herself on fire in a successful attempt of self-immolation. She was transported to a local hospital where she succumbed to her injuries. No one else was injured at this fire. Smoke detectors were present and operated. Damages from this fire were estimated to be $66,980.

- On October 3, 2012, at 10:30 a.m., the Littleton Fire Department was called to a fatal explosion at a single-family home. The home's owner, a 52-year old man, had bypassed some of the safety features of the home's natural gas system, intentionally allowing the gas to vent into the home in a successful suicide attempt. An unknown heat source ignited the gas causing the explosion and ensuing fire. No one else was injured at this fire. Detectors were present but failed to operate because of missing batteries. The home was not sprinklered. Damages were estimated to be $70,000.

- On October 28, 2012, at 1:04 a.m., the Marlborough Fire Department was called to a fatal explosion at a single-family home. The home's owner, a 55-year old man, had tampered with the home's natural gas system, intentionally allowing the gas to vent into the home in a successful suicide attempt. An unknown heat source ignited the gas causing the explosion and ensuing fire. He was transported to a local hospital where he succumbed to his injuries. No one else was injured at this fire. It was undetermined if detectors were present. The home was not sprinklered. Damages were estimated to be $200,000.

- On December 27, 2012, at 10:35 a.m., the Princeton Fire Department was called to a fatal arson fire in a single-family home. The home's occupant, a 61-year old man, had poured gasoline inside the home and intentionally ignited it in a successful suicide

attempt. No one else was injured at this fire. It was undetermined if detectors were present. The home was not sprinklered. Damages were estimated to be $250,000.

4 Fatal Smoking Fires Cause 4 Deaths in Homes
In 2012, the improper use and disposal of smoking materials caused four, or 14%, of residential building fire deaths and four, or 15%, of fatal residential building fires.

1 Elderly Fire Death Caused by Smoking
In 2012, one of the older adult fire deaths was caused by the improper disposal of smoking materials while at home. In 2011 no one over the age of 65 died in a smoking fire.

- On January 23, 2012, at 12:10 a.m., the North Attleboro Fire Department was called to a fatal smoking fire in an eight-unit apartment building. The victim, a 58-year old man, was sleeping in the living room at the time of the fire. Undetermined smoking materials ignited a piece of furniture in the living room. Another occupant of the same apartment was transported to a local hospital. Detectors were present but it was undetermined if they operated. Sprinklers were not present. Damages were estimated to be $350,000.

- On January 30, 2012, at 8:33 a.m., the Holyoke Fire Department was called to a fatal smoking fire in a senior living apartment building. The 51-year old female victim was lighting a cigarette when she dropped the match and ignited her clothing. She was transported to a local hospital where she succumbed to her injuries. There were no other injuries at this fire. The fire was confined to the victim, a couch and the room's carpet. Detectors were present and alerted the other occupants of the building. There were no sprinklers. Damages from this fire were estimated to be $2,000.

- On April 1, 2012, at 4:14 a.m., the Pittsfield Fire Department was called to a fatal smoking fire in a three-unit apartment building. The 59-year old physically disabled woman fell asleep and her cigarette started the fire. There were no other injuries at this fire. Detectors were present and alerted the other occupants of the building. There were no sprinklers. Damages from this fire were estimated to be $180,000.

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 2012, the use of oxygen while smoking contributed to one of the four smoking-related fire deaths.

- On March 7, 2012, at 12:37 a.m., the Haverhill Fire Department was dispatched to a smoking fire in a three-unit apartment building. The victim, an 84-year old woman, was smoking while on home oxygen and the cigarette ignited her bedding. She was overcome by the heat and smoke as she attempted to escape. Another occupant of the building was injured at this fire. Detectors were present and alerted the other occupants of the building. The building was not sprinklered. Damages from this fire were estimated at $350,000.

4 Fatal Electrical Fires Cause 4 Deaths
Four (4) people died in four residential electrical fires in 2012. Electrical fires accounted for 14% of residential fire deaths and 15% of fatal residential fires.

- On January 3, 2012, at 3:02 a.m., the Boston Fire Department was called to a fatal electrical fire in a 45-unit apartment building. The fire started in a fourth floor bedroom. It is believed that an electrical arc ignited the bedding. The victim, an 80-year old man, was trapped in his bedroom. No one else was injured at this fire. Detectors were present but it was undetermined if they operated. There were no sprinklers. The fire caused an estimated $250,000 worth of damage.

- On March 2, 2012, at 12:08 a.m., the Wayland Fire Department was called to a fatal electrical fire in a single-family home. It is believed that an overloaded extension cord with multiple items on top of it overheated and started the fire. The victim, an 85-year old man was overcome by smoke inhalation as he attempted to escape the fire. One (1) firefighter was also injured at this fire. Detectors were present but failed to operate because of a missing battery. Sprinklers were not present. The fire caused an estimated $70,000 worth of damage.

- On April 23, 2012, at 5:29 p.m., the Bridgewater Fire Department was called to a fatal electrical fire in a single-family home. The fire began in the kitchen behind the refrigerator where both the refrigerator and stove were plugged in. The victim, a 48-year old woman was sleeping at the time of the fire. No one else was injured at this fire. Detectors were present and operated. There were no sprinklers. The fire caused an estimated $245,000 worth of damage.

- On October 14, 2012, at 9:46 a.m., the Rehoboth Fire Department was called to a fatal electrical fire at a single-family home. The fire was caused by arcing in an electrical circuit. The victim, a 66-year old woman was overcome by the heat and smoke. No one else was injured at this fire. There were no detectors in the home. Sprinklers were not present. Damages were estimated to be $100,000.

3 Killed in 3 Cooking Fires
Three (3) people died in three fatal residential cooking fires in 2012. Cooking fires accounted for 10% of residential fire deaths and 11% of fatal fires in residential buildings.

- On January 14, 2012, at 6:35 p.m., the Lynn Fire Department was called to a fatal cooking fire in a 45-unit apartment building. The victim, a 32-year old woman, was sleeping at the time of the fire. She was discovered unconscious by firefighters in her bedroom. Carbon monoxide readings inside the apartment topped out at 500 ppm. No one else was injured at this fire. Detectors were present but they failed to operate because the batteries were missing. The home was not sprinklered. Damages from this fire were not estimated.

- On February 19, 2012, at 7:49 a.m., the Somerville Fire Department was called to a fatal cooking fire in a single-family home. The victim, a 95-year old woman, was cooking at the stove when her clothes ignited. No one else was injured at this fire. Detectors were present but it was undetermined if they operated. The home was not sprinklered. Damages from this fire were estimated to be $110,000.

- On November 8, 2012, at 10:22 a.m., the Fairhaven Fire Department was called to a fatal cooking fire in a two-family home. It is believed that the fire started in the electric stove. The victim, an 84-year old woman, was attempting to escape when she was overcome by smoke near the rear door. No one else was injured at this fire. Smoke detectors were present but it was undetermined if they operated. The building was not sprinklered. Damages from this fire were estimated to be $40,000.

1 Fatal Heating Fire Caused 1 Death
One (1) fatal heating fire, or 3% of fatal residential building fires, caused one, or 4%, of the residential building fire deaths in 2012.

- On November 19, 2012, at 12:32 a.m., the Westfield Fire Department responded to a fatal heating fire at a single-family home. The victim, a 92-year old man, was asleep at the time of the fire and was overcome by the heat and smoke. He was transported to a local hospital where he succumbed to his injuries. No one else was injured at this fire. Detectors were not present, and the building was not sprinklered. Damages from this fire were estimated to be $228,000.

Plumber's Torch Caused 1 Fatal Fire & 1 Death
One (1) fatal fire, or 3%, of fatal residential building fires caused one, or 5%, of the residential building fire deaths in 2012 was caused by a plumber's torch.

- On November 27, 2012, at 3:24 p.m., the Lowell Fire Department was called to a fatal fire in a five-unit apartment building with shops on the first floor. The fire began in a second floor bathroom. The victim, a 79-year old man was repairing some of the plumbing when the plumber's torch he was using ignited some of the framing inside the wall. He was overcome by the heat and smoke and was unable to escape. Two (2) other civilians were injured at this fire. There were no smoke detectors and the building was not sprinklered. Damages from this fire were estimated to be $400,000.

9 Fatal Fires of Undetermined Cause
Nine (9) fatal residential building fires that took the lives of 11 Massachusetts residents in 2012 remain undetermined. These represent 38% of the fatal residential fires, and 33% of the residential fire deaths in 2012. 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 15, 2012, at 2:23 a.m., the Gardner Fire Department was dispatched to a fire in a six-unit apartment building of undetermined cause. The fire began in a first floor living room. The victim, a 49-year old woman, was attempting to escape when she was overcome by heat and smoke. She was transported to a local hospital where she succumbed to her injuries. There were no other civilian injuries associated with this fire; but three firefighters were injured. Smoke detectors were present and alerted the occupants of the building. The building was not sprinklered. Damages from this fire were estimated to be $201,700.

- On February 10, 2012, at 8:05 p.m., the Shrewsbury Fire Department was called to a fatal fire in a single-family home of undetermined cause. The victim, a 64-year old woman, was found in the bathroom overcome by the heat and smoke. She used home oxygen and was known to be a heavy smoker. No one else was injured at this fire. Detectors were present and operated but the building was not sprinklered. Damages from the blaze were estimated to be $145,000.

- On May 12, 2012, at 4:43 a.m., the New Bedford Fire Department was dispatched to a fire in a four-unit apartment building of undetermined cause. The most likely cause was an electrical event, but smoking could not be ruled out either. The victim, a 39-year old man, possibly impaired by drugs, was overcome by the heat and smoke as he attempted to escape. There were four other injuries associated with this fire. Detectors were present and alerted the other occupants of the building. The building was not sprinklered. The fire also caused an exposure fire to the building next door. Combined damages from these fires were estimated to be $115,000.

- On June 2, 2012, at 3:40 p.m., the Spencer Fire Department was called to a fatal fire in a six-unit apartment building of undetermined cause. The victim, a 57-year old man, was overcome by the heat and smoke. No one else was injured at this fire. Detectors were present and operated but the building was not sprinklered. Damages from the blaze were not estimated.

- On August 13, 2012, at 12:22 p.m., the Brookfield Fire Department was dispatched to a fire in an eight-unit apartment building of undetermined cause. The victim, a 76-year old man, was found overcome by smoke and transported to a local hospital where he succumbed to his injuries. His wife was also transported after injuring herself jumping from the building in an attempt to escape the fire. One (1) firefighter was also injured at this fire. Detectors were present and operated, but sprinklers were not. Damages from this fire were not estimated.

- On September 9, 2012, at 12:46 a.m., the Attleboro Fire Department was called to a fatal fire in a single-family home of undetermined cause. The victim, a 34-year old man, was overcome by the heat and smoke. No one else was injured at this fire. Detectors were present and operated. The building was not sprinklered. Damages from the blaze were estimated to be $130,000.

- On September 9, 2012, at 10:40 p.m., the Uxbridge Fire Department was dispatched to a fire in a five-unit apartment building of undetermined cause. The victims, a 45-year old woman and her six-year old daughter were unable to escape. One (1) firefighter was injured at this fire. It was undetermined if detectors were present, and sprinklers were not. Damages from this fire were estimated to be $300,000.

- On October 6, 2012, at 5:34 a.m., the Lynn Fire Department was called to a fatal fire in a single-family home of undetermined cause. The victims, a 69-year old physically disabled woman and her 38-year old son were asleep at the time of the fire. No other civilians were injured at this fire but three firefighters were injured fighting it. Detectors were present and operated but sprinklers were not present. Damages from the blaze were not estimated.

- On November 13, 2012, at 12:32 a.m., the Cambridge Fire Department was dispatched to a fire in a three-unit apartment building of undetermined cause. The fire began in the victim's third story living room. There were multiple potential heat sources in the area of origin as well as much accumulation of clutter. The victim was a 55-year old male occupant of the apartment. One firefighter was injured at this fire. Detectors were present but it was undetermined if they operated. The building was not sprinklered. Damages from this fire were estimated to be $50,000.

Bedroom or Living Room is the Area of Origin for 38% 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 38% were killed in fires that started in the bedroom or living room. Eleven (11), or 38%, of residential fire victims died in a fire originating in the bedroom or living room. Seven (7) victims, or 24%, died in fires that began in the living room, and four, or 14%, succumbed to fires that originated in the bedroom. Five (5) victims, or 17%, died when the area of origin was the kitchen. The bathroom, the ceiling and floor assembly, a heating room, an office, and an unclassified storage room were each the area of origin of the fire for one, or 3%, of the residential fire deaths in 2012. One (1) victim, or 3%, died where there were multiple areas of origin. Six (6) victims, or 21%, died in fires where the area or origin was undetermined.

28% of Deaths Involved Operating Equipment as a Heat Source
Of the 29 residential building fire deaths, 28% were classified as heat from operating equipment; 10% from sparks, embers or flames from operating equipment, and 3% each from radiated or conducted heat from operating equipment and heat from operating equipment, other. Eighteen percent (18%) were from electrical arcing; Ten percent (10%) involved smoking materials; 7% from cigarettes and 3% from undetermined smoking materials. Matches were the heat source for 7% of these deaths. A lighter, an unclassified hot or smoldering object, and heat from an open flame or smoking materials, other were each the heat source in 3% of these deaths. The *Heat Source* was undetermined or unclassified in 13 deaths, or 45%, of the residential building fire deaths in 2012.

Unclassified Ignited First in Almost 1/2 of Deaths
Of the 29 residential building fire deaths, bedding and mattresses or pillows were each the item first ignited in 7% of these deaths. Flammable gases were the item first ignited in 10% of residential fire deaths. An appliance housing or casing, a box or bag, cabinetry, electrical wire or cable insulation, a floor covering, unclassified utensils, a structural member or framing, and clothing on a person were each the item first ignited in 3% of these fire deaths. The item first ignited was undetermined or unclassified in 14, or 48%, of the residential building fire deaths in 2012.

The National Association of State Fire Marshals (NASFM) has supported mandatory national fire safety standards for mattresses and upholstered furniture. NASFM and CPSC have recommended the adoption of 16 CFR 1634 – Standard for the Flammability of Residential Upholstered Furniture (Proposed Rule). This is based on the revised California standard (California Technical Bulletins 116 & 117) for upholstered furniture that addresses both small open flame (match, lighter, candle) and cigarette ignitions These standards make the average piece of furniture less likely to ignite rapidly, and if ignited, less likely to burn quickly or sustain burning[40]. The CPSC has adopted 16 CFR 1632 – Standard for the Flammability of Mattresses and Mattress Pads, and 16 CFR 1633 – Standard for the Flammability (Open Flame) of Mattress Sets.

Although many buildings and building materials help contain fires, the problem is that all of the contents we have inside our homes are more flammable than ever and create ever increasing levels of toxic gases when they burn.

No Working Detectors for Almost 1/4 of Residential Fire Victims
Of the 29 people who died in residential building fires in 2012, the smoke detector performance was reported for all of the victims. Victims were not alerted by smoke detectors in seven fires that killed seven people, or 24% of the victims. No detectors were present at all in four, or 14%, of the deaths. In three deaths, or 10%, there were detectors present but they failed to operate.

Thirteen (13) people died in 12 separate residential fires with detectors that did operate, accounting for 65% of fatal fire victims. It is important to remember that detectors 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.

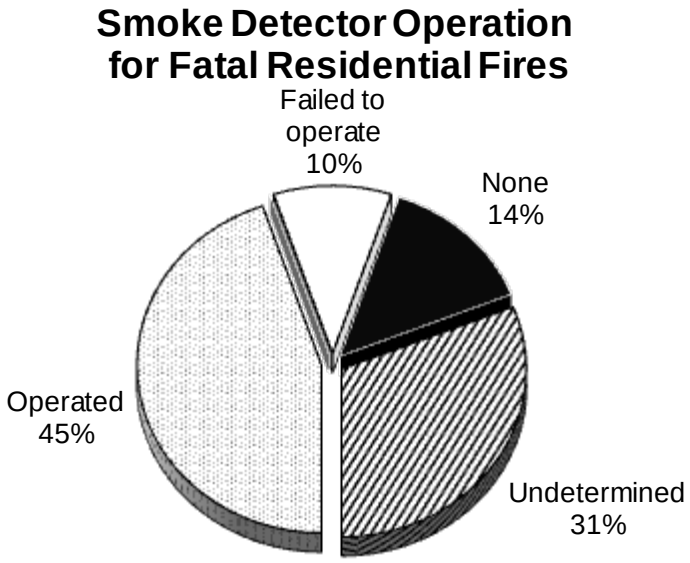
There were no fatal fires where the fire was too small to activate the detector.

[40] There has been some debate about the use of certain types of flame retardant used to make products conform to these standards. The issue is about using polybrominated diphenyl ethers (PBDEs) that have caused health concerns in animals in lab tests. According to the U.S. Environmental Protection Agency (EPA) production of these chemicals ceased in 2004 and their use will end when existing stocks are exhausted. The National Association of State Fire Marshals (NASFM) is working with health and environment toxicologists, the EPA and the U.S. Consumer Product Safety Commission (CPSC) in assuring that there are many other fire retardant chemicals that can be used with confidence on upholstered furniture.

In 2012, five of the 13 fatal residential fire victims whose smoke detectors operated were in the area of origin. All five of these victims were intimately involved with ignition; two were smoking and one was a successful suicide attempt. The causes of the fire for the other two victims were undetermined.

Four (4) other victims were not in the area of origin and not involved in the ignition of the fires. Three (3) victims were not in the area of origin but were involved in ignition; and it was not reported where another of the victims was at the time the incident began. While smoke detectors 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.

Detector performance was undetermined in seven residential building fires that killed nine people, accounting for 31% of the residential building fire deaths in 2012. The pie chart shows the smoke detector status as a percentage of the civilian residential building fire deaths in 2012.

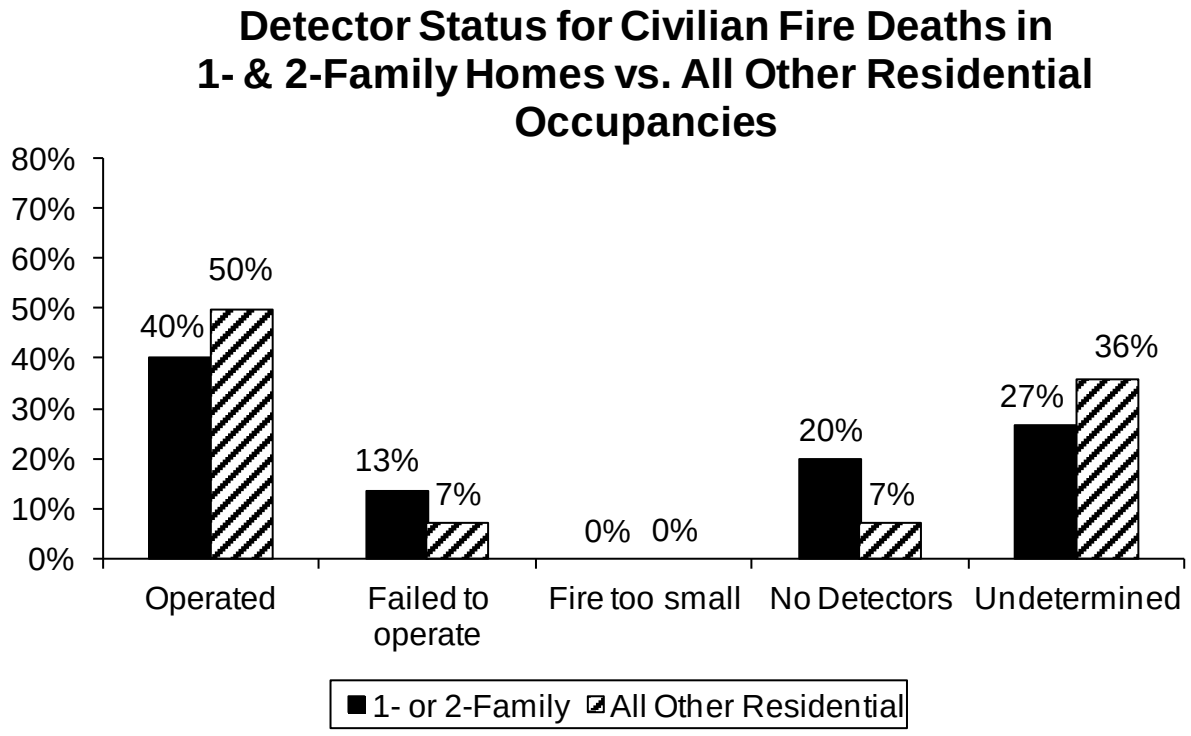


No Working Smoke Detectors in 1/3 of Fire Deaths in 1 & 2-Family Homes
In 2012, you were more likely to die in a fire in a one- and two-family home than in any other residence and one without a working smoke alarm. There were 7% more fire deaths in one- and two-family homes than all other residential occupancies combined. Fifteen (15) people died in 14 one- and two-family dwelling fires in 2012. Five (5), or 33%, of the fire deaths in one- and two-family homes occurred in fires with no detectors at all or with detectors that failed to operate. Of these five deaths, two occurred in homes where smoke detectors failed to work while the other three deaths were in homes where there were no smoke detectors present. Six (6) deaths, or 40%, occurred in homes where the smoke detectors operated. Four (4) deaths, or 27%, occurred in four fires where smoke detector performance was undetermined.

3 Detectors Failed from Missing or Disconnected Batteries
Of the three residential fire deaths where smoke detectors were present but failed to operate, all three failed to operate because the batteries were either missing or disconnected.

Other Residential Occupancies More Likely to be Protected by Smoke Detectors
Fourteen (14) people died in 12 apartment fires and one unclassified residential fire in 2012. The detector performance was known for all 14 of the victims. Seven (7) people died in fires where smoke detectors were present and working. One person was killed in a fire where there were no detectors; and another person was killed when the detector failed to operate because of a missing or disconnected battery. Detector performance was unknown or not reported in four fires where five people lost their lives.

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



Sleeping Led Human Factors Contributing to Injury[41]
Of the 29 fatal residential building fire victims, a *Human Factor Contributing to Injury* was reported to MFIRS for nine. Seventeen percent (17%) of the victims were asleep; 10% were bedridden or had another physical handicap; 10% were unconscious; 3% were possibly impaired by another drug or chemical; and 3% were possibly mentally disabled. Twenty (20), or 69%, of the 29 civilian fire deaths did not report a human factor contributing to injury.

Time is the Enemy in a Fire
A human factor contributing to injury is defined as the physical or mental state of the person shortly before becoming a casualty. Our data reports 17% of fatalities were asleep shortly before becoming a casualty. It also shows that 8% of these victims were attempting to escape the fire when they were overcome. This would seem to indicate that some people were awakened from their sleep and attempted to escape before being overcome. This combined with the lack of working smoke detectors in 24% of the fire deaths indicates that victims did not have enough time to get to safety, whereas a residential sprinkler system may have given them more time to either escape on their own or be rescued by fire personnel.

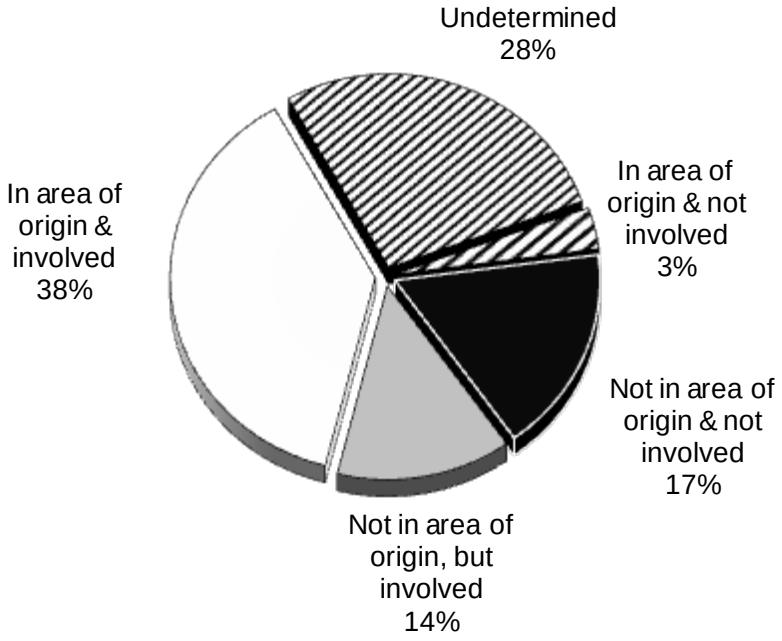
14% of Victims Were Sleeping When They Were Overcome
Four (4), or 14%, of the 29 fatal fire victims were sleeping when they were fatally injured. Seven percent (7%) were trying to escape when they incurred their fatal injuries. An irrational act was the activity at the time of death for 10% of these victims. Being unable to act was the activity for 7% of the victims. Activity at time of death was undetermined for 18, or 62%, victims of fatal residential fires in 2012. Working smoke detectors combined with a home escape plan are essential to escape a fire.

2/3 of Victims Suffered Burns, Smoke Inhalation or Both
Burns or smoke inhalation was the primary apparent symptom for 19, or 66%, of the victims where the primary apparent symptom of their injury was known; four, or 14%, suffered from smoke inhalation only; 14, or 48%, suffered burns and smoke inhalation; and one victim, or 3%, died from only the burns incurred in the fire. Hazardous fumes inhalation other than smoke was the primary apparent symptom for one, or 3%, of these victims. The primary apparent symptom was undetermined or not reported in nine, or 31%, of the 2012 residential fire deaths.

41% of the Victims Were in the Area of Origin
Knowing where the victim was at the time of the incident and if they were intimately involved with the ignition of the fire, helps us determine if they could have escaped to safety with appropriate warning from smoke or heat detectors and more tenable conditions from sprinklers.

[41] 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.

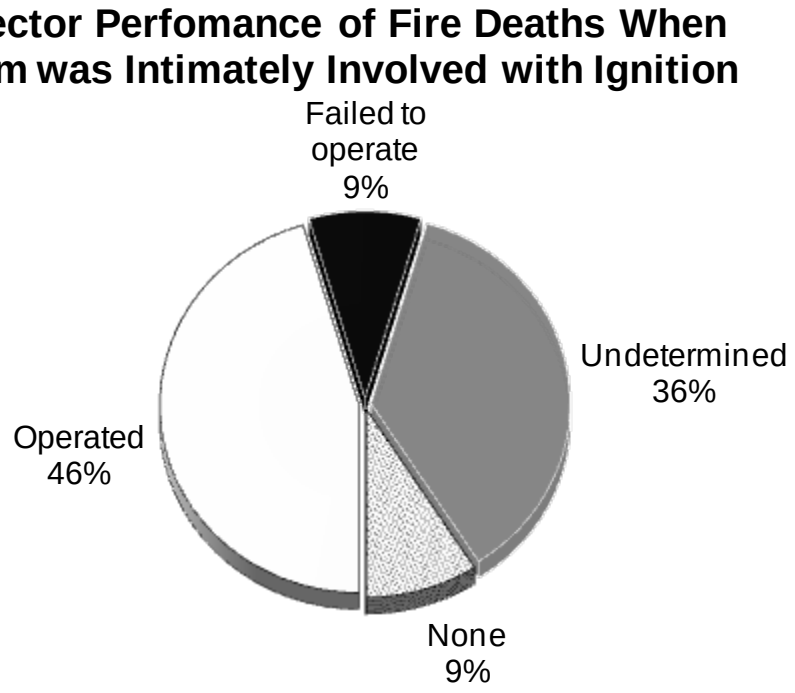
Civilian Fatalities
Location at Time of Incident



Over 1/2 of All Fatalities Were Somehow Involved in Ignition
Twelve (12), or 41%, of the residential fatal fire victims were in the area of origin of the fire. Eleven (11), or 38%, of these victims were intimately involved with the ignition of the fire that killed them, and one, or 3%, was not involved in its ignition. Four (4), or 14%, 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. Five (5), or 17%, of the victims were not in the area of origin and not involved with the ignition of the fire that claimed their lives. The *Location at Time of Incident* was unknown for eight, or 28%, of the residential fatal fire victims.

46% of Detectors Operated When the Victim Was Intimately Involved in Ignition
There were 11 victims that were reportedly in the area of origin and they were 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. Five (5), or 46%, of these 11 victims, actually had a working smoke detector in their home at the time of the fire. One (1) fire death, or 9%, did not have any smoke detectors; and another fire death, or 9%, did not have a working smoking detector. It was undetermined for the other four, or 36%, of the victims that were intimately involved with ignition, whether their homes had operating smoke detectors.

In the case of two of these victims where the detectors operated and involved with the ignition, the victims started the fire with the improper disposal of smoking materials; one was a successful suicide, and in the other two fires it was undetermined what caused the fire.



Fatal Motor Vehicle Fires

In 2012, six motor vehicle fires killed six civilians. Motor vehicle fire deaths are determined subsequent to the autopsy of the victim. When smoke is found in the lungs of the victim, it is an indication the victim survived the impact of the collision and was killed by the fire and not the crash. One (1) of these fires and deaths involved an airplane crash, another one involved a victim working on his vehicle and the other four involved suicides.

1 Airplane Crash Kills 1 Occupant
One (1) motor vehicle fire and the subsequent death was caused by an airplane crash. This incident accounted for 3% of the fatal fires and 3% of the fire fatalities in the Commonwealth in 2012.

- On September 9, 2012 at 11:05 a.m., the Falmouth Fire Department was called to a fatal airplane crash with ensuing fire. The single-engine plane, a Cirrus SR22, N221DV, crashed while on approach to Falmouth AirPark. The flight instructor, a

23-year old man, was trapped inside of the plane and died in the fire. The student pilot and a passenger were able to extricate themselves from the plane but both had serious burns and were eventually taken to hospitals in Boston.

1 Motor Vehicle Fire Kills Owner

One (1) motor vehicle fire and the subsequent death was caused by ignition of the gasoline that the owner was using while he was working on his vehicle. This incident accounted for 3% of the fatal fires and 3% of the fire fatalities in the Commonwealth in 2012.

- On October 18, 2012, at 1:38 p.m., the Pembroke Fire Department was called to a fatal outside fire in a backyard. The victim, a 67-year old man, was working on a truck when the gasoline he was using ignited and caught his clothing on fire. His wife saw him on fire and extinguished it. Arriving firefighters transported the victim to a local hospital and transferred via Med Flight to a Boston hospital where he later succumbed to his injuries.

4 Suicides Kill 4 Occupants

Four (4) motor vehicle fires and the subsequent four deaths were successful attempts at self-immolation. These incidents accounted for 10% of the fatal fires and 11% of the fire fatalities in the Commonwealth in 2012.

- On March 19, 2012, at 11:44 p.m., the Dedham Fire Department was dispatched to a motor vehicle fire. The driver and only occupant of the vehicle had poured gasoline inside her car and then ignited it. The vehicle crashed into the front porch of a home. The victim, a 31-year old female, was trapped inside the vehicle. No one else was injured in this fire. Damages were not estimated.

- On June 16, 2012, at 2:21 a.m., the Marlborough Fire Department was dispatched to a spate of motor vehicle fires in the parking lot of a local not-for-profit. The victim, a 59-year old man, parked his car near some of the organization's vans and successfully attempted self-immolation by pouring gasoline inside his car and igniting it. The fire spread to three of the vans nearby. No one else was injured at this fire. Damages were estimated to be $93,000 for the victim's car and three vans that were destroyed.

- On August 18, 2012 at 1:17 a.m., the Weymouth Fire Department was dispatched to an abandoned motor vehicle that may have been dangerous due to a possible chemical suicide. Upon forcing entry into the vehicle the department's Hazmat team member discovered a self-extinguished fire, a partially burned body, and a five gallon gas can and a lighter. The 52-year old female victim ignited the gasoline she had poured around the inside of the vehicle in a successful attempt at self-immolation.

- On October 10, 2012, at 3:09 a.m., the Quincy Fire Department was called to a fatal arson motor vehicle fire in a vacant lot. The victim, a 49-year old man, drove to the lot, wired the vehicle's doors shut; poured gasoline inside the car and ignited it in a successful attempt at self immolation.

Other Fatal Fires

In 2012, four outside fire incidents killed four civilians. These incidents accounted for 11% of the fatal fires and 10% of the fire fatalities in Massachusetts in 2012. One (1) fire victim was a man pouring gasoline into his lawnmower when his clothes ignited; and the other three victims were successful attempts at self-immolation.

3 Outside Suicide Fires Kill 3 Massachusetts Residents

- On June 9, 2012, at 3:38 p.m., the Northampton Fire Department was called to a fatal outside fire in a backyard. The victim, a 49-year old woman, poured gasoline over herself and ignited it in a successful attempt at self-immolation. She was transported to a local hospital where she later succumbed to his injuries. No one else was injured in this fire.

- On June 16, 2012, at 9:59 p.m., the Hanover Fire Department was called to a fatal outside fire in a backyard. The victim, a 64-year old man, poured gasoline over himself and ignited it in a successful attempt at self-immolation. His wife was also injured attempting to extinguish the fire. He was transported to a local hospital where he later succumbed to his injuries.

- On October 26, 2012, at 8:17 p.m., the Yarmouth Fire Department was called to a fatal outside fire in a residential driveway. The victim, a 28-year old man, poured gasoline over himself and ignited it in a successful attempt at self-immolation. He was transported via Med Flight to a Boston hospital where he later succumbed to his injuries.

1 Outside Gasoline Fire Kills 1 Massachusetts Residents

- On September 24, 2012, at 1:07 p.m., the Dennis Fire Department was called to a fatal outside fire in a backyard. The victim, a 67-year old man, was pouring gasoline into his lawnmower when it ignited his clothing. His wife later came home and discovered the fire.

Multiple Fire Deaths

For statistical purposes, a fire is considered a multiple death fire if it kills three or more people. In 2012, there were no multiple death fires in Massachusetts.

Civilian Fire Deaths - Conclusion

39 Civilians Died in Massachusetts Fires – 28% Decrease
In 2012, there were 37 fatal fires in Massachusetts with 39 accompanying fatalities. This is a 28% decrease from the 54 deaths reported in 2011. Of these 39 deaths, 29 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. All 29 of the fatal structure fire victims died in residential building fires. Fifteen (15) of these deaths occurred in one- or two-family homes, accounting for 38% of all fire deaths.

12 Suicides – Tragic Trend
This past year there were a tragic number of people who used fire to take their own lives. In 2012, there were 12 confirmed suicides. Nine (9) were by self-immolation, four were in motor vehicles, three were outside and one was in a residence. Another three victims tampered with their natural gas or propane appliances inside their home to purposely cause an explosion and ensuing fire. 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.

Suicide Fires Are Leading Cause of Fire Deaths
In 2012, suicide by fire was the leading cause of residential fire deaths and fatal residential fires. These fires accounted for five, or 17%, of residential fire deaths. The careless disposal of smoking materials tied with electrical fires as the second leading cause of fire deaths each, accounting for four, or 14%, of residential fire deaths.

In 2012, cooking fires accounted for three, or 10%, of these deaths and heating fires and a plumber's torch each caused one, or 3%, of the residential fire deaths.

1 Person Under 18 Died in a Fire
One (1) person under the age of 18 died in a structure fire in Massachusetts in 2012.

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 3.8 and those adults between the ages of 75 and 84 is 2.6. This means that they were almost four times and over two and a half times as likely to become a fire-related fatality.

1/3 of All Fire Deaths are Older Adults
Thirteen (13) older adults died in fires, accounting for 33% of all fire deaths in Massachusetts in 2012. Only one of these victims died in a smoking fire. Historically, the lack of working smoke detectors is a significant factor in senior fire deaths. In 2012, four

of the 11 senior residential fire deaths had working smoke alarms, three of the deaths occurred in fires with no detectors at all, one death happened at a fire where the detector failed and in the other three deaths, detectors were present but it was undetermined if they operated.

Over 1/2 of People Died in Fires While They Slept
Over half of the people who died in fires died while they slept. Twenty-two (22), or 56%, of the fire victims died in fires that occurred between 10:00 p.m. and 7:00 a.m.

24% of Fatalities Did Not Have Working Smoke Detectors
Twenty-four percent (24%) of the residential fire victims did not have a working smoke detector so they were never afforded the chance of escape because they had no prior warning. Thirty-eight percent (38%) of the victims died in fires that began in either the bedroom or living room. Bedding and mattresses or pillows were tied as the leading items first ignited. Also, 66% of these victims suffered burns, smoke inhalation or both.

41% of Fatalities Were in the Area of Origin
Twelve (12), or 41%, of all the civilians that died in residential fires were reported to be in the area of fire origin. Eleven (11) 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.

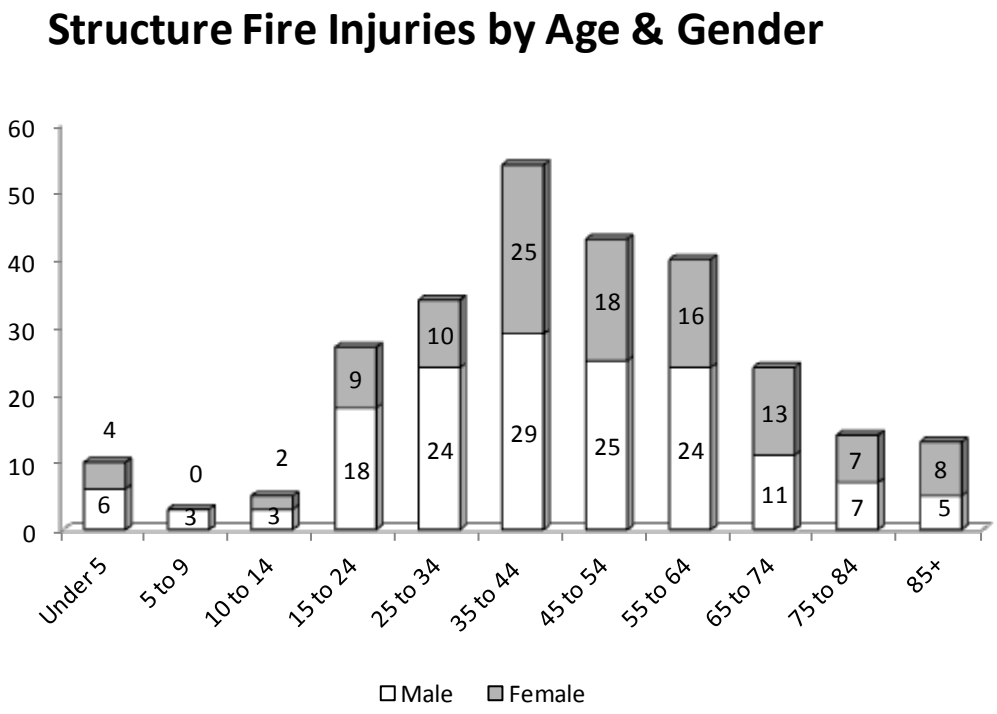
Civilian Injuries

322 Civilians Injured in Fires in 2012 – Mostly at Home

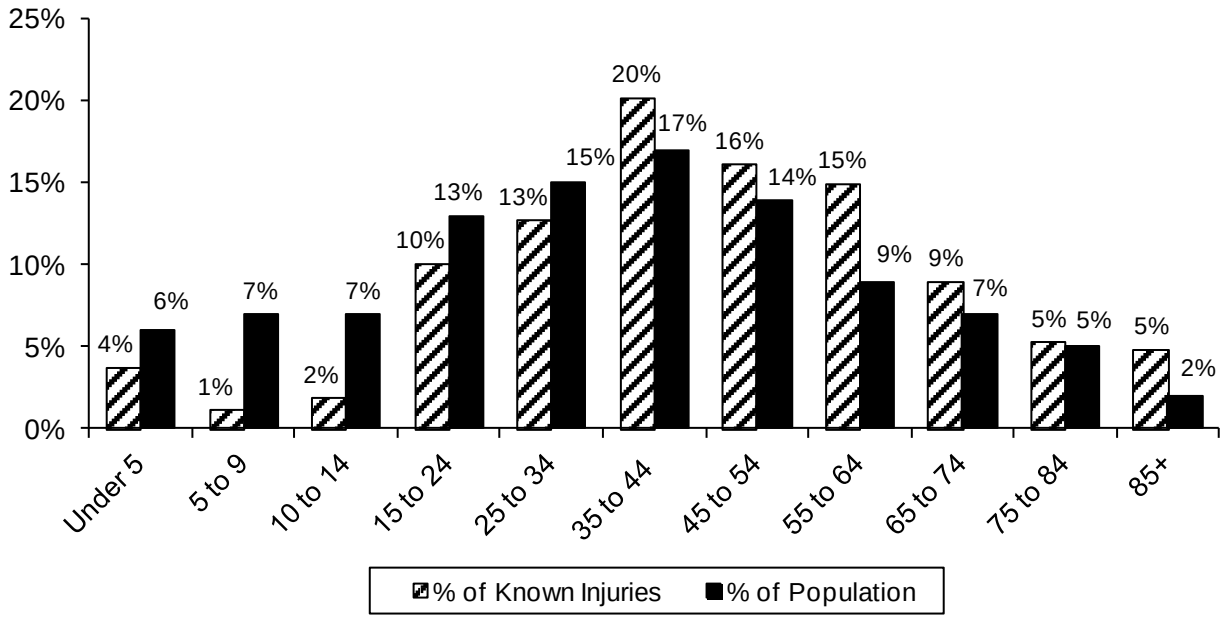
Massachusetts' fires injured 322 civilians in 2012. Two hundred and sixty-seven (267), or 83%, of civilian injuries occurred in structure fires. Two hundred and thirty-nine (239) injuries occurred in residential building fires, accounting for 74% of all injuries and 90% of all structure fire injuries. Seventeen (17), or 5%, occurred in motor vehicle fires. Thirty-eight (38), or 12%, of civilian injuries occurred in outside and other fires. Special outside fires accounted for 13, or 4%, of all civilian injuries. Brush fires accounted for six, or 2%, of civilian fire injuries; and outside rubbish fires accounted for one, or less than 1% of all civilian fire injuries. Eighteen (18), or 6%, of civilian injuries were caused by unclassified fires.

Structure Fire Injuries

Of the 267 civilian injuries resulting from structure fires where gender was reported, 155, or 58%, were men and 112, or 42%, were women. Overall, 24 children under 18 years of age, 188 adults aged 18 to 64 years old, and 35 older adults over the age of 65, were injured in structure fires in 2012. The following chart illustrates the structure fire injuries by age and gender in 2012. Men and women ages 35-44 and 45-54 were injured the most and youths between five and nine were injured the least in 2012. Ten (10) children ages 0-4 were injured; three children ages 5-9; five children ages 10-14; 27 people ages 15-24; 34 people ages 25-34; 54 people ages 35-44; 43 people ages 45-54; 40 people ages 55-64; 24 people ages 65-74; 14 people ages 75-84; and 13 people were injured that were over 85 years of age, five were men and eight were women.



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.



Adults 35 to 44 & 55 to 64 at Highest Risk for Fire Injury
Adults between the ages of 35 and 44 represent 17% of the Massachusetts population, yet they accounted for 20% of the injuries at structure fires in 2012. Adults between the ages of 55 and 64 represent 9% of the population and yet they accounted for 15% of the injuries in 2012. 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, 41% of the fire-related injuries were incurred while trying to control the fire.

82% of Injuries Were Directly Related to Exposure to Fire Products
Of the 222 civilian injuries in structure fires where the *Cause of Injury* was known, 82% were directly linked to exposure to fire products; 4% of the casualties were exposed to hazardous materials or toxic fumes; 3% were injured while jumping in an escape attempt; another 3% were overexerted; 2% were struck by or came in contact with an object or fell; 1% slipped or tripped. Five percent (5%) of the civilian fire injuries were caused by 'Other' causes. The *Cause of Injury* was undetermined or not reported for 45 victims. These figures were not included in this analysis.

76% of Injuries Were Due to Smoke Inhalation or Burns or Both
Of the 217 civilian injuries in structure fires where the *Primary Apparent Symptom* was known, 41% were caused by smoke inhalation only. Twenty-five percent (25%) were caused by thermal burns only. Burns and smoke inhalation together caused 11% of the injuries. Breathing difficulty or shortness of breath caused 6%; scald burns caused 4% of these injuries; cuts and lacerations caused 3%; and emotional or psychological stress and pain each caused 2%. Cardiac symptoms and strains or sprains were each responsible for

1% of these injuries. Abrasions, dizziness, fainting or weakness, fractures, hazardous fumes inhalation (other than smoke), shock, stabs or puncture wounds and general sickness each accounted for less than 1% of the injuries. 'None' was reported as the *Primary Apparent Symptom* for four of these victims. The nature of injury was undetermined or not reported in 40 civilian fire injuries. These were excluded from the percentage calculations.

43% Injured While Trying to Control the Fire

Of the 177 victims for whom A*ctivity at Time of Injury* was known, 32% were attempting to control the fire. Twenty percent (20%) were escaping. Ten percent (10%) were attempting a rescue; 6% were sleeping; 3% returned to the vicinity of the fire before it was under control; 2% were acting irrationally; 2% returned to the vicinity of the fire after it was under control; and 1% were unable to act. Twelve percent (12%) were injured in 'Other' activities. There were 90 injuries where the activity at time of injury was unknown; these were excluded from the percentage calculations.

Men More Likely to Be Injured Trying to Control the Fire

In 2012, 67% of male victims sustained their injuries while attempting to control the fire as compared to 33% of female victims. In 2012 men were twice as likely to be injured trying to fight the fire. A higher percentage of men (15%) sustained their injuries while making a rescue attempt than did women (4%), and 30% of women were attempting to escape compared to 13% of men. Two percent (2%) of men and 12% of women were injured while sleeping; and 1% of men and 4% of women were injured performing irrational acts. There is a 1% or less difference between men and women in every other activity.

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.

Almost 1/2 of Victims Were Asleep Just Before the Injury

Of the 53 victims for which the *Human Factor Contributing to the Injury* was known, 47% were asleep; 15% were physically disabled; 11% were possibly impaired by drugs; 9% were possibly mentally disabled; 8% were possibly impaired by alcohol; 6% were unattended or unsupervised persons; and 4% were unconscious. 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. The overall majority of civilian fire injuries came about through trying to control the fire.

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	**6**	1	0	0	0	0	0	2
Rescue attempt	0	0	0	0	0	0	0	0
Fire control	3	1	1	0	2	1	0	1
Return before fire control	0	0	1	0	0	0	0	0
Return after fire control	0	0	1	0	0	0	0	0
Sleeping	**6**	0	1	0	0	0	0	0
Unable to act	0	0	0	0	0	0	0	0
Irrational action	1	0	0	0	3	0	0	0
Other	0	0	0	0	0	0	0	0
Unknown	2	0	0	2	0	3	0	0
Total	18	2	4	2	5	4	0	3

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

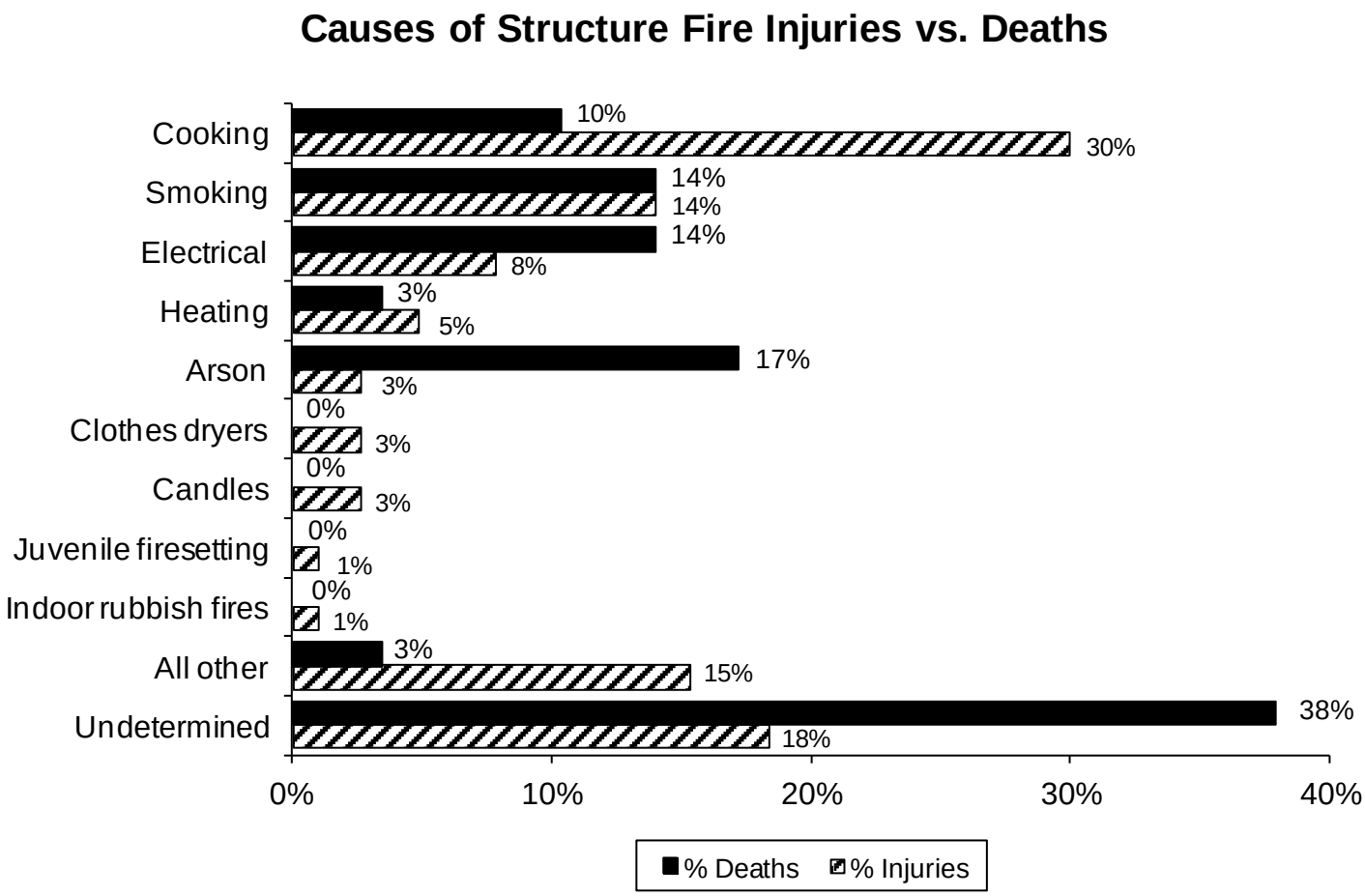
Historically when both of the fields, *Activity When Injured* and *Human Factors Contributing to Injury,* were completed, the majority of civilian fire injuries occurred when people were asleep at the time of injury and were still asleep at the time of the fire. Although not the overwhelming majority of prior years, one of the leading causes of civilian fire injuries was when people were asleep at the time of injury and were still asleep at the time of the fire. The other leading result was when someone was asleep, awoke and attempted to escape.

Almost 1/2 of All Victims Were Involved With the Ignition of the Fire

Forty-seven percent (47%) of all victims were involved with the ignition of the fire that injured them. Seventy-three (73), or 39%, of the 186 civilian victims where *Location at Time of Incident* was known, were in the area of origin and intimately involved with the ignition of the fire. Fourteen (14), or 8%, were not in the area of origin but were involved with starting the fire. An example of this is when someone is involved with starting the fire like tossing a cigarette into a trash can, then leaves the area, but becomes trapped by the heat or smoke of the fire and is injured in their attempt to escape. Fifty-five (55), or 30%, of the 186 victims were in the area of origin but not involved with the ignition of the fire. An example of this is when someone leaves food unattended on the stove in the kitchen and leaves the room. After the fire starts and the individual is alerted to its presence, they are injured trying to put out the fire. Forty-four (44), or 24%, of these victims were not in the area of fire origin and were also not involved with its ignition. The *Location at Time of Incident* was undetermined or not reported in 81 civilian fire injuries. These were excluded from the percentage calculations.

Leading Cause of Injuries Not the Leading Cause Of Deaths
The leading cause of fire-related injuries is most often not the leading cause of fire-related deaths. In 2012, cooking fires caused the most injuries and arsons (suicides) caused the most fire deaths. Historically smoking fires are the leading cause of fire deaths. In smoking fires, the victim is usually intimately involved in the ignition of the fire. The victim usually falls asleep with a lit cigarette or cigar and the ashes or butt fall down and ignite the victim's clothing, bedding or furniture upon which they were sleeping. The resulting smoke usually renders the victim unconscious and unable to respond to any alarms and any attempt at an escape, and thus succumb to burns, smoke inhalation or both. In cooking fires, most of the victims are directly involved with the ignition of the fire. When the fire begins they are either alerted by working smoke alarms or by the smell of the smoke itself. The alerted individual usually either tries to control the fire or escape from the flames, incurring their injury in the process.

Cooking Fires Were the Leading Cause of Injuries in Structure Fires
Cooking fires were the leading cause of injuries in structure fires. Cooking fires caused 30% of structure fire injuries and 10% of structure fire deaths. Fires started by smoking caused 14% of structure fire injuries and 14% of structure fire deaths. Electrical fires caused 8% of structure fire injuries and 14% of structure fire deaths. Heating equipment fires caused 5% of injuries and 3% of deaths. Arson caused 3% of structure fire injuries and 17% of structure fire deaths. Clothes dryer fires caused 3% of the structure fire



injuries and none of the structure fire deaths. Candles also caused 3% of injuries and none of the deaths. Juvenile-set fires caused 1% of structure fire injuries and none of the structure fire deaths in 2012. Indoor rubbish fires caused 1% of civilian injuries and no deaths. All the other known causes of structure fires combined caused 15% of the structure fire injuries and 3% of the structure fire deaths. In 2012, undetermined fires caused 18% of structure fire injuries and 38% of structure fire deaths in Massachusetts.

Cooking fires were the leading cause of fires that injured children. Three (3), or 13%, were injured in structure fires caused by cooking in 2012. Smoking, electrical problems and juvenile-set fire were all tied as the second leading cause of injuries with two, or 8% of child injuries in structure fires. Cooking was also the leading cause of fires that injured older adults. Twenty-one (21) older adults were injured in cooking fires accounting for 41% of structure fire injuries to older adults. Electrical fires caused the second most injuries to older adults with eight, or 16%, of these injuries.

Detectors Operated in 57% of Civilian Injuries
Of the 266 injuries where detector status was reported, 57% occurred where smoke detectors were present and operated. In 6% of these fires[42], the detectors did not alert the occupants. Four percent (4%) of the injuries occurred in structure fires where detectors were present but did not operate. Eight percent (8%) of the injuries occurred where there were no detectors present in the structure at all. Three percent (3%) of civilian structure fire injuries occurred where the fire was too small to activate the smoke detector. Smoke detector performance was undetermined in 59 injuries, or 22% of all injuries. The presence of operating smoke detectors generally gives the victims the time needed to escape the byproducts of the fire: heat, flame and smoke.

Motor Vehicle Fire Injuries

There were 17 motor vehicle fire injuries in 2012. Eighty-eight percent (88%) of these injuries were to men and 12% were to women. Sixty-nine percent (69%) of the injuries were caused by exposure to fire products, when the cause was known. Fifteen percent (15%) were struck by or came into contact with an object and another 15% were injured by multiple causes. When the *Primary Apparent Symptom was Reported*, 21% of these were reported as burns only, 21% were reported as burns and smoke inhalation; and 21% were reported as smoke inhalation only. Where the *Activity at Time of Injury* was known, half, or 50%, of the victims were trying to control the fire when injured; 40% were trying to escape the fire; and 10% were making a rescue attempt. The causes of motor vehicle fires that injured civilians in 2012 included fuel spills, collisions, arson, and mechanical malfunctions. See the Motor Vehicle Fire section for safety tips in the event of a car fire.

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

Outside and Other Fire Injuries

Thirty-eight (38), or 12%, of civilian fire injuries occurred in outside and other fire incidents in 2012. Thirteen (13), or 4%, of civilian injuries were caused by special outside fires. Six (6), or 2%, of these injuries occurred in brush fires. One (1), or less than 1%, happened in an outside rubbish fire. Eighteen (18), or 6%, of civilian injuries were caused by unclassified fires.

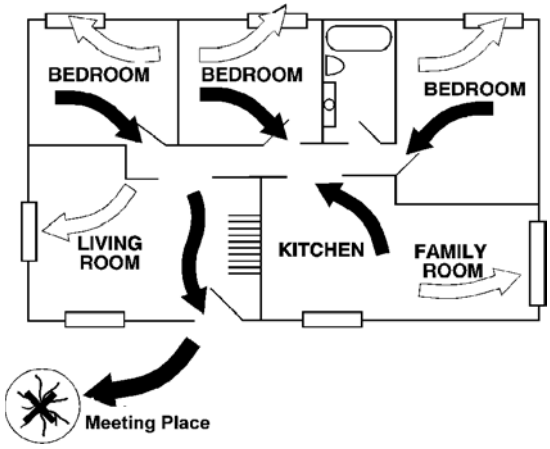
Where gender was known, 81% of the civilian victims were men and 19% were women. Burns accounted for 53%, of the injuries to this group, when the *Primary Apparent Symptom* was known. The victim was intimately involved with the ignition in 61% of these injuries where *Location at Ignition* was known.

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 detectors as well as 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.

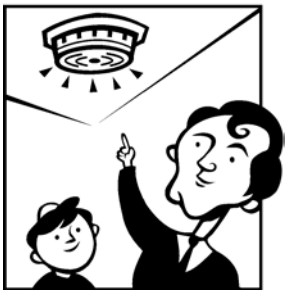
Home Escape Plan

- 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 Detectors

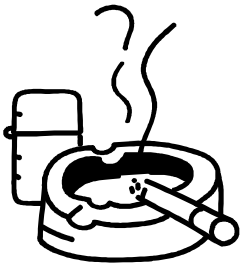


- Install smoke detectors on every level and outside each sleeping area.
- Test smoke detectors monthly.
- Replace the batteries twice a year.
- Never disable your detector.
- Replace detectors every 10 years.

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.
- Restrict smoking to outdoors.
- Never throw cigarettes into mulch or flower pots.
- 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.

2012 Firefighter Deaths

No Fire-Related Firefighter Deaths in 2012
In 2012, there were no fire-related fire service fatalities. In the past five years there have been five fire-related fire service deaths for an average of one fire-related fire service death per year.

Fire Service Injuries

531 Firefighters Injured in 2012
In 2012, 531 firefighters were injured while fighting the 31,229 reported fires in Massachusetts. On average, one firefighter was injured at one of every 59 fires in 2012. Four hundred and seventy-one (471) firefighters were injured at structure fires. Nine (9) firefighters were injured at motor vehicle fires. Fifty-one (51) firefighters were injured at outside and other fires. This is an increase of 108, or 26%, from the 423 fire-related fire service injuries reported in 2011.

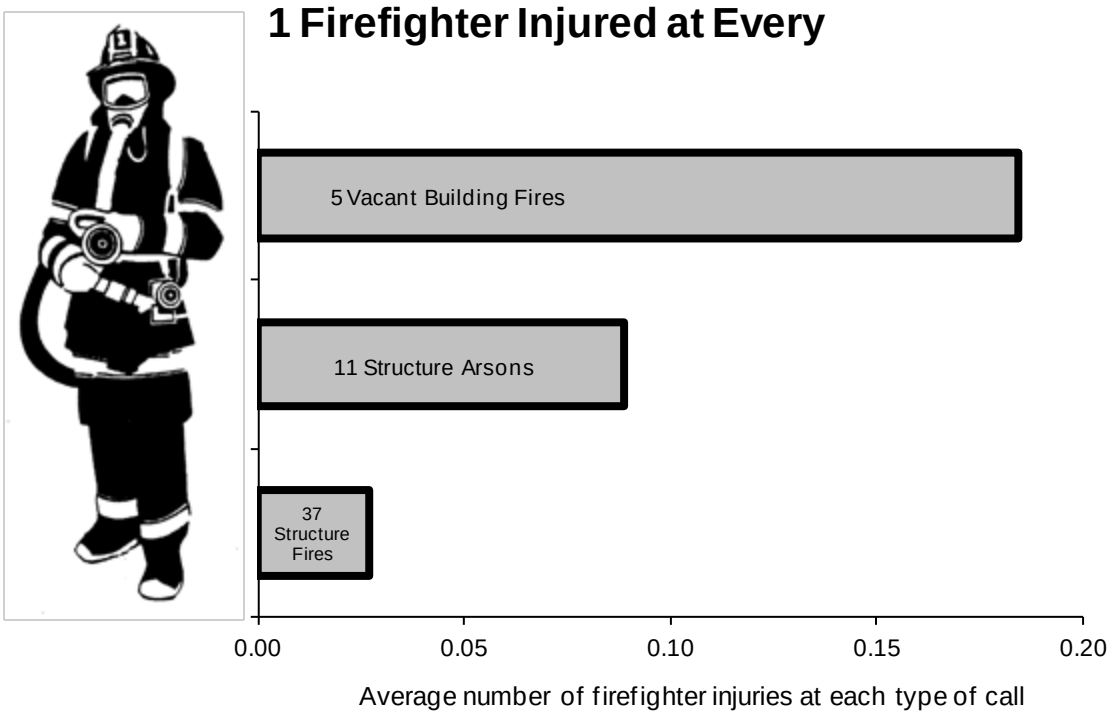
89% of Firefighter Injuries Occurred at Structure Fires
Firefighters were injured more frequently at structure fires than any other fire incident type. Eighty-nine percent (89%) of firefighter injuries occurred at structure fires, while structure fires only accounted for 56% of all fires.

Electrical Fires Caused the Most Injuries at Structure Fires
The largest number of firefighter injuries took place at structure fires caused by electrical problems. Fifty-three (53), or 11%, of structure fire firefighter injuries occurred at electrical fires. Smoking fires accounted for 45, or 10%, of structure fire firefighter injuries. Even though cooking fires are the leading cause of structure fires and civilian fire injuries, fires caused by cooking accounted for 28, or 6%, of fire service injuries at structure fires.

Firefighters Injured at 1 of Every 5 Vacant Building Fires
One of the most dangerous types of fires for firefighters in 2012 were vacant building fires. Vacant building fires accounted for 56, or 11%, of all firefighter injuries in 2012. These 56 injuries also represent 12% of the number of firefighter injuries incurred fighting structure fires in 2012. On average there was one firefighter injury for every five vacant building fires; one firefighter injury for every 11 structure arsons; and one firefighter injury for every 37 structure fires[43].

[43] On average there were 0.18 firefighter injuries at every vacant building fire; there were only 0.09 reported firefighter injuries per structure arson in 2012; and there were 0.03 reported firefighter injuries per structure fire in the Commonwealth in 2012.

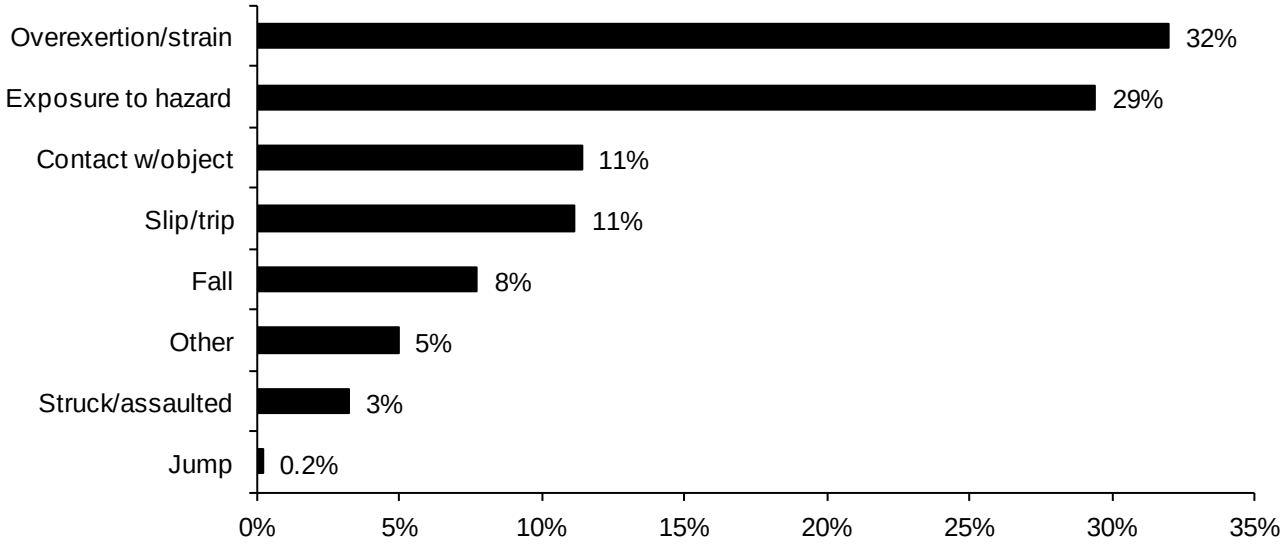
The following graph illustrates this.



71% of Firefighter Injuries Minor
Seventy-one percent (71%) of reported firefighter injuries were minor. Fifty-one percent (51%) of the injuries were reports only, including exposures to toxic substances or harmful physical agents through any route of entry into the body. Eight percent (8%) of these injuries were recorded as only needing first aid. Twelve percent (12%) reported having been treated by a physician with no time lost. Injuries reported as moderate accounted for 27% of firefighter injuries, meaning that immediate medical attention was needed but there was little danger of death or permanent disability. One percent (1%) of firefighter injuries were coded as severe. This means that the injury was potentially life-threatening if the condition was not controlled. There were no reported life-threatening firefighter injuries where body processes and vital signs were not normal in 2012.

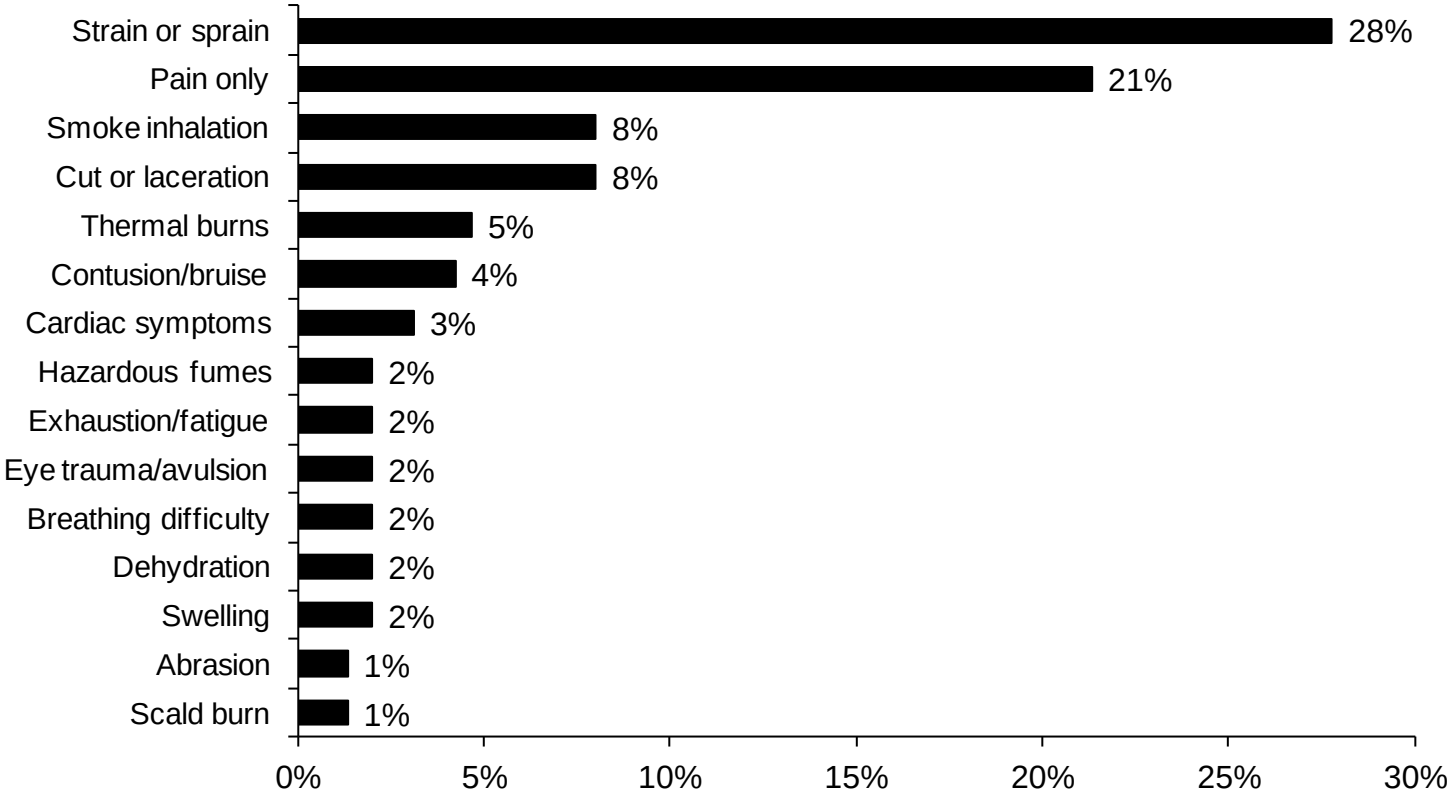
Almost 1/3 of Injuries from Overexertion or Strain
Thirty-two percent (32%), or almost one-third, of the 466 firefighter injuries, where the cause was known, were due to overexertion or strain; 29% were exposed to some form of hazard including heat, smoke or toxic agents; 11% were caused by contact with some object; 11% were injured when they slipped or tripped; 8% of firefighters were injured from falls; 3% were injured when they were struck by an object or assaulted by a person or animal; less than 1% were injured when they jumped; and 5% of the Massachusetts fire service injuries were caused by other conditions where no code was available to describe the situation. The cause was not reported or undetermined for 65 firefighter injuries, and these injuries were excluded from the percentage calculations.

Causes of Firefighter Injuries



28% Experienced Sprains or Strains & 21% of Firefighters Reported Pain
Of the 450 firefighter injuries where *Primary Apparent Symptom* was known 28%, of injured firefighters reported sprains or strains as their primary symptom; 21% reported pain only; 8% reported smoke inhalation; another 8% reported cuts or lacerations; and thermal burns were reported by 5% of the firefighters. Four percent (4%) reported contusions and bruising. Cardiac symptoms caused 3% of these injuries. Hazardous fumes, exhaustion or fatigue, eye trauma or avulsion, breathing difficulty, dehydration, and swelling each caused 2% of these injuries. Abrasions and scald burns each caused 1%; and eye trauma or avulsions caused 1% of firefighter injuries in Massachusetts in 2012. *Primary Apparent Symptom* was undetermined or not reported for 81 firefighter injuries. These injuries were excluded from the percentage calculations.

Primary Symptoms of Firefighter Injuries



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.

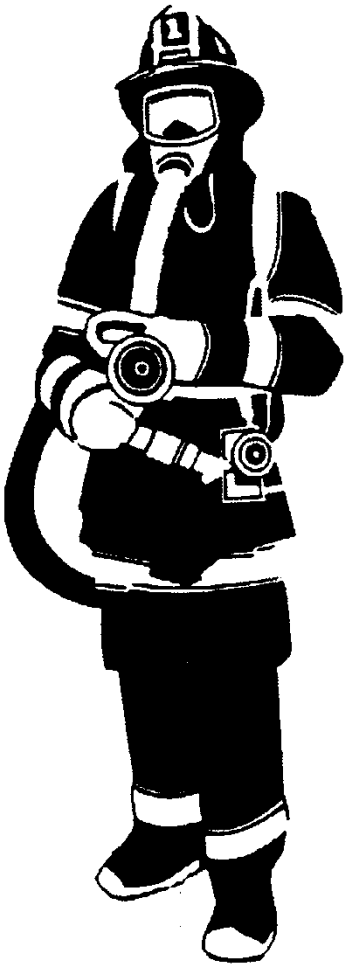
Look at Symptoms Incurred by Different Parts of Body to Prevent Injuries
Different parts of the body suffer different types of injuries. For example, 64% of eye injuries were caused by avulsions; cuts or lacerations caused 54% of the injuries to the hands and fingers; 51% of the injuries to the back and spine were sprains or strains; and smoke inhalation caused 41% of the internal injuries.

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. One hundred and ten (110), or 23%, of all firefighter injuries were to the trunk part of the body that includes the lower back. Forty (40), or 36%, of these injuries were from strains or sprains and 37, or 34%,

were reports of pain only. 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.

Firefighter Injuries by Part of Body

Eyes (14)	
Avulsion	64%
Pain only	21%
Foreign body obstr.	7%
Cut or laceration	7%
Trunk (110)	
Strain or sprain	36%
Pain only	34%
Internal (54)	
Smoke inhalation	41%
Hazardous fumes	19%
Breathing difficulty	7%
Cardiac symptoms	7%
Hand, Fingers (41)	
Cut, laceration	54%
Pain only	7%
Fracture	7%
Thermal burns	7%
Legs (18)	
Strain or sprain	44%
Pain only	22%
Thermal burns	11%



Ears & Face (13)	
Thermal burns	38%
Smoke inhalation	23%
Cut or laceration	15%
Back & Spine (41)	
Strain or sprain	51%
Pain only	34%
Arms (25)	
Pain only	36%
Strain or sprain	32%
Cut or laceration	12%
Wrists (6)	
Thermal burns	33%
Pain only	33%
Knees (42)	
Strain or sprain	57%
Pain only	26%
Feet & Toes (7)	
Pain only	43%
Strain or sprain	14%

Fire in Milton Injures 16 Firefighters – Most Fire Service Injuries

- On December 28, 2012, at 7:19 a.m., the Milton Fire Department was called to a fire at a single-family home. Someone improperly disposed of fireplace ashes by placing them in a cardboard box and putting it in the garage. Sixteen (16) firefighters were injured at this fire. Fifteen (15) of the 16 injuries were only exposure reports for smoke inhalation and sprains. Detectors were present but it was undetermined if they operated and the building did not have a sprinkler system.

Springfield Fire Injures 11 Firefighters –2nd Most Fire Service Injuries

- On February 12, 2012, at 1:34 p.m., the Springfield Fire Department responded to a heating fire in a single-family home. The fire was contained in the insulation on the pipe above the boiler in basement. The pipes and boiler were wrapped in asbestos All 11 firefighter injuries were reports of exposure to the asbestos. Detectors were present and alerted the occupants. Damages from this fire were estimated to be $150.

Arson Fires

1,135 Arsons - 271 Structures, 114 Vehicles, 750 Other Arsons

One thousand one hundred and thirty-five (1,135), or 3%, of the 31,229 fire incidents reported to the Massachusetts Fire Incident Reporting System, were considered to be intentionally set, or for the purpose of analysis, arson[44]. The 271 structure arsons, 114 motor vehicle arsons, and 750 outside and other arsons caused 12 civilian deaths, accounting for 22% of civilian fire deaths, 16 civilian injuries and 27 fire service injuries. The estimated dollar loss from arsons was $13.4 million. The average dollar loss per arson fire was $11,822. Total arson was up by 18% from the 962 in 2011.

Suicide by Fire Increasing

All 12 of the arson fire deaths were from fires or explosions set by the victims themselves and are considered suicides. None were the victims of a homicide.

1,035 Fires with Cause Still Under Investigation

In 2012, 1,035 Massachusetts fires were still listed as *Cause Under Investigation*. There were 3,450 fires where the field *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.

Other Investigative Information

One of the fields is *Other Investigative Information*. This field identifies other information pertinent to the case. In 2012, 35% of the 113 reported arsons that had this field completed occurred in vacant structures; 15% had some other crime involved; 14% had some code violations; 12% occurred in structures that were for sale; 9% were reported to have criminal or civil actions pending; 7% reported financial problems; 6% had recent illicit drug activity; and 1% had a recent change in insurance.

Suspected Motives

Another field is *Suspected Motivation Factors*. It indicates the suspected stimulus that caused the subject to burn any real or personal property. In 33% of the 173 reported

[44] 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 that had this field completed, the motive was thought to be from playing with or curiosity about fire. The motive was personal motivation in 19%, and thrills were suspected in 10% of these arsons. Suicide was the suspected motivation factor in 8%; and insurance fraud, and attention or sympathy were each the suspected factor in 5% of these arsons. Intimidation, domestic violence, burglaries, and burglary concealment were each the suspected motivation in 3% of these arsons. Vanity or recognition, and auto theft concealment were each the suspected motivation factor in 2%. Institutional hatred and societal protests were each the suspected motivation factor in 1% of arsons.

Incendiary Devices
Gasoline or other fuel cans were the leading containers of incendiary devices. Ordinary combustibles such as paper and wood, and ignitable liquids were the leading fuels of reported incendiary devices.

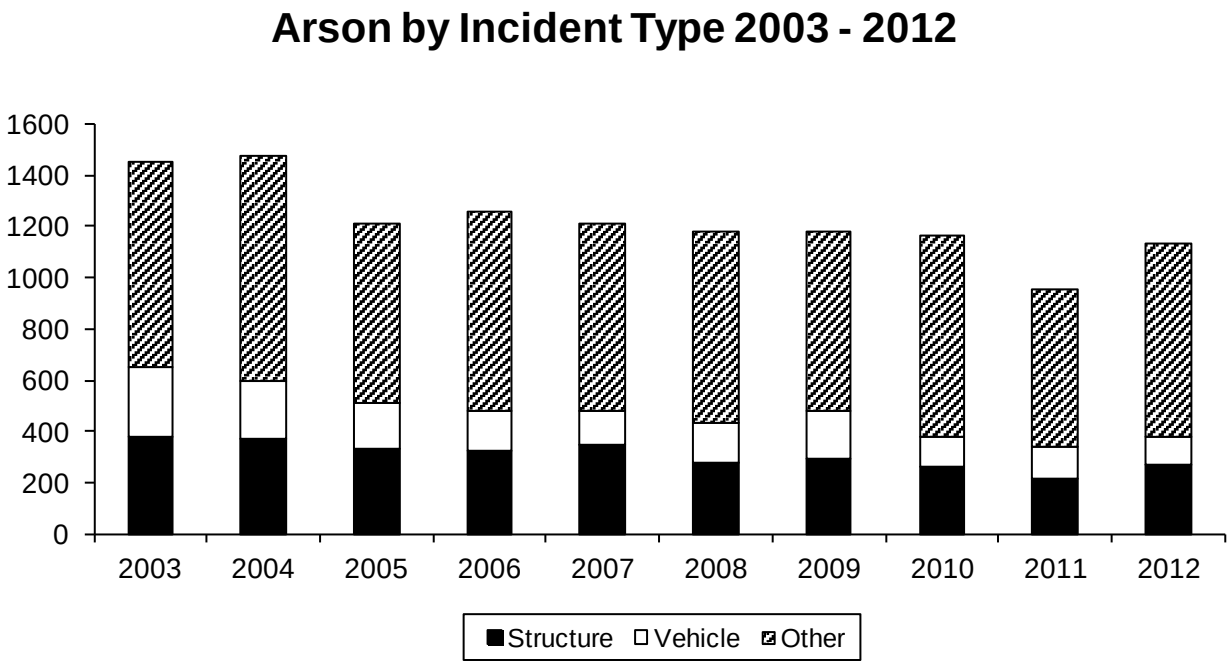
The following table shows the total number of reported arsons for the past 10 years. The total is then broken down into the total number of reported structure, vehicle and all other types of arsons along with that subtotal's percentage of the total number of arsons. It also illustrates that all types of arsons, including structure, motor vehicle and outside and other arsons are at an all time low up until this year when they increased across the board.

ARSONS BY YEAR

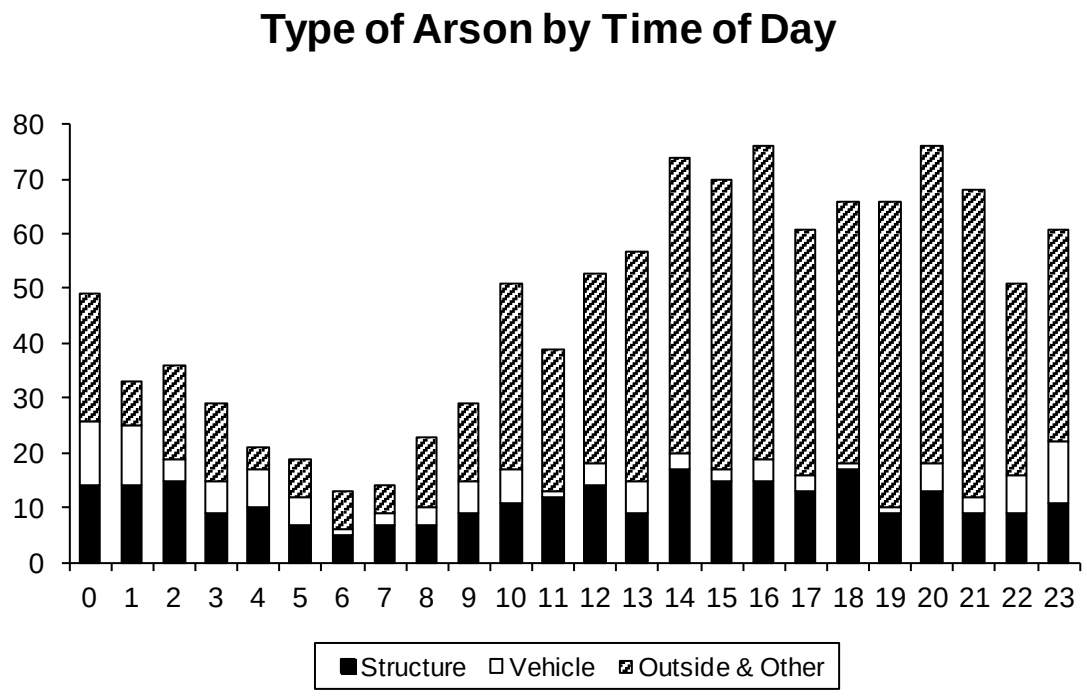
Year	Total Arsons	Structure Arsons	% All Arsons	Vehicle Arsons	%All Arsons	Other Arsons	% All Arsons
2012	1,135	271	28%	114	12%	750	78%
2011	962	223	23%	124	10%	615	67%
2010	1,171	269	23%	116	10%	786	66%
2009	1,185	295	25%	189	16%	701	59%
2008	1,182	283	24%	151	13%	748	64%
2007	1,215	350	28%	131	11%	734	61%
2006	1,265	325	26%	159	13%	781	62%
2005	1,234	343	28%	184	15%	707	57%
2004	1,477	373	26%	227	15%	877	59%
2003	1,491	381	26%	280	19%	830	56%

Largest Reduction in Motor Vehicle Arsons
The following chart illustrates arson by incident type over the past decade. This type of chart can be used as a visual representation of the ratios between the three types of arson: structure, motor vehicle and outside and other arsons. The trend has been for motor vehicle arsons to comprise a smaller percentage of total arsons, while the percentage of outside and other arsons of total arsons has risen during the same time span. For example, motor vehicle arsons accounted for 21% of arson fires in 2001 but only 12% of the total reported arson fires in 2012. Looking at these ratios allows one to more clearly identify specific fire problems, such as increases in structure or motor vehicle arsons. Trends may be masked if you were to look just at total numbers.

For instance, outside and other arsons numbered 798 in 2003 and 750 in 2012. While we have a drop in the total numbers of reported outside and other arsons, the ratio or percentage of outside and other arsons to total arsons has remained at or above 50%.



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 2:00 p.m. to 9:00 p.m. The peak times for structure arsons were 2:00 p.m. and 6:00 a.m. Motor vehicle arsons were most likely to occur between 11:00 p.m. and 2:00 a.m. Outside and other arsons peaked from 2:00 p.m. to 10:00 p.m.



Structure Arson

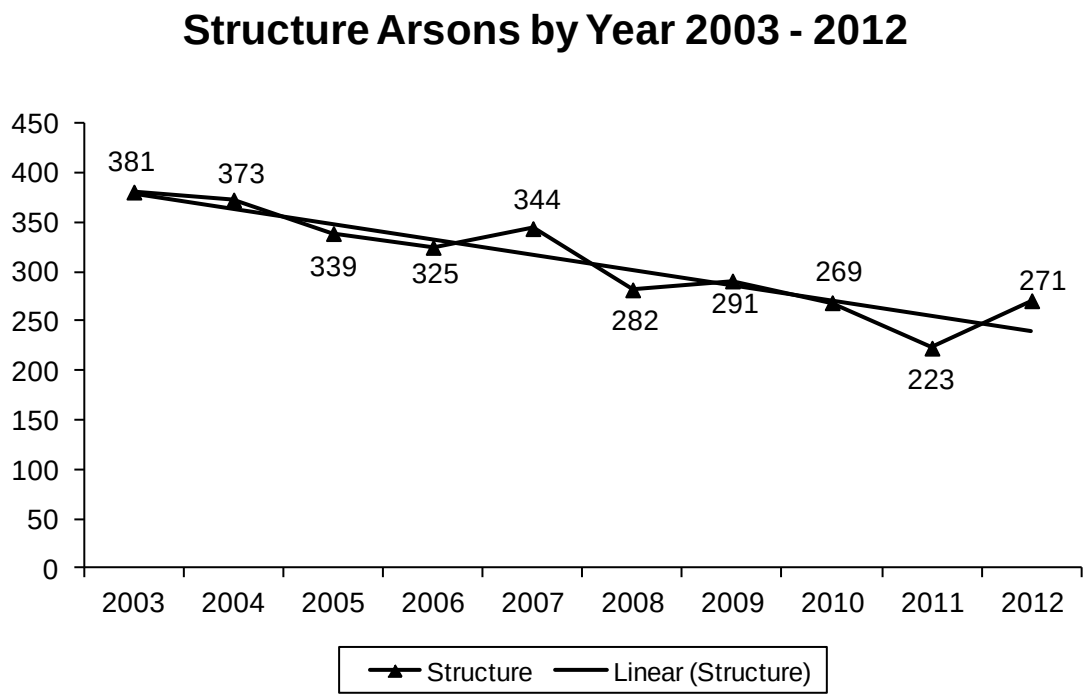
271 Arsons, 5 Civilian Deaths, 7 Civilian Injuries, 24 Fire Service Injuries
In 2012, there were 271 reported structure arsons. They caused five civilian deaths, seven civilian injuries, 24 fire service injuries and an estimated dollar loss of $12.2 million. These 271 incidents accounted for 1% of the 18,178 structure fires in 2012, and were up by 22% from the 223 reported structure arsons in 2011.

The five civilian deaths accounted for 13% of the total civilian death count and 17% of all structure fire deaths. All five were suicides in 2012 arson, and it was the leading cause of structure fire deaths and all fire deaths. The seven civilian injuries accounted for 2% of the overall civilian injuries and 3% of all civilian injuries at structure fires. The 24 fire service injuries accounted for 5% of the total fire service injuries and 5% of the injuries firefighters sustained at all structure fires in 2012. The estimated dollar loss for structure arsons was $12,196,749, accounting for 5% of the overall dollar loss and 5% of the estimated dollar loss in all reported structure fires. The average loss per structure arson was $45,006.

In 2012, 496 Massachusetts structure fires were still listed as *Cause Under Investigation*. There were 614 structure fires where the *Cause of Ignition* was listed as *Undetermined*.

Structure Arsons Up
Structure arsons increased in 2012. These 271 arsons were an increase of 48, or 22%, from the 223 reported in 2011.

Structure Arson Down 29% Since 2003
Structure arson has been on a downward trend since 1991 when 1,974 structure arsons were reported to MFIRS. Structure arsons have decreased by 29% since 381 were reported in 2003. The chart below shows the trend of structure arsons in the past decade.



The following table shows the cities that reported the most structure arsons in 2012; their 2010 population according to the United States Census; the number of structure arsons reported in 2012; the rate of structure arsons per 1,000 people in 2012; and the same information for 2011. The cities are ranked by the 2012 rate of arsons per 1,000 population. Cities with the most structure arsons may not have the highest rate of structure arsons.

The City of Boston, as the largest city in the Commonwealth, leads the state in the number of structure arsons (27) but the Turners Falls Fire District had a higher structure arson rate. Although Turners Falls had only four structure arsons and was tied with a rank of 11th, its rate of 0.63 structure arsons per 1,000 population was the highest in the state and was 15.3 times the state structure arson rate of 0.04 per 1,000 population.

MASSACHUSETTS CITIES WITH THE MOST STRUCTURE ARSONS IN 2012

City	Population	2012 Arsons	2012 Rate/ 1,000 Pop.	2011 Arsons	2011 Rate/ 1,000 Pop.
Turners Falls[45]	6,328	4	0.63	3	0.47
Hyannis	12,654	3	0.24	1	0.08
Lawrence	76,377	18	0.24	15	0.20
Brockton	93,810	17	0.18	9	0.10
Middleborough	23,116	4	0.17	0	0.00
Ludlow	21,103	3	0.14	0	0.00
Worcester	181,045	25	0.14	15	0.08
Marlborough	38,499	5	0.13	2	0.05
Chelsea	35,177	4	0.11	5	0.14
Plymouth	56,468	6	0.11	2	0.05
Fall River	88,857	6	0.11	2	0.04
Holyoke	39,880	3	0.08	3	0.08
Lowell	106,519	8	0.08	9	0.08
Fitchburg	40,318	3	0.07	1	0.02
Leominster	40,759	3	0.07	2	0.05
Pittsfield	44,737	3	0.07	6	0.13
Massachusetts	**6,547,629**	**271**	**0.04**	**223**	**0.03**

Building Arsons

In 2012 there were 260 building arsons. These 260 arsons accounted for 96% of all the structure arsons in Massachusetts. These building arsons caused all five civilian deaths, seven civilian injuries, 24 fire service injuries and an estimated dollar loss of $12.2 million.

65% of Building Arsons Occurred in Residences

One hundred and sixty-eight (168), or 65%, of the 260 building arsons occurred in residential occupancies. Educational facilities and storage properties each accounted for 7% of these arsons. 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.

[45] Turners Falls and Hyannis are local fire districts which are part of the towns of Montague and Barnstable respectively.

BUILDING ARSON BY OCCUPANCY TYPE

Occupancy	Building Arsons	Percent of Total	Injuries FF	Injuries Civ	Deaths FF	Deaths Civ	Dollar Loss
Assembly	13	5%	0	0	0	0	$1,284,650
Educational	19	7%	0	0	0	0	140,379
Institutional	5	2%	0	0	0	0	32,600
Residential	**168**	**65%**	**17**	**5**	**0**	**5**	**8,407,222**
1- & 2-Family	*92*	*65%*	*5*	*3*	*0*	*5*	*5,819,271*
Multifamily	*56*	*22%*	*10*	*2*	*0*	*0*	*1,580,671*
All Other Residential	*20*	*8%*	*2*	*0*	*0*	*0*	*1,007,280*
Mercantile, business	11	14%	0	1	0	0	1,681,200
Basic Industry	0	0%	0	0	0	0	0
Manufacturing	4	2%	0	0	0	0	20,000
Storage	18	7%	7	1	0	0	537,935
Special Properties	21	8%	0	0	0	0	84,610
Unclassified	1	0.4%	0	0	0	0	0
Total	**260**	**100%**	**24**	**7**	**0**	**5**	**$12,188,596**

Motor Vehicle Arson

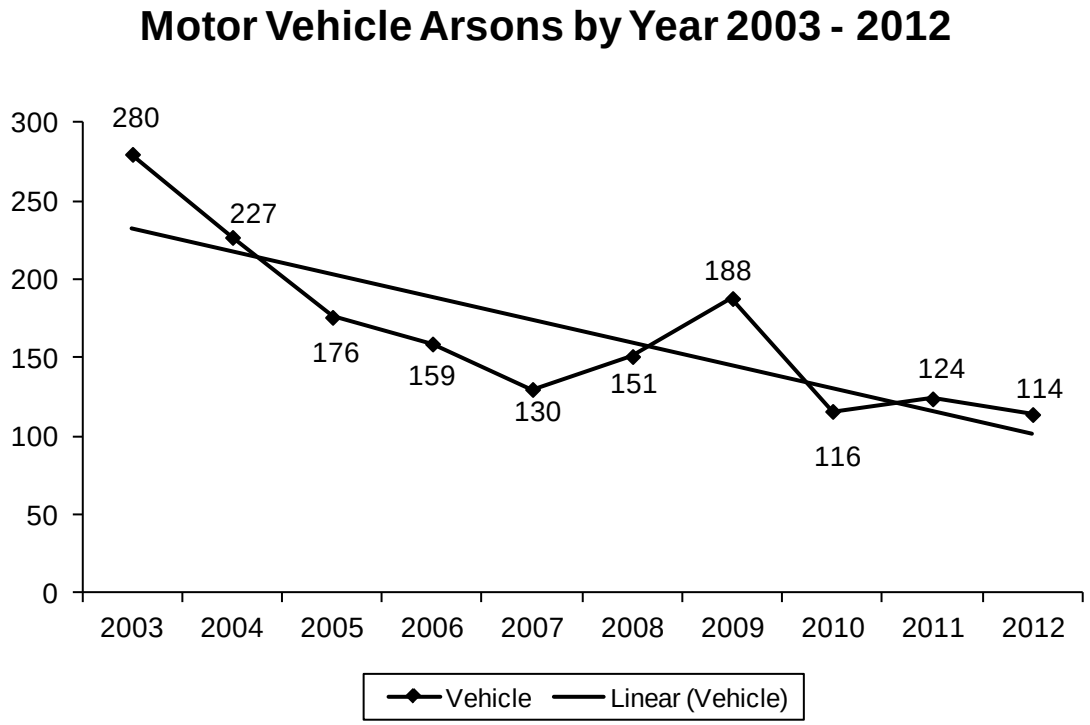
114 Arsons – 4 Civilian Deaths & $1.2 Million in Damages
One hundred and fourteen (114), or 4%, of the 2,502 vehicle fires were considered intentionally set in 2012. There were four civilian deaths and one civilian injury in motor vehicle arsons in 2012. The estimated dollar loss in motor vehicle arsons was $1.2 million, accounting for less than 1% of the overall fire dollar loss and 8% of the dollar loss associated with all the 2012 motor vehicle fires. The average loss per vehicle arson was $10,194. Passenger cars and vans accounted for 89% of the 114 motor vehicle arsons. All four civilian deaths in motor vehicle arsons were successful attempts at self-immolation.

In 2012, 255 Massachusetts motor vehicle fires were still listed as *Cause Under Investigati*on. There were 614 motor vehicle fires where the *Cause of Ignition* was listed as *Undetermined*.

Motor Vehicle Arsons Decrease
Motor vehicle arsons decreased in 2012. These 114 arsons are a decrease of 10, or 8%, from the 124 reported in 2011.

The Burned Motor Vehicle Reporting Law
The Massachusetts Fire Incident Reporting System first identified motor vehicle fires and motor vehicle arson as major problems in 1985. The Burned Motor Vehicle Reporting Law took effect in August of 1987. The law requires owners of burned motor vehicles to

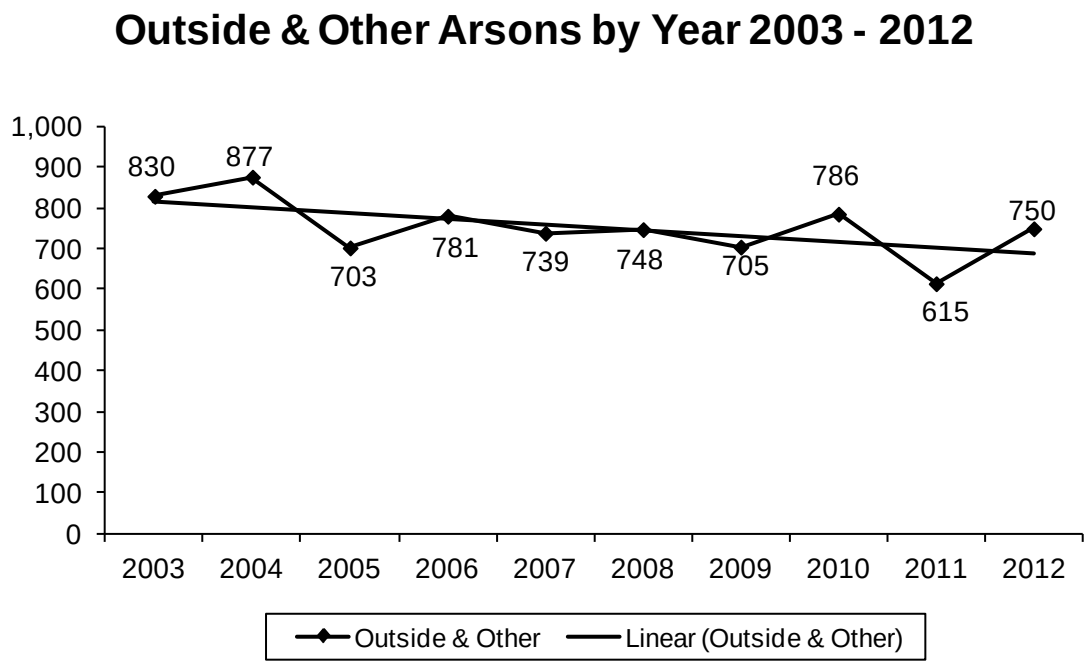
complete and sign a report that must also be signed by a fire official from the department in the community where the fire occurred. The graph below shows the effectiveness of this law. Motor vehicle arsons have declined 59% from 280 in 2003. Since the law took effect in 1987, motor vehicle arsons have decreased by 98% from 5,116 in 1987 to 114 in 2012.



Outside and Other Arson

750 Arsons – 3 Civilian Deaths & 8 Civilian Injuries
Seven hundred and fifty (750), or 9%, of the total outside and other fires were considered intentionally set in 2012. There were three civilian deaths in outside or other arsons in 2012. All three were successful attempts at self-immolation. The eight civilian injuries in outside and other arson fires accounted for 2% of the total civilian injuries and 21% of civilian injuries in all outside and other fires. The three fire service injuries accounted for 1% of all fire-related fire service injuries and 6% of all fire service injuries in outside in other fires. The estimated dollar loss for these arsons was $59,329. The average loss per outside and other arson was $79.

In 2012, 284 outside and other fires were still listed as *Cause Under Investigation*. There were also 2,222 outside and other fires where the *Cause of Ignition* was listed as *Undetermined*.



Outside & Other Arsons Rise

Outside and other arsons increased in 2012. These 750 arsons are an increase of 135, or 22%, from the 615 reported in 2011. Brush arsons increased by 88, or 29%; outside rubbish arsons decreased by seven, or 7%; special outside arsons increased by 47, or 37%; cultivated vegetation or crop arsons decreased by two, or 67%; and unclassified arsons decreased by nine, or 10%, from those reported in 2011.

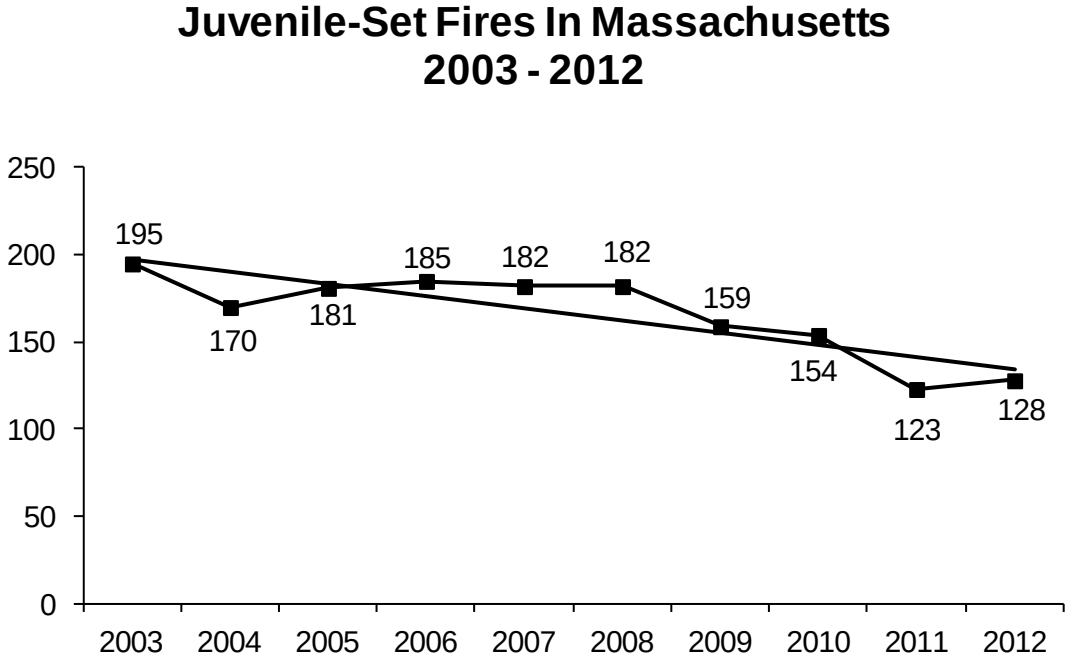
Hyannis Had Largest Loss Arsons in 2012

There were three arsons where the dollar loss was greater than $1 million in 2012. There were 30 arsons where the dollar loss was between $100,000 and $999,999.

- On March 5, 2012, at 12:10 p.m., the Hyannis Fire Department was called to an intentionally set fire at a fabric and craft store. One civilian was injured at this fire. There were no detectors present. The building was sprinklered and it actively suppressed the fire until the fire department arrived. Damages from this fire were estimated to be $1.5 million.

Juvenile-set Fires

Children Playing with Fire Caused 128 Fires, 4 Civilian Injuries & $2.1 Million
In 2012, children playing[46] with matches, lighters and other heat sources caused 128 reported fires, four civilian injuries, three fire service injuries and an estimated dollar loss of $2.1 million. The average dollar loss per fire was $16,549. These fires were up by 4% from 123 incidents in 2011. Over the past decade however, there has been an overall downward trend in reported juvenile-set fires.



65% of Juvenile Firesetters Were Male
The field *Motivation Risk Factors*[47] is an attempt to identify the possible motivation for the subject to burn, or attempt to burn, any real or personal property. In 2012, five of the juveniles had mild curiosity about fire and four youths had moderate curiosity about fire. The leading family type was the single-parent family followed by the two-parent family. When age was given, the majority of the subjects were between

[46] 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.

[47] Please note that the USFA determines the codes for the NFIRS. Discussing juvenile firesetting in terms of mild, moderate & extreme curiosity is out of step with today's way of looking at the behavior that looks at a range of motivations from curious, to crisis, to delinquent and in some cases, to pathological. We are constrained by the field code choices in this report.

four and 17 years old. When gender was completed, 65% of the children were listed as males.

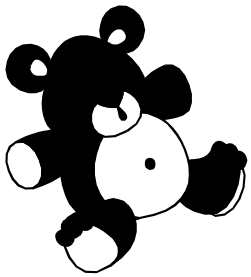
52 Structure Fires – 3 Motor Vehicle Fires – 73 Outside & Other Fires
The 128 fires set by children and youth included: 52 structure fires, 50 brush, tree or grass fires, seven outside rubbish fires, six special outside fires, three motor vehicle fires, and 10 fires that could not be classified further.

Juvenile-set Fires Cause 4 Civilian Injuries
Four (4) civilian injuries occurred in the 122 fires set by juveniles. All four civilian injuries were male. Three of the four people hurt were under the age of 18. One (1) was injured trying to extinguish the fire and two of the youths that were injured were involved in starting the fire.

40% of All Juvenile-set Building Fires Occur in 1- or 2-Family Homes
Forty percent (40%) of the 52 building fires caused by juveniles occurred in one or two-family homes; 33% occurred in multi-family homes; 8% occurred in high schools, junior high schools or middle schools. Thirty-three percent (33%) of the juvenile-set fires started in bedrooms; 10% began in bathrooms; and another 10% began in kitchens.

64% of Structure Fires Set by Juveniles Using Smoking Materials
Sixty-four percent (64%) of juvenile-set fires were started by smoking materials[48]. Thirty-seven percent (37%) of the structure fires set by children were started with lighters. Twenty-seven percent (27%) of the structure fires were started using matches. Heat from other open flames or smoking materials caused 7% of these fires. Unclassified hot or smoldering objects caused 4%; and hot embers or ashes and candles were each the heat source for 3% of juvenile-set fires in 2012. Unclassified heat from operating equipment, flames or torches used for lighting and fireworks were each the cause in 2% of the juvenile-set fires. Cigarettes, arcing, warning or road flares, flying brands, radiated or conducted heat from operating equipment, and an incendiary device each caused 1% 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.

Child with Lighter Sets Own Home & 2 Others on Fire in Boston
In 2012, there were eight juvenile-set fires that caused over a $100,000 in estimated damages.



- On July 23, 2012, at 12:39 p.m., the Boston Fire Department was called to a fire at a three-unit apartment building caused by a youth playing with a cigarette lighter. One (1) firefighter was injured at this fire. Smoke detectors were present and operated; and the building was not sprinklered. The fire spread to two adjacent buildings. Total damages were estimated to be $360,000. This was the largest loss juvenile-set fire in Massachusetts in 2012.

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

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

- Make sure that all matches and lighters are stored out of children's reach.
- Parents who smoke should keep their lighters on their person at all times, not on the table or in a purse.
- 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.*
- Supervise young children at all times. Teach children the safe uses of fire, including birthday candles and barbecuing. 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.
- 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 programs have found that only one in 10 juvenile-set fires are actually reported to the fire department.

Cooking Fires

Cooking Caused 11,736 Fires, 3 Civilian Deaths & 88 Civilian Injuries
Unattended cooking, other unsafe cooking practices and defective cooking equipment caused 11,763 fires, three civilian deaths, 88 civilian injuries, 29 firefighter injuries and an estimated dollar loss of $13.7 million. The average dollar loss per fire was $1,170. Cooking fires accounted for 38% of the total 31,229 fires that occurred in 2011.

The 11,736 fires included: 11,542 structure fires, 72 special outside fires, one brush fire, one outside rubbish fire, and 120 fires that could not be classified further. Ninety-eight percent (98%) of the fires caused by cooking occurred in structures.

Confined Cooking Fires Account for 35% of Total Fires
There were 11,041 cooking fires confined to a non-combustible container. These 11,041 fires represent 35% of the total 31,229 fires that occurred in Massachusetts in 2012. This

is the largest single cause of fires in Massachusetts. Confined cooking fires decreased by 2% from the 11,338 reported in 2011.

81% of Cooking Fires in Buildings Were Unintentional
In 918, or 81%, of the 1,133 cooking fires in building fires where the *Cause of Ignition* was reported, it was reported as unintentional. Six percent (6%) of these fires were the result of a failure of equipment or heat source. One percent (1%) of the reported cooking fires were classified as intentional. In 12% of cooking fires, the cause of ignition was undetermined. Ten thousand two hundred and forty-nine (10,249), or 87%, of all cooking fires were contained to non-combustible containers that did not require having a cause reported.[49]

Unattended Cooking Starts 8% – Stand by Your Pan!
Human error was responsible for the majority of cooking fires. Eight percent (8%) of cooking fires, where 'Factors Contributing to Ignition' was completed, were caused by unattended cooking; 4% were caused by combustibles left too close to the cooking equipment; another 4% was a failure to clean the cooking equipment; 3% were caused by the misuse of materials or products; 2% each started when the equipment was accidentally turned on or not turned off and 2% were caused by mechanical malfunctions or failures. Eighty-seven percent (87%) 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.

Cooking Was the Leading Cause of Injury in Fires in 2011
Cooking was the leading cause of injury in all types of fires in 2011. This is not surprising considering that more than two-thirds, or 69%, of residential fires start in the kitchen. Of the 88 cooking fire injuries, 60% of victims were male and 40% were female. One percent (1%) of victims were under age 10; 1% of the victims were between the ages of 10-14; 11% were 15-24; 18% were 25-34; 21% were 35-44; 15% were 45-54; 8% were 55-64; 11% were 65-74; 5% were 75-84; and 8% were over the age of 85. People aged 25 to 54 accounted for 54% of the people injured in cooking fires.

87% of Victims in Room or Area of Fire Origin
Of the 61 cooking fire injuries where location at ignition is known, 87% of the victims were injured in the room or area of fire origin. Fifty-one percent (51%) were intimately involved with the ignition; 36% of victims were in the room or space of fire origin but not involved; 5% were not in the area of origin but involved, most likely these are the people who initially left the cooking unattended; and 8% were not in the area of origin and not involved.

[49] 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 wants to.

62% of Cooking Injuries Occurred When Trying to Control Fire

Sixty-two percent (62%) of cooking injuries occurred when trying to control the fire. Of the 58 cooking fire injuries for which activity at time of injury was known, 62% of victims were attempting to control the fire; of the 36 victims injured while attempting to control the fire 58% were male. Five percent (5%) were sleeping at the time of injury; another 5% of the victims of cooking fire injuries were escaping; 2% were attempting to return to the vicinity of the fire before the fire, was under control; 1% were injured making a rescue attempt; and 22% of the victims activities were classified as 'Other'. This data has lead to our *Put A Lid On It* cooking safety campaign.

31% 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. Of the 70 cooking fire injuries where nature of injury was known, 29% suffered only from smoke inhalation; 13% suffered from burns and smoke inhalation; and 3% suffered from breathing difficulty or shortness of breath. Forty-three percent (43%) of victims suffered only from thermal burns; 10% received scald burns. A cut or laceration and an unclassified sickness were both the primary apparent symptom in 1% of cooking fire injuries.

3 Civilian Fire Deaths in 2011

While cooking is the leading cause of residential building fires, it is not the leading cause of fire deaths. There were only three civilian fire deaths attributed to cooking fires in 2012.

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 6% of Fires and 10% of Deaths

During 2012, 1,977, or 6%, of the 31,229 reported fire incidents were caused by the improper use or disposal of smoking materials. These 1,977 fires caused four, or 10%, of the 39 civilian deaths and four, or 14%, of the 29 structure fire deaths, 39 civilian injuries, 48 fire service injuries, and an estimated dollar loss of $19.3 million. The average dollar loss per fire was $9,794. The number of smoking fires increased by 764, or 63%, from 1,213 in 2011.

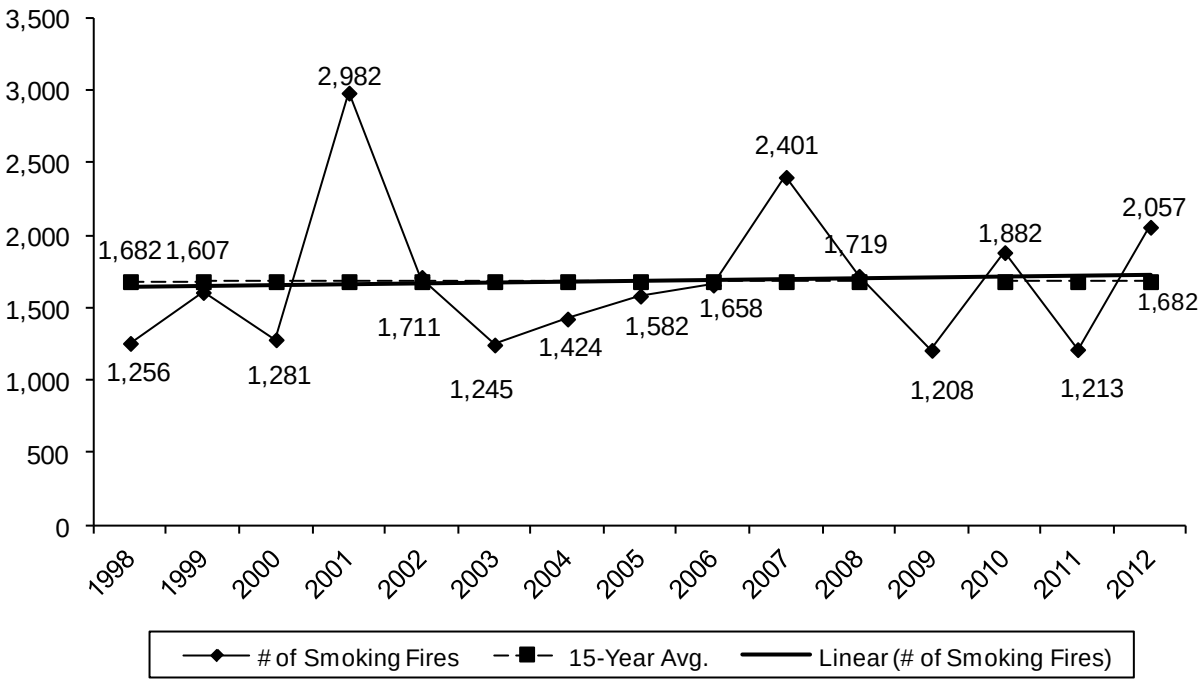
585 Structure Fires – Up 38% From 2011

The 1,977 fires caused by smoking included: 585 structure fires, up 162 from 423, or 38%, in 2011; 31 motor vehicle fires, up one from 30 in 2011; 1,065 tree, brush or grass fires, up 495 from 570 in 2011; 99 trash or rubbish fires, up 39 from 60 in 2011; 111 special outside fires, up 46 from 65 in 2011; 11 cultivated vegetation or crop fires, up six from five in 2011, and 75 fires that could not be classified further, up 15 from 60 in 2011.

Total Smoking Fires Up 63%

The total number of fires caused by smoking has increased by 764, or 63%, from 2011. The largest increase came in brush fires, with an increase of 495, or 87%, from the 570 reported in 2011. Structure fires also saw a significant increase in fires started by smoking materials. They increased by 162, or 38%, from the 423 reported in 2011.

Over the last 15-year period, smoking fires have had a slightly increasing trend. 2012 had the third highest number of reported smoking fires in the past 15 years. The 2009 number is the lowest number of recorded smoking fires on record since 1986 and is far below the 15-year average or 1,682 smoking fires. In 2012, the weather conditions were dry and made it easier for brush type fires to get started as we can see in the 87% increase statewide in brush fires. In 2007 and 2010 there were other sudden spikes in the number of smoking-related fires, predominantly outdoor brush fires caused by smoking materials.



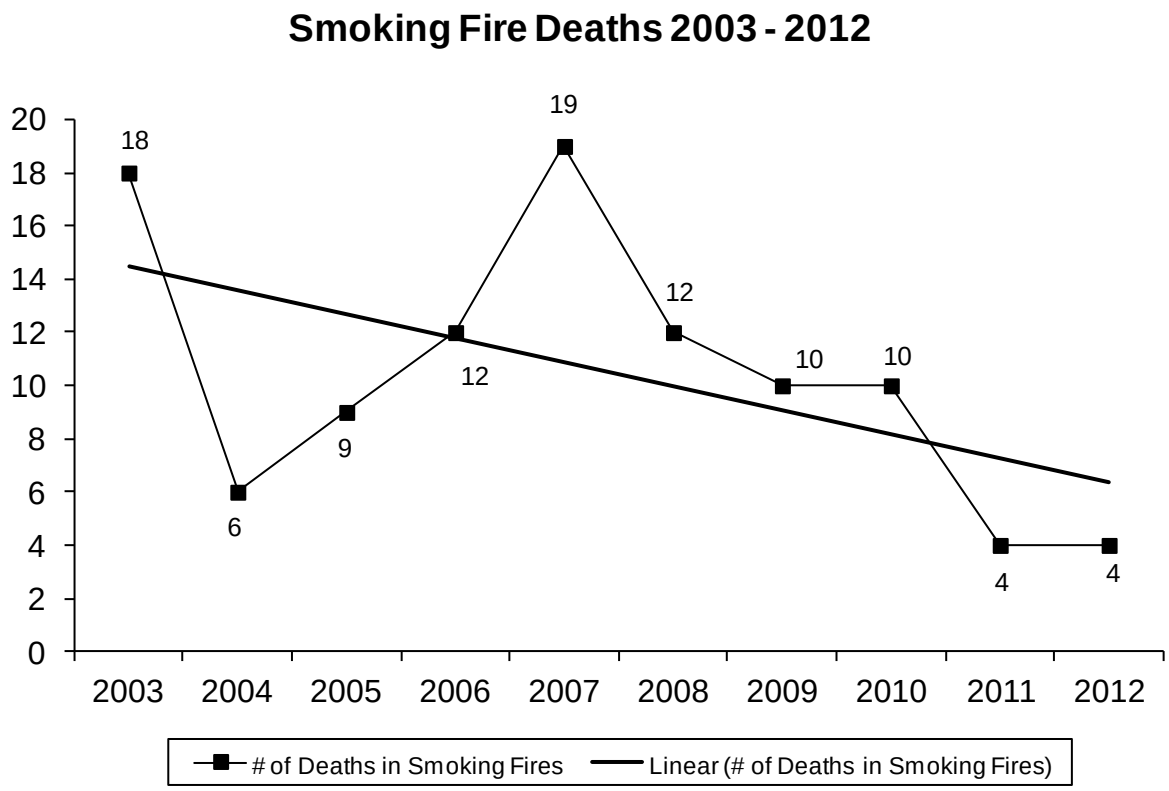
85% of All Smoking Building Fires Occurred in Residences
Eighty-five percent (85%) of all smoking-related building fires occurred in residential occupancies. The occupancies with the next highest percentages of smoking-related structure fires in Massachusetts in 2012 were businesses at 5%, storage facilities at 4% and public assembly facilities at 3%.

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.

Smoking Tied as Second Leading Cause of Fire Deaths - Elders at Risk
The 585 smoking-related structure fires caused all four of the smoking-related fire deaths, 37 civilian injuries, 45 fire service injuries, an estimated dollar loss of $18.9 million and an average dollar loss of $32,341. The unsafe and improper use of smoking materials caused 14% of residential structure fire deaths and 15% of fatal residential structure fires. One, or 8% of the 13 home fire deaths to seniors (over 65), were caused by smoking, compared with none in 2011 and 60% in 2010.

2012 Smoking Fire Deaths
In 2012, four people died in smoking-related fires of all types. These four deaths are 62% below the 10-year average of 10 smoking-related fire deaths per year since 2002. After a high-water mark of 18 deaths in 2003, smoking-related fire deaths dropped drastically, except for the sharp spike of 19 deaths in 2007. In 2004, six people died in smoking fires;

in 2005, nine people died; in 2006 and 2008, 12 people died in smoking-related fires of all types, and in 2009 and 2010 there were 10 smoking-related fire deaths. In 2011 there were four smoking-related fire deaths.



Working Detectors in 3 of 4 Fatal Smoking Fires
Three (3) of the four smoking fatal fires occurred in a structure where smoke detectors were present and operated. The other fire occurred in a building where the detector was present but it was undetermined if it operated. Three (3) of these victims were intimately involved with the ignition; and the other victim, while not in the area of origin when the fire began, was not involved in starting it. The smoke detectors helped prevent these fires from claiming any additional lives.

For a listing of all the smoking-related fire deaths in 2012, please refer to the *2012 Massachusetts Fire Deaths* section of this report.

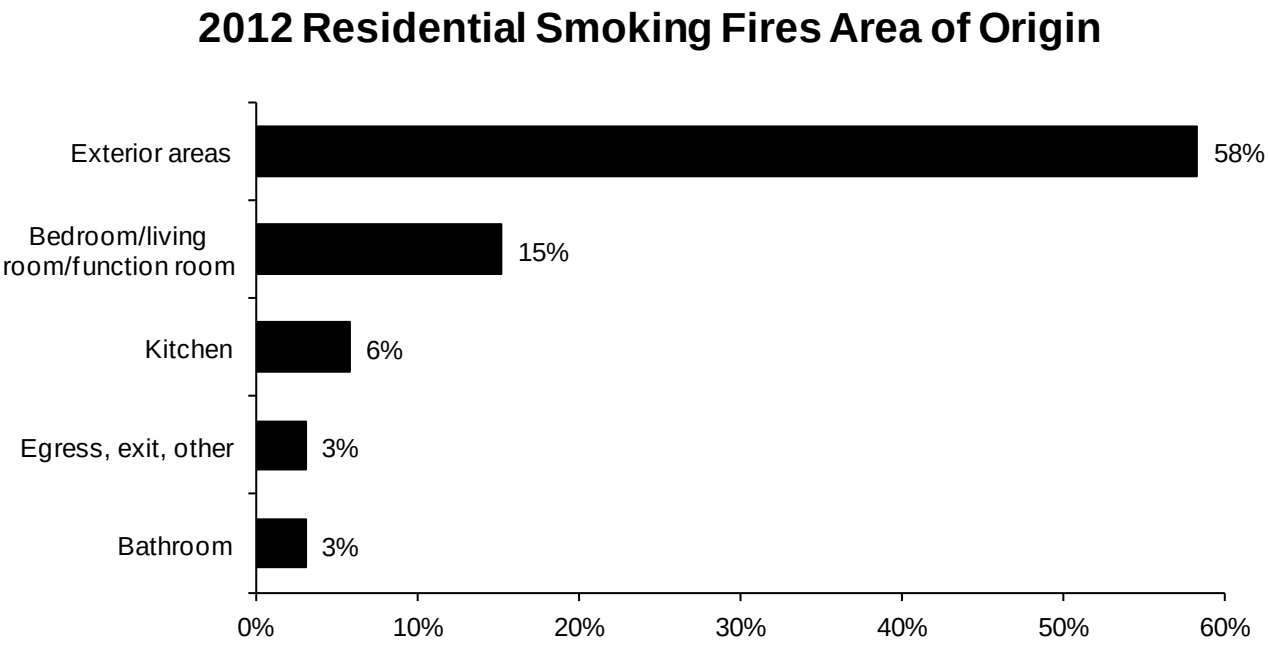
Smoking on Oxygen
The use of oxygen while smoking caused one of the smoking-related structure fire deaths in 2012. This death occurred in a fire in a Haverhill apartment building.

85% of Building Smoking Fires Occurred in Residences
Of the 571 smoking-related building fires, 487, or 85%, occurred in residences. Smoke detectors operated in 36% of the smoking-related residential structure fires. Detectors

were present but failed to operate in 4% of these incidents. No smoke detectors were present in 14% of these incidents. In 18%, the fire was too small to activate the smoke detector. It was undetermined if the detectors were present or if they operated in 29% of these fires.

Over 1/2 of Smoking Fires in the Home Start in the Exterior
It is interesting to note that over half (58%) of all residential smoking fires started outside the home, not inside. Historically the bedroom and living room are where most smoking fires have started. As more people smoke outside the home in areas like balconies, exterior stairways or enclosed porches, we see more smoking fires starting in these areas. The number of exterior areas of origin in residential smoking fires continued to increase in 2012. These exterior area of origins accounted for 284, or 58%, of all residential smoking fires. Twenty-three percent (23%) occurred on exterior balconies or porches; exterior stairways accounted for 9%; unclassified outside areas, exterior wall surfaces and courtyard, patio or terraces each accounted for 7%; and the remaining outside areas comprised 5% of the areas of origin for residential smoking fires in 2012.

Fifteen percent (15%) of residential smoking fires occurred in bedrooms, living rooms or function rooms; 8% occurred in bedrooms; 6% in living rooms and 1% in unclassified function rooms. Kitchens accounted for 6%, and egresses or exits and bathrooms each accounted for 3% of these 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, 2011, every state except Wyoming had implemented their own state law banning the sale of ordinary cigarettes, with Wyoming's law taking effect on July 1, 2011.

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 Rubbish, Bedding & Upholstered Furniture
The most common item first ignited by smoking fires in the home was rubbish, trash or waste, accounting for 12% of these smoking fires. Many more of these fires go unreported because of the confined indoor trash fires where the Fire Module does not have to be completed and therefore no causal information is collected. Also, the new fire standard cigarettes may have little or no impact on trash fires, as they are not designed to resist igniting these items. Eleven percent (11%) of smoking fires ignited upholstered furniture and bedding. Fire standard compliant cigarettes cannot prevent every cigarette from causing a fire, and not every smoking fire is caused by a cigarette.

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. In 2012, 6% of these fires ignited organic materials, 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 Detector at Home
While everyone needs at least one working smoke detector 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 a detector 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 detector's warning may enable a smoker to live long enough to quit.

Never Smoke Where Oxygen is in Use
No smoking should ever 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."[50]

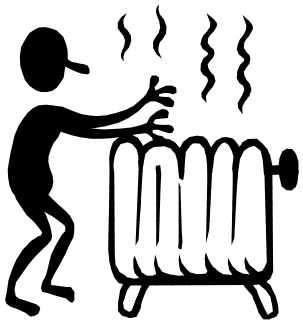
Oxygen can saturate clothing, rugs, upholstery, and facial hair increasing the fire danger even when the home oxygen system is "turned off".

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."

New Mulch Regulations 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 beneficial to note that FSC cigarettes were not designed to prevent igniting mulch-type materials.

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

Heating Equipment Fires



2,069 Fires, 1 Civilian Death & 13 Civilian Injuries
Massachusetts fire departments reported that some form of heating equipment was involved in 2,069, or 12%, of the 17,459 building fires in 2012. These heating equipment fires caused one civilian death, 13 civilian injuries, 23 fire service injuries, and an estimated dollar loss of $8.3 million. The average loss per fire was $4,010. This is a 13% decrease from the 2,381 fires reported in 2011.

89% of All Heating Fires Were Confined Fires
In 2012, 89% of heating fires were confined to the container of origin. One thousand and eighty-four (1,084), or 52%, of all heating related building fires in Massachusetts were coded as 'fuel burner/boiler malfunction, fire contained'. Seven hundred and forty-eight (748), or 36%, were determined to be chimney or flue fires, confined to the chimney or flue.

The number of contained heating fires fell in 2012. Confined heating equipment fires decreased by 398 incidents, or 18%, from the 2,230 reported in 2011.

The unseasonably warm winter of 2011 – 2012 most likely contributed to this decrease in confined heating fires and thus the decrease in overall heating fires in 2012.

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

Equipment	# of Fires	% of Heat Eq.	Injuries FF	Injuries Civ	Deaths FF	Deaths Civ	Dollar Loss
Central heating units	1,109	54%	15	4	0	1	$1,338,655
Confined	*1,084*	*52%*	*13*	*3*	*0*	*0*	*233,305*
Furnace, central heating unit	*19*	*1%*	*1*	*0*	*0*	*1*	*931,350*
Boiler (power, process, heating)	*6*	*0.3%*	*1*	*1*	*0*	*0*	*174,000*
Chimney, flue	780	38%	2	1	0	0	1,707,221
Confined	*748*	*36%*	*2*	*1*	*0*	*0*	*213,775*
Fireplace, chimney, other	*9*	*0.4%*	*0*	*0*	*0*	*0*	*209,500*
Chimney, brick, stone, masonry	*10*	*0.5%*	*0*	*0*	*0*	*0*	*700,200*
Chimney, metal, incl. stovepipe	*8*	*0.4%*	*0*	*0*	*0*	*0*	*432,146*
Chimney connector, vent connect.	*5*	*0.2%*	*0*	*0*	*0*	*0*	*151,600*
Fixed, local heating	64	3%	2	2	0	0	1,351,035
Stove, heating	*56*	*3%*	*1*	*2*	*0*	*0*	*936,935*
Furnace, local heat. unit, built-in	*8*	*0.4%*	*1*	*0*	*0*	*0*	*414,100*
Water heater	19	1%	0	3	0	0	583,101
Fireplace	16	1%	1	0	0	0	851,700
Fireplace, masonry	*8*	*0.4%*	*0*	*0*	*0*	*0*	*434,200*
Fireplace insert/stove	*5*	*0.2%*	*0*	*0*	*0*	*0*	*102,500*
Fireplace factory built	*3*	*0.1%*	*1*	*0*	*0*	*0*	*315,000*
Space heaters	26	1%	1	2	0	0	1,010,020
Portable space heaters	*15*	*1%*	*1*	*1*	*0*	*0*	*597,820*
Heating, vent. & air cond., other	46	2%	2	1	0	0	1,294,100
All other reported equipment	9	0.4%	0	0	0	0	160,380
Total	**2,069**	**100%**	**23**	**13**	**0**	**1**	**$8,296,212**

Central Heating Units

1,109 Fires, 1 Civilian Death & 15 Fire Service Injuries

Central heating units[51] were involved in 1,109 structure fires in 2012. These fires caused one civilian death, four civilian injuries, 15 fire service injuries, and an estimated dollar loss of $1.3 million. The average loss per fire was $1,207. This is a 34% decrease from the 1,481 fires reported the previous year. One thousand and eighty-four (1,084) of these fires involving central heating units were confined fires.

7% Caused by Automatic Control Failures

Of the 140 central heating unit fires where *Factors Contributing to Ignition* was completed, 7% were caused by automatic control failures; 4% were caused by mechanical failures or malfunctions; 3% of these fires were caused by combustibles

[51] These include all structure fires with Equipment Involved = 132: Furnace & 133: Boiler, central heating unit. And all Incident Type = 116 Fuel burner/boiler malfunction, fire confined that did not complete a Fire Module.

being placed too close to the heating unit; 2% were caused by backfires; and 2% were caused by unclassified operational deficiencies.

Forty-six (46), or 45%, of the 102 central heating unit fires where the power source was known were caused by liquid-fueled equipment. These fires caused one fire service injury and an estimated dollar loss of $338,950. The average loss per fire was $7,368.

Thirty-five (35), or 34%, of these fires were caused by electrically powered equipment[52]. These 35 fires caused one civilian death, one civilian injury and $256,600 in estimated damages. Eighteen (18), or 18%, of the central heating unit fires were caused by gas-fueled equipment causing one fire service injury and $308,650 in estimated damages. Three (3), or 3%, were caused by solid-fueled equipment causing $100,000 in estimated damages.

Furnaces Should Be Cleaned and Checked Annually

- Homeowners should have furnaces cleaned and checked annually to ensure that they are working well.
- Combustible materials such as trash or supplies should never be stored near heating equipment.
- Keep a 3-foot clear space around the furnace.
- Only licensed trades people may install oil, gas, or electric heating units.
- Regulations about oil burners may be found in 527 CMR 4.

Chimney Fires

780 Fires Caused 1 Civilian Injuries & $1.7 Million in Damages

Seven hundred and eighty (780) building fires involved chimneys[53], gas vent flues, chimney connectors or vent connectors. These 780 fires caused one civilian injury, two fire service injuries and an estimated dollar loss of $1.7 million. The average dollar loss per fire was $2,189. This is a 7% decrease from the 836 fires reported the previous year.

Seven hundred and forty-eight (748) of these chimney or flue fires were confined to the chimney or flue. In 667 of these fires the *Equipment Involved in Ignition* wasn't reported or they were reported using only a Basic Module.

Twenty percent (20%) of the 188 fires where *Factors Contributing to Ignition* was reported, were caused by a failure to clean the creosote buildup. Four (4%) were caused when combustibles were too close to the chimney or flue. Three percent (3%) each were

[52] Version 5 has a data field called Equipment Power Source that describes the power source of the equipment involved in ignition.

[53] These include all incidents with an Incident Type = 114: Chimney or flue fire, confined to the chimney or flue, and all other structure fires with Equipment Involved = 120 or between 125 and 127.

caused by unclassified operational deficiencies, leaks or breaks and construction deficiencies.

Have Chimneys Cleaned Annually

- Chimneys should be cleaned at the start of each heating season and checked monthly for soot build-up.
- Remove creosote. It is a black, tar-like by-product of fire. It can accumulate in a chimney and cause a fire.
- Chimneys 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.

Fixed Heater Fires

64 Fires, 2 Civilian Injuries & $1.4 in Estimated Losses

Sixty-four (64) fixed heater structure fires caused two civilian injuries, two fire service injuries and an estimated dollar loss of $1.4 million. The average dollar loss per fire was $21,110. This is a 12% increase from the 57 fires reported the previous year.

Fixed heaters include stationary local units such as wood stoves and in-room gas heaters. A central heating unit heats the entire building or apartment, whereas a fixed local heating unit is set in a specific room to heat just that room or immediate area.

16% Caused by Being Left Unattended

Sixteen percent (16%) of fixed heater fires were caused by the equipment being left unattended. Combustibles being too close to the heat source caused 9% of these fires. Unclassified mechanical failures caused 5% of these fires; and installation deficiencies caused 3% of the fixed heater fires in 2012.

Twenty-five (25), or 40%, were caused by gas-fueled fixed heaters and they were responsible for one civilian injury, one fire service injury and a dollar loss of $582,350. Electrical powered fixed heaters caused 22, or 35%, of these fires and were responsible for one civilian injury, one fire service injury and a dollar loss of $287,175. Sixteen (16), or 25%, of fixed heater fire incidents in 2012 involved solid fueled fixed heaters, 15 of which were wood fueled. These fires caused an estimated dollar loss of $481,510.

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 detectors.
- 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.

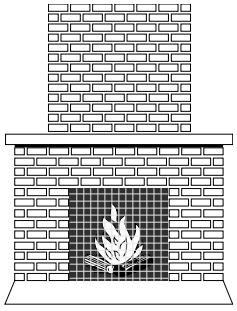
Fires Caused by Hot Water Heaters

19 Fires Caused 3 Civilian Injuries & $583,101 in Damages
Nineteen (19) structure fires were caused by hot water heaters[54] in 2012. These 19 fires caused three civilian injuries and an estimated dollar loss of $583,101. The average dollar loss per fire was $30,690. This is an increase of six or 46% from the previous year. Combustibles being placed too close to the water heater and leaks or breaks each caused 16% of these fires; and unclassified electrical failures and mechanical failures each caused 11%. Arcing started 32% of water heater fires. Twenty-six percent (26%) were started by sparks, embers or flames from the water heater; 21% were started by the water heater itself; and 16% were started by radiated or conducted heat from the water heater.

Sixty-three percent (63%) were identified as gas fueled water heaters and 37% were identified as electric powered water heaters.

Fires Caused by Fireplaces

16 Fires, 1 Civilian Injury & 851,700 in Damages
Sixteen (16) fireplaces[55] were involved in Massachusetts structure fires in 2012. These 16 fires caused one civilian injury and an estimated dollar loss of $851,700. The average dollar loss per fire was $53,231. This is a 6% decrease from the 17 fires reported the previous year.



[54] These include all structure fires with Equipment Involved = 151: Water Heater.
[55] These include all structure fires with Equipment Involved = Between 121 and 123.

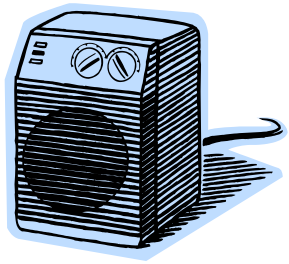
Thirteen percent (13%) were caused by construction deficiencies and another 13% by leaks or break in the fireplace.

Fourteen (14), or 88%, of fireplaces involved in fires were solid-fueled. Two (2), or 13%, of these fireplaces were gas fueled.

Space Heater Fires

26 Fires, 2 Civilian Injuries & $1 Million in Damages
Space heaters of all kinds accounted for 26 fires and caused two civilian injuries, one fire service injury, and an estimated dollar loss of $1 million. The average dollar loss per fire was $38,847. This is a 44% increase from the 18 fires reported the previous year.

Portable Space Heater Fires



15 Fires, 1 Civilian Injury, 1 Fire Service Injury & $597,820 in Losses
Fifteen (15) portable space heater[56] fires caused one civilian injury, one fire service injury and an estimated dollar loss of $597,820. The average dollar loss per fire was $39,855. This is a 25% increase from the 12 fires reported the previous year. The heater being too close to combustibles caused 33% of the space heater fires in 2012.

Fourteen (14), or 93%, of the portable heaters involved in fires were electric; and one, or 7%, was a gas fueled space heater.

History has taught us that the larger heating fire problem is from portable space heater fires. Though not many in number, they usually result in a high number of deaths. During the past five years (2008– 2012), there have been 59 reported residential fires started by portable space heaters with three civilian deaths, 11 civilian injuries, 10 fire service injuries and $3 million in estimated losses resulting from these fires. That is equal to one fire death for every 20 space heater fires.

If you must use a space heater for heat, use it as safely as possible.

- When buying a heater, look for one that has been tested and labeled by a nationally recognized testing company.
- Keep the heater 3 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.

[56] These include all structure fires with Equipment Involved = Between 141 and 143; and Equipment Portability = 1: Portable

- 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.
- 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 3 feet away from any combustibles including walls and wall coverings.

According to MGL Chapter 148, Section 5A, 25A and 25B, the sale and use of liquid-fired unvented space heaters using kerosene, range oil, number one fuel oil, or any oil as fuel are illegal in Massachusetts. The use of unvented space heaters using natural gas or propane gas as fuel is acceptable only if they meet the requirements of 780 CMR 30.00.

Fires Caused by HVAC, Other

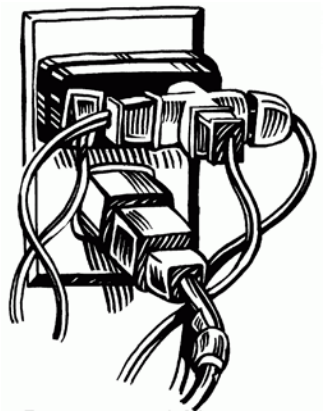
46 Fires 2 Fire Service Injuries & $1.3 Million in Damages
Forty-six (46) structure fires were caused by unclassified heating, ventilation and air conditioning equipment (HVAC, other)[57] in 2012. These 46 fires caused one civilian injury, two fire service injuries and an estimated dollar loss of $1.3 million. The average dollar loss per fire was $28,133. This is a 21% decrease from the 38 fires reported the previous year.

Combustibles placed too close to the equipment and unclassified electrical failures were each responsible for 6% of these fires in 2012.

Sixty-seven percent (67%) of the 32 fires involving unclassified heating, ventilating or air conditioning equipment were identified as electric powered. Twenty-four percent (24%) were identified as gas-fueled equipment; 7% were powered by solid fuels; and 2% were identified as liquid-fueled equipment.

[57] These include all structure fires with Equipment Involved = 100: Heating, ventilating & air conditioning, other.

Electrical Fires



666 Electrical Fires Caused 4 Civilian Deaths
Local fire departments reported that there were 666 structure fires caused by electrical problems in Massachusetts in 2012. These fires caused four civilian deaths, 21 civilian injuries, 53 fire service injuries and an estimated dollar loss of $53.2 million, accounting for 21% of the total dollar loss to fire in 2012[58]. The average loss per fire was $79,852.

Electrical Fires Were Tied for the 2nd Leading Cause of Fire Deaths
Electrical fires were tied for the second leading cause of structure fire deaths in 2012. Four (4) fatal electrical fires, or 15%, of fatal structure fires caused four, or 14%, of structure fire deaths in 2012. In 2011 electrical fires were the leading cause of fire deaths, causing 14, or 33%, of the structure fire deaths.

The criteria to qualify for an electrical equipment fire includes all fires caused by electrical problems or malfunctions. Specifically, it is to have *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 Over 1/4 of Electrical Fires[59]
Over one-quarter of electrical fires were caused by unspecified electrical failure. One hundred and eighty-eight (188), or 28% of electrical fires, were caused by an unclassified electrical failure or malfunction. One hundred and two (102), or 15%, were caused by an unspecified short circuit arc. Seven percent (7%), or 45, of these fires had a short circuit arc from defective or worn insulation. The heat source being too close to combustibles caused 27, or 4%, of these fires Twenty-six (26), or 4%, of electrical fires were caused by an arc from a faulty contact or broken conductor. Three percent (3%), or 19, of these fires were caused by overloaded equipment. An arc or spark from operating equipment caused 18, or 3%, of these fires. Mechanical failures caused 16, or 2%, of these electrical fires. Ten (10), or 2%, of electrical fires were caused by a short circuit arc from mechanical damage in 2012.

[58] On March 13, 2012 there was a fire in a Boston electrical distribution building that caused $22 million in estimated damages.

[59] *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%.

Electrical Equipment Fires

Six hundred and four (604), or 91%, of the 666 electrical fires reported the type of equipment involved in ignition. These 604 fires caused three civilian deaths, 20 civilian injuries, 46 fire service injuries and an estimated dollar loss of $47.4 million. The average dollar loss per fire was $78,522.

231 Electrical Service, Wiring, Meter Boxes & Circuit Breaker Fires
The most common reported equipment involved in the ignition of electrical fires were electrical service, outside utility wires, branch circuits consisting of wiring inside a building, meter boxes, electrical panels and circuit breakers, accounting for 231, or 38%, of the fires. These fires caused two civilian deaths, 12 civilian injuries, 18 fire service injuries and an estimated dollar loss of $10.3 million. The average dollar loss per electrical wiring fire was $44,581.

Lamp, Lighting Fixtures Involved in 68 Fires
Lamps and other lighting fixtures were involved in 68, or 11%, of electrical equipment fires where equipment involved in ignition was reported. These fires caused two civilian deaths, nine fire service injuries and an estimated dollar loss of $3.4. The average loss per fire was $50,349.

64 Fires Involving Kitchen & Cooking Equipment
Sixty-four (64) electrical equipment fires involving kitchen or cooking equipment caused an estimated dollar loss of $1.1 million. These fires accounted for 9% of the structure fires involving electrical equipment when equipment involved in ignition was reported. The average dollar loss per fire was $13,755.

Household Appliances (Non-Cooking) Caused 55 Fires
Non-cooking household appliances such as clothes dryers, washing machines and trash compactors caused 55, or 7%, of the 604 electrical structure fires where equipment involved in ignition was reported. These 55 fires caused one civilian injury and an estimated $756,527 in damages. The average dollar loss was $18,124.

Ventilation & Air Conditioners Caused 42 Fires
Forty-two (42), or 6%, of the structure fires involving known electrical equipment were caused by air conditioning or ventilation units. These fires caused two civilian injuries, seven fire service injuries and an estimated dollar loss of $761,200. The average dollar loss per fire was $18,124.

Cords or Plugs Caused 35 Fires
Thirty-five (35), or 6%, of the structure fires where electrical equipment was involved were caused by cords or plugs. These fires caused one civilian death, two civilian injuries, seven fire service injuries and an estimated dollar loss of $2.3 million. The average dollar loss per fire was $66,674.

Transformer, Generator, Battery or Chargers Caused 35 Fires
Transformers, generators, batteries or chargers were involved in 35, or 6%, of the electrical fires where equipment involved in ignition was reported. These fires caused one civilian injury, one fire service injury and an estimated dollar loss of $24.3 million. The average loss per fire was $693,060.

Heating Equipment Caused 32 Fires
Thirty-two (32), or 5%, of the structure fires involving known electrical equipment were caused by various types of heating equipment. These electrical fires involving heating equipment caused one civilian injury and an estimated dollar loss of $1.1 million. The average dollar loss per fire was $35,070.

17 Fires Involving Unspecified Electrical Distribution Equipment
Seventeen (17) electrical equipment fires involving unspecified electrical distribution equipment caused an estimated dollar loss of $2.1 million. These fires accounted for 3% of the building fires involving reported electrical equipment. The average dollar loss per fire was $126,029.

12 Fires Involving Electronic & Other Electrical Equipment
Twelve (12) electrical equipment fires involving electronic and other electrical equipment caused three fire service injuries and an estimated dollar loss of $726,525. These fires accounted for 2% of the structure fires involving reported electrical equipment. The average dollar loss per fire was $60,544.

7 Fires Involving Decorative Lighting & Signs
Seven (7) electrical fires involving decorative or landscaping lights or electric signs caused an estimated dollar loss of $279,800. These fires accounted for 1% of the structure fires involving electrical equipment. The average dollar loss per fire was $39,971.

4 Fires Involving Shop Tools & Industrial Equipment
Four (4) electrical fires involving shop tools or industrial equipment caused an estimated dollar loss of $235,500. These fires accounted for 1% of the structure fires involving electrical equipment. The average dollar loss per fire was $58,875.

2 Fires Involving Commercial & Medical Equipment
Two (2) electrical fires involving commercial or medical equipment caused an estimated dollar loss of $35,000. These fires accounted for less than 1% of the structure fires involving electrical equipment. The average dollar loss per fire was $17,500.

62 Unspecified Electrical Equipment Fires Caused 1 Civilian Death
There were 62 electrical fires where the piece of equipment involved in ignition was unknown or not reported. These 62 fires caused one civilian death, five civilian injuries, seven fire service injuries and an estimated dollar loss of $5.8 million. The average dollar loss per fire was $92,802.

Large Loss Electrical Fire

There were six large loss ($1 million+) electrical fires in 2012. These fires caused an estimated $28.9 million in damages, accounting for 54% of the total dollar loss from electrical structure fires in 2012. There were also 87 fires with estimated damages between $100,000 and $999,999.

- On March 13, 2012, at 6:30 p.m., the Boston Fire Department was called to an electrical fire in a six-story electrical distribution building at 40 Dalton St. A partial automated extinguishing system was present, but it was not reported how it operated. The fire originated on the first floor in an electrical transformer. The fire caused a large area of Boston to be under black out conditions and the Hilton and Sheraton Hotels had to be evacuated. There were no injuries associated with this fire and damages were estimated to be $22 million.

Electrical Fire with Most Fire Service Injuries

- On July 26, 2012, at 9:10 p.m., the Charlton Fire Department was called to an electrical fire in an industrial warehouse. The fire was caused by gasoline being placed too close to a halogen shop light. Six (6) firefighters were injured at this fire. All six injuries were severe enough for transport to a local hospital. It was undetermined if detectors were present. Sprinklers were present but not enough water was discharged to effectively suppress the fire. Damages from this fire were estimated to be $2 million.

- On November 19, 2012, at 3:27 a.m., the Chelsea Fire Department was called to an electrical fire in a single-family home. The fire was caused by an electrical malfunction in a portable fan in a bedroom. The lone occupant of the building and six firefighters were injured at this fire. None of the six injuries was severe enough for transport to a local hospital. Detectors were present but failed to operate. Sprinklers were not present. Damages from this fire were estimated to be $150,000.

Over 3/4 of Electrical Fires Occurred in Residential Occupancies

Over three-quarters of electrical fires occurred in residential occupancies. Of the 666 electrical fires, 520, or 78%, occurred in residential occupancies. Sixty-two (62), or 9%, occurred in mercantile or business properties such as offices, banks, retail stores or markets. Public assembly buildings like restaurants, libraries and courthouses accounted for 25, or 4%, of these fires. Storage properties accounted for 18, or 3%, of these fires. Institutional buildings such as hospitals and asylums had 13, or 2%, of the electrical fires occur on their premises. Educational properties accounted for 13, or 2%, of Massachusetts' electrical fires in 2012. Manufacturing or processing facilities had seven, or 1%, of these incidents. Four (4), or 1%, of Massachusetts' electrical fires occurred in basic industry properties such as laboratories, communications centers, electrical distribution sites and utility and distribution centers. Three (3), or less than 1%, of electrical fires occurred in special or outside properties.

16% of Electrical Fires Began in Concealed Spaces

One hundred and nine (109), or 18%, of electrical fires began in concealed spaces; 6% started in the ceiling and floor assembly or crawl space between stories; 6% started in a

wall assembly or concealed wall space; and 4% began in substructure areas or crawl spaces. Ninety-five (95), or 14%, originated in the kitchen. Eighty-seven (87), or 13%, of the 666 electrical fires occurred in the bedroom or living room; 8% began in the bedroom and 5% started in the living room. The bathroom accounted for 6%, or 37, of the electrical fires in Massachusetts in 2012.

Electrical Wiring Was the Item First Ignited in 1/3 of Electrical Fires
Electrical wiring or cable insulation was the item first ignited in one-third of electrical fires. In 222, or 33%, of electrical fires, electrical wiring or cable insulation was the item first ignited. This includes fixed wiring, wiring inside electronic items, extension cords and appliance cords. In 66, or 10% of these fires, a structural member or framing, was the first item ignited. Appliance housings or casings were involved in 39, or 6%, of these fires. Exterior sidewall coverings was the item first ignited in 27, or 4%, of electrical fires in 2012. Interior ceiling coverings and thermal or acoustical insulation within a wall, partition or ceiling were each the item first ignited in 20, or 3% of electrical fires in 2012.

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.

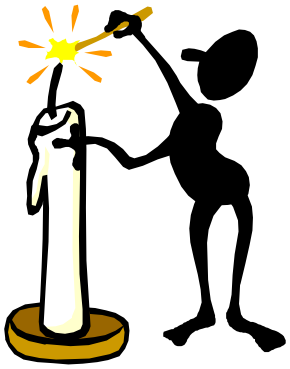
Fuses and circuit breakers are safety devices. They blow or trip when the amount of current cannot safely travel through the wires, which is why frequent blowing or tripping is a warning sign. **Trying to bypass the fuse or circuit breaker protection is an invitation to danger.**

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

126 Candle Fires Caused 7 Civilian Injuries
In 2012, candles caused 126 fires of all types. These fires caused seven civilian injuries, eight firefighter injuries and an estimated dollar loss of $4 million in damages. There was a 9% increase from the 116 fires of all types started by candles in Massachusetts in 2011.



80% of Candle Fires are Structure Fires
Of the 126 candles fires in 2012, 101, or 80%, were classified as structure fires. None were reported as motor vehicle fires. Two (2), or 2%; were brush fires, one, or 1%, was an outside rubbish fire; one, or 1%, was a special outside fire; and 21, or 17%, were unclassified fires.

Candle Fires Happen Most During the Holidays
Between 2008 and 2012, the days of the year on which most candle fires occurred were:

1. December 14 - nine candle fires;
2. December 19 and 25 (Christmas) - eight candle fires
3. December 31 (New Year's Eve) - seven candle fires.
4. December 24 (Christmas Eve), December 12 and 30, October 31 (Halloween) and March 7 - six candle fires.

Gardner Has Largest Loss Candle Fire
On December 19, 2012, at 2:22 p.m., the Gardner Fire Department was called to a candle fire in a 175-unit apartment building. The fire started when a candle ignited the bedding in a fourth floor bedroom. No one was injured at this fire. Smoke detectors were present and operated. The building was not sprinklered. Damages were estimated to be $980,000.

93% of Candle Fires Occurred in Homes
Of the 100 candle fires that occurred in buildings, 93% were residential fires that caused seven civilian injuries, eight firefighter injuries and an estimated dollar loss of $4 million. Three (3) candle fires, or 3%, occurred in a public assembly properties; and two candle fires, or 2%, occurred in educational facilities. One percent (1%), or one candle fire each occurred in mercantile and business properties and storage facilities.

Over 1/3 of Candle Fires in Homes Occurred in the Bedroom
Of the 93 candle fires in residential structures, 34% occurred in the bedroom. Twenty-two percent (22%) occurred in the living room; 12% occurred in the kitchen; 9% started in the bathroom; and 6% began in bar areas. It is all too easy to fall asleep and leave a candle burning unattended in the bedroom.

Smoke Detectors Operated in 60% of Candle Fires in Homes
Of the 93 candle fires in homes, smoke alarms operated in 60% of these fires. Smoke detectors were present but did not operate in 7% of these incidents. No detectors were

present in 16% of candle fires in people's homes. Six percent (6%) of the candle fires were too small to activate the smoke detector. In 10 incidents, or 11%, the smoke detector status was undetermined.

If you are going to be burning candles with an open flame in your home make sure that your smoke detectors are working properly.

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.
- Consider switching to battery operated candles.

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

Clothes Dryer Fires

Dryer Fires Cause 7 Civilian Injuries & $3.5 Million in Damages
One hundred and fifty-four (154) clothes dryer fires caused seven civilian injuries, seven fire service injuries and an estimated dollar loss of $3.5 million. The average dollar loss per fire was $22,813. Of these 154 fires, 121, or 79%, occurred in residential occupancies.

Thirty-three percent (33%) of the dryer fires were caused by a failure to clean the machines; 10% were caused by mechanical failures or

malfunctions; and another 10% were caused by electrical failures or malfunctions.

71% of Dryers Were Electrical
Seventy-one percent (71%) of the 154 dryers involved in fires were identified as having electricity as their power source. Twenty-eight percent (28%) involved gas-fueled clothes dryers. This may be a reflection of the market share of electrical and gas-powered dryers rather than any inherent danger of one power source over another.

Forty percent (40%) of dryer fires identified the heat source as heat coming from the dryer itself but could not be any more specific. Thirty-one percent (31%) of clothes dryer fires identified the heat source as radiated or conducted heat from equipment inside the dryer itself; and 7% identified the heat source as arcing.

54% of Clothes Dryer Fires Occurred in 1- & 2-Family Homes
Fifty-four percent (54%) of the dryer fires occurred in one- and two-family homes; 18% occurred in mercantile or business properties such as laundry or dry cleaning businesses; 17% occurred in apartments; 4% occurred in hotels and motels; 2% occurred in public assembly facilities; 1% happened in residential board and care facilities; 1% occurred in dormitories; 1% happened in rooming houses; 1% occurred in institutional properties such as nursing homes, hospitals and jails; 1% happened in unclassified residential properties; and 1% occurred at manufacturing and processing facilities.

Clean the Lint Filter After Every Load
The public should be reminded to clean the dryer filter screen after each load of laundry, to clean the outside vents twice a year and to occasionally vacuum the motor area of the dryer. If materials such as cooking oil, solvents and other combustible or flammable liquids were not removed completely during the laundry cycle, heat from the dryer may cause them to ignite. This is the reason that mop heads should not be put into the dryer. An adult should be at home whenever the dryer is in use and the home should have working smoke alarms.

- Remember to keep dryer vents clear during heavy snowstorms to prevent the risk of carbon monoxide poisoning.

Falmouth Has Largest Loss Clothes Dryer Fire
- On February 21, 2012, at 2:54 p.m., the Falmouth Fire Department was called to a dryer fire at a local laundromat. The fire began in an electric-powered clothes dryer on the first floor. Two firefighters were injured at this fire. Detectors were not present and there were no sprinklers in the building. Damages from this fire were estimated to be $1.5 million.

Fireworks Incidents

73 Incidents Involving Fireworks Caused 1 Civilian Injury
There were 73 fire and explosion incidents reported that involved fireworks in 2012. This is a 4% decrease from the 76 fire and explosion incidents reported in 2011. Incidents involving fireworks caused one civilian injury and an estimated $58,700 in property damages. The average dollar loss per fireworks incident was $1,631.

Thirty-six (36) of these incidents were fires caused by fireworks Fifty-six percent (56%) of the fireworks incidents were brush fires, while 20% were structure fires.

A fireworks explosion without fire is coded as an Incident Type 243 – Fireworks explosion (no fires). In 2012, 37 such incidents were reported.

39% of Fireworks Fires Occurred the Week of July 4th
Fourteen (14), or 39%, of the 36 fireworks-caused fires in 2012 took place during the week of the 4th of July.

Largest Loss Fireworks Fire –Brockton House Fire

- On July 4, 2012, at 12:05 a.m., the Brockton Fire Department was dispatched to a fire at a three-unit apartment building. The fire was caused by fireworks landing on top of the roof. No one was injured in this fire. Detectors were present and operated. The building was not sprinklered and damages were estimated at $35,000.

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 — 2012 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 eight fireworks-related burn injuries reported to M-BIRS in 2012. These eight victims were between 7 months and 58-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

90 Incidents Involving Grills in 2012 Caused $1.3 Million in Damages
In 2012, there were 90 fires and explosion incidents reported to the Massachusetts Fire Incident Reporting System (MFIRS) involving open fired grills. These incidents caused six civilian injuries and an estimated dollar loss of $1.3 million. This is a 131% increase from the 39 grill fires in 2011.

Predictably more than two-thirds, or 71%, 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 90 grill incidents, 86, or 96%, of the grills were gas grills and three, or 3%, were electrically powered. Solid fuels such as charcoal briquettes powered one grill, or 1% of these fires. The 86 gas grill incidents caused $1.3 million, or 99.5% of the total damages.

It is illegal to have LP-gas on balconies or porches above the first floor. 527 Code of Massachusetts Regulations (Massachusetts Comprehensive Fire Safety Code) 6.07(5a) states, "…Storage or use of LP-Gas containers above the first floor of a building used for habitation is prohibited…" The reason for this is that LP-gas is heavier than air and will sink. A spark from below could ignite gas that has leaked.

Boston Had Largest Loss Grill Fire
Four (4) incidents caused $1.26 million, or 97% of the total damages caused by grill fires in 2012.

- On August 9, 2012, at 7:58 p.m., the Boston Fire Department was called to a grill fire on the roof of a three-story apartment building. The fire from the unattended gas grill extended to the decking and then the roof of the building. No one was injured in this fire. Detectors were present and alerted the occupants of the building. The building was not sprinklered and damages from the blaze were estimated to be $500,000.

- On April 10, 2012, at 7:15 p.m., the Uxbridge Fire Department was called to a grill fire at a single-family home. The grill was on the back porch but was too close to the exterior wall of the home. The heat from the grill ignited the exterior wall and the fire spread to the attic. No one was injured at this fire. Detectors were present and alerted the occupants. The building was not sprinklered. Damages from the blaze were estimated to be $475,000.

- On May 7, 2012, at 5:13 p.m., the Methuen Fire Department was called to a grill fire at a single-family home. The fire started on the back deck. It is believed that a mechanical malfunction caused the heat from the grill to ignite the exterior wall of the

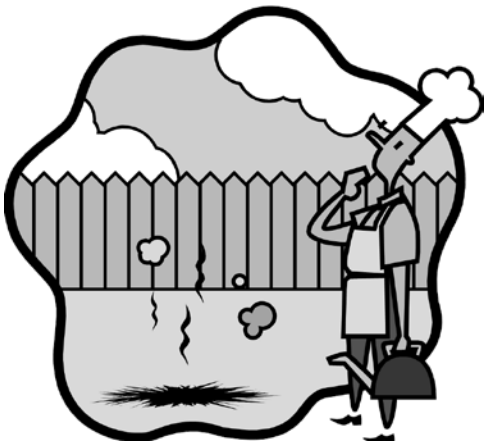
home. No one was injured at this fire. It was undetermined if detectors were present and the building was not sprinklered. Damages from the blaze were estimated to be $200,000.

- On May 15, 2012, at 4:42 p.m., the Rockland Fire Department was called to a grill fire at a two-family home. The grill was on the back porch close to the exterior wall of the home. The heat from the grill ignited the exterior wall and the fire spread to the attic. No one was injured at this fire. Detectors were present and alerted the occupants. The building was not sprinklered. Damages from the blaze were estimated to be $85,000.

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 — 2012 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. Six (6) civilians, including a two-year old and a four-year old, were reported to M-BIRS in 2012 with burn injuries from a grill. Three (3) burns occurred in July; and one each in May, June and September.

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

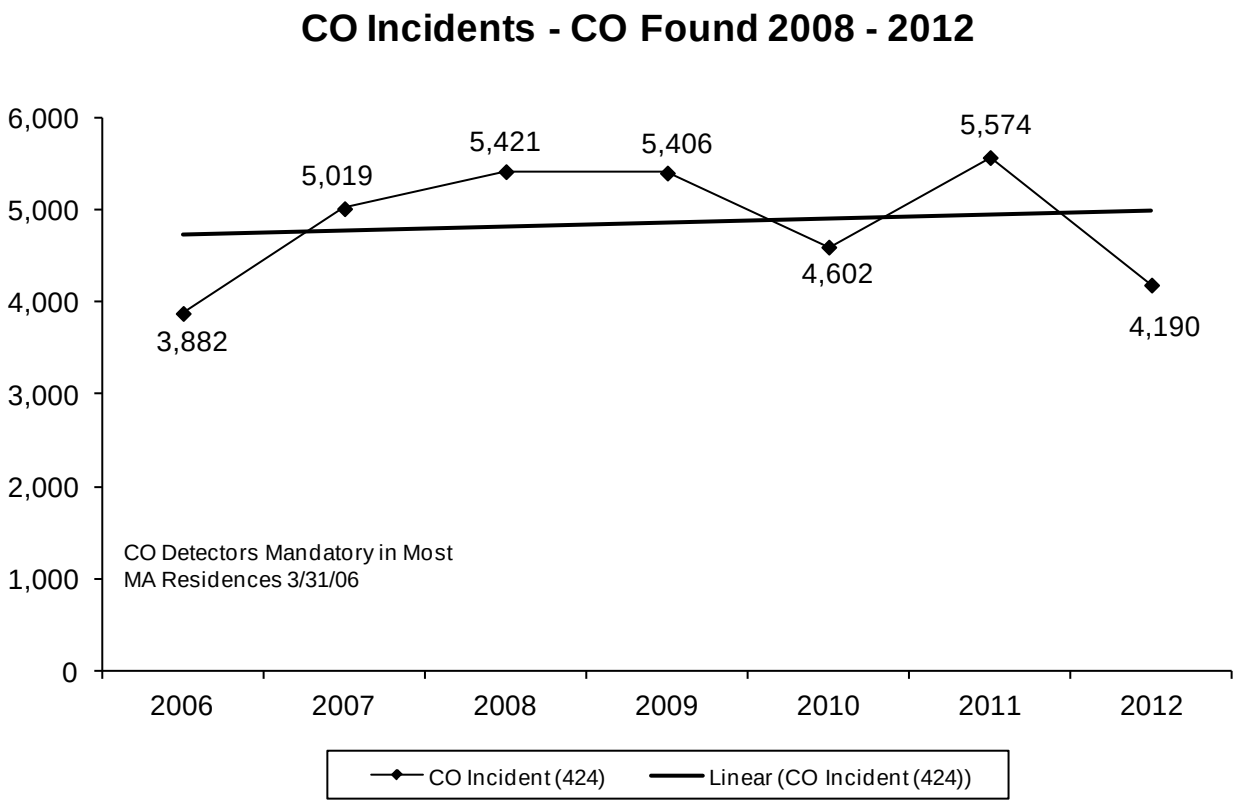
In 2012, 288 fire departments voluntarily reported 15,228 carbon monoxide (CO) incidents: hazards[60], carbon monoxide detector activation due to malfunction[61] and carbon monoxide detector activation – no CO[62]. A CO hazard is an identifiable carbon monoxide emergency whether or not a CO detector activated, the presence of CO was confirmed, and some corrective action was indicated. Fire departments responded to some 4,190 confirmed CO hazard incidents.

16% Decrease from 2011

2012 was the first year where all three types of CO calls declined since the institution of Nicole's Law in 2006, which made CO detectors mandatory in most residential occupancies throughout the Commonwealth. In 2012, the number of reported carbon monoxide incidents decreased by 2,814 calls, or 16%, from the 18,042 calls reported in 2011.

Since the inception of Nicole's Law in 2006, total CO calls have steadily increased. CO calls of all types increased by 57% between 2006 and 2012. Calls where the dangerous gas was found increased by 8% over the same time period. This confirms the need to have these life-saving devices in people's homes as a way to avert potentially lethal calls. The decrease in the number of these calls in 2010 and 2012 are an exception, but they were both still above the 2006 figures. The chart below 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.

[60] Carbon monoxide hazards = Incident Type – 424.
[61] Carbon monoxide detector activation due to a malfunction = Incident Type – 736.
[62] Carbon monoxide detector activation, no CO = Incident Type – 746.



Boston, the largest city in the Commonwealth, reported the most CO incidents where above normal levels of carbon monoxide were found in 2012. Boston reported 418 of these incidents. The City of Lowell reported 91 CO calls, the second most CO incidents in 2012. The next five cities in terms of the number of carbon monoxide calls reported were: Billerica with 78 calls, Lynn with 69 calls, Andover with 69 calls, Springfield with 67 calls; and Methuen reported 65 carbon monoxide incidents in 2012.

A CO detector activation is when a CO detector activated in response to pollution, an unknown trigger or a non-threatening situation. Fire departments responded to 11,038 CO detector activations. These types of calls are split into two categories: *CO Detector Activation Due to Malfunction* and *CO Detector Activation – No CO Found*. Two hundred and fifty-seven (257) fire departments reported 6,168 *CO Detector Activation Due to Malfunction*. Two hundred and forty-six (246) fire departments reported 4,870 *CO Detector Activation – No CO Found* after investigation.

Finding little or no CO when the fire department arrives does not prove conclusively that no problem existed. An appliance may have released large quantities of CO at one particular stage in its operation or someone may have vented the house with fresh air from the outside. Knowledgeable repair people must check out the equipment.

95% of All CO Incidents Occur in Residences
Ninety-five percent (95%) of all carbon monoxide calls occurred in residential occupancies. Institutional facilities are the next leading property use for CO calls, accounting for 2% of the incidents. Mercantile and business properties, educational facilities and public assembly properties each accounted for 1% of these calls. Special properties, storage facilities, basic industrial facilities, and manufacturing and processing facilities each accounted for less than 1% of the carbon monoxide calls in 2012.

44% of All CO Calls Occur During the Winter
Forty-four percent (44%) of all the CO calls that occurred in 2012 happened during the colder months of November through February. Most CO calls occurred between the hours of 9:00 a.m. and 1:00 p.m. and between 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 a 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 detectors. 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 two of the latest major disasters to hit Massachusetts, the December 2008 ice storm and the 2012 Halloween snowstorm, all CO calls increased by 23% and 345% respectively from the previous year. Specifically, *CO Detector Activation Due to Malfunction* calls increased by 41% in the days after the ice storm and 279% in the days following the snowstorm.

Beat the Beep - Replace CO Alarms Every 5-7 Years
Many CO alarms were purchased and installed when Nicole's Law took effect in March of 2006. Depending on the make and model, CO alarms have a life expectancy of five to seven years. These alarms are now reaching the end of their useful days and will need to be replaced with new detectors. Both the public and local firefighters need to be aware of the signs of an aged detector. The Department of Fire Services rolled out an educational campaign called *Beat the Beep* at the end of 2011.

Mapping the Fire Experience

Boston & Worcester Had the Most Reported Fires
Boston, the largest city in New England, reported having the most fires, with 5,814 in 2012. Worcester, the second largest city in New England, had the second highest number of reported fires at 1,584. Springfield (1,003), Cambridge (932), Quincy (606), and Lowell (552) 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 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 Rowe, Peru and New Braintree all reported less than 10 fires in 2012 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, *2012 Fires per 10,000 Population by Community,* on page 166, displays the rate of reported fires by community for every 10,000 of that community's population. The map's legend indicates to which group a municipality belongs. Cities and towns that are blank reported no fires or failed to report at all. The more shading a community shows the more fires per 10,000 people were reported from that municipality. These legend symbols are consistent through the other three maps.

Middleton, with 146 total fires, had the highest rate of 163 reported fires per 10,000 population. Topsfield was the next highest with 95 total fires and 156 fires per 10,000 population; Colrain had 156; Great Barrington had 129; Chelsea had 121; and Fitchburg had 110 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 4,197 in 2012. Cambridge had the second highest number of reported structure fires at 830. Worcester (813), Springfield (551), Framingham (410), and Brookline (379) rounded out the top six communities in the Commonwealth in terms of reported structure fires.

The map titled *2012 Structure Fires per 10,000 Population by Community*, on page 167, displays the rate of reported structure fires by community for every 10,000 of that community's population. The more shading a community shows the more structure fires

per 10,000 people were reported from that municipality. Cities and towns that are blank did not report any structure fires or failed to report at all.

Middleton, with 125 structure fires, had the highest rate of 139 structure fires per 10,000 population. Topsfield was the next highest with 79 structure fires and 130 structure fires per 10,000 population; Great Barrington had 101; Chelsea had 87; and Fitchburg had 80 structure fires per 10,000 population.

Boston & Worcester Had the Most Reported Residential Building Fires
Boston reported having the most residential building fires, with 3,467 in 2012. Worcester had the second highest number of reported building fires at 702. Cambridge (677), Springfield (477), Framingham (350), and Brookline (331) rounded out the top six communities in the Commonwealth in terms of reported residential building fires.

The map titled *2012 Residential Building Fires per 10,000 Population by Community*, on page 168, displays the rate of reported building fires by community for every 10,000 of that community's population. The more shading a community shows the more residential building fires per 10,000 people were reported from that municipality. Cities and towns that are blank did not report any residential building fires or failed to report at all.

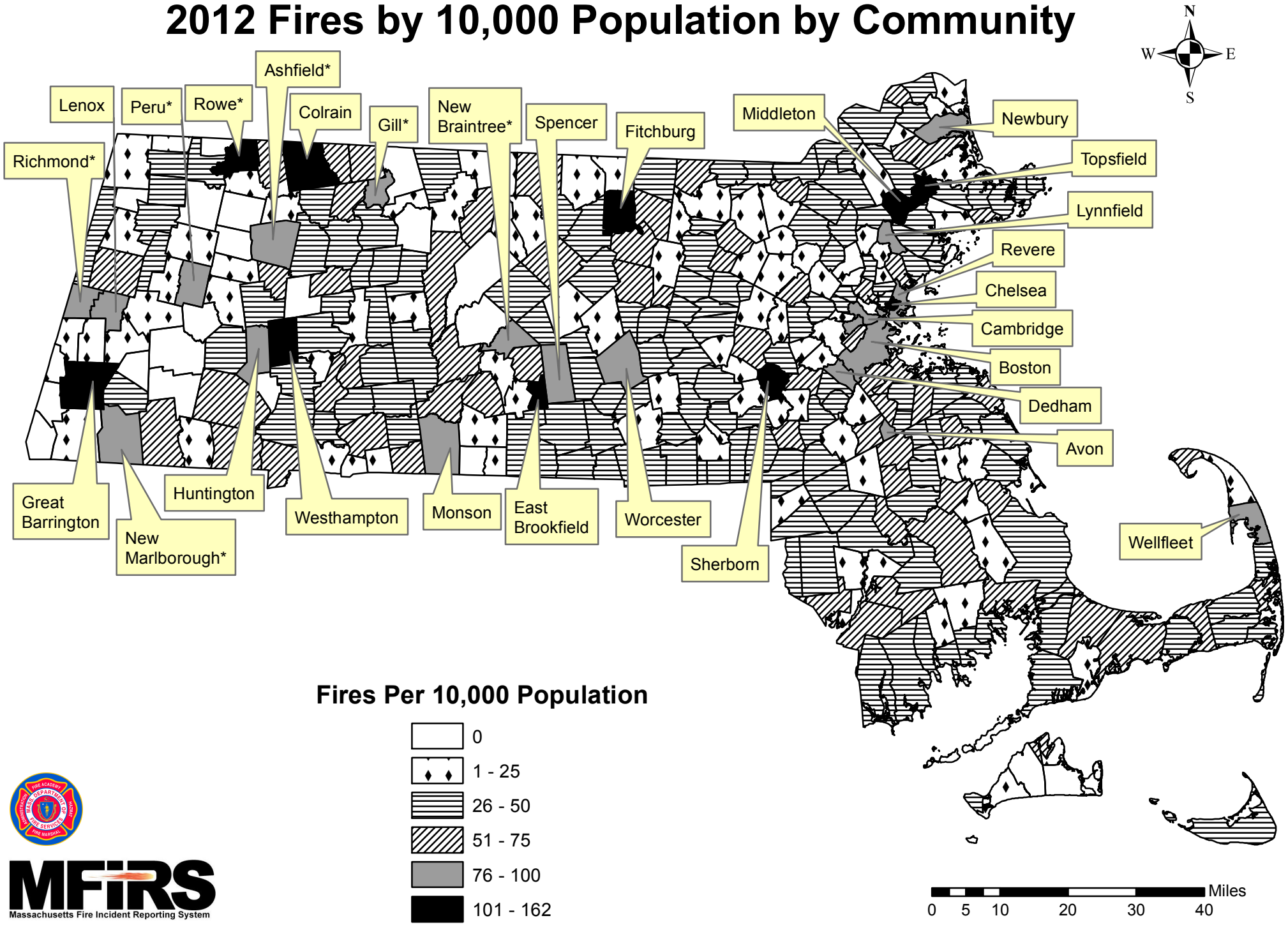
Middleton, with 113 residential building fires, had the highest rate of 126 residential building fires per 10,000 population. Next highest was Topsfield with 105 residential building fires per 10,000 population; Chelsea had 73; Great Barrington had 73; Fitchburg had 67; and Colrain had 66 residential building fires per 10,000 population.

Boston & Worcester Had the Most Reported Arsons
Boston reported having the most arsons, with 151 in 2012. Worcester had the second highest number of reported arsons at 63. Brockton (57), Lawrence (37), Taunton (21) and Lowell (20) and Milton (20) rounded out the top six communities in the Commonwealth in terms of reported arsons.

The map titled *2012 Arsons per 10,000 Population by Community,* on page 169, displays the rate of the total reported arsons by community for every 10,000 of that community's population. The more shading a community shows the more arsons per 10,000 people were reported from that municipality. Cities and towns that are blank had no reported of arsons or failed to report at all.

Huntington, with five arsons, had the highest rate of any department reporting five or more arsons, with 23 reported arsons per 10,000 population. Next highest was Cohasset with 12 arsons per 10,000 population; Upton had 11, Milton had seven; and Montague had seven arsons per 10,000 population.

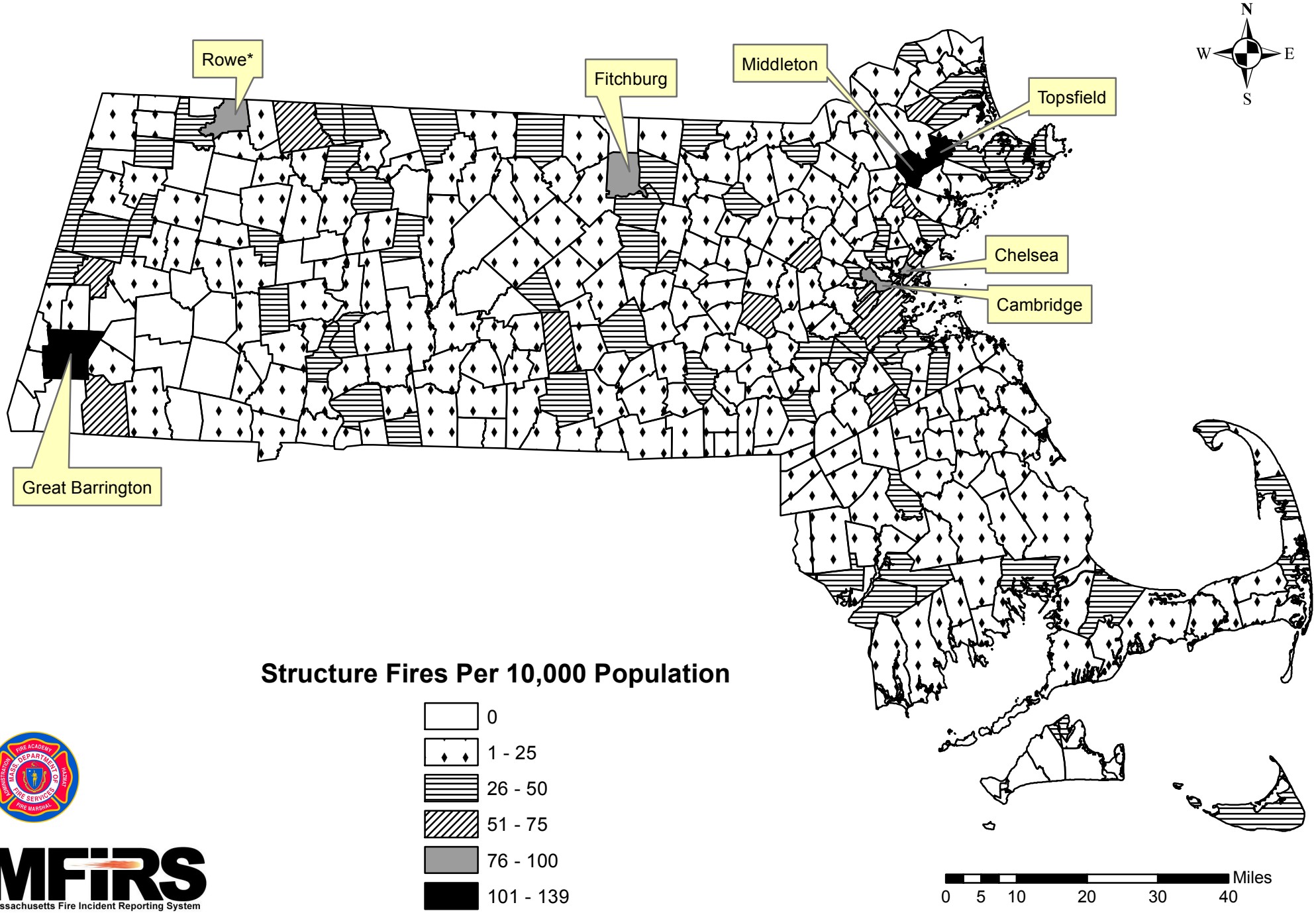
2012 Fires by 10,000 Population by Community



MFIRS
Massachusetts Fire Incident Reporting System

*These departments reported 15 fires or less in 2012.

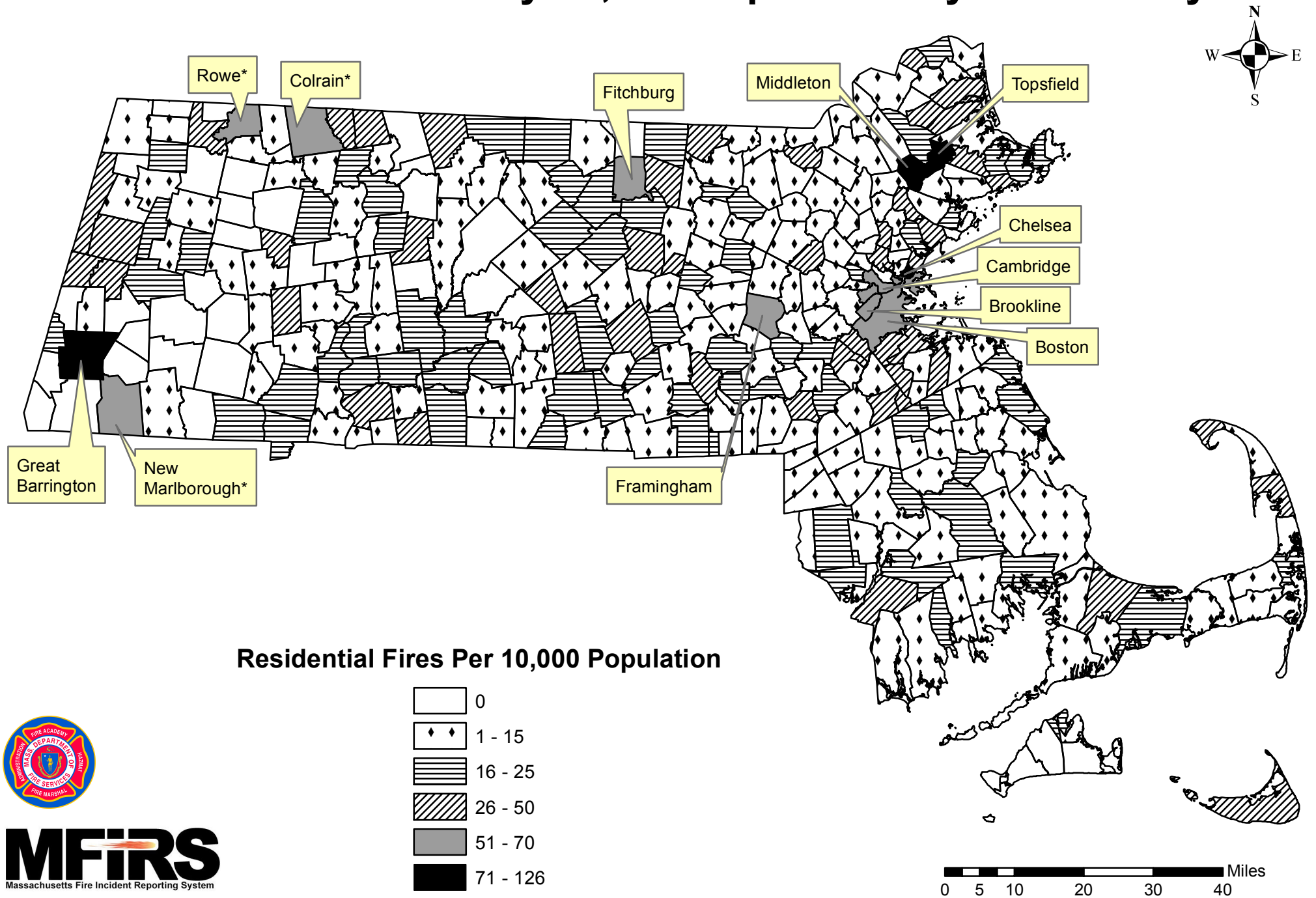
2012 Structure Fires by 10,000 Population by Community



MFIRS
Massachusetts Fire Incident Reporting System

*These departments reported 15 or less structure fires in 2012.

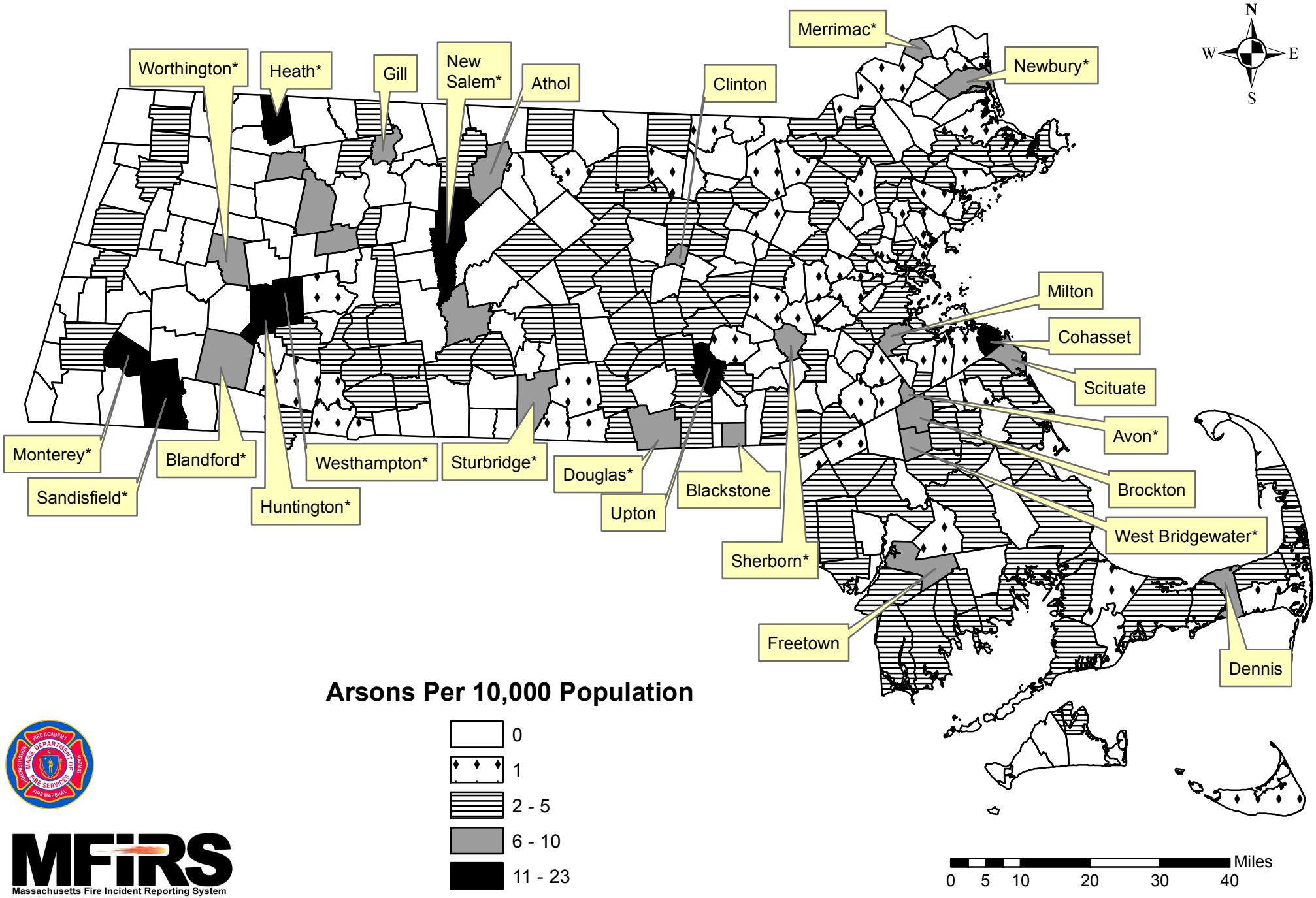
2012 Residential Fires by 10,000 Population by Community



MFIRS
Massachusetts Fire Incident Reporting System

*These departments reported 15 or less residential fires in 2012.

2012 Arsons by 10,000 Population by Community



MFIRS
Massachusetts Fire Incident Reporting System

*These departments reported 5 or less arsons in 2012.

Calendar of Fire Safety

"PRACTICE FIRE SAFETY EVERY DAY"

JANUARY

- Make a Home Escape Plan
- Know two (2) ways out of each room
- Practice exit drills during the day and at night
- Have a family meeting place outside

FEBRUARY

- Keep water heaters set below 130 degrees F.
- Be careful with hot liquids
- Use cold water to cool a burn
- Burn Awareness Week Feb. 6-12

MARCH

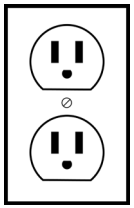
- Change your clocks, change your smoke alarm batteries
- Test smoke alarms weekly
- Vacuum dust from alarms monthly

APRIL

- Spring Cleaning Time
- *"Conduct a Hunt for Home Hazards"*
- Store flammable liquids outdoors in approved containers
- Keep combustibles away from heat or flame

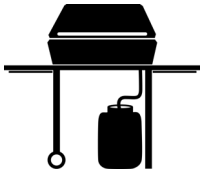
MAY

- Electrical Safety Month
- Replace worn, cracked cords
- Don't overload outlets or surge strips



JUNE

- Keep barbecue grills at least 10 feet away from the house
- Never use gasoline to start a fire
- Allow lawn mowers to cool before refueling



JULY

- Leave fireworks to the professionals
- If your car overheats don't open the radiator cap until it cools; then use a rag to open it slowly
- When fueling your vehicle shut off the engine

AUGUST

- Keep all matches and lighters away from children
- Teach children that matches and lighters are tools not toys.
- If they see them don't pick them up, tell a grown-up

SEPTEMBER

- Have your heating appliances serviced
- Have chimneys inspected & cleaned
- Purchase and install Carbon Monoxide Detectors

OCTOBER

- Fire Prevention Month
- Check batteries in smoke alarms
- Be safe at night on Halloween

NOVEMBER

- Use space heaters carefully
- Keep heaters an arms length from things that will burn
- Don't use extension cords with heaters

DECEMBER

- Keep flames away from Christmas Trees
- Never leave candles burning unattended
- Keep off the ice on ponds and streams

Massachusetts Department of Fire Services

Appendix

2012 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	32	9	30	0	0	0	1	$672,608
Acton	54	36	5	13	0	0	0	1	$545,410
Acushnet	19	10	1	8	0	0	0	0	$234,600
Adams	39	23	3	13	0	1	0	0	$258,896
Agawam	63	33	2	28	0	2	0	1	$541,750
Alford	1	1	0	0	0	0	0	0	$40,000
Amesbury	64	35	6	23	0	0	0	0	$408,200
Amherst	107	39	7	61	0	1	0	0	$168,515
Andover	92	40	14	38	0	0	0	0	$758,779
Aquinnah	1	0	0	1	0	0	0	0	$0
Arlington	122	59	6	57	0	0	0	0	$997,696
Ashburnham	9	4	2	3	0	1	0	0	$3,000
Ashby	3	3	0	0	0	0	0	0	$14,000
Ashfield	14	1	1	12	0	0	0	0	$38,000
Ashland	5	1	4	0	0	0	0	0	$516,000
Athol	62	22	6	34	0	0	0	2	$557,000
Attleboro	128	41	22	65	1	0	0	1	$404,525
Auburn	57	27	15	15	0	0	0	0	$422,225
Avon	43	14	9	20	0	2	0	1	$224,000
Ayer	34	15	1	18	0	1	0	1	$1,272,750
Barnstable Fire Districts									
Barnstable	*29*	*9*	*1*	*19*	*0*	*1*	*0*	*3*	*$35,900*
Cotuit	*3*	*1*	*0*	*2*	*0*	*0*	*0*	*0*	*$0*
C.O.M.M.	*60*	*33*	*8*	*19*	*0*	*3*	*0*	*0*	*$114,072*
Hyannis	*125*	*47*	*14*	*64*	*0*	*6*	*0*	*1*	*$2,596,036*
West Barnstable	*31*	*8*	*6*	*17*	*0*	*0*	*0*	*1*	*$168,000*
Barre	23	8	6	9	0	0	0	0	$241,800
Becket	0	0	0	0	0	0	0	0	$0
Bedford	33	18	4	11	0	1	0	0	$163,637
Belchertown	51	22	6	23	0	0	0	0	$7,500
Bellingham	60	26	4	30	0	1	0	0	$696,350
Belmont	100	71	6	23	0	0	0	0	$23,850
Berkley	15	10	3	2	0	0	0	0	$200,000
Berlin	13	7	2	4	0	0	0	0	$450,130
Bernardston	13	6	0	7	0	1	0	0	$0
Beverly	98	40	7	51	0	0	0	0	$1,376,410

2012 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	4	1	0	3	0	0	0	0	$0
Acton	1	0	1	0	0	0	0	0	$0
Acushnet	2	1	0	1	0	0	0	0	$0
Adams	1	0	0	1	0	0	0	0	$0
Agawam	1	0	1	0	0	0	0	0	$6,000
Alford	0	0	0	0	0	0	0	0	$0
Amesbury	0	0	0	0	0	0	0	0	$0
Amherst	17	2	0	14	0	0	0	0	$375
Andover	5	0	0	5	0	0	0	0	$0
Aquinnah	0	0	0	0	0	0	0	0	$0
Arlington	10	1	0	9	0	0	0	0	$20
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	6	0	0	6	0	0	0	0	$0
Attleboro	5	2	0	3	0	0	0	0	$1,100
Auburn	2	1	0	1	0	0	0	0	$102,000
Avon	3	1	0	2	0	0	0	0	$2,000
Ayer	0	0	0	0	0	0	0	0	$0
Barnstable Fire Districts									
Barnstable	*2*	*0*	*0*	*2*	*0*	*0*	*0*	*0*	*$0*
Cotuit	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
C.O.M.M.	*2*	*1*	*1*	*0*	*0*	*0*	*0*	*0*	*$4,010*
Hyannis	*5*	*3*	*1*	*1*	*0*	*1*	*0*	*0*	*$1,507,020*
West Barnstable	*2*	*1*	*0*	*1*	*0*	*0*	*0*	*0*	*$100,000*
Barre	2	0	0	2	0	0	0	0	$0
Becket	0	0	0	0	0	0	0	0	$0
Bedford	2	0	0	2	0	0	0	0	$0
Belchertown	0	0	0	0	0	0	0	0	$0
Bellingham	0	0	0	0	0	0	0	0	$0
Belmont	5	0	0	5	0	0	0	0	$0
Berkley	0	0	0	0	0	0	0	0	$0
Berlin	0	0	0	0	0	0	0	0	$0
Bernardston	1	0	0	1	0	1	0	0	$0
Beverly	3	1	1	1	0	0	0	0	$46,000

2012 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	128	43	16	69	0	0	0	8	$3,136,415
Blackstone	38	11	3	24	0	0	0	0	$0
Blandford	8	0	2	6	0	0	0	0	$0
Bolton	22	7	2	13	0	0	0	1	$5,100
Boston	5,693	4,192	280	1,221	1	12	0	13	$53,135,883
Bourne	75	27	17	31	0	1	0	1	$1,746,650
Boxborough	28	1	8	19	0	0	0	0	$6,000
Boxford	30	12	5	13	0	0	0	0	$58,000
Boylston	12	2	2	8	0	0	0	0	$99,500
Braintree	102	24	20	58	0	11	0	1	$3,235,139
Brewster	28	14	4	10	0	0	0	0	$1,323,851
Bridgewater	104	46	11	47	1	1	0	2	$1,841,421
Brimfield	5	1	1	3	0	0	0	0	$0
Brockton	505	201	41	263	0	16	0	8	$1,999,462
Brookfield	3	2	0	1	1	1	0	1	$0
Brookline	432	379	10	43	0	2	0	2	$1,007,000
Buckland	2	1	0	1	0	0	0	0	$1,500
Burlington	77	41	16	20	0	1	0	0	$117,000
Cambridge	932	830	19	83	1	2	0	15	$2,466,180
Canton	36	16	13	7	0	3	0	0	$229,800
Carlisle	4	2	2	0	0	0	0	0	$257,850
Carver	10	8	2	0	0	0	0	0	$316,000
Charlemont	1	1	0	0	0	0	0	0	$0
Charlton	53	36	7	10	0	2	0	6	$2,475,453
Chatham	21	8	2	11	0	2	0	0	$3,493,255
Chelmsford	30	13	10	7	0	0	0	0	$319,383
Chelsea	425	307	20	98	0	5	0	35	$1,884,284
Cheshire	14	5	2	7	0	1	0	2	$53,600
Chester	4	3	0	1	0	0	0	0	$35,000
Chesterfield	5	1	1	3	0	0	0	0	$0
Chicopee	228	104	24	100	0	1	0	7	$1,834,328
Chilmark	1	0	1	0	0	0	0	0	$0
Clarksburg	1	1	0	0	0	0	0	0	$55,000
Clinton	94	52	4	38	0	4	0	0	$380,630
Cohasset	31	8	0	23	0	0	0	0	$250,000

2012 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	7	0	1	6	0	0	0	0	$3
Blackstone	6	0	0	6	0	0	0	0	$0
Blandford	1	0	0	1	0	0	0	0	$0
Bolton	1	0	0	1	0	0	0	0	$0
Boston	150	27	18	105	0	0	0	1	$464,388
Bourne	7	0	3	4	0	0	0	0	$6,200
Boxborough	0	0	0	0	0	0	0	0	$0
Boxford	0	0	0	0	0	0	0	0	$0
Boylston	0	0	0	0	0	0	0	0	$0
Braintree	1	0	1	0	0	1	0	0	$20,000
Brewster	2	1	0	1	0	0	0	0	$1,250,000
Bridgewater	3	2	0	1	0	0	0	0	$2,035
Brimfield	0	0	0	0	0	0	0	0	$0
Brockton	58	17	3	37	0	1	0	0	$152,900
Brookfield	0	0	0	0	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	1	0	0	1	0	0	0	0	$0
Cambridge	2	2	0	0	0	0	0	0	$500
Canton	1	1	0	0	0	0	0	0	$5,000
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	1	1	0	0	0	2	0	0	$95,000
Chatham	0	0	0	0	0	0	0	0	$0
Chelmsford	1	0	0	1	0	0	0	0	$100
Chelsea	12	4	4	4	0	0	0	2	$93,002
Cheshire	1	0	0	1	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	8	2	3	3	0	0	0	0	$13,670
Chilmark	0	0	0	0	0	0	0	0	$0
Clarksburg	0	0	0	0	0	0	0	0	$0
Clinton	8	0	0	8	0	0	0	0	$0
Cohasset	9	0	0	9	0	0	0	0	$0

2012 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	26	12	3	11	0	0	0	0	$20,500
Concord	38	16	5	17	0	1	0	0	$314,410
Conway	7	4	0	3	0	0	0	0	$1,200
Cummington	1	1	0	0	0	0	0	0	$0
Dalton	23	17	2	4	0	0	0	0	$196,020
Danvers	130	34	19	77	0	2	0	0	$228,400
Dartmouth Fire Districts									
Dartmouth #1	*40*	*18*	*2*	*20*	*0*	*1*	*0*	*0*	*$197,020*
Dartmouth #2	*10*	*3*	*0*	*7*	*0*	*0*	*0*	*0*	*$175*
Dartmouth #3	*97*	*24*	*12*	*61*	*0*	*0*	*0*	*0*	*$2,101,650*
Dedham	196	107	8	81	1	4	0	1	$606,400
Deerfield Fire Districts									
Deerfield	*7*	*2*	*1*	*4*	*0*	*0*	*0*	*0*	*$500*
South Deerfield	*6*	*2*	*1*	*3*	*0*	*0*	*0*	*0*	*$25,500*
Dennis	74	14	6	54	1	2	0	0	$234,500
Devens	11	2	4	5	0	0	0	0	$53,500
Dighton	14	4	5	5	0	0	0	0	$16,425,000
Douglas	35	12	2	21	0	1	0	0	$91,000
Dover	29	14	1	14	0	1	0	0	$380,000
Dracut	82	38	7	37	0	1	0	1	$1,749,020
Dudley	37	20	10	7	0	0	0	0	$129,500
Dunstable	13	4	2	7	0	0	0	0	$3,510
Duxbury	56	21	9	26	0	1	0	1	$8,800
East Bridgewater	58	23	7	28	0	0	0	0	$360,000
East Brookfield	24	4	0	20	0	0	0	0	$63,000
East Longmeadow	31	11	2	18	0	0	0	1	$39,500
Eastham	16	5	0	11	1	0	0	0	$355,000
Easthampton	34	18	4	12	0	0	0	0	$578,775
Easton	9	6	3	0	0	3	0	0	$311,575
Edgartown	0	0	0	0	0	0	0	0	$0
Egremont	0	0	0	0	0	0	0	0	$0
Erving	2	1	0	1	0	0	0	0	$0
Essex	13	9	0	4	0	0	0	0	$51,000
Everett	142	75	16	51	0	2	0	0	$1,024,542
Fairhaven	53	21	8	24	1	0	0	1	$1,043,500
Fall River	519	282	34	203	0	20	0	17	$6,279,251

2012 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	0	0	0	0	0	0	0	0	$0
Conway	1	1	0	0	0	0	0	0	$200
Cummington	0	0	0	0	0	0	0	0	$0
Dalton	0	0	0	0	0	0	0	0	$0
Danvers	11	0	0	11	0	0	0	0	$0
Dartmouth Fire Districts									
Dartmouth #1	*4*	*2*	*0*	*2*	*0*	*0*	*0*	*0*	*$175,000*
Dartmouth #2	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Dartmouth #3	*3*	*1*	*0*	*2*	*0*	*0*	*0*	*0*	*$50,000*
Dedham	11	0	2	9	1	0	0	0	$0
Deerfield Fire Districts									
Deerfield	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
South Deerfield	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Dennis	9	0	0	9	0	0	0	0	$0
Devens	1	0	0	1	0	0	0	0	$0
Dighton	0	0	0	0	0	0	0	0	$0
Douglas	5	2	0	3	0	0	0	0	$0
Dover	0	0	0	0	0	0	0	0	$0
Dracut	7	1	0	6	0	0	0	0	$300,000
Dudley	1	0	1	0	0	0	0	0	$7,000
Dunstable	0	0	0	0	0	0	0	0	$0
Duxbury	2	0	0	2	0	0	0	0	$0
East Bridgewater	0	0	0	0	0	0	0	0	$0
East Brookfield	0	0	0	0	0	0	0	0	$0
East Longmeadow	2	0	1	1	0	0	0	0	$1,500
Eastham	1	1	0	0	1	0	0	0	$355,000
Easthampton	0	0	0	0	0	0	0	0	$0
Easton	0	0	0	0	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	0	0	0	0	0	0	0	0	$0
Essex	1	0	0	1	0	0	0	0	$0
Everett	11	2	3	6	0	0	0	0	$23,255
Fairhaven	2	0	0	2	0	0	0	0	$0
Fall River	18	8	1	9	0	2	0	4	$778,500

2012 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
Falmouth	83	27	22	34	1	5	0	3	$3,428,800
Fitchburg	453	321	25	107	0	9	0	4	$1,001,950
Florida	2	2	0	0	0	0	0	0	$0
Foxborough	64	20	13	31	0	0	0	0	$127,550
Framingham	481	410	21	50	0	5	0	12	$1,957,602
Franklin	88	27	8	53	0	1	0	1	$687,339
Freetown	64	27	10	27	0	0	0	0	$115,727
Gardner	72	41	6	25	1	1	0	4	$1,628,136
Georgetown	58	45	6	7	0	2	0	1	$114,000
Gill	15	2	2	11	0	0	0	0	$20
Gloucester	134	72	7	55	0	3	0	3	$308,321
Goshen	6	4	0	2	0	0	0	0	$0
Gosnold	0	0	0	0	0	0	0	0	$0
Grafton	29	20	6	3	0	0	0	0	$933,500
Granby	24	15	3	6	0	0	0	0	$340,825
Granville	8	3	0	5	0	0	0	1	$0
Great Barrington	92	72	0	20	0	0	0	2	$1,284,400
Greenfield	88	44	10	34	0	0	0	0	$576,800
Groton	10	7	2	1	0	0	0	0	$200,000
Groveland	1	1	0	0	0	0	0	0	$30,000
Hadley	10	3	2	5	0	0	0	0	$33,200
Halifax	40	16	4	20	0	0	0	2	$223,900
Hamilton	36	24	1	11	0	0	0	0	$33,400
Hampden	28	24	1	3	0	0	0	0	$5,000
Hancock	3	3	0	0	0	0	0	1	$125,000
Hanover	77	30	4	43	1	2	0	0	$188,600
Hanson	20	9	1	10	0	0	0	0	$50,000
Hardwick	0	0	0	0	0	0	0	0	$0
Harvard	18	7	1	10	0	0	0	0	$18,500
Harwich	54	21	6	27	0	1	0	2	$595,504
Hatfield	12	3	3	6	0	0	0	0	$0
Haverhill	263	94	24	145	1	7	0	10	$1,352,438
Hawley	0	0	0	0	0	0	0	0	$0
Heath	4	1	1	2	0	0	0	0	$12,000
Hingham	66	22	6	38	0	1	0	1	$215,000

2012 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
Falmouth	4	0	0	4	0	0	0	0	$0
Fitchburg	10	3	2	5	0	0	0	0	$68,150
Florida	0	0	0	0	0	0	0	0	$0
Foxborough	2	0	0	2	0	0	0	0	$0
Framingham	4	3	0	1	0	0	0	0	$7,200
Franklin	4	0	0	4	0	0	0	0	$0
Freetown	6	2	1	3	0	0	0	0	$3,510
Gardner	2	1	0	1	0	0	0	0	$312,201
Georgetown	0	0	0	0	0	0	0	0	$0
Gill	1	0	0	1	0	0	0	0	$0
Gloucester	5	0	0	5	0	0	0	0	$0
Goshen	0	0	0	0	0	0	0	0	$0
Gosnold	0	0	0	0	0	0	0	0	$0
Grafton	3	2	1	0	0	0	0	0	$417,000
Granby	1	0	0	1	0	0	0	0	$0
Granville	0	0	0	0	0	0	0	0	$0
Great Barrington	1	1	0	0	0	0	0	0	$236,800
Greenfield	4	1	0	3	0	0	0	0	$100
Groton	0	0	0	0	0	0	0	0	$0
Groveland	0	0	0	0	0	0	0	0	$0
Hadley	0	0	0	0	0	0	0	0	$0
Halifax	3	2	0	1	0	0	0	2	$30,000
Hamilton	2	0	0	2	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	1	0	0	1	1	1	0	0	$0
Hanson	2	0	0	2	0	0	0	0	$0
Hardwick	0	0	0	0	0	0	0	0	$0
Harvard	3	0	0	3	0	0	0	0	$0
Harwich	1	1	0	0	0	0	0	0	$222,700
Hatfield	0	0	0	0	0	0	0	0	$0
Haverhill	4	0	0	4	0	0	0	0	$0
Hawley	0	0	0	0	0	0	0	0	$0
Heath	1	0	1	0	0	0	0	0	$0
Hingham	2	0	0	2	0	0	0	0	$0

2012 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	1	1	0	0	0	0	0	0	$25,000
Holbrook	47	23	4	20	0	1	0	1	$226,475
Holden	23	9	1	13	0	3	0	0	$180,000
Holland	6	3	2	1	0	0	0	0	$150,000
Holliston	7	7	0	0	0	0	0	0	$487,800
Holyoke	201	105	25	71	1	0	0	3	$1,702,622
Hopedale	4	4	0	0	0	2	0	2	$361,000
Hopkinton	63	31	11	21	0	0	0	1	$321,602
Hubbardston	23	8	5	10	0	0	0	0	$325,000
Hudson	67	26	4	37	0	3	0	1	$272,420
Hull	24	9	1	14	0	0	0	0	$25,000
Huntington	20	4	2	14	0	0	0	0	$0
Ipswich	21	4	2	15	0	0	0	0	$20,900
Kingston	65	24	10	31	0	2	0	0	$435,100
Lake Pleasant	0	0	0	0	0	0	0	0	$0
Lakeville	51	15	5	31	0	0	0	0	$63,000
Lancaster	13	6	3	4	0	0	0	0	$1,305,900
Lanesborough	5	2	2	1	0	0	0	0	$6,000
Lawrence	294	134	34	126	0	10	0	6	$1,996,329
Lee	2	0	2	0	0	0	0	0	$151,000
Leicester	43	18	5	20	0	0	0	1	$609,000
Lenox	38	27	0	11	0	0	0	0	$94,050
Leominster	238	116	18	104	0	2	0	0	$1,838,855
Leverett	5	4	0	1	0	0	0	0	$0
Lexington	31	16	8	7	0	0	0	0	$1,111,346
Leyden	5	2	1	2	0	0	0	0	$0
Lincoln	41	33	1	7	0	0	0	0	$2,210
Littleton	50	26	7	17	1	2	0	0	$550,899
Logan Airport FD	121	5	7	109	0	0	0	0	$62,970
Longmeadow	34	13	3	18	1	1	0	0	$206,680
Lowell	552	371	28	153	1	3	0	0	$2,343,140
Ludlow	77	43	6	28	0	2	0	0	$1,358,050
Lunenburg	58	39	4	15	0	0	0	1	$193,200
Lynn	436	331	13	92	3	2	0	6	$0
Lynnfield	87	60	4	23	0	0	0	1	$2,500
MA Mil. Res.	6	1	3	2	0	0	0	0	$0

2012 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	4	0	2	2	0	0	0	0	$10,200
Holden	3	0	0	3	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	11	3	0	8	0	0	0	0	$60
Hopedale	0	0	0	0	0	0	0	0	$0
Hopkinton	1	0	0	1	0	0	0	0	$0
Hubbardston	0	0	0	0	0	0	0	0	$0
Hudson	0	0	0	0	0	0	0	0	$0
Hull	1	0	0	1	0	0	0	0	$0
Huntington	5	0	0	5	0	0	0	0	$0
Ipswich	1	0	0	1	0	0	0	0	$0
Kingston	5	1	2	2	0	0	0	0	$100
Lake Pleasant	0	0	0	0	0	0	0	0	$0
Lakeville	1	0	0	1	0	0	0	0	$0
Lancaster	3	1	1	1	0	0	0	0	$0
Lanesborough	0	0	0	0	0	0	0	0	$0
Lawrence	37	18	7	12	0	0	0	1	$53,959
Lee	0	0	0	0	0	0	0	0	$0
Leicester	0	0	0	0	0	0	0	0	$0
Lenox	1	1	0	0	0	0	0	0	$550
Leominster	9	3	1	5	0	0	0	0	$20,601
Leverett	0	0	0	0	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	2	0	0	2	0	0	0	0	$2,100
Littleton	1	1	0	0	1	0	0	0	$70,000
Logan Airport FD	1	0	0	1	0	0	0	0	$10,000
Longmeadow	1	1	0	0	1	0	0	0	$66,980
Lowell	20	8	4	8	0	0	0	0	$165,500
Ludlow	7	3	1	3	0	2	0	0	$128,000
Lunenburg	1	0	1	0	0	0	0	0	$500
Lynn	2	0	0	2	0	0	0	0	$0
Lynnfield	4	0	0	4	0	0	0	1	$0
MA Mil. Res.	0	0	0	0	0	0	0	0	$0

2012 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	189	87	15	87	0	4	0	11	$319,575
Manchester	28	20	2	6	0	0	0	0	$70,000
Mansfield	61	11	13	37	0	0	0	1	$157,880
Marblehead	39	15	5	19	0	0	0	0	$215,104
Marion	16	4	2	10	0	1	0	0	$200,152
Marlborough	145	56	14	75	2	4	0	5	$5,384,004
Marshfield	125	55	9	61	0	2	0	3	$550,000
Mashpee	34	17	4	13	0	3	0	0	$625,603
Mattapoisett	21	1	0	20	0	0	0	0	$0
Maynard	27	11	2	14	0	0	0	0	$62,500
Medfield	27	13	3	11	0	0	0	0	$214,312
Medford	291	175	16	100	0	2	0	4	$932,400
Medway	59	41	2	16	0	0	0	0	$648,165
Melrose	18	13	3	2	0	2	0	0	$569,000
Mendon	13	5	2	6	0	0	0	0	$5,000
Merrimac	42	21	1	20	0	0	0	0	$155,500
Methuen	141	60	23	58	0	1	0	1	$852,200
Middleborough	116	45	10	61	0	0	0	1	$798,355
Middlefield	0	0	0	0	0	0	0	0	$0
Middleton	146	125	6	15	0	1	0	0	$301,991
Milford	112	49	13	50	0	4	0	6	$1,114,485
Millbury	62	27	7	28	0	0	0	0	$116,145
Millis	1	1	0	0	0	1	0	0	$10,000
Millville	9	6	2	1	0	1	0	0	$90,300
Milton	165	87	9	69	0	0	0	43	$55,000
Monroe	0	0	0	0	0	0	0	0	$0
Monson	65	14	5	46	0	0	0	0	$472,005
Montague Fire Districts									
Montague Center	*6*	*3*	*1*	*2*	*0*	*0*	*0*	*0*	*$27,000*
Turners Falls	*28*	*21*	*1*	*6*	*0*	*1*	*0*	*0*	*$62,100*
Monterey	3	1	1	1	0	0	0	0	$13,020
Montgomery	0	0	0	0	0	0	0	0	$0
Mount Washington	0	0	0	0	0	0	0	0	$0
Nahant	16	13	0	3	0	0	0	0	$465,550
Nantucket	39	31	3	5	0	0	0	0	$5,000
Natick	93	50	5	38	0	2	0	1	$1,447,050
Needham	67	26	6	35	0	1	0	0	$374,400

2012 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	17	3	0	14	0	0	0	0	$0
Manchester	1	0	0	1	0	0	0	0	$0
Mansfield	2	0	0	2	0	0	0	0	$0
Marblehead	2	1	0	1	0	0	0	0	$0
Marion	1	0	0	1	0	1	0	0	$0
Marlborough	9	5	2	2	2	0	0	0	$213,623
Marshfield	9	0	1	8	0	1	0	0	$550,000
Mashpee	2	0	0	2	0	0	0	0	$0
Mattapoisett	3	0	0	3	0	0	0	0	$0
Maynard	0	0	0	0	0	0	0	0	$0
Medfield	5	0	1	4	0	0	0	0	$0
Medford	1	0	0	1	0	0	0	0	$0
Medway	0	0	0	0	0	0	0	0	$0
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	2	0	1	1	0	0	0	0	$0
Middleborough	4	4	0	0	0	0	0	0	$344,000
Middlefield	0	0	0	0	0	0	0	0	$0
Middleton	1	1	0	0	0	0	0	0	$155,000
Milford	3	2	0	1	0	0	0	1	$2,520
Millbury	4	1	0	3	0	0	0	0	$4,795
Millis	0	0	0	0	0	0	0	0	$0
Millville	0	0	0	0	0	0	0	0	$0
Milton	20	0	0	20	0	0	0	0	$0
Monroe	0	0	0	0	0	0	0	0	$0
Monson	0	0	0	0	0	0	0	0	$0
Montague Fire Districts									
Montague Center	*1*	*0*	*0*	*1*	*0*	*0*	*0*	*0*	*$0*
Turners Falls	*5*	*4*	*0*	*1*	*0*	*0*	*0*	*0*	*$16,150*
Monterey	1	0	0	1	0	0	0	0	$20
Montgomery	0	0	0	0	0	0	0	0	$0
Mount Washington	0	0	0	0	0	0	0	0	$0
Nahant	1	0	0	1	0	0	0	0	$0
Nantucket	1	0	0	1	0	0	0	0	$0
Natick	3	0	0	3	0	0	0	0	$50
Needham	0	0	0	0	0	0	0	0	$0

2012 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	0	0	0	0	0	0	0	0	$0
New Bedford	434	194	64	176	1	8	0	2	$4,146,419
New Braintree	9	1	0	8	0	0	0	0	$3,000
New Marlborough	15	9	0	6	0	0	0	0	$412,000
New Salem	6	1	0	5	0	0	0	0	$0
Newbury	51	26	3	22	0	0	0	0	$10,780
Newburyport	23	17	3	3	0	1	0	3	$1,129,000
Newton	145	75	9	61	0	1	0	1	$1,089,125
Norfolk	62	43	3	16	0	2	0	0	$586,510
North Adams	42	20	4	18	0	1	0	1	$248,650
North Andover	9	8	0	1	0	1	0	0	$255,451
North Attleboro	68	22	17	29	1	1	0	0	$471,000
North Brookfield	25	6	1	18	0	1	0	0	$49,500
North Reading	44	20	2	22	0	0	0	0	$430,500
Northampton	77	21	6	50	1	0	0	1	$239,965
Northborough	48	9	2	37	0	0	0	0	$197,902
Northbridge	53	26	4	23	0	0	0	0	$265,750
Northfield	0	0	0	0	0	0	0	0	$0
Norton	64	18	8	38	0	0	0	3	$1,050,418
Norwell	31	11	6	14	0	2	0	1	$0
Norwood	103	37	6	60	0	0	0	0	$7,400
Oak Bluffs	7	5	0	2	0	0	0	0	$36,200
Oakham	8	6	0	2	0	0	0	0	$0
Orange	9	5	1	3	0	0	0	0	$0
Orleans	40	15	4	21	0	0	0	0	$13,000
Otis	0	0	0	0	0	0	0	0	$0
Oxford	49	25	6	18	0	2	0	0	$142,300
Palmer Fire Districts									
Bondsville	*5*	*3*	*1*	*1*	*0*	*0*	*0*	*0*	*$97,500*
Palmer	*53*	*22*	*4*	*27*	*0*	*2*	*0*	*0*	*$908,517*
Three Rivers	*8*	*1*	*0*	*7*	*0*	*0*	*0*	*0*	*$0*
Paxton	19	11	3	5	0	0	0	1	$85,275
Peabody	180	63	10	107	0	0	0	2	$1,159,653
Pelham	1	0	1	0	0	0	0	0	$0
Pembroke	17	10	6	1	1	2	0	1	$774,300
Pepperell	59	40	3	16	0	1	0	0	$179,500

2012 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	15	6	5	4	0	0	0	0	$181,851
New Braintree	0	0	0	0	0	0	0	0	$0
New Marlborough	0	0	0	0	0	0	0	0	$0
New Salem	1	0	0	1	0	0	0	0	$0
Newbury	4	0	0	4	0	0	0	0	$0
Newburyport	1	1	0	0	0	0	0	0	$2,100
Newton	2	1	1	0	0	0	0	0	$51,000
Norfolk	0	0	0	0	0	0	0	0	$0
North Adams	2	0	0	2	0	0	0	0	$0
North Andover	0	0	0	0	0	0	0	0	$0
North Attleboro	1	1	0	0	0	0	0	0	$3,000
North Brookfield	2	0	0	2	0	0	0	0	$0
North Reading	2	1	0	1	0	0	0	0	$2,500
Northampton	1	0	0	1	1	0	0	0	$0
Northborough	3	0	0	3	0	0	0	0	$0
Northbridge	2	0	0	2	0	0	0	0	$50
Northfield	0	0	0	0	0	0	0	0	$0
Norton	3	1	0	2	0	0	0	0	$100,002
Norwell	2	1	0	1	0	0	0	0	$0
Norwood	0	0	0	0	0	0	0	0	$0
Oak Bluffs	1	0	0	1	0	0	0	0	$0
Oakham	0	0	0	0	0	0	0	0	$0
Orange	1	0	0	1	0	0	0	0	$0
Orleans	1	0	0	1	0	0	0	0	$0
Otis	0	0	0	0	0	0	0	0	$0
Oxford	6	2	2	2	0	0	0	0	$43,400
Palmer Fire Districts									
Bondsville	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Palmer	*6*	*2*	*1*	*3*	*0*	*0*	*0*	*0*	*$31,700*
Three Rivers	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Paxton	0	0	0	0	0	0	0	0	$0
Peabody	2	0	0	2	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	1	0	0	1	0	1	0	0	$0

2012 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	7	2	1	4	0	0	0	0	$10,000
Petersham	0	0	0	0	0	0	0	0	$0
Phillipston	3	2	0	1	0	0	0	0	$0
Pittsfield	281	142	14	125	1	0	0	13	$1,519,800
Plainfield	0	0	0	0	0	0	0	0	$0
Plainville	32	10	8	14	0	0	0	0	$34,000
Plymouth	208	96	19	93	0	9	0	9	$2,444,571
Plympton	2	2	0	0	0	0	0	0	$8,201
Princeton	14	6	2	6	1	0	0	0	$319,650
Provincetown	21	12	2	7	0	0	0	0	$72,000
Quincy	606	326	24	256	1	0	0	71	$1,834,000
Randolph	228	154	15	59	0	1	0	0	$1,219,300
Raynham	72	34	8	30	0	1	0	1	$120,500
Reading	53	33	0	20	0	0	0	0	$2,000
Rehoboth	46	24	3	19	1	0	0	2	$466,100
Revere	398	300	16	82	0	0	0	4	$8,478,356
Richmond	13	4	2	7	0	0	0	0	$0
Rochester	6	5	1	0	0	1	0	0	$398,100
Rockland	63	25	6	32	0	2	0	0	$87,000
Rockport	18	7	1	10	0	0	0	0	$290,000
Rowe	4	3	1	0	0	0	0	1	$7,805,500
Rowley	34	27	2	5	0	0	0	0	$25,500
Royalston	3	3	0	0	0	0	0	0	$10,000
Russell	9	2	2	5	0	0	0	0	$9,500
Rutland	19	9	0	10	0	0	0	0	$408,900
Salem	181	80	17	84	0	0	0	0	$796,512
Salisbury	14	5	2	7	0	0	0	0	$115,000
Sandisfield	6	2	0	4	0	0	0	0	$25,000
Sandwich	108	71	10	27	0	1	0	0	$1,138,103
Saugus	156	43	10	103	0	0	0	7	$262,685
Savoy	0	0	0	0	0	0	0	0	$0
Scituate	98	40	8	50	0	1	0	3	$1,030,105
Seekonk	63	27	8	28	0	2	0	1	$650,870
Sharon	44	21	6	17	0	0	0	3	$690,100
Sheffield	2	0	0	2	0	0	0	0	$500,000

2012 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	16	3	0	13	0	0	0	1	$2,020
Plainfield	0	0	0	0	0	0	0	0	$0
Plainville	3	0	0	3	0	0	0	0	$0
Plymouth	11	6	1	4	0	0	0	0	$34,301
Plympton	0	0	0	0	0	0	0	0	$0
Princeton	1	1	0	0	1	0	0	0	$250,000
Provincetown	0	0	0	0	0	0	0	0	$0
Quincy	16	2	1	13	1	0	0	0	$0
Randolph	2	2	0	0	0	0	0	0	$355,000
Raynham	0	0	0	0	0	0	0	0	$0
Reading	5	1	0	4	0	0	0	0	$0
Rehoboth	2	0	0	2	0	0	0	0	$0
Revere	4	2	0	2	0	0	0	0	$8,500
Richmond	0	0	0	0	0	0	0	0	$0
Rochester	0	0	0	0	0	0	0	0	$0
Rockland	1	0	0	1	0	0	0	0	$0
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	1	1	0	0	0	0	0	0	$5,000
Salem	3	1	1	1	0	0	0	0	$65,500
Salisbury	0	0	0	0	0	0	0	0	$0
Sandisfield	1	0	0	1	0	0	0	0	$0
Sandwich	3	1	0	1	0	0	0	0	$75,000
Saugus	2	0	0	2	0	0	0	0	$0
Savoy	0	0	0	0	0	0	0	0	$0
Scituate	10	2	0	8	0	0	0	0	$100
Seekonk	4	1	1	2	0	0	0	0	$27,200
Sharon	1	0	0	1	0	0	0	0	$0
Sheffield	0	0	0	0	0	0	0	0	$0

2012 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	*4*	*1*	*2*	*1*	*0*	*0*	*0*	*0*	*$31,300*
Shelburne Falls	*2*	*2*	*0*	*0*	*0*	*0*	*0*	*0*	*$600*
Sherborn	43	8	4	31	0	0	0	0	$44,000
Shirley	11	9	2	0	0	0	0	1	$0
Shrewsbury	152	75	8	69	1	5	0	0	$1,396,552
Shutesbury	5	5	0	0	0	0	0	0	$73,200
Somerset	26	5	4	17	0	5	0	0	$65,000
Somerville	37	23	13	1	1	1	0	8	$1,350,500
South Hadley Fire Districts									
South Hadley #1	*49*	*16*	*3*	*30*	*0*	*0*	*0*	*0*	*$339,400*
South Hadley #2	*39*	*33*	*2*	*4*	*0*	*0*	*0*	*0*	*$40,500*
Southampton	15	3	2	10	0	0	0	0	$50,000
Southborough	24	8	5	11	0	0	0	0	$79,750
Southbridge	54	29	5	20	0	0	0	1	$227,800
Southwick	49	18	8	23	0	0	0	0	$303,120
Spencer	104	70	8	26	1	2	0	1	$208,678
Springfield	1,004	548	98	358	0	12	0	45	$4,193,697
Sterling	44	22	6	16	0	0	0	0	$131,470
Stockbridge	2	2	0	0	0	1	0	0	$300,000
Stoneham	72	57	6	9	0	0	0	0	$0
Stoughton	195	160	6	29	0	0	0	2	$1,303,600
Stow	20	11	3	6	0	0	0	0	$2,750
Sturbridge	46	11	14	21	0	0	0	0	$0
Sudbury	44	20	6	18	0	2	0	2	$655,957
Sunderland	10	2	2	6	0	1	0	0	$33,750
Sutton	13	3	7	3	0	0	0	0	$0
Swampscott	44	18	2	24	0	0	0	0	$0
Swansea	89	45	7	37	0	1	0	2	$2,500
Taunton	230	32	30	168	0	0	0	0	$847,171
Templeton	4	4	0	0	0	0	0	0	$0
Tewksbury	87	38	7	42	0	0	0	1	$981,328
Tisbury	29	11	5	13	0	0	0	0	$21,000
Tolland	1	0	0	1	0	0	0	0	$0
Topsfield	95	79	4	12	0	0	0	0	$333,907
Townsend	26	16	1	9	0	0	0	0	$124,367
Truro	2	2	0	0	0	0	0	0	$19,800

2012 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	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Sherborn	3	0	0	3	0	0	0	0	$0
Shirley	0	0	0	0	0	0	0	0	$0
Shrewsbury	12	2	1	9	0	0	0	0	$12,000
Shutesbury	0	0	0	0	0	0	0	0	$0
Somerset	0	0	0	0	0	0	0	0	$0
Somerville	1	0	1	0	0	0	0	0	$0
South Hadley Fire Districts									
South Hadley.#1	*1*	*1*	*0*	*0*	*0*	*0*	*0*	*0*	*$85,000*
South Hadley.#2	*2*	*0*	*0*	*2*	*0*	*0*	*0*	*0*	*$0*
Southampton	1	0	0	1	0	0	0	0	$0
Southborough	3	0	0	3	0	0	0	0	$0
Southbridge	1	0	0	1	0	0	0	0	$0
Southwick	3	1	1	1	0	0	0	0	$55,000
Spencer	3	2	0	1	0	0	0	0	$0
Springfield	19	9	2	8	0	0	0	0	$230,275
Sterling	0	0	0	0	0	0	0	0	$0
Stockbridge	0	0	0	0	0	0	0	0	$0
Stoneham	0	0	0	0	0	0	0	0	$0
Stoughton	2	1	1	0	0	0	0	0	$21,000
Stow	0	0	0	0	0	0	0	0	$0
Sturbridge	5	0	0	5	0	0	0	0	$0
Sudbury	2	0	1	1	0	0	0	0	$3,100
Sunderland	1	0	0	1	0	0	0	0	$0
Sutton	0	0	0	0	0	0	0	0	$0
Swampscott	3	0	0	3	0	0	0	0	$0
Swansea	3	1	0	2	0	0	0	1	$0
Taunton	21	1	2	18	0	0	0	0	$6,002
Templeton	0	0	0	0	0	0	0	0	$0
Tewksbury	4	1	0	2	0	0	0	0	$550,000
Tisbury	1	0	1	0	0	0	0	0	$0
Tolland	0	0	0	0	0	0	0	0	$0
Topsfield	3	0	1	2	0	0	0	0	$6,000
Townsend	1	0	0	1	0	0	0	0	$0
Truro	0	0	0	0	0	0	0	0	$0

2012 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	35	8	6	21	0	0	0	1	$0
Tyringham	0	0	0	0	0	0	0	0	$0
Upton	36	20	0	16	0	0	0	0	$65,300
Uxbridge	60	24	3	33	2	1	0	1	$1,157,513
Wakefield	37	31	3	3	0	0	0	0	$704,000
Wales	0	0	0	0	0	0	0	0	$0
Walpole	93	54	1	38	0	0	0	1	$194,300
Waltham	170	65	15	90	0	1	0	1	$264,075
Ware	70	17	3	50	0	0	0	0	$293,107
Wareham Fire Districts									
Onset	*24*	*19*	*3*	*2*	*0*	*0*	*0*	*2*	*$0*
Wareham	*109*	*39*	*18*	*52*	*0*	*3*	*0*	*1*	*$538,775*
Warren	29	12	5	12	0	0	0	0	$62,200
Warwick	2	2	0	0	0	0	0	0	$113,846
Washington	1	1	0	0	0	0	0	0	$40,000
Watertown	72	29	5	38	0	1	0	4	$546,560
Wayland	32	12	1	19	1	0	0	1	$149,205
Webster	60	14	5	41	0	0	0	0	$64,500
Wellesley	43	22	6	15	0	0	0	1	$528,930
Wellfleet	25	10	4	11	0	0	0	0	$189,550
Wendell	0	0	0	0	0	0	0	0	$0
Wenham	11	6	2	3	0	0	0	0	$0
West Boylston	33	3	6	24	0	0	0	2	$366,600
West Bridgewater	39	9	10	20	0	0	0	0	$76,300
West Brookfield	2	2	0	0	0	0	0	0	$270,000
West Newbury	12	6	1	5	0	1	0	0	$221,400
West Springfield	104	47	16	41	0	3	0	1	$323,650
West Stockbridge	2	1	1	0	0	0	0	0	$0
West Tisbury	0	0	0	0	0	0	0	0	$0
Westborough	57	32	7	18	0	2	0	3	$1,194,502
Westfield	144	82	16	46	1	8	0	3	$1,751,410
Westford	54	14	8	32	0	0	0	0	$488,965
Westhampton	17	7	1	9	0	0	0	0	$87,000
Westminster	32	14	7	11	0	0	0	0	$165,600
Weston	38	13	10	15	0	0	0	0	$2,000
Westport	77	15	16	46	0	0	0	0	$312,528
Westwood	73	59	4	10	0	0	0	0	$13,700

2012 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	0	0	0	0	0	0	0	0	$0
Tyringham	0	0	0	0	0	0	0	0	$0
Upton	8	0	0	8	0	0	0	0	$0
Uxbridge	6	1	1	4	0	0	0	0	$4,000
Wakefield	1	1	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	1	1	0	0	0	0	0	0	$0
Ware	6	0	0	6	0	0	0	0	$1
Wareham Fire Districts									
Wareham	*4*	*1*	*2*	*1*	*0*	*0*	*0*	*0*	*$7,500*
Onset	*2*	*2*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Warren	1	0	0	1	0	0	0	0	$0
Warwick	0	0	0	0	0	0	0	0	$0
Washington	0	0	0	0	0	0	0	0	$0
Watertown	2	1	0	1	0	0	0	0	$10,000
Wayland	0	0	0	0	0	0	0	0	$0
Webster	5	0	0	5	0	0	0	0	$10,000
Wellesley	1	0	0	1	0	0	0	0	$500
Wellfleet	1	0	0	1	0	0	0	0	$0
Wendell	0	0	0	0	0	0	0	0	$0
Wenham	0	0	0	0	0	0	0	0	$0
West Boylston	1	0	0	1	0	0	0	0	$0
West Bridgewater	4	1	1	2	0	0	0	0	$50,000
West Brookfield	0	0	0	0	0	0	0	0	$0
West Newbury	0	0	0	0	0	0	0	0	$0
West Springfield	2	1	0	1	0	0	0	0	$0
West Stockbridge	0	0	0	0	0	0	0	0	$0
West Tisbury	0	0	0	0	0	0	0	0	$0
Westborough	4	2	0	2	0	0	0	0	$500
Westfield	3	1	0	2	0	2	0	0	$100,000
Westford	2	0	0	1	0	0	0	0	$0
Westhampton	3	0	0	3	0	0	0	0	$0
Westminster	1	0	0	1	0	0	0	0	$0
Weston	1	0	0	1	0	0	0	0	$0
Westport	7	2	0	5	0	0	0	0	$2,500
Westwood	0	0	0	0	0	0	0	0	$0

2012 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
Weymouth	338	178	32	128	1	0	0	4	$1,126,025
Whately	8	0	1	7	0	0	0	0	$0
Whitman	47	11	4	32	0	0	0	0	$483,900
Wilbraham	51	22	2	27	0	0	0	3	$634,050
Williamsburg	0	0	0	0	0	0	0	0	$0
Williamstown	11	7	0	4	0	0	0	0	$71,800
Wilmington	96	40	12	44	0	1	0	2	$527,500
Winchendon	56	28	4	24	0	0	0	0	$272,200
Winchester	47	25	5	17	0	0	0	0	$1,541,000
Windsor	1	1	0	0	0	0	0	0	$300,000
Winthrop	41	22	2	17	0	0	0	0	$960,850
Woburn	60	28	22	10	0	0	0	2	$851,350
Worcester	1,587	813	99	675	0	1	0	39	$4,709,930
Worthington	1	1	0	0	0	0	0	0	$30,000
Wrentham	31	10	5	16	0	0	0	0	$296,866
Yarmouth	64	17	4	43	1	4	0	1	$317,157

2012 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
Weymouth	5	2	2	1	1	0	0	0	$28,230
Whately	1	0	0	1	0	0	0	0	$0
Whitman	2	0	0	2	0	0	0	0	$0
Wilbraham	3	1	0	2	0	0	0	0	$0
Williamsburg	0	0	0	0	0	0	0	0	$0
Williamstown	0	0	0	0	0	0	0	0	$0
Wilmington	1	1	0	0	0	0	0	0	$0
Winchendon	2	0	1	1	0	0	0	0	$2,000
Winchester	3	1	0	2	0	0	0	0	$1,250,000
Windsor	0	0	0	0	0	0	0	0	$0
Winthrop	2	0	0	2	0	0	0	0	$0
Woburn	0	0	0	0	0	0	0	0	$0
Worcester	63	25	8	30	0	0	0	13	$1,041,000
Worthington	1	1	0	0	0	0	0	0	$30,000
Wrentham	5	1	0	4	0	0	0	0	$253
Yarmouth	6	0	0	6	1	0	0	0	$1,000

2012 Fires By Incident Type

Incident Type	Total Fires	% of Total	Civilian Deaths	Civilian Inj.	Fire Service Deaths	Fire Service Inj.	Dollar Loss
Structure Fires	17,536	56%	29	267	0	471	$237,016,367
Vehicle Fires	2,502	8%	6	17	0	9	15,385,019
Brush Fires	5,857	19%	0	6	0	32	705,457
Outside Rubbish Fires	3,389	11%	0	1	0	6	205,112
Special Outside Fires	890	3%	4	13	0	2	491,211
Cult. Veg. & Crop Fires	46	0.1%	0	0	0	1	50
Other Fires	1,009	3%	0	18	0	10	3,291,656
Total Fires	**31,229**	**100%**	**39**	**322**	**0**	**531**	**$257,094,872**

2012 Arsons* By Incident Type

Incident Type	Total Fires	% of Total	Civilian Deaths	Civilian Inj.	Fire Service Deaths	Fire Service Inj.	Dollar Loss
Structure Arsons	271	24%	5	7	0	24	$12,196,749
Vehicle Arsons	114	10%	4	1	0	0	1,162,154
Brush Arsons	391	34%	0	2	0	2	8,140
Outside Rubbish Arsons	89	8%	0	0	0	0	2,802
Special Outside Arsons	173	15%	3	4	0	0	29,586
Cult. Veg. & Crop Arsons	1	0.1%	0	0	0	0	0
Other Arsons	96	8%	0	2	0	1	18,801
Total Arsons	**1,135**	**100%**	**12**	**16**	**0**	**27**	**$13,418,232**

*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.

2012 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	879	348	114	417	4	27	0	12	$16,370,131
Berkshire	607	346	34	227	1	4	0	19	5,729,236
Bristol	2,197	873	278	1,046	5	42	0	31	35,603,409
Dukes	38	16	6	16	0	0	0	0	57,200
Essex	2,997	1,574	236	1,187	4	31	0	40	13,398,910
Franklin	279	128	29	122	0	3	0	1	8,823,316
Hampden	2,181	1,102	220	859	3	31	0	65	14,529,379
Hampshire	539	208	46	285	1	1	0	1	2,208,787
Middlesex	5,175	3,199	407	1,569	7	44	0	85	38,768,870
Nantucket	39	31	3	5	0	0	0	0	5,000
Norfolk	3,270	1,884	2226	1,160	3	31	0	113	16,806,661
Plymouth	2,067	826	212	1,029	3	46	0	36	13,780,449
Suffolk	6,678	4,826	325	1,527	1	17	0	52	64,522,343
Worcester	4,283	2,175	366	1,742	7	45	0	76	26,491,181
Total	**31,229**	**17,536**	**2502**	**11,191**	**39**	**322**	**0**	**531**	**$257,094,872**

2012 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	45	9	5	31	2	1	0	3	$3,520,930
Berkshire	24	5	0	19	0	0	0	1	239,390
Bristol	98	29	10	59	0	2	0	5	1,328,665
Dukes	2	0	1	0	0	0	0	0	0
Essex	105	23	11	71	0	0	0	2	328,559
Franklin	18	6	1	11	0	1	0	0	16,450
Hampden	67	24	10	33	1	4	0	0	633,185
Hampshire	37	4	0	33	1	0	0	0	115,376
Middlesex	136	35	14	87	3	1	0	0	2,648,951
Nantucket	1	0	0	1	0	0	0	0	0
Norfolk	96	10	10	76	3	1	0	0	442,183
Plymouth	134	40	10	84	1	4	0	2	1,170,936
Suffolk	169	33	22	114	0	0	0	3	575,890
Worcester	203	53	20	130	1	2	0	14	2,397,717
Total	**1,135**	**271**	**114**	**750**	**12**	**16**	**0**	**27**	**$13,418,232**

2012 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	879	4.1	4	4.6	0.19	45	0.2
Berkshire	131,219	607	4.6	1	1.6	0.08	24	0.2
Bristol	548,285	2,197	4.0	5	2.3	0.09	98	0.2
Dukes	16,535	38	2.3	0	0.0	0.00	2	0.1
Essex	743,159	2,997	4.0	4	1.3	0.05	105	0.1
Franklin	71,372	279	3.9	0	0.0	0.00	18	0.3
Hampden	463,490	2,181	4.7	3	1.4	0.06	67	0.1
Hampshire	158,080	539	3.4	1	1.9	0.06	37	0.2
Middlesex	1,503,085	5,175	3.4	7	1.4	0.05	136	0.1
Nantucket	10,172	39	3.8	0	0.0	0.00	1	0.1
Norfolk	670,850	3,270	4.9	3	0.9	0.04	96	0.1
Plymouth	494,919	2,067	4.2	3	1.5	0.06	134	0.3
Suffolk	722,023	6,678	9.2	1	0.1	0.01	169	0.2
Worcester	798,552	4,283	5.4	7	1.6	0.09	203	0.3
Massachusetts	6,547,629	31,229	4.8	39	1.2	0.06	1,135	0.2

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

2012 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	37,974	65	27,420	1,808	2,662	1,390	4,412	54	163
Berkshire	11,565	10	6,783	775	1,485	570	1,854	43	45
Bristol	53,265	86	34,263	2,594	3,637	3,641	8,556	139	349
Dukes	358	2	25	57	14	40	217	2	1
Essex	86,954	104	49,130	3,827	11,743	6,006	15,193	242	664
Franklin	5,079	15	2,636	474	652	531	678	35	58
Hampden	42,466	80	25,083	1,815	3,350	5,308	6,590	48	192
Hampshire	13,145	45	8,439	706	791	770	2,274	13	107
Middlesex	149,834	118	86,532	9,783	14,815	9,130	24,371	599	4,486
Nantucket	2,468	1	1,215	254	117	86	790	5	0
Norfolk	80,802	142	48,879	5,108	7,979	5,274	11,438	207	1,775
Plymouth	74,879	97	49,096	4,239	6,658	5,084	9,066	386	253
Suffolk	88,934	74	50,185	4,718	11,165	7,674	14,664	51	403
Worcester	79,884	106	52,624	3,998	6,2758	4,915	10,571	124	1,271
Massachusetts	**727,607**	**945**	**442,310**	**40,201**	**71,343**	**50,419**	**110,674**	**1,948**	**9,767**

[1] WX is the abbreviation for Weather.

M.G.L. Chapter 148 §26G – Sprinklers in Buildings or Additions

"Every building or structure, including any additions or major alterations thereto, which totals, in the aggregate, more than 7,500 gross square feet in floor area shall be protected throughout with an adequate system of automatic sprinklers in accordance with the provisions of the state building code. No such sprinkler system shall be required unless sufficient water and water pressure exists. For purposes of this section, the gross square footage of a building or structure shall include the sum total of the combined floor areas for all floor levels, basements, sub-basements and additions, in the aggregate, measured from the outside walls, irrespective of the existence of interior fire resistive walls, floors and ceilings. This section shall not apply to buildings used for agricultural purposes as defined in section 1A of chapter 128.

In such buildings or structures, or in certain areas of such buildings or structures, where the discharge of water would be an actual danger in the event of fire, the head of the fire department shall permit the installation of such other fire suppressant systems as are prescribed by the state building code in lieu of automatic sprinklers. Automatic suppressant or sprinkler systems shall not be required in rooms or areas of a telephone central office equipment building when such rooms or areas are protected with an automatic fire alarm system. Sprinkler systems shall not be required in open-air parking structures, defined as: buildings, structures, or portions thereof, used for parking motor vehicles and having not less than twenty-five per cent of the total wall area open to atmosphere at each level, utilizing at least two sides of the structure. This section shall not apply to buildings or additions used for residential purposes.

The head of the fire department shall enforce the provisions of this section.

Whoever is aggrieved by the head of the fire department's interpretation, order, requirement, direction or failure to act under the provisions of this section, may, within forty-five days after the service of notice thereof, appeal from such interpretation, order, requirement, direction or failure to act to the automatic sprinkler appeals board as provided in section two hundred and one of chapter six. The board may grant a reasonable waiver from the provisions of this section, or may allow the installation of a reasonable alternative or modified system of automatic sprinklers upon reviewing the characteristics of buildings that have architectural or historical significance."

As of 2010, this is no longer a local option, but is state law.

M.G.L. Chapter 148 §26H – Sprinklers in Boarding & Lodging Houses

"In any city or town which accepts the provision of this section, every lodging house or boarding house shall be protected throughout with an adequate system of automatic sprinklers in accordance with the provisions of the state building code… The head of the fire department shall enforce the provisions of this section.

For the purpose of this section, 'lodging house' or 'boarding house' shall mean a house where lodgings are let to six or more persons not within the second degree of kindred to the person conducting it, but shall not include fraternity houses or dormitories, rest homes or group homes licensed to or regulated by the agencies of the Commonwealth. Any lodging or boarding house subject to the provisions of this section shall be equipped with automatic sprinklers within five years of the acceptance of this act by a city or town…Whoever is aggrieved by the head of the fire department's interpretation…under the provisions of this section, may within forty-five days after the service of notice thereof, appeal from such interpretation, order or requirement to the board of appeals of the fire safety commission in section two hundred and one of chapter six."

Communities That Have Adopted M.G.L. Chapter 148 Section 26H

Abington	Dennis	Maynard	Sutton
Acton	Douglas	Medford	Swampscott
Acushnet	Dracut	Medway	Taunton
Amesbury	Easthampton	Melrose	Tewksbury
Amherst	Everett	Middleton	Turners Falls
Arlington	Fairhaven	Milford	Tyngsboro
Ashland	Fall River	Natick	Upton
Attleboro	Fitchburg	Needham	Wakefield
Auburn	Foxborough	Newburyport	Ware
Ayer	Framingham	Newton	Warren
Bedford	Franklin	North Andover	Watertown
Belmont	Gardner	North Reading	Wayland
Berkley	Georgetown	Northborough	Wenham
Beverly	Grafton	Norton	Westborough
Billerica	Hamilton	Paxton	Westford
Blackstone	Hanson	Peabody	Westminster
Boston	Haverhill	Pelham	Westport
Braintree	Holyoke	Plainville	Weston
Bridgewater	Hopedale	Plymouth	Westwood
Brockton	Hubbardston	Randolph	Whitman
Brookfield	Hull	Raynham	Wilmington
Brookline	Ipswich	Revere	Winchester
Burlington	Kingston	Russell	Winthrop
Canton	Lancaster	Rutland	Woburn
Chatham	Lawrence	Salem	Worcester
Chelmsford	Lee	Saugus	Wrentham
Chelsea	Leominster	Scituate	
Chicopee	Lowell	Seekonk	**Total: 134**
Clinton	Ludlow	Sharon	
Cohasset	Lunenburg	Somerset	
Concord	Lynn	Somerville	
Cummington	Lynnfield	Southborough	
Danvers	Malden	Sterling	
Dartmouth Dist. 1	Mansfield	Stoneham	
Dartmouth Dist. 3	Marlborough	Stoughton	
Dedham	Marshfield	Sudbury	

M.G.L. Chapter 148 §26I – Sprinklers in New Dwelling Units (4+ units)

"In a city, town or district which accepts the provisions of this section, any building hereafter constructed or hereafter substantially rehabilitated so as to constitute the equivalent of new construction and occupied in whole or in part for residential purposes and containing not less than four dwelling units including, but not limited to, lodging houses, boarding houses, fraternity houses, dormitories, apartments, townhouses, condominiums, hotels, motels and group residences, shall be equipped with an approved system of automatic sprinklers in accordance with the state building code. In the event that adequate water supply is not available, the head of the fire department shall permit the installation of such other fire suppression systems as are prescribed by the state building code in lieu of automatic sprinklers. Owners of building with approved and properly maintained installations may be eligible for a rate reduction on fire insurance."

Communities Which Have Adopted M.G.L. Chapter 148 Section 26I

Abington	Easton	Mansfield	S. Hadley-Dist. 1
Acton	Everett	Marblehead	S. Hadley-Dist. 2
Acushnet	Fairhaven	Marlborough	Southborough
Agawam	Fall River	Marshfield	Sterling
Amesbury	Falmouth	Mashpee	Stoneham
Amherst	Fitchburg	Maynard	Stoughton
Arlington	Foxborough	Medfield	Sudbury
Ashburnham	Framingham	Medford	Swampscott
Ashland	Franklin	Medway	Swansea
Athol	Georgetown	Melrose	Taunton
Attleboro	Gill	Middleton	Tewksbury
Avon	Grafton	Milford	Topsfield
Ayer	Great Barrington	Millbury	Townsend
Barnstable	Greenfield	Natick	Tyngsboro
Barre	Groton	Newton	Upton
Bedford	Hamilton	North Andover	Wakefield
Bellingham	Hanover	North Attleboro	Walpole
Belmont	Hanson	North Reading	Waltham
Berkley	Harwich	Northborough	Ware
Beverly	Haverhill	Norton	Watertown
Billerica	Hingham	Norwell	Wayland
Boston	Holden	Orange	Wellesley
Brewster	Holliston	Orleans	Wenham
Bridgewater	Holyoke	Oxford	West Barnstable
Brookfield	Hopedale	Paxton	West Boylston
Brookline	Hopkinton	Peabody	West Springfield
Burlington	Hubbardston	Pelham	Westborough
Canton	Hudson	Pembroke	Westford
Centerville	Hull	Plainville	Westminster
Chatham	Hyannis	Plymouth	Weston
Chelmsford	Ipswich	Randolph	Westport
Clinton	Kingston	Raynham	Westwood
Cohasset	Lancaster	Rehoboth	Whitman
Concord	Lawrence	Revere	Wilmington
Cotuit	Leominster	Rockland	Winchendon
Cummington	Lexington	Russell	Winchester
Danvers	Lincoln	Rutland	Winthrop
Dartmouth Dist. 1	Longmeadow	Salem	Woburn
Dartmouth Dist. 3	Lowell	Saugus	Wrentham
Dedham	Lunenburg	Scituate	Yarmouth
Dracut	Lynn	Shrewsbury	
Duxbury	Lynnfield	Somerset	**Total: 169**
E. Longmeadow	Malden	Somerville	

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