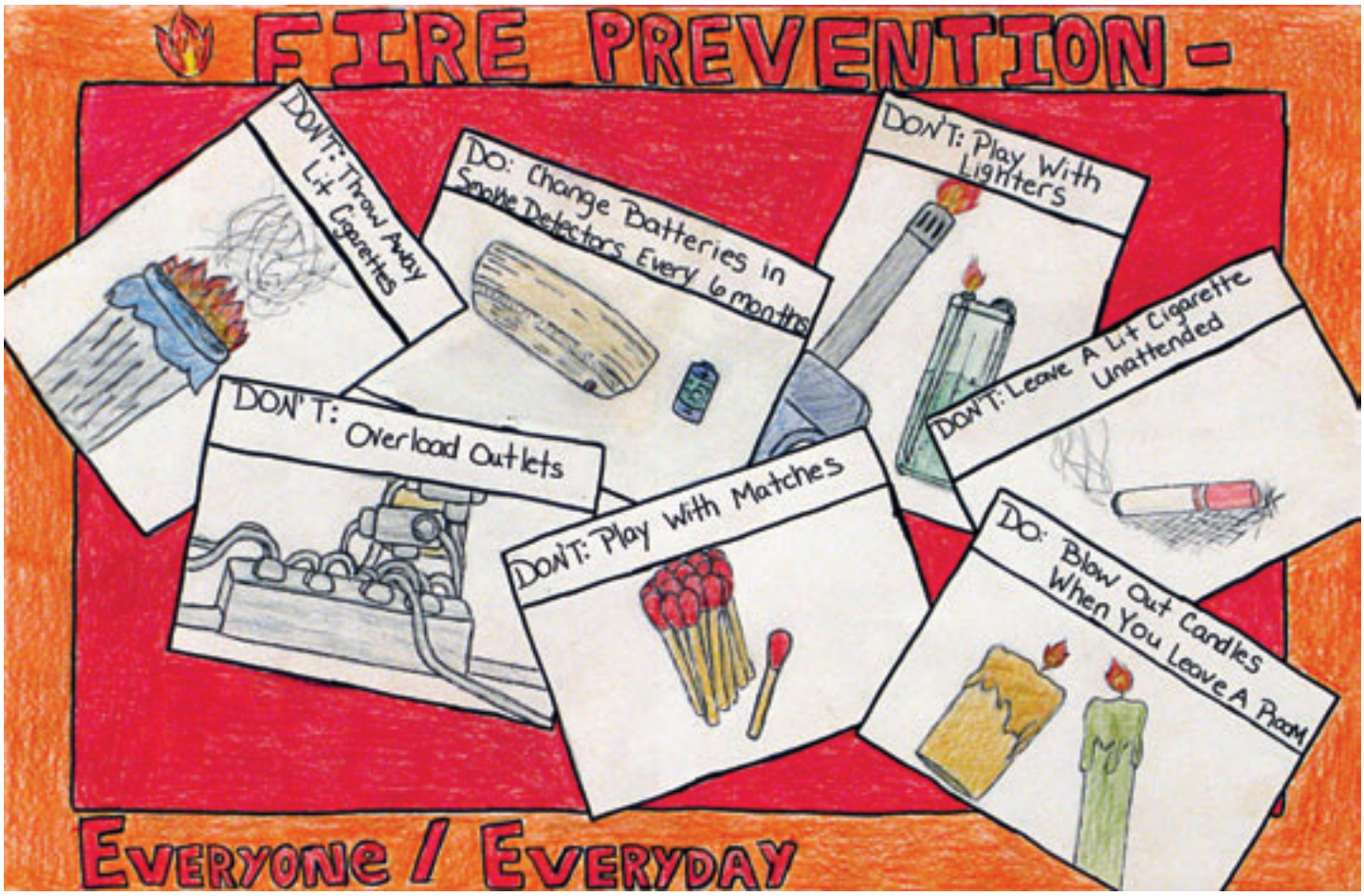
The Massachusetts Fire Problem



Annual Report of the Massachusetts Fire Incident Reporting System

2011

Deval L. Patrick
Governor

Mary Elizabeth Heffernan
Secretary of Public Safety & Security

Stephen D. Coan
State Fire Marshal

ABOUT THE COVERS

The original drawings shown on the front and back covers are the year 2012 First and Second Place winning entries of the 30th 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 1,200 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 17, 2012, at which time the three State Winners were announced and presented with their awards.

The front cover shows a drawing submitted by Madalyn Izoita, a student at the Agawam Junior High School, Feeding Hills, Massachusetts. Madalyn's poster was chosen as the First Place Winner in the Hampden 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 Statewide Winner.

The back cover shows a drawing submitted by Rebecca Schlier, a student at the Overlook Middle School, Ashburnham, Massachusetts. Rebecca's 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 Statewide Winner.

MPIUA has generously sponsored the printing of the 2011 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 29 years.

Massachusetts Fire Incident Reporting System

2011 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 *2011 Annual Report of the Massachusetts Fire Incident Reporting System* (MFIRS), which summarizes the Massachusetts fire experience for 2011. It is based on the 29,110 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 Up 50% From All Time Record Low

Fifty-four (54) civilians died in 51 Massachusetts fires in 2011. Civilian deaths increased by 18, or 50%, from the all time record low of 36 fire deaths in 2010. Twenty-eight (28) men, 25 women, and one child died in Massachusetts' fires. Only one person under the age of 18 died in a fire in 2011 and that was a car fire caused by a motor vehicle collision.

No One Under 18 Died in a Structure Fire

No one under 18 died in a structure fire in Massachusetts in 2011. This is appears to be a first for us at least since the Office of the State Fire Marshal was created in 1896. Of the 54 civilian deaths in fires in 2011, 41 occurred in residential structures. One-half, or 50%, of civilians died at night, at home, while they were sleeping and did not have working smoke detectors or residential sprinklers. It is also 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.

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.

2 Fire-Related Firefighter Deaths in 2011

There were two fire-related fire service fatalities in the Commonwealth of Massachusetts in 2011. One (1) firefighter was trapped in a building collapse during a residential fire; the other firefighter collapsed while advancing a hose line into a burning building.

Declining Trend in Civilian Fire Deaths

Seven (7) 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.

Electrical Fires Were the Leading Cause of Fire Deaths
In 2011, electrical fires were the leading cause of residential building fire deaths. These fires accounted for 14, or 34%, of residential fire deaths. Historically, smoking has been far and away the leading cause of fatal fires and fire deaths in Massachusetts. The expectation is that when the effect of Fire Standard Compliant law is fully realized, it will help reduce the number of fatal fires and fire deaths in the Commonwealth. This may already be happening since we have had a reduction in the total number of fire deaths caused by smoking the past five years from a high of 19 deaths in 2007 to four deaths in 2011.

Cooking Leading Cause of Fires & Fire Injuries
Cooking is the leading cause of most fires and civilian fire injuries in the Commonwealth. Sixty-nine percent (69%) of all residential building fires started in the kitchen. Over one-quarter of all civilian fire injuries, or 27%, occurred during cooking fires.

Stand by Your Pan & Put a Lid On It
Because cooking is the leading cause of fires and civilian fire injuries, in 2011 the Department of Fire Services launched a new 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 Mary Elizabeth Heffernan 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 Up 50% From All Time Record Low

Fifty-four (54) civilians died in 51 Massachusetts fires in 2011. Civilian deaths increased by 18, or 50%, from the all time record low of 36 fire deaths in 2010. Twenty-eight (28) men, 25 women, and one child died in Massachusetts' fires. Only one person under the age of 18 died in a fire in 2011 and that was a car fire caused by a motor vehicle collision. Of the 54 civilian deaths in fires in 2011, 41 occurred in residential structures. One-half, or 50%, 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.

Ten (10) deaths occurred in 10 motor vehicle fires and two people were killed in two outside fires in 2011.

2 Fire-Related Firefighter Deaths in 2011

There were two fire-related fire service fatalities in the Commonwealth of Massachusetts in 2011. One (1) firefighter was trapped in a building collapse during a residential fire; the other firefighter collapsed while advancing a hose line into a burning building.

18,178 Structure Fires, 2,997 Vehicle Fires, 7,935 Outside & Other Fires in 2011

There were 29,110 fire and explosion incidents reported by fire departments to the Massachusetts Fire Incident Reporting System (MFIRS) in 2011. The 18,178 structure fires, 2,997 motor vehicle fires, and 7,935 outside and other fires caused 54 civilian deaths, two fire service deaths, 323 civilian injuries, 422 fire service injuries, and an estimated dollar loss of $217 million in property damages. In 2011 there were 1.86 civilian deaths for every 1,000 fires.

Structure Fires & Outside Fires Down in 2011

The total number of reported fires decreased by 11% from 32,817 in 2010 to 29,110 in 2011. Structure fires decreased by 3% from 2010 to 2011. From 2010 to 2011, motor vehicle fires increased by 1%. Outside, brush, and other fires decreased by 29% 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 56%, of the 768,344 total responses that were reported to MFIRS in 2011. The total number of calls reported to MFIRS increased by 39,495, or 5% in 2011.

Cooking Was the Leading Cause of Residential Building Fires & Injuries
Sixty-seven percent (67%) of all residential building fires were caused by unattended and other unsafe cooking practices in 2011. Sixty-nine percent (69%) of residential fires originated in the kitchen. Cooking also caused the most fire-related civilian injuries.

Electrical Fires Were the Leading Cause of Fire Deaths
In 2011, electrical fires were the leading cause of residential building fire deaths. These fires accounted for 14, or 34%, of residential fire deaths. Historically, smoking has been far and away the leading cause of fatal fires and fire deaths in Massachusetts. In 1999, cooking and smoking tied as the leading causes of fatal fires. In 2005, electrical fires were the leading cause of residential fire deaths, but smoking remained the leading cause of fatal residential fires. Because a fire can kill more than one person it is important to look at the causes of both fatal fires and fire deaths.

Detectors Operated in 64% of Fires
Smoke or heat detectors operated in 9,511, or 64%, of the residential building fires in 2011. There were no working detectors in 3% of these incidents. Based on information reported, smoke detector performance was undetermined in 3,452 incidents, or 23%, of Massachusetts' 2011 residential building fires.

Detectors Operated in 1/2 of Building Fires that Caused Injuries
Detectors operated in half, or 50%, of the structure 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.

Overall Arson Down
Nine hundred and seventy-nine (979) Massachusetts fires were considered arson in 2011. The 223 structure arsons, 125 motor vehicle arsons, and 631 outside and other arsons caused seven civilian deaths, 20 civilian injuries, 20 fire service injuries, and an estimated dollar loss of $12.4 million. This is a 16% decrease in arson from the 1,171 reported in 2010.

Structure arsons decreased by 17%, while motor vehicle arsons rose by 8% from 2010 to 2011, 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 7 Vacant Building Fires
One of the most dangerous types of fires for firefighters in 2011 was vacant building fires. Vacant building fires accounted for 39, or 9%, of all firefighter injuries in 2011. These 39 injuries also represent 10% of the number of firefighter injuries at all building fires. On average there was one firefighter injury for every seven 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 detectors or 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. They are an integral part of an all hazards approach to community risk reduction. All firefighters must be trained to offer first aid if they arrive first at an emergency, and many are emergency medical technicians or paramedics. 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. Many protect the community through 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 some of which pertain to sprinkler retro-fit laws for high rises and night clubs, and mandatory reporting of school fires among others.

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 data it can 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.

SAFE
STUDENT AWARENESS OF FIRE EDUCATION

Any city or town, whose fire department is committed to working with school systems, public health or other community agencies to develop a well-conceived and coordinated fire safety education program message, is invited to apply for these grants. In fiscal year 2011, 207 fire departments shared the $1,074,567 in S.A.F.E. funding.

Topsfield Young Heroes – Julia Silver & Jessica Esposito
On Friday, July 15, 2011 at 9:30 p.m. Julia Silver and Jessica Esposito were baby-sitting two 18 month-old siblings when they noticed an odor of smoke. Julia thought that the odor was coming from a nearby campfire and after they shut the outside doors to the house Julia saw smoke in the living room. After investigating further they noticed that a curtain had blown onto a wall lamp and caught fire. Julia and Jessica woke the sleeping children, exited the house and once outside they called 9-1-1. A few minutes later the fire department arrived and extinguished the fire. Captain Jennifer Collins-Brown of the Topsfield Fire Department credits Julia and Jessica for their quick actions and went on to say that they knew what to do in this type of emergency because of the training they received in grades K-6 by the S.A.F.E. program.

Lt. Annmarie Picket, Worcester Fire Department
Lt. Annmarie Pickett has demonstrated her zeal and dedication to her chosen profession and has exemplified her qualities in leadership and commitment. She works in the Worcester Fire Department Public Education and Community Risk Reduction program as it continues to grow. Using fire data from MFIRS, Lt. Pickett identified a community risk location, developed a strategy to educate the at-risk population, and concluded with a follow-up evaluation of the results of her efforts to identify behavior change and to highlight any need for follow-up intervention. Due to the leadership of Lt. Pickett, partnerships between the public schools, the fire department and the community have been built. She has brought public education into the Worcester Officer Program, in addition to making public fire education training a part of the required training of all new recruits in the Worcester Fire Department's Recruit Firefighter Training Program. She is the first female fire officer in the history of the Worcester Fire Department, and she is well respected by her peers and holds a position of trust and confidence.

65 MA Departments Receive $33.6 Million in Federal Grants
Sixty-five (65) local Massachusetts fire departments received $33.6 million in federal grants during fiscal year 2011.

In the ninth year of the Federal Assistance to Firefighters Grant program, 56 Massachusetts fire departments received $10.5 million. Forty-nine (49) departments received $8 million for fire operations and firefighter safety. Seven (7) departments received $2.4 million for the purchase of firefighting vehicles.

Eight (8) fire departments were awarded $23.1 million in Federal SAFER grants that allow for the hiring and recruitment of more firefighters, and two fire departments were awarded $24,880 for fire prevention programs.

97.8% 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-three (343), or 94%, of Massachusetts' fire departments reported at least one fire during 2011. Fifteen (15), or 3.8%, 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 2011, 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.

56% of All Massachusetts Calls Were EMS Incidents

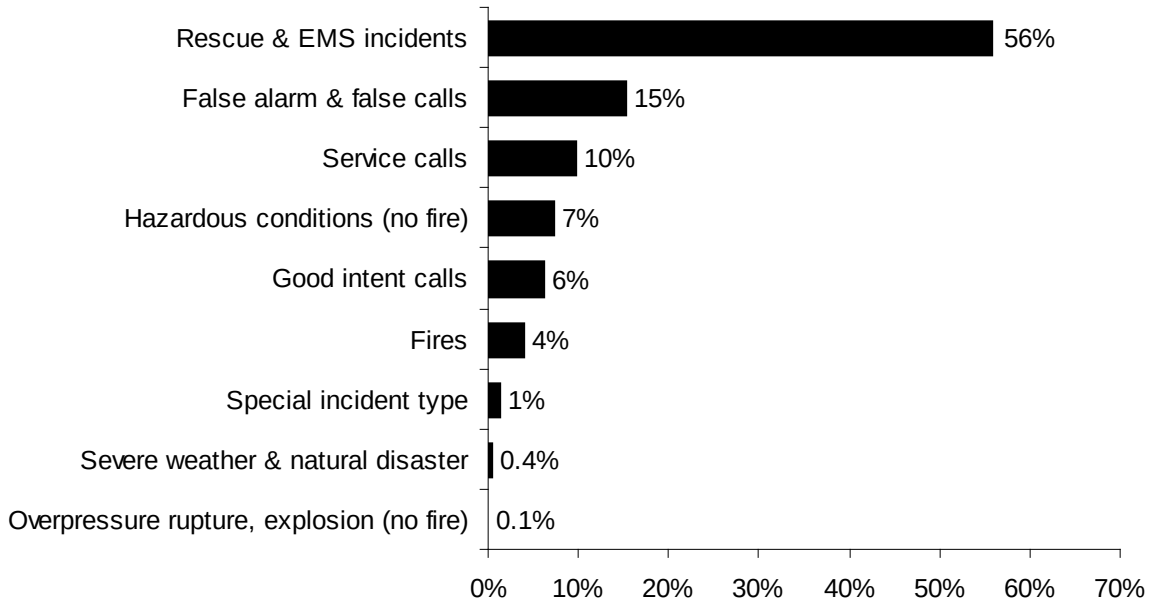
In 2011, 344 fire departments in Massachusetts reported 768,344 responses[1] to MFIRS. Of these 768,344 responses, 737,690 non-fire calls were voluntarily reported.

Of these 737,690 non-fire incidents there were 429,488 (56%) reported rescue and emergency medical services (EMS) calls; 117,163 (15%) reported false alarms or false calls; 74,893 (10%) reported service calls such as lock-outs, water or smoke problems, unauthorized burning or public service assistance; 55,337 (7%) reported hazardous condition calls with no fire; 47,060 (6%) reported good intent calls; 9,576 (1%) reported special incident type calls such as citizen complaints; 3,118 (0.4%) reported severe weather and natural disaster incidents; and 1,055 (0.1%) reported overpressure rupture, explosion or overheat calls with no fire.

Thirty thousand six hundred and fifty-four (30,654), or 4%, of the total responses submitted by Massachusetts fire departments were fires.

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

2011 Responses by Incident Type



Most Large Cities Voluntarily Reported All of Their Incidents
Boston, the largest city in the Commonwealth, reported 71,808 non-fire incidents in 2011. The City of Worcester, the second largest city in Massachusetts, reported the second most non-fire incidents in 2011: 28,053 incidents. The next five cities in terms of the number of non-fire calls reported were: Brockton with 19,771; Springfield with 15,851; Lowell with 13,998 calls; Cambridge with 12,715 calls; and New Bedford with 11,133 reported incidents in 2011.

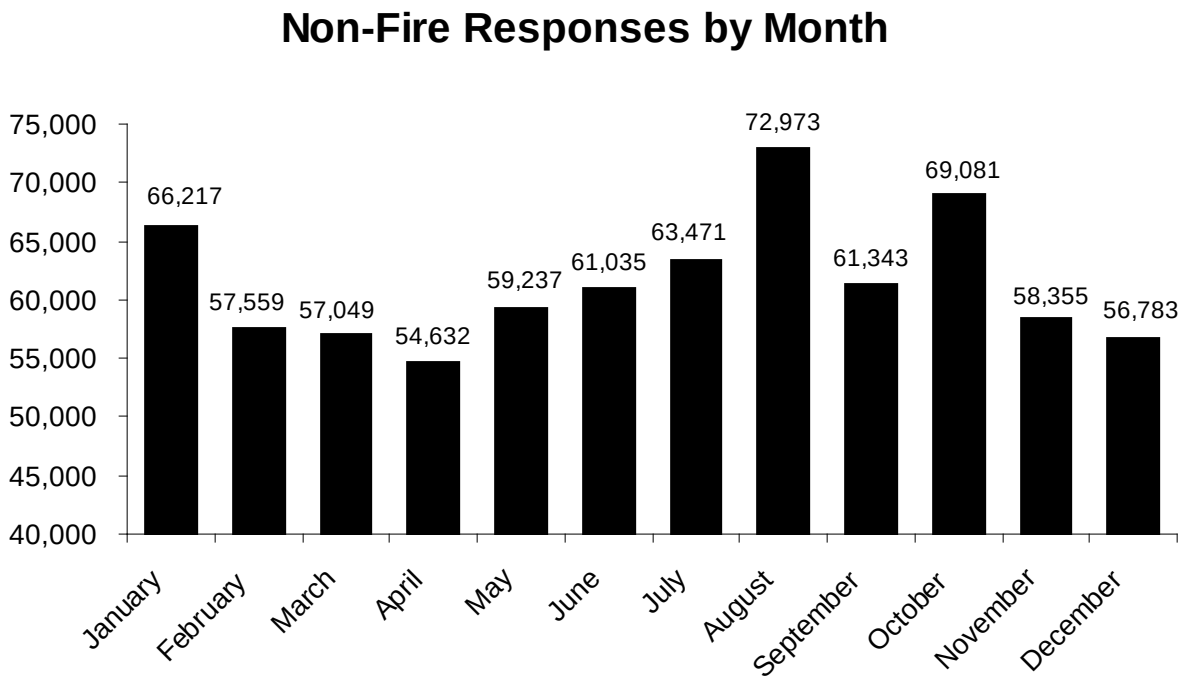
56% of All Fire Department Responses Were EMS Calls
Fifty-six percent (56%) of all reported 2011 fire department responses in the Commonwealth were emergency medical service calls. The top four types of all calls were all EMS type incidents. Over one-third of all reported incidents, or 34%, were non-vehicle accident with injury - EMS calls. Eleven percent (11%) 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 2011 were motor vehicle accidents with injuries. The fifth most reported call type in 2011 was alarm system sounded, no fire - unintentional, accounting for 3% of all reported incidents.

Middlesex & Suffolk Counties Reported 1/3 of All Non-Fire Incidents
Middlesex and Suffolk Counties reported a combined 33% of all non-fire incidents to MFIRS in 2011. Middlesex County reported 21% of these types of incidents and Suffolk County reported 12%. Essex County submitted the third most non-fire calls, totaling 11% of all the 2011 non-fire incidents. Nantucket County reported 2,385 (0.3%) non-fire

incidents and Dukes County[2] reported 178 non-fire incidents, accounting for 0.02% of all non-fire incidents reported to MFIRS in 2011.

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

Non-Fire Incidents by Month
August was the month with the most reported non-fire incidents in 2011 (10%), followed by October (9%), January and July (9%). April was the month with the least reported non-fire incidents (7%). Statistically these incidents are spread evenly from month to month. Seven (7) months each accounted for 8% of the incidents, three months each accounted for 9%, one month accounted for 10% and one month accounted for 7% of the incidents. The average number of monthly reported non-fire incidents in 2011 was 61,478 calls.



Aid Given & Received
In 2011, Massachusetts fire departments reported that they received mutual or automatic aid at 12,227, or 2%, of all calls. They also reported that they gave mutual, automatic or other aid to other fire departments 16,268 times, or another 2% of all calls.

Norfolk County Fire Departments Received the Most Aid
Norfolk County fire departments reported receiving the most aid, accounting for 2,163 incidents, or 18%, of all aid received calls reported by Massachusetts fire departments in

[2] Only 1 local fire department in Dukes County, Tisbury, reports non-fire incidents to MFIRS.

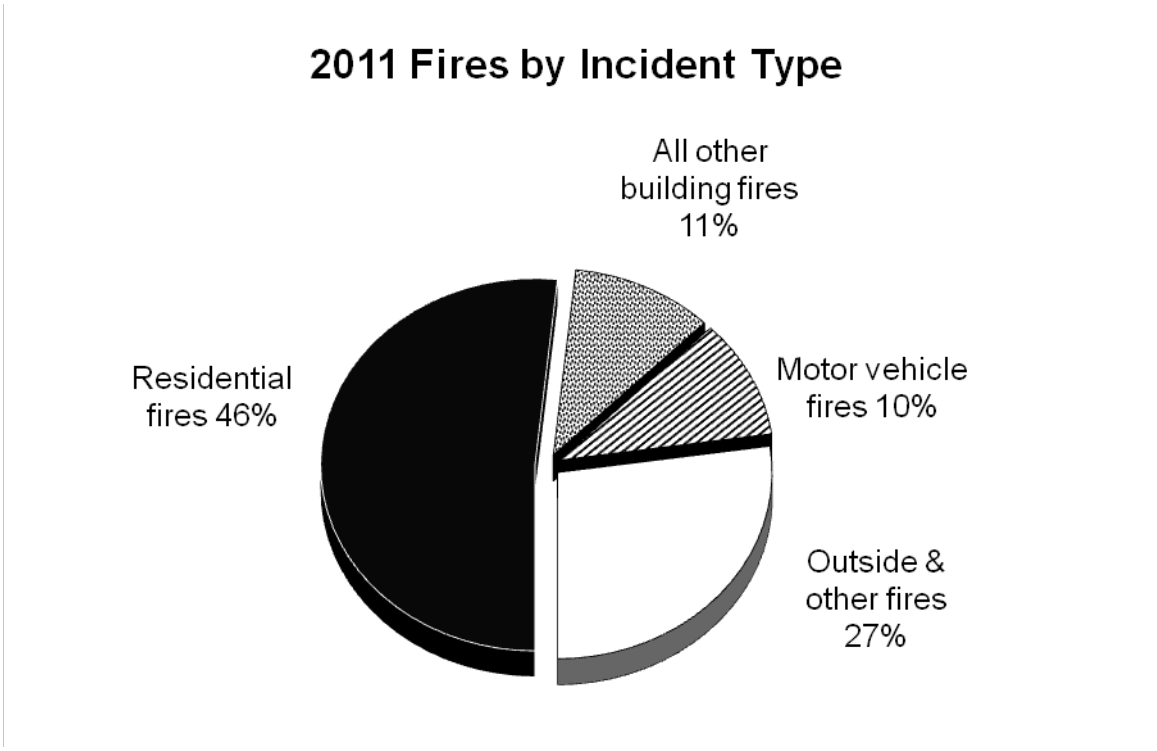
2011. These 2,163 calls represent 2% of their total calls. Middlesex County also accounted for 16% of all aid received calls, but these calls only accounted for 1% of their total calls. Plymouth County accounted for 15% of all aid received calls, but these calls only accounted for 2% of Plymouth County's total calls.

Norfolk County Gave the Most Aid
Norfolk County fire departments reported giving the most aid, accounting for 3,087 incidents, or 19%, of all aid given calls reported by Massachusetts fire departments in 2011. These 3,087 calls represent 4% of all of Middlesex County's reported calls in 2011. Middlesex County also accounted for 19% of all aid given calls in 2011, but these calls only accounted for 2% of their total calls. Worcester County accounted for 13% of all aid received calls, 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.

Fires by Incident Type

18,178 Structure Fires, 2,977 Vehicle Fires, 7,936 Outside & Other Fires in 2011
There were 29,110 fire and explosion incidents reported by fire departments to the Massachusetts Fire Incident Reporting System (MFIRS) in 2011. The 18,178 structure fires, 2,997 motor vehicle fires, and 7,936 outside and other fires caused 54 civilian deaths, two fire service deaths, 323 civilian injuries, 422 fire service injuries, and an estimated dollar loss of $217 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 2011, 62% 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 27% were classified as outside and other fires.



18,178 Structure Fires, 42 Civilian Deaths & 2 Firefighter Deaths
Massachusetts fire departments reported 18,178 structure fires to the Massachusetts Fire Incident Reporting System (MFIRS) in 2011. These fires killed 42 civilians and two firefighters, caused 248 civilian injuries, 390 fire service injuries, and an estimated $195 million in property damage. Structure fires accounted for 62% of the total incidents and 78% of the civilian deaths in 2011. Structure fires were down 11% from 2010. There were 223 structure arsons in 2011. Structure fires in the Massachusetts Fire Incident Reporting System include any fires that occur inside or on a structure.

2,997 Motor Vehicle Fires Account for 10% of Reported Fires
The 2,997 motor vehicle fires caused 10 civilian deaths, 24 civilian injuries, 15 fire service injuries, and an estimated $16.3 million in property damage. These incidents accounted for 10% of the reported 29,110 fires in 2011. Motor vehicle fires accounted for 19% of civilian fire deaths. Motor vehicle fires were up 1% from 2010. There were 125 motor vehicle arsons in 2011. 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.

7,935 Brush, Trash, and Other Outside Fires
The 7,935 outside and other fires caused two civilian deaths, 51 civilian injuries, 17 fire service injuries, and an estimated dollar loss of $5.6 million. The 3,351 trees, grass and brush fires, 2,905 outside rubbish fires, 741 special outside fires, 28 cultivated vegetation or crop fires, and 910 other fires accounted for 27% of the total fire incidents in 2011 and 4% of civilian fire deaths. These fires were down 29% from the 11,186 outside and other fire incidents reported in 2009. There were 631 outside and other arsons in 2011. Fire departments are required to report any fire or explosion resulting in a dollar loss or

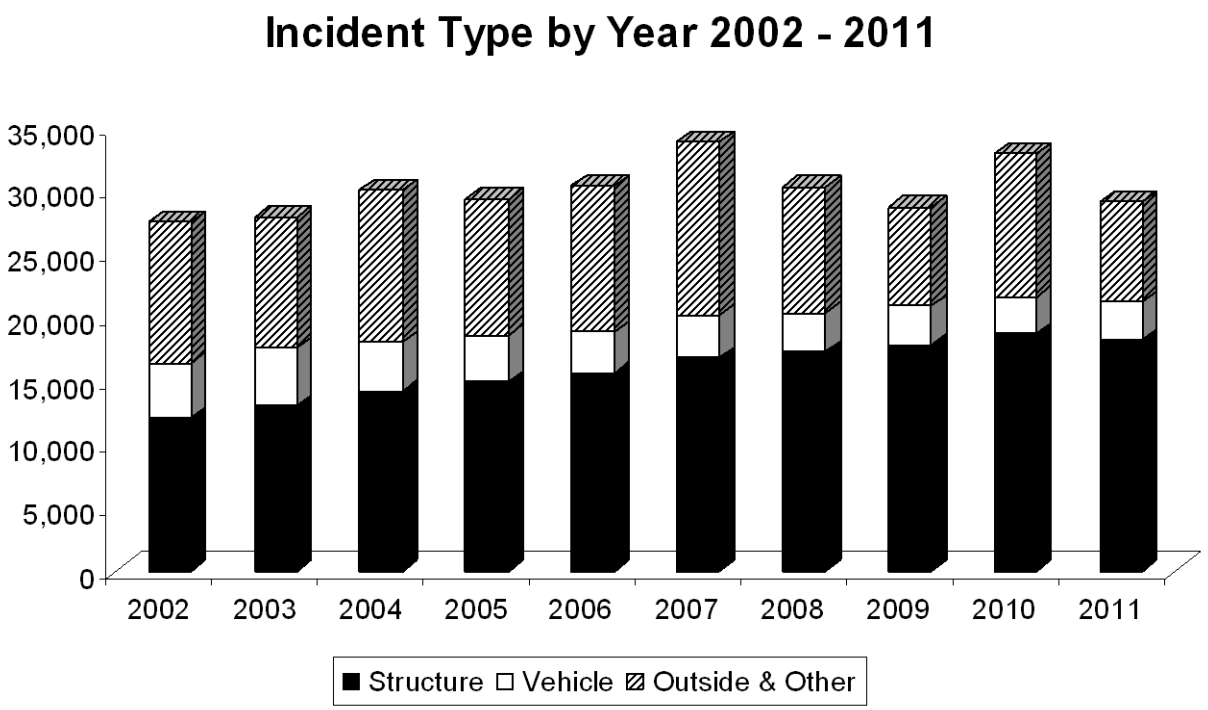
human casualty to MFIRS. Fires that do not result in a loss may be reported. Many fire departments, particularly those that submit data electronically, voluntarily report these fires. These figures should be considered an underestimate of the "no loss" fire incidents to which fire departments actually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

The following table indicates the total number of fires and the subsequent breakdown into structure fires, motor vehicle fires and outside and other fires for the years 2002 through 2011. The total number of fire incidents in 2011 was down 11% from the 32,817 incidents reported in 2010. Overall, fires have been on an increasing trend since 2001. This is due 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
2011	29,110	18,178	2,997	7,935
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
2002	27,519	12,035	4,356	11,128

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[3], the number of structure fires steadily increased. 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.

[3] 2001 was the first year of MFIRS v5.0.



Structure Fires

18,178 Structure Fires Account for 62% of Reported Fires, 78% of Fire Deaths

The 18,178 structure fires caused 42 civilian deaths, two fire service deaths, 248 civilian injuries, 390 fire service injuries, and an estimated dollar loss of $195 million. The average structure fire caused $10,733 in property damage. Structure fires accounted for 62% of reported fires and 78% of the civilian fire deaths in 2011.

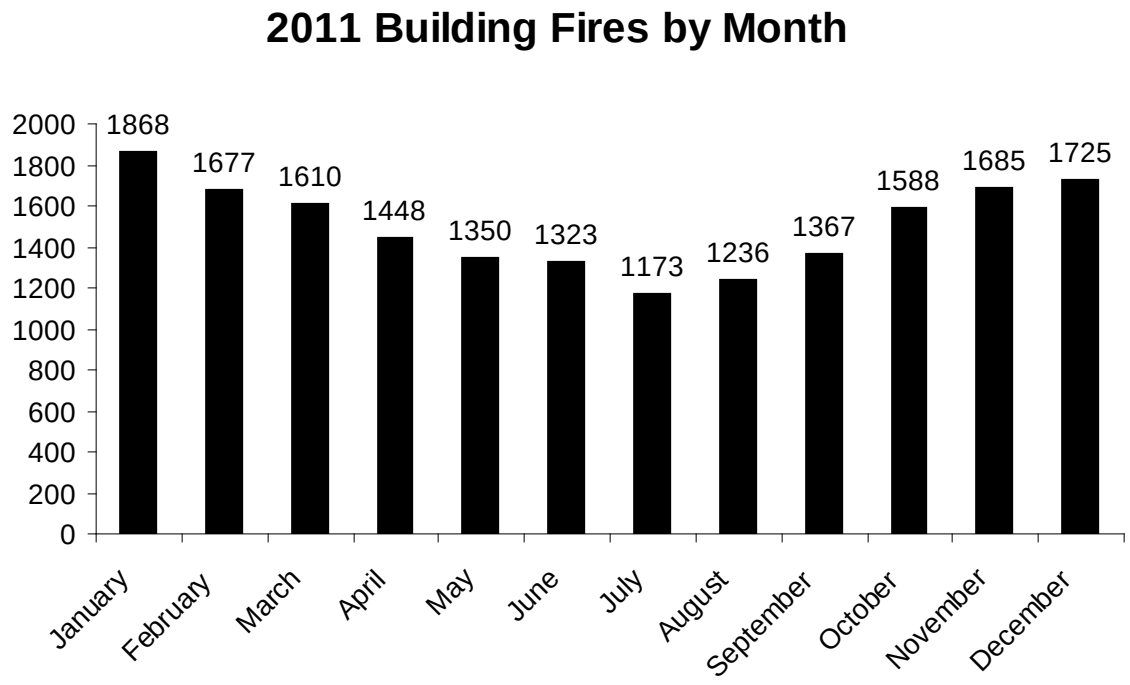
According to the MFIRS definition, any fire occurring inside or on a structure is considered a structure fire. This includes chimney fires, cooking fires, indoor waste basket fires, fires on a back porch, exterior trim fires, and vehicle fires that occur inside a garage that extend beyond the vehicle. The number of structure fires dropped by 3% from the 18,653 reported in 2010.

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 18,070 building fires of different types in Massachusetts in 2011. These 18,070 building fires accounted for 99.4% of all structure fires in Massachusetts.

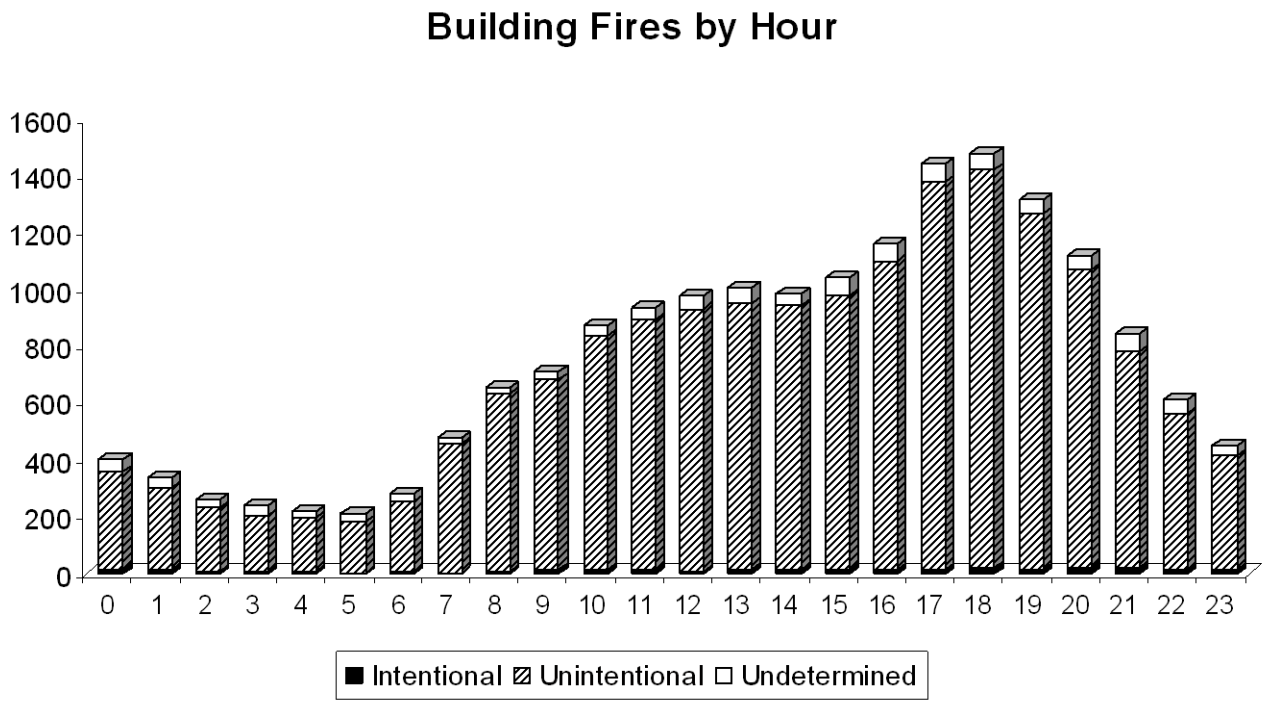
Building Fires Most Common in Colder Months
Heating equipment is the second leading cause of building fires. It is not surprising that January was the peak month for these incidents in 2011. December ranked second and November had the third largest number of building fires. The warmer months had significantly fewer building fires. The fewest fires occurred in July and August had the second lowest frequency of these incidents; and June had the third lowest number of building fires in 2011.



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 5:00 p.m. and 7:00 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.

The following 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 18,070 building fires and 41 of the 42 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.

Hyannis Building Fire Has Most Injuries

- On October 31, 2011, at 11:18 p.m., the Hyannis Fire Department was dispatched to a fire in a 110-unit apartment building of undetermined cause. The fire began on the victim's third story balcony. There were multiple potential heat sources in the area of origin as well as many holiday decorations. The victim was the 84-year old female

occupant of the apartment. She was transported to a local hospital where she succumbed to her injuries. There were five other civilian injuries associated with this fire. It was undetermined if detectors were present, and sprinklers were not. Damages from this fire were estimated to be $800,000.

BUILDING FIRES BY OCCUPANCY TYPE

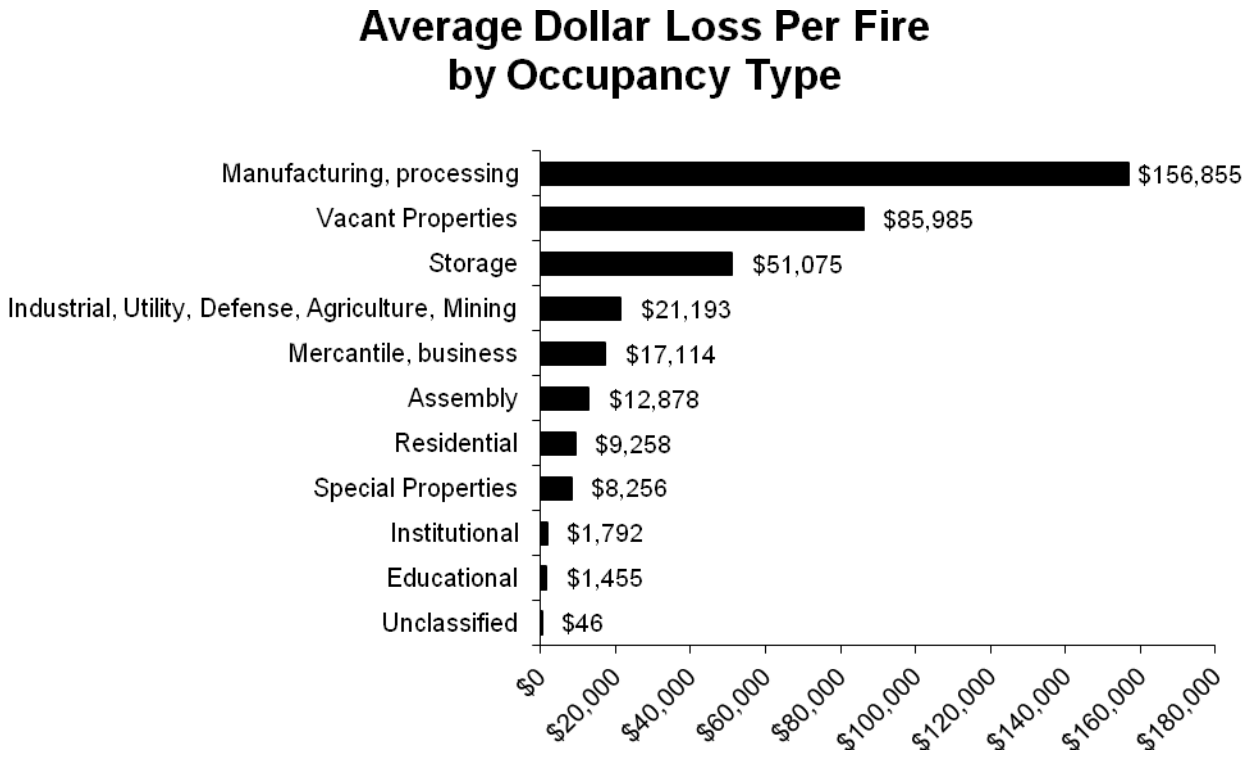
Occupancy	# of Fires	% of Total	Injuries FF	Injuries Civ	Deaths FF	Deaths Civ	Dollar Loss	Avg. Dollar Loss
Public assembly	659	4%	1	3	0	0	$8,486,477	$12,878
Educational	372	2%	3	4	0	0	541,183	1,455
Institutional	601	3%	4	4	0	0	1,077,101	1,792
Residential	**15,043**	**83%**	**388**	**285**	**2**	**41**	**135,653,790**	**8,883**
1- & 2-Family homes	*5,692*	*32%*	*173*	*114*	*0*	*26*	*74,476,270*	*13,084*
Apartments	*7,369*	*41%*	*143*	*92*	*2*	*14*	*56,843,308*	*7,714*
All other residential	*1,982*	*11%*	*3*	*13*	*0*	*1*	*7,949,104*	*4,011*
Mercantile, business	702	4%	26	8	0	1	12,013,745	17,114
Basic industry	60	0.3%	0	0	0	0	1,271,550	21,193
Manufact., processing	106	1%	19	4	0	0	16,626,682	156,855
Storage properties	229	1%	12	4	0	0	11,696,148	51,075
Special properties	256	1%	5	0	0	0	2,113,562	8,256
Unclassified	42	0.2%	0	0	0	0	379,209	9,029
Total	**18,070**	**100%**	**389**	**246**	**2**	**42**	**$193,356,132**	**$10,700**

Occupancy Group Definitions

- **Public assembly**: This category includes amusement and recreation places such as bowling alleys, skating rinks, ballrooms, gymnasiums, arenas, stadiums, playgrounds, churches, 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.

Manufacturing Facilities Have Highest Average Dollar Loss Per Fire
Manufacturing facilities had the highest dollar loss per fire of any property type. In 2011, the average dollar loss for a building fire at a manufacturing or processing facility was $156,855. This is a 339% increase over the 2010 average dollar loss per manufacturing facility fire at $35,740 per fire[4]. Vacant properties[5] had the second highest dollar loss per fire for any property type. In 2011, the average dollar loss for a building fire in a vacant property was $85,985.

Storage facilities had the third highest average dollar loss at $51,075. Industrial facilities had the next highest average dollar loss per fire at $21,193; mercantile and business properties were fifth with an average dollar loss per fire at $17,114. Public assembly properties were next in average dollar loss at $12,878 per fire; and residential properties had an average dollar loss per fire of $9,258. Special properties were eighth at $8,256 per fire; institutional facilities had $1,792 per fire; and educational properties had an average dollar loss of $1,455 per fire. Unclassified properties had the lowest average dollar loss at $46 per fire.



[4] This is mainly due to an adhesives manufacturing plant fire in Middleton on 3/13/11 that caused $12 million in estimated damages. If you take this outlying fire out, the average dollar loss for manufacturing facilities drops to third at $44,064 per fire.

[5] 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.

2011 Massachusetts Building Fires by Property Use

MFIRS Code	Property Use	# of Building Fires
	Assembly	**659**
100	Assembly, other	28
110	Fixed use recreation places, other	10
111	Bowling alley	4
113	Electronic amusement center	2
114	Ice rink: indoor, outdoor	2
116	Swimming facility: indoor or outdoor	4
120	Variable use amusement, recreation places	6
121	Ballroom, gymnasium	6
122	Convention center, exhibition hall	2
123	Stadium, arena	1
124	Playground	18
129	Amusement center: indoor/outdoor	2
130	Places of worship, funeral parlors	7
131	Church, mosque, synagogue, temple, chapel	86
134	Funeral parlor	6
140	Clubs, other	20
141	Athletic/health club	13
142	Clubhouse	14
150	Public or government, other	8
151	Library	4
152	Museum	6
155	Courthouse	6
160	Eating, drinking places	58
161	Restaurant or cafeteria	272
162	Bar or nightclub	38
170	Passenger terminal, other	6
171	Airport passenger terminal	5
174	Rapid transit station	15
180	Studio/theater, other	1
181	Live performance theater	2
183	Movie theater	6
186	Film/movie production studio	1
	Educational	**372**
200	Educational, other	49
210	Schools, non-adult	25
211	Preschool	21
213	Elementary school, including kindergarten	69
215	High school/junior high school/middle school	90
241	Adult education center, college classroom	65
254	Day care, in commercial property	38

MFIRS Code	Property Use	# of Building Fires
255	Day care, in residence, licensed	15
	Health care, detention & correction	**601**
300	Health care, detention, & correction, other	56
311	24-hour care Nursing homes, 4 or more persons	154
321	Mental retardation/development disability facility	106
322	Alcohol or substance abuse recovery center	57
323	Asylum, mental institution	8
331	Hospital - medical or psychiatric	128
332	Hospices	2
340	Clinics, Doctors offices, hemodialysis centers	19
341	Clinic, clinic-type infirmary	12
342	Doctor, dentist or oral surgeon's office	19
361	Jail, prison (not juvenile)	11
363	Reformatory, juvenile detention center	16
365	Police station	13
	Residential	**15,043**
400	Residential, other	630
419	1 or 2 family dwelling	5,692
429	Multifamily dwellings	7,369
439	Boarding/rooming house, residential hotels	465
449	Hotel/motel, commercial	138
459	Residential board and care	206
460	Dormitory type residence, other	449
462	Sorority house, fraternity house	27
464	Barracks, dormitory	67
	Mercantile, Business	**702**
500	Mercantile, business, other	143
511	Convenience store	28
519	Food and beverage sales, grocery store	141
529	Textile, wearing apparel sales	7
539	Household goods, sales, repairs	10
549	Specialty shop	42
557	Personal service, including barber & beauty shops	21
559	Recreational, hobby, home repair sales, pet store	4
564	Laundry, dry cleaning	27
569	Professional supplies, services	8
571	Service station, gas station	17
579	Motor vehicle or boat sales, services, repair	35
580	General retail, other	27
581	Department or discount store	9
592	Bank	20

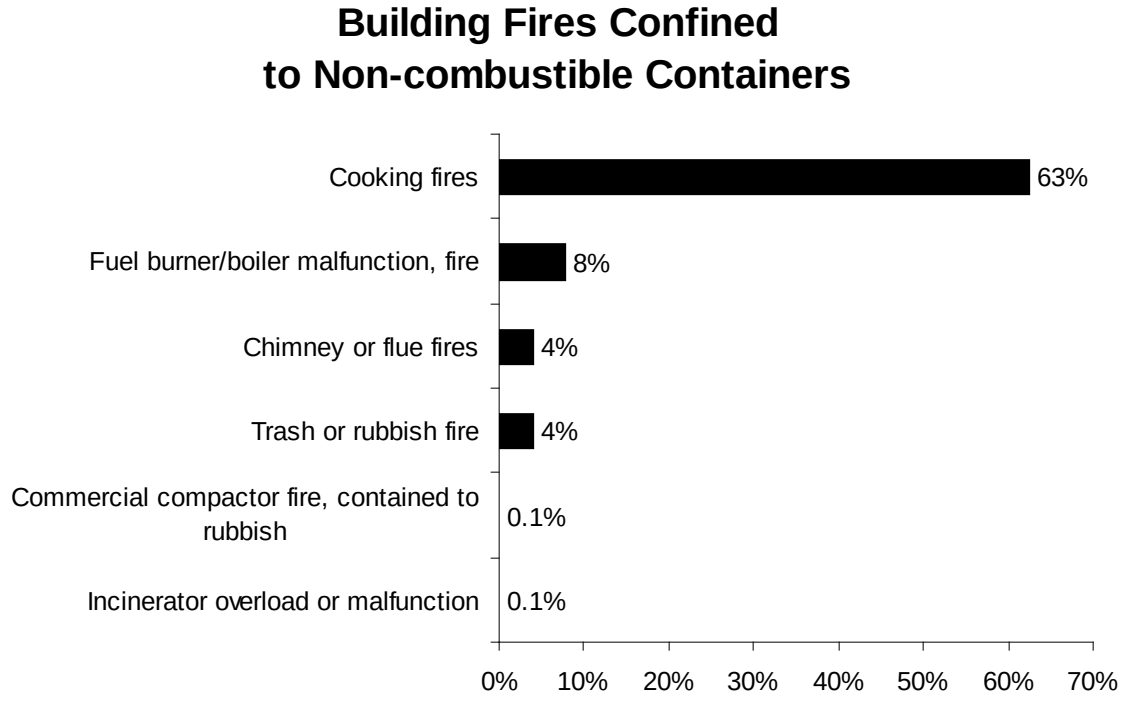
MFIRS Code	Property Use	# of Building Fires
593	Office: veterinary or research	7
596	Post office or mailing firms	6
599	Business office	150
	Industrial, Utility, Defense, Agriculture, Mining	**60**
600	Utility, defense, agriculture, mining, other	1
610	Energy production plant, other	5
614	Steam or heat generating plant	2
615	Electric generating plant	4
629	Laboratory or science laboratory	18
631	Defense, military installation	2
639	Communications center	2
640	Utility or Distribution system, other	2
642	Electrical distribution	1
644	Gas distribution, pipeline, gas distribution	1
647	Water utility	6
648	Sanitation utility	5
655	Crops or orchard	3
659	Livestock production	3
669	Forest, timberland, woodland	5
700	**Manufacturing, processing**	**106**
	Storage	**229**
800	Storage, other	14
807	Outside material storage area	3
808	Outbuilding or shed	75
819	Livestock, poultry storage	8
839	Refrigerated storage	1
880	Vehicle storage, other	9
881	Parking garage, (detached residential garage)	46
882	Parking garage, general vehicle	35
888	Fire station	5
891	Warehouse	28
898	Dock, marina, pier, wharf	1
899	Residential or self storage units	4
	Outside or special property	**256**
900	Outside or special property, other	50
919	Dump, sanitary landfill	8
921	Bridge, trestle	5
922	Tunnel	4
926	Outbuilding, protective shelter	13
931	Open land or field	31

MFIRS Code	Property Use	# of Building Fires
935	Campsite with utilities	1
936	Vacant lot	8
937	Beach	1
938	Graded and cared-for plots of land	21
940	Water area, other	1
951	Railroad right of way	2
952	Railroad yard	2
960	Street, other	30
961	Highway or divided highway	4
962	Residential street, road or residential driveway	40
963	Street or road in commercial area	12
965	Vehicle parking area	19
981	Construction site	2
984	Industrial plant yard - area	2
	Other	**31**
000	Property use, other	22
	Total Building Fires	**18,059**

79% of Building Fires Are Confined to Non-Combustible Containers[6]
Fourteen thousand two hundred and seventy-seven (14,277), or 79% of all building fires, were reported as confined to non-combustible containers in 2011. Eleven thousand two hundred and ninety-five (11,295) of the reported fires were cooking fires confined to a non-combustible container, accounting for 63% of building fires. One thousand three hundred and ninety-six (1,396), or 8%, were fires confined to a fuel burner or boiler malfunction. Eight hundred and eleven (811), or 4%, of all building fires reported in 2011 were fires confined to a chimney or flue. Seven hundred and thirty-six (736), or 4%, of these fires were contained rubbish fires. Twenty-one (21), or less than 1%, were commercial compactor fires that were confined to the rubbish. Eighteen (18), or less than 1%, of these fires in the Commonwealth were contained to an incinerator overload or malfunction.

Confined building fires decreased by 157 incidents, or 1%, from the 14,434 reported in 2010.

[6] 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.



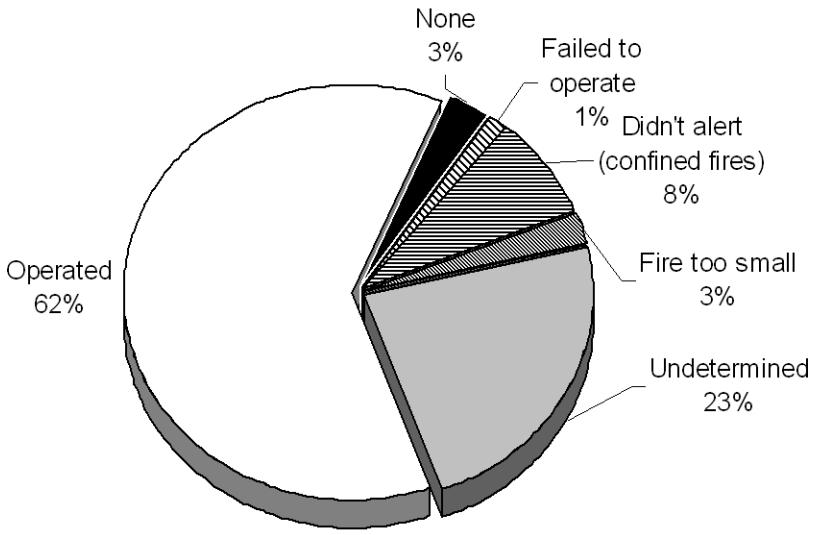
Detectors Operated in 62% of Building Fires

Smoke or heat detectors operated in 11,175, or 62%, of the building fires in 2011. In 8% of these fires[7], the detectors did not alert the occupants. Detectors were present but did not operate in 1% of these incidents. In 3% 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 4,153 incidents, or 23%, of Massachusetts' 2011 building fires.

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

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

Smoke Detector Operation in Building Fires



DETECTOR PERFORMANCE

	Operated	Failed to Operate	Didn't Alert (Conf.)	Fire Too Small	None	Unknown	Total
Public assembly	428	5	46	21	20	139	659
Educational	251	3	33	22	5	58	372
Institutional	481	1	18	11	8	82	601
Residential	9,511	213	1,209	360	300	3,450	15,043
Mercantile, business	364	10	50	30	63	185	702
Basic industry	28	0	4	4	6	18	60
Manufacturing	44	0	4	9	16	33	106
Storage properties	19	1	9	6	141	53	229
Special properties	28	0	87	1	20	120	256
Unclassified	21	0	4	0	1	15	42
Total	**11,175**	**233**	**1,464**	**464**	**581**	**4,153**	**18,070**

$12 Million Fire in Middleton is Largest Loss Building Fire

- On March 13, 2011, at 7:39 p.m., the Middleton Fire Department was dispatched to an explosion and ensuing fire at the Bostik adhesives manufacturing plant. Flammable gases from the chemicals used to make the adhesives were ignited by one of the plant's many pieces of equipment. There were four civilian injuries at this fire. Detectors were present but it was undetermined if they operated. The building was sprinklered but because of the explosion it was undetermined if they operated. Damages from this fire were estimated to be $12 million.

Quincy Has 2nd Largest Loss Building Fire in 2011

- The Quincy Fire Department was dispatched to a fire in a 24-unit apartment building at 9:46 p.m. on July 9, 2011. The three alarm fire started on a first floor balcony. One firefighter was injured fighting this fire. Detectors were present and alerted the residents of the building. Sprinklers were present but it was not reported if they operated. Damages from this fire were estimated to be $8.4 million.

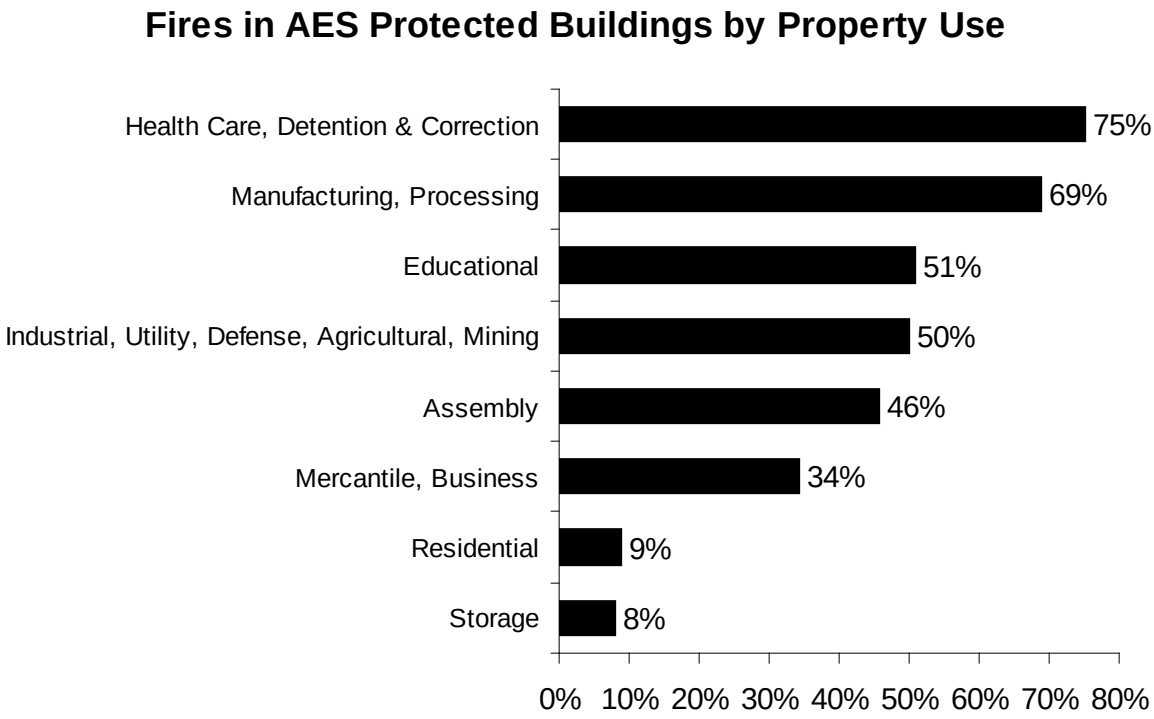
Overall, there were 18 large loss building fires reported to MFIRS in 2011 with a total combined dollar loss of $51.2 million, representing 26% of all the estimated dollar loss of Massachusetts' building fires in 2011.

15% of Unconfined Fires Occurred in Buildings with AES

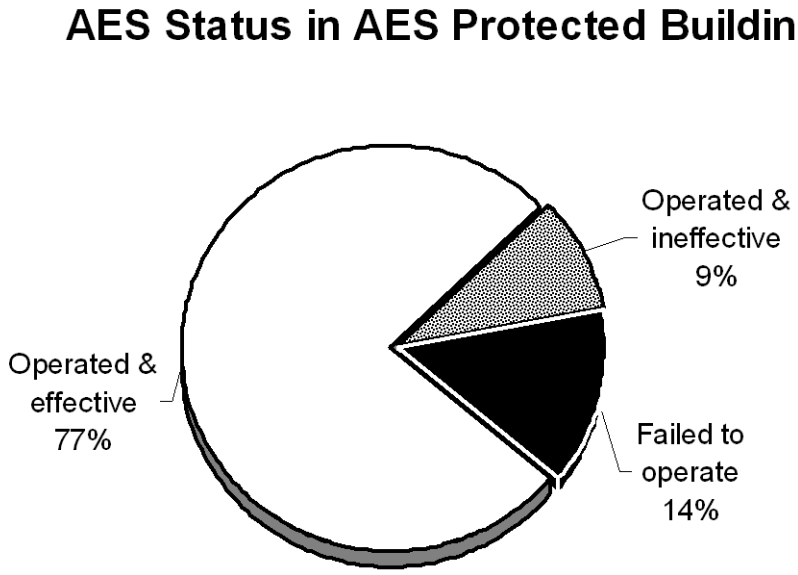
Overall, 542, or 15%, of the 3,760 unconfined[8] building fires in 2011 occurred in buildings that had automatic extinguishing systems (AES), regardless of whether the fire was large enough to activate the system. In MFIRS, an AES can be a wet or dry sprinkler system, a dry chemical system, a foam system, 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. Seventy-five percent (75%) of the fires in health care, detention and correctional facilities; 69% of the fires in manufacturing or processing facilities; and 51% of the fires in educational facilities occurred in buildings with these systems. Fifty percent (50%) of the fires in basic industrial facilities; and 46% of the fires in public assembly facilities; and 34% 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. Only 8% of fires in storage facilities occurred in buildings protected by an automatic extinguishing system

[8] 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.



AES Work in 86% of Building Fires When Installed & Maintained
AES were present and operated in 151, or 86%, of the 176 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 2011. Of these 151 fires, the systems were effective in 135, or 77%, and ineffective in 16, or 9%, of these incidents. AES were present but failed to operate in 25, or 14%, of these 176 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.

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	24	9	21	10	1	65
Educational	20	0	20	8	0	48
Institutional	24	1	23	6	2	56
Residential	109	5	105	74	7	30
Mercantile, business	32	6	29	20	3	90
Basic industry	7	0	6	0	1	14
Manufacturing	19	1	15	5	3	43
Storage properties	5	2	5	3	0	15
Special properties	0	0	0	0	0	0
Unclassified	0	0	0	0	0	0
Total	**240**	**24**	**224**	**126**	**17**	**631**

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 and occupants. 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.

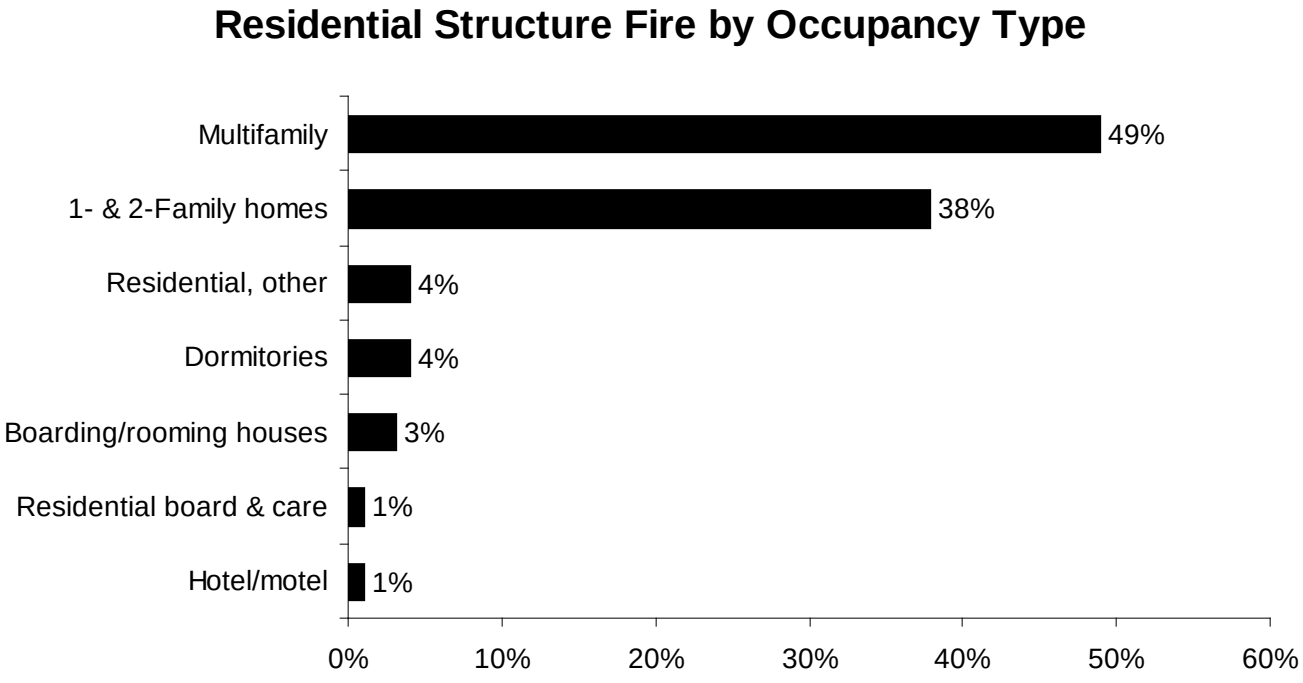
Written Permit Required from Fire Department before Disconnecting Sprinklers

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 15,043, or 83%, of the 18,070 building fires occurred in residential occupancies. These fires caused 41 civilian deaths, two fire service deaths, 219 civilian injuries, 319 fire service injuries and an estimated dollar loss of $139.3 million. The average dollar loss per fire was $9,258. The total number of reported residential building fires decreased by 311, or 2%, from the 15,354 reported in 2010.

Almost 1/2 of All Residential Fires Occur in Apartments
Almost half, 49%, of all residential building fires in 2011 occurred in Multi-family apartment buildings. Thirty-eight percent (38%) 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 2011.



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	5,692	38%	173	114	0	26	$74,476,270
Multifamily	7,369	49%	143	92	2	14	56,843,308
Rooming houses	465	3%	0	4	0	0	1,097,484
Hotels & motels	138	1%	0	1	0	0	916,472
Residential board & care	206	1%	0	1	0	0	410,338
Dormitories	543	4%	0	1	0	0	231,853
Unclassified	630	4%	3	6	0	1	5,292,957
Total	**15,043**	**100%**	**319**	**219**	**2**	**41**	**$139,268,682**

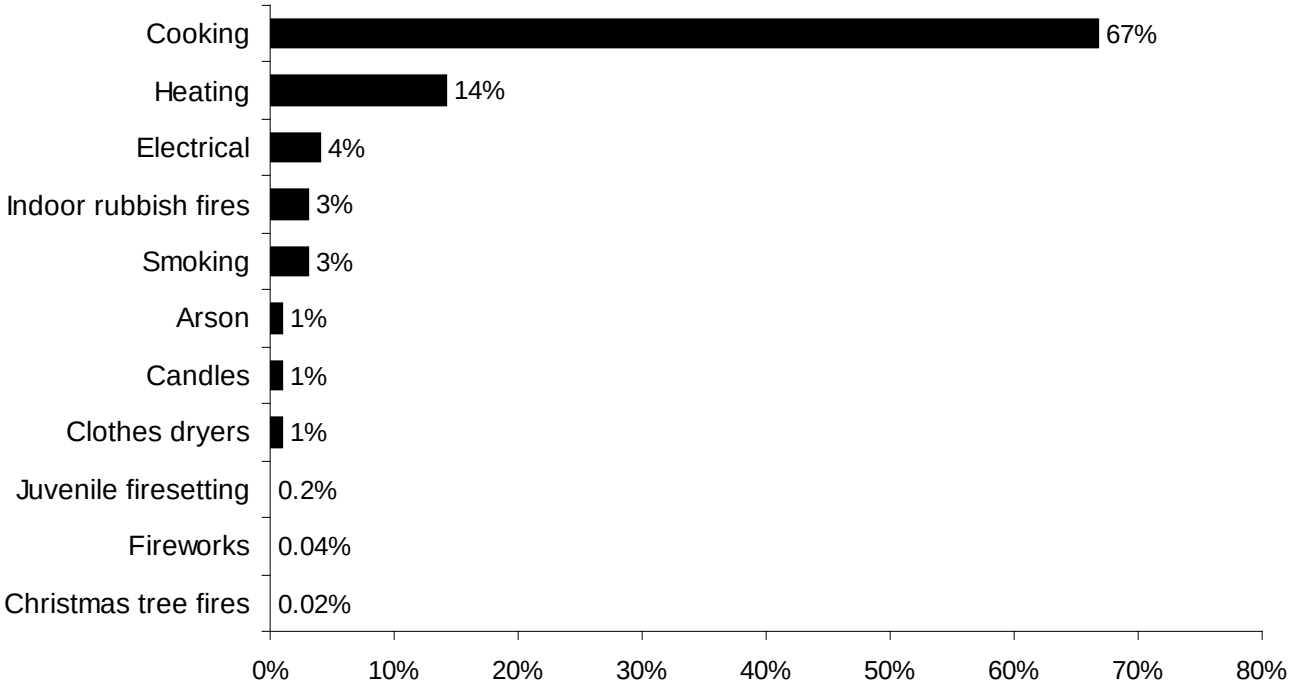
Residential Occupancy Sub-Group Definitions

- **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 2/3 of Residential Building Fires

The leading causes of residential building fires in 2011 were cooking, heating, electrical problems, indoor rubbish fires, smoking, arson, candles, clothes dryer fires, juvenile firesetting, fireworks, and Christmas tree fires. Cooking was the leading cause of residential building fires, accounting for 10,038, or 67%, of the 15,043 incidents. Heating equipment accounted for 2,126, or 14%, of the total fires. Electrical problems caused 596, or 4%, of incidents. Indoor rubbish fires were the cause of 407, or 3%, of residential building fires. The unsafe use and disposal of smoking materials accounted for 394, or 3%, of these incidents. Arson accounted for 128, or 1%, of residential building fires. One percent (1%), or 101, were caused by candles. Clothes dryer fires were the cause for 84, or less than 1%, of these incidents. Juvenile firesetting accounted for 36, or less than 1%, of residential building fires. Fireworks caused six and there were three Christmas tree fires in homes, each accounting for less than 1% of these fires in Massachusetts in 2011.

Leading Causes of Residential Building Fires



Over 2/3 of Residential Fires Started in the Kitchen
Sixty-nine percent (69%) of the residential building fires in 2011 started in the kitchen. Eight percent (8%) began in a heating room or area; 5% started in the chimney or flue; 2% began in the bedroom; 1% started in the living room; and another 1% started in the laundry room in Massachusetts residential building fires in 2011.

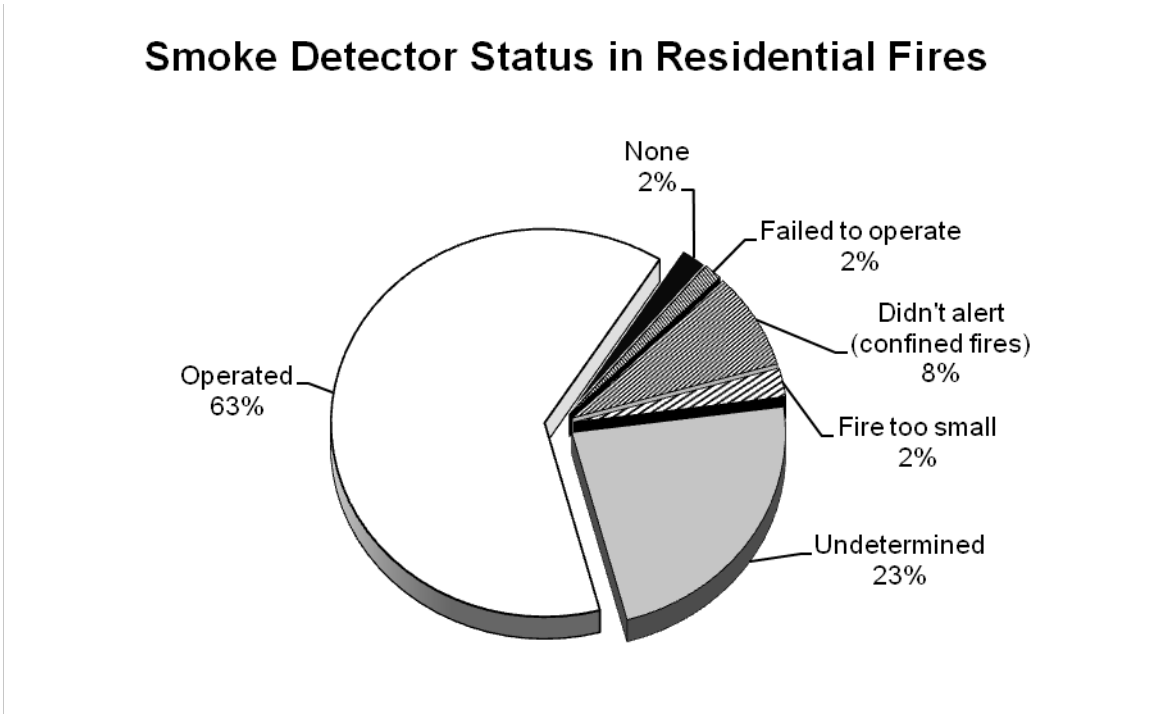
80% of Residential Building Fires Confined to Non-Combustible Containers[9]
Twelve thousand and sixty-six (12,066), or 80% of all residential building fires, were reported as confined to non-combustible containers in 2011. Nine thousand six hundred and sixty (9,660) of the reported fires were cooking fires contained to a non-combustible container, accounting for 64% of residential building fires. One thousand two hundred and nineteen (1,219), or 8%, were fires confined to a fuel burner or boiler malfunction. Seven hundred and seventy-nine (779), or 5%, of all residential building fires reported in 2011 were fires confined to a chimney or flue. Three hundred and ninety-one (391), or 3%, of these fires were contained rubbish fires. Eleven (11), or less than 1%, of these fires in the Commonwealth were contained to an incinerator overload or malfunction. Six (6), or less than 1%, of the residential building fires in 2011 were commercial compactor fires confined to the rubbish inside the compactor.

[9] 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 2011. Confined fires decreased by 99 incidents, or 1%, from the 12,165 reported in 2010. This was mainly due to the decrease in reported confined chimney fires and oil burner or boiler malfunctions.

Detectors Operated in 64% of Fires

Smoke or heat detectors operated in 9,511, or 64%, of the residential building fires in 2011. In 8% of these fires[10], 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 2% of the residential fires. Smoke detector performance was undetermined in 3,452 incidents, or 23%, of Massachusetts' 2011 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 at time of sale or transfer.

New 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.

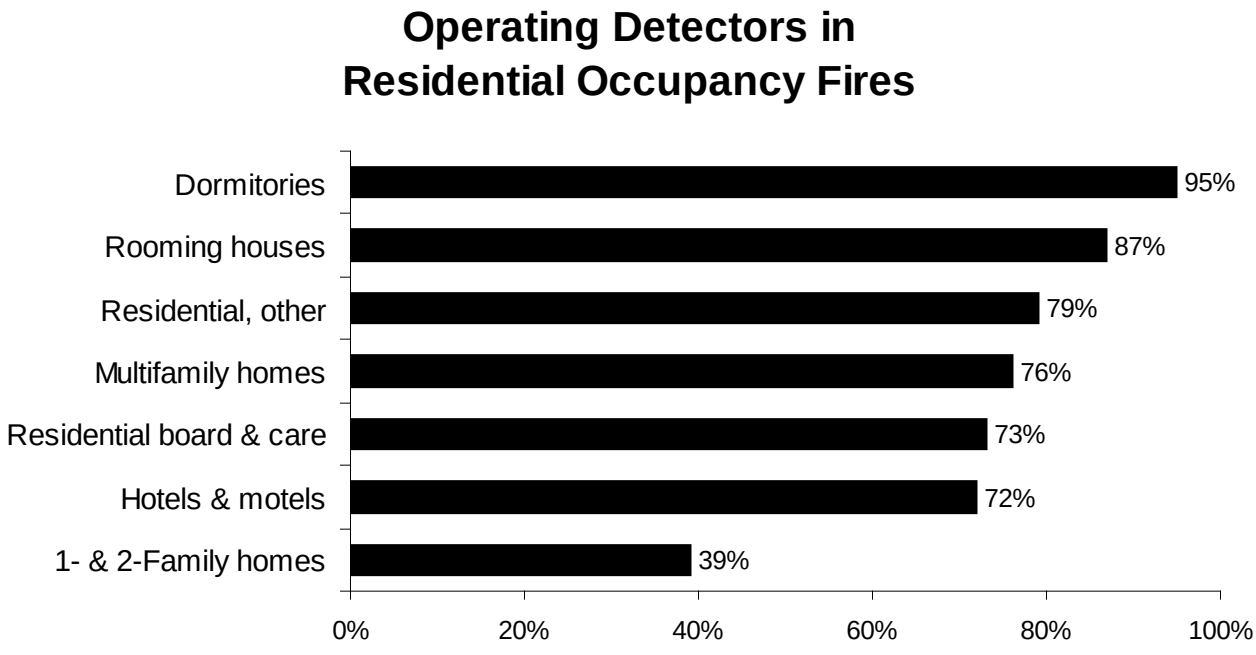
[10] These represent confined fires where it was reported that the detector did not alert the occupants.

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.

38% of Failed Detectors Had No Batteries or Dead Ones
Of the 213 fires where smoke detectors were present but failed to operate, 50, or 23%, failed because the batteries were either missing or disconnected. Thirty-one (31), or 15%, did not operate because of dead batteries. Twenty-three (23), or 11%, failed because of a power failure, shutoff or disconnect. Eleven (11) detectors, or 5%, failed from a lack of maintenance such as not cleaning dust from the detector or painting over the detector. Eight (8), or 4%, failed from improper installation or placement. Five (5) units, or 2%, failed because they were defective. For 85 cases, or 40%, the reason the detector failed was not determined.

1- & 2-Family Homes Had Lowest Percentage of 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

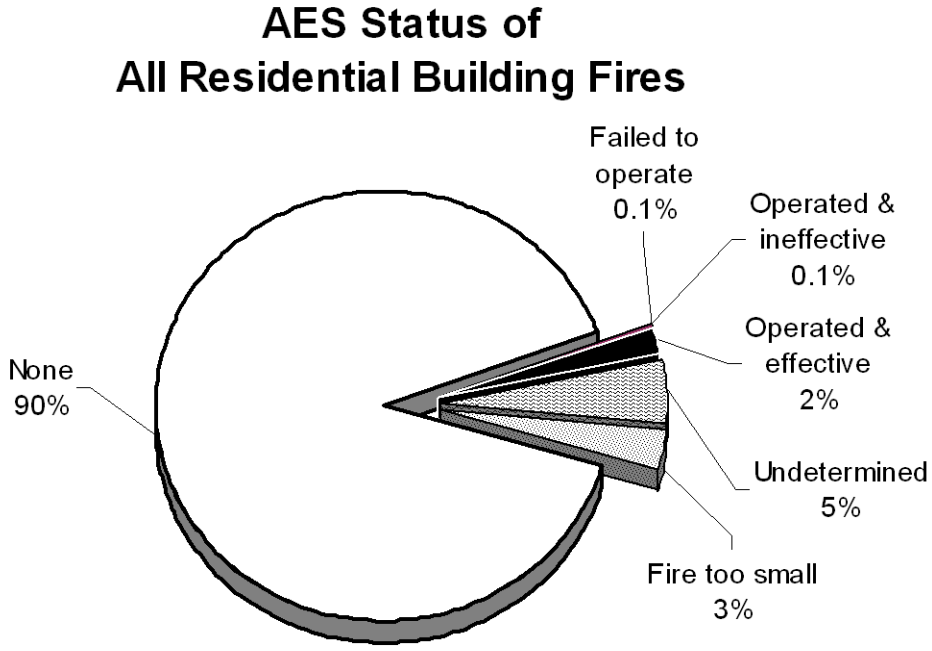


have operating smoke detectors in 2011. Rooming houses were the second most likely residence to have working smoke detectors. Unclassified residences and apartments were the next most likely residential occupancies to have operating smoke detectors. The following chart shows the percentage of operating smoke detectors in fires in residential occupancies.

No Working Detectors for 28% of Residential Fire Victims
Of the 41 people who died in residential building fires in 2011, the smoke detector performance was reported for all of the victims. Victims were not alerted by smoke detectors in 10 fires that killed 13 people, or 32% of the victims. No detectors were present at all in eight, or 20%, of the deaths. In five deaths, or 12%, there were detectors present but they failed to operate. Detector performance was undetermined in 10 residential building fires that killed 10 people, accounting for 24% of the residential building fire deaths in 2011.

AES Present in Only 5% of Residential Building Fires
In 2011, only 3,290 residential fires reported if the building had an automatic extinguishing system or not. This was only 23% of all residential building fires.

In fires where system performance was reported, automatic extinguishing systems (AES) were reported present and operated effectively in 68, or 2%, of the 3,290 residential building fires. AES were present and operated ineffectively in four, or 0.1%, of these fires. In five, or 0.1%, of the fires in residential occupancies, the system did not operate. In 105, or 3%, the fire was too small to activate the system. In 3,108, or 90%, of the cases, there were no systems present or installed. AES performance was not classified in 164, or 5%, of the incidents involving residential building fires.



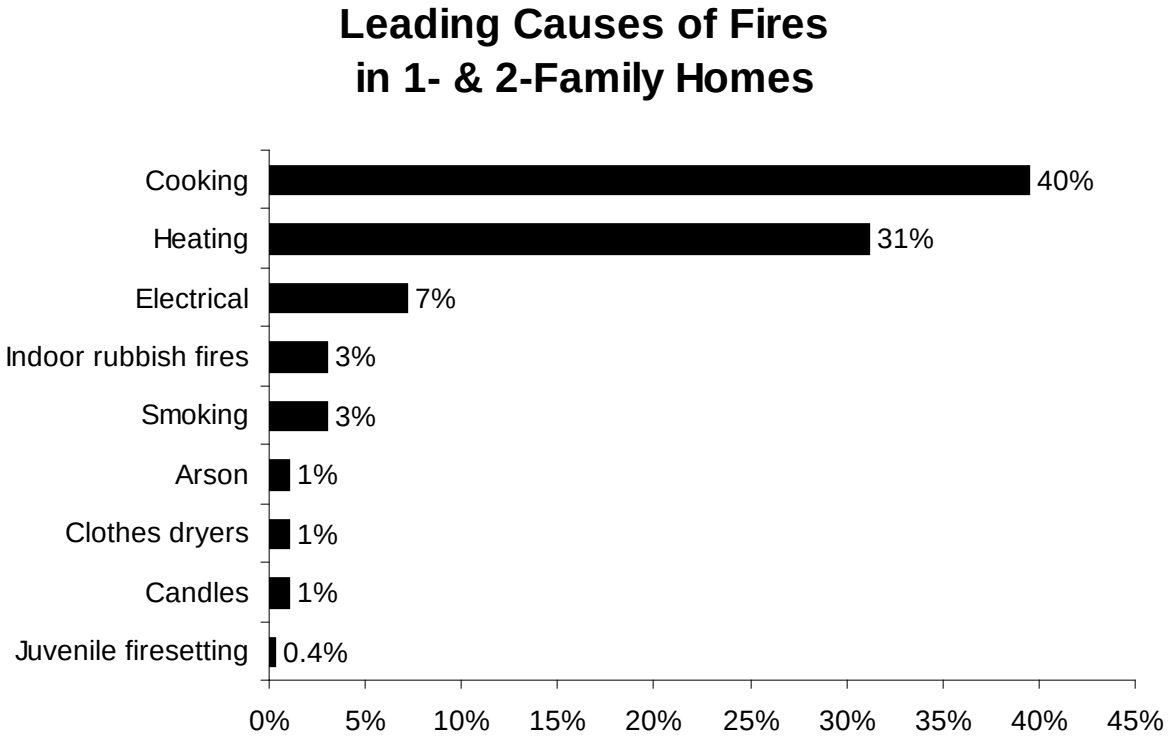
Only You Can Make Your Home Safer for You and Your Family
Eighty-three percent (83%) of building fires and 76% of fire deaths in 2011 took place in residential occupancies. Efforts to reduce the incidence of fire and fire deaths must be focused on home fire safety to have the greatest impact. Increased 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

5,692 Fires, 26 Civilian Deaths & $74.5 Million in Damage
Five thousand six hundred and ninety-two (5,692) building fires in one- and two-family homes caused 26 civilian deaths, 114 civilian injuries, 173 fire service injuries, and an estimated $74.5 million in property damage. In 2011, 38% of the Commonwealth's 15,043 residential building fires occurred in one- and two-family homes. The average dollar loss from these types of fires was $13,084. Fires in one- and two-family homes were down by 384, or 6%, from 6,076 in 2010.

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 40% of incidents occurring in one- and two-family homes. Heating equipment caused 31% of these fires. Seven percent (7%) of one- and two-family residential building fires were caused by electrical problems. Indoor rubbish fires and the unsafe and improper use of smoking materials each caused 3% of these fires. Arson, clothes dryers and candles each caused 1% of these fires. Juvenile-set fires, accounted for less than 1% of the fires in one- and two-family homes in 2011.



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.

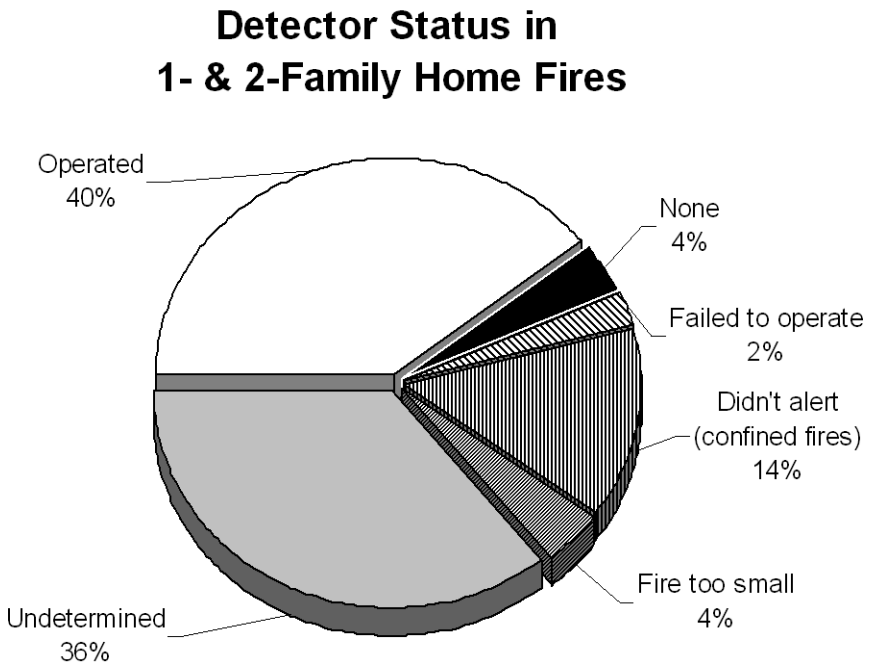
Heating equipment fires were usually not the leading cause of fires in other residential occupancies because other occupancies tend to be more regulated by building and fire codes than one- and two-family homes. Most apartments are rental properties, that fall under more stringent fire prevention statutes.

42% 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, 42% started in the kitchen. The second leading area of origin was rooms or areas with heating equipment, accounting for 18% of these fires. Thirteen percent (13%) started in the chimney or flue; 3% started in the bedroom; and 2% each of these fires started in a wall assembly, a substructure area, the living room and the laundry room.

69% of 1- & 2-Family Fires Were Confined to Non-Combustible Containers
Three thousand nine hundred and twenty-eight (3,928), or 69%, of all residential building fires in one- and two-family homes, were reported as confined to non-combustible containers in 2011. Two thousand and seventy-one (2,071) were cooking fires confined to a non-combustible container, accounting for 36% of all the residential building fires in one- and two-family homes. Nine hundred and sixty-four (964), or 17%, were fires confined to a fuel burner or boiler. Seven hundred and twenty-one (721), or 13%, of all one- and two-family fires reported in 2011 were fires confined to a chimney or flue. One hundred and sixty-eight (168), or 3%, of these fires were contained rubbish fires. Four (4), or less than 1%, of the one- and two-family building fires were contained to an incinerator overload or malfunction in 2011.

The number of contained fires decreased in 2011. Confined fires in one- and two-family homes decreased by 294 incidents, or 7%, from the 4,222 reported in 2010.

Detectors Alerted Occupants in 40% of Fires
Detectors alerted occupants in 40% of one- and two-family residential fires. Smoke or heat detectors operated and alerted the occupants in 2,242, or 40%, of the one- and two-family home fires in 2011. In 14% of these fires[11], the detectors did not alert the occupants. Detectors were present but did not operate in 2% of these incidents. In 4% of these fires, no detectors were present at all. The fire was too small to trigger the detector in 4% of these residential fires. Smoke detector performance was undetermined in 2,042 incidents, or 36%, of Massachusetts' 2011 one- and two-family fires.



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

Almost 1/2 of Failed Detectors Had No Batteries or Dead Ones
Of the 134 fires where smoke detectors were present but failed to operate, 37, or 28%, failed because the batteries were either missing or disconnected. Twenty-four (24), or 18%, did not operate because of dead batteries. Fourteen (14), or 10%, failed because of a power failure, shutoff or disconnect. Seven (7), or 5%, failed from improper installation or placement. Three (3) units, or 2%, failed because they were defective. Four (4) detectors, or 3%, failed from a lack of maintenance. For 45 cases, or 34%, 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 2011, 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.

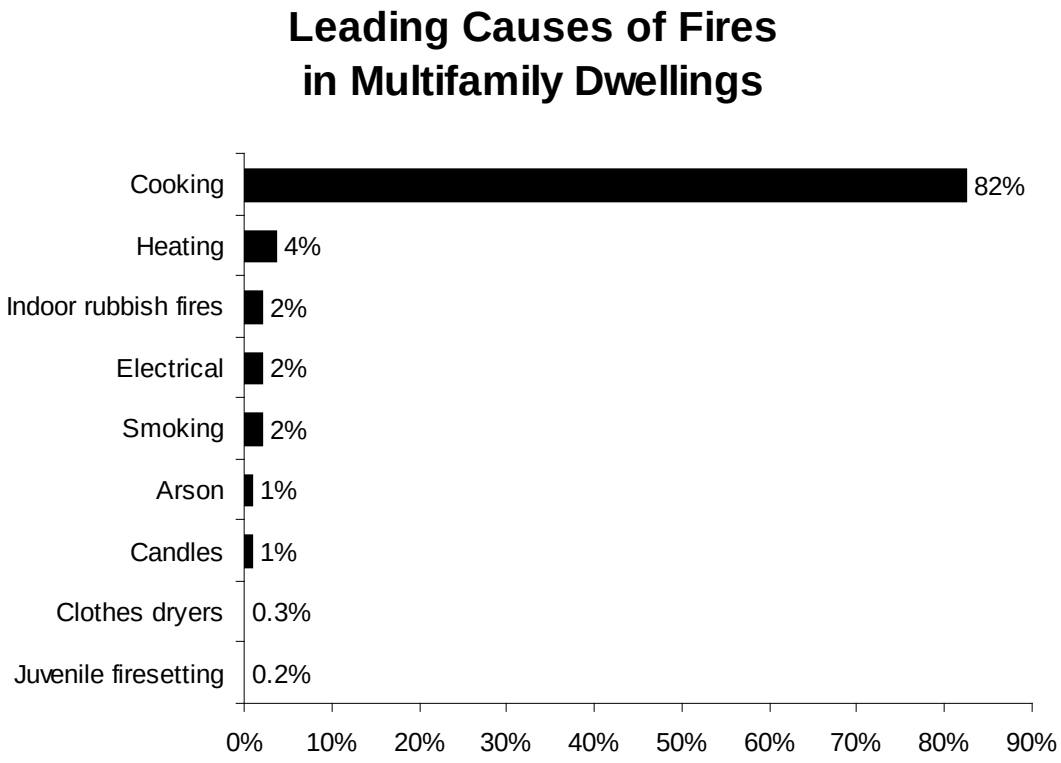
Multifamily Home Fires

7,369 Fires, 14 Civilian Deaths & $56.8 Million in Damage
Seven thousand three hundred and sixty-nine (7,369), or 49%, of the Commonwealth's 15,043 residential building fires occurred in multifamily dwellings in 2011. These 7,369 fires caused 14 civilian deaths, two fire service deaths, 92 civilian injuries, 143 fire service injuries, and an estimated dollar loss of $43.3 million. The average dollar loss per fire was $7,714. Fires in apartments were down by 140, or 2%, from 7,509 in 2010.

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

Unsafe Cooking Caused Over 82% of Apartment Fires
Eighty-two percent (82%) of the fires in apartments were caused by unsafe cooking in 2011. Heating accounted for 4% of apartment fires. Indoor rubbish fires, electrical

problems and smoking were each responsible for 2% of these fires. Arsons and candles each caused 1% of the fires in these dwellings. Juvenile-set fires and clothes dryers each caused less than 1% of the fires in multifamily homes in 2011.

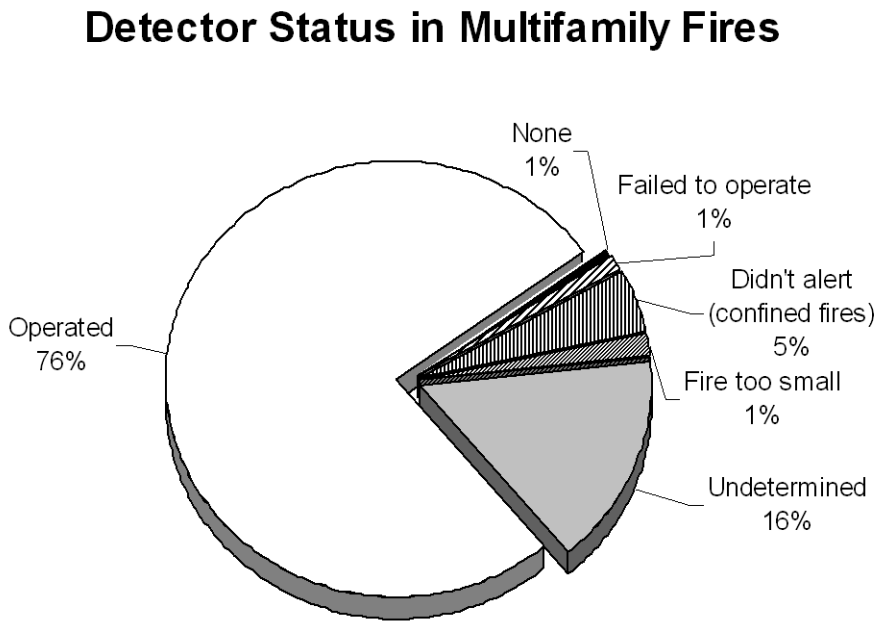


84% of Apartment Fires Started in the Kitchen
For apartment fires where the *Area of Origin* is known, 84% started in the kitchen. Three percent (3%) began in the heating room or area; 2% started in the bedroom; and 1% each started in living rooms, exterior balconies and laundry rooms.

86% of Multifamily Home Fires Confined to Non-Combustible Containers
Six thousand three hundred and twenty-two (6,322), or 86% of all building fires in multifamily homes, were reported as confined to non-combustible containers in 2011. Five thousand eight hundred and ninety (5,890) were cooking fires contained to a non-combustible container, accounting for 80% of all the multifamily dwelling fires in 2011. Two hundred and thirteen (213), or 3%, were fires confined to a fuel burner or boiler malfunction. One hundred and seventy-six (176), or 2%, of these fires were contained rubbish fires. Thirty-four (34), or less than 1%, of apartment fires reported in 2011 were fires confined to a chimney or flue. Five (5), or less than 1%, were incinerator overloads or malfunctions and four, or less than 1%, were commercial compactor fires confined to the garbage in multifamily home fires in 2011.

Confined fires in apartments decreased by 28 incidents, or less than 1%, from the 6,350 reported in 2010.

Detectors Alerted Occupants in Over 3/4 of Fires
Smoke or heat detectors operated and alerted the occupants in 5,615, or 76%, of the multifamily fires in 2011. In 5% of these fires[12], 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 1% of these residential fires. Smoke detector performance was undetermined in 1,154 incidents, or 16%, of Massachusetts' 2011 multifamily fires.



15% of Failed Detectors Failed Due to Missing Batteries
Of the 72 fires where smoke detectors were present but failed to operate, 11, or 15%, failed because the batteries were either missing or disconnected. Nine (9), or 13%, failed because of a power failure, shutoff or disconnect. Six (6), or 8%, didn't operate because of a lack of maintenance. Six (6), or 8%, did not operate because of dead batteries. One (1), or 1%, failed because they were defective. One (1), or 1%, failed from improper installation or placement. For 38 cases, or 53%, the reason the detector failed was not classified or undetermined.

Apartments with 3+ Units Must Have Smoke Detectors
According to Massachusetts General Law Chapter 148, Section 26C, apartment houses containing six or more units must equip common areas with hard-wired smoke detectors.

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

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.

AES Present in Only 11% of Multifamily Dwelling Fires
Automatic extinguishing systems (AES) were present and operated effectively in 56, or 5%, of the 1,186 multifamily dwelling fires where system status was known in 2011. In three incidents, or less than 1%, the system operated but was ineffective in suppressing the fire. In four of the fires, or 1%, the AES did not operate. In 70, or 6%, of these incidents, the fire was too small to activate the system. In 1,053, or 89%, of the cases, there were no systems present or installed. In 79 incidents, AES status was unknown. These fires were excluded from the percentage calculations.

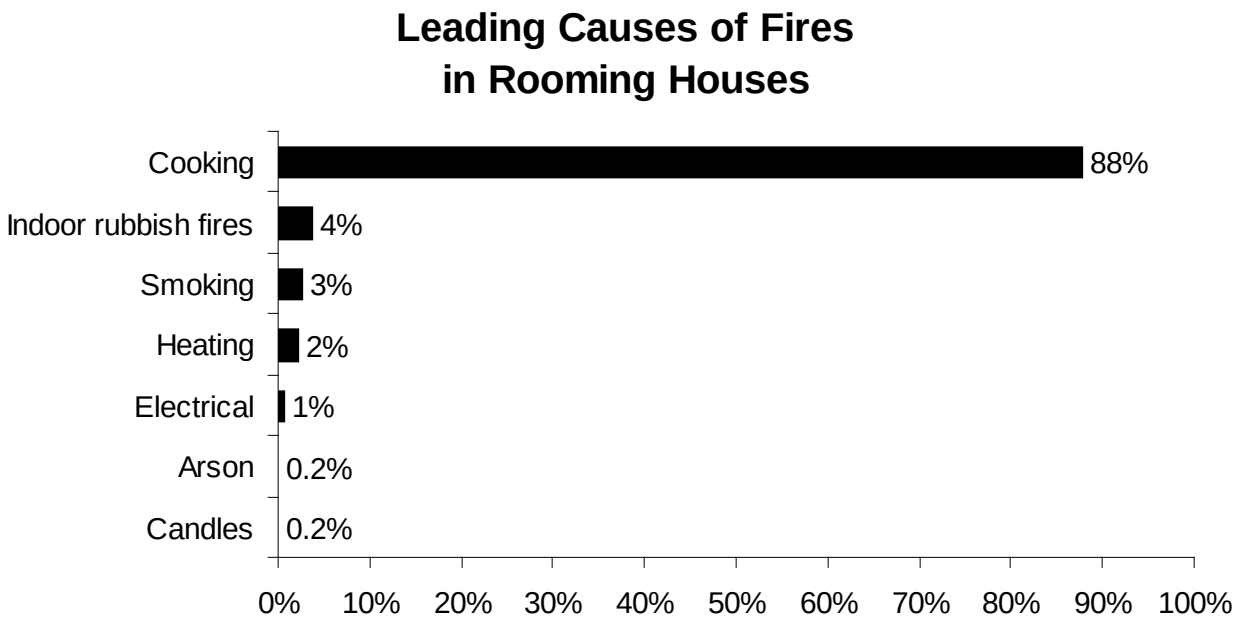
Apartments More Likely to Have Sprinklers Installed
Apartments are more likely than single-family dwellings to have sprinklers installed. Newly constructed apartments with three or more units are required by building codes to have them installed. Also, apartments are likely to be found in high-rise buildings 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 1997, 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

465 Fires, 4 Civilian Injuries & $1.1 Million in Damages
Four hundred and sixty-five (465) rooming, lodging, and boarding house fires were reported to the Massachusetts Fire Incident Reporting System (MFIRS) in 2011. These 465 fires caused four civilian injuries and an estimated $1.1 million in damages. The average dollar loss per fire was $2,360. Three percent (3%) of the 15,043 residential building fires in 2011 occurred in rooming, boarding, or lodging houses. Fires in rooming houses were up by 20% from 389 in 2010.

Cooking Caused 88% of Rooming House Fires
Of the 465 incidents in rooming houses, cooking caused 88% of these fires. Indoor rubbish fires caused 3% of these fires. The unsafe use and disposal of smoking materials started 3% and heating equipment caused 2% of the rooming house fires. Electrical problems caused 1% and arson and candles each caused less than 1% of the fires in rooming houses in 2011.



92% of Rooming House Fires Were Confined to Non-Combustible Containers
Four hundred and twenty-nine (429), or 92% of all building fires in rooming houses, were reported as confined to non-combustible containers in 2011. Four hundred and two (402) were cooking fires contained to a non-combustible container, accounting for 86% of all the fires in rooming or boarding houses in 2011. Seventeen (17) fires, accounting for 4% of rooming house fires, were confined indoor rubbish fires. Nine (9), or 2%, were fires confined to a fuel burner or boiler malfunction; and one, or less than 1%, was confined to a commercial compactor.

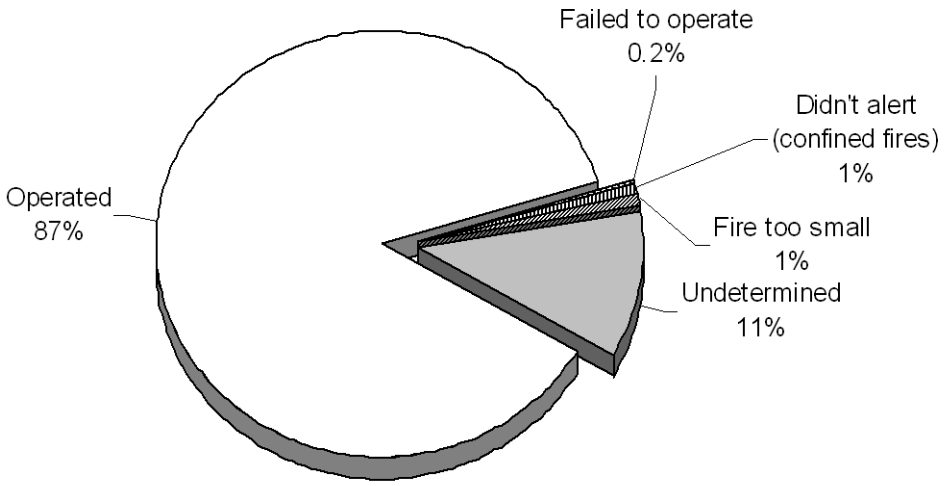
Confined fires in rooming houses increased by 71 incidents, or 20%, from the 358 reported in 2010.

89% of Rooming House Fires Started in the Bedroom
Eighty-nine percent (89%) of rooming house fires started in the bedroom[13]. Kitchens and heating rooms or areas each accounted for 2% of these fires. Bathrooms accounted for 1% of rooming house fires.

Detectors Alerted Occupants in 87% of Fires
Smoke or heat detectors operated and alerted the occupants in 404, or 87%, of the rooming house fires in 2011. In 1% of these fires[14], the detectors did not alert the occupants. In less than 1% of these fires, detectors were present but did not operate. There were also no fires where 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 52 incidents, or 11%, of Massachusetts' 2011 rooming house fires.

[13] Eighty-nine percent (89%) 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.
[14] These represent confined fires where it was reported that the detector did not alert the occupants.

Detector Status in Rooming House Fires

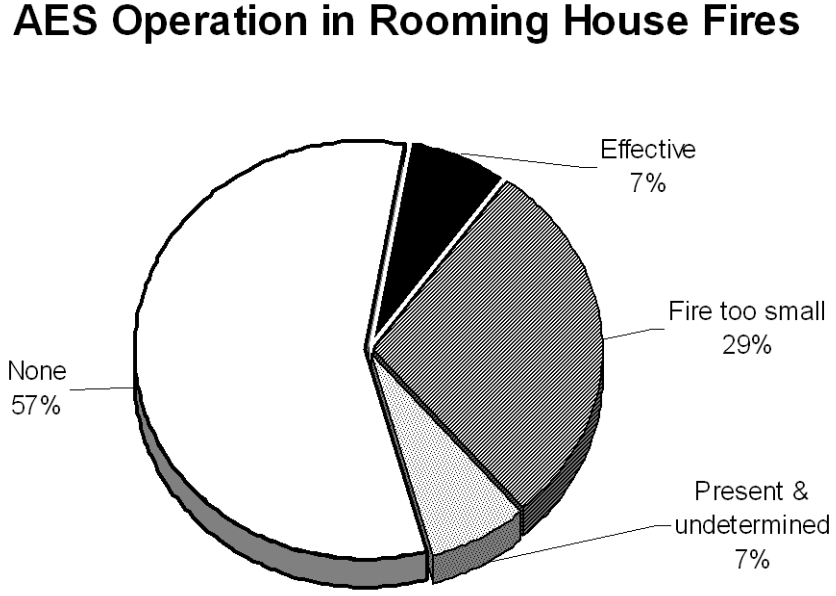


Smoke Detectors Required in Rooming Houses
Smoke detectors are required in rooming houses. Local communities may elect to adopt the provisions of Massachusetts General Law Chapter 148, Section 26H. This law mandates an adequate system of automatic sprinklers in every lodging or boarding house in the 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 31% of Rooming House Residential Building Fires
AES were reported present in 18, or 43%, of the 42 rooming house fires where AES presence was known. In the other 24 incidents, or 57%, there were no systems present.

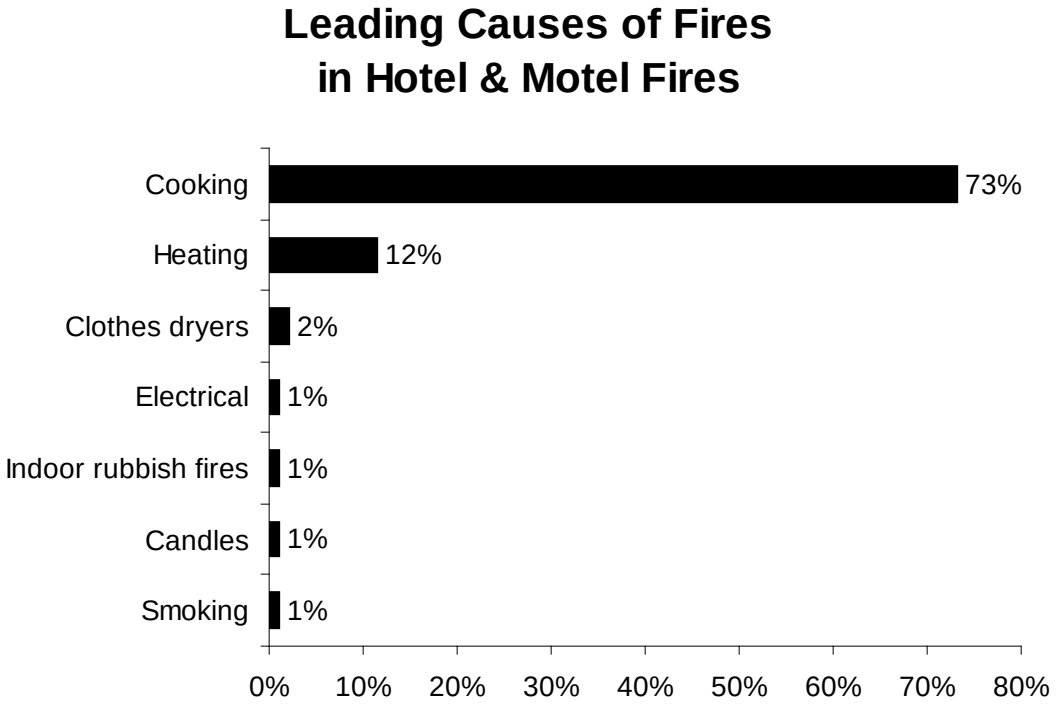
AES Effective in 7% of Rooming House Building Fires
In 7% of these rooming house building fires in 2011 where AES status was known, the AES operated effectively. The fire was too small to activate the automatic extinguishing system (AES) in 29% of these fires. In 7% of rooming house fires, systems were reported to be present but undetermined if they operated. In 57% of the cases, no system had been installed.



Hotel and Motel Fires

138 Fires Caused 1 Civilian Injury & $916,472 in Damages
One hundred and thirty-eight (138) building fires in hotels, motels and home hotels caused one civilian injury and $916,472 in estimated property damages. The average dollar loss per fire was $6,641. In 2011, 1% of the 15,043 residential building fires occurred in hotels, motels, or home hotels. Fires in hotels and motels were down by 1% from 140 in 2010.

Cooking Caused Almost 3/4 of Hotel & Motel Fires
Of the 138 fires in hotels and motels in 2011, cooking was the leading cause, accounting for 73%, of the fires in this occupancy. Heating equipment was responsible for 12% of these fires. Clothes dryers caused 2% of these fires. Electrical problems, indoor rubbish fires, candles and smoking each caused 1% of the fires in Massachusetts hotels and motels in 2011.



73% of Hotel and Motel Fires Started in the Kitchen
For hotel and motel fires, 73% started in the kitchen. Eight percent (8%) began in a heating room or area. Four percent (4%) of these fires each began in chimneys or flues and exterior wall surfaces; and another 4% of these fires started in laundry rooms.

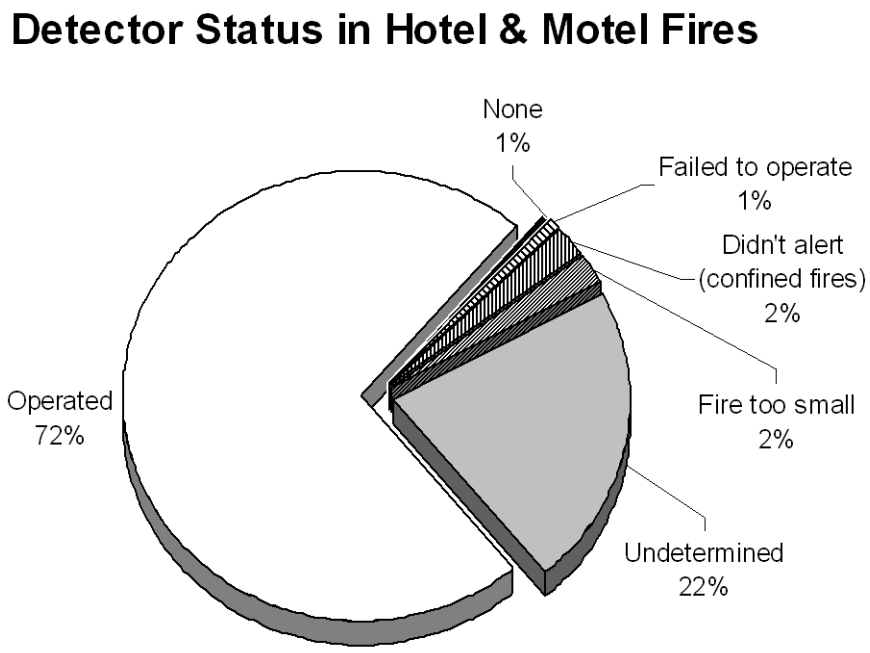
83% of Hotel or Motel Fires Confined to Non-Combustible Containers
One hundred and fifteen (115), or 83% of all building fires in hotels and motels, were reported as confined to non-combustible containers in 2011. Ninety-eight (98) were cooking fires contained to a non-combustible container, accounting for 71% of these fires. Nine (9) fuel burner or boiler malfunctions caused 7% of the fires in hotels and motels in 2011. Five (5), or 4%, of hotel or motel fires in 2011 were confined to a chimney or flue. Indoor rubbish fires caused two, or 1%, of the hotel and motel fires in 2011.

The number of contained fires rose in 2011. Confined fires in hotels and motels increased by 10 incidents, or 10%, from the 105 reported in 2010.

Detectors Operated in 72% of Fires
Smoke or heat detectors operated in 100, or 72%, of the hotel or motel fires in 2011. In 2% of these fires[15], the detectors did not alert the occupants. Detectors were present but 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 2% of these residential fires.

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

Smoke detector performance was undetermined in 30 incidents, or 22%, of Massachusetts' 2011 hotel or motel fires.



AES Absent in 44% of Hotel and Motel Residential Building Fires
Automatic extinguishing systems (AES) were present and operated effectively in one, or 4%, of the 26 hotel and motel building fires in 2011 where AES status was known. In five, or 19% of these fires, a system was present but it was undetermined if it operated. In another five, or 19%, of these incidents, the fire was too small to activate the system. In 15, or 58%, 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.
- 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.
- 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.

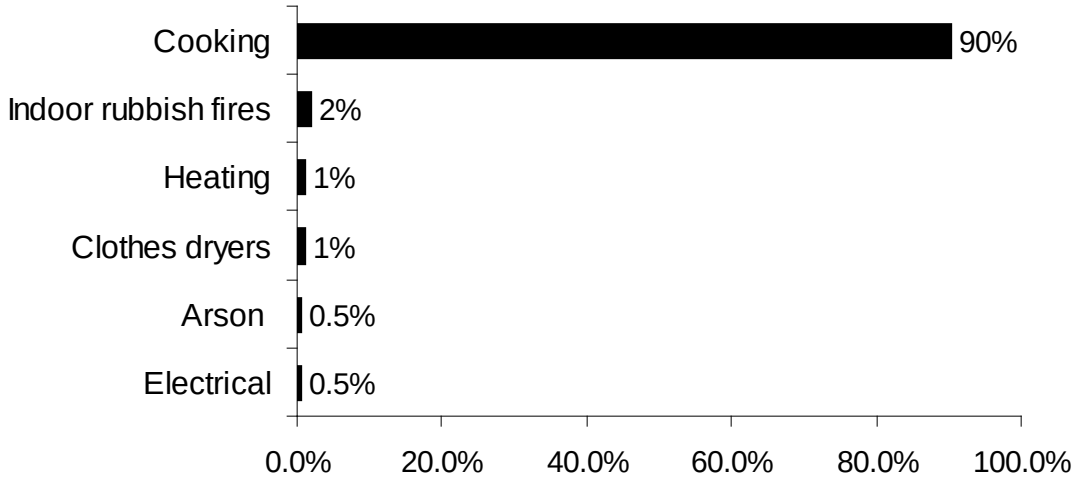
Residential Board & Care Fires

206 Fires Caused 1 Civilian Injury & $410,338 in Damages
Two hundred and six (206) residential board and care building fires caused one civilian injury and an estimated dollar loss of $410,338 in damages. The average dollar loss per fire was $1,992. In 2011, 1% of the 15,043 residential building fires occurred in residential board and care buildings. Fires in residential board and care facilities were up by 18% from 175 in 2010.

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

Cooking Accounted for 90% Residential Board & Care Fires
In the 206 incidents of residential board and care building fires, the leading cause was cooking, accounting for 186 incidents, or 90%, of the fire incidents. Indoor rubbish fires caused 2% of these fires. Heating equipment and clothes dryers each caused 1%, and arson and electrical problems each caused less than 1% of the fires in residential board and care facilities in 2011.

Leading Causes of Fires in Residential Board & Care Facility Fires



92% of Residential Board & Care Fires Started in the Kitchen
Of the 206 residential board and care building fires, 189, or 92%, started in the kitchen. Two (2), or 1%, started in the heating room or area and another two, or 1%, started in the attic.

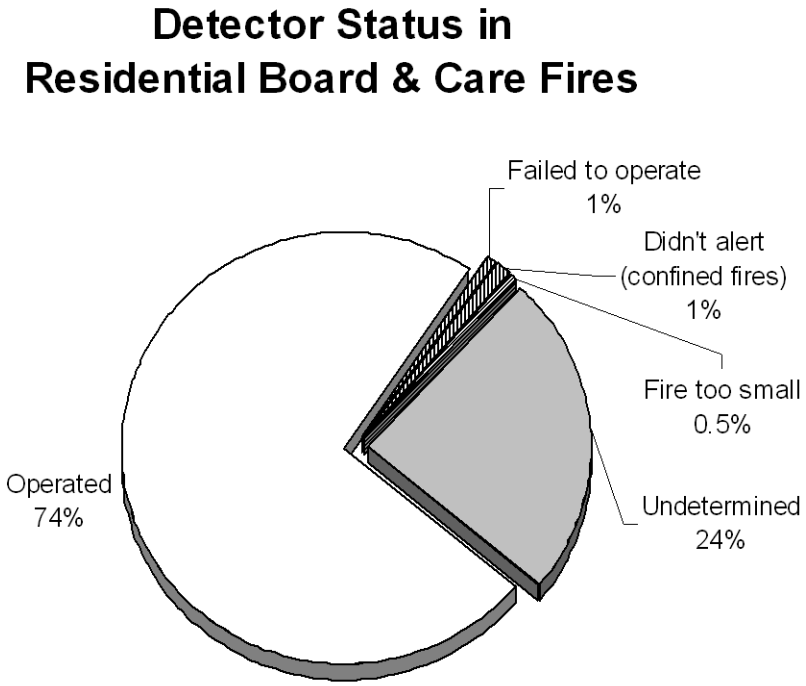
93% of Board & Care Fires Confined to Non-Combustible Containers
One hundred and ninety-two (192), or 93% of all building fires in residential board and care facilities, were reported as confined to non-combustible containers in 2011. One hundred and eighty-five (185) were cooking fires contained to a non-combustible container accounting for 90% of these fires. Four (4), or 2%, of these fires were contained rubbish fires. Two (2), or 1%, of the fires in residential board and care facilities were confined to a fuel burner or boiler malfunction; and one, or less than 1%, was a confined chimney or flue fire.

The number of contained fires increased in 2011. Confined fires in residential board and care facilities increased by 31 incidents, or 19%, from the 161 reported in 2010.

Detectors Operated in Almost 3/4 of Fires
Smoke or heat detectors operated in 151, or 74%, of the residential board and care facility fires in 2011. In 1% of these fires[16], the detectors did not alert the occupants. Detectors were present but failed to operate in 1% of residential board and care fires. There were no reported fires where there were no detectors. The fire was too small to trigger the detector

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

in less than1% of these residential fires. Smoke detector performance was undetermined in 50 incidents, or 24%, of Massachusetts' 2011 residential board and care facility fires.



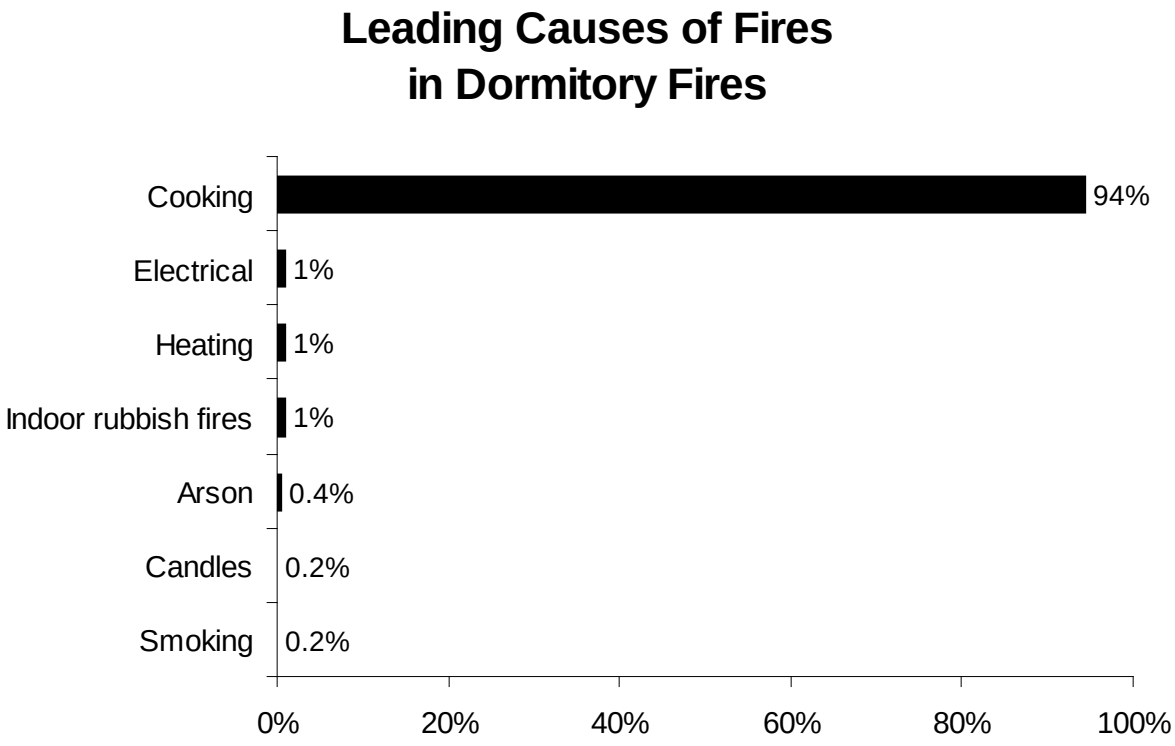
No AES in 65% of Residential Board & Care Building Fires
Automatic extinguishing systems (AES) were present and effective in five, or 13%, of the 23 residential board and care building fires where AES presence was known. An AES was present but it was undetermined if it operated in three, or 4%, of these incidents. In 15, or 65%, of these incidents there were no systems present.

Dormitory Fires

543 Fires Caused 1 Civilian Injury & $231,853 in Damages
Five hundred and forty-three (543) dormitory building fires caused one civilian injury and an estimated dollar loss of $231,853 in damages. The average dollar loss per fire was $427. In 2011, 4% of the 15,043 residential building fires occurred in dormitories. Fires in dormitories were up by 93, or 21%, from 450 in 2010.

Cooking Accounted for 94% of Dormitory Fires
In the 543 incidents of dormitory fires, the leading cause was cooking, accounting for 512, or 94%, of these fires. Electrical problems, heating equipment and indoor rubbish

fires were each responsible for 1% of these incidents. Arson, candles and smoking each caused less than 1% of the Massachusetts dormitory fires in 2011.



95% of Dormitory Fires Started in the Kitchen
For dormitory fires, 95% started in the bedrooms[17]. Kitchens and heating rooms or areas were each the area of origin for 1% of dormitory fires.

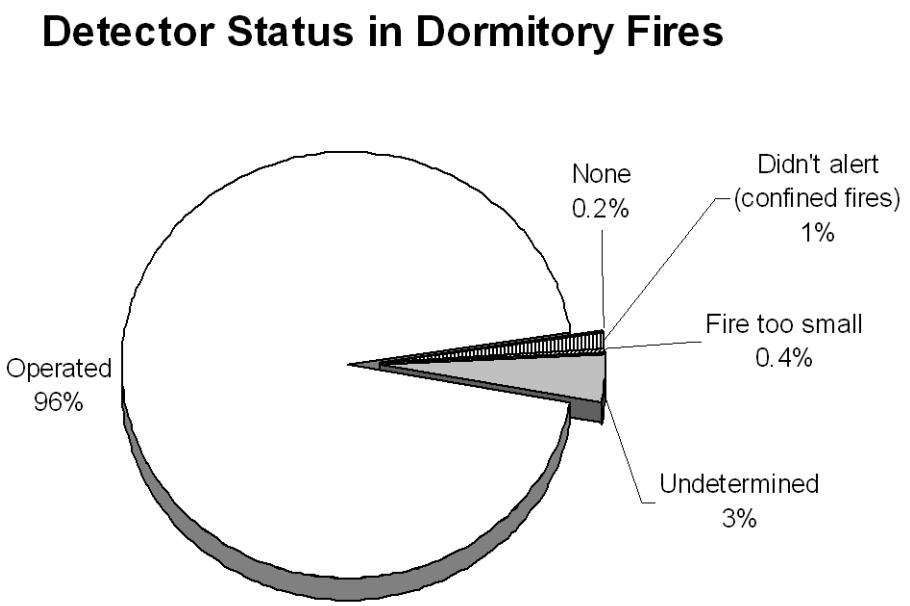
96% of Dormitory Fires Confined to Non-Combustible Containers
Five hundred and twenty (520), or 96% of all building fires in dormitories, were reported as confined to non-combustible containers in 2011. Five hundred and nine (509) were cooking fires contained to a non-combustible container, accounting for 94% 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 five, or 1% of the fires in dormitories in 2011. Three (3), or 1%, of fires in Massachusetts' dormitories in 2011 were confined to a fuel burner or boiler malfunction. Two (2), or less than 1%, were confined to a chimney or flue; and one, or less than 1%, was an incinerator overload.

[17] Ninety-four percent (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.

The number of contained fires rose in 2011. Confined fires in dormitories increased by 103 incidents, or 25%, from the 417 reported in 2010.

Detectors Operated in 96% of Fires

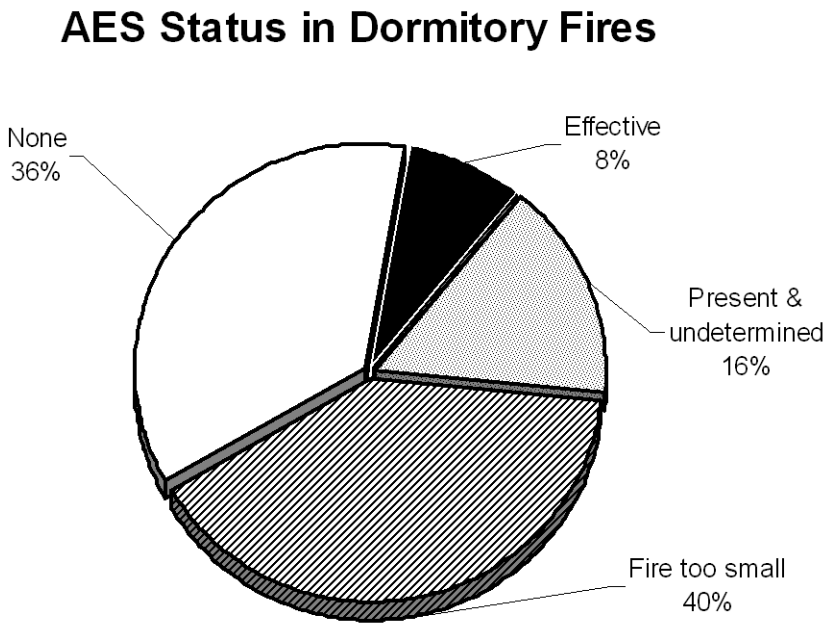
Dormitories have the highest percentage of operating smoke detectors of any residential occupancy in Massachusetts. Smoke or heat detectors operated and alerted the occupants in 515, or 96%, of the dormitory fires in 2011. In 1% of these fires[18], the detectors did not alert the occupants. There were no reported fires where the detectors were present but did not operate. Detectors were not present in less than 1% of these fires. The fire was too small to trigger the detector in less than 1% of these fires. Smoke detector performance was undetermined in 19 incidents, or 3% of Massachusetts' 2011 dormitory fires.



AES Present in Only 64% of Dormitory Fires

Automatic extinguishing systems (AES) were present and operated effectively in two, or 8%, of the 25 building fires in dormitories where AES status was known. In 40% of these incidents, the fire was too small to activate the system. In 16% of these incidents, a system was present but it was undetermined if it operated. In nine, or 36%, of these incidents there were no systems present.

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

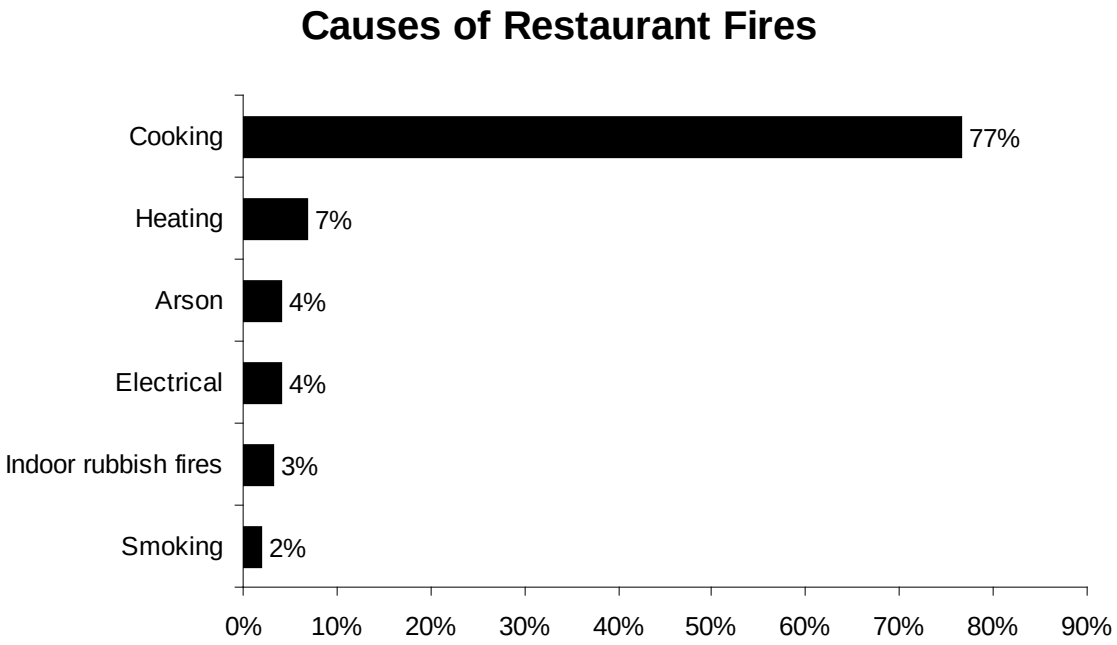


5 to 1 Ratio of False Alarms to Fire Calls in MA Dorms
In 2011, Massachusetts fire departments responded to 2,645 false alarm calls of all types in dormitory type residences. This means that there were five times as many false alarms as legitimate fire calls at these types of residences. One thousand five hundred and fifty-six (1,556), or 59%, were unintentional system or detector operations; 723, or 27%, were system or detector malfunctions; 301, or 11%, were malicious or mischievous false alarms; and 65, or 2%, were unclassified false alarm calls.

Restaurant Fires

368 Fires, 3 Civilian Injuries & $4 Million in Damages
Three hundred and sixty-eight (368) building fires in 2011 occurred in restaurants and other eating and drinking establishments, causing three civilian injuries and an estimated dollar loss of $4 million. The average dollar loss per fire was $10,862. In 2011, 2% of the 18,070 building fires in Massachusetts occurred in restaurants. Fires in restaurants were down 9% from 404 in 2010.

Over 3/4 of Restaurant Fires Caused by Cooking
Cooking caused 77% of the restaurant fires; heating equipment caused 7%; arson and electrical problems each caused 4%; indoor rubbish fires accounted for 3% of these fires; and smoking caused 2% of the fires in restaurants in 2011.

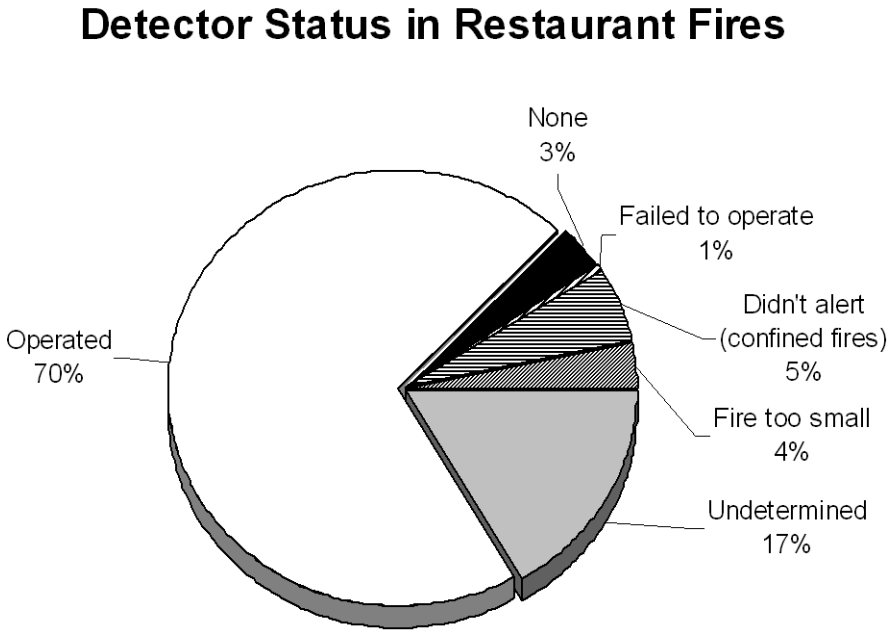


Over 3/4 of Restaurant Fires Started in the Kitchen
Two hundred and eighty-eight (288), or 77%, of the 368 fires in restaurants, started in the kitchen. Five percent (5%) began in heating rooms or areas. Chimneys or flues and concealed wall spaces were each the area of origin for 2% of these fires.

80% of Restaurant Building Fires Confined to Non-Combustible Containers
Two hundred and ninety-three (293), or 80% of all restaurant building fires, were reported as confined to non-combustible containers in 2011. Two hundred and fifty-eight (258) were cooking fires contained to a non-combustible container, accounting for 70% of restaurant building fires. Seventeen (17), or 5%, were fires confined to a fuel burner or boiler malfunction. Ten (10), or 3%, of all restaurant building fires reported in 2011 contained rubbish fires. Eight (8), or 2%, of restaurant fires were confined to chimneys or flues.

The number of contained fires fell in 2011. Confined fires in restaurants decreased by 12 incidents, or 4%, from the 305 reported in 2010.

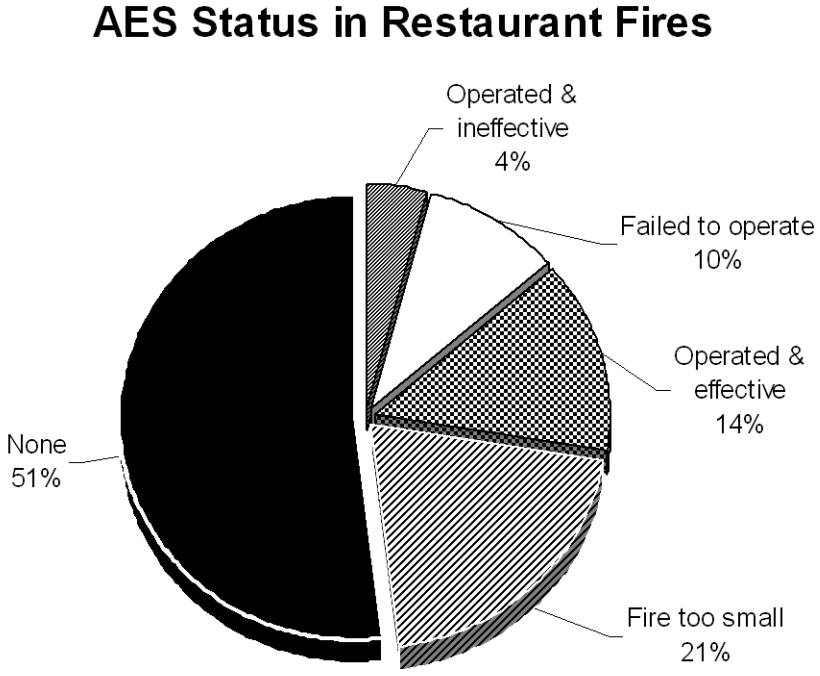
Detectors Operated in 70% of Fires
Smoke or heat detectors operated in 260, or 70%, of the restaurant fires in 2011. In 5% of these fires[19], the detectors did not alert the occupants. Detectors were present but did not operate in 1% of these incidents. In 3% of these fires, no detectors were present at all. The fire was too small to trigger the detector in 4% of the restaurant fires. Smoke detector performance was undetermined in 61 incidents, or 17%, of Massachusetts' 2011 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 Over 1/2 of Restaurant Fires
Automatic extinguishing systems (AES) were present and operated effectively in 14% of the 73 restaurant fires where AES status was known. In 4% of these fires, systems were present but operated ineffectively. In 10% of these fires, an AES was present but did not operate. In 21% of these fires, the fire was too small to activate the system. No AES equipment was present in 51% of the restaurant fires in 2011. AES status was unknown in five incidents. These incidents were excluded from the percentage calculations.

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



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.

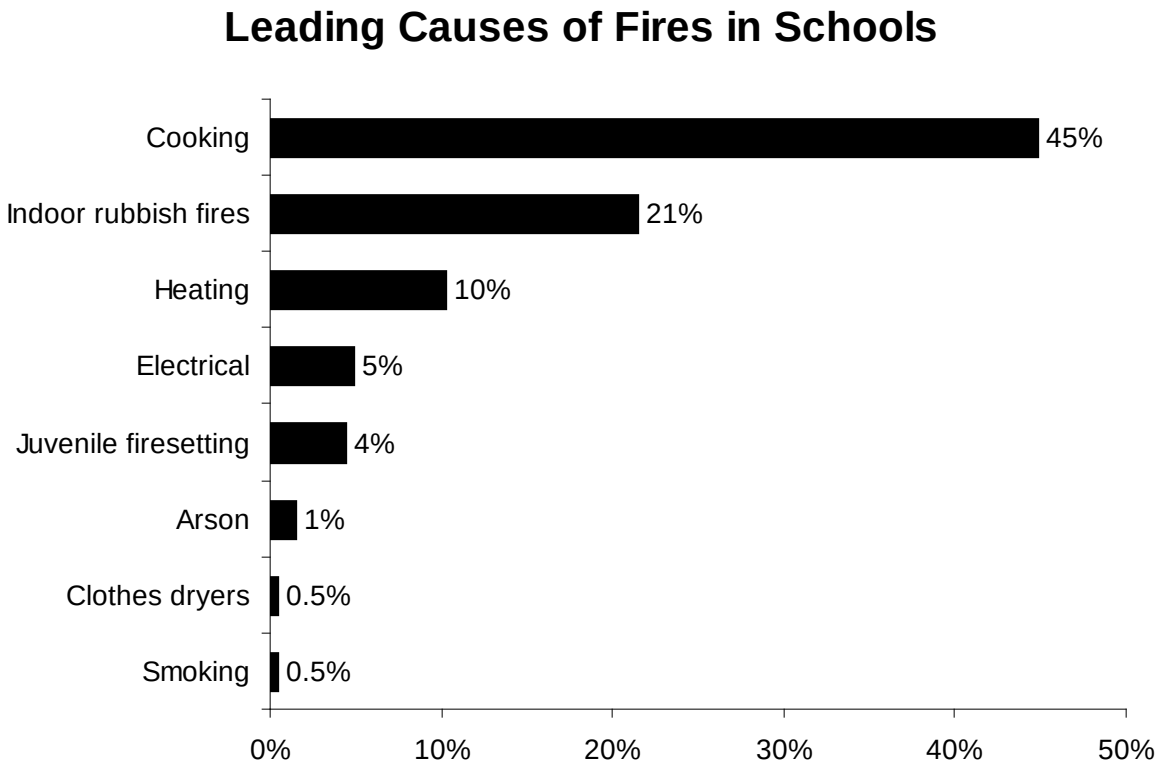
Marblehead Has Largest Loss Restaurant Fire

- On July 13, 2011, at 1:34 p.m., the Marblehead 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 $1.1 million.

School Fires

205 Fires Caused 4 Civilian Injuries & 2 Fire Service Injuries
Two hundred and five (205) building fires in schools caused four civilian injuries, two fire service injuries and $259,074 in property damages. The average dollar loss per fire was $1,264. In 2011, 1% of the building fires occurred in schools. Fires in schools decreased by six, or 3%, from the 211 in 2010.

45% of School Fires Were Cooking Fires
Forty-five percent (45%) of the 205 fires reported to have occurred in Massachusetts schools were caused by cooking. Twenty-one percent (21%) of the school fires were confined indoor rubbish fires for which no causal information was reported[20]. Problems with heating equipment accounted for 10% of these fires. Electrical problems accounted for 5% of these fires. Identified juvenile-set fires accounted for 4% of the fires in schools. Arsons caused 1%. Clothes dryers and smoking each caused less than 1% of the reported fires in schools in 2011. Smoking by students and faculty is generally prohibited in schools.



[20] 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.

45% of School Fires Started in the Kitchen
Forty-five percent (45%) of the fires in schools started in kitchens; 10% started in a heating room or area; 8% began in a bathroom; and 2% started in unclassified storage areas. 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 2011 there were 44 reported confined indoor rubbish fires reported in Massachusetts schools, of which 31 did not report an area of origin.

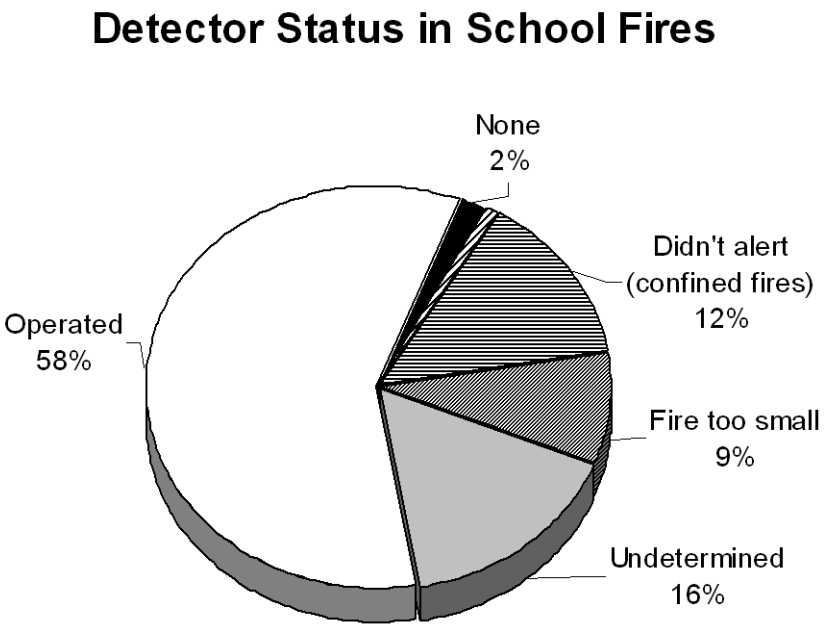
Schools Required to Report Fires by Law
Beginning in September of 2006 with Chapter 80 of the Acts of 2006, An Act Relative to the Reporting of Fires in School, "…any school that provides instruction to pupils in any of grades 1 to 12, shall immediately report any incident involving the unauthorized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

76% of School Building Fires Confined to Non-Combustible Containers
One hundred and fifty-five (155), or 76% of all school building fires, were reported as confined to non-combustible containers in 2011. Ninety-one (91) were cooking fires contained to a non-combustible container, accounting for 44% of school fires. Forty-four (44), or 21%, of all school fires were contained rubbish fires. Of these 44 confined rubbish fires, six were considered intentionally set or arson, and one were determined to be set by juveniles. Twenty (20), or 10%, were fires confined to a fuel burner or boiler malfunction.

Confined fires in schools decreased by 17 incidents, or 10%, from the 172 reported in 2010.

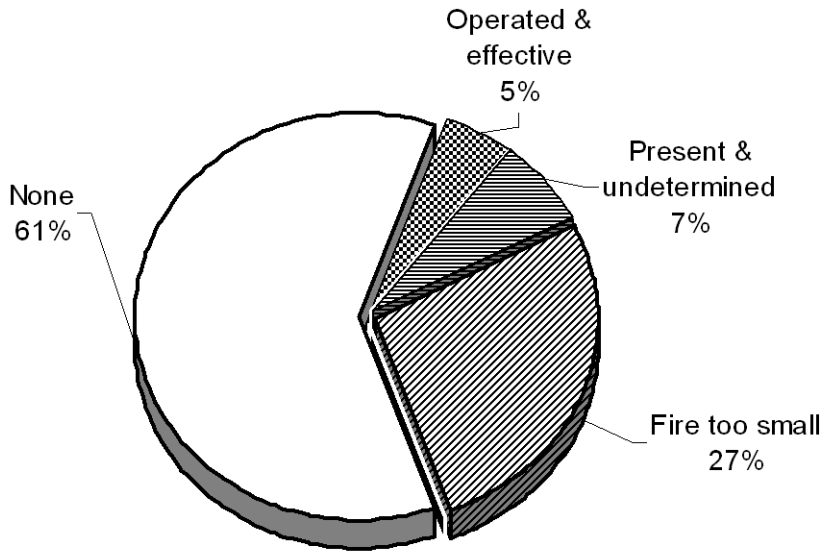
Detectors Operated in 58% of Fires
Smoke or heat detectors operated in 120, or 58%, of the school fires in 2011. In 12% of these fires[21], the detectors did not alert the occupants. There were no reported fires where detectors were present but did not operate. In 2% of these fires, no detectors were present at all. The fire was too small to trigger the detector in 9% of school fires. Smoke detector performance was undetermined in 33 incidents, or 16%, of Massachusetts' 2011 school fires.

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

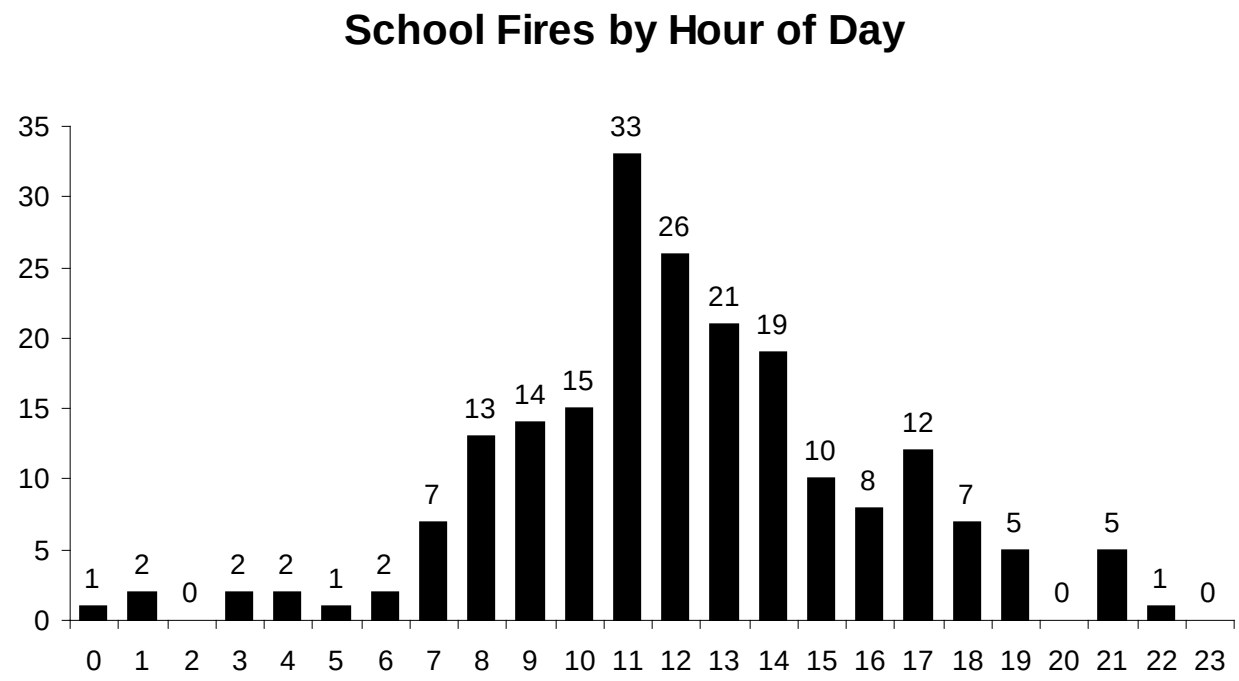


No AES in 61% of Fires in Schools

There were three school fires, or 5%, where automatic extinguishing systems (AES) were reported to have been present and operated effectively. In 2% of the fires the system failed to operate. In 27% of school fires, the fires were too small to trigger the system. An AES was present but it was undetermined if it operated in 7% of these fires. In 61% 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-three percent (73%) of the school building fires occurred during the hours between 8:00 a.m. and 3:00 p.m. with a sharp increase between 8:00 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-nine percent (89%) 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[22]. 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

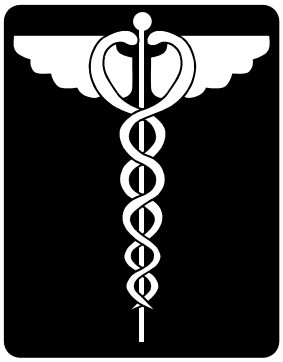
[22] A drill of the multithazard evacuation plan required under St. 2000, Ch. 159 Sec. 363 may be substituted for one of the fire drills.

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.

Boston Had Largest Loss School Fire

- On October 25, 2011, at 9:40 a.m., the Boston Fire Department was called to an intentionally set fire at an elementary school. The fire was started when someone intentionally ignited a plastic paper towel dispenser in a boy's bathroom on the first floor. No one was injured at this fire. Detectors were present and alerted the occupants of the building. The building was not sprinklered. Damages from this fire were estimated to be $60,000.

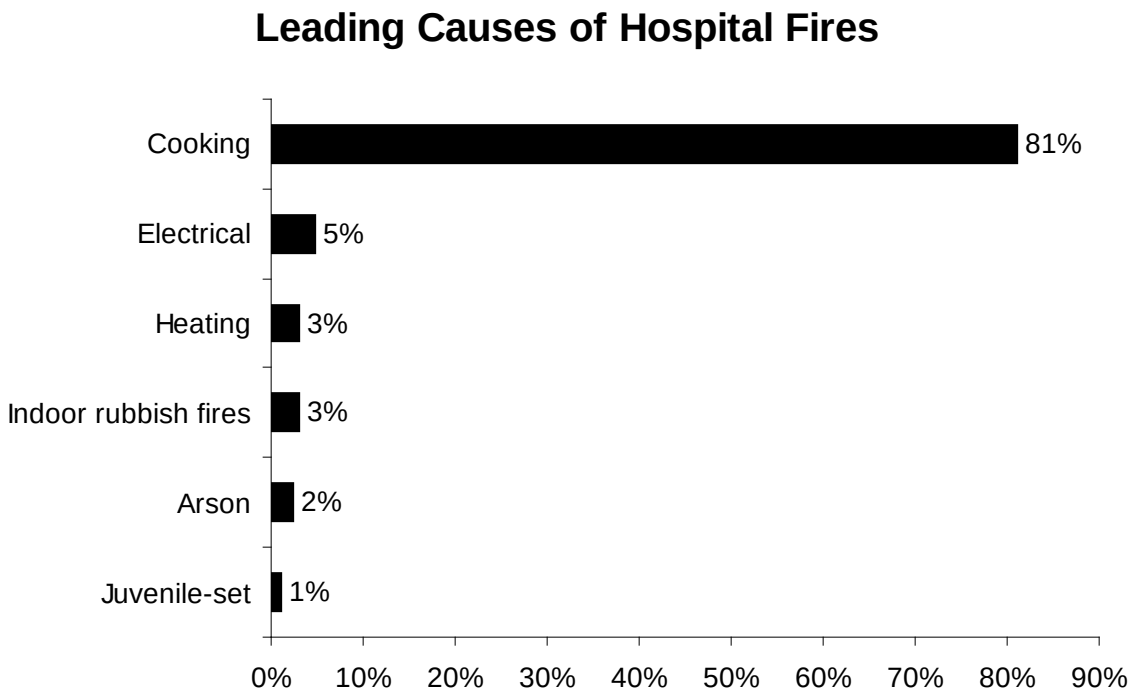
Fires in Hospitals



169 Fires Caused 3Civilian Injuries & $445,621 in Damages
One hundred and sixty-nine (169) building fires in hospitals caused three civilian injuries and an estimated dollar loss of $445,621. The average loss per fire was $2,637. In 2011, 1% of the 18,070 building fires occurred in hospitals. Fires in hospitals were down 12% from the 191 reported in 2010.

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 81% of Hospital Fires
Unattended cooking and other unsafe cooking practices caused 81% of the fires in hospitals in 2011. Electrical problems fires caused 5% of these fires. Heating equipment and indoor rubbish fire each caused 3% of hospital fires. Arson caused 2% of these fires; and juvenile-set fires accounted for 1% of the fires in hospitals in 2011.



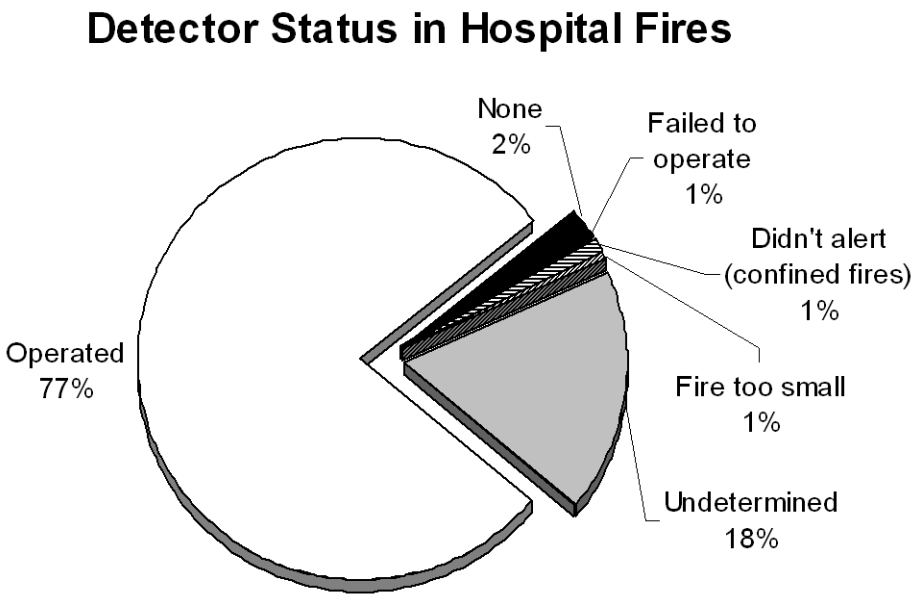
82% of Hospital Fires Began in the Kitchen
Eighty-two percent (82%) of the fires in hospitals in 2011 started in the kitchen. Two percent (2%) occurred each in heating rooms or areas and bedrooms. Bathrooms, laboratories, unclassified function rooms, unclassified service or equipment areas and HVAC ducts were each the area of origin for 1% of hospital fires in 2011.

85% of Hospital Building Fires Confined to Non-Combustible Containers
One hundred and forty-four (144), or 85%, of all hospital building fires, were reported as confined to non-combustible containers in 2011. One hundred and thirty-six (136), or 80%, of these fires were contained cooking fires. Five (5) were confined indoor rubbish fires accounting for 3% of hospital fires. Three (3), or 2%, were fires confined to a fuel burner or boiler malfunction.

The number of contained fires increased in 2011. Confined fires decreased by 23 incidents, or 14%, from the 167 reported in 2010.

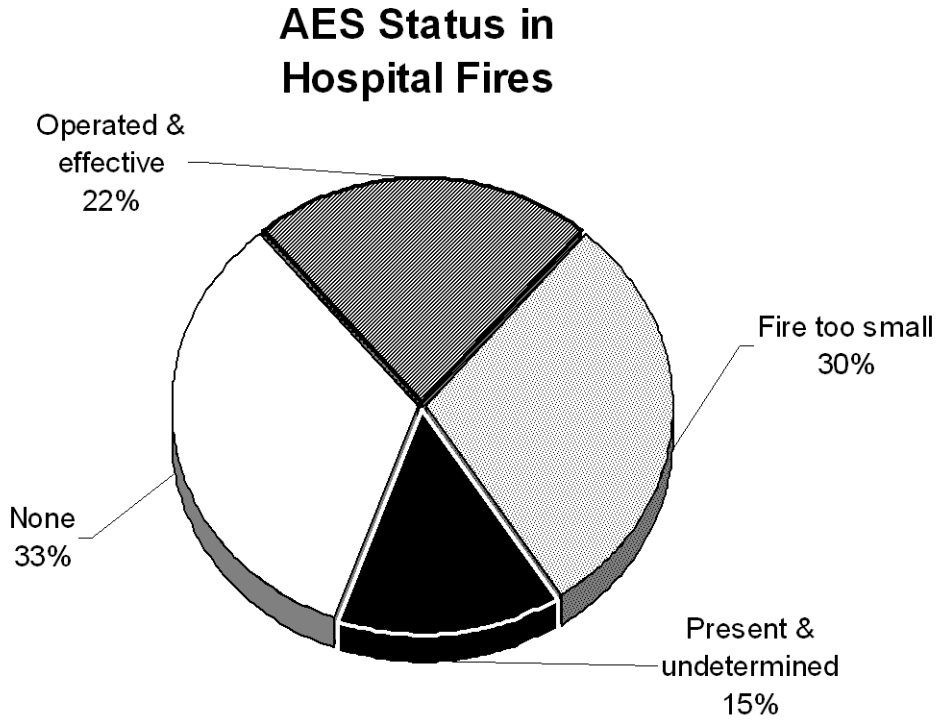
Detectors Operated in Over 3/4 of Fires
Smoke or heat detectors operated in 132, or 77%, of the hospital fires in 2011. In 1% of these fires[23], the detectors did not alert the occupants. The detectors failed to operate in 1% of these fires. In 2% of these fires, no detectors were present at all. The fire was too small to trigger the detector in 1% of the hospital fires. Smoke detector performance was undetermined in 30 incidents, or 18%, of Massachusetts' 2011 hospital fires.

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



No AES in Almost 1/3 of Fires

Of the 27 hospital fires where automatic extinguishing system (AES) performance was known, 33%, or nine, of the hospital fires had no systems. The fire was too small to activate the AES in eight, or 30%, of these fires. The system operated effectively in six, or 22% of hospital fires. An AES was present but its performance was unknown in four, or 15% of the fires in hospital facilities.



Worcester Had Largest Loss Hospital Fire in 2011

- On January 5, 2011, at 11:01 a.m., the Worcester Fire Department was called to an electrical fire in a treatment area of a hospital. The fire did not cause any injuries. Detectors were present and alerted the other occupants of the hospital. The building was equipped with sprinklers but the fire was too small to activate them. Damages from this fire were estimated to be $285,000.

Nursing Home and Rest Home Fires

154 Fires Caused $49,245 in Damages

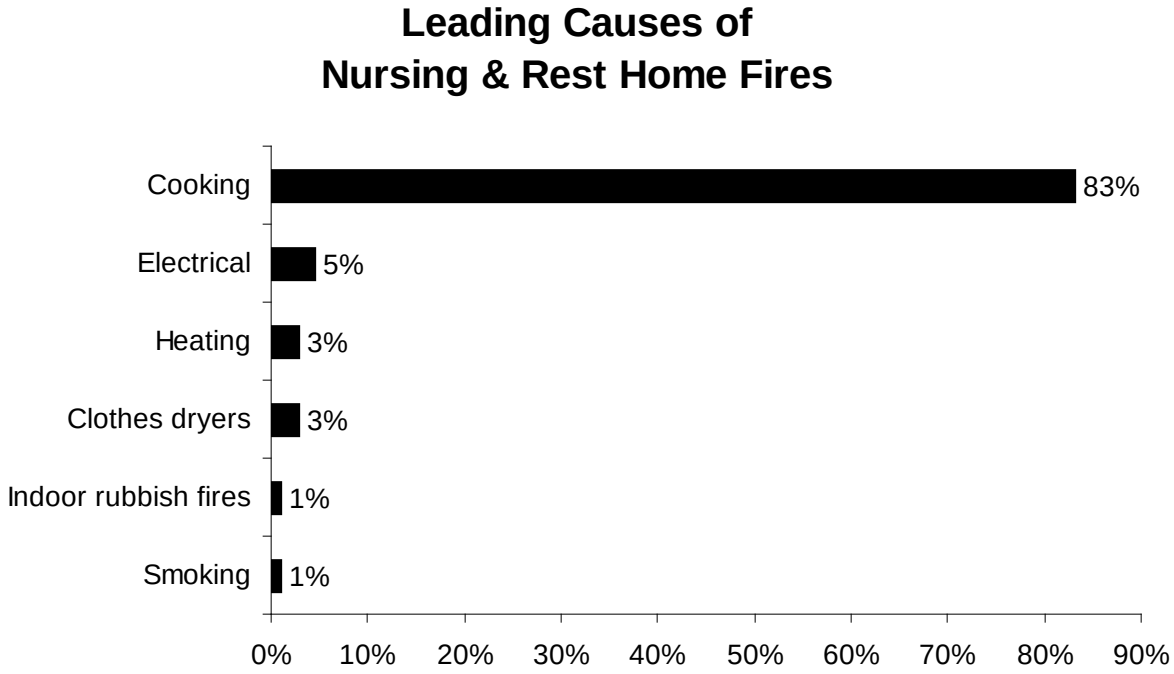
One hundred and fifty-four (154) building fires occurred in nursing homes and rest homes[24] during 2011. These fires caused an estimated dollar loss of $49,245. The average loss per fire was $320. In 2011, 1% of the 18,070 building fires occurred in nursing homes and rest homes. Fires in nursing homes and rest homes remained the same with 154 reported in both 2010 and 2011.

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

Cooking Caused 83% of Nursing Home Fires

Unattended cooking and other unsafe cooking practices caused 83% of the fires in nursing and rest homes. Electrical problems caused 5% of these fires. Heating equipment and clothes dryers each caused 3% of these fires. Indoor rubbish fires and smoking each caused 1% of nursing home fires in 2011.

[24] 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.



84% of Fires Began in the Kitchen
Eighty-four percent (84%) of the nursing and rest home fires began in the kitchen. Three percent (3%) each began in bedroom, heating rooms or areas and laundry rooms.

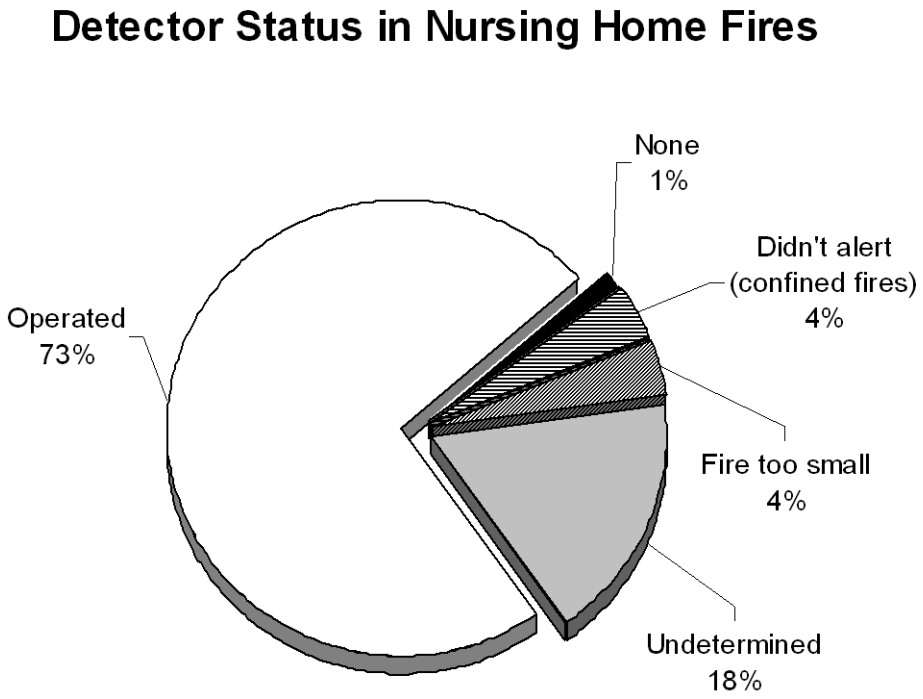
88% of Nursing Home Fires Were Confined to Non-Combustible Containers
One hundred and thirty-six (136), or 88%, of all nursing home building fires were reported as confined to non-combustible containers in 2011. One hundred and twenty-eight (128) of the reported fires were cooking fires contained to a non-combustible container accounting, for 83% of nursing home building fires. Four (4), or 3%, were fires confined to a fuel burner or boiler malfunction. There were two confined indoor rubbish fires in Massachusetts' nursing homes in 2011, accounting for 1% of these fires. One (1) fire, or 1%, was confined to an incinerator; and another fire, or 1%, was confined to a commercial compactor in 2011.

The number of contained fires in nursing homes dropped slightly in 2011. Confined fires decreased by two incidents, or 1%, from the 138 reported in 2010.

Detectors Operated in Almost 3/4 of Fires
Smoke or heat detectors operated in 113, or 73%, of the nursing home fires in 2011. In 4% 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. In 1% of these fires, no detectors were present at all. The fire was too small to trigger the detector in 4% of the nursing

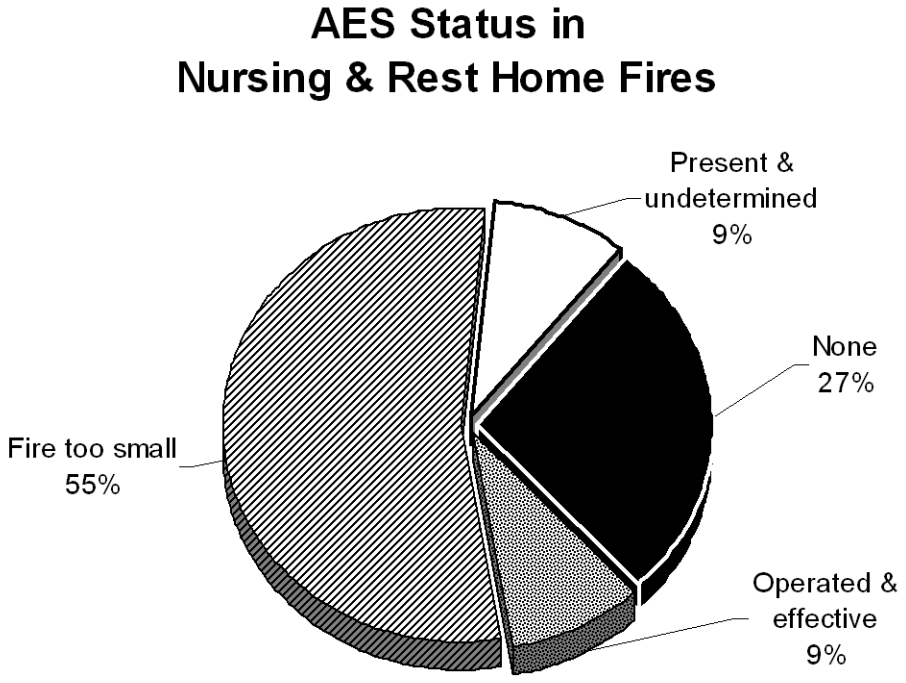
[25] These represent confined fires where it was reported that the detector did not alert the occupants.

home fires. Smoke detector performance was undetermined in 27 incidents, or 18%, of Massachusetts' 2011 nursing and rest home fires.



AES Operated in 9% of Nursing Home Fires

Of the 22 nursing home fires where automatic extinguishing system (AES) performance was known or reported, systems were present and operated effectively in two, or 9%, of



these fires. In 12 incidents, or 55% of the fires where AES presence was known, the fire was too small to activate the system. No systems were present in six, or 27%, of these fires. In two of these incidents, or 9%, AES were present but their operation was undetermined.

Westborough Has Largest Nursing Home Fire Loss

- On January 18, 2011, at 1:04 a.m., the Westborough Fire Department was called to a dryer fire in a nursing home. This fire caused $35,000 in damages. No one was injured in this fire. Smoke detectors were present and alerted the staff and occupants. Sprinklers were present and actively suppressed the fire.

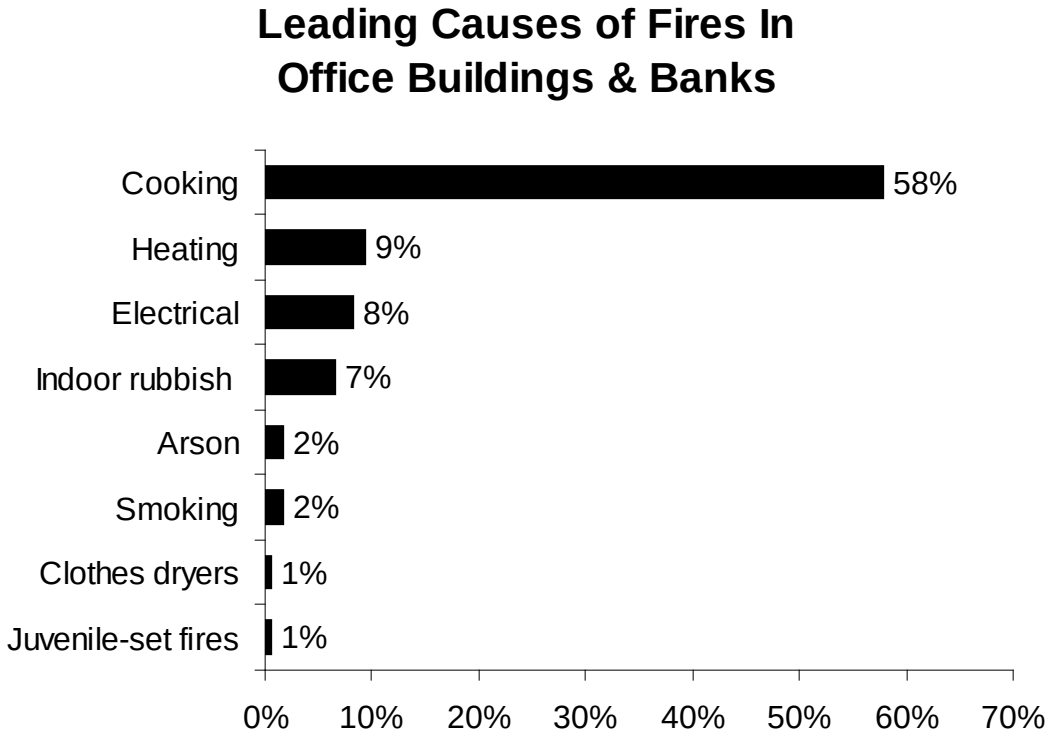
Office Building and Bank Fires

183 Fires, 4 FF Injuries & $2.1 Million in Damages

One hundred and eighty-three (183) building fires occurred in offices and banks during 2011. These fires caused one civilian injury, four fire service injuries and an estimated dollar loss of $2.1 million. The average dollar loss per fire was $11,617. In 2011, 1% of the 18,070 building fires occurred in offices and banks. Fires in office buildings and banks were down 8% from 198 in 2010.

Cooking Caused 58% of Office & Bank Fires

Unattended cooking and other unsafe cooking practices caused 58% of the 183 fires in office buildings and banks in 2011. Heating equipment accounted for 9% of these fires. Electrical problems caused 8% of the fires and indoor rubbish fires caused 7% of these fires. Arson and smoking each caused 2%. Clothes dryers and juvenile-set fires were each the cause of 1% of the fires in Massachusetts' office buildings and banks in 2011.

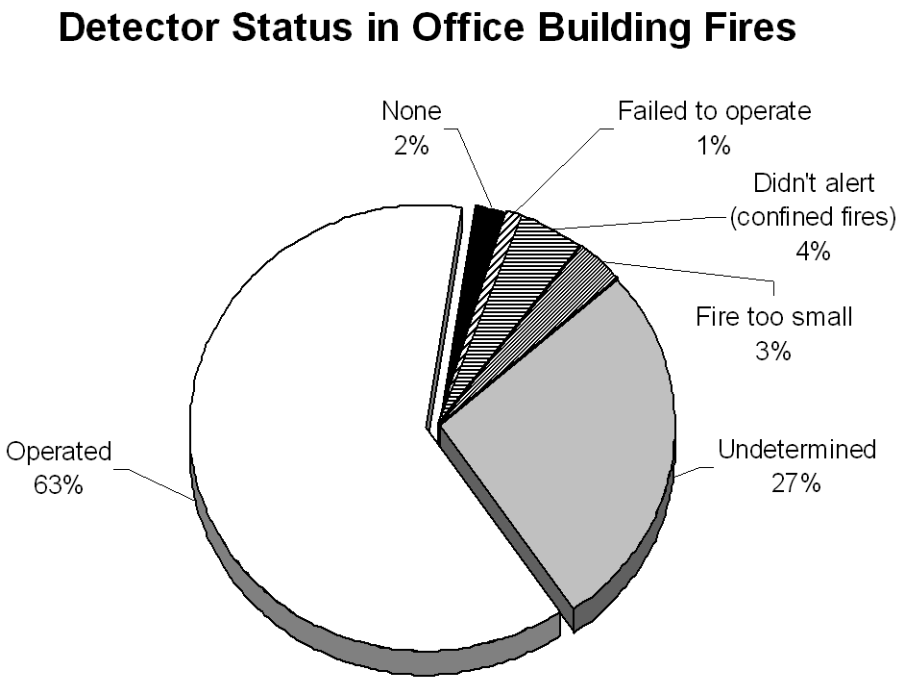


59% Office Building and Bank Fires Started in Kitchen
Fifty-nine percent (59%) of the fires in office buildings or banks started in the kitchen. Ten percent (10%) of these fires began in a heating room or area. Three percent (3%) began in offices. Two percent (2%) each originated in bathrooms and machinery rooms or areas. One percent (1%) each started in closets, HVAC ducts, exterior exposed surface, exterior roof surface, switchgear area or a wall assembly.

73% of Office Building Fires Are Confined to Non-Combustible Containers[26]
One hundred and thirty-three (133), or 73%, of all office building and bank building fires were reported as confined to non-combustible containers in 2011. One hundred and five (105) of the reported fires were cooking fires contained to a non-combustible container, accounting for 57% of office building fires. Sixteen (16), or 9%, were fires confined to a fuel burner or boiler malfunction. Twelve (12), or 7%, of these fires were contained indoor rubbish fires. Confined fires in offices decreased by 15 incidents, or 10%, from the 148 reported in 2010.

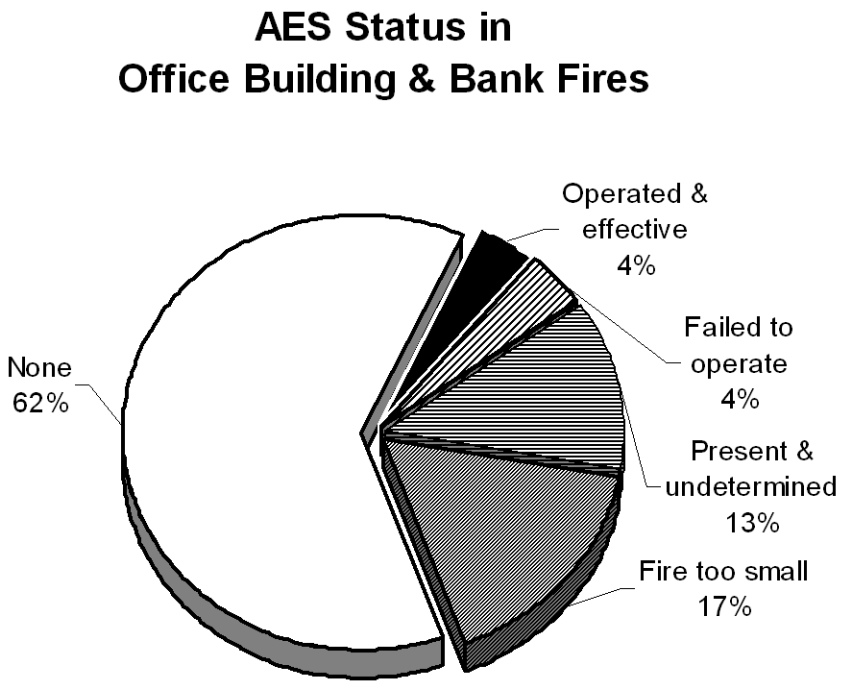
[26] In MFIRS v5 a fire in a building contained to a non-combustible container (Incident Type = 113-118) does not have to have a Fire Module completed. Therefore the following data fields do not need to be completed: Area of Origin, Detector Status, Item First Ignited, Heat Source, Factors Contributing 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 and alerted the occupants in 114, or 63%, of the office building fires in 2011. In 4% of these fires[27], the detectors did not alert the occupants. In 2% of these fires, no detectors were present at all. In 1% of these fires the detectors failed to operate. The fire was too small to trigger the detector in 3% of the office building fires. Smoke detector performance was undetermined in 49 incidents, or 27%, of the fires in Massachusetts' office buildings.



62% of Office Buildings and Banks Had No AES
No automatic extinguishing systems (AES) were installed in 30, or 62%, of the 48 fires occurring in office buildings and banks where AES performance was known. Systems were present and operated effectively in two, or 4%, of these incidents. A system was present but failed to operate in two, or 4%, of these fires. The fire was too small to activate the system in eight, or 17%, of these incidents. AES were present but it was undetermined if they operated in six, or 13%, of the total number of office building and bank fires.

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



Gloucester Has Largest Loss Office Building Fire

- On March 4, 2011, at 6:26 a.m., the Gloucester Fire Department responded to a fire in a business office of undetermined cause. The fire originated in a first floor office. One (1) civilian and two firefighters were 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 $750,000.

Vacant Building Fires

278 Fires Caused 39 Fire Service Injuries & $23.9 Million in Damages

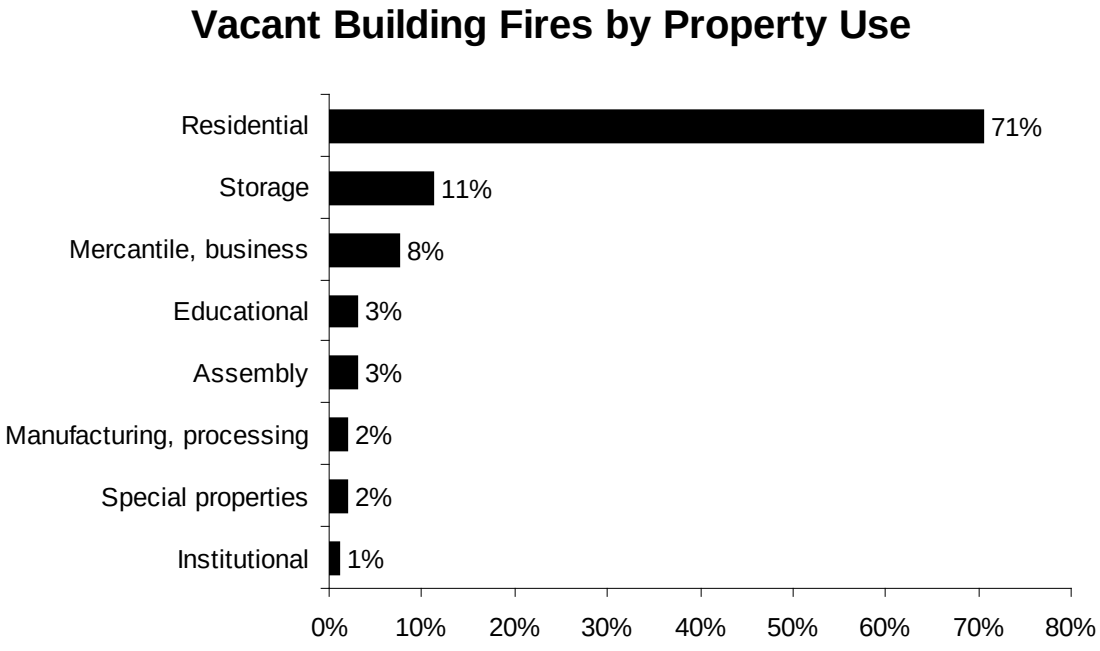
Two hundred and seventy-eight (278) building fires occurred in buildings that were vacant, under construction or demolition[28]. These 278 fires caused three civilian injuries, 39 firefighter injuries and an estimated $23.9 million in damages. The average dollar loss per vacant building fire was $85,985. The number of fires in vacant buildings decreased by 44, or 14%, from the 322 reported in 2010.

[28] 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.

11% of Vacant Buildings Fires Were Arsons
Thirty (30), or 11%, of the fires in vacant buildings were considered arson. These 30 arsons caused eight firefighter injuries and $3.7 million in damages. In 2011, 13%, of the total 223 Massachusetts building arson fires occurred in vacant buildings.

35% of Vacant Building Fires Undetermined
Thirty-five percent (35%) of vacant building fires were undetermined. Thirty-three (33), or 12%, of the 278 vacant building fires were undetermined after investigation. Sixty-three (63), or 23%, were coded as still under investigation.

71% of All Vacant Building Fires Were Residential
Out of the 278 vacant building fires, 196, or 71%, occurred in residential occupancies. This is an increase of 10, or 5%, from the 186 that were reported in 2010. Thirty-one (31), or 11%, happened in storage facilities; 21, or 8%, happened at mercantile or business locations; nine, or 3%, were at educational facilities; eight, or 3%, were in public assembly properties; five, or 2%, happened at manufacturing or processing locations; five, or 2%, occurred in special properties; and three, or 1%, occurred at institutional facilities.



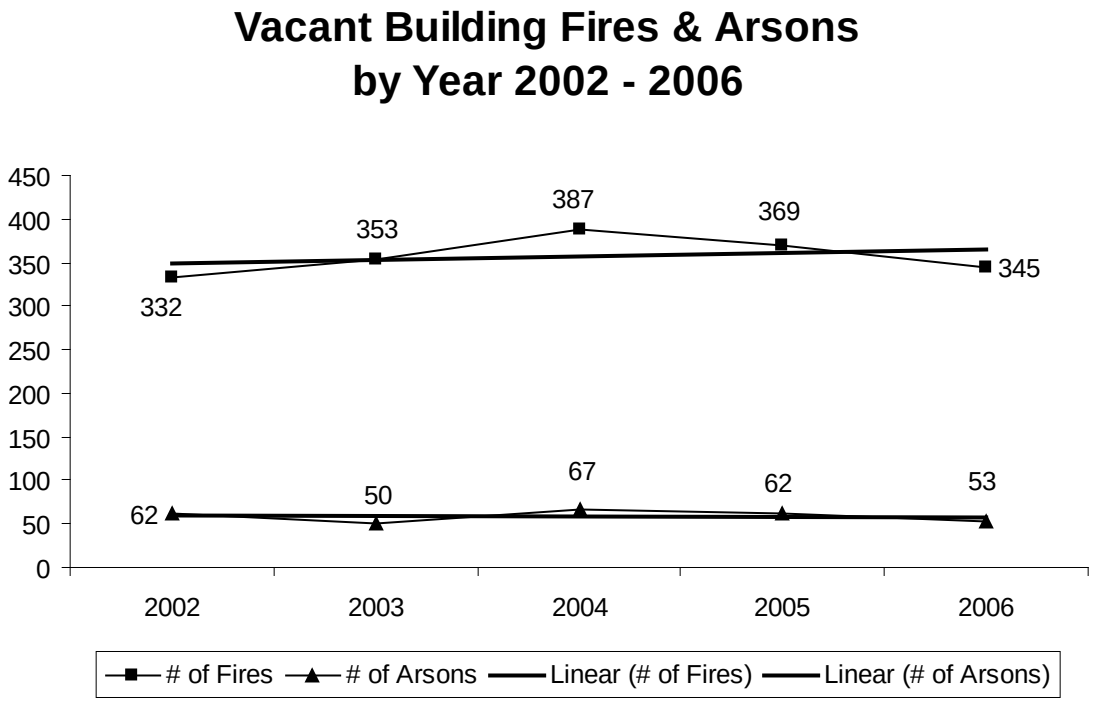
60% of All Vacant Building Arsons Occurred in Residential Buildings
Sixty percent (60%) of the 30 vacant building arsons in 2011 occurred in residential occupancies. Seventeen percent (17%) took place in storage facilities; public assembly properties accounted for 7%; another 7% occurred in mercantile or business properties; and 7% also happened in special properties.

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

FIRES AND ARSONS IN VACANT BUILDINGS

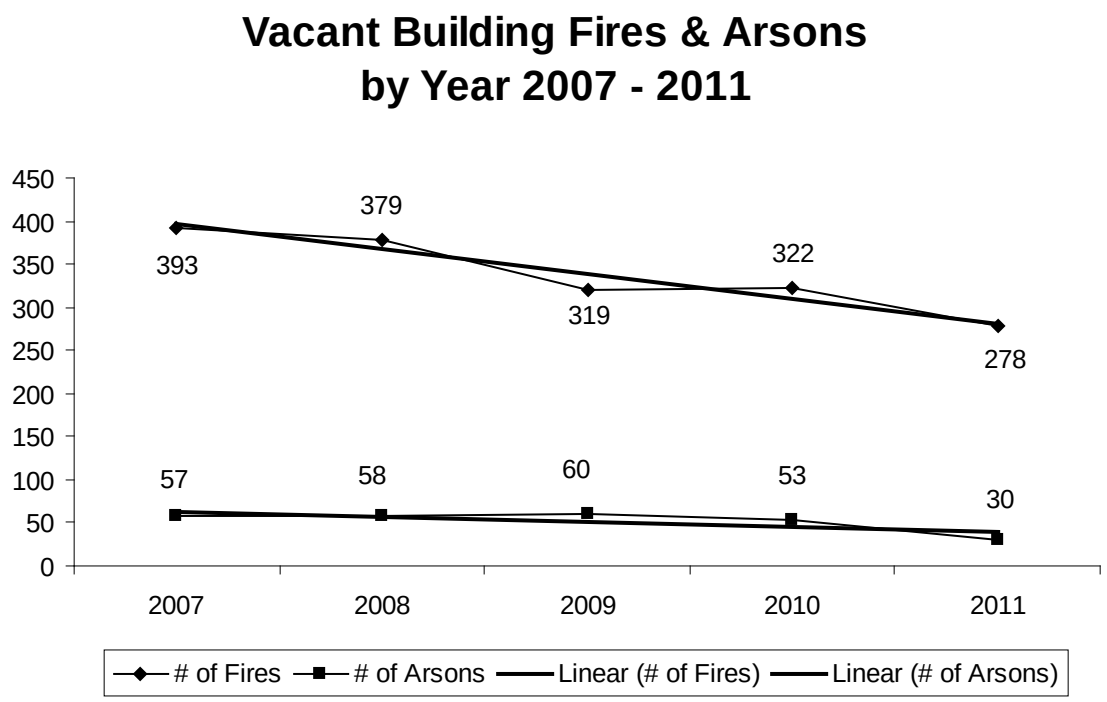
Year	# of Fires	# of Arsons	% Arsons
2011	278	30	13%
2010	322	53	16%
2009	319	60	19%
2008	379	58	15%
2007	393	57	15%
2006	345	53	15%
2005	369	62	17%
2004	387	67	17%
2003	353	50	14%
2002[29]	332	62	17%

The following graph shows an upward trend in vacant building fires and a level trend in vacant building arsons between 2002 and 2006.



From 2007 through 2011, the number of vacant building fires and arsons seems to be decreasing.

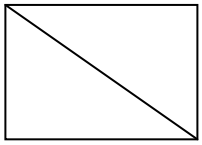
[29] The 2002 MFIRS Annual Report reported 487 fires in vacant buildings. This figure incorrectly included 83 building fires where the Building Status code was either 0 – Other or U – Undetermined. Without these 83 fires the total number of building fires in vacant buildings was 332 and arsons in vacant buildings was 62.



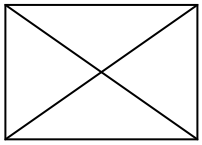
Communities Have Gone on the Offensive Against Vacant Buildings
Some communities have gone on the offensive against vacant buildings. In the aftermath of the December 3, 1999 Worcester Cold Storage Warehouse Fire, where six firefighters lost their lives, there has been an increased awareness of the dangers 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 in these types of fires such as deciding whether 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 116) 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.

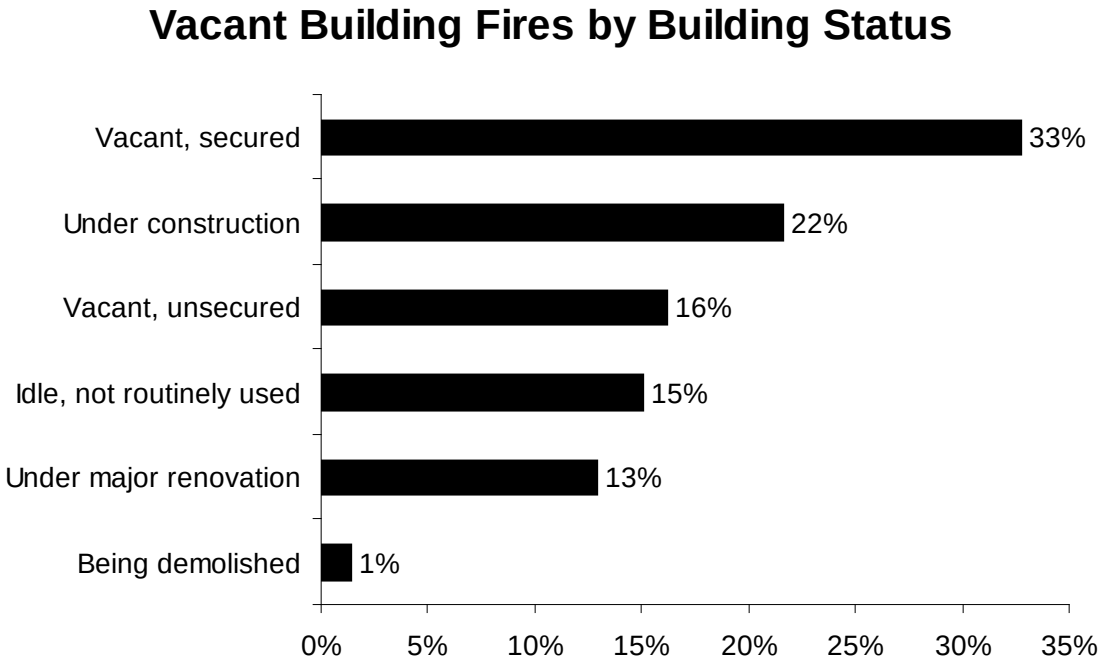
Effective Boarding Up Is Key to Protection

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.

1/3 Were Vacant and Secured Buildings

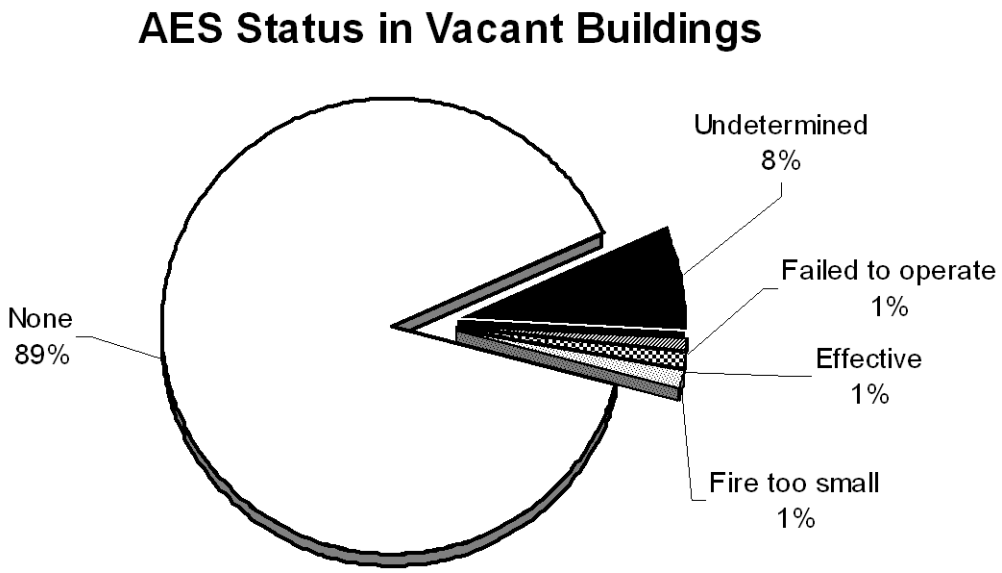
Of the 278 fires in vacant buildings in 2011, 91, or 33%, were in vacant buildings that were secured. Sixty (60), or 22% were under construction. Forty-five (45), or 16%, of these fires occurred in vacant buildings that were unsecured; 42, or 15% of these fires took place in buildings that were idle or not routinely used; 36, or 13%, happened in

buildings undergoing major renovations; and four, or 1%, of the fires in these buildings occurred in buildings that were in the process of being demolished.



1/2 of All Vacant Building Arsons Occurred in Unsecured Buildings
Fifteen (15), or 50% of all vacant building arsons in 2011, occurred in unsecured vacant buildings. Ten (10), or 33%, of these arsons occurred in vacant and secured buildings. Five (5), or 50%, of the arsons involving vacant and secured buildings reported having the fire start on the exterior of the building. Four (4), or 13%, occurred in idle buildings that are not routinely used. Buildings under construction accounted for 3% of vacant building arsons, or one of these incidents.

89% Vacant Buildings Had No AES
No automatic extinguishing systems (AES) were installed in 89% of the 274 fires occurring in vacant buildings where AES presence was known. In 1% of these incidents, the fire was too small to activate the system. The AES failed to operate in 1% of these incidents. Systems were present and operated effectively in 1% of these incidents. AES performance was not known in 8% of the building fires in vacant buildings in 2011.



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 7 Vacant Building Fires
One of the most dangerous types of fires for firefighters in 2011 was vacant building fires. Vacant building fires accounted for 39, or 9%, of all firefighter injuries in 2011. These 39 injuries also represent 10% of the number of firefighter injuries at all building fires. On average there was one firefighter injury for every seven vacant building fires.

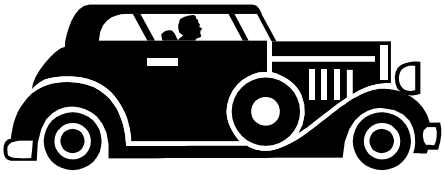
Large Loss Vacant Building Fires
In 2011, there were three vacant building fires that had an estimated dollar loss greater than $1 million. These fires accounted for $9.5 million in estimated damages, or 25%, of all vacant building dollar loss estimates in 2011. In 2010 there was one vacant building fire with more than $1 million in damages.

- On March 25, 2011, at 8:21 a.m., the Easton Fire Department was dispatched to a building fire in a warehouse that was being demolished. The building had been severely damaged when the roof collapsed earlier in February from a heavy snow load on the roof. Forty-four (44) firefighters from Easton and other firefighters from neighboring communities fought the three-alarm fire for 11 hours. A spark from a cutting torch that one of the workers was using to disassemble the building. Two (2) firefighters were injured at this fire and damages were estimated at $9.5 million.

Motor Vehicle Fires

2,997 Motor Vehicle Fires Account for 10% of All Reported Fires

Motor vehicle fires accounted for 10% of total reported fire incidents. The 2,997 motor vehicle fires in 2010 were an increase of 1% from the 2,978 motor vehicle fires reported in 2010. They caused 10, or 19%, of civilian fire deaths, 24 civilian injuries, 15 fire service injuries, and an estimated property damage of $16.3 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.

21 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 116 in 2010. The percentage of motor vehicle fires that are arsons has also dropped by 68% in the past decade from 9.1% in 2002 to4.2% in 2011.

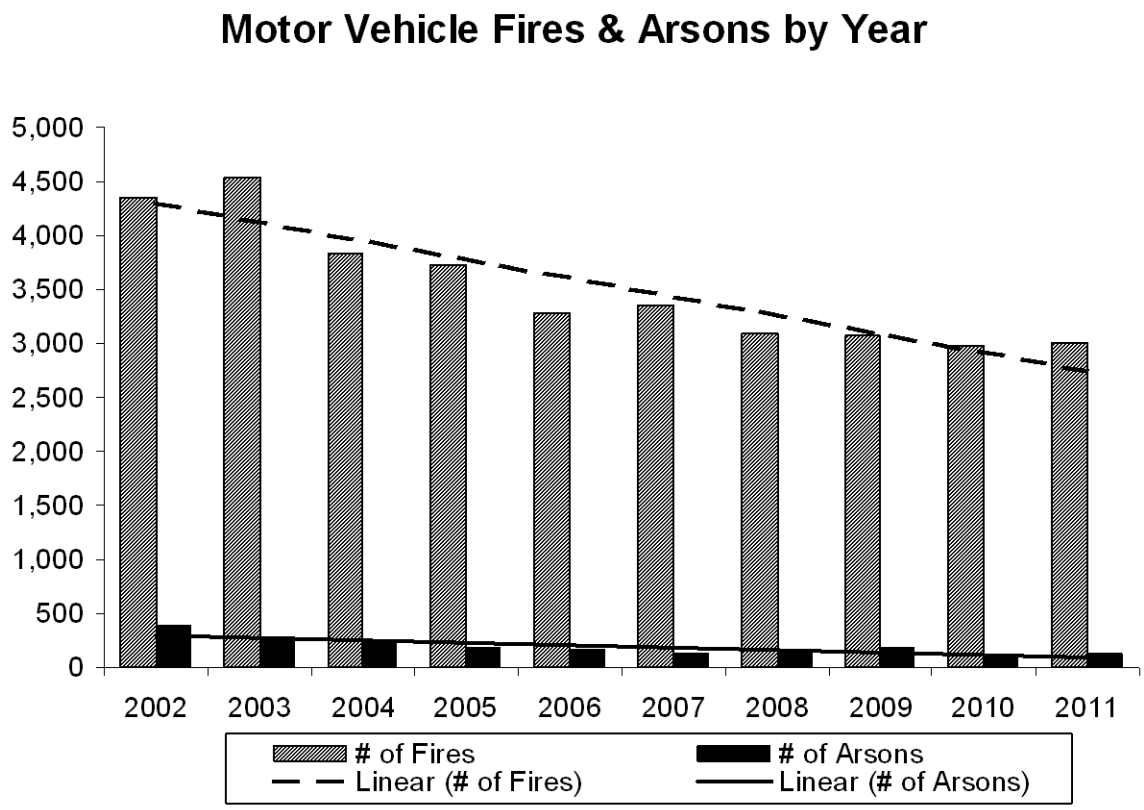
The table below shows the number of vehicle fires and vehicle arsons and the percentage of vehicle fires caused by arson for the past decade.

VEHICLE FIRES AND VEHICLE ARSONS BY YEAR

Year	Vehicle Fires	Vehicle Arsons	% Arsons
2011	2,997	125	4.2%
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%
2002[30]	4,331	395	9.1%

[30] 2002 was the first full year of using only V5 data. As a result, 'Suspicious' was eliminated as a cause and only 'Intentional' fires were counted as arson, thus the significant drop in MV arsons from 2001-2002.

The following graph illustrates the data in the previous table.

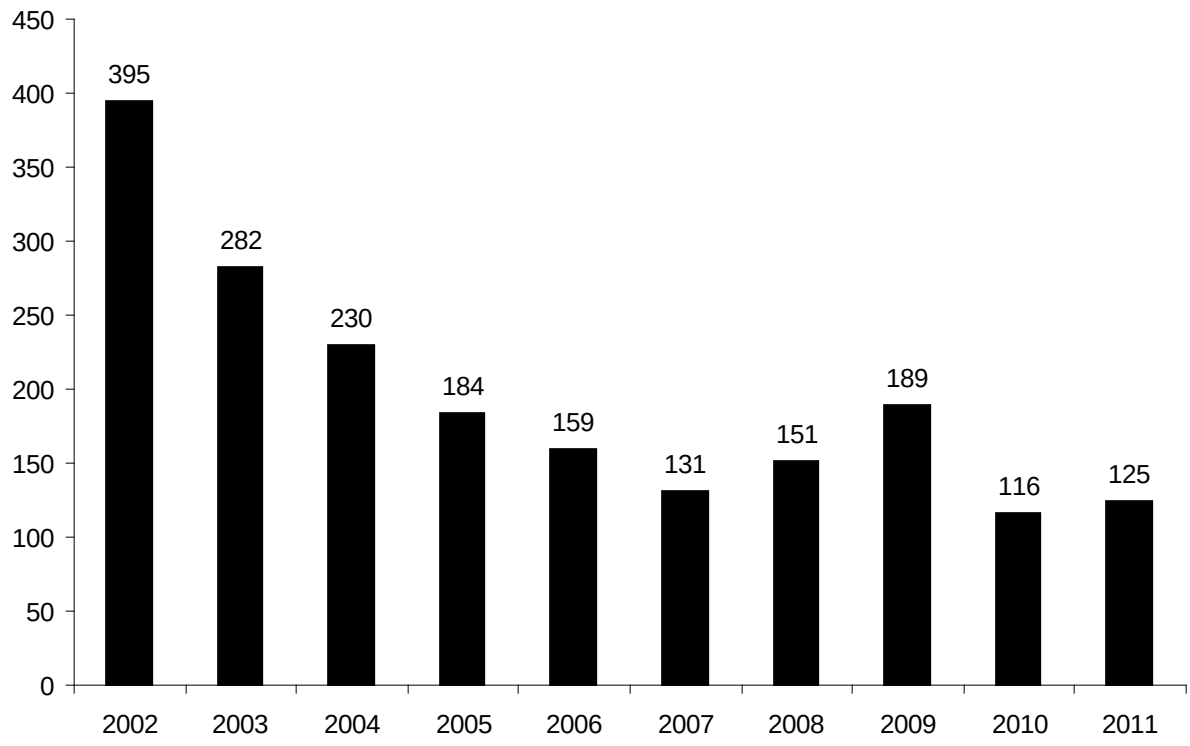


10 Motor Vehicle Fire Deaths
There were 10 civilian fire deaths in 10 motor vehicle fires in 2011. Seven (7) of these deaths were motor vehicle collisions with ensuing fires. Three (3) of these deaths were successful attempts of self-immolation. The only person under 18 to die in a fire in Massachusetts in 2011 died in one of the motor vehicle collisions with an ensuing fire.

Mechanical Failures Caused 26% of Massachusetts Motor Vehicle Fires
Of the 2,997 motor vehicle fires in 2011, 26% were caused by some type of mechanical failure or malfunction; 4% were considered intentionally set; and 36% resulted from other accidental causes. The cause was undetermined or not reported in 34% of the motor vehicle fires.

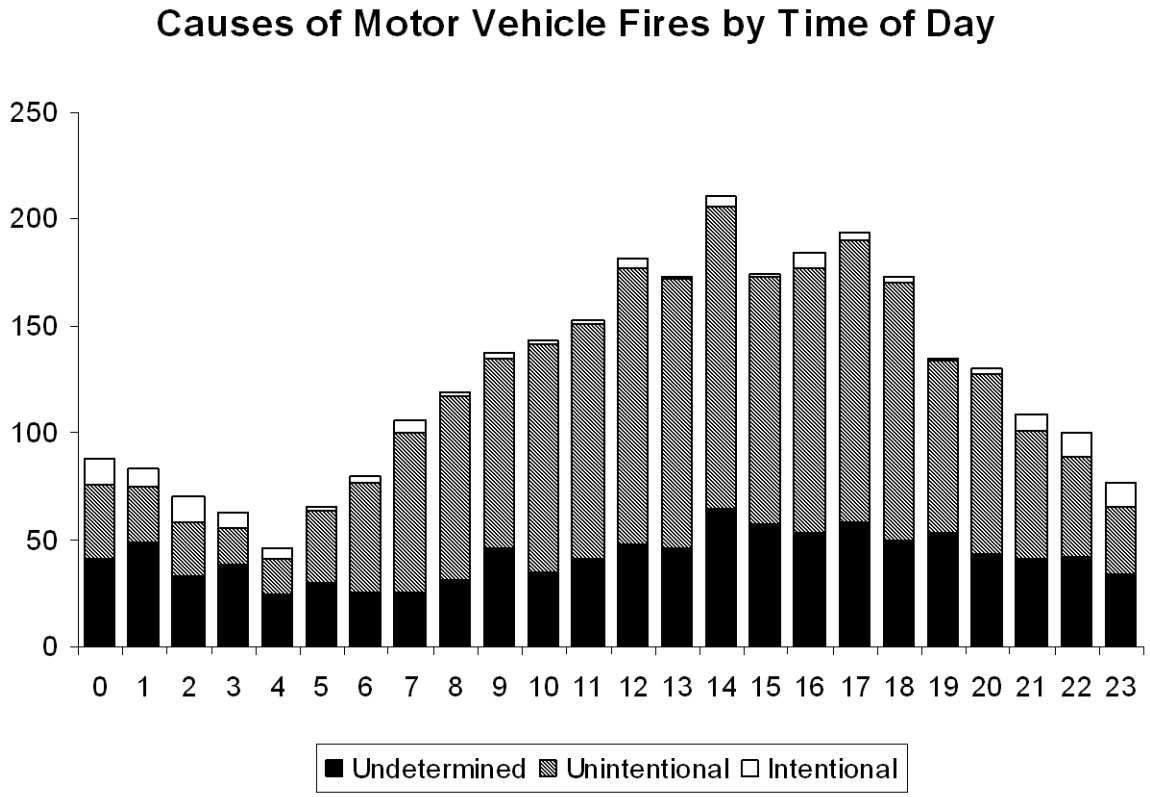
Motor Vehicle Arsons Increased by 8%
In 2011, there were 125 reported motor vehicle arsons. This is an increase of 8% from the 116 reported in 2010.

The following graph depicts the drop in motor vehicle arsons from 2002 to 2011.



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.



58% of Massachusetts Motor Vehicle Fires Involved Automobiles
Automobiles and vans accounted for 58% of the 2,997 motor vehicle fires; 1% were trucks weighing less than one ton; and 3% were trucks weighing more than one ton.

Saugus Has Largest Loss Motor Vehicle Fire

- On July 23, 2011, at 2:11 a.m., the Saugus Fire Department was dispatched to a gasoline tanker crash and ensuing fire on Route 1. The crash and release of flaming gasoline caused 14 exposure fires, nine motor vehicle fires, four building fires and one brush fire. The victim, the 59-year old male driver of the tanker, was trapped inside the vehicle and unable to extricate himself. A driver of one of the exposure vehicles was also injured in this fire. Total estimated damages were $2.94 million.

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 35 motor vehicle fires at gas and service stations in 2011. There were 34 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.

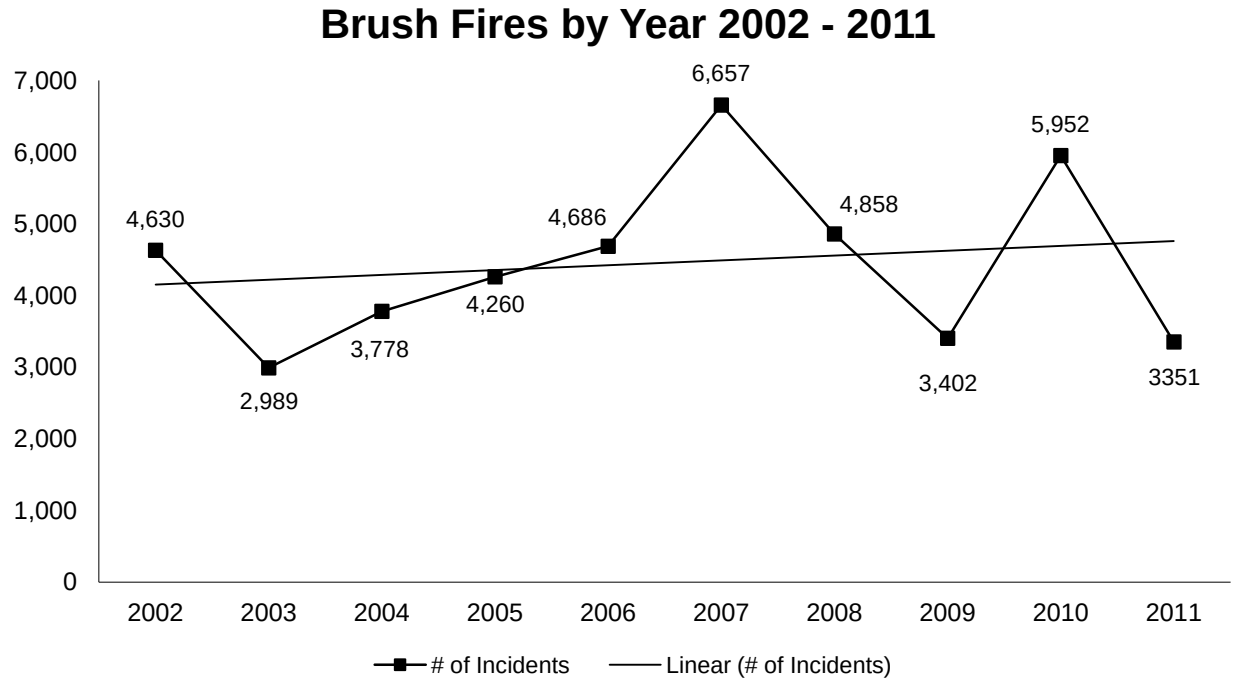
Gas Station Safety

- 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

7,935 Brush, Trash, & Other Outside Fires Up 43%
The 7,935 outside and other fires and explosions caused two civilian deaths, 51 civilian injuries, 17 fire service injuries, and an estimated dollar loss of $5.6 million. The 3,351 trees, grass and brush fires, 2,905 outside trash fires, 741 special outside fires, 28 cultivated vegetation or crop fires, and 910 other fires accounted for 27% of the total fire incidents in 2011. These fires were down by 29% from the 11,186 incidents reported in 2010.

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 2011, the reported number of brush fires decreased by 2,601 or 44%, from the 5,952 reported in 2010. 2011 had an abnormally wet 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 7,935 reported outside and other fires include:

- 3,351 natural vegetation fires (tree, grass, and brush fires) that caused one civilian death, five civilian injuries, nine fire service injuries, and an estimated dollar loss of $256,675; this is a 44% decrease from the 5,952 incidents reported in 2010.

- 2,905 trash fires that caused three fire service injuries and an estimated dollar loss of $121,235; this is an 11% decrease from the 3,270 incidents reported in 2010.

- 741 special outside fires (including outside, storage, equipment, mailbox fires and outside gas or vapor explosions) that caused one civilian death, 22 civilian injuries, and an estimated dollar loss of $604,428; this is a 19% decrease from the 915 incidents reported in 2010.

- 28 cultivated vegetation or crop fires that caused an estimated dollar loss of $1,200; this is a 33% decrease from the 42 incidents reported in 2010.

- 910 other fires that could not be classified further which caused 24 civilian injuries, five fire service injuries, and an estimated dollar loss of $4.6 million; this is a 10% decrease from the 1,007 incidents reported in 2010.

631 Brush, Trash & Other Outside Arsons

There were 631 reported brush, trash and other outside arsons in 2011. There were 312 natural vegetation arsons, 98 outside rubbish arsons, 130 special outside arsons, three cultivated vegetation or crop arsons, and 88 arsons that could not be classified any further. These 631 arsons caused six fire service injuries and $28,416 in estimated damages.

1,495 Fires with Cause Still Under Investigation or Undetermined

In 2011, 196 outside and other fires were still listed as ‘Cause Under Investigation’. There were 1,299 fires where the *Cause of Ignition* was listed as ‘Undetermined’.

Large Loss Outside and Other Fires

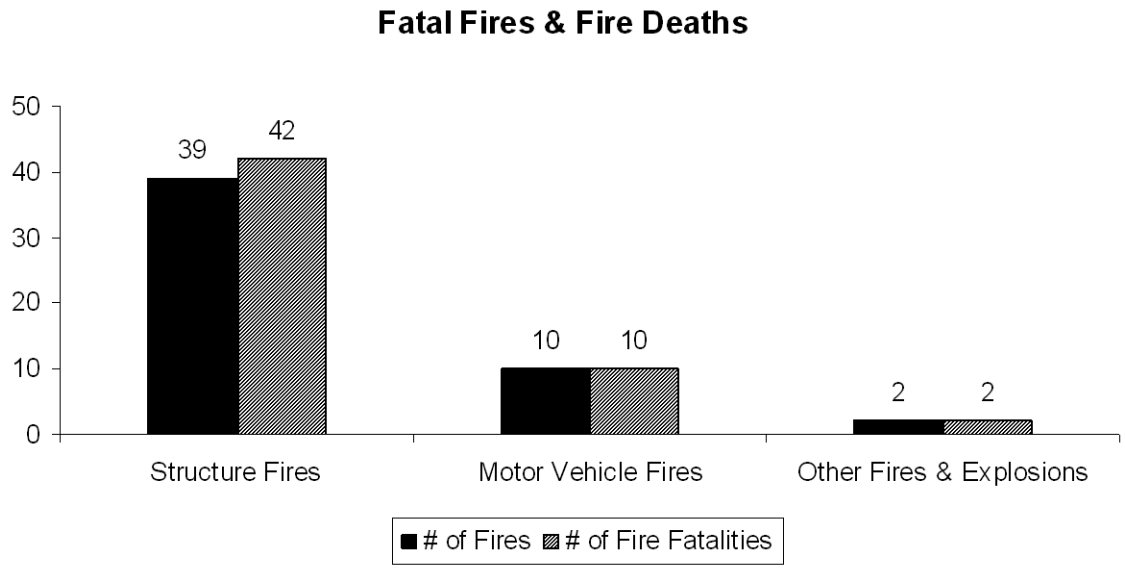
♦ On August 10, 2011, at 8:54 p.m., the Fall River Fire Department was called to an outside fire at a construction site. An 80,000 cubic foot lead dust collector was on fire. The most probably cause of ignition is static electricity. No one was injured at this fire. Damages from this fire were estimated to be $300,000.

2011 Massachusetts Fire Deaths

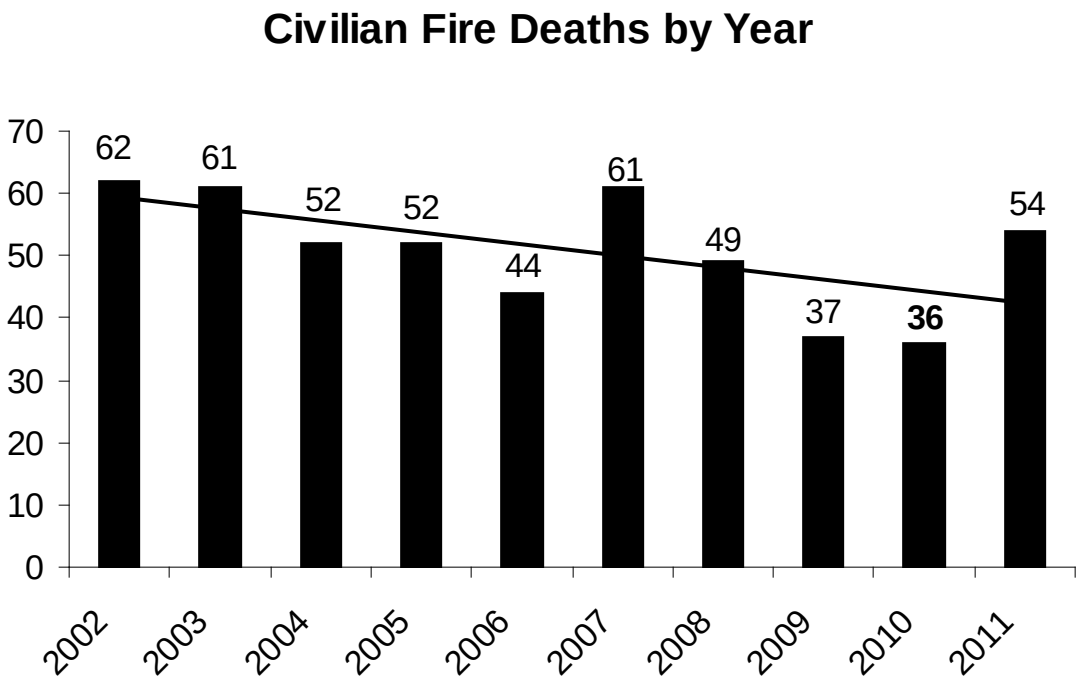
Civilian Fire Deaths

54 Civilians Died in Massachusetts Fires
Fifty-four (54) civilians died in 51 Massachusetts fires during 2011. This is a 50% increase from the 36 civilian fire deaths recorded in 2010, which was a new all time low. Forty-two (42) civilians died in 39 structure fires. Ten (10) people died in 10 motor vehicle fires. Two (2) people died in two outside fires in Massachusetts in 2011. In 2011, there were 8.2 fire deaths per one million population in Massachusetts up from 5.5 fire deaths per one million population in 2010.

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.



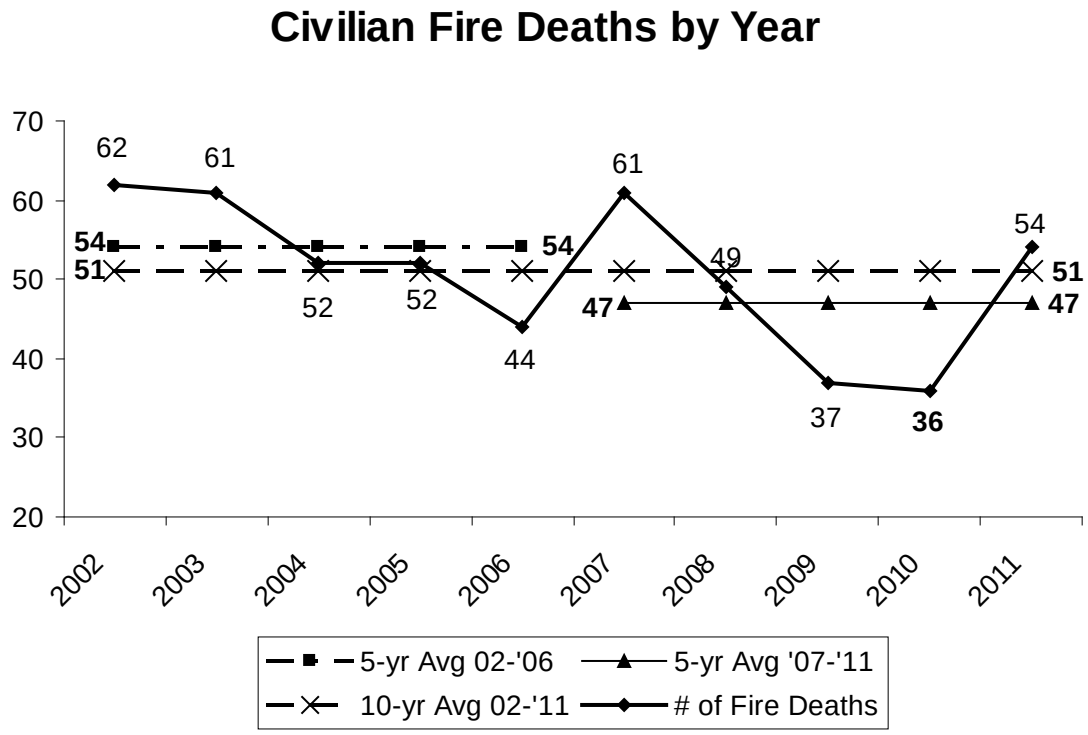
Fire Deaths Increase 50% from 2010
The 54 civilian fire deaths reported in 2011 is an increase of 18, or 50%, from the record low of 36 reported in 2010. The following chart shows the trend of civilian fire deaths for the past decade on a general decline. Civilian fire deaths have decreased by 49% from the high of 105 in 1990.



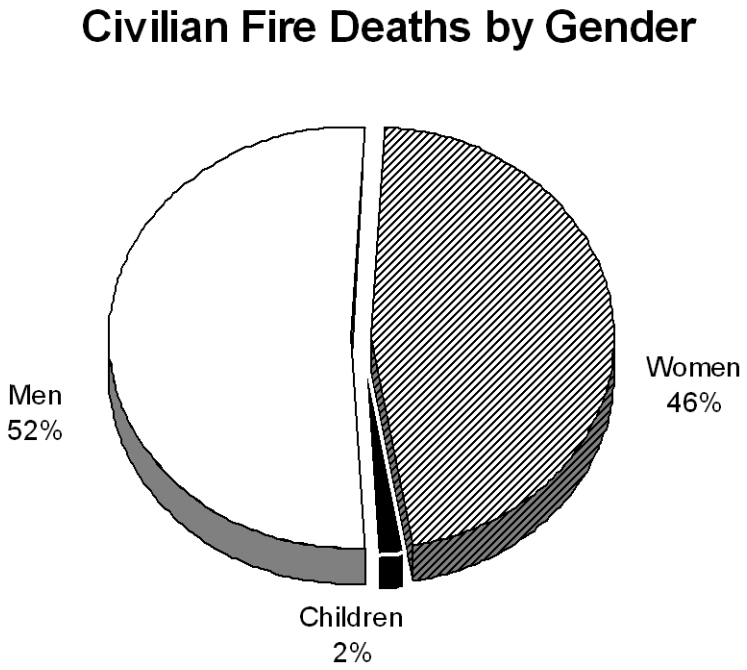
2011 Is Above Both the 10- & 5-Year Averages

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 2002 through 2006 and from 2007 through 2011. The average number of fire deaths per year from 2002 through 2006 was 54 deaths. The average number of fire deaths per year from 2007 through 2011 was 47 deaths. This was mainly due to three of the five years having record low fire deaths from 2008 through 2011. The graph also depicts the relationship of the number of fire deaths in relation to the 10-year average of 51 deaths for the same time period. Three (3) of the last five years have been below the 10-year average and three of the last five years have been below the five-year average.

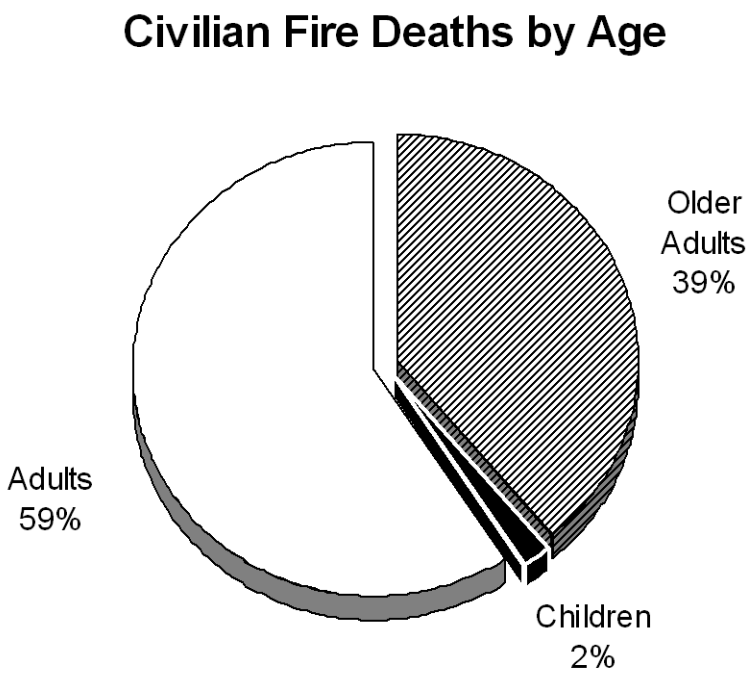
Note that the following chart starts at 20 rather than the traditional zero value. This is so the reader can concentrate on the sometimes subtle changes in the figures. The 54 fire deaths in 2011 are 14% above the five-year average and 6% above the 10-year average.



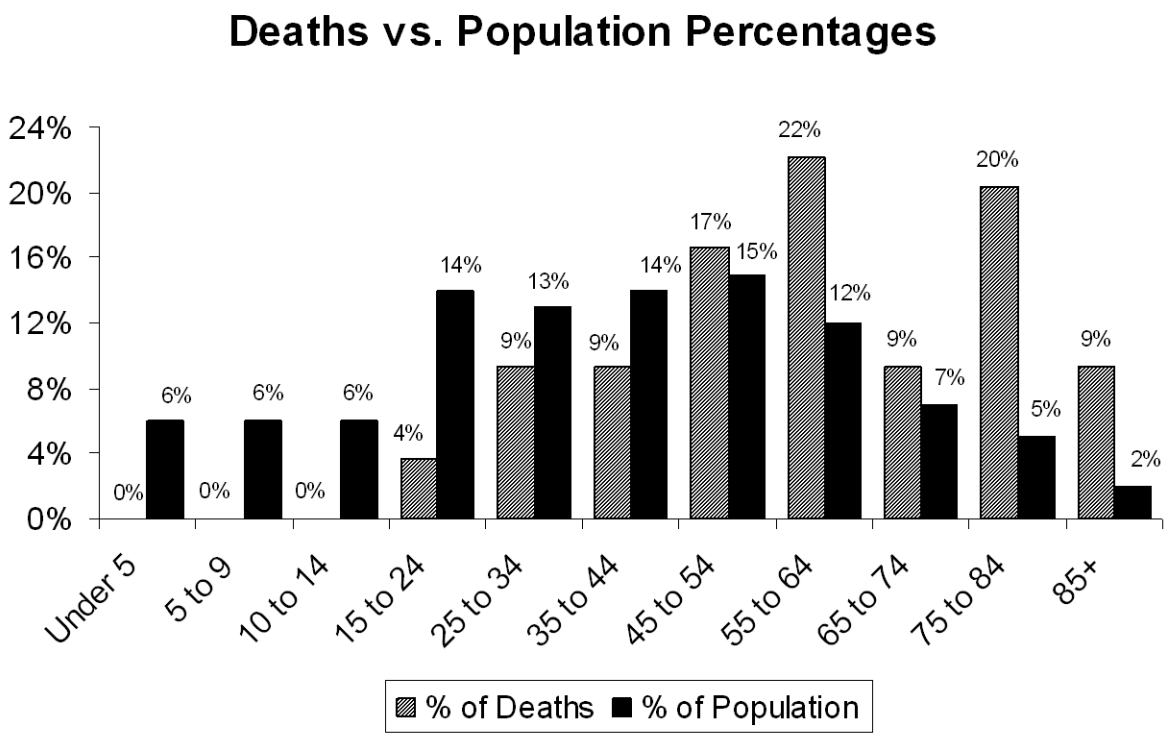
28 Men, 25 Women and 1 Child Under 18 Died from Fires in 2011
Of the 54 fire deaths, 28, or 52%, were men, 25, or 46%, were women and one, or 3%, was a child under 18. The following pie chart illustrates the above figures.



Over 1/3 of Fire Deaths were Over 65
Twenty-one (21), or 39%, of the civilian fatal fire victims were over 65 years of age. This included 10 elderly men and 11 elderly women. One (1), or 14%, of the civilian fatal fire victims were under 18 years old. Thirty-two (32), or 63%, 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 9% of the fire deaths. The risk of fire death for these adults is 4.6. This means that these adults were over four 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 2011. Other older adults, between the ages of 75 and 84, accounted for 5% of the population but 20% of the fire deaths. Their risk of fire death at 4.1 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.

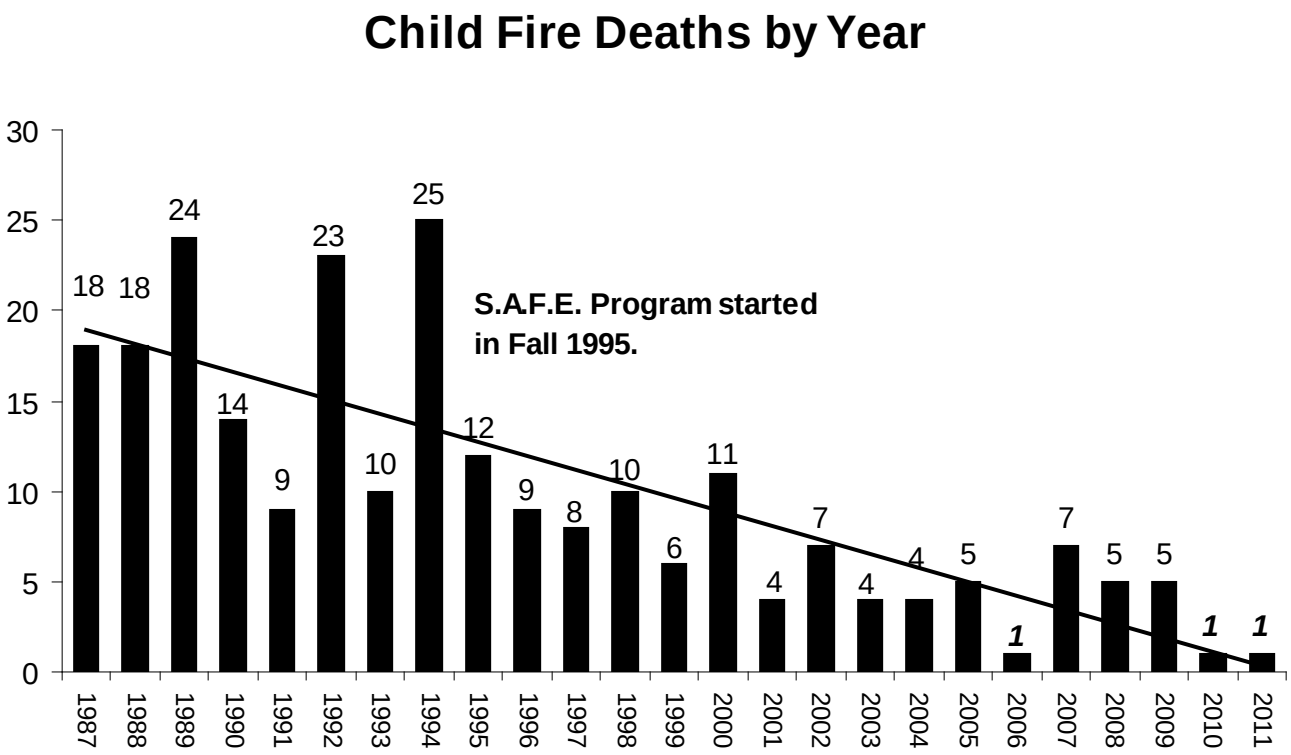
The percentages of the population in each age group were calculated using data from the 2010 Census from the U.S. Census Bureau.

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 2011. 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 2011. Children between the ages of five and nine, and between 10 and 14 years of age, accounted for none of the deaths while each age group accounted for 6% of the population. Young adults ages 15 to 24 accounted for 4% of the fire deaths and 14% of the population; adults between the ages of 25 to 34 accounted for 9% of the fire deaths and 13% of the population. Adults between the ages of 35 and 44 were 9% of the fire fatalities and account for 14% of the population; people ages 45 to 54 accounted for 17% fatal fire victims and 15% of the Massachusetts population. Victims between the ages of 55 to 64 accounted for 22% of the fatal fire deaths and 12% of the population; and older adults between the ages of 65 and 74 accounted for 9% of the fire fatalities in Massachusetts in 2011, 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 20% of the fire deaths in 2011, 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 9% 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 1986 through 2011. 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 and 2011. According to United States Fire Administration statistics, children under 10 accounted for an estimated 10% of all fire-related deaths nationally in 2007.[31] In 2011, children under 10 accounted for none 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.

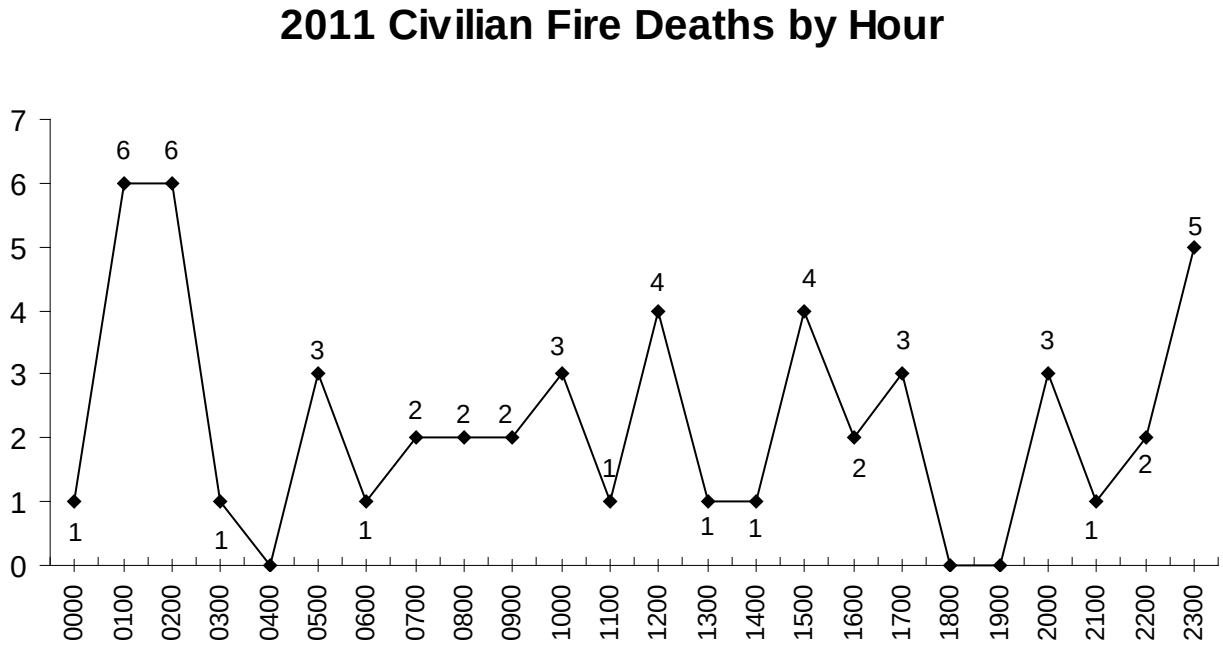


[31] Source: United States Fire Administration's **Fire Risk in 2007, Topical Fire Research Series, Vol. 11 – Issue 8 February 2011** and **Fire Risk to Children in 2007, Topical Fire Research Series, Vol. 11 – Issue 9 February 2011.** Most recent national data available.

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 16 full years where the S.A.F.E. Program has been in effect, from 1996 to 2011, the average number of child fire deaths per year has been 5.5. 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 18. This 69% drop in the average number of child fire deaths is significant when compared to the 40% 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, that is not also happening to all other age groups, is consistent, comprehensive, statewide, school-based fire safety education.

1/2 of People Died in Fires While They Slept
Half of the people died in fires that occurred at night, when people are usually asleep. Twenty-seven (27), or 50%, of the fire victims died in fires that occurred between 10:00 p.m. and 7:00 a.m. Smoke alarms are the key to notifying occupants to danger whether they are asleep or awake, but they cannot guarantee escape. Over half of the people who died during 'daytime' fires were intimately involved in ignition and half were elderly which may have contributed to 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 2011, there were 42 structure fire deaths in 39 fatal fires. All but one of the structure fire deaths occurred in residential occupancies. The non-residential structure fire death occurred at motor vehicle sales and service facility. For the first time according to available records, no one under the age of 18 died in a structure fire in Massachusetts.

West Springfield Worker Killed in Explosion & Ensuing Fire

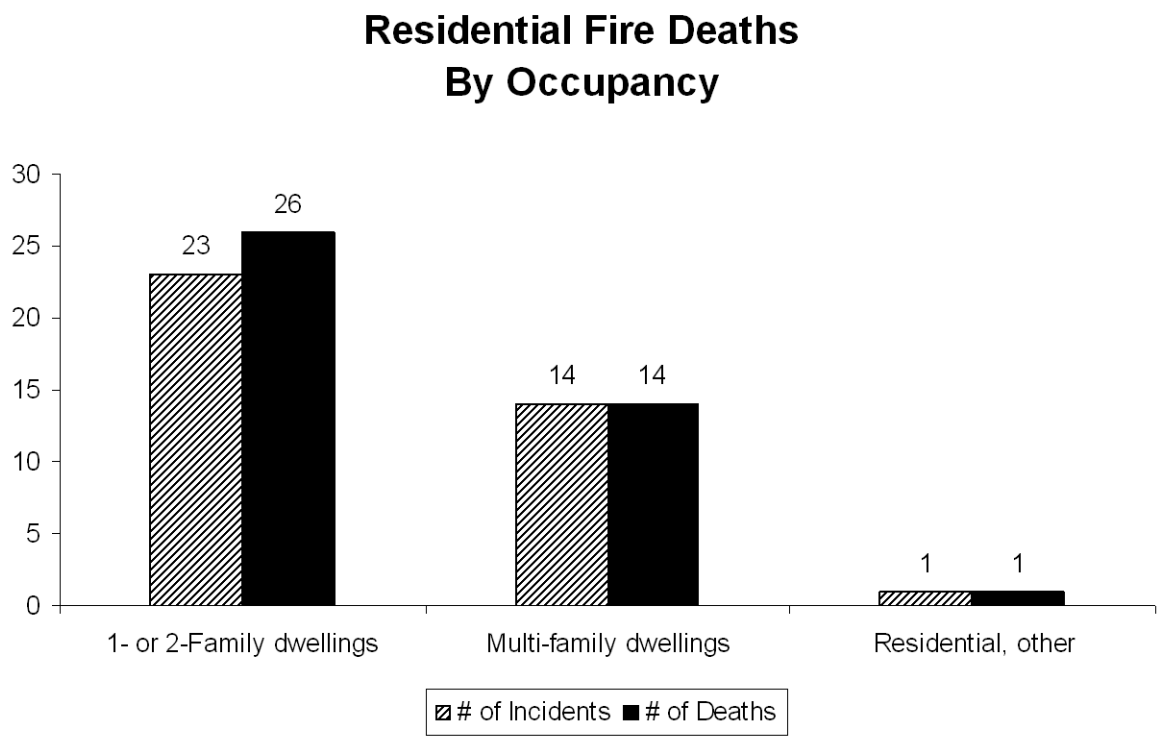
- On March 23, 2011, at 9:41 a.m., the West Springfield Fire Department was called to a fatal explosion with ensuing fire at an auto dealership. The fire was caused when a 33-year old male employee looked inside a 55-gallon drum with a cigarette lighter. There were still some ignitable vapors inside of the drum and the flame from the lighter ignited them causing the explosion and starting the fire. The victim was killed by debris from the exploding drum. One other civilian was injured at this fire. Damages from the fire were estimated to be $150,000.

Residential Building Fire Deaths

Most Fire Deaths Occur in the Home

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

In 2011, there were 41 fire deaths in 38 fatal residential building fires. This represents 98% of the structure fire deaths and 76% of all fire deaths. Twenty-six (26) fire deaths occurred in 23 fires in one- and two-family dwellings; 14 fire deaths occurred in 14 apartment fires; and one death occurred in one 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 2011.

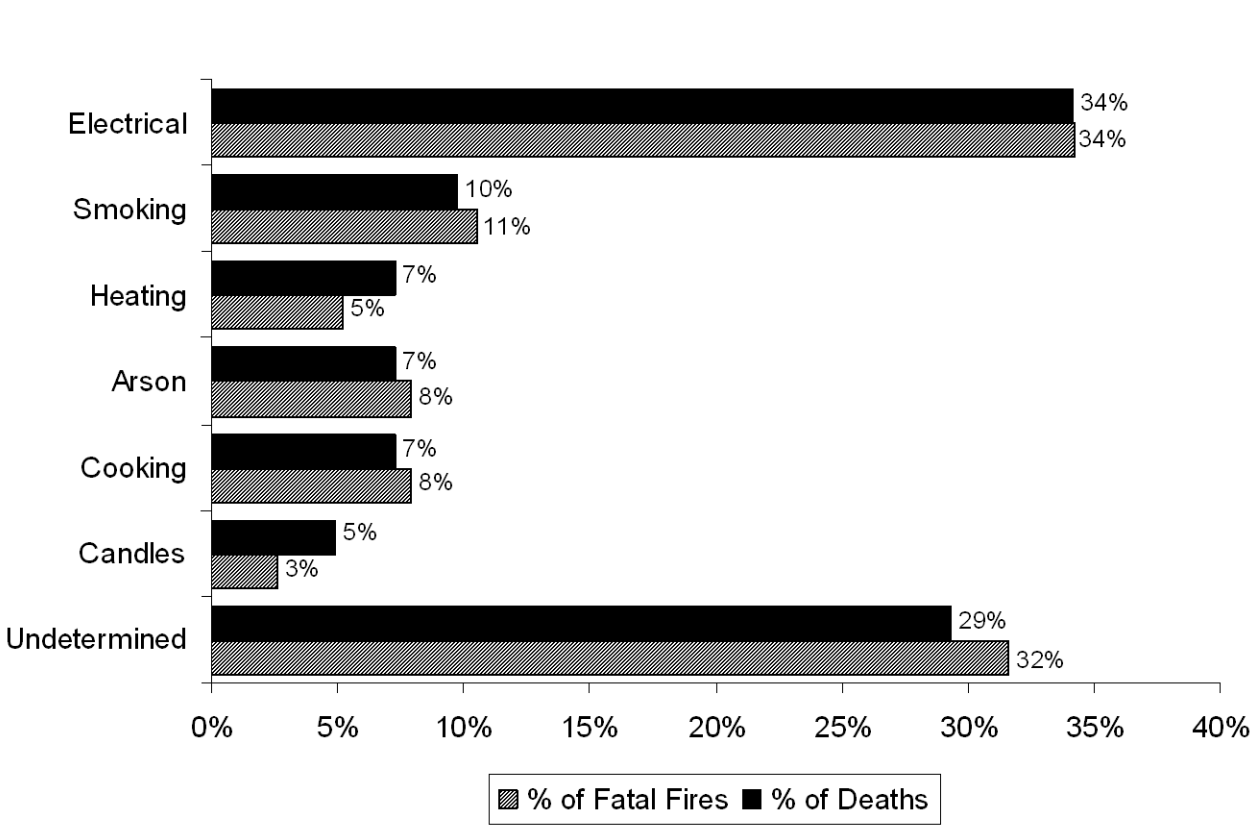


Electrical Fires Are Leading Cause of Fire Deaths
For the first time since records have been kept, smoking was not the leading cause of residential fire deaths and fatal residential building fires. In 2011, electrical fires were the leading cause of residential fire deaths and fatal residential fires. These fires accounted for 14, or 34%, of residential fire deaths. The careless disposal of smoking materials was the second leading cause of fire deaths accounting for four, or 10%, of residential fire deaths. Heating equipment fires, arson and cooking fires were tied as the third leading cause of fire deaths in 2011 with each accounting for three, or 7%, of the fire deaths.

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 and 2005. In 1999, cooking and smoking tied as the leading causes of fires that kill. In 2005, electrical fires were the leading cause of residential fire deaths.

In 2011 cooking was the leading cause of residential fires in Massachusetts but tied for the third leading cause of fatal residential fires and fire deaths. Residential fires caused by the improper use or disposal of smoking materials was only the fifth leading cause of fires in the home.

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



13 Fatal Electrical Fires Cause 14 Deaths
Fourteen (14) people died in 13 residential electrical fires in 2011. Electrical fires accounted for 34% of residential fire deaths and 34% of fatal residential fires.

- On January 11, 2011, at 4:27 p.m., the Somerville Fire Department was called to a fatal electrical fire in a seven-unit apartment building. The fire started in a first floor bedroom. It is believed that the victim, a 64-year old woman, knocked over a lamp and the light bulb came into direct contact with combustibles starting the fire. She was unconscious and unable to act at the start of the fire. 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 $30,000 worth of damage.

- On January 14, 2011, at 9:42 a.m., the Taunton Fire Department was called to a fatal electrical fire at a two-family home. It is believed that multiple extension cords covered by household clutter overheated and started the fire. The victim, a 55-year old man was overcome by smoke inhalation as he attempted to escape the fire. No one else was injured at this fire. Detectors were present but failed to operate because of a missing battery. Sprinklers were not present. Damages were not estimated.

- On January 16, 2011, at 5:39 a.m., the Saugus Fire Department was called to a fatal electrical fire in a four-unit apartment building. The fire was caused by an unspecified electrical malfunction in the space between the first and second floors. The victim, a 55-year old man was unable to escape as he was overcome by the heat and smoke. No other civilians were injured at this fire, but two firefighters were injured fighting it. Detectors were present and alerted the other occupants to the fire. There were no sprinklers. The fire caused an estimated $105,000 worth of damage.

- On February 17, 2011, at 3:00 p.m., the Westfield Fire Department was called to a fatal electrical fire at a single-family home. The fire was caused by an electrical malfunction between an extension cord and a television set. The victims, an 84-year old woman and her 82-year old husband, were overcome by the heat and smoke. No one else was injured at this fire. Detectors were present but failed to operate because they were defective. Sprinklers were not present. Damages were estimated to be $105,000.

- On March 14, 2011, at 2:17 a.m., the Chicopee Fire Department was called to a fatal electrical fire in a single-family home. The fire was caused by arcing in the wiring in the attic. The victim, a 62-year old woman was in her bedroom at the time of the fire. No one else was also injured at this fire. It was undetermined if detectors were present and the building did not have sprinklers. The fire caused an estimated $180,000 worth of damage.

- On March 17, 2011, at 2:17 a.m., the Brockton Fire Department was called to a fatal electrical fire at a three-unit apartment building. Arcing from electrical wiring in the kitchen started the fire. The victim, a 41-year old woman was most likely sleeping at the time of the fire. Four (4) other civilians and one firefighter were injured at this fire. Detectors were present and alerted the other occupants to the fire. Sprinklers were not present. Damages were estimated to be $85,000.

- On March 20, 2011, at 7:51 a.m., the Haverhill Fire Department was called to a fatal electrical fire in an apartment building. The fire started in a third floor kitchen. The victim, an 89-year old woman was sleeping at the time of the fire. She was overcome by the heat and smoke. One (1) other civilian was also injured at this fire. Detectors were present and operated but the occupants failed to respond. Sprinklers were present but it was undetermined if they operated. The fire caused an estimated $52,500 worth of damage.

- On May 6, 2011, at 11:00 p.m., the Brockton Fire Department was called to a fatal electrical fire at a two-family home. The victim, a 46-year old woman was unfamiliar with the exits in the basement apartment and unable to act at the time of the fire. No one else was injured at this fire. It was undetermined if detectors were present. Sprinklers were not present. Damages were estimated to be $135,000.

- On August 16, 2011, at 2:40 p.m., the Boxford Fire Department was called to a fatal electrical fire in a single-family home. The fire started in a ceiling light fixture. The

victim, a 77-year old man was overcome by the heat and smoke in the basement of the home. One (1) firefighter was injured at this fire. Detectors were present but it was undetermined if they operated. There were no sprinklers. There was no estimate of damage.

- On August 31, 2011, at 1:20 a.m., the New Bedford Fire Department was called to a fatal electrical fire at a three-unit apartment building. The fire began from arcing in an extension cord in a third-floor bedroom. The victim, a 32-year old man, was possibly impaired by drugs. No one else was injured at this fire. There were no detectors present and the building was not sprinklered. Damages were estimated to be $20,000.

- On October 26, 2011, at 8:23 p.m., the Belmont Fire Department was called to a fatal electrical fire in a single-family home. The fire started in a second-story bedroom. The victim, an 80-year old physically disabled man, was overcome by the heat and smoke while he attempted to escape. Four (4) firefighters were injured battling this fire. There were no detectors in the home and the building was not sprinklered. The fire caused an estimated $125,000 in damages.

- On November 23, 2011, at 12:49 p.m., the Stow Fire Department was called to a fatal electrical fire in a single-family home. The victim, a 98-year old woman was overcome by smoke inhalation. No one else was injured at this fire. Detectors were present but failed because of a dead battery. Sprinklers were not present. Damages were estimated to be $75,000.

- On December 4, 2011, at 1:57 a.m., the Methuen Fire Department was called to a fatal electrical fire in a single-family home. Wiring in the first floor ceiling started the fire. The victim, a 78-year old woman was overcome as she tried to escape. 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 $340,000 worth of damage.

4 Fatal Smoking Fires Cause 4 Deaths in Homes
In 2011, the improper use and disposal of smoking materials caused four, or 10%, of residential building fire deaths and four, or 11%, of fatal residential building fires.

No Elderly Fire Deaths Caused by Smoking
In 2011, none of the older adult fire deaths were caused by the improper disposal of smoking materials while at home. In 2010, six older adults died in smoking-related fires. In 2009, seven older adults died in smoking-related fires. In 2008, four older adults died in smoking fires and in 2007, nine older adults died in a smoking-related fire. In 2006 only one older adult died in one of these fires; in 2005 there were two of these deaths; and in 2004 there were no fire deaths to older adults caused by smoking at home.

You will note some common threads as you read the following summaries of the fatal fires caused by smoking materials, such as people falling asleep in the living room on

upholstered furniture, or in bed while smoking, and with no working smoke alarms in the building.

- On February 25, 2011, at 10:12 a.m., the Ipswich Fire Department was called to a fatal smoking fire in an apartment building. The victim, a 53-year old woman, was sleeping in the living room at the time of the fire. The cigarette she was smoking ignited the sofa she was sleeping on. Detectors were present and operated. Sprinklers were present and suppressed the fire until the fire department arrived. No one else was injured in this fire. Damages were estimated to be $250,000.

- On June 18, 2011, at 1:06 a.m., the Springfield Fire Department was called to a fatal smoking fire in a single-family home. The 43-year old male victim was most likely asleep at the time of the fire. He was overcome by the smoke and transported to a local hospital where he succumbed to his injuries. Two (2) other civilians and a firefighter were injured 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 $55,000.

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 2011, the use of oxygen while smoking contributed to two of the four smoking-related fire deaths in three of the nine smoking-related fatal fires.

- On January 17, 2011, at 2:35 a.m., the New Bedford Fire Department was dispatched to a smoking fire in a seven-unit apartment building. The victim, a 58-year old woman, was able to call 911 and tell them that her home oxygen equipment had caught fire. She was overcome by the heat and smoke as she attempted to escape. There were no other injuries associated with 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 $15,000.

- On June 18, 2011, at 8:56 p.m., the Taunton Fire Department was dispatched to a fatal smoking fire in a three-unit apartment building. The victim, a 64-year old woman, was smoking while using home oxygen and may have been impaired by alcohol. There was minimal fire damage to room other than the victim. She was transported to a local hospital where she later succumbed to her injuries. There were no other injuries associated with this fire. Detectors were present and they alerted the other occupants of the building. The building was not sprinklered. No estimation of damages was made for this incident.

2 Fatal Heating Fires Caused 3 Deaths
Two (2) fatal heating fires, or 5% of fatal residential building fires, caused three, or 7%, of the residential building fire deaths in 2011.

- On January 17, 2011, at 12:26 p.m., the Somerville Fire Department responded to a fatal heating fire at a two-family home. Bedding was too close to the baseboard heater and ignited. The victims, an 80-year old woman, and her 48-year old son, were overcome by the heat and smoke while trying to escape. They were transported to a local hospital where they succumbed to their injuries. Nine (9) firefighters were injured at this fire. Detectors were not present, and the building was not sprinklered. Damages from this fire were estimated to be $550,000.

- On February 13, 2011, at 1:04 p.m., the Peabody Fire Department responded to an EMS call at a single-family home. The victim, an 86-year old man, was found unresponsive in his home by his daughter. The fire never left the oil burner but filled the home with smoke overcoming the victim. The daughter and six police officers who also responded were also treated for smoke inhalation. Detectors were present but it was undetermined if they operated and the home was not sprinklered. Damages from this fire were estimated at $50,000.

3 Fatal Arson Fires Cause 3 Deaths

Three (3) people died in three residential arson fires in 2011. Arson accounted for 7% of fire deaths and 8% of the fatal fires in residential buildings. Two (2) fires were homicides; and the other victim committed suicide by self-immolation. Self-immolation is considered arson because the fire is intentionally set.

- On May 23, 2011, at 10:17 p.m., the Scituate Fire Department responded to a fatal arson fire in a mixed-use building. The first floor housed law offices and the upper story contained apartments. The victim, a 28-year old man, poured gasoline on himself and lit himself on fire. No one else was injured at this fire. Detectors were present but it was undetermined if they operated. Damages from this fire were estimated at $120,000.

- On July 12, 2011, at 3:05 p.m., the Springfield Fire Department was called to a fatal arson fire in a single-family home. The victim of a homicide, an 80-year old woman, was in the home when someone set fire to the house. No one else was injured at this fire. The victim was transported to a local hospital where she later succumbed to her injuries. Smoke detectors were present but it was undetermined if they operated and no sprinklers were present. Damages from this fire were estimated to be $45,000.

- On October 7, 2011, at 10:23 a.m., the Lawrence Fire Department was called to a fatal arson fire at a 90-unit apartment building. The deceased, a 55-year old woman, was the victim of a domestic violence homicide. The 79-year old arsonist's clothing had also ignited while he escaped and he received burns to multiple parts of his body. No one else was injured at this fire. Detectors were present and alerted the other occupants of the building. The building was not sprinklered. Damages were estimated to be $85,000.

3 Killed in 3 Cooking Fires
Three (3) people died in three fatal residential cooking fires in 2011. Cooking fires accounted for 7% of residential fire deaths and 8% of fatal fires in residential buildings.

- On January 4, 2011, at 12:08 p.m., the Boston Fire Department was called to a fatal cooking fire in a 40-unit apartment building. The victim, a 51-year old woman, was cooking at the stove when her clothes ignited. She was transported to a local hospital where she succumbed to her injuries in March. Detectors were present and they alerted the other occupants of the building. Sprinklers successfully suppressed the fire. Damages from this fire were estimated to be $5,000.

- On January 25, 2011, at 5:22 p.m., the Yarmouth Fire Department was called to a fatal cooking fire in a single-family home. The victim, a 67-year old woman, was cooking when her clothes ignited. She ran out of the home and onto the front lawn where a passerby attempted to extinguish the flames with her own coat. The Good Samaritan and the victim's brother were also injured by this fire. Smoke detectors were present and operated. The building was not sprinklered. Damages from this fire were estimated to be $70,000.

- On May 13, 2011, at 8:52 a.m., the Medford Fire Department was called to a fatal cooking fire in a 175-unit apartment building. Combustibles too close to the stove ignited when the stove was operating. The victim, a 72-year old physically disabled man, was overcome by the smoke. He was rescued by firefighters and transported to a local hospital where he later succumbed to his injuries. One firefighter was injured at this fire. Smoke detectors were present, and operated. Sprinklers operate and actively suppressed the fire until firefighters could completely extinguish it. Damages from this fire were estimated to be $200,000.

1 Fatal Candle Fire Caused 2 Deaths
One (1) fatal candle fire, or 3%, of fatal residential building fires caused two, or 5%, of the residential building fire deaths in 2011.

- On November 27, 2011, at 1:25 a.m., the Randolph Fire Department was called to a fatal candle fire in a single-family home. The fire began in a first floor bedroom. The victims, an 85-year old woman and an 81-year old man, were overcome by the heat and smoke while they attempted to escape. They were transported to a local hospital where they both succumbed to their injuries. No one else was injured at this fire. There were no smoke detectors and the building was not sprinklered. Damages from this fire were not estimated.

12 Fatal Fires of Undetermined Cause
Twelve (12) fatal residential building fires that took the lives of 12 Massachusetts residents in 2011 remain undetermined. These represent 32% of the fatal residential fires, and 29% of the residential fire deaths in 2011. The cause of less than one-fifth 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 February 4, 2011, at 6:39 a.m., the Bedford Fire Department was dispatched to a fire in a single-family home of undetermined cause. The victim, a 69-year old man, was asleep at the time of the fire and was overcome by heat and smoke as he attempted to escape. There were no other injuries associated with this fire. Smoke detectors were present but failed to operate because of a missing battery. The building was not sprinklered. Damages from this fire were estimated to be $600,000.

- On February 21, 2011, at 1:24 a.m., the Newton Fire Department was called to a fatal fire in a two-family home of undetermined cause. The victim, a 63-year old woman, 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 estimated to be $1.2 million.

- On February 22, 2011, at 10:36 p.m., the Fall River Fire Department was dispatched to a fire in a six-unit apartment building of undetermined cause. The victim, a 54-year old woman, who lived in the apartment above the area or origin and was possibly impaired by alcohol, was overcome by the heat and smoke as she attempted to escape. There was one other injury associated with this fire. Detectors were present and alerted the other occupants of the building. The building was not sprinklered. Damages from this fire were estimated to be $320,000.

- On April 30, 2011, at 11:23 p.m., the West Springfield Fire Department was called to a fatal fire in a 24-unit apartment building of undetermined cause. The victim, a 37-year old man, was overcome by the heat and smoke when he re-entered the building. One other civilian 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 $1 million.

- On May 30, 2011, at 3:08 a.m., the Newton Fire Department was dispatched to a fire in a single-family home of undetermined cause. The victim, a 79-year old woman, was found overcome by smoke as she attempted to escape. There were no other injuries associated with this fire. Detectors were present and operated, but sprinklers were not. Damages from this fire were estimated to be $704,900.

- On June 16, 2011, at 5:46 a.m., the Boston Fire Department was called to a fatal fire in a 100-unit apartment building of undetermined cause. The victim, a 64-year old woman, was overcome by the heat and smoke. No one else was injured at this fire. Detectors were present and operated. Sprinklers extinguished the fire. Damages from the blaze were estimated to be $100,000.

- On September 12, 2011, at 3:43 p.m., the Worcester Fire Department was dispatched to a fire in a single-family home of undetermined cause. The victim was a 54-year old woman. 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 $100,000.

- On October 30, 2011, at 8:06 a.m., the Lunenburg Fire Department was called to a fatal fire in a single-family home of undetermined cause. This fire occurred during a 'freak' Fall snowstorm causing delayed reporting and delayed response by the fire department. The victim was a 91-year old physically disabled woman. One other civilian was injured at this fire. Detectors and sprinklers were not present. Damages from the blaze were estimated to be $200,000.

- On October 31, 2011, at 11:18 p.m., the Hyannis Fire Department was dispatched to a fire in a 110-unit apartment building of undetermined cause. The fire began on the victim's third story balcony. There were multiple potential heat sources in the area of origin as well as many holiday decorations. The victim was the 84-year old female occupant of the apartment. She was transported to a local hospital where she succumbed to her injuries. There were no other injuries associated with this fire. It was undetermined if detectors were present, and sprinklers were not. Damages from this fire were estimated to be $800,000.

- On November 7, 2011, at 5:26 p.m., the Monson Fire Department was called to a fatal fire in a single-family home of undetermined cause. The fire began in the basement. The victim, a 53-year old man, who was possibly impaired by alcohol, was overcome by the heat and smoke when he re-entered the basement. No one else was injured at this fire. Detectors were present and alerted the occupants of the building .The building was not sprinklered. Damages from the blaze were not estimated.

- On November 19, 2011, at 9:06 p.m., the Framingham Fire Department was dispatched to a fire in a single-family home of undetermined cause. The victim, a 40-year old man, was found by firefighters sleeping in the area of origin, a game room at the rear of the house. He was transported to a local hospital where he succumbed to his injuries. There were no other injuries associated with this fire. Detectors and sprinklers were not present. Damages from this fire were estimated to be $125,000.

- On December 14, 2011, at 2:20 a.m., the West Springfield Fire Department was called to a fatal fire in a single-family home of undetermined cause. The victim, a 55-year old man, was sleeping at the time of the fire. No one else 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 $300,000.

Bedroom or Living Room is the Area of Origin for 44% 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 44% were killed in fires that started in the bedroom or

living room. Eighteen (18), or 44%, of residential fire victims died in a fire originating in the bedroom or living room. Twelve (12), or 29%, succumbed to fires that originated in the bedroom, and six victims, or 15%, died in fires that began in the living room. Eight (8) victims, or 20%, died when the area of origin was the kitchen; and six victims, or 15%, died when the area of origin was an unclassified function room. The ceiling and floor assembly was the area or origin for fires that killed 4 victims, or 10%. The attic, an exterior balcony, and a heating room were each the area of origin of the fire for one, or 2%, of the residential fire deaths in 2011. Two (2) victims, or 5%, died in fires where the area or origin was undetermined.

41% of Deaths Involved Smoking Materials as a Heat Source

Of the 41 residential building fire deaths, 41% involved heat from operating equipment; 17% were classified as heat from operating equipment, other; 12% were from electrical arcing; 10% were from radiated or conducted heat from operating equipment; and 2% were from a spark, ember or flame from operating equipment. Ten percent (10%) involved smoking materials; 7% from cigarettes and 2% from undetermined smoking materials. An unclassified hot or smoldering object was the heat source in 7% of these deaths; and candles were responsible for 5%. An unclassified open flame and an unclassified heat source each caused 2% of these deaths. Heat source was undetermined or unclassified in 13 deaths, or 32%, of the residential building fire deaths in 2011.

Electrical Wire & Cable Insulation Ignited First in Almost 12% of Deaths

Of the 41 residential building fire deaths, electrical wire and cable insulation was the item first ignited for 12% of these fire deaths. Upholstered furniture was also the item first ignited in 12% of residential fire deaths. Structural members or framing was the item first ignited in 10% of the fire deaths in 2011. Interior wall coverings and unclassified soft goods or wearing apparel were each the item first ignited in 7% of these deaths. Bedding, wearing apparel on a person and flammable liquid in or escaping from a container or pipe were each the item first ignited in 5%. An unclassified structural component or finish, thermal or acoustical insulation within the wall, clothing not on a person, a box carton or bag were each the item first ignited in 2% of fire deaths. In one death, or 2%, multiple items were the first item ignited. The item first ignited was undetermined or unclassified in 10, or 24%, of the residential building fire deaths in 2011.

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[32]. The CPSC has adopted 16 CFR

[32] 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

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 28% of Residential Fire Victims
Of the 41 people who died in residential building fires in 2011, the smoke detector performance was reported for all of the victims. Victims were not alerted by smoke detectors in 10 fires that killed 13 people, or 32% of the victims. No detectors were present at all in eight, or 20%, of the deaths. In five deaths, or 12%, there were detectors present but they failed to operate.

Eighteen (18) people died in 18 separate residential fires with detectors that did operate, accounting for 44% 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.

In 2011, eight of the 18 fatal residential fire victims whose smoke detectors operated were in the area of origin. Three (3) of these eight victims were intimately involved with ignition; they were smoking. Two (2) were cooking when they were overcome and one person was asleep when an electrical fire started in their kitchen. The causes of the fire for the other two victims were undetermined.

Three (3) other victims were not in the area of origin and not involved in the ignition of the fires. Two (2) victims were in the area of origin but not involved in ignition; and it was undetermined where four of the victims were 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 10 residential building fires that killed 10 people, accounting for 24% of the residential building fire deaths in 2011. The pie chart shows the smoke detector status as a percentage of the civilian residential building fire deaths in 2011.

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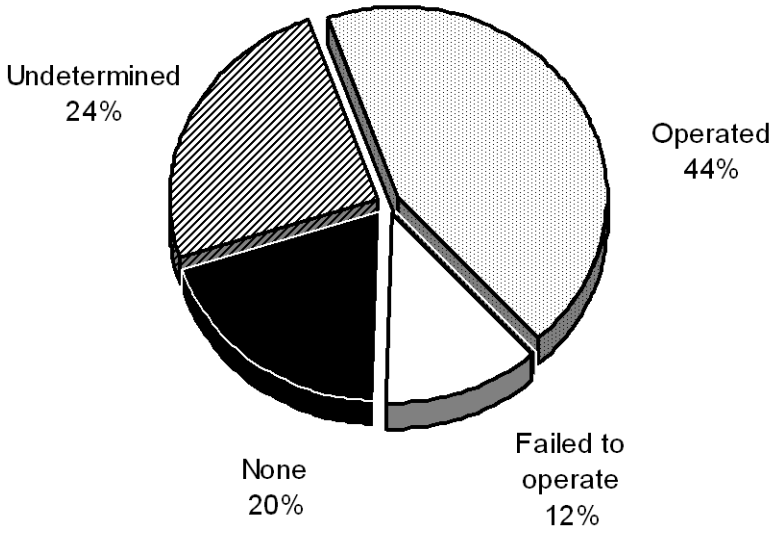
exhausted. The National Association of State Fire Marshals (NASFM) is working with health and environment toxicologists, the EPA and the U.S. Consumer Product Safety Commission (CPSC) in assuring that there are many other fire retardant chemicals that can be used with confidence on upholstered furniture.

Smoke Detector Operation for Fatal Residential Fires

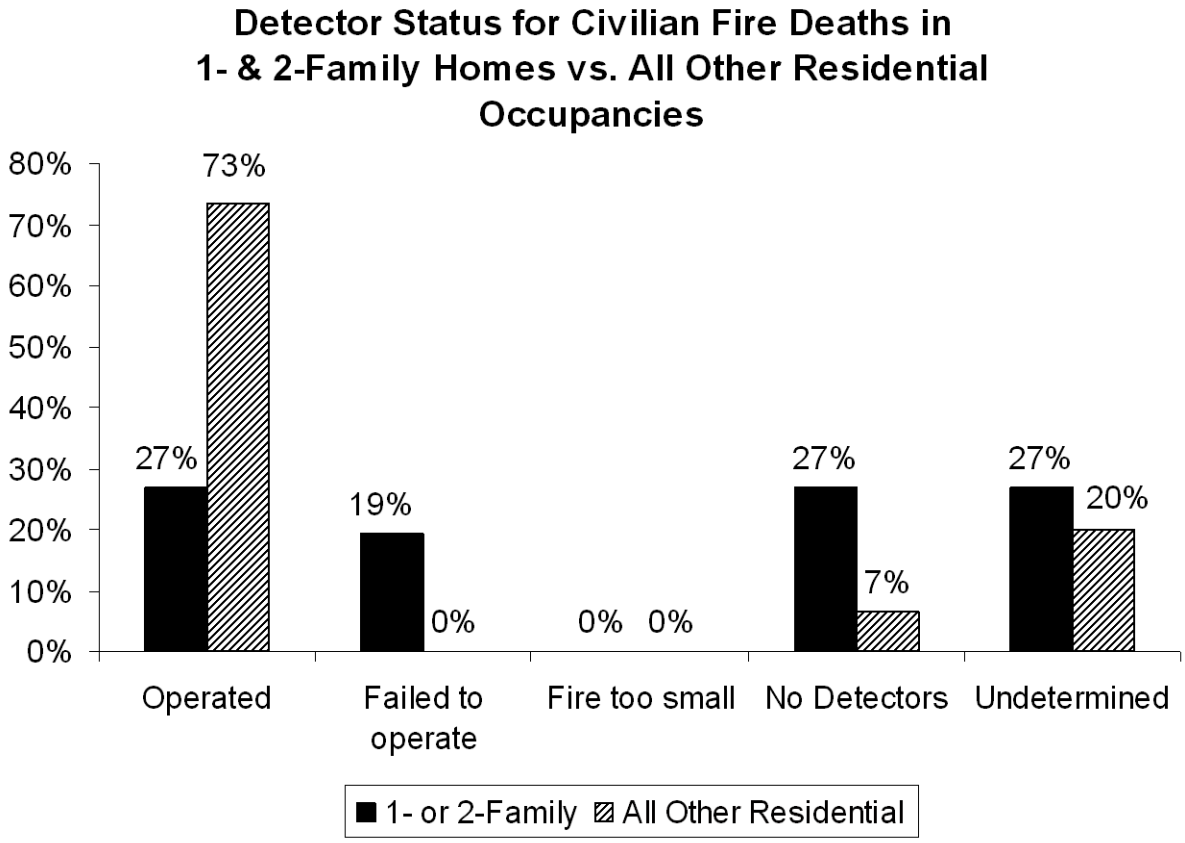


No Working Smoke Detectors in Almost 1/2 of Fire Deaths in 1 & 2-Family Homes
In 2011, you were more likely to die in a fire in a one- and two-family home than in any other residence and one without a working smoke alarm. There were 73% more fire deaths in one- and two-family homes than all other residential occupancies combined. Twenty-six (26) people died in 23 one- and two-family dwelling fires in 2011. Twelve (12), or 46%, 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, five occurred in homes where smoke detectors failed to work while the other seven deaths were in homes where there were no smoke detectors present. Seven (7) deaths, or 27%, occurred in homes where the smoke detectors operated. Seven (7) deaths, or 27%, occurred in seven fires where smoke detector performance was undetermined.

2 Detectors Failed from Missing or Disconnected Batteries
Of the five residential fire deaths where smoke detectors were present but failed to operate, in two cases, or 40%, they failed to operate because the batteries were either missing or disconnected. In another two instances, or 40%, the detectors were defective and in one incident, or 20%, the battery was dead.

Other Residential Occupancies More Likely to be Protected by Smoke Detectors
Fifteen (15) people died in 14 apartment fires and one unclassified residential fire in 2011. The detector performance was known for 12 of the victims. Eleven (11) people died in fires where smoke detectors were present and working. One person was killed in a fire where there were no detectors. Detector performance was unknown or not reported in three fires where three people lost their life.

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



Physically Disabled & Sleeping Led Human Factors Contributing to Injury[33]
Of the 41 fatal residential building fire victims, a Human Factor Contributing to their injury was reported to MFIRS for 14 of them. Ten percent (10%) of the victims were asleep; another 10% were bedridden or had another physical handicap; 7% were possibly impaired by alcohol at the time of the fire; 2% were possibly mentally disabled; 2% were unconscious; and another 2% were possibly impaired by another drug or chemical. Twenty-two (22), or 66%, of the 41 civilians 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 10% of fatalities were asleep shortly before becoming a casualty. It also shows that half 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

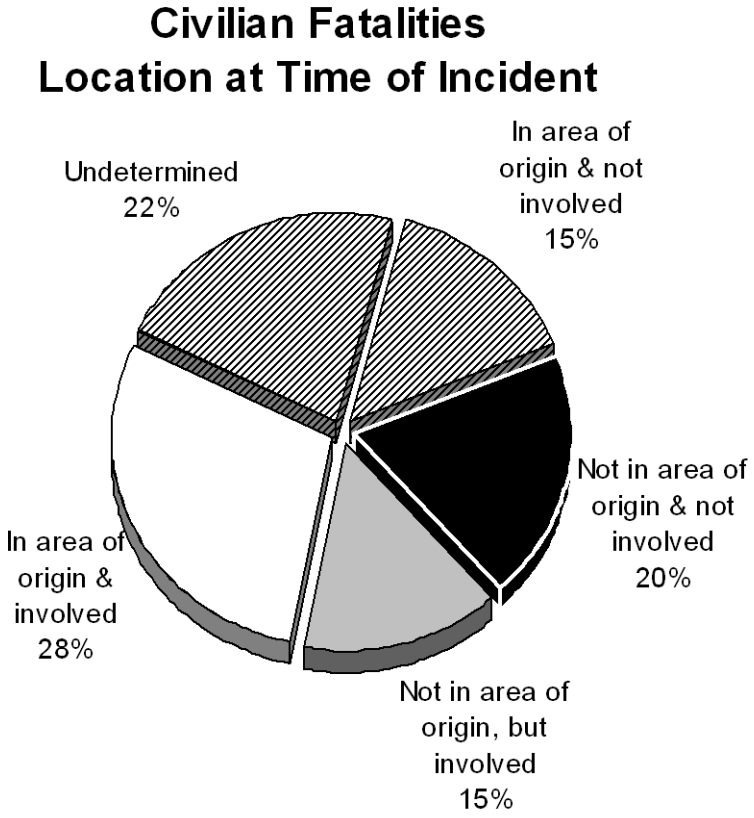
[33] Some fields in version 5 allow for multiple entries. Therefore the number of entries may be greater than the actual number of incidents being analyzed.

overcome. This combined with the lack of working smoke detectors in 32% 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.

Most Victims Were Either Escaping or Unable to Act When They Were Overcome
Ten (10), or 24%, of the 41 fatal fire victims were trying to escape when they incurred their fatal injuries. Ten percent (10%) were sleeping when they were fatally injured. Being unable to act and returning to the vicinity of the fire before it was brought under control were each the activity for 5% of the victims. An irrational act was the activity at the time of death for 2% of these victims. Activity at time of death was undetermined for 22, or 54%, victims of fatal residential fires in 2011. Working smoke detectors combined with a home escape plan are essential to escape a fire.

Almost 3/4 of Victims Suffered Burns, Smoke Inhalation or Both
Burns or smoke inhalation was the primary apparent symptom for 30, or 71%, of the victims where the primary apparent symptom of their injury was known; 15, or 37%, suffered from smoke inhalation only; 13, or 32%, suffered burns and smoke inhalation; and two victims, or 5%, died from only the burns incurred in the fire. A gunshot wound and cardiac arrest was each the primary apparent symptom for one, or 2%, of these victims. The primary apparent symptom was undetermined or not reported in eight, or 20%, of the 2011 residential fire deaths.

44% 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.

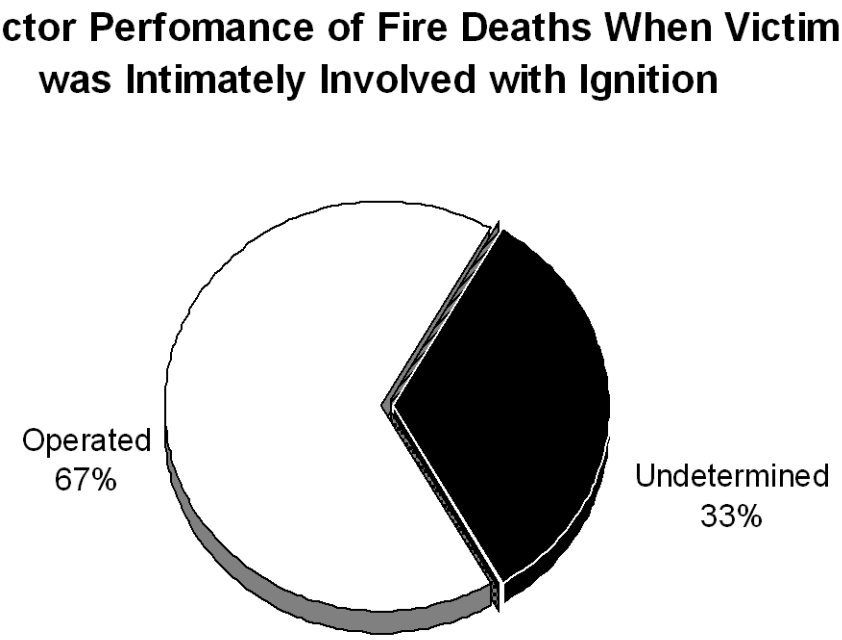


Almost 1/2 of All Fatalities Were Somehow Involved in Ignition
Eighteen (18), or 44%, of the residential fatal fire victims were in the area of origin of the fire. Twelve (12), or 28%, of these victims were intimately involved with the ignition of the fire that killed them, and six were not involved in its ignition. Six (6), or 15%, of these victims were not in the area of origin but were somehow involved in starting these fires; such as the person who is smoking and exits the room, leaving the cigarette behind unattended, or the person who forgets that they started cooking on the stove. Eight (8), or 20%, 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 nine, or 22%, of the residential fatal fire victims.

2/3 of Detectors Operated When the Victim Was Intimately Involved in Ignition
There were 12 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. Eight (8), or 67%, of these 12 victims, actually had a working smoke detector in their home at the time of the fire. It was undetermined for the other four, or 33%, of the victims that were intimately involved with ignition, whether their homes had operating smoke detectors.

In the case of three of these victims where the detectors operated and involved with the ignition, the victims started the fire with the improper disposal of smoking materials; two

were cooking fires, the person was asleep at the time of the electrical fire and in the other two fires, it was undetermined what caused the fire.



Fatal Motor Vehicle Fires

In 2011, 10 motor vehicle fires killed 10 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. Seven (7) of these fires and deaths involved motor vehicle crashes, and the other three involved suicides. One of the victims of a crash, a 17-year old female, was the only child fire death in Massachusetts in 2011.

7 Fires Caused by MVC's Kill 7 Occupants
Seven (7) motor vehicle fires and the subsequent seven deaths were all caused by motor vehicle crashes. These incidents accounted for 13% of the fatal fires and 14% of the fire fatalities in the Commonwealth in 2011.

- On July 23, 2011, at 2:11 a.m., the Saugus Fire Department was dispatched to a gasoline tanker crash and ensuing fire on Route 1. The crash and release of flaming gasoline caused 14 exposure fires, nine motor vehicle fires, four building fires and one brush fire. The victim, the 59-year old male driver of the tanker, was trapped

inside the vehicle and unable to extricate himself. A driver of one of the exposure vehicles was also injured in this fire. Total estimated damages were $2.94 million.

- On October 6, 2011 at 2:47 a.m., the Fitchburg Fire Department was called to a fatal motor vehicle crash with ensuing fire. A car had gone off the road and crashed into a boulder. The driver, a 33-year old woman, who was the only occupant, was trapped inside of the vehicle.

- On October 15, 2011, at 11:55 p.m., the Lynn Fire Department was called to a fatal motor vehicle crash. The crash between the two vehicles started an ensuing fire. Upon arrival, firefighters were able to extricate the victim and extinguish the fire. The victim, a 58-year old man was transported to a local hospital with burn injuries. He later succumbed to those injuries. No one else was injured at this fire.

- On October 19, 2011, at 5:49 a.m., the Attleboro Fire Department was called to a motor vehicle crash with ensuing fire on Interstate 95 North. The victim, a 20-year old male driver, was trapped inside the vehicle and had to be extricated. No one else was injured at this fire.

- On December 26, 2011, at 7:25 a.m., the Revere Fire Department was dispatched to a fatal motor vehicle crash with ensuing fire. The victim, the 50-year old male driver, was trapped in the vehicle as the car became fully involved. No one else was injured in this fire.

- On December 29, 2011, at 10:22 p.m., the Holden Fire Department was called to a motor vehicle crash with ensuing fire. The victim, a 40-year old male driver, was trapped inside the vehicle. No one else was injured in this fire.

- On December 30, 2011, at 12:36 a.m., the Lee Fire Department was dispatched to a fatal motor vehicle crash with ensuing fire. The victim, the 17-year old female occupant, was trapped in the vehicle as the car became fully involved. The 18-year old male driver was also injured in this fire

3 Suicides Kill 3 Occupants

Three (3) motor vehicle fires and the subsequent three deaths were successful attempts at self-immolation. These incidents accounted for 6% of the fatal fires and 6% of the fire fatalities in the Commonwealth in 2011.

- On May 6, 2011, at 11:50 p.m., the Canton Fire Department was dispatched to a fatal motor vehicle fire. The sole occupant of the vehicle, a 47-year old man, successfully attempted self-immolation. He had three 20-pound propane tanks in the back seat with their valves forced open with adapters. The victim tried to ignite the gas inside the vehicle but the atmosphere was too rich, so he lowered the window and then ignited an explosion in front of a witness.

- On May 12, 2011 at 11:42 a.m., the Lanesborough Fire Department was called for a well being check. Upon arrival with the local police, the ambulance crew found a fatal motor vehicle fire. The lone occupant of the car, a 71-year old man, had driven approximately a half mile down a dirt trail, parked the car and ignited the gasoline that he had poured around the inside of the vehicle.

- On August 1, 2011, at 5:17 p.m., the Fitchburg Fire Department was called to a fatal motor vehicle fire in front of a single-family home. The victim, a 33-year old man, drove to the home of his estranged wife, poured gasoline inside her car and ignited it; and then ignited the gasoline he had poured inside the vehicle. A civilian that witnessed the event was injured when he attempted to rescue the victim.

Other Fatal Fires

In 2011, two outside fire incidents killed two civilians. These incidents accounted for 4% of the fatal fires and 4% of the fire fatalities in Massachusetts in 2011. One (1) fire was a man burning leaves when his clothes ignited; and the other victim was a man who was burning ants out of a tree stump with gasoline and his clothing also ignited.

1 Outside Fire Kills 1 Massachusetts Resident

- On March 18, 2011, at 10:36 a.m., the Plymouth Fire Department was called to a fatal outside fire in a backyard. The victim, a 74-year old man, was using gasoline to burn ants out of a tree stump. He fell over the tree stump and his clothes ignited. He was transported to a local hospital where he later succumbed to his injuries. No one else was injured in this fire.

1 Outside Fire Kills 1 Person

- On March 31, 2011, at 4:56 p.m., the Beverly Fire Department responded to an outside fire in a residential backyard. The victim, an 83-year old man, was burning brush in his chiminea. There was a crack in the chimney portion and the escaping heat ignited his clothes. A 19-year old neighbor attempted to extinguish the flames with his jacket. The victim was transported to a local hospital where he succumbed to his injuries.

Multiple Fire Deaths

For statistical purposes, a fire is considered a multiple death fire if it kills three or more people. In 2011, there were no multiple death fires in Massachusetts.

Civilian Fire Deaths - Conclusion

54 Civilians Died in Massachusetts Fires – 50% Increase
In 2011, there were 51 fatal fires in Massachusetts with 54 accompanying fatalities. This is a 50% increase from the 36 deaths reported in 2010, the lowest number of fire deaths on record since World War II[34]. Of these 54 deaths, 41 occurred in residential fires.

Majority of Fire Deaths Occur in Residential Occupancies
We focus our analysis on residential fire deaths because it is where prevention can have the most impact. Forty-one (41), or 98%, of the 42 fatal structure fire victims died in residential building fires. Twenty-six (26) of these deaths occurred in one- or two-family homes, accounting for 48% of all fire deaths, which is typical.

Electrical Fires, Not Smoking the Leading Cause of Fire Deaths
In 2011, electrical fires were the leading cause of residential structure fire deaths. These fires accounted for 14, or 34%, of residential fire deaths. Smoking was the second leading cause of home fire deaths accounting for four, or 10%. 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 and 2005. In 1999, cooking and smoking tied as the leading causes of fires that kill. In 2005, electrical fires were the leading cause of residential fire deaths.

In 2011, heating fires, arsons and cooking fires each accounted for three, or 7%, of residential fire deaths. Candles caused two, or 5%, of the residential fire deaths.

Only 1 Person Under 18 Died in a Fire
No one under the age of 18 died in a structure fire in Massachusetts in 2011. This is a first based on available records. One person, a 17-year old girl, died in a fire as a result of a motor vehicle crash.

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 4.6 and those adults between the ages of 75 and 84 is 4.1. This means that they were over four times as likely to become a fire-related fatality.

39% of All Fire Deaths are Older Adults
Twenty-one (21) older adults died in fires, accounting for 39%, of all fire deaths in Massachusetts in 2011. None of these victims died in smoking fires. Historically, the lack of working smoke detectors is a significant factor in senior fire deaths. In 2011, nine of these 18 senior fire deaths had working smoke alarms and in the other three deaths, detectors were present but it was undetermined if they operated.

[34] Based upon available records.

1/2 of People Died in Fires While They Slept
Half of the people who died in fires died while they slept. Twenty-seven (27), or 50%, of the fire victims died in fires that occurred between 10:00 p.m. and 7:00 a.m.

32% of Fatalities Did Not Have Working Smoke Detectors
Thirty-two percent (32%) 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. Forty-four percent (44%) of the victims died in fires that began in either the bedroom or living room. Electrical wire and upholstered furniture were tied as the leading items first ignited. Also, 71% of these victims suffered burns, smoke inhalation or both.

44% of Fatalities Were in the Area of Origin
Eighteen (18), or 44%, of all the civilians that died in residential fires were reported to be in the area of fire origin. Twelve (12) 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.

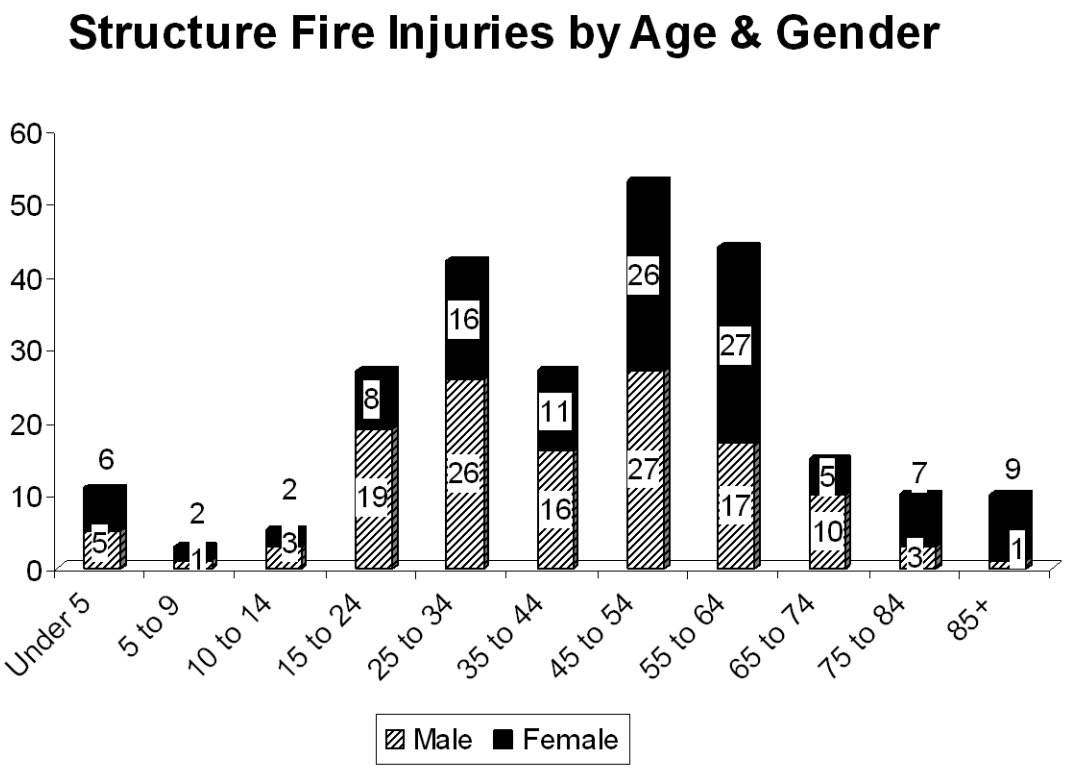
4 Suicides by Self-Immolation
This past year there were a tragic number of people who used fire to take their own lives. In 2011, there were four confirmed suicides by self-immolation, three were motor vehicles and one was in a residence. In 2010 there were five self-immolations. In 2009 there were six self-immolations, in 2008, there were three self-immolations; five in 2007, two in 2006; and four in 2005. In 2004, there were eight suicides by self-immolation.

Civilian Injuries

232 Civilians Injured in Fires in 2011 – Mostly at Home
Massachusetts' fires injured 323 civilians in 2011. Two hundred and forty-eight (248), or 77%, of civilian injuries occurred in structure fires. Two hundred and nineteen (219) injuries occurred in residential building fires, accounting for 68% of all injuries and 88% of all structure fire injuries. Twenty-four (24), or 7%, occurred in motor vehicle fires.
Fifty-one (51), or 16%, of civilian injuries occurred in outside and other fires. Special outside fires accounted for 22, or 7%, of all civilian injuries. Brush fires accounted for five, or 2%, of civilian fire injuries. Twenty-four (24), or 7%, of civilian injuries were caused by unclassified fires.

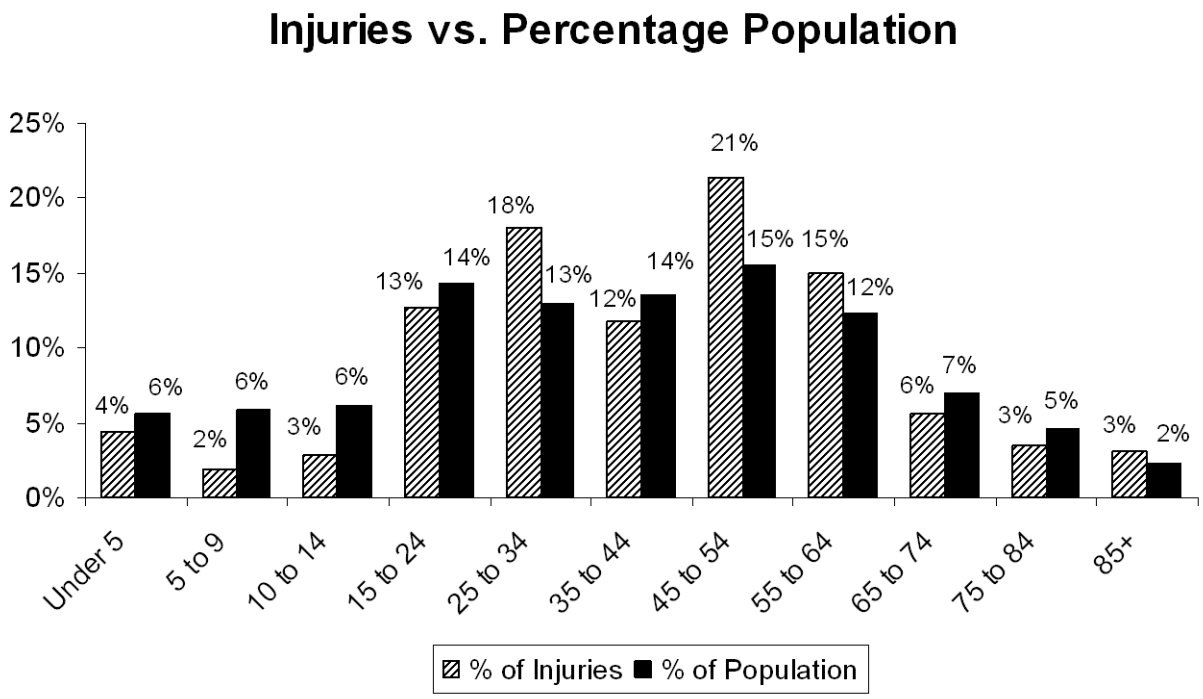
Structure Fire Injuries

Of the 247 civilian injuries resulting from structure fires where gender was reported, 128, or 52%, were men and 119, or 48%, 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 2011. The following chart illustrates the structure fire injuries by age and gender in 2011. Men and women ages 45-54 and 55-64 were injured the most and youths between five and nine were injured the least in 2011. Eleven (11) children ages 0-4 were injured; three children ages 5-9; five children ages 10-14; 27 people ages



15-24; 42 people ages 25-34; 27 people ages 35-44; 53 people ages 45-54; 44 people ages 55-64; 15 people ages 65-74; 10 people ages 75-84; and another 10 people were injured that were over 85 years of age, one was a man and nine 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 25 to 34 & 45 to 64 at High Risk for Fire Injury
Adults between the ages of 25 and 34 represent 13% of the population and yet they accounted for 18% of the injuries in 2011. Adults between the ages 45 and 54 represent 15% of the Massachusetts population, yet they accounted for 21% of the injuries at structure fires in 2011. Adults between the ages of 55 and 64 represent 12% of the population and yet they accounted for 15% of these injuries. 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, 44% of the fire-related injuries were incurred while trying to control the fire.

85% of Injuries Were Directly Related to Exposure to Fire Products
Of the 215 civilian injuries in structure fires where the *Cause of Injury* was known, 87% were directly linked to exposure to fire products; 3% of the casualties were exposed to hazardous materials or toxic fumes; and 2% each were struck by or came in contact with an object or fell, slipped or tripped. One percent (1%) were injured while jumping in an escape attempt and another 1% had multiple causes. Less than 1% each were caused by the victim being caught or trapped and overexertion. Four percent (4%) of the civilian fire injuries were caused by 'Other' causes. The *Cause of Injury* was undetermined or not reported for 43 victims. These figures were not included in this analysis.

82% of Injuries Were Due to Smoke Inhalation or Burns or Both
Of the 212 civilian injuries in structure fires where the *Primary Apparent Symptom* was known, 46% were caused by smoke inhalation only. Twenty-five percent (25%) were caused by thermal burns only. Burns and smoke inhalation together caused 10% of the

injuries. Breathing difficulty or shortness of breath and scald burns each caused 3% of these injuries; and emotional or psychological stress and cuts or lacerations each caused 2%. Fractures, mental disorders, hazardous fumes (not smoke) inhalation, stab or puncture wounds, and strains or sprains were each responsible for 1% of these injuries. Cardiac symptoms, contusions or minor traumas, dislocations, disorientation, general sickness and an unclassified symptom each accounted for less than 1% of the injuries. 'None' was reported as the *Primary Apparent Symptom* for three of these victims. The nature of injury was undetermined or not reported in 36 civilian fire injuries. These were excluded from the percentage calculations.

42% Injured While Trying to Control the Fire

Of the 176 victims for whom A*ctivity at Time of Injury* was known, 42% were attempting to control the fire. Twelve percent (12%) were escaping. Ten percent (10%) returned to the vicinity of the fire before it was under control; 9% were attempting a rescue; 7% were sleeping; 6% were unable to act; and 3% were acting irrationally. Eleven percent (11%) were injured in 'Other' activities. There were 72 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 2011, 47% of male victims sustained their injuries while attempting to control the fire as compared to 37% of female victims. In 2011 men were 1.5 times more likely to be injured trying to fight the fire. A higher percentage of men (14%) sustained their injuries while making a rescue attempt than did women (4%), and 16% of women were attempting to escape compared to 9% of men. Five percent (5%) of men and 9% of women were injured while sleeping; 4% of men and 9% of the women were unable to act; and 2% of men and 5% 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.

1/3 of Victims Were Asleep Just Before the Injury

Of the 42 victims for which the *Human Factor Contributing to the Injury* was known, 33% were asleep; 19% were possibly mentally disabled; 17% were physically disabled; 14% were possibly impaired by alcohol; 12% were unattended or unsupervised persons; and 5% were possibly impaired by drugs. 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**	0	0	0	0	0	0	0
Rescue attempt	0	0	0	0	0	0	0	0
Fire control	1	0	2	1	1	1	0	0
Return before fire control	1	0	0	0	0	0	0	0
Return after fire control	0	0	0	0	0	0	0	0
Sleeping	**6**	0	0	0	0	0	0	0
Unable to act	0	0	0	0	0	2	0	2
Irrational action	0	0	0	0	3	1	0	0
Other	0	0	1	0	2	0	0	1
Unknown	0	0	0	0	1	1	0	2
Total	14	0	3	1	7	5	0	5

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 past years, the leading cause 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 next leading result was when someone was asleep, awoke and attempted to escape.

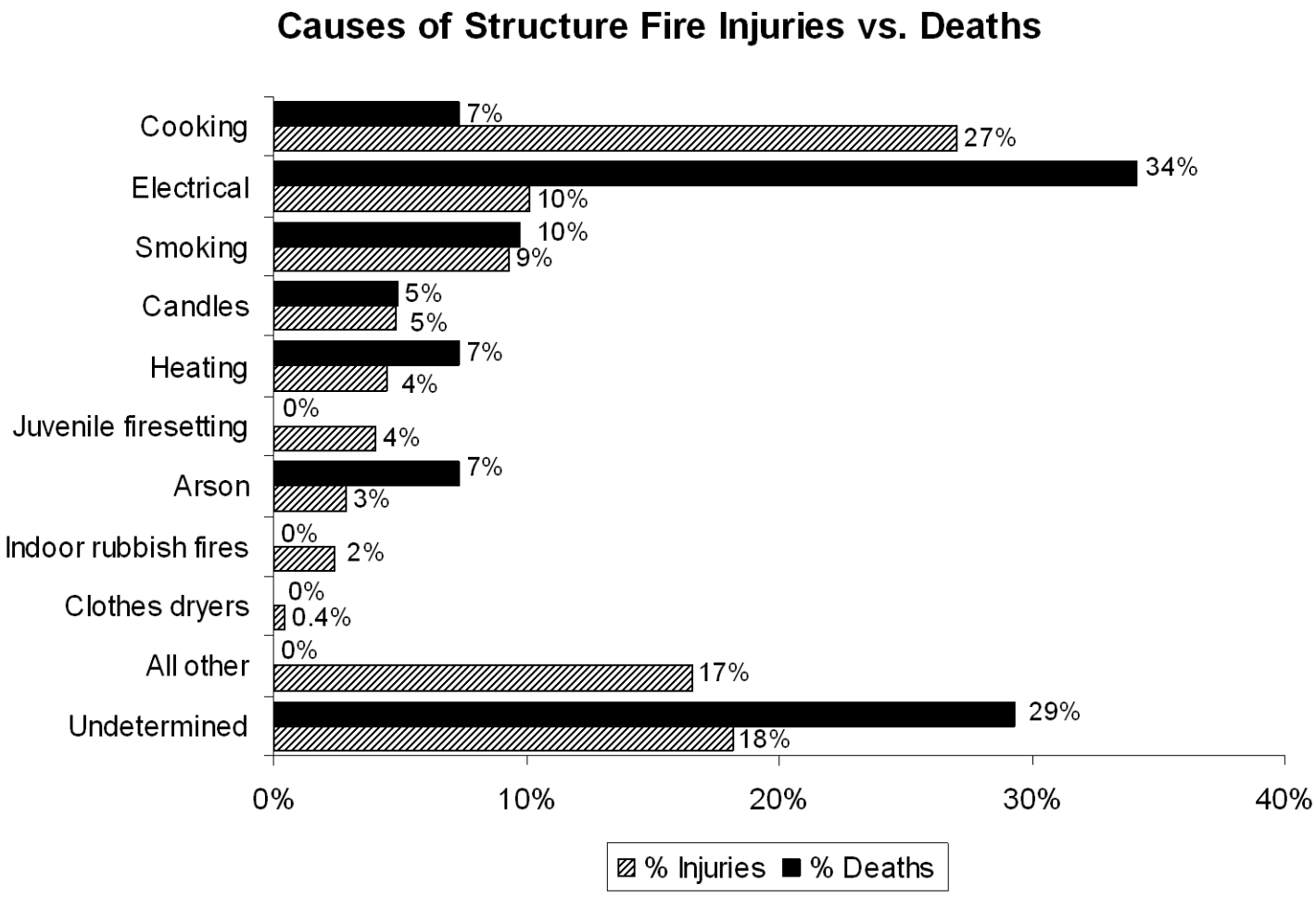
Almost 1/2 of All Victims Were Involved With the Ignition of the Fire

Forty-nine percent (49%) of all victims were involved with the ignition of the fire that injured them. Seventy-five (75), or 42%, of the 179 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. Thirteen (13), or 7%, 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 an cigarette into a trash can, leaves the area, but becomes trapped by the heat or smoke of the fire and is injured in their attempt to escape. Fifty-four (54), or 30%, of the 179 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. Thirty-seven (37), or 21%, 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 69 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 2011, cooking fires caused the most injuries and electrical fires 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 upon 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 attempt 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 27% of structure fire injuries and 7% of structure fire deaths. Electrical fires caused 10% of structure fire injuries and 34% of structure fire deaths. Fires started by smoking caused 9% of structure fire injuries and 10% of structure fire deaths. Candles caused 5% of injuries and 5% of the deaths. Heating equipment fires caused 4% of injuries and 7% of deaths. Juvenile-set fires also caused 4% of structure fire injuries and none of the structure fire deaths in 2011. Arson caused 3% of structure fire injuries and 7% of structure fire deaths. Indoor rubbish fires caused 2% of civilian injuries with no deaths. Clothes dryer fires caused less than 1% of the structure fire injuries and none of the structure fire deaths. All the other known causes of structure fires combined caused 17% of the structure fire injuries and none of the structure fire deaths. In 2011, undetermined fires caused 18% of structure fire injuries and 29% of structure fire deaths in Massachusetts.

Smoking fires were the leading cause of fires that injured children. Five (5), or 21%, were injured in structure fires caused by smoking materials in 2011. Cooking was the second leading cause of injuries with four, or 17% of child injuries in structure fires. Cooking was also the leading cause of fires that injured older adults. Thirteen (13) older adults were injured in cooking fires accounting for 37% of structure fire injuries to older adults. Smoking fires caused the second most injuries to older adults with four, or 11%, of these injuries.



Detectors Operated in 1/2 of Civilian Injuries

Of the 216 injuries where detector status was reported, 50% occurred where smoke detectors were present and operated. In 3% of these fires[35], the detectors did not alert the occupants. Thirteen percent (13%) of the injuries occurred in structure fires where detectors were present but did not operate. Eleven percent (11%) of the injuries occurred where there were no detectors present in the structure at all. Seven percent (7%) of civilian structure fire injuries occurred where the fire was too small to activate the smoke detector. Smoke detector performance was undetermined in 35 injuries, or 16% 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.

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

Motor Vehicle Fire Injuries

There were 24 motor vehicle fire injuries in 2011. Eighty-three percent (83%) were men and 17% were women. Seventy-six percent (76%) of the injuries were caused by exposure to fire products, when the cause was known. Ten percent (10%) were struck by or came into contact with an object and 5% were injured when they fell, slipped or tripped. When the *Primary Apparent Symptom was Reported*, 43% of these were reported as burns only, 14% were reported as burns and smoke inhalation; and 10% were reported as smoke inhalation only. Where the *Activity at Time of Injury* was known, 31% were trying to escape the fire; 25% of the victims were trying to control the fire when injured 6% were making a rescue attempt; 6% were asleep; and another 6% were acting irrationally. The causes of motor vehicle fires that injured civilians in 2011 included fuel spills, collisions, arson, and mechanical malfunctions. See the Motor Vehicle Fire section for safety tips in the event of a car fire.

Outside and Other Fire Injuries

Fifty-one (51), or 16%, of civilian fire injuries occurred in outside and other fire incidents in 2011. Twenty-two (22), or 7%, of civilian injuries were caused by special outside fires. Five (5), or 2%, of these injuries occurred in brush fires. Twenty-four (24), or 7%, of civilian injuries were caused by unclassified fires.

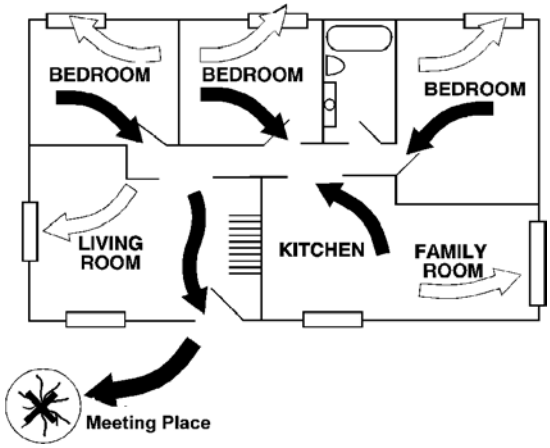
Where gender was known, 67% of the civilian victims were men and 33% were women. Burns accounted for 76%, of the injuries to this group, when the *Primary Apparent Symptom* was known. The victim was intimately involved with the ignition in 61% of these injuries where *Location at Ignition* was known.

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.

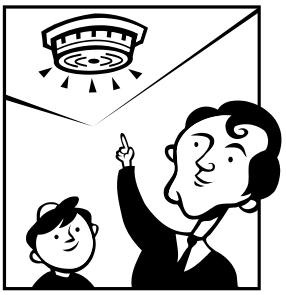
Home Escape Plan

- 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

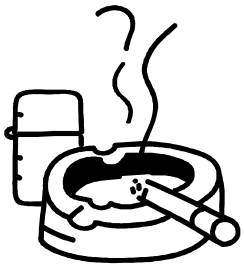


- Install smoke detectors on every level and outside each sleeping area.
- Test smoke detectors monthly.
- Replace the batteries twice a year.
- Never disable your detector.
- Replace detectors every 10 years.

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.
- 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.

2011 Firefighter Deaths

In 2011, there were two fire-related fire service fatalities in two fires in the Commonwealth of Massachusetts. Firefighter Jon Davies of the Worcester Fire Department was trapped when the building he was performing a search in collapsed and Peabody Firefighter James Rice collapsed while advancing a hose line into a building fire. In the past five years there have been eight fire-related fire service deaths for an average of over 1.5 fire-related fire service deaths per year.

Worcester FF Jon Davies

Peabody FF James Rice

Worcester FF Jon Davies Killed in Undetermined Fire in a 3-Decker
On December 8, 2011, at 4:21 a.m., the Worcester Fire Department was dispatched to a fire in a three-decker apartment building of undetermined cause. Firefighters Jon Davies and Brian Carroll were searching for victims on the second floor when the building partially collapsed trapping them beneath the rubble. FF Davies was located first and transported to a local hospital where he succumbed to his injuries. FF Carroll was located some time later. He was also transported to a local hospital where he recovered from his injuries. Three (3) other firefighters were injured at this incident. It was undetermined if detectors were present and the building did not have sprinklers. Damages from this fire were estimated to be $250,000.

Peabody FF James Rice Killed in an Electrical Fire
On December 23, 2011, at 1:24 p.m., the Peabody Fire Department was dispatched to an electrical fire in an 8-unit apartment building. Firefighter James Rice entered the building while 'stretching a line' to the second floor. His crew was met with heavy fire conditions. FF Rice was extricated from the building after collapsing in the rear of a second floor apartment. He was taken to a local hospital where he died. No one else was injured at this fire. It was undetermined if detectors were present and the building did not have sprinklers. Damages from this fire were estimated to be $240,000.

Fire Service Injuries

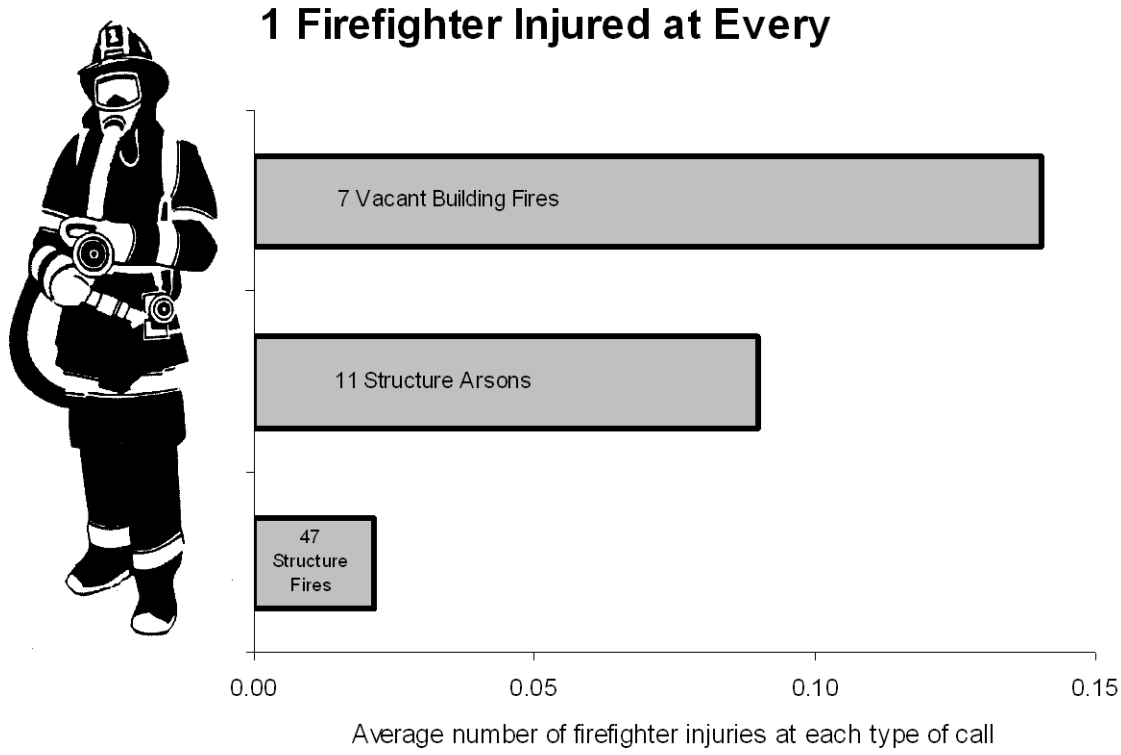
422 Firefighters Injured in 2011
In 2011, 422 firefighters were injured while fighting the 29,110 reported fires in Massachusetts. On average, one firefighter was injured at one of every 68 fires in 2011. Three hundred and ninety (390) firefighters were injured at structure fires. Twenty (20) firefighters were injured at motor vehicle fires. Thirty-nine (39) firefighters were injured at outside and other fires. This is a decrease of 114, or 21%, from the 536 fire-related fire service injuries reported in 2010.

92% of Firefighter Injuries Occurred at Structure Fires
Firefighters were injured more frequently at structure fires than any other fire incident type. Ninety-two percent (92%) of firefighter injuries occurred at structure fires, while structure fires only accounted for 62% 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. Eighty-one (81), or 21%, of structure fire firefighter injuries occurred at electrical fires. Fires caused by heating equipment accounted for 35, or 9% and smoking fires accounted for 33, or 8%, 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 25, or 6%, of fire service injuries at structure fires.

Firefighters Injured at 1 of Every 7 Vacant Building Fires
One of the most dangerous types of fires for firefighters in 2011 were vacant building fires. Vacant building fires accounted for 39, or 9%, of all firefighter injuries in 2011. These 39 injuries also represent 10% of the number of firefighter injuries incurred fighting structure fires in 2011. On average there was one firefighter injury for every seven vacant building fires; one firefighter injury for every 11 structure arsons; and one firefighter injury for every 47 structure fires[36].

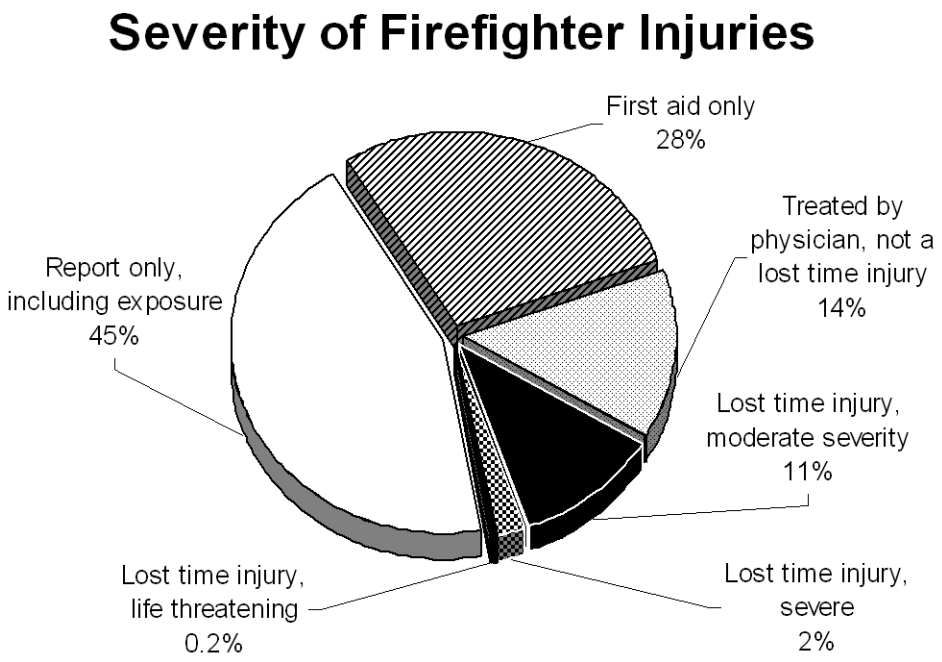
The following graph illustrates this.



86% of Firefighter Injuries Minor
Eighty-six percent (86%) of reported firefighter injuries were minor. Forty-five percent (45%) of the injuries were reports only, including exposures to toxic substances or harmful physical agents through any route of entry into the body. Twenty-eight percent (28%) of these injuries were recorded as only needing first aid. Fourteen percent (14%) reported having been treated by a physician with no time lost. Injuries reported as moderate accounted for 11% of firefighter injuries, meaning that immediate medical attention was needed but there was little danger of death or permanent disability. Two percent (2%) of firefighter injuries were coded as severe. This means that the injury was

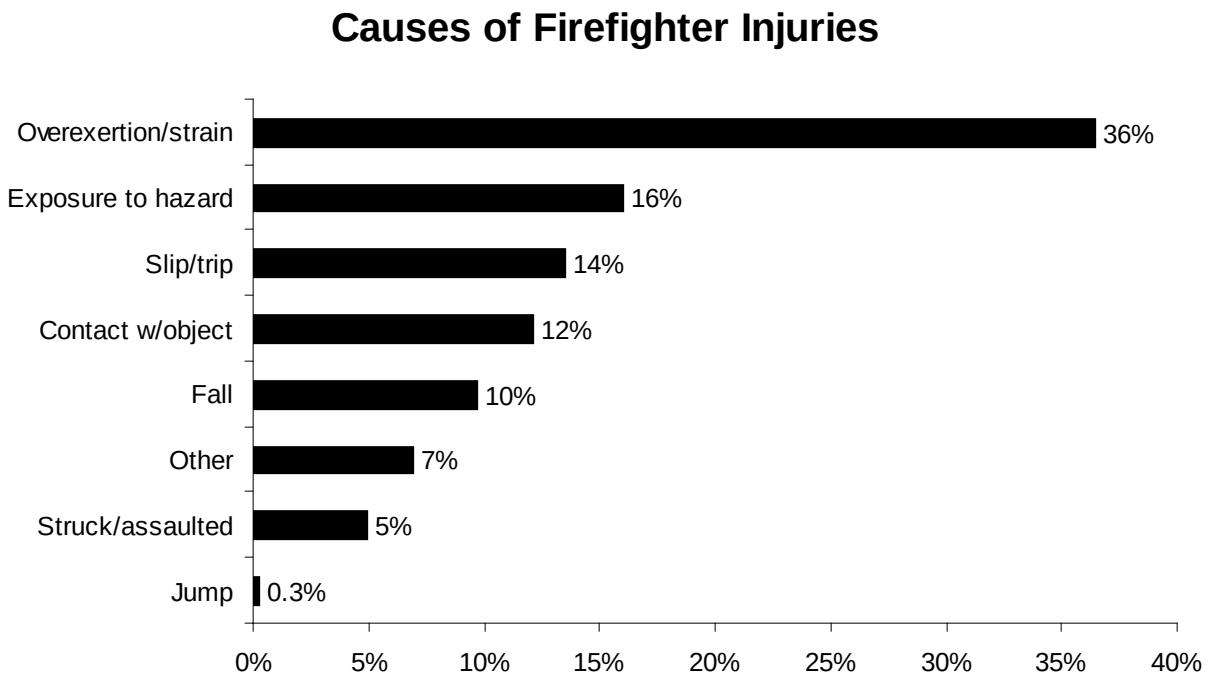
[36] On average there were 0.14 firefighter injuries at every vacant building fire; there were only 0.09 reported firefighter injuries per structure arson in 2011; and there were 0.02 reported firefighter injuries per structure fire in the Commonwealth in 2011.

potentially life-threatening if the condition was not controlled. There was one reported life-threatening firefighter injury where body processes and vital signs were not normal, accounting for less than 1% of fire-related firefighter injuries in 2011.

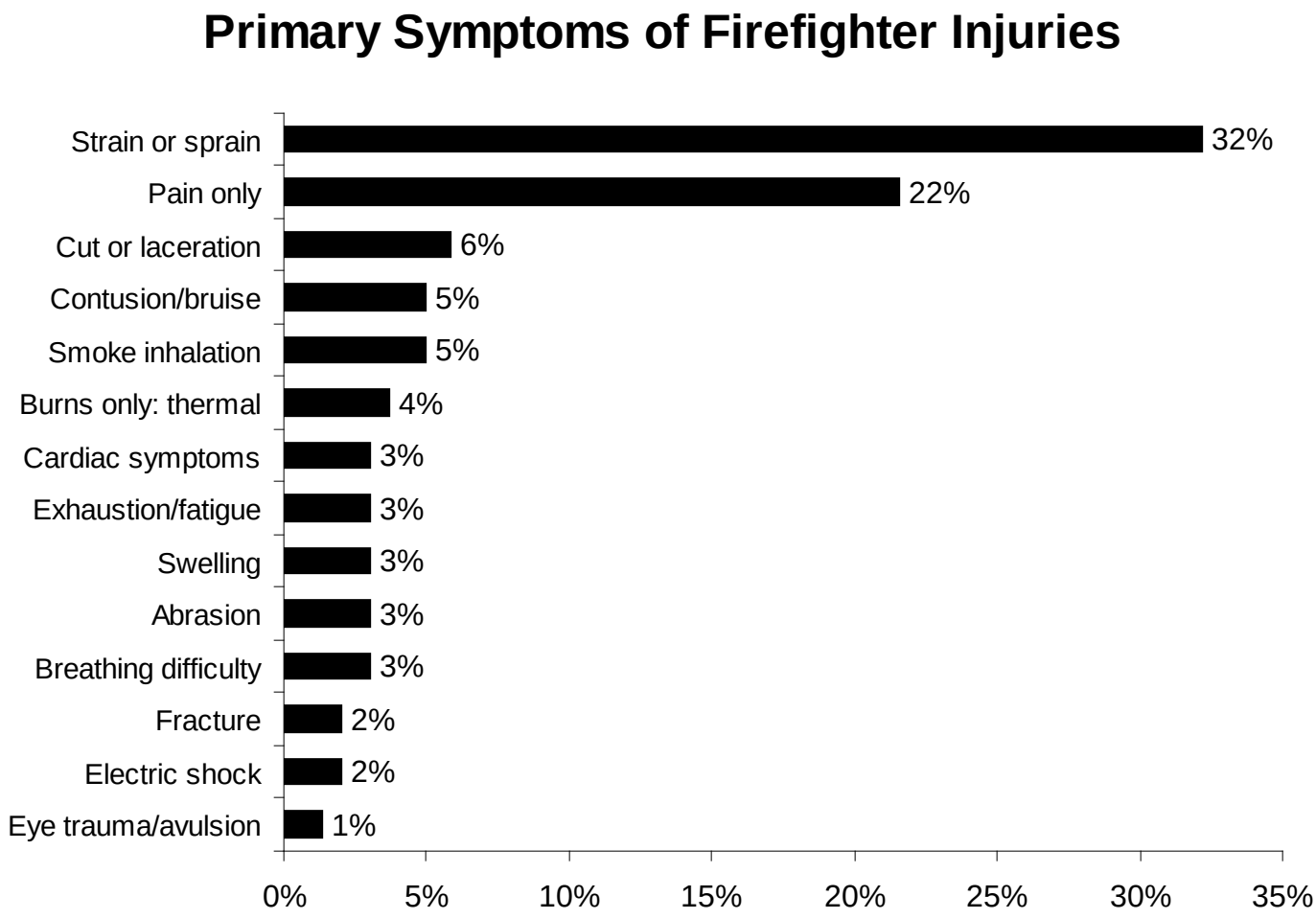


Over 1/3 of Injuries from Overexertion or Strain

Thirty-six percent (36%), or over one-third, of the 362 firefighter injuries, where the cause was known, were due to overexertion or strain; 16% were exposed to some form of hazard including heat, smoke or toxic agents; 14% were injured when they slipped or tripped; 12% were caused by contact with some object; 10% of firefighters were injured from falls; 5% 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 60 firefighter injuries, and these injuries were excluded from the percentage calculations.



Almost 1/3 Experienced Sprains or Strains; Over 1/5 of Firefighters Reported Pain
Of the 376 firefighter injuries where *Primary Apparent Symptom* was known, almost one-third, or 32%, of injured firefighters reported sprains or strains as their primary symptom; 22% reported pain only; 6% reported cuts or lacerations; 5% reported smoke inhalation; and contusions and bruising were reported by another 5% of the firefighters. Four percent (4%) reported thermal burns. Cardiac symptoms, exhaustion or fatigue, swelling, abrasions and breathing difficulty each caused 3% of these injuries. Fractures and shocks each caused 2%; and eye trauma or avulsions caused 1% of firefighter injuries in Massachusetts in 2011. *Primary Apparent Symptom* was undetermined or not reported for 46 firefighter injuries. These injuries were excluded from the percentage calculations.



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.

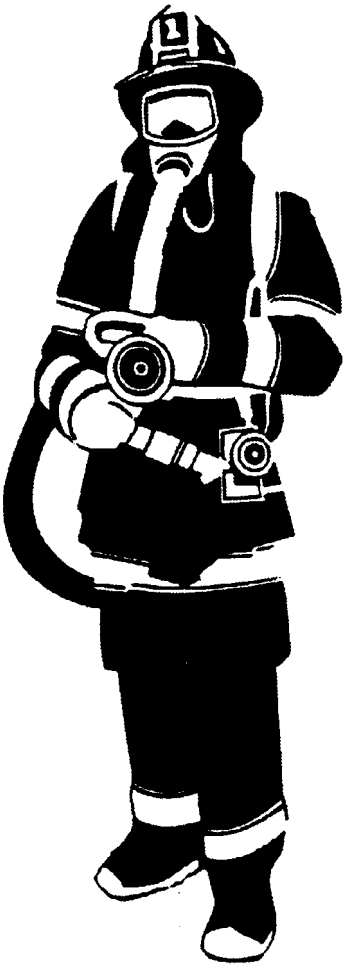
Look at Symptoms Incurred by Different Parts of Body to Prevent Injuries
Different parts of the body suffer different types of injuries. For example, 33% of eye injuries were caused by avulsions; cuts or lacerations caused 30% of the injuries to the hands and fingers; 56% of the injuries to the back and spine were sprains or strains; and smoke inhalation caused 52% of the internal injuries.

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. Ninety-three (93), or 25%, of all firefighter injuries were to the trunk part of the body that includes the lower back.

Thirty-seven (37), or 40%, of these injuries were from strains or sprains and 28, or 30%, 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 (15)	
Avulsion	33%
Foreign body obstr.	20%
Abrasion	20%
Trunk (93)	
Strain or sprain	37%
Pain only	30%
Internal (27)	
Smoke inhalation	52%
Breathing difficulty	19%
Breathing difficulty	11%
Hand, Fingers (46)	
Cut, laceration	30%
Pain only	13%
Swelling	11%
Legs (14)	
Strain or sprain	29%
Pain only	21%
Electric shock	14%



Ears & Face (7)	
Thermal burns	57%
Swelling	14%
Cut or laceration	14%
Back & Spine (32)	
Strain or sprain	56%
Pain only	41%
Arms (22)	
Strain or sprain	50%
Pain only	14%
Electric shock	9%
Wrists (9)	
Strain or sprain	44%
Pain only	22%
Knees (38)	
Strain or sprain	45%
Pain only	45%
Feet & Toes (10)	
Strain or sprain	30%
Fracture	30%

Fire in Gloucester Injures 14 Firefighters – Most Fire Service Injuries

- On September 15, 2011, at 7:36 p.m., the Gloucester Fire Department was called to a smoking fire at a 6-unit apartment building. Fourteen (14) firefighters were injured at this fire. Twelve (12) of the 14 injuries were only exposure reports. It was undetermined if detectors were present and the building did not have a sprinkler system. This fire also extended to the building next door. Combined damages from this fire were estimated to be $700,000.

Somerville Fire Injures 9 Firefighters –2nd Most Fire Service Injuries

- On January 17, 2011, at 12:26 p.m., the Somerville Fire Department responded to a fatal heating fire at a two-family home. Bedding was too close to the baseboard heater and ignited. The victims, an 80-year old woman, and her 48-year old son, were overcome by the heat and smoke while trying to escape. They were transported to a local hospital where they succumbed to their injuries. All nine firefighters were not injured seriously at this fire. Detectors were not present, and the building was not sprinklered. This fire spread to a neighboring home. Combined damages from this fire were estimated to be $557,000.

Chelsea had the next two incidents with the most firefighter injuries, eight and six injuries respectively in 2011.

Arson Fires

978 Arsons - 268 Structures, 115 Vehicles, 786 Other Arsons

Nine hundred and seventy-nine (978), or 3%, of the 29,110 fire incidents reported to the Massachusetts Fire Incident Reporting System, were considered to be intentionally set, or for the purpose of analysis, arson[37]. The 223 structure arsons, 124 motor vehicle arsons, and 631 outside and other arsons caused six civilian deaths, accounting for 11% of civilian fire deaths, 20 civilian injuries and 20 fire service injuries. The estimated dollar loss from arsons was $12.4 million. The average dollar loss per arson fire was $12,657. Total arson was down by 16% from the 1,171 in 2010.

1,069 Fires with Cause Still Under Investigation

In 2011, 1,069 Massachusetts fires were still listed as Cause Under Investigation. There were 2,456 fires where the Cause of Ignition was listed as Undetermined. It is important that fire departments update their fire incident reports when either a cause is determined or its cause is deemed to be undetermined after investigation.

Other Investigative Information

One of the fields is *Other Investigative Information*. This field identifies other information pertinent to the case. In 2011, 30% of the 73 reported arsons that had this field completed, occurred in vacant structures; 22% were reported to have criminal or civil actions pending; 15% had some code violations; 12% had some other crime involved; 10% reported financial problems; 8% occurred in structures that were for sale; 1% had a recent change in insurance; and 1% had recent illicit drug activity.

[37] 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.

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 119 reported arsons that had this field completed, the motive was thought to be from playing with or curiosity of fire. The motive was personal motivation in 18% and thrills were suspected in 12% of these arsons. Intimidation was the suspected motivation in 7%; and in 6% of these fires attention or sympathy, and insurance fraud were each the suspected motivation factors. Suicide was the suspected factor in 4% and domestic violence in 3% of these arsons. Burglary concealment, auto theft concealment, and destruction of records or evidence were each the suspected motivation factor in 2%. Institutional hatred, protests, homicide, a burglary, vanity and recognition, societal protests and homicide concealment 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.

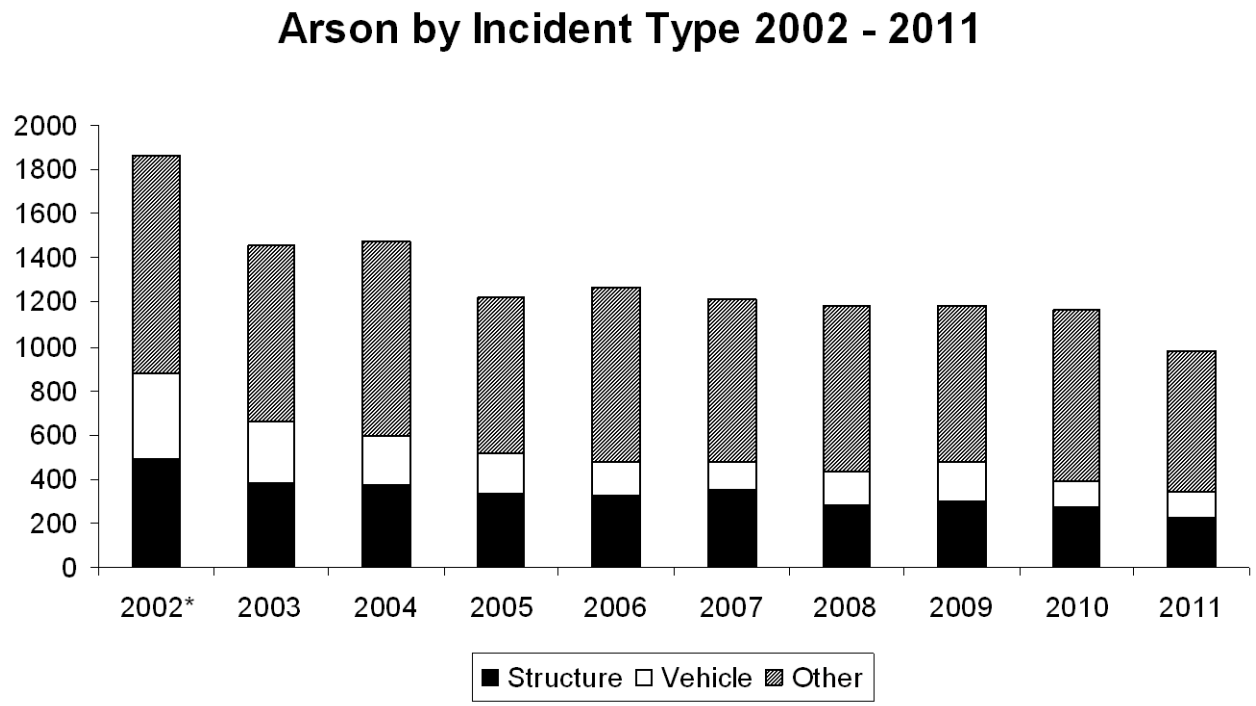
ARSONS BY YEAR

Year	Total Arsons	Structure Arsons	% All Arsons	Vehicle Arsons	%All Arsons	Other Arsons	% All Arsons
2011	978	223	23%	124	13%	631	64%
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%
2002*	1,867	488	26%	395	21%	991	53%

*2002 was the 1st full year of version 5 with a new definition of arson with 'suspicious' eliminated.

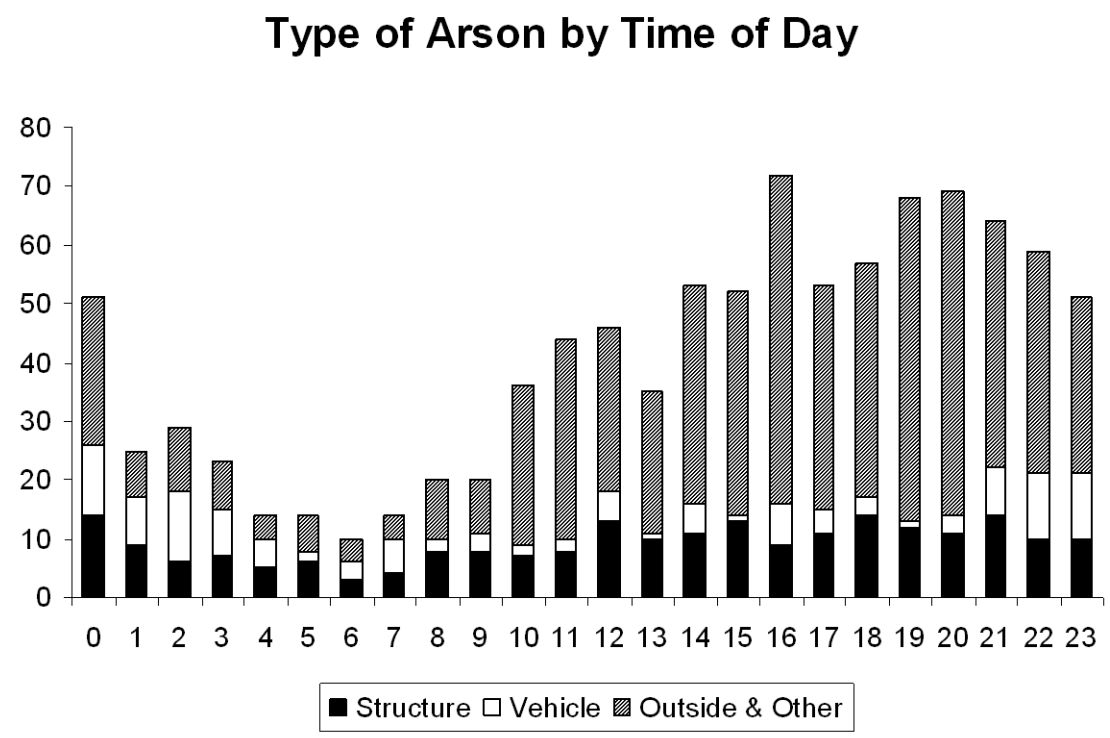
Largest Reduction in Motor Vehicle Arsons
The following chart illustrates arson by incident type over the past decade. This type of chart can be used as a visual representation of the ratios between the three types of arson: structure, motor vehicle and outside and other arsons. The trend has been for 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 13% of the total

reported arson fires in 2011. 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 987 in 2001 and 631 in 2011. While we have a huge 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 5:00 p.m. and 1:00 a.m. Motor vehicle arsons were most likely to occur between 9:00 p.m. and 2:00 a.m. Outside and other arsons peaked from 2:00 p.m. to 10:00 p.m.



Structure Arson

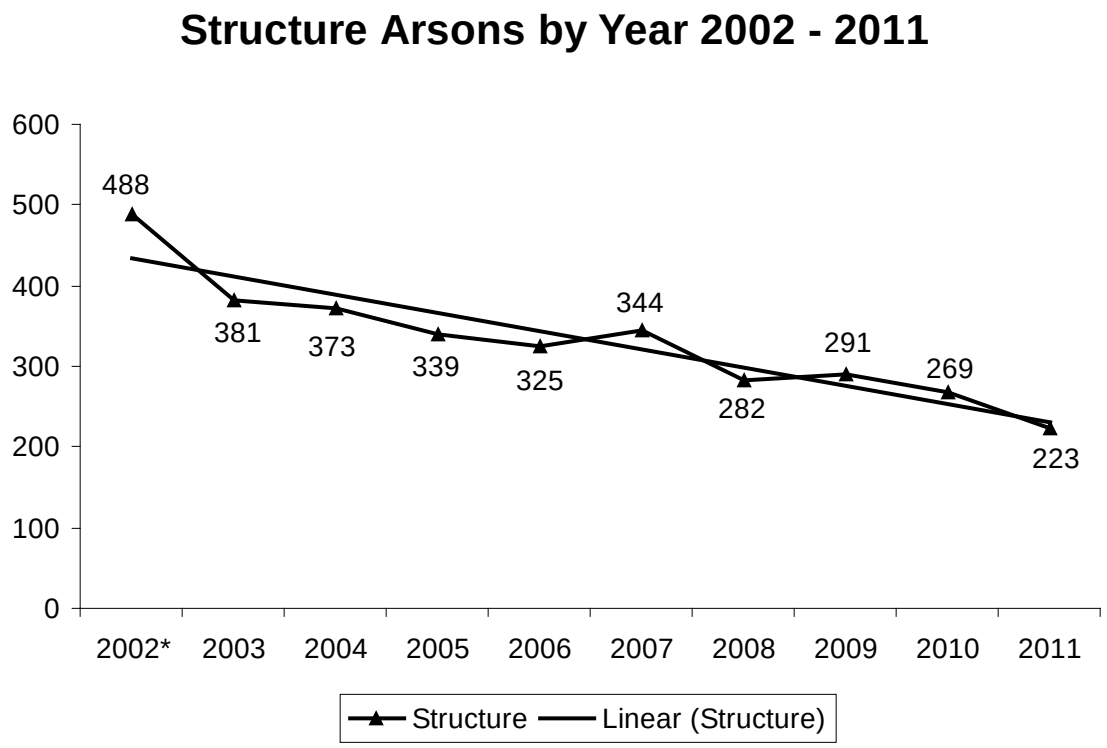
223 Arsons, 3 Civilian Deaths, 13 Civilian Injuries, 20 Fire Service Injuries
In 2011, there were 223 reported structure arsons. They caused three civilian deaths, 13 civilian injuries, 20 fire service injuries and an estimated dollar loss of $11.7 million. These 223 incidents accounted for 1% of the 18,178 structure fires in 2011, and were down by 17% from the 269 reported structure arsons in 2010.

The three civilian deaths accounted for 6% of the total civilian death count and 7% of all structure fire deaths. The 13 civilian injuries accounted for 4% of the overall civilian injuries and 5% of all civilian injuries at structure fires. The 20 fire service injuries accounted for 5% of the total fire service injuries and 5% of the injuries firefighters sustained at all structure fires in 2011. The estimated dollar loss for structure arsons was $11,681,993, accounting for 5% of the overall dollar loss and 6% of the estimated dollar loss in all reported structure fires. The average loss per structure arson was $52,386.

In 2011, 539 Massachusetts structure fires were still listed as Cause Under Investigation. There were 509 structure fires where the Cause of Ignition was listed as Undetermined.

Structure Arsons Decrease
Structure arsons decreased in 2011. These 223 arsons were a decrease of 46, or 17%, from the 269 reported in 2010.

Structure Arson Down 54% Since 2002
Structure arson has been on a downward trend since 1991 when 1,974 structure arsons were reported to MFIRS. Structure arsons have decreased by 54% since 488 were reported in 2002. The chart below shows the trend of structure arsons in the past decade.



*2002 was the 1st full year of version 5 with a new definition of arson with 'suspicious' eliminated.

The following table shows the cities that reported the most structure arsons in 2011; their 2010 population according to the United States Census; the number of structure arsons reported in 2011; the rate of structure arsons per 1,000 people in 2011; and the same information for 2010. The cities are ranked by the 2011 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 but the Town of Freetown had a higher structure arson rate. Although Freetown had only two structure arsons and was tied with a rank of 13th, its rate of 0.24 structure arsons per 1,000 population was the highest in the state and was 5.7 times the state structure arson rate of 0.03 per 1,000 population.

MASSACHUSETTS CITIES WITH THE MOST STRUCTURE ARSONS IN 2011

City	Population	2011 Arsons	2011 Rate/ 1,000 Pop.	2010 Arsons	2010 Rate/ 1,000 Pop.
Freetown	8,472	2	0.24	2	0.24
Gardner	20,770	3	0.14	1	0.05
Lawrence	76,377	10	0.13	6	0.08
Chelsea	35,177	4	0.11	7	0.20
Everett	41,667	3	0.07	4	0.10
Pittsfield	44,737	3	0.07	5	0.11
Brockton	93,810	6	0.06	8	0.09
New Bedford	95,072	16	0.06	11	0.12
Lowell	106,519	6	0.06	7	0.07
Worcester	181,045	10	0.06	13	0.07
Holyoke	39,880	2	0.05	4	0.10
Boston	617,594	23	0.04	31	0.05
Chicopee	55,298	2	0.04	5	0.09
Fall River	88,857	3	0.03	16	0.18
Somerville	77,478	2	0.03	1	0.01
Springfield	152,082	3	0.02	2	0.01
Massachusetts	**6,547,629**	**223**	**0.03**	**268**	**0.04**

Building Arsons

In 2011 there were 218 building arsons. These 218 arsons accounted for 98% of all the structure arsons in Massachusetts. These building arsons caused all three civilian deaths, 13 civilian injuries, 20 fire service injuries and an estimated dollar loss of $11.7 million.

59% of Building Arsons Occurred in Residences

One hundred and twenty-eight (128), or 59%, of the 223 building arsons occurred in residential occupancies. Mercantile and business properties and educational facilities each accounted for 10%, 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.

BUILDING ARSON BY OCCUPANCY TYPE

Occupancy	Building Arsons	Percent of Total	Injuries FF	Injuries Civ	Deaths FF	Deaths Civ	Dollar Loss
Assembly	8	4%	0	0	0	0	$2,334,418
Educational	21	10%	0	3	0	0	73,000
Institutional	7	3%	0	2	0	0	20,500
Residential	**128**	**59%**	**15**	**7**	**0**	**3**	**8,203,575**
1- & 2-Family	*58*	*27%*	*9*	*4*	*0*	*1*	*2,307,400*
Multifamily	*62*	*29%*	*6*	*2*	*0*	*1*	*5,768,325*
All Other Residential	*8*	*4%*	*0*	*1*	*0*	*1*	*127,850*
Mercantile, business	22	10%	5	1	0	0	872,200
Basic Industry	0	0%	0	0	0	0	0
Manufacturing	1	0.5%	0	0	0	0	0
Storage	14	6%	0	0	0	1	109,600
Special Properties	15	7%	0	0	0	0	58,200
Unclassified	1	0.5%	0	0	0	0	0
Total	**218**	**100%**	**20**	**13**	**0**	**3**	**$11,671,493**

Motor Vehicle Arson

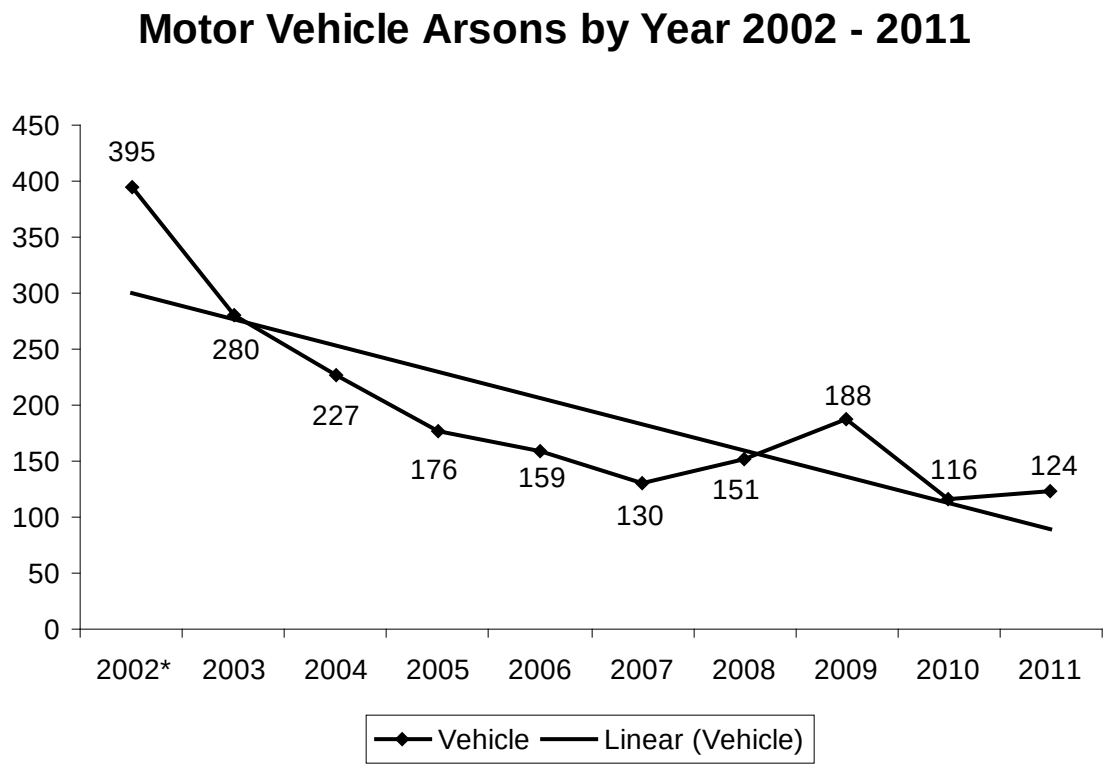
124 Arsons – 3 Civilian Deaths & $667,825 in Damages
One hundred and twenty-four (124), or 4%, of the 2,997 vehicle fires were considered intentionally set in 2011. There were three civilian deaths and one civilian injury in motor vehicle arsons in 2011. The estimated dollar loss in motor vehicle arsons was $667,825, accounting for less than 1% of the overall fire dollar loss and 4% of the dollar loss associated with all the 2011 motor vehicle fires. The average loss per vehicle arson was $5,343. Passenger cars and vans accounted for 82% of the 124 motor vehicle arsons. All three civilian deaths in motor vehicle arsons were successful attempts at self-immolation.

In 2011, 334 Massachusetts motor vehicle fires were still listed as 'Cause Under Investigation'. There were 648 motor vehicle fires where the "Cause of Ignition" was listed as 'Undetermined'.

Motor Vehicle Arsons Increase
Motor vehicle arsons increased in 2011. These 124 arsons are an increase of eight, or 7%, from the 116 reported in 2010. This is a return to the previous trend of increasing motor vehicle arsons since 2007.

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. Since the law took effect in 1987, motor vehicle arsons have decreased by 98% from 5,116 in 1987 to 124 in 2011.



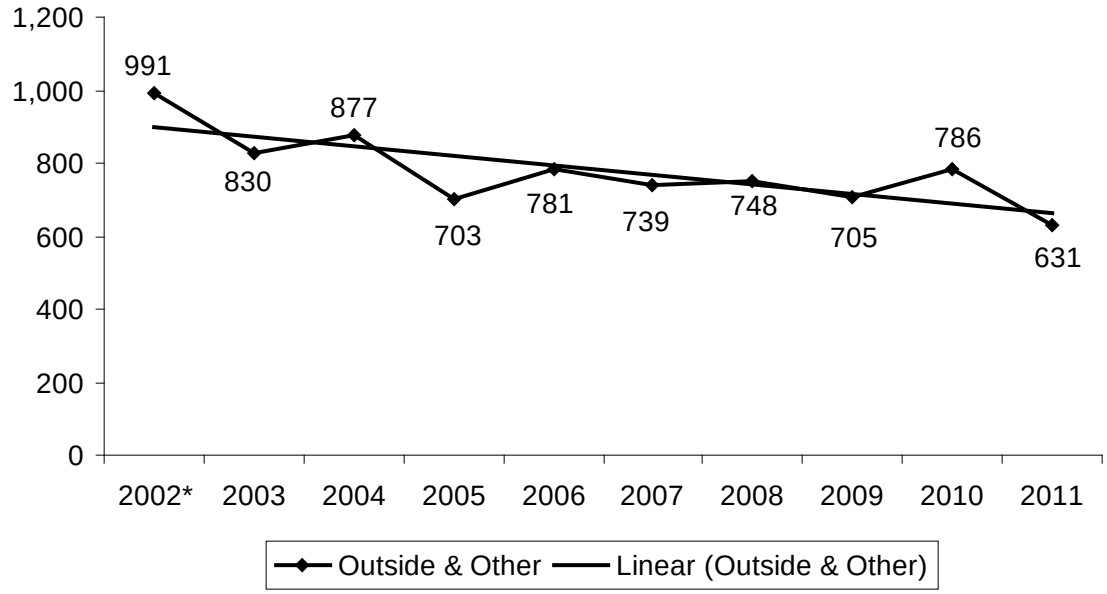
*2002 was the 1st full year of version 5 with a new definition of arson with 'suspicious' eliminated.

Outside and Other Arson

631 Arsons - 6 Civilian Injuries
Six hundred and thirty-one (631), or 8%, of the total outside and other fires were considered intentionally set in 2011. There were no reported civilian deaths in outside or other arsons in 2011. The six civilian injuries in outside and other arson fires accounted for 2% of the total civilian injuries and 12% of civilian injuries in all outside and other fires. There were no reported fire service injuries. The estimated dollar loss for these arsons was $28,416. The average loss per outside and other arson was $45.

In 2011, 196 outside and other fires were still listed as 'Cause Under Investigation.' There were also 1,299 outside and other fires where the "Cause of Ignition" was listed as 'Undetermined'.

Outside & Other Arsons by Year 2002 - 2011



*2002 was the 1st full year of version 5 with a new definition of arson with 'suspicious' eliminated.

Outside & Other Arsons Drop

Outside and other arsons fell in 2011. These 631 arsons are a decrease of 155, or 20%, from the 786 reported in 2010. Brush arsons decreased by 131, or 31%; outside rubbish arsons decreased by two, or 2%; special outside arsons decreased by 15, or 10%; cultivated vegetation or crop arsons decreased by three, or 50%; and unclassified arsons decreased by four, or 4%, from those reported in 2010.

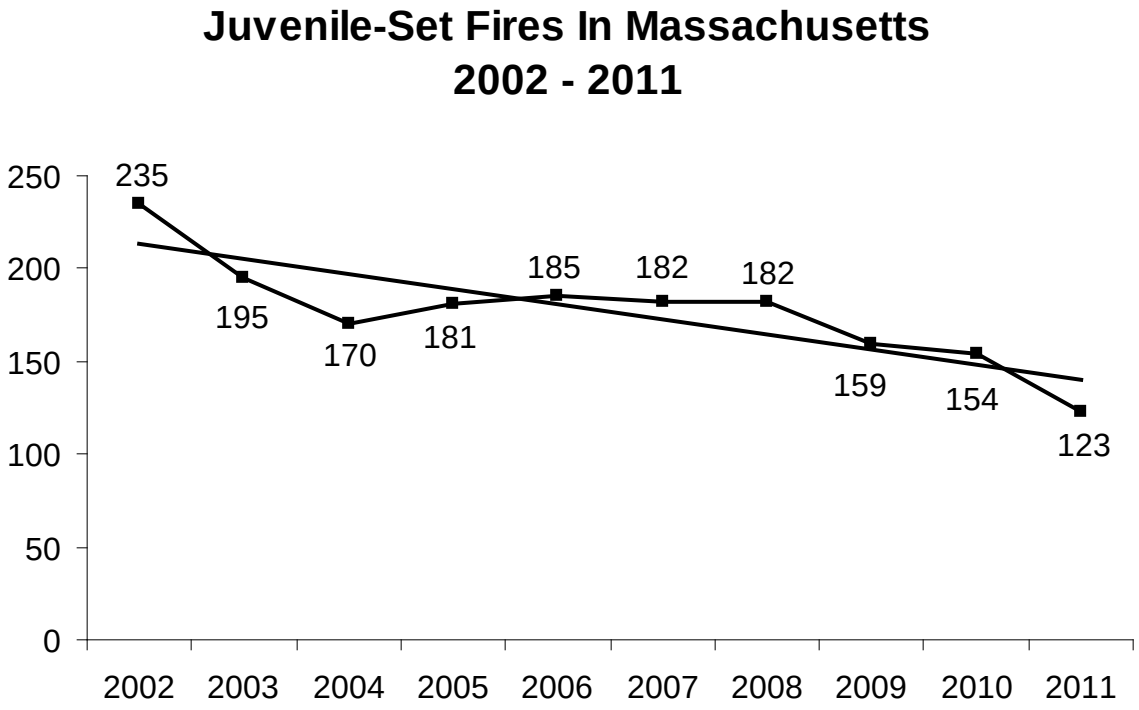
Boston Had Largest Loss Arsons in 2011

There were two arsons where the dollar loss was greater than $1 million in 2011. There were another 21 arsons where the dollar loss was between $100,000 and $999,999.

- On October 17, 2011, at 12:48 a.m., the Boston Fire Department was called to an intentionally set fire at a 30-unit apartment building. A possibly mentally disabled person opened the gas valves on their stove and ignited them with a lighter. No one was injured at this fire. Detectors were present and they alerted the other occupants of the building. The building was not sprinklered. Damages from this fire were estimated to be $4 million.

Juvenile-set Fires

Children Playing With Fire Caused 122 Fires, 15 Civilian Injuries & $765,678
In 2011, children playing[38] with matches, lighters and other heat sources caused 122 reported fires, 15 civilian injuries, three fire service injuries and an estimated dollar loss of $765,678. The average dollar loss per fire was $6,276. These fires were down by 21% from 154 incidents in 2010. Over the past decade however, there has been an overall downward trend in reported juvenile-set fires.



60% of Juvenile Firesetters Were Male
The field Motivation Risk Factors[39] is an attempt to identify the possible motivation for the subject to burn, or attempt to burn, any real or personal property. In 2011, 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-

[38] 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.

[39] 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.

parent family. When age was given, the majority of the subjects were between 12 and 17 years old. When gender was completed, 60% of the children were listed as males.

56 Structure Fires – 1 Motor Vehicle Fire – 65 Outside & Other Fires
The 122 fires set by children and youth included: 56 structure fires, 38 brush, tree or grass fires, 11 special outside fires, six outside rubbish fires, one motor vehicle fire, and 10 fires that could not be classified further. The large drop can be attributed to the drop in brush fires overall.

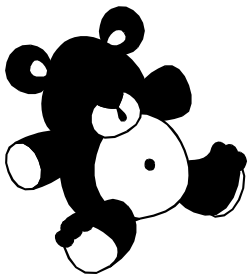
Juvenile-set Fires Cause 15 Civilian Injuries
Fifteen (15) civilian injuries occurred in the 122 fires set by juveniles. Of these 15 civilian injuries 10 where females and five were males. Only four of the people hurt were under the age of 18. Seven (7) were injured trying to extinguish the fire and only one of the youths that was injured was actually involved in starting the fire.

38% of All Juvenile-set Building Fires Occur in 1- or 2-Family Homes
Thirty-eight percent (38%) of the 53 building fires caused by juveniles occurred in one or two-family homes; 26% occurred in multi-family homes; 9% occurred in high schools, junior high schools or middle schools, with another 6% occurring in elementary schools. Thirty percent (30%) of the juvenile-set fires started in bedrooms; 15% began in bathrooms; and 6% began each in kitchens and unclassified outside areas.

60% of Structure Fires Set by Juveniles Using Smoking Materials
Sixty percent (60%) of juvenile-set fires were started by smoking materials[40].
Forty-two percent (42%) of the structure fires set by children were started with lighters. Sixteen percent (16%) of the structure fires were started using matches. Heat from other open flames or smoking materials caused 9% of these fires. Hot embers or ashes were the heat source for 6% and candles were the cause in 4% of juvenile-set fires in 2011. Fireworks, flames or torches used for lighting and unclassified hot or smoldering objects were each the cause in 3% of the juvenile-set fires. Cigarettes, unclassified explosives, radiated or conducted heat from operating equipment, and incendiary devices each caused 2% 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 Home on Fire in Holyoke

- On April 16, 2011, at 2:39 p.m., the Holyoke Fire Department was called to a fire at a six-unit apartment building caused by a 4-year old child playing with a cigarette lighter. Three (3) civilians and one firefighter were injured at this fire. Smoke detectors were present but failed to alert the occupants; and the building was not sprinklered. Damages were estimated to be $120,000. This was one of the largest loss juvenile-set fires in Massachusetts in 2011.



[40] 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.
- 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. When a child is old enough, let him or her light the candles while you watch. It is only safe for children to use fire when adults are present.
- If your child seems overly curious about fire or has set a fire, call your local fire department and ask if they have a juvenile firesetting intervention program. Don't assume the child will 'grow out of it.' Juvenile firesetting is dangerous and must be addressed by trained professionals.

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

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

Cooking Fires

Cooking Caused 11,859 Fires, 3 Civilian Deaths & 76 Civilian Injuries
Unattended cooking, other unsafe cooking practices and defective cooking equipment caused 11,859 fires, three civilian deaths, 76 civilian injuries, 25 firefighter injuries and an estimated dollar loss of $9.4 million. The average dollar loss per fire was $795. Cooking fires accounted for 41% of the total 29,110 fires that occurred in 2011.

Ninety-nine percent (99%) of the fires caused by cooking occurred in structures. The 11,859 fires included: 11,726 structure fires, 40 special outside fires, two brush fires, one motor vehicle fire, and 90 fires that could not be classified further.

Confined Cooking Fires Account for 39% of Total Fires
There were 11,295 cooking fires confined to a non-combustible container. These 11,295 fires represent 39% of the total 29,110 fires that occurred in Massachusetts in 2011. This is the largest single cause of fires in Massachusetts. Confined cooking fires increased by 2% from the 11,032 reported in 2010.

81% of Cooking Fires in Buildings Were Unintentional
In 878, or 81%, of the 1,085 cooking fires in building fires where the 'Cause of Ignition' was reported, it was reported as unintentional. Five percent (5%) of these fires were the result of a failure of equipment or heat source. Two percent (2%) of the reported cooking fires were classified as intentional. In 10% of cooking fires, the cause of ignition was undetermined. Ten thousand six hundred and twenty-seven (10,627), or 90%, of all cooking fires were fires contained to non-combustible containers that did not require having a cause reported.[41]

Unattended Cooking Starts 9% – Stand by Your Pan!
Human error was responsible for the majority of cooking fires. Nine percent (9%) of cooking fires, where 'Factors Contributing to Ignition' was completed, were caused by unattended cooking; 3% were caused by the misuse of materials or products; 3% were caused by combustibles left too close to the cooking equipment; another 3% each started when the equipment was accidentally turned on or not turned off and a failure to clean the cooking equipment; abandoned or discarded cooking materials caused 2% of these fires. Ninety percent (90%) 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 76 cooking fire injuries, 45% of victims were male and 55% were female. Four percent (4%) of victims were under age 10; 1% of the victims were between the ages of 10-14; 8% were 15-24; 24% were 25-34; 11% were 35-44; 20% were 45-54; 16% were 55-64; 3% were 65-74; 7% 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.

81% of Victims in Room or Area of Fire Origin
Of the 62 cooking fire injuries where location at ignition is known 81% of the victims were injured in the room or area of fire origin. Forty-eight percent (48%) were intimately involved with the ignition; 32% of victims were in the room or space of fire origin but not involved; 3% were not in the area of origin but involved, most likely these are the people who initially left the cooking unattended; and 16% were not in the area of origin and not involved.

[41] 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.

59% of Cooking Injuries Occurred When Trying to Control Fire

Fifty-nine percent (59%) of cooking injuries occurred when trying to control the fire. Of the 56 cooking fire injuries for which activity at time of injury was known, 59% of victims were attempting to control the fire; of the 33 victims injured while attempting to control the fire 58% were male. Seven percent (7%) were unable to act; 7% were attempting to return to the vicinity of the fire before the fire was under control; 5% were sleeping at the time of injury; 4% of the victims of cooking fire injuries were escaping; 2% were injured making a rescue attempt; 2% were attempting to return to the vicinity of the fire after the fire was under control; and 14% of the victims activities were classified as 'Other'. This data has lead to our "Put A Lid On It" cooking safety campaign.

39% 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 the great risk of being overcome by toxic smoke. Of the 67 cooking fire injuries where nature of injury was known, 39% suffered only from smoke inhalation or other hazardous fumes inhalation; 7% suffered from burns and smoke inhalation; 39% of victims suffered only from thermal burns; 7% received scald burns. Cardiac symptoms, a cut or laceration, disorientation, emotional or psychological stress and a mental disorder were all 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 2011.

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 4% of Fires and 7% of Deaths

During 2011, 1,197, or 4%, of the 29,110 reported fire incidents were caused by the improper use or disposal of smoking materials. These 1,197 fires caused four, or 7%, of the 54 civilian deaths and 4, or 10%, of the 42 structure fire deaths, 32 civilian injuries, 36 fire service injuries, and an estimated dollar loss of $10 million. The average dollar loss per fire was $8,393. The number of smoking fires decreased by 685, or 36%, from 1,882 in 2010.

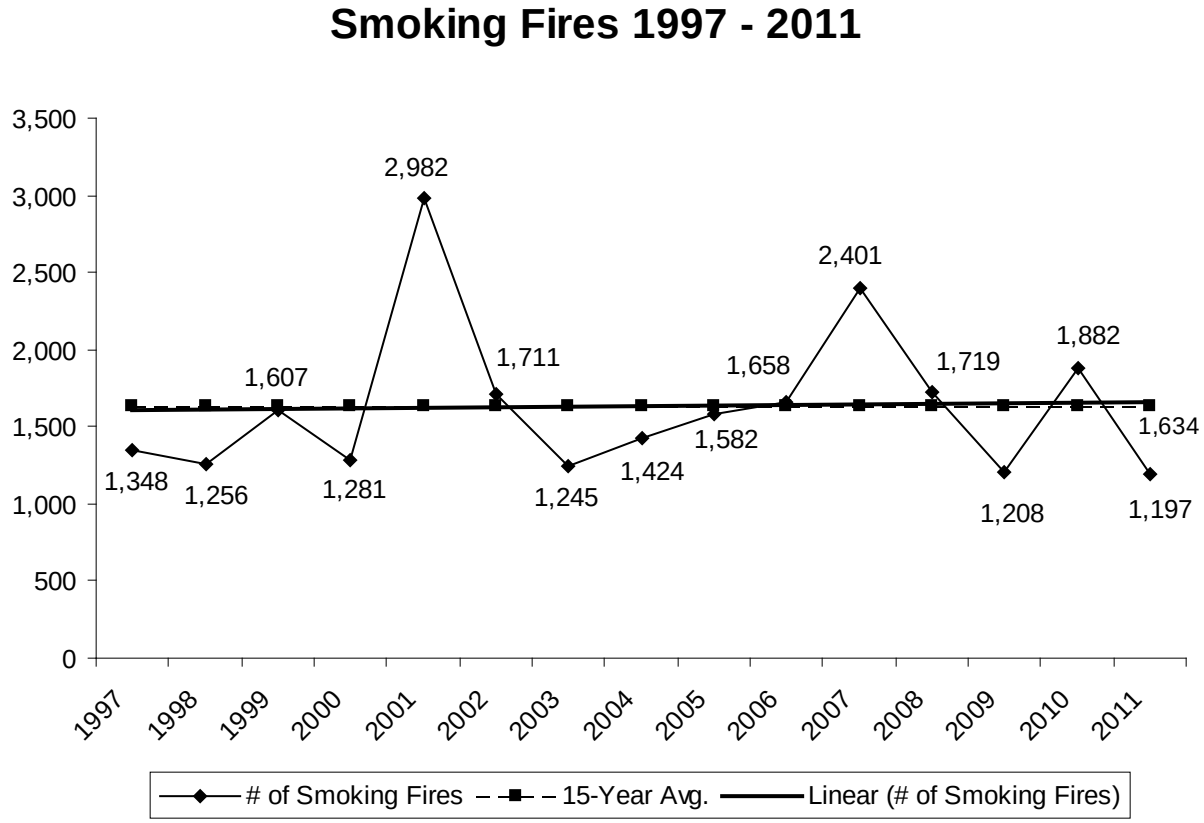
418 Structure Fires - Down 28% From 2010

The 1,197 fires caused by smoking included: 418 structure fires, down 161 from 579, or 28%, in 2010; 30 motor vehicle fires, up five from 25 in 2010; 565 tree, brush or grass fires, down 397 from 962 in 2010; 59 trash or rubbish fires, down 20 from 79 in 2010; 63 special outside fires, down 50 from 113 in 2010; five cultivated vegetation or crop fires, down three from eight in 2010, and 57 fires that could not be classified further, down 59 from 116 in 2010.

Total Smoking Fires Down 36%

The total number of fires caused by smoking has decreased by 685, or 36%, from 2010. The largest decrease came in brush fires, with a decrease of 397, or 41%, from the 962 reported in 2010. Structure fires also saw a significant decrease in fires started by smoking materials. They decreased by 161, or 28%, from the 579 reported in 2010.

Over the last 15-year period, smoking fires have had a slightly increasing trend. The 2011 number is the lowest number of recorded smoking fires on record since 1986 and is far below the 15-year average or 1,634 smoking fires. In 2010, the weather conditions were dry and made it easier for brush type fires to get started as we can see in the 76% increase statewide in brush fires. In 2007 there was another sudden spike in the number of smoking-related fires, predominantly outdoor brush fires caused by smoking materials.



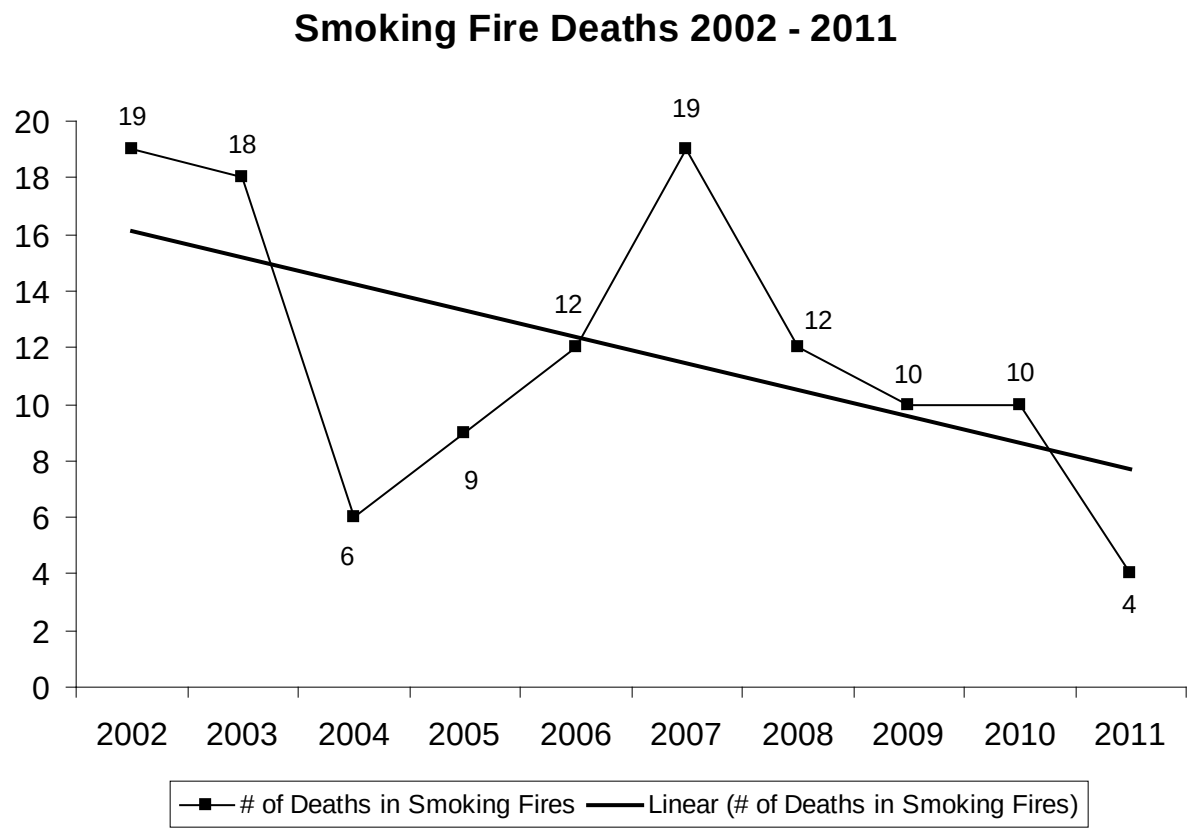
86% of All Smoking Building Fires Occurred in Residences
Eighty-six percent (86%) of all smoking-related building fires occurred in residential occupancies. The occupancies with the next highest percentages of smoking-related structure fires in Massachusetts in 2011 were businesses at 4%, storage facilities at 3% and public assembly facilities also 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 is the Third Leading Cause of Fire Deaths - Elders at Risk
The 418 smoking-related structure fires caused all four of the smoking-related fire deaths, 32 civilian injuries, 36 fire service injuries, an estimated dollar loss of $10 million and an average dollar loss of $23,747. Smoking fires accounted for 10% of the fatal structure fires and 10% of structure fire deaths in 2011. The unsafe and improper use of smoking materials caused 10% of residential structure fire deaths and 11% of fatal residential structure fires. None of the 21 home fire deaths to seniors (over 65) were caused by smoking, compared with 60% in 2010.

2011 Smoking Fire Deaths
In 2011, four people died in smoking-related fires of all types. These four deaths are 16% below the 10-year average of 13 smoking-related fire deaths per year since 2002. After high-water marks of 19 deaths in 2002 and 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.



Working Detectors in All 4 Fatal Smoking Fires
All four smoking fatal fires occurred in a structure where smoke detectors were present and operated. However, three 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 involved in starting it. The smoke detectors helped prevent these fires from claiming any additional lives. In the two other fires, the smoking-related deaths occurred where smoke detector status was undetermined.

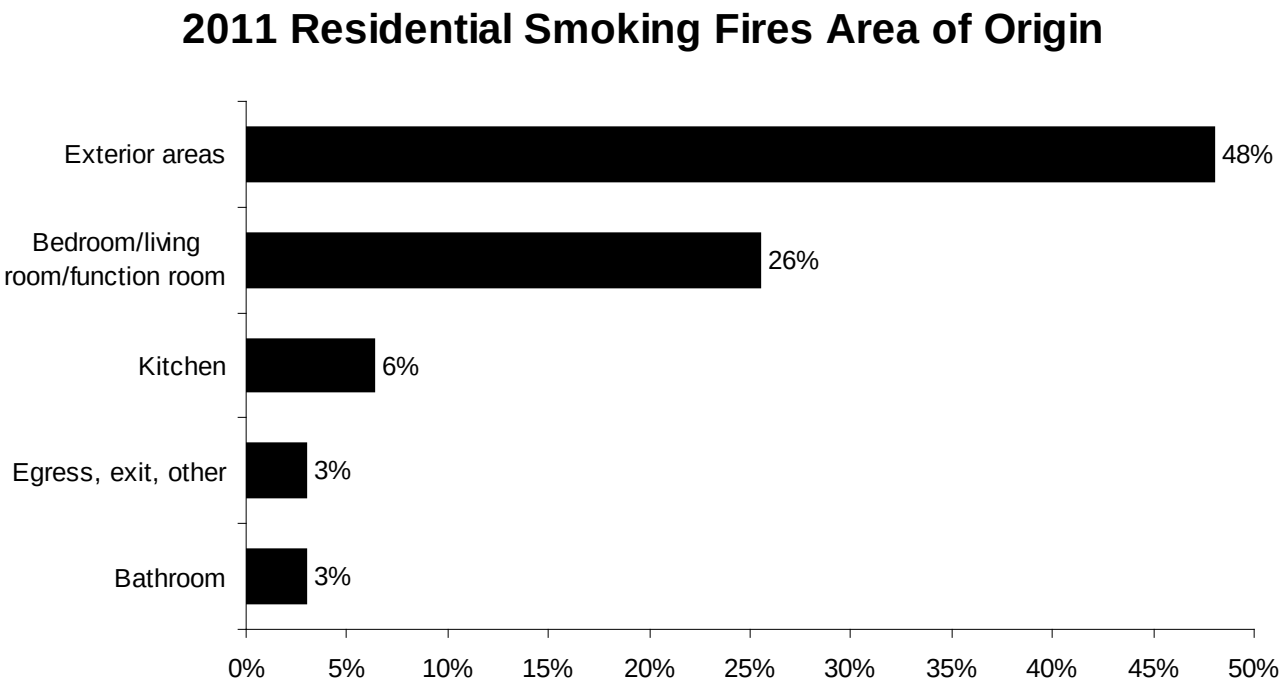
For a listing of all the smoking-related fire deaths in 2011, please refer to the *2011 Massachusetts Fire Deaths* section of this report.

Smoking on Oxygen
The use of oxygen while smoking caused two of the smoking-related structure fire deaths in 2011. These two deaths occurred in two separate fires in New Bedford and Taunton. Both occurred in apartment buildings.

86% of Building Smoking Fires Occurred in Residences
Of the 392 smoking-related building fires, 333, or 86%, occurred in residences. Smoke detectors operated in 38% of the smoking-related residential structure fires. Detectors were present but failed to operate in 6% of these incidents. No smoke detectors were present in 13% of these incidents. In 16%, the fire was too small to activate the smoke detector. It was undetermined if the detectors were present or if they operated in 27% of these fires.

Almost 1/2 of Smoking Fires in the Home Start in the Exterior
It is interesting to note that almost half (48%) 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 building 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 2011. These exterior area of origins accounted for 160, or 48%, of all residential smoking fires. Twenty percent (20%) occurred on exterior balconies or porches; unclassified outside areas, exterior stairways, and exterior wall surfaces each accounted for 6%; courtyards, patios or terraces accounted for 5%; and the remaining outside areas comprised 4% of the areas of origin for residential smoking fires in 2011.

Twenty-six percent (26%) of residential smoking fires occurred in bedrooms, living rooms or function rooms; 14% occurred in bedrooms; 8% in living rooms and 4% 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 15% 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. Fourteen percent (14%) 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 2011, 4% 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."[42]

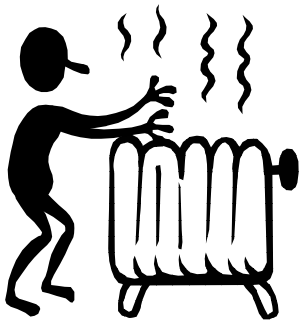
Oxygen can saturate clothing, rugs, upholstery, and facial hair increasing the fire danger even when the home oxygen system is "turned off".

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 Coming 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 will take 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.

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

Heating Equipment Fires



2,369 Fires, 3 Civilian Deaths & 14 Civilian Injuries
Massachusetts fire departments reported that some form of heating equipment was involved in 2,369, or 13%, of the 18,070 building fires in 2011. These heating equipment fires caused three civilian fire deaths, 14 civilian injuries, 35 fire service injuries, and an estimated dollar loss of $9 million. The average loss per fire was $3,812. This is an 11% decrease from the 2,652 fires reported in 2010.

94% of All Heating Fires Were Confined Fires
In 2011, 94% of heating fires were confined to the container of origin. One thousand three hundred and ninety-six (1,396), or 63% of all heating related building fires in Massachusetts, were coded as 'fuel burner/boiler malfunction, fire contained'. Eight hundred and eleven (811), or 37%, were determined to be chimney or flue fires, confined to the chimney or flue.

The number of contained heating fires fell in 2011. Confined heating equipment fires decreased by 293 incidents, or 12%, from the 2,500 reported in 2010.

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	1,409	59%	5	1	0	1	$1,066,339
Confined	*1,396*	*59%*	*4*	*1*	*0*	*0*	*282,839*
Furnace, central heating unit	*7*	*0.3%*	*0*	*0*	*0*	*1*	*665,000*
Boiler (power, process, heating)	*6*	*0.3%*	*1*	*0*	*0*	*0*	*118,500*
Chimney, flue	821	35%	8	1	0	0	1,088,758
Confined	*811*	*34%*	*7*	*1*	*0*	*0*	*148,758*
Fireplace, chimney, other	*5*	*0.2%*	*1*	*0*	*0*	*0*	*152,400*
Chimney, brick, stone, masonry	*2*	*0.1%*	*0*	*0*	*0*	*0*	*40,000*
Chimney, metal, incl. stovepipe	*2*	*0.1%*	*0*	*0*	*0*	*0*	*135,000*
Chimney connector, vent connect.	*1*	*0.04%*	*0*	*0*	*0*	*0*	*3,000*
Fixed, local heating	44	2%	2	4	0	0	697,602
Stove, heating	*39*	*1%*	*2*	*4*	*0*	*0*	*676,102*
Furnace, local heat. unit, built-in	*5*	*0.2%*	*0*	*0*	*0*	*0*	*21,500*
Water heater	11	0.5%	0	1	0	0	22,764
Fireplace	17	1%	2	3	0	0	973,561
Fireplace insert/stove	*9*	*0.4%*	*1*	*2*	*0*	*0*	*812,000*
Fireplace, masonry	*7*	*0.3%*	*1*	*1*	*0*	*0*	*161,461*
Fireplace factory built	*1*	*0.04%*	*0*	*0*	*0*	*0*	*0*
Space heaters	17	1%	14	3	0	2	952,400
Portable space heaters	*11*	*0.5%*	*2*	*3*	*0*	*0*	*214,900*
Heating, vent. & air cond., other	32	1%	3	0	0	0	2,701,850
All other reported equipment	18	1%	1	1	0	0	1,300,900
Total	**2,351**	**100%**	**34**	**13**	**0**	**3**	**$7,730,910**

Central Heating Units

1,409 Fires, 1 Civilian Death & 5 Fire Service Injuries

Central heating units[43] were involved in 1,409 structure fires in 2011. These fires caused one civilian death, one civilian injury, five fire service injuries, and an estimated dollar loss of $1.1 million. The average loss per fire was $757. This is a 17% decrease from the 1,651 fires reported the previous year. One thousand three hundred and sixty-two (1,362) of these fires involving central heating units were confined fires.

6% Caused by Mechanical Failures or Malfunctions

Of the 154 central heating unit fires where *Factors Contributing to Ignition* was completed, 6% were caused by mechanical failures or malfunctions; another 6% were caused by backfires; 3% were caused by automatic control failures; another 3% were

[43] 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.

caused by a failure to clean the equipment; and 2% were caused when the equipment was not being operated properly.

Twenty-six (26), or 38%, of the 68 central heating unit fires where the power source was known, were caused by liquid-fueled equipment. These fires caused one civilian death, one civilian injury and an estimated dollar loss of $198,750. The average loss per fire was $7,644.

Twenty-three (23), or 34%, of these fires were caused by electrically powered equipment[44]. Fifteen (15), or 22%, of the central heating unit fires were caused by gas-fueled equipment; and four, or 6%, were caused by solid-fueled equipment.

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

821 Fires Caused 8 Fire Service Injuries & $1.1 Million in Damages

Eight hundred and twenty-one (821) building fires involved chimneys[45], gas vent flues, chimney connectors or vent connectors. These 821 fires caused one civilian injury, eight fire service injuries and an estimated dollar loss of $1.1 million. The average dollar loss per fire was $1,326. This is a 7% decrease from the 877 fires reported the previous year.

Eight hundred and eleven (811) of these chimney or flue fires were confined to the chimney or flue. In 766 of these fires the *Equipment Involved in Ignition* wasn't reported or they were reported using only a Basic Module.

Twenty-three percent (23%) of the 170 fires where *Factors Contributing to Ignition* was reported, were caused by a failure to clean the creosote buildup. Two percent (2%) were caused by operational deficiencies; and 1% each were caused when combustibles were too close to the chimney or flue or were caused by unclassified mechanical failures or malfunctions.

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

[45] 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.

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

45 Fires, 4 Civilian Injuries & $712,602 in Estimated Losses
Forty-five (45) fixed heater structure fires caused four civilian injuries, two fire service injuries and an estimated dollar loss of $712,602. The average dollar loss per fire was $17,503. This is a 24% decrease from the 59 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.

13% Caused by Being Too Close to Combustibles
Thirteen percent (13%) of fixed heater fires were caused by combustibles being too close to the heat source. Unattended equipment caused 11% of these fires. Unclassified mechanical failures, leaks or breaks, installation deficiencies and the equipment being accidentally turned on and not turned off each caused 4% of the fixed heater fires in 2011.

Electrical powered fixed heaters caused 20, or 44%, of these fires and were responsible for two civilian injuries and a dollar loss of $232,602. Thirteen (13), or 29% of fixed heater fire incidents in 2011, involved solid fueled fixed heaters, 12 of which were wood fueled. These fires caused one civilian injury, two fire service injuries and an estimated dollar loss of $338,000. Nine (9), or 20%, were caused by gas-fueled fixed heaters and they were responsible for one civilian injury and a dollar loss of $136,500. There were three fires where the power source of the fixed heater was liquid fueled. These three fires caused an estimated dollar loss of $5,500.

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.

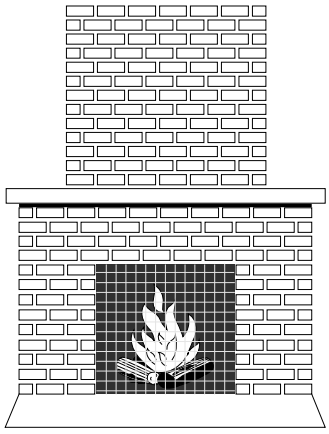
Fires Caused by Hot Water Heaters

11 Fires Caused 1 Civilian Injury & $250,400 in Damages
Eleven (11) structure fires were caused by hot water heaters[46] in 2011. These 11 fires caused one civilian injury and an estimated dollar loss of $250,400. The average dollar loss per fire was $22,764. This is a decrease of one or 8% from the previous year. Combustible being placed too close to the water heater caused 36% of these fires and electrical failures and arcing also caused 36%. Forty-five percent (45%) were started by the water heater itself; 23% were started by sparks, embers or flames from the water heater and 18% of these fires were started by arcing.

Sixty-four percent (64%) were identified as electric powered water heaters and 36% were identified as gas fueled water heaters.

Fires Caused by Fireplaces

17 Fires, 3 Civilian Injuries & 2 Fire Service Injuries
Seventeen (17) fireplaces[47] were involved in Massachusetts structure fires in 2011. These 17 fires caused three civilian injuries, two fire service injuries and an estimated dollar loss of $973,561. The average dollar loss per fire was $57,268. This is a 19% decrease from the 21 fires reported the previous year.



Combustibles were placed too close to the fireplace caused 29% of fireplace fires. Eighteen percent (18%) were caused by operational deficiencies; and the fireplace being worn out and construction

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

deficiencies were each the cause of 12% of fireplace fires in 2011.

Fifteen (15), or 94%, of fireplaces involved in fires were solid-fueled. One (1), or 6%, of these fireplaces were gas fueled.

Space Heater Fires

17 Fires, 2 Civilian Deaths, 3 Civilian Injuries & 14 Fire Service Injuries
Space heaters of all kinds accounted for 17 fires and caused two civilian deaths, three civilian injuries, 14 fire service injuries, and an estimated dollar loss of $952,400. The average dollar loss per fire was $56,024. This is a 26% decrease from the 23 fires reported the previous year.

Portable Space Heater Fires

11 Fires, 3 Civilian Injuries, 2 Fire Service Injuries & $214,900 in Losses
Eleven (11) portable space heater[48] fires caused three civilian injuries, two fire service injuries and an estimated dollar loss of $214,900. The average dollar loss per fire was $19,536. This is a 22% increase from the nine fires reported the previous year. The heater being too close to combustibles caused 36% of the space heater fires in 2011.

Nine (9), or 82%, of the portable heaters involved in fires were electric; and two, or 18%, were liquid fueled space heaters.

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 (2007– 2011), there have been 63 reported residential fires started by portable space heaters with six civilian deaths, 12 civilian injuries, 16 fire service injuries and $3.9 million in estimated losses resulting from these fires. That is equal to one fire death for every 11 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.
- 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.

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

- 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 527 CMR 30.00 and 248 CMR.

Fires Caused by HVAC, Other

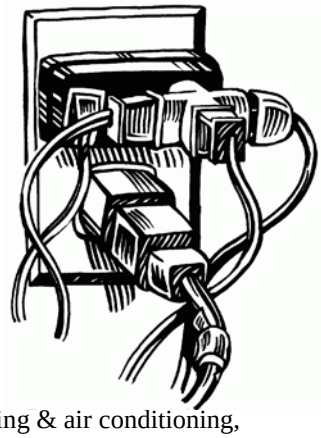
32 Fires 3 Fire Service Injuries & $2.7 Million in Damages
Thirty-two (32) structure fires were caused by unclassified heating, ventilation and air conditioning equipment (HVAC, other)[49] in 2011. These 32 fires caused three fire service injuries and an estimated dollar loss of $2.7 million. The average dollar loss per fire was $84,433. This is a 14% decrease from the 37 fires reported the previous year.

Combustibles placed too close to the equipment, unclassified mechanical failures and unclassified electrical failures were each responsible for 6% of these fires in 2011.

Eighty-four percent (84%) of the 32 fires involving unclassified heating, ventilating or air conditioning equipment were identified as electric powered. Six (6%) were identified as liquid-fueled equipment; 3% were identified as gas-fueled equipment; 3% were powered by geothermal energy and another 3% had an unclassified power source.

Electrical Fires

760 Electrical Fires Caused 14 Civilian Deaths
Local fire departments reported that there were 760 structure fires caused by electrical problems in Massachusetts in 2011. These fires caused 14 civilian deaths, one fire service death, 27 civilian injuries, 81 fire service injuries and an estimated dollar loss of $30.7 million, accounting for 14% of the total dollar loss to fire in 2011. The average loss per fire was $40,337.



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

Electrical Fires Were Leading Cause of Fire Deaths
Electrical fires were the leading cause of structure fire deaths in 2011. Thirteen (13) fatal electrical fires, or 33% of fatal structure fires, caused 14, or 33%, of structure fire deaths in 2011. In 2005, electrical fires were also the leading cause of fire deaths, causing nine, or 17%, 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 1/3 of Electrical Fires[50]
Over one-quarter of electrical fires were caused by unspecified electrical failure. One hundred and fifty (250), or 33% of electrical fires, were caused by an unclassified electrical failure or malfunction. One hundred and twenty-two (122), or 16%, were caused by an unspecified short circuit arc. Six percent (6%), or 45 of these fires, had a short circuit arc from defective or worn insulation. Twenty-five (25), or 3%, of electrical fires were caused by an arc from a faulty contact or broken conductor. Mechanical failures caused 16, or 2%, of these electrical fires. Another 2%, or 16 of these fires, were caused by overloaded equipment. Fifteen (15), or 2%, of electrical fires were caused by a short circuit arc from mechanical damage. An arc or spark from operating equipment caused 14, or 2%, of these fires. The heat source being too close to combustibles caused 13, or 2%, of these fires. Water caused a short circuit arc in another 13, or 2%, of electrical fires in 2011.

Electrical Equipment Fires

Two hundred and ninety-eight (298), or 39%, of the 760 electrical fires reported the type of equipment involved in ignition. These 298 fires caused eight civilian deaths, one fire service death, 14 civilian injuries, 34 fire service injuries and an estimated dollar loss of $11 million. The average dollar loss per fire was $36,941.

90 Electrical Service, Wiring, Meter Boxes & Circuit Breaker Fires
The most common reported equipment involved in the ignition of electrical fires was electrical service, outside utility wires, branch circuits consisting of wiring inside a building, meter boxes, electrical panels and circuit breakers accounting for 90, or 30%, of the fires. These fires caused three civilian deaths, one fire service death, eight civilian

[50] *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%.

injuries, 20 fire service injuries and an estimated dollar loss of $4.2 million. The average dollar loss per electrical wiring fire was $46,369.

Lamp, Lighting Fixtures Involved in 45 Fires
Lamps and other lighting fixtures were involved in 45, or 15%, of electrical equipment fires where equipment involved in ignition was reported. These fires caused two civilian deaths, two fire service injuries and an estimated dollar loss of $506,000. The average loss per fire was $11,244.

31 Fires Involving Kitchen & Cooking Equipment
Thirty-one (31) electrical equipment fires involving kitchen or cooking equipment caused an estimated dollar loss of $309,650. These fires accounted for 10% of the structure fires involving electrical equipment when equipment involved in ignition was reported. The average dollar loss per fire was $9,989.

Ventilation & Air Conditioners Caused 29 Fires
Twenty-nine (29), or 10%, of the structure fires involving known electrical equipment were caused by air conditioning or ventilation units. These fires caused three civilian injuries, six fire service injuries and an estimated dollar loss of $909,400. The average dollar loss per fire was $31,359.

Transformer, Generator, Battery or Chargers Caused 23 Fires
Transformers, generators, batteries and chargers were involved in 23, or 8%, of the electrical fires where equipment involved in ignition was reported. These fires caused one fire service injury and an estimated dollar loss of $1.2 million. The average loss per fire was $52,231.

Household Appliances (Non-Cooking) Caused 21 Fires
Non-cooking household appliances such as clothes dryers, washing machines and trash compactors, caused 21, or 7%, of the 298 electrical structure fires where equipment involved in ignition was reported. These 21 fires caused an estimated $155,000 in damages. The average dollar loss was $7,381.

Cords or Plugs Caused 19 Fires
Nineteen (19), or 6%, of the structure fires where electrical equipment was involved, were caused by cords or plugs. These fires caused three civilian deaths, three civilian injuries, three fire service injuries and an estimated dollar loss of $811,500. The average dollar loss per fire was $42,711.

17 Fires Involving Unspecified Electrical Distribution Equipment
Seventeen (17) electrical equipment fires involving unspecified electrical distribution equipment caused two fire service injuries and an estimated dollar loss of $2 million. These fires accounted for 6% of the building fires involving reported electrical equipment. The average dollar loss per fire was $119,424.

Heating Equipment Caused 12 Fires
Twelve (12), or 4%, of the structure fires involving known electrical equipment were caused by various heating equipment. These electrical fires involving heating equipment caused an estimated dollar loss of $586,450. The average dollar loss per fire was $48,871.

7 Fires Involving Electronic & Other Electrical Equipment
Seven (7) electrical equipment fires involving electronic and other electrical equipment caused an estimated dollar loss of $195,500. These fires accounted for 2% of the structure fires involving reported electrical equipment. The average dollar loss per fire was $27,929.

2 Fire Involving Decorative Lighting & Signs
Two (2) electrical fires involving decorative or landscaping lights or electric signs caused an estimated dollar loss of $80,000. This fire accounted for 1% of the structure fires involving electrical equipment. The average dollar loss per fire was $40,000.

2 Fires Involving Shop Tools & Industrial Equipment
Two (2) electrical fires involving shop tools or industrial equipment caused an estimated dollar loss of $50,250. These fires accounted for 1% of the structure fires involving electrical equipment. The average dollar loss per fire was $25,125.

462 Unspecified Electrical Equipment Fires Caused 6 Civilian Deaths
There were 462 electrical fires where the piece of equipment involved in ignition was unknown or not reported. These 462 fires caused six civilian deaths, 13 civilian injuries, 47 fire service injuries and an estimated dollar loss of $19.6 million. The average dollar loss per fire was $42,528.

Large Loss Electrical Fire
There was one large loss ($1 million+) electrical fire in 2011. This fire caused an estimated $1.4 million in damages, accounting for 5% of the total dollar of electrical structure fires in 2011. There were also 94 fires with estimated damages between $100,000 and $999,999.

- On May 14, 2011, at 12:26 p.m., the Pittsfield Fire Department was called to an electrical fire at 22-unit apartment building. The fire was started by arcing in a first floor wall assembly area. One (1) firefighter was injured at this fire. Detectors were present and alerted the occupants of the building. The building was not sprinklered. Damages from this fire were estimated to be $1.4 million.

Electrical Fire with Most Civilian Injuries
- On March 17, 2011, at 2:17 a.m., the Brockton Fire Department was called to a fatal electrical fire at a three-unit apartment building. Arcing from electrical wiring in the kitchen started the fire. The victim, a 41-year old woman was most likely sleeping at the time of the fire. Four (4) other civilians and one firefighter were injured at this fire. Detectors were present and alerted the other occupants to the fire. Sprinklers were not present. Damages were estimated to be $85,000.

Electrical Fire with Most Fire Service Injuries

- On April 11, 2011, at 3:16 a.m., the Chelsea Fire Department was called to an electrical fire in a single-family home. The fire was caused by an unspecified electrical malfunction an unenclosed porch. Six (6) firefighters were injured at this fire. Only one of the six injuries was severe enough for transport to a local hospital. Detectors were present and alerted the occupants. Sprinklers were not present. This fire spread to three neighboring buildings. Combined damages from this fire were estimated to be $517,000

Over 3/4 of Electrical Fires Occurred in Residential Occupancies

Over three-quarters of electrical fires occurred in residential occupancies. Of the 760 electrical fires, 596, or 78%, occurred in residential occupancies. Sixty-nine (69), 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 27, or 4%, of these fires. Institutional buildings such as hospitals and asylums had 23, or 3%, of the electrical fires occur on their premises. Storage properties accounted for 20, or 3%, of these fires. Educational properties accounted for 13, or 2%, of Massachusetts' electrical fires in 2011. Manufacturing or processing facilities had five, or 1%, of these incidents. Another five, or 1%, of Massachusetts' electrical fires occurred in basic industry properties such as laboratories, communications centers, electrical distribution sites and utility and distribution centers. Two (2), or less than 1%, of electrical fires occurred in special or outside properties.

18% of Electrical Fires Began in Concealed Spaces

One hundred and thirty-six (136), or 18%, of electrical fires began in concealed spaces; 7% started in the ceiling and floor assembly or crawl space between stories; 6% started in a wall assembly or concealed wall space; and 5% began in substructure areas or crawl spaces. One hundred and twenty-five (125), or 16%, of the 760 electrical fires occurred in the bedroom or living room; 11% began in the bedroom and 5% started in the living room. Eighty-nine (89), or 12%, originated in the kitchen. The bathroom accounted for 7%, or 53, of the electrical fires in Massachusetts in 2011.

Electrical Wiring Was the Item First Ignited in Almost 1/3 of Electrical Fires

Electrical wiring or cable insulation was the item first ignited in almost one-third of electrical fires. In 233, or 31%, 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 104, or 14% of these fires, a structural member or framing, was the first item ignited. Appliance housings or casings were involved in 37, or 5%, of these fires. Interior wall coverings were the item first ignited in 31, or 4%, of electrical fires in 2011. Unclassified structural components and thermal or acoustical insulation within a wall, partition or ceiling were each the item first ignited in 29, or 4% of electrical fires in 2011.

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.

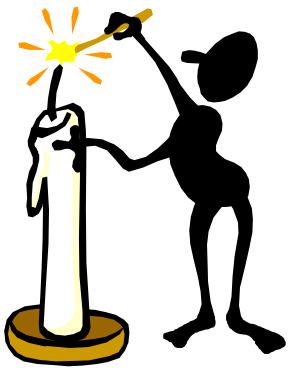
Fuses and circuit breakers are safety devices. They blow or trip when the amount of current cannot safely travel through the wires, which is why frequent blowing or tripping is a warning sign. *Trying to bypass the fuse or circuit breaker protection is an invitation to danger.*

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

115 Candle Fires Caused 2 Civilian Deaths & 12 Civilian Injuries
In 2011, candles caused 115 fires of all types. These fires caused two civilian deaths, 12 civilian injuries, five firefighter injuries and an estimated dollar loss of $2.3 million in damages. There was a 20% decrease from the 142 fires of all types started by candles in Massachusetts in 2010.



95% of Candle Fires are Structure Fires
Of the 115 candles fires in 2011, 107, or 95%, were classified as structure fires. None were reported as motor vehicle fires. One (1), or 1%; was a brush fire and five, or 4%, were unclassified fires.

Candle Fires Happen Most During the Holidays
Between 2007 and 2011, the days of the year the most candle fires occurred were December 14, 19 and 25, Christmas, with eight candle fires each. December 24, Christmas Eve and November 3 each had seven candle fires; and January 9, February 6 December 12 and December 30 each had the third most candle fires during any one day of the year during the past five years with six.

Boston Has Largest Loss Candle Fire
On April 14, 2011, at 11:21 p.m., the Boston Fire Department was called to a candle fire in a three-unit apartment building. The fire started when a candle ignited an upholstered chair in the third floor living room. No one was injured at this fire. Smoke detectors were present and alerted the occupants. The building was not sprinklered. Damages were estimated to be $450,000.

94% of Candle Fires Occurred in Homes
Of the 107 candle fires that occurred in buildings, 94% were residential fires. Candles caused 101 residential building fires, two civilian deaths, 12 civilian injuries, five firefighter injuries and an estimated dollar loss of $2.3 million. Mercantile and business properties had three fires, or 3%, started by candles. Storage facilities had two candle fires, or 2%, in 2011. One (1) candle fire, or 1%, occurred in a public assembly property.

Over 1/3 of Candle Fires in Homes Occurred in the Bedroom
Of the 101 candle fires in residential structures, 35% occurred in the bedroom. Twenty percent (20%) occurred in the kitchen; 18% occurred in the living room; 8% happened in unclassified function rooms such as three-season rooms; and 6% started in the bathroom. It is all too easy to fall asleep and leave a candle burning unattended in the bedroom.

Smoke Detectors Operated in 59% of Candle Fires in Homes
Of the 101 candle fires in homes, smoke alarms operated in 59%. Smoke detectors were present but did not operate in 10% of these incidents. No detectors were present in 8% of candle fires in people's homes. Seven percent (7%) of the candle fires were too small to activate the smoke detector. In 15 incidents, or 16%, 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.

NFPA statistics show that residential candle fires have also been decreasing in the past decade from a high of 18,200 fires in 2002 to a low of 9,600 fires in 2009[51], a 47% drop. According to the Mintel International Group, the annual growth rate of the candle market average grew 5% between 2002 and 2008. So while candle sales are increasing the number of candle fires were decreasing.

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 1 Civilian Injury & $828,250 in Damages
Ninety-nine (99) clothes dryer fires caused one civilian injury and an estimated dollar loss of $858,250. The average dollar loss per fire was $8,366. Of these 99 fires, 84, or 85%, occurred in residential occupancies.

Twenty-one percent (21%) of the dryer fires were caused by a failure to clean the machines; 10% were caused by mechanical failures or malfunctions; and 3% each were caused by a leak or break or a misuse of the material or product.

59% of Dryers Were Electrical
Fifty-nine percent (59%) of the 99 dryers involved in fires were identified as having electricity as their power source. Thirty-nine percent (39%) involved gas-fueled clothes

[51] Ahrens, Marty, "Home Candle Fires," NFPA, Quincy, MA (December, 2011); pg. 1. 2007 is the most recent annual data that the NFPA has analyzed and published as of the writing of this report.

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-one percent (41%) of dryer fires identified the heat source as heat coming from the dryer itself but could not be any more specific. Twenty-seven percent (27%) of clothes dryer fires identified the heat source as radiated or conducted heat from equipment inside the dryer itself; and 8% each identified the heat source as a spark, ember or flame from inside the dryer or arcing.

55% of Clothes Dryer Fires Occurred in 1- & 2-Family Homes

Fifty-five percent (55%) of the dryer fires occurred in one- and two-family homes; 24% occurred in apartments; 9% occurred in mercantile or business properties such as laundry or dry cleaning businesses; 5% occurred in institutional properties such as nursing homes, hospitals and jails; 3% occurred in hotels and motels; 2% happened in residential board and care facilities; 1% happened in unclassified residential properties; and less than 1% occurred at educational 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.

Billerica Has Largest Loss Clothes Dryer Fire

- On March 16, 2011, at 1:07 a.m., the Billerica Fire Department was called to a dryer fire in a single-family home. The fire began in a gas-powered clothes dryer in a first floor laundry room. No one was injured at this fire. Damages from this fire were estimated to be $200,000. It was undetermined if detectors were present and there were no sprinklers in the building.

Fireworks Incidents

76 Incidents Involving Fireworks Caused 9 Civilian Injuries
There were 76 fire and explosion incidents reported that involved fireworks in 2011. This is a 24% decrease from the 101 fire and explosion incidents reported in 2010. Incidents involving fireworks caused nine civilian injuries and an estimated $287,800 in property damages. The average dollar loss per fireworks incident was $8,994.

Thirty-eight percent (38%) of the fireworks incidents were brush fires, while 22% were structure fires.

A fireworks explosion without fire is coded as an Incident Type 243 – Fireworks explosion (no fires). In 2011, 44 such incidents were reported.

1/2 of Fireworks Fires Occurred the Week of July 4th
Sixteen (16), or 50%, of the 32 fireworks-caused fires in 2011 took place during the week of the 4th of July.

Largest Loss Fireworks Fire –Littleton School Bus Fire

- On July 6, 2011, at 10:53 p.m., the Littleton Fire Department was dispatched to two school buses on fire at the local middle school. The fire was caused by fireworks. No one was injured in this fire and damages were estimated at $200,100. A third school bus parked near the other two also sustained some damage from the heat of the fire.

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 — 2011 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 two fireworks-related burn injuries reported to M-BIRS in 2011. These two victims were nine and 15-years old. Since we started collecting burn injury reports in M-BIRS in 1984, the average number of fireworks-related burns per year is 11. The highest number of reported fireworks-related burns occurred in 1989, with 45 reported burn injuries.

Grill Fires

39 Incidents Involving Grills in 2011 Caused $50,327 in Damages
In 2011, there were 39 fires and explosion incidents reported to the Massachusetts Fire Incident Reporting System (MFIRS) involving open fired grills. These incidents caused one civilian injury and an estimated dollar loss of $50,327. This is a 49% decrease from the 76 grill fires in 2010.

Predictably more than two-thirds, or 69%, 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 39 grill incidents, 33, or 85%, of the grills were gas grills and three, or 8%, used solid fuels such as charcoal briquettes. An unclassified liquid fueled, a geothermal grill and an unclassified fueled grill each caused one, or 3% of these fires. The geothermal powered grill fire incident caused the only injury and an estimated dollar loss of $550. The 33 gas grill incidents caused $48,777, or 97% of the total damages. Seventy-six percent (76%) of the gas grill fires in Massachusetts occurred between May and September.

It is illegal to have LP-gas on balconies or porches above the first floor. Section 5a of 527 Code of Massachusetts Regulation 6:07 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.

Grafton Had Largest Loss Grill Fire

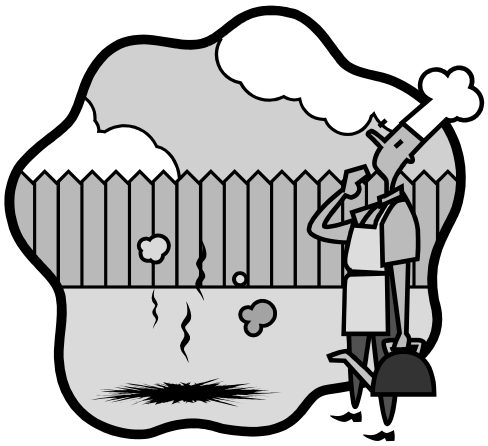
- On July 31, 2011, at 6:49 p.m., the Grafton Fire Department was called to a grill fire at a single-family home. When the homeowner turned on the grill a spark ignited the leaking propane all around the grill igniting the attached deck. No one was injured in this fire. It was undetermined if detectors were present and the building was not sprinklered. Damages from the blaze were estimated to be $10,000.

- On September 10, 2011, at 6:57 p.m., the Centerville-Osterville-Marston-Mills Fire Department was called to a grill fire at a single-family home. The grill was part of a permanent assembly in the back yard that was plumbed for propane and wired for electricity. It's believed that the fire started where the gas piping and electrical wiring entered the back of the unit igniting the wooden 2'x4' framing. No one was injured at this fire. Damages from the blaze were estimated to be $7,000.

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 — 2011 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. Eight (8) civilians, including two toddlers, were reported to M-BIRS in 2011 with burn injuries from a grill. Two (2) burns occurred in May, June and July, and one burn occurred in the months of April and December.

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.

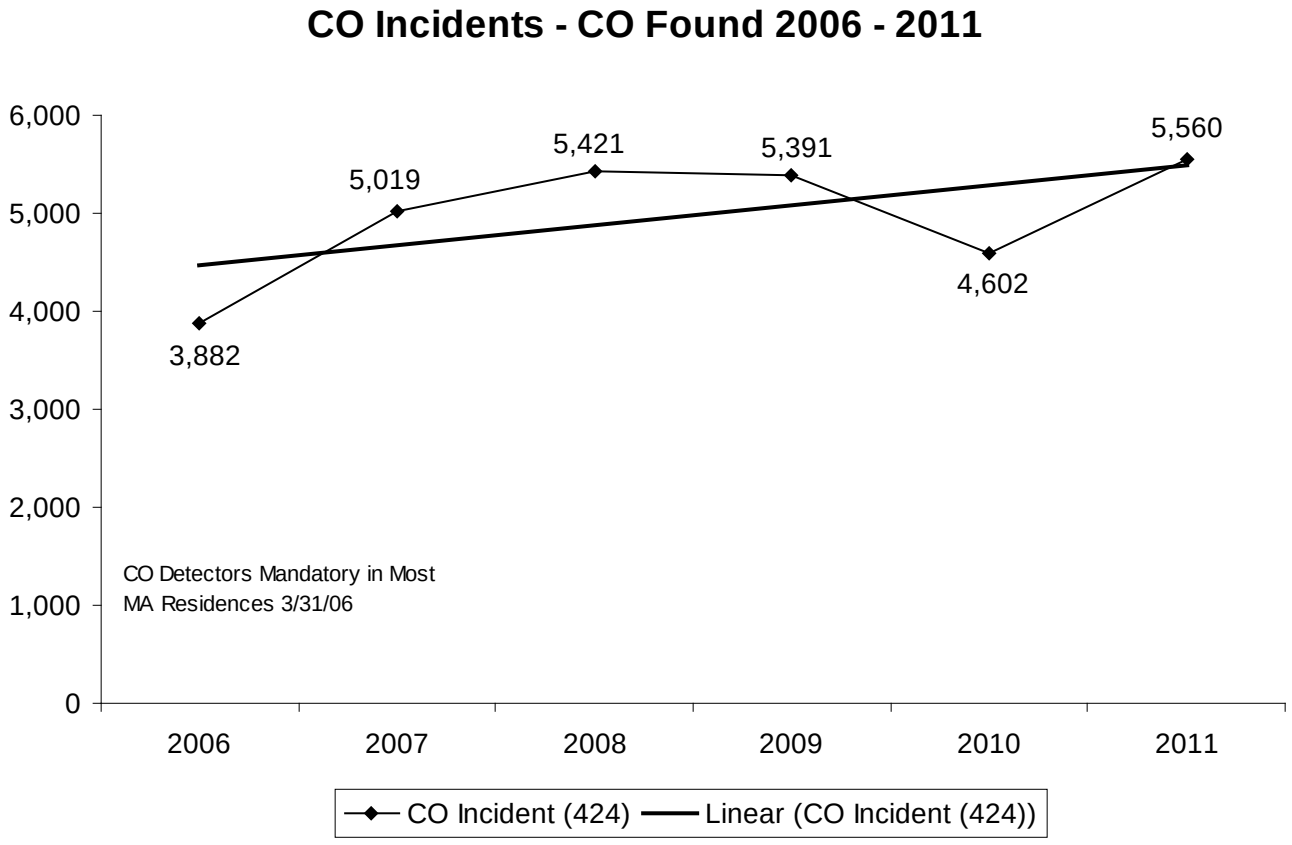
Carbon Monoxide Incidents

In 2011, 283 fire departments voluntarily reported 17,993 carbon monoxide (CO) incidents: hazards[52], carbon monoxide detector activation due to malfunction[53] and carbon monoxide detector activation – no CO[54]. 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 5,560 confirmed CO hazard incidents.

23% Increase from 2010

2011 continued the historical trend in effect since the institution of Nicole's Law in 2006, which made CO detectors mandatory in most residential occupancies throughout the Commonwealth. In 2011, the number of reported carbon monoxide incidents increased by 3,349 calls, or 23%, from the 14,644 calls reported in 2010.

Total CO calls have increased steadily since the inception of Nicole's Law. CO calls of all types increased by 85% between 2006 and 2011. Calls where the dangerous gas was found increased by 43% over the same time period. This confirms the need to have these life-saving devices in people's homes as a way to avert potential lethal calls. 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.



Boston, the largest city in the Commonwealth, reported the most CO incidents where above normal levels of carbon monoxide were found in 2011. Boston reported 456 of these incidents. The City of Springfield reported the second most CO incidents in 2011, 139 CO calls. The next five cities in terms of the number of carbon monoxide calls reported were: Lowell with 112 calls, Billerica with 108 calls, Methuen with 94 calls, Quincy with 87 calls, and Andover reported 86 carbon monoxide incidents in 2011.

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 10,002 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-nine (259) fire departments reported 6,812 CO detector activations due to malfunction. Two hundred and fifty-one (251) fire departments reported 5,621 CO detector activations with 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 2011.

44% of All CO Calls Occur During the Winter
Forty-four percent (44%) of all the CO calls that occurred in 2011 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 2011 Halloween snowstorm, all CO calls increased by 23% and 345% respectively from the previous year. Specifically CO Detector Activation, 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 will be rolling out an educational campaign called "Beat the Beep" at the end of 2012.

Mapping the Fire Experience

Boston & Worcester Had the Most Reported Fires
Boston reported having the most fires, with 5,539 in 2011. Worcester had the second highest number of reported fires at 1,374. Springfield (961), Cambridge (835), Quincy (564), and Lowell (546) rounded out the top six communities in the Commonwealth in terms of reported fires.

However if we look at the number of reported fires compared to the total population of the individual community we get a different picture. One would expect that the bigger cities and towns to have more fires because of their populations. When we calculate the rate of reported fires for every 10,000 people in a given municipality, the ranking changes. Usually the top communities in terms of number of reported fires fall towards the bottom of the rankings. Communities with one, two or three reported fires take over the top spots. These communities may have a rate that far exceeds that actual number of fires that they reported. For example towns like New Salem, Leyden and Granville all reported less than 10 fires in 2011 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, *2011 Fires per 10,000 Population by Community*, on page 168, 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 157 total fires, had the highest rate of 175 reported fires per 10,000 population. Clinton was the next highest with 156 total fires and 115 fires per 10,000 population; Wellfleet had 109; Topsfield had 108; Stoughton had 101; and Great Barrington had 100 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 4,257 in 2011. Cambridge had the second highest number of reported structure fires at 746. Worcester (723), Springfield (635), Lynn (428), and Brookline (409) rounded out the top six communities in the Commonwealth in terms of reported structure fires.

The map titled *2011 Structure Fires per 10,000 Population by Community*, on page 169, 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 139 structure fires, had the highest rate of 155 structure fires per 10,000 population. Topsfield was the next highest with 58 structure fires and 95 structure fires per 10,000 population; Clinton had 90; Stoughton had 85; and Great Barrington had 78 structure fires per 10,000 population.

Boston & Worcester Had the Most Reported Residential Building Fires

Boston reported having the most residential building fires, with 3,477 in 2011. Worcester had the second highest number of reported building fires at 634. Cambridge (609), Springfield (543), Lynn (381), and Brookline (352) rounded out the top six communities in the Commonwealth in terms of reported residential building fires.

The map titled *2011 Residential Building Fires per 10,000 Population by Community*, on page 170, 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.

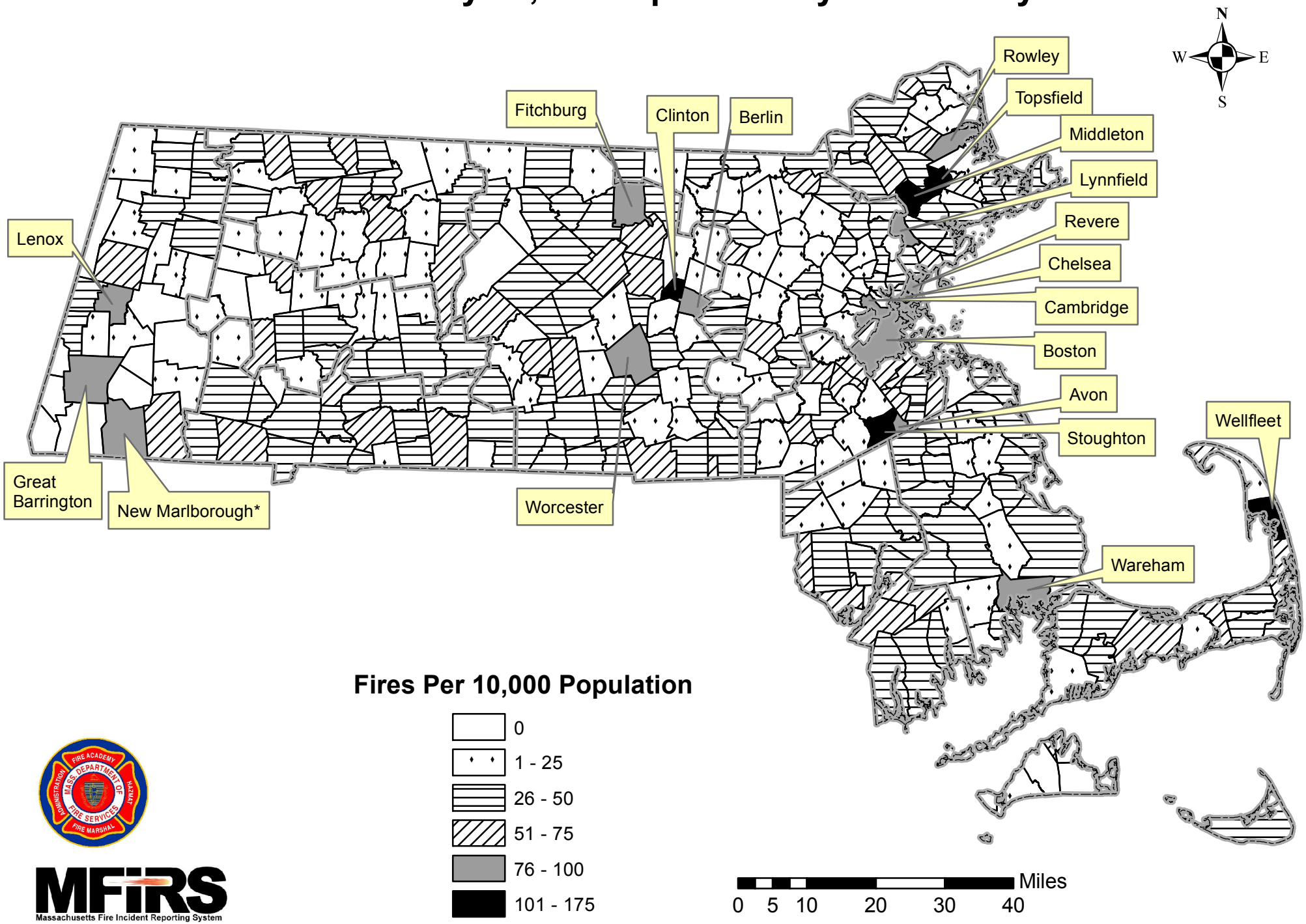
Middleton, with 123 residential building fires, had the highest rate of 137 residential building fires per 10,000 population. Next highest was Topsfield with 79 residential building fires per 10,000 population; Clinton had 77; Monroe had 83; Leyden had 70; and Stoughton had 68 residential building fires per 10,000 population.

Boston & Worcester Had the Most Reported Arsons
Boston reported having the most arsons, with 141 in 2011. Worcester had the second highest number of reported arsons at 48. Brockton (46), Haverhill (32), Lawrence (31), and Lowell (29) rounded out the top six communities in the Commonwealth in terms of reported arsons.

The map titled *2011 Arsons per 10,000 Population by Community*, on page 171, 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 more than five arsons, with 23 reported arsons per 10,000 population. Next highest was Dover with 16 arsons per 10,000 population; Wendell had 12, Orleans had eight; and Douglas also had eight arsons per 10,000 population.

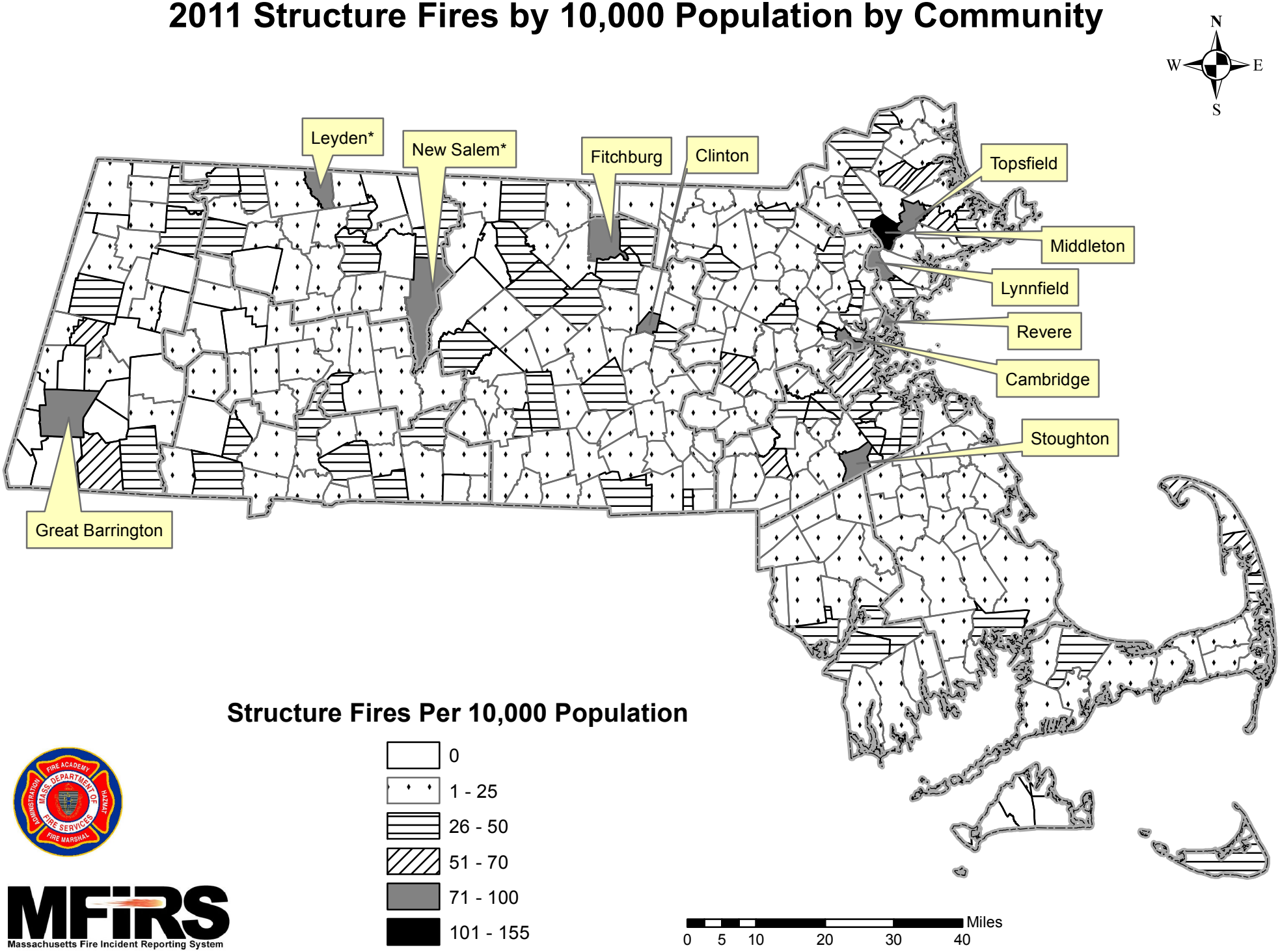
2011 Fires by 10,000 Population by Community



MFIRS
Massachusetts Fire Incident Reporting System

*These departments reported 15 fires or less in 2011

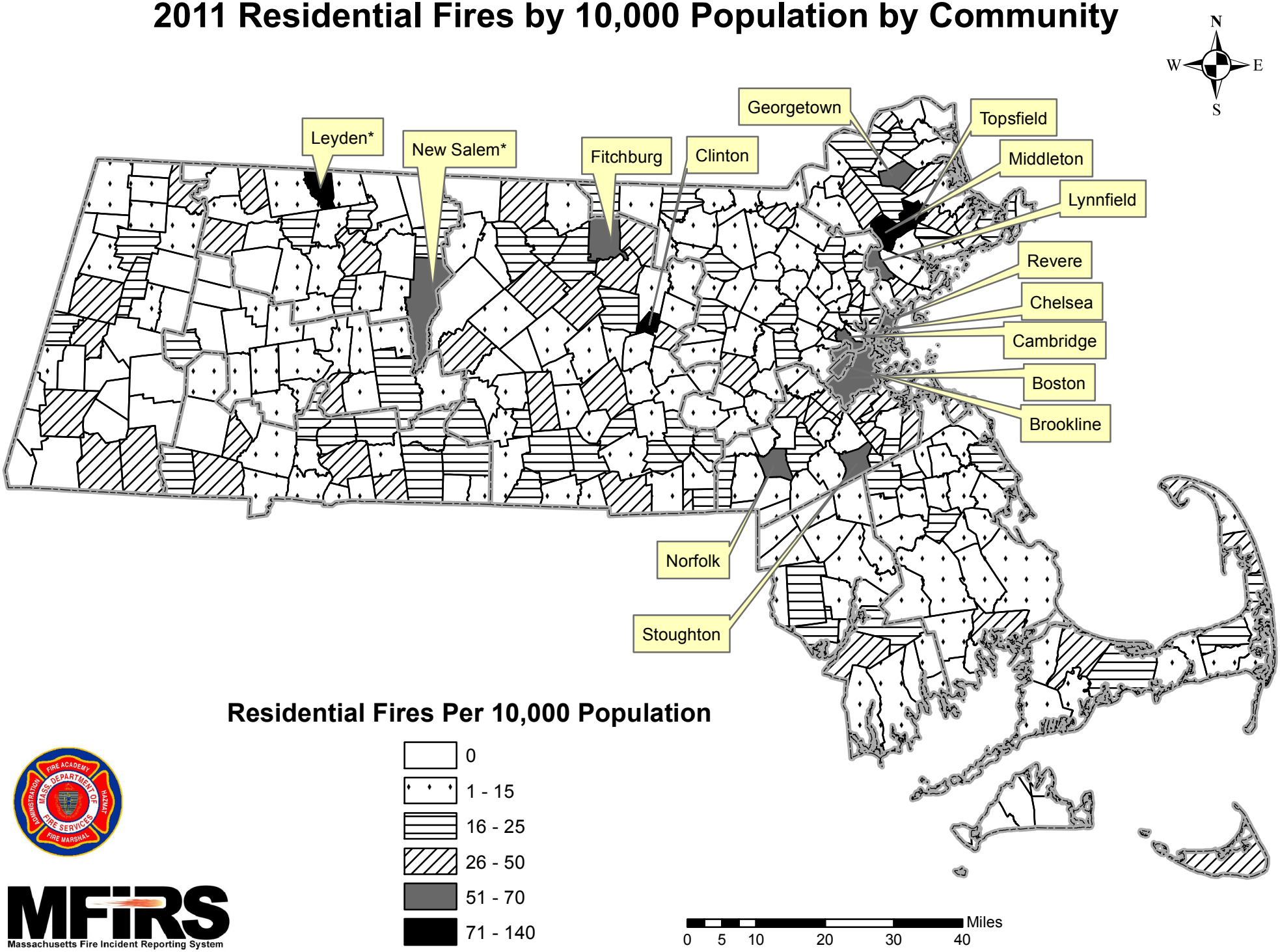
2011 Structure Fires by 10,000 Population by Community



MFIRS
Massachusetts Fire Incident Reporting System

*These departments reported 15 or less structure fires in 2011

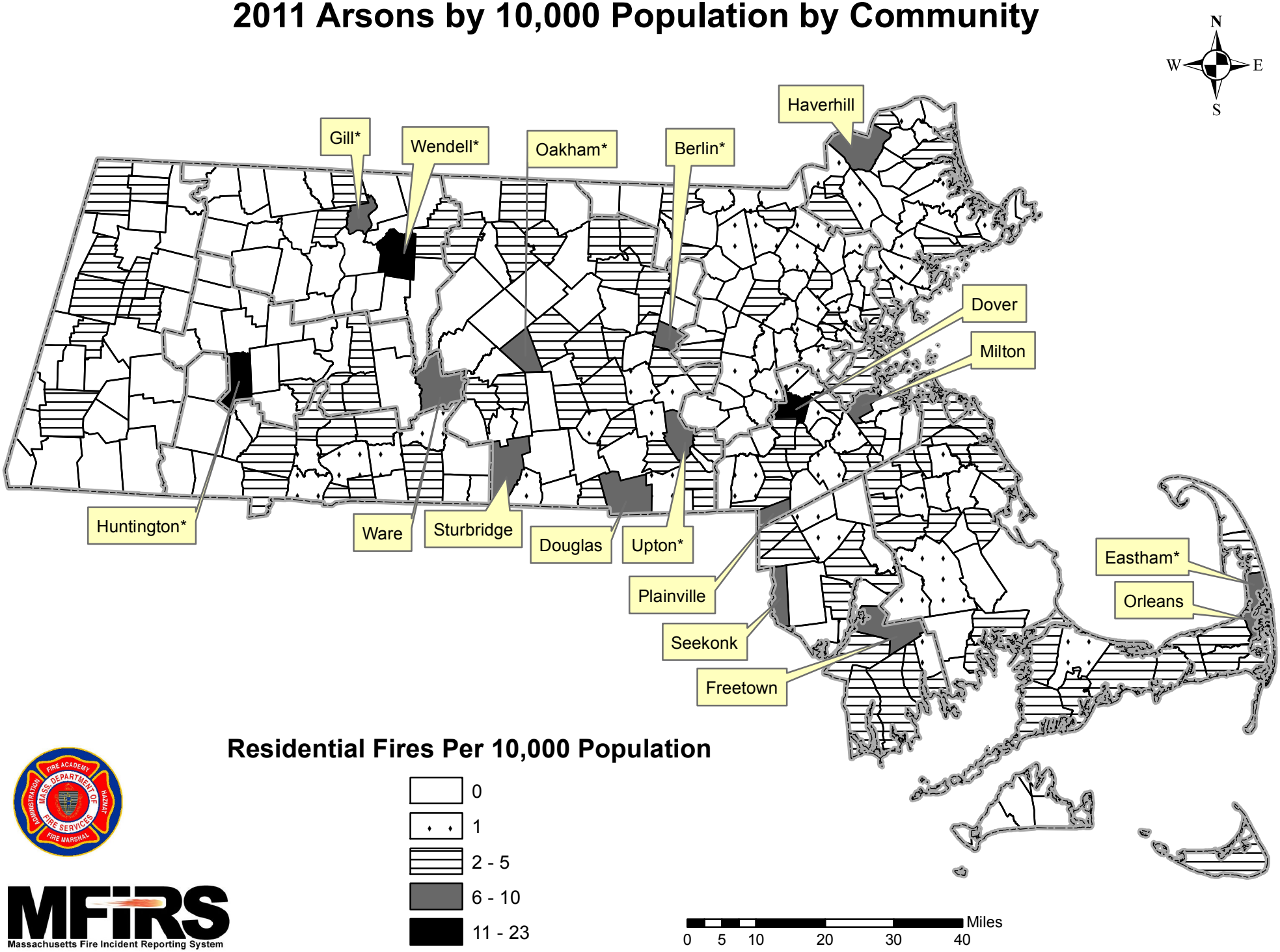
2011 Residential Fires by 10,000 Population by Community



MFIRS
Massachusetts Fire Incident Reporting System

*These departments reported 15 or less structure fires in 2011

2011 Arsons by 10,000 Population by Community



MFIRS
Massachusetts Fire Incident Reporting System

*These departments reported 5 or less arsons in 2011

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

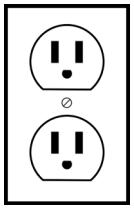
- Change your clocks, change your smoke alarm batteries
- Test smoke alarms weekly
- Vacuum dust from alarms monthly

APRIL

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

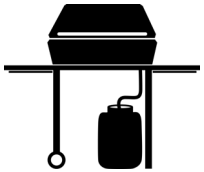
MAY

- 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

2011 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	55	26	12	17	0	0	0	0	$282,600
Acton	46	26	5	15	0	0	0	0	$69,050
Acushnet	18	10	3	5	0	0	0	0	$83,500
Adams	19	16	1	2	0	0	0	3	$77,820
Agawam	73	33	18	22	0	3	0	4	$1,556,250
Alford	1	0	0	1	0	0	0	0	$0
Amesbury	55	26	12	17	0	2	0	1	$602,145
Amherst	85	31	3	51	0	2	0	2	$379,874
Andover	109	54	17	38	0	0	0	0	$7,750
Aquinnah	0	0	0	0	0	0	0	0	$0
Arlington	93	38	15	40	0	1	0	0	$860,200
Ashburnham	6	4	2	0	0	0	0	1	$3,000
Ashby	8	7	1	0	0	0	0	0	$0
Ashfield	1	0	1	0	0	0	0	0	$0
Ashland	10	7	3	0	0	0	0	0	$0
Athol	39	18	6	15	0	0	0	0	$1,000
Attleboro	101	36	15	50	1	1	0	1	$566,500
Auburn	57	17	25	15	0	0	0	0	$939,900
Avon	34	12	9	13	0	0	0	0	$369,700
Ayer	28	15	7	6	0	0	0	2	$355,850
Barnstable									
Barnstable	*26*	*10*	*5*	*11*	*0*	*0*	*0*	*2*	*$52,300*
Cotuit	*3*	*3*	*0*	*0*	*0*	*3*	*0*	*0*	*$1,500*
C.O.M.M.	*59*	*29*	*4*	*26*	*0*	*0*	*0*	*3*	*$51,750*
Hyannis	*128*	*54*	*19*	*55*	*1*	*17*	*0*	*0*	*$1,708,525*
West Barnstable	*19*	*9*	*0*	*10*	*0*	*0*	*0*	*0*	*$11,250*
Barre	16	9	4	3	0	0	0	0	$572,600
Becket	0	0	0	0	0	0	0	0	$0
Bedford	22	14	2	6	1	2	0	0	$884,000
Belchertown	45	26	3	16	0	0	0	1	$0
Bellingham	56	29	10	17	0	0	0	0	$266,800
Belmont	101	81	2	18	1	0	0	8	$372,250
Berkley	19	7	4	8	0	0	0	0	$0
Berlin	22	10	1	11	0	0	0	1	$11,300
Bernardston	9	2	5	2	0	0	0	0	$13,200
Beverly	105	64	8	33	1	0	0	4	$2,126,920

2011 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	3	1	1	1	0	0	0	0	$35,050
Acton	0	0	0	0	0	0	0	0	$0
Acushnet	1	0	0	1	0	0	0	0	$1,000
Adams	0	0	0	0	0	0	0	0	$0
Agawam	2	0	1	1	0	0	0	0	$0
Alford	0	0	0	0	0	0	0	0	$0
Amesbury	1	0	0	1	0	0	0	0	$0
Amherst	12	0	0	12	0	0	0	0	$0
Andover	4	0	0	4	0	0	0	0	$0
Aquinnah	0	0	0	0	0	0	0	0	$0
Arlington	5	0	2	3	0	0	0	0	$0
Ashburnham	0	0	0	0	0	0	0	0	$0
Ashby	0	0	0	0	0	0	0	0	$0
Ashfield	0	0	0	0	0	0	0	0	$0
Ashland	0	0	0	0	0	0	0	0	$0
Athol	4	1	0	3	0	0	0	0	$0
Attleboro	5	1	0	4	0	0	0	0	$5,400
Auburn	1	0	1	0	0	0	0	0	$0
Avon	1	1	0	0	0	0	0	0	$0
Ayer	1	0	1	0	0	0	0	0	$3,500
Barnstable Fire Districts									
Barnstable	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Cotuit	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
C.O.M.M	*2*	*0*	*1*	*1*	*0*	*0*	*0*	*0*	*$0*
Hyannis	*7*	*1*	*0*	*6*	*0*	*0*	*0*	*0*	*$150,000*
West Barnstable	*1*	*0*	*0*	*1*	*0*	*0*	*0*	*0*	*$0*
Barre	0	0	0	0	0	0	0	0	$0
Becket	0	0	0	0	0	0	0	0	$0
Bedford	0	0	0	0	0	0	0	0	$0
Belchertown	0	0	0	0	0	0	0	0	$0
Bellingham	1	0	0	1	0	0	0	0	$0
Belmont	4	0	0	4	0	0	0	0	$500
Berkley	0	0	0	0	0	0	0	0	$0
Berlin	2	1	0	1	0	0	0	0	$0
Bernardston	1	0	0	1	0	0	0	0	$0
Beverly	7	2	2	3	0	0	0	2	$300,600

2011 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	90	39	17	34	0	1	0	2	$1,022,215
Blackstone	28	18	1	9	0	0	0	0	$0
Blandford	4	0	2	2	0	0	0	0	$0
Bolton	9	1	2	6	0	0	0	0	$39,500
Boston	5,539	4,249	327	963	2	5	0	9	$27,865,765
Bourne	68	29	9	30	0	1	0	2	$998,880
Boxborough	25	8	6	11	0	0	0	0	$110,000
Boxford	30	19	6	5	1	0	0	1	$1,300
Boylston	9	6	2	1	0	1	0	0	$41,000
Braintree	92	28	19	45	0	3	0	2	$1,625,598
Brewster	43	21	2	20	0	2	0	0	$47,450
Bridgewater	105	55	14	36	0	1	0	0	$1,602,110
Brimfield	15	7	2	6	0	0	0	0	$0
Brockton	452	224	55	173	2	24	0	11	$2,064,546
Brookfield	2	1	0	1	0	0	0	0	$0
Brookline	427	409	5	13	0	1	0	8	$3,044,733
Buckland	1	1	0	0	0	0	0	0	$0
Burlington	68	24	26	18	0	2	0	3	$130,050
Cambridge	835	746	13	76	0	0	0	4	$1,416,032
Canton	24	7	13	4	1	2	0	0	$215,100
Carlisle	4	4	0	0	0	0	0	0	$0
Carver	4	1	3	0	0	0	0	0	$24,000
Charlemont	1	1	0	0	0	0	0	0	$0
Charlton	63	32	14	17	0	1	0	0	$1,185,510
Chatham	23	12	3	8	0	0	0	0	$36,450
Chelmsford	35	9	13	13	0	1	0	0	$1,373,975
Chelsea	326	243	23	60	0	4	0	32	$2,916,040
Cheshire	10	6	0	4	0	0	0	0	$10,300
Chester	2	1	0	1	0	0	0	0	$0
Chesterfield	0	0	0	0	0	0	0	0	$0
Chicopee	252	120	44	88	1	16	0	5	$1,611,802
Chilmark	1	0	0	1	0	0	0	0	$0
Clarksburg	0	0	0	0	0	0	0	0	$0
Clinton	156	122	9	25	0	0	0	0	$721,550
Cohasset	36	24	2	10	0	0	0	0	$500

2011 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	4	1	0	3	0	0	0	0	$0
Blackstone	2	0	0	2	0	0	0	0	$0
Blandford	0	0	0	0	0	0	0	0	$0
Bolton	0	0	0	0	0	0	0	0	$0
Boston	138	36	13	89	0	0	0	0	$5,199,255
Bourne	4	0	0	4	0	0	0	0	$0
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	2	0	0	2	0	0	0	0	$0
Brewster	1	0	0	1	0	0	0	0	$0
Bridgewater	8	5	1	2	0	1	0	0	$67,500
Brimfield	0	0	0	0	0	0	0	0	$0
Brockton	46	9	3	34	0	4	0	2	$264,500
Brookfield	0	0	0	0	0	0	0	0	$0
Brookline	0	0	0	0	0	0	0	0	$0
Buckland	0	0	0	0	0	0	0	0	$0
Burlington	5	0	1	4	0	0	0	0	$0
Cambridge	0	0	0	0	0	0	0	0	$0
Canton	1	0	1	0	1	0	0	0	$40,000
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	0	0	0	0	0	0	0	0	$0
Chatham	1	0	0	1	0	0	0	0	$50
Chelmsford	1	0	1	0	0	0	0	0	$1,000
Chelsea	11	5	2	4	0	0	0	1	$17,700
Cheshire	0	0	0	0	0	0	0	0	$0
Chester	0	0	0	0	0	0	0	0	$0
Chesterfield	0	0	0	0	0	0	0	0	$0
Chicopee	11	2	2	7	0	0	0	0	$15,950
Chilmark	0	0	0	0	0	0	0	0	$0
Clarksburg	0	0	0	0	0	0	0	0	$0
Clinton	2	1	0	1	0	0	0	0	$5,050
Cohasset	3	0	0	3	0	0	0	0	$0

2011 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	7	3	1	3	0	0	0	0	$146,700
Concord	41	20	7	14	0	0	0	0	$398,300
Conway	4	1	2	1	0	0	0	0	$50,000
Cummington	1	1	0	0	0	0	0	0	$59,414
Dalton	16	15	1	0	0	0	0	0	$43,200
Danvers	93	43	15	35	0	0	0	0	$297,500
Dartmouth Fire Districts									
Dartmouth #1	*24*	*13*	*2*	*9*	*0*	*0*	*0*	*0*	*$102,000*
Dartmouth #2	*4*	*3*	*1*	*0*	*0*	*0*	*0*	*0*	*$16,300*
Dartmouth #3	*59*	*22*	*12*	*25*	*0*	*1*	*0*	*0*	*$146,441*
Dedham	155	104	16	35	0	0	0	0	$256,700
Deerfield Fire Districts									
Deerfield	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
South Deerfield	*12*	*5*	*3*	*4*	*0*	*0*	*0*	*0*	*$44,500*
Dennis	79	17	14	48	0	0	0	0	$101,100
Devens	23	7	5	11	0	0	0	0	$21,177
Dighton	18	6	3	9	0	0	0	0	$30,000
Douglas	48	23	2	23	0	3	0	0	$463,401
Dover	35	25	2	8	0	0	0	0	$527,000
Dracut	77	42	7	28	0	0	0	0	$492,580
Dudley	29	15	5	9	0	1	0	0	$242,000
Dunstable	12	4	2	6	0	1	0	0	$2,500
Duxbury	42	18	8	16	0	0	0	0	$1,000
East Bridgewater	43	18	10	15	0	0	0	0	$75,150
East Brookfield	8	7	0	1	0	0	0	0	$24,000
East Longmeadow	38	24	1	13	0	0	0	0	$393,800
Eastham	26	13	3	10	0	3	0	0	$125,000
Easthampton	43	28	5	10	0	1	0	0	$74,070
Easton	20	14	4	2	0	1	0	2	$6,040,000
Edgartown	0	0	0	0	0	0	0	0	$0
Egremont	0	0	0	0	0	0	0	0	$0
Erving	2	2	0	0	0	0	0	0	$15,000
Essex	17	11	1	5	0	0	0	0	$126,000
Everett	144	95	9	40	0	3	0	4	$1,206,536
Fairhaven	62	30	13	19	0	2	0	5	$785,302
Fall River	500	274	71	155	1	8	0	4	$3,938,555

2011 Arson Experience By Community

Community	Total Fires	Structure Fires	Vehicle Fires	Other Fires	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Colrain	0	0	0	0	0	0	0	0	$0
Concord	3	1	0	2	0	0	0	0	$0
Conway	0	0	0	0	0	0	0	0	$0
Cummington	0	0	0	0	0	0	0	0	$0
Dalton	1	1	0	0	0	0	0	0	$50
Danvers	2	0	0	2	0	0	0	0	$0
Dartmouth Fire Districts									
Dartmouth #1	*3*	*0*	*0*	*3*	*0*	*0*	*0*	*0*	*$0*
Dartmouth #2	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Dartmouth #3	*4*	*2*	*0*	*2*	*0*	*1*	*0*	*0*	*$500*
Dedham	6	0	0	6	0	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	5	0	0	5	0	0	0	0	$0
Devens	0	0	0	0	0	0	0	0	$0
Dighton	1	0	0	1	0	0	0	0	$0
Douglas	7	0	0	7	0	0	0	0	$0
Dover	0	0	0	0	0	0	0	0	$0
Dracut	9	2	1	6	0	0	0	0	$85,500
Dudley	0	0	0	0	0	0	0	0	$0
Dunstable	0	0	0	0	0	0	0	0	$0
Duxbury	0	0	0	0	0	0	0	0	$0
East Bridgewater	1	0	1	0	0	0	0	0	$0
East Brookfield	0	0	0	0	0	0	0	0	$0
East Longmeadow	0	0	0	0	0	0	0	0	$0
Eastham	4	0	0	4	0	0	0	0	$0
Easthampton	2	0	0	2	0	0	0	0	$50
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	0	0	0	0	0	0	0	0	$0
Everett	7	3	0	4	0	0	0	3	$203,325
Fairhaven	3	3	0	0	0	0	0	0	$1,000
Fall River	16	4	4	8	0	0	0	1	$280,550

2011 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	74	29	17	28	0	3	0	0	$3,793,855
Fitchburg	391	301	28	62	2	7	0	5	$4,289,745
Florida	2	2	0	0	0	0	0	0	$21,000
Foxborough	37	15	6	16	0	0	0	0	$248,085
Framingham	463	378	34	51	1	2	0	8	$1,912,408
Franklin	58	20	7	31	0	0	0	0	$3,701,594
Freetown	57	27	12	18	0	1	0	0	$1,665,301
Gardner	76	46	11	19	0	0	0	0	$220,520
Georgetown	55	50	4	1	0	1	0	0	$458,200
Gill	5	4	0	1	0	0	0	1	$5,000
Gloucester	111	56	10	45	0	1	0	25	$1,632,701
Goshen	6	2	0	4	0	0	0	0	$25,000
Gosnold	0	0	0	0	0	0	0	0	$0
Grafton	51	36	13	2	0	1	0	0	$780,700
Granby	24	10	3	11	0	0	0	0	$0
Granville	9	7	1	1	0	1	0	0	$70,002
Great Barrington	71	56	0	15	0	1	0	0	$929,000
Greenfield	56	29	5	22	0	2	0	1	$1,121,226
Groton	14	9	2	3	0	0	0	0	$46,700
Groveland	2	1	1	0	0	1	0	1	$225,000
Hadley	10	3	6	1	0	1	0	0	$75,000
Halifax	33	17	4	12	0	0	0	2	$365,800
Hamilton	51	41	0	10	0	1	0	1	$104,400
Hampden	25	23	0	2	0	0	0	0	$7,000
Hancock	0	0	0	0	0	0	0	0	$0
Hanover	31	17	4	10	0	1	0	1	$987,700
Hanson	19	9	5	5	0	0	0	0	$0
Hardwick	15	8	0	7	0	0	0	0	$0
Harvard	8	4	2	2	0	0	0	0	$160,000
Harwich	45	19	7	19	0	0	0	3	$559,350
Hatfield	4	1	1	2	0	0	0	0	$20,000
Haverhill	279	169	16	94	1	1	0	4	$1,776,251
Hawley	1	1	0	0	0	0	0	0	$0
Heath	4	3	0	1	0	0	0	0	$125,000
Hingham	46	21	2	23	0	0	0	0	$126,400

2011 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	10	2	0	8	0	0	0	0	$1,100
Fitchburg	14	1	4	9	1	1	0	0	$47,150
Florida	0	0	0	0	0	0	0	0	$0
Foxborough	0	0	0	0	0	0	0	0	$0
Framingham	1	1	0	0	0	0	0	0	$5,000
Franklin	2	2	0	0	0	0	0	0	$2,301,418
Freetown	7	3	1	3	0	0	0	0	$136,000
Gardner	4	3	0	1	0	0	0	0	$33,700
Georgetown	0	0	0	0	0	0	0	0	$0
Gill	1	1	0	0	0	0	0	0	$5,000
Gloucester	2	0	0	2	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	1	1	0	0	0	0	0	0	$100,000
Granby	1	0	0	1	0	0	0	0	$0
Granville	0	0	0	0	0	0	0	0	$0
Great Barrington	3	3	0	0	0	1	0	0	$450,000
Greenfield	5	0	1	4	0	0	0	0	$2,550
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	2	1	0	1	0	0	0	0	$0
Hamilton	0	0	0	0	0	0	0	0	$0
Hampden	0	0	0	0	0	0	0	0	$0
Hancock	0	0	0	0	0	0	0	0	$0
Hanover	1	0	0	1	0	0	0	0	$0
Hanson	0	0	0	0	0	0	0	0	$0
Hardwick	0	0	0	0	0	0	0	0	$0
Harvard	0	0	0	0	0	0	0	0	$0
Harwich	3	1	0	2	0	0	0	3	$220,000
Hatfield	0	0	0	0	0	0	0	0	$0
Haverhill	32	1	0	31	0	0	0	0	$600
Hawley	0	0	0	0	0	0	0	0	$0
Heath	0	0	0	0	0	0	0	0	$0
Hingham	3	0	0	3	0	0	0	0	$0

2011 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	2	2	0	0	0	0	0	0	$4,000
Holbrook	46	30	5	11	0	0	0	0	$163,425
Holden	41	24	4	13	1	0	0	0	$469,500
Holland	9	4	2	3	0	0	0	0	$0
Holliston	3	3	0	0	0	0	0	0	$868,000
Holyoke	200	106	38	56	0	4	0	2	$1,058,592
Hopedale	4	2	1	1	0	0	0	0	$19,250
Hopkinton	36	14	9	13	0	0	0	0	$98,002
Hubbardston	18	13	1	4	0	4	0	0	$141,100
Hudson	48	20	10	18	0	3	0	0	$57,460
Hull	23	15	0	8	0	0	0	0	$107,900
Huntington	16	3	2	11	0	0	0	0	$0
Ipswich	18	4	3	11	1	0	0	0	$5,500
Kingston	46	20	9	17	0	0	0	0	$566,500
Lake Pleasant	0	0	0	0	0	0	0	0	$0
Lakeville	31	7	3	21	0	0	0	0	$22,000
Lancaster	14	1	5	8	0	0	0	0	$43,570
Lanesborough	6	2	2	2	1	0	0	0	$33,000
Lawrence	251	127	53	71	1	5	0	8	$2,550,240
Lee	2	1	1	0	1	1	0	0	$0
Leicester	21	7	5	9	0	0	0	0	$85,000
Lenox	43	27	4	12	0	1	0	0	$37,551
Leominster	213	131	24	58	0	4	0	1	$2
Leverett	2	2	0	0	0	1	0	0	$207,000
Lexington	72	43	13	16	0	1	0	5	$1,075,367
Leyden	5	5	0	0	0	0	0	0	$0
Lincoln	24	21	0	3	0	0	0	0	$205,000
Littleton	40	24	9	7	0	0	0	0	$364,700
Logan Airport FD	82	8	5	69	0	0	0	0	$112,316
Longmeadow	42	18	4	20	0	0	0	0	$664,550
Lowell	546	370	46	130	0	2	0	2	$1,923,035
Ludlow	68	43	10	15	0	0	0	0	$1,115,700
Lunenburg	47	33	7	7	1	2	0	0	$551,250
Lynn	540	428	14	98	1	0	0	0	$20,000
Lynnfield	105	83	7	15	0	0	0	0	$139,055
MA Mil. Res.	9	4	0	5	0	0	0	0	$635,750

2011 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	1	1	0	0	0	0	0	0	$200
Holden	2	0	1	1	1	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	2	6	0	0	0	0	$1,000
Hopedale	0	0	0	0	0	0	0	0	$0
Hopkinton	0	0	0	0	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	0	0	0	0	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	2	0	0	2	0	0	0	0	$0
Lake Pleasant	0	0	0	0	0	0	0	0	$0
Lakeville	1	0	0	1	0	0	0	0	$0
Lancaster	4	0	2	2	0	0	0	0	$2,000
Lanesborough	1	0	1	0	1	0	0	0	$0
Lawrence	31	15	13	3	1	2	0	4	$399,500
Lee	0	0	0	0	0	0	0	0	$0
Leicester	3	0	0	3	0	0	0	0	$0
Lenox	1	0	0	1	0	0	0	0	$0
Leominster	8	3	0	5	0	3	0	0	$0
Leverett	0	0	0	0	0	0	0	0	$0
Lexington	1	0	0	1	0	0	0	0	$0
Leyden	0	0	0	0	0	0	0	0	$0
Lincoln	0	0	0	0	0	0	0	0	$0
Littleton	0	0	0	0	0	0	0	0	$0
Logan Airport FD	3	0	0	3	0	0	0	0	$200
Longmeadow	4	0	0	4	0	0	0	0	$0
Lowell	29	9	13	7	0	0	0	0	$135,800
Ludlow	3	0	1	2	0	0	0	0	$600
Lunenburg	2	1	1	0	0	1	0	0	$21,000
Lynn	6	0	0	6	0	0	0	0	$0
Lynnfield	1	0	0	1	0	0	0	0	$0
MA Mil. Res.	1	0	0	1	0	0	0	0	$0

2011 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	195	139	10	46	0	0	0	11	$0
Manchester	25	14	2	9	0	0	0	0	$45,000
Mansfield	47	22	8	17	0	2	0	2	$1,228,050
Marblehead	27	19	1	7	0	1	0	0	$1,277,242
Marion	17	6	3	8	0	0	0	0	$213,000
Marlborough	117	53	22	42	0	6	0	2	$562,999
Marshfield	117	48	18	51	0	9	0	4	$565,000
Mashpee	60	24	6	30	0	0	0	1	$307,302
Mattapoisett	12	4	2	6	0	0	0	0	$24,500
Maynard	11	8	3	0	0	4	0	0	$426,250
Medfield	22	15	1	6	0	0	0	0	$135,000
Medford	265	168	22	75	1	2	0	2	$810,050
Medway	10	2	5	3	0	0	0	0	$0
Melrose	28	23	4	1	0	1	0	3	$545,400
Mendon	18	7	0	11	0	0	0	0	$10,000
Merrimac	41	21	5	15	0	0	0	0	$4,700
Methuen	133	61	27	45	1	3	0	2	$504,500
Middleborough	83	31	16	36	0	1	0	1	$127,600
Middlefield	1	1	0	0	0	0	0	0	$125,000
Middleton	157	139	5	13	0	7	0	2	$12,120,750
Milford	81	53	3	25	0	2	0	0	$483,501
Millbury	56	32	12	12	0	4	0	1	$207,325
Millis	0	0	0	0	0	0	0	0	$0
Millville	16	11	3	2	0	0	0	0	$49,740
Milton	166	94	22	50	0	0	0	1	$571,000
Monroe	0	0	0	0	0	0	0	0	$0
Monson	63	21	6	36	1	0	0	0	$50,000
Montague Fire Districts									
Montague Center	*16*	*8*	*2*	*6*	*0*	*0*	*0*	*0*	*$23,000*
Turners Falls	*42*	*30*	*2*	*10*	*0*	*0*	*0*	*1*	*$239,500*
Monterey	0	0	0	0	0	0	0	0	$0
Montgomery	0	0	0	0	0	0	0	0	$0
Mount Washington	0	0	0	0	0	0	0	0	$0
Nahant	12	6	0	6	0	0	0	0	$64,200
Nantucket	48	37	2	9	0	0	0	0	$95,000
Natick	93	57	11	25	0	0	0	0	$1,498,900
Needham	49	24	8	17	0	0	0	0	$9,200

2011 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	14	7	0	7	0	0	0	0	$0
Manchester	1	0	1	0	0	0	0	0	$0
Mansfield	2	1	1	0	0	0	0	0	$2,100
Marblehead	1	1	0	0	0	0	0	0	$0
Marion	2	0	0	2	0	0	0	0	$0
Marlborough	5	2	0	3	0	1	0	0	$120,200
Marshfield	3	0	1	2	0	0	0	0	$0
Mashpee	3	0	0	3	0	0	0	0	$0
Mattapoisett	0	0	0	0	0	0	0	0	$0
Maynard	0	0	0	0	0	0	0	0	$0
Medfield	2	0	0	2	0	0	0	0	$0
Medford	4	0	0	4	0	0	0	0	$0
Medway	0	0	0	0	0	0	0	0	$0
Melrose	1	1	0	0	0	0	0	0	$120,000
Mendon	1	0	0	1	0	0	0	0	$0
Merrimac	3	0	0	3	0	0	0	0	$0
Methuen	2	1	0	1	0	0	0	0	$0
Middleborough	1	0	0	1	0	0	0	0	$0
Middlefield	0	0	0	0	0	0	0	0	$0
Middleton	0	0	0	0	0	0	0	0	$0
Milford	9	3	0	6	0	0	0	0	$37,050
Millbury	2	0	2	0	0	0	0	0	$9,500
Millis	0	0	0	0	0	0	0	0	$0
Millville	0	0	0	0	0	0	0	0	$0
Milton	15	0	0	15	0	0	0	0	$0
Monroe	0	0	0	0	0	0	0	0	$0
Monson	1	0	0	1	0	0	0	0	$0
Montague Fire Districts									
Montague Center	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Turners Falls	*4*	*3*	*0*	*1*	*0*	*0*	*0*	*0*	*$85,050*
Monterey	0	0	0	0	0	0	0	0	$0
Montgomery	0	0	0	0	0	0	0	0	$0
Mount Washington	0	0	0	0	0	0	0	0	$0
Nahant	0	0	0	0	0	0	0	0	$0
Nantucket	2	0	0	2	0	0	0	0	$0
Natick	2	0	0	2	0	0	0	0	$0
Needham	0	0	0	0	0	0	0	0	$0

2011 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	327	136	64	127	2	7	0	10	$2,502,846
New Braintree	0	0	0	0	0	0	0	0	$0
New Marlborough	14	9	0	5	0	0	0	0	$0
New Salem	7	7	0	0	0	0	0	0	$0
Newbury	14	9	2	3	0	0	0	1	$0
Newburyport	21	15	5	1	0	1	0	3	$250,220
Newton	142	90	17	35	2	0	0	6	$4,021,850
Norfolk	82	69	4	9	0	0	0	0	$133,500
North Adams	39	22	7	10	0	1	0	7	$492,500
North Andover	158	118	11	29	0	0	0	0	$1,674,150
North Attleboro	73	36	12	25	0	0	0	0	$267,500
North Brookfield	31	2	1	28	0	0	0	0	$91,000
North Reading	50	25	6	19	0	0	0	0	$128,000
Northampton	75	24	13	38	0	1	0	0	$381,385
Northborough	27	15	4	8	0	0	0	1	$237,700
Northbridge	39	25	4	10	0	2	0	1	$220,700
Northfield	0	0	0	0	0	0	0	0	$0
Norton	45	20	6	19	0	2	0	0	$170,150
Norwell	36	15	8	13	0	0	0	0	$0
Norwood	69	33	8	28	0	0	0	0	$469,100
Oak Bluffs	0	0	0	0	0	0	0	0	$0
Oakham	8	4	0	4	0	0	0	0	$500
Orange	33	22	4	7	0	0	0	1	$0
Orleans	35	8	2	25	0	0	0	0	$73,000
Otis	1	1	0	0	0	0	0	0	$0
Oxford	53	28	7	18	0	2	0	1	$819,200
Palmer Fire Districts									
Bondsville	*6*	*3*	*0*	*3*	*0*	*1*	*0*	*0*	*$4,300*
Palmer	*37*	*26*	*6*	*5*	*0*	*1*	*0*	*0*	*$347,590*
Three Rivers	*4*	*2*	*1*	*1*	*0*	*0*	*0*	*0*	*$0*
Paxton	11	6	3	2	0	0	0	0	$97,760
Peabody	154	69	17	68	1	1	1	2	$1,906,975
Pelham	1	1	0	0	0	0	0	0	$0
Pembroke	19	9	6	4	0	2	0	0	$311,800
Pepperell	43	27	2	14	0	1	0	0	$9,000

2011 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	20	7	6	7	0	1	0	0	$283,200
New Braintree	0	0	0	0	0	0	0	0	$0
New Marlborough	0	0	0	0	0	0	0	0	$0
New Salem	0	0	0	0	0	0	0	0	$0
Newbury	1	1	0	0	0	0	0	0	$0
Newburyport	0	0	0	0	0	0	0	0	$0
Newton	1	0	0	1	0	0	0	0	$0
Norfolk	3	1	0	2	0	0	0	0	$12,000
North Adams	3	0	0	3	0	0	0	0	$0
North Andover	2	0	0	2	0	0	0	0	$0
North Attleboro	3	1	0	2	0	0	0	0	$0
North Brookfield	2	0	0	2	0	0	0	0	$0
North Reading	1	0	0	1	0	0	0	0	$0
Northampton	0	0	0	0	0	0	0	0	$0
Northborough	3	1	0	2	0	0	0	0	$500
Northbridge	2	0	0	2	0	0	0	0	$0
Northfield	0	0	0	0	0	0	0	0	$0
Norton	1	1	0	0	0	0	0	0	$6,000
Norwell	3	0	0	3	0	0	0	0	$0
Norwood	0	0	0	0	0	0	0	0	$0
Oak Bluffs	0	0	0	0	0	0	0	0	$0
Oakham	1	0	0	1	0	0	0	0	$0
Orange	1	0	0	1	0	0	0	0	$0
Orleans	5	0	0	5	0	0	0	0	$0
Otis	0	0	0	0	0	0	0	0	$0
Oxford	0	0	0	0	0	0	0	0	$0
Palmer Fire Districts									
Bondsville	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Palmer	*1*	*0*	*0*	*1*	*0*	*0*	*0*	*0*	*$0*
Three Rivers	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Paxton	0	0	0	0	0	0	0	0	$0
Peabody	1	0	1	0	0	0	0	0	$0
Pelham	0	0	0	0	0	0	0	0	$0
Pembroke	0	0	0	0	0	0	0	0	$0
Pepperell	2	1	0	1	0	0	0	0	$0

2011 Fire Experience By Community

Community	Total Fires	Structure Fires	Vehicle Fires	Other Fires	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Peru	0	0	0	0	0	0	0	0	$0
Petersham	0	0	0	0	0	0	0	0	$0
Phillipston	0	0	0	0	0	0	0	0	$0
Pittsfield	285	164	20	101	0	2	0	8	$3,025,190
Plainfield	1	0	1	0	0	0	0	0	$10,000
Plainville	32	13	7	12	0	1	0	1	$60,000
Plymouth	188	80	28	80	1	2	0	4	$697,326
Plympton	6	2	3	1	0	0	0	0	$41,000
Princeton	19	13	1	5	0	0	0	2	$555,500
Provincetown	21	15	1	5	0	0	0	0	$0
Quincy	564	326	33	205	0	1	0	17	$9,443,500
Randolph	196	136	23	37	2	0	0	2	$1,329,800
Raynham	49	15	9	25	0	0	0	0	$60,000
Reading	77	55	7	15	0	0	0	0	$48,000
Rehoboth	33	21	4	8	0	0	0	0	$200,000
Revere	445	369	13	63	1	0	0	0	$154,925
Richmond	7	3	1	3	0	0	0	0	$8,422
Rochester	6	3	1	2	0	0	0	0	$348,500
Rockland	68	25	14	29	0	1	0	0	$35,200
Rockport	15	7	1	7	0	0	0	0	$0
Rowe	1	1	0	0	0	0	0	0	$127,000
Rowley	44	33	6	5	0	0	0	0	$80,360
Royalston	1	1	0	0	0	0	0	0	$0
Russell	8	6	0	2	0	0	0	0	$2,000
Rutland	20	10	4	6	0	0	0	0	$20,150
Salem	128	51	14	63	0	1	0	0	$0
Salisbury	4	1	2	1	0	0	0	0	$0
Sandisfield	5	4	0	1	0	0	0	0	$0
Sandwich	102	76	11	15	0	5	0	2	$374,550
Saugus	114	49	12	53	2	3	0	4	$1,716,651
Savoy	3	2	1	0	0	0	0	0	$115,000
Scituate	62	24	3	35	1	0	0	0	$159,000
Seekonk	89	23	22	44	0	1	0	0	$395,785
Sharon	39	21	9	9	0	0	0	0	$626,870
Sheffield	0	0	0	0	0	0	0	0	$0

2011 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	6	2	8	0	1	0	1	$173,050
Plainfield	0	0	0	0	0	0	0	0	$0
Plainville	0	0	0	0	0	0	0	0	$0
Plymouth	6	2	2	2	0	0	0	0	$6,200
Plympton	0	0	0	0	0	0	0	0	$0
Princeton	0	0	0	0	0	0	0	0	$0
Provincetown	0	0	0	0	0	0	0	0	$0
Quincy	8	0	1	7	0	0	0	0	$0
Randolph	4	1	0	3	0	0	0	0	$60,000
Raynham	0	0	0	0	0	0	0	0	$0
Reading	1	0	0	1	0	0	0	0	$0
Rehoboth	0	0	0	0	0	0	0	0	$0
Revere	2	1	1	0	0	0	0	0	$600
Richmond	0	0	0	0	0	0	0	0	$0
Rochester	0	0	0	0	0	0	0	0	$0
Rockland	5	0	1	4	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	$100
Salem	3	1	1	1	0	0	0	0	$0
Salisbury	0	0	0	0	0	0	0	0	$0
Sandisfield	0	0	0	0	0	0	0	0	$0
Sandwich	2	1	0	1	0	0	0	0	$50
Saugus	5	1	0	4	0	0	0	0	$0
Savoy	0	0	0	0	0	0	0	0	$0
Scituate	3	1	0	2	1	0	0	0	$120,000
Seekonk	9	2	0	7	0	0	0	0	$1,700
Sharon	1	0	0	1	0	0	0	0	$0
Sheffield	0	0	0	0	0	0	0	0	$0

2011 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	*6*	*1*	*2*	*3*	*0*	*0*	*0*	*0*	*$0*
Shelburne Falls	*4*	*3*	*0*	*1*	*0*	*0*	*0*	*0*	*$173,000*
Sherborn	18	2	1	15	0	0	0	0	$221,360
Shirley	11	11	0	0	0	0	0	0	$14
Shrewsbury	90	57	12	21	0	0	0	0	$838,048
Shutesbury	2	2	0	0	0	1	0	0	$90,000
Somerset	38	11	12	15	0	0	0	0	$150,050
Somerville	50	33	17	0	3	2	0	10	$2,846,083
South Hadley Fire Districts									
South Hadley #1	*24*	*12*	*0*	*12*	*0*	*0*	*0*	*0*	*$33,401*
South Hadley #2	*55*	*51*	*0*	*4*	*0*	*0*	*0*	*0*	*$0*
Southampton	7	5	1	1	0	0	0	0	$0
Southborough	26	13	4	9	0	0	0	0	$61,600
Southbridge	64	37	11	16	0	1	0	0	$585,100
Southwick	35	18	5	12	0	1	0	0	$103,150
Spencer	62	45	7	10	0	1	0	0	$261,000
Springfield	961	635	105	221	2	14	0	26	$4,500,140
Sterling	46	18	7	21	0	0	0	0	$368,050
Stockbridge	1	0	1	0	0	0	0	0	$0
Stoneham	75	69	4	2	0	0	0	0	$710,000
Stoughton	272	230	14	28	0	2	0	1	$342,500
Stow	16	13	2	1	1	0	0	1	$1,012,500
Sturbridge	46	15	8	23	0	0	0	0	$500
Sudbury	41	13	4	24	0	0	0	0	$37,000
Sunderland	9	6	0	3	0	0	0	0	$0
Sutton	22	15	2	5	0	0	0	0	$250,000
Swampscott	36	14	7	15	0	0	0	1	$1,413,750
Swansea	87	41	8	38	0	0	0	0	$0
Taunton	151	39	19	93	2	0	0	0	$0
Templeton	31	25	2	4	0	0	0	0	$0
Tewksbury	90	45	12	33	0	1	0	0	$1,433,150
Tisbury	19	12	1	6	0	0	0	0	$0
Tolland	2	1	0	1	0	0	0	0	$0
Topsfield	66	58	1	7	0	0	0	1	$537,690
Townsend	15	10	2	3	0	0	0	0	$30,000
Truro	1	1	0	0	0	0	0	0	$155,000

2011 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	0	0	0	0	0	0	0	0	$0
Shirley	0	0	0	0	0	0	0	0	$0
Shrewsbury	3	1	2	0	0	0	0	0	$500
Shutesbury	0	0	0	0	0	0	0	0	$0
Somerset	1	0	0	1	0	0	0	0	$0
Somerville	2	2	0	0	0	0	0	1	$250,300
South Hadley Fire Districts									
South Hadley #1	*3*	*0*	*0*	*2*	*0*	*0*	*0*	*0*	*$0*
South Hadley #2	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Southampton	0	0	0	0	0	0	0	0	$0
Southborough	2	0	0	2	0	0	0	0	$0
Southbridge	1	0	0	1	0	0	0	0	$0
Southwick	4	0	1	3	0	0	0	0	$1,000
Spencer	0	0	0	0	0	0	0	0	$0
Springfield	9	4	3	2	1	0	0	2	$253,100
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	3	1	0	2	0	0	0	0	$0
Stow	0	0	0	0	0	0	0	0	$0
Sturbridge	6	1	0	5	0	0	0	0	$0
Sudbury	0	0	0	0	0	0	0	0	$0
Sunderland	0	0	0	0	0	0	0	0	$0
Sutton	0	0	0	0	0	0	0	0	$0
Swampscott	0	0	0	0	0	0	0	0	$0
Swansea	1	1	0	0	0	0	0	0	$0
Taunton	16	3	2	11	0	0	0	0	$0
Templeton	1	0	1	0	0	0	0	0	$0
Tewksbury	2	1	0	1	0	0	0	0	$0
Tisbury	1	1	0	0	0	0	0	0	$0
Tolland	0	0	0	0	0	0	0	0	$0
Topsfield	0	0	0	0	0	0	0	0	$0
Townsend	0	0	0	0	0	0	0	0	$0
Truro	0	0	0	0	0	0	0	0	$0

2011 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	18	8	4	6	0	0	0	0	$525,000
Tyringham	0	0	0	0	0	0	0	0	$0
Upton	32	15	5	12	0	0	0	0	$0
Uxbridge	40	19	10	11	0	2	0	1	$365,050
Wakefield	53	43	8	2	0	1	0	2	$61,100
Wales	0	0	0	0	0	0	0	0	$0
Walpole	86	59	10	17	0	0	0	1	$65,890
Waltham	141	68	19	54	0	5	0	3	$2,553,020
Ware	45	15	0	30	0	1	0	0	$502,004
Wareham Fire Districts									
Onset	*42*	*30*	*1*	*11*	*0*	*2*	*0*	*2*	*$0*
Wareham	*135*	*48*	*24*	*63*	*0*	*8*	*0*	*5*	*$1,628,734*
Warren	16	9	3	4	0	0	0	0	$21,050
Warwick	1	0	0	1	0	0	0	0	$0
Washington	0	0	0	0	0	0	0	0	$0
Watertown	69	35	7	27	0	0	0	9	$1,026,892
Wayland	25	15	6	4	0	3	0	0	$481,200
Webster	49	16	5	28	0	0	0	0	$251,101
Wellesley	42	20	11	11	0	0	0	0	$451,430
Wellfleet	30	15	2	13	0	0	0	0	$21,800
Wendell	1	0	1	0	0	0	0	0	$0
Wenham	12	10	0	2	0	0	0	0	$95,000
West Boylston	23	5	10	8	0	0	0	0	$5,000
West Bridgewater	34	7	12	15	0	3	0	0	$7,500
West Brookfield	2	1	1	0	0	0	0	0	$0
West Newbury	10	9	1	0	0	2	0	1	$276,850
West Springfield	74	24	23	27	3	3	0	4	$2,099,000
West Stockbridge	5	1	3	1	0	0	0	0	$0
West Tisbury	0	0	0	0	0	0	0	0	$0
Westborough	52	35	6	11	0	0	0	0	$98,440
Westfield	125	69	20	36	2	0	0	2	$1,732,150
Westford	53	21	6	26	0	1	0	1	$215,770
Westhampton	6	2	2	2	0	0	0	0	$100,000
Westminster	27	14	4	9	0	0	0	0	$1,151,120
Weston	44	21	10	13	0	0	0	0	$0
Westport	57	21	12	24	0	3	0	0	$363,851
Westwood	90	64	8	18	0	1	0	0	$855,300
Weymouth	306	164	23	119	0	0	0	10	$1,920,200

2011 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	5	0	0	5	0	0	0	0	$0
Uxbridge	1	1	0	0	0	0	0	0	$0
Wakefield	2	2	0	0	0	0	0	0	$0
Wales	0	0	0	0	0	0	0	0	$0
Walpole	3	0	0	3	0	0	0	0	$0
Waltham	3	2	0	1	0	0	0	0	$7,000
Ware	6	0	0	6	0	0	0	0	$1
Wareham Fire Districts									
Onset	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Wareham	*5*	*0*	*2*	*3*	*0*	*0*	*0*	*0*	*$8,910*
Warren	0	0	0	0	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	1	0	0	1	0	0	0	0	$0
Wayland	0	0	0	0	0	0	0	0	$0
Webster	4	0	0	4	0	0	0	0	$0
Wellesley	1	0	0	1	0	0	0	0	$0
Wellfleet	1	0	0	1	0	0	0	0	$1,000
Wendell	1	0	1	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	3	0	1	2	0	3	0	0	$0
West Brookfield	1	1	0	0	0	0	0	0	$0
West Newbury	0	0	0	0	0	0	0	0	$0
West Springfield	2	0	1	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	1	1	0	0	0	0	0	0	$0
Westfield	1	0	0	1	0	0	0	0	$0
Westford	2	0	1	1	0	0	0	0	$5,000
Westhampton	0	0	0	0	0	0	0	0	$0
Westminster	0	0	0	0	0	0	0	0	$0
Weston	1	0	0	1	0	0	0	0	$0
Westport	3	0	0	2	0	0	0	0	$0
Westwood	1	0	0	1	0	0	0	0	$0
Weymouth	4	0	1	3	0	0	0	0	$12,000

2011 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
Whately	3	1	1	1	0	0	0	0	$0
Whitman	45	27	3	15	0	1	0	1	$162,700
Wilbraham	41	23	5	13	0	1	0	0	$386,300
Williamsburg	3	2	0	1	0	0	0	0	$325,000
Williamstown	15	7	4	4	0	2	0	1	$679,920
Wilmington	97	56	16	25	0	0	0	1	$1,753,400
Winchendon	42	33	4	5	0	0	0	0	$244,600
Winchester	35	23	2	10	0	0	0	0	$47,500
Windsor	4	0	1	3	0	0	0	0	$9,500
Winthrop	61	37	1	23	0	1	0	1	$1,086,585
Woburn	76	41	23	12	0	3	0	1	$396,202
Worcester	1,374	723	122	529	1	2	1	33	$7,430,420
Worthington	0	0	0	0	0	0	0	0	$0
Wrentham	23	10	7	6	0	0	0	0	$18,510
Yarmouth	62	22	4	36	1	2	0	0	$148,260

2011 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
Whately	0	0	0	0	0	0	0	0	$0
Whitman	1	0	0	1	0	0	0	0	$0
Wilbraham	1	0	1	0	0	0	0	0	$5,000
Williamsburg	0	0	0	0	0	0	0	0	$0
Williamstown	1	1	0	0	0	0	0	0	$35,000
Wilmington	0	0	0	0	0	0	0	0	$0
Winchendon	3	0	1	2	0	0	0	0	$15,000
Winchester	1	0	0	1	0	0	0	0	$0
Windsor	0	0	0	0	0	0	0	0	$0
Winthrop	2	0	0	2	0	0	0	0	$200
Woburn	0	0	0	0	0	0	0	0	$0
Worcester	48	15	7	26	0	0	0	0	$208,200
Worthington	0	0	0	0	0	0	0	0	$0
Wrentham	3	0	0	3	0	0	0	0	$0
Yarmouth	9	3	0	6	0	0	0	0	$0

2011 Fires By Incident Type

Incident Type	Total Fires	% of Total	Civilian Deaths	Civilian Inj.	Fire Service Deaths	Fire Service Inj.	Dollar Loss
Structure Fires	18,178	62%	42	248	2	390	$195,095,440
Vehicle Fires	2,997	10%	10	24	0	15	16,302,466
Brush Fires	3,351	12%	1	5	0	9	256,675
Outside Rubbish Fires	2,905	10%	0	0	0	3	121,235
Special Outside Fires	741	3%	1	22	0	0	604,284
Cult. Veg. & Crop Fires	28	0.1%	0	0	0	0	1,200
Other Fires	910	3%	0	24	0	15	4,621,634
Total Fires	**29,110**	**100%**	**54**	**323**	**2**	**422**	**$217,002,934**

2011 Arsons* By Incident Type

Incident Type	Total Fires	% of Total	Civilian Deaths	Civilian Inj.	Fire Service Deaths	Fire Service Inj.	Dollar Loss
Structure Arsons	223	23%	3	13	0	20	$11,681,993
Vehicle Arsons	125	13%	4	1	0	0	667,825
Brush Arsons	312	32%	0	0	0	0	3,200
Outside Rubbish Arsons	98	10%	0	0	0	0	7,960
Special Outside Arsons	130	13%	0	4	0	0	8,851
Cult. Veg. & Crop Arsons	3	0.3%	0	0	0	0	0
Other Arsons	88	9%	0	2	0	0	8,405
Total Arsons	**979**	**100%**	**7**	**20**	**0**	**20**	**$12,378,234**

*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.

2011 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	900	405	109	386	2	36	0	13	$9,203,072
Berkshire	609	340	47	164	2	8	0	19	5,486,403
Bristol	1,878	827	316	735	6	29	0	24	18,712,131
Dukes[1]	2	1	0	1	0	0	0	0	0
Essex	2,992	1,879	286	827	10	31	1	62	32,041,000
Franklin	235	140	29	66	0	4	0	4	2,380,126
Hampden	2,093	1,214	293	586	9	45	0	43	15,702,326
Hampshire	452	218	40	194	0	6	0	3	1,863,724
Middlesex	4,856	3,239	510	1,107	10	49	0	90	36,367,667
Nantucket	48	37	2	9	0	0	0	0	95,000
Norfolk	3,047	1,982	287	778	3	11	0	43	26,844,035
Plymouth	1,796	805	271	720	4	54	0	31	10,542,566
Suffolk	6,453	4,906	369	1,178	3	10	0	42	32,135,631
Worcester	3,807	2,185	438	1,184	5	40	1	48	25,629,253
Total	**29,110**	**18,178**	**2,997**	**7,935**	**54**	**323**	**2**	**422**	**$217,002,934**

2011 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	57	7	1	49	0	0	0	3	$372,200
Berkshire	42	8	4	30	0	1	0	1	75,605
Bristol	99	29	14	56	0	2	0	1	716,150
Dukes[2]	0	0	0	0	0	0	0	0	0
Essex	106	23	18	65	1	2	0	6	700,700
Franklin	13	4	2	7	0	0	0	0	92,600
Hampden	56	10	13	33	1	0	0	2	281,625
Hampshire	28	0	0	28	0	0	0	0	51
Middlesex	119	34	22	63	0	1	0	4	939,625
Nantucket	2	0	0	2	0	0	0	0	0
Norfolk	65	7	3	55	1	0	0	0	2,425,618
Plymouth	98	19	11	68	1	8	0	2	493,860
Suffolk	156	42	16	98	0	0	0	1	5,217,955
Worcester	154	37	22	95	2	5	0	0	479,750
Total	**979**	**223**	**125**	**631**	**7**	**20**	**0**	**20**	**$12,378,234**

[1] Dukes County fire departments reported another 18 fires after the 2011 database was closed for analysis: 12 structure fires, 1 motor vehicle fire and 7 outside & other fires.

[2] Dukes County fire departments reported 1 structure arson after the 2011 database was closed for analysis.

2011 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	900	4.2	2	2.2	0.09	57	0.3
Berkshire	131,219	551	4.2	2	3.6	0.15	26	0.2
Bristol	548,285	1,878	3.4	6	3.2	0.11	99	0.2
Dukes[3]	16,535	31	0.1	0	0.0	0.00	1	0.0
Essex	743,159	2,992	4.0	10	3.3	0.13	106	0.1
Franklin	71,372	235	3.3	0	0.0	0.00	13	0.2
Hampden	463,490	2,093	4.5	9	4.3	0.19	56	0.1
Hampshire	158,080	452	2.9	0	0.0	0.00	28	0.2
Middlesex	1,503,085	4,856	3.2	10	2.1	0.07	119	0.1
Nantucket	10,172	48	4.7	0	0.0	0.00	2	0.2
Norfolk	670,850	3,047	4.5	3	1.0	0.04	65	0.1
Plymouth	494,919	1,796	3.6	4	2.2	0.08	98	0.2
Suffolk	722,023	6,453	8.9	3	0.5	0.04	156	0.2
Worcester	798,552	3,807	4.8	5	1.3	0.06	154	0.2
Massachusetts	*6,547,629*	*29,110*	*4.4*	*54*	*1.9*	*0.08*	*979*	*0.1*

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

[3] Dukes County reported 18 more fires after the 2011 database was closed for analysis.

2011 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[4] & Natural Disaster	Special Incident Type
Barnstable	39,192	63	26,904	2,455	2,891	1,464	4,904	353	158
Berkshire	12,078	14	6,455	1,035	1,748	592	1,991	190	53
Bristol	48,646	65	29,867	2,998	3,465	3,284	8,553	125	289
Dukes[5]	191	1	10	18	8	7	146	0	1
Essex	82,804	105	46,128	4,660	11,113	4,905	14,974	215	704
Franklin	6,513	18	3,191	660	1,094	469	820	125	136
Hampden	43,966	107	24,375	2,694	3,705	4,673	7,980	244	188
Hampshire	13,540	40	8,117	959	932	583	2,682	90	137
Middlesex	153,174	156	84,475	13,465	15,256	8,678	26,290	431	4,451
Nantucket	2,385	0	1,126	233	162	68	788	6	2
Norfolk	81,981	154	47,429	7,862	8,034	4,263	12,159	343	1,737
Plymouth	69,840	118	43,581	6,060	6,072	4,485	8,808	411	305
Suffolk	87,048	68	46,861	6,046	11,125	7,786	14,748	74	310
Worcester	79,743	137	50,504	5,695	6,348	4,037	11,619	385	1,028
Massachusetts	**721,081**	**1,045**	**419,025**	**54,837**	**71,953**	**45,291**	**116,439**	**2,992**	**9,499**

[4] WX is the abbreviation for Weather.

[5] Tisbury is the only department to send us non-fire calls.

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.

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	Everett	Middleton	Swampscott
Acton	Fairhaven	Milford	Taunton
Acushnet	Fall River	Natick	Tewksbury
Amesbury	Fitchburg	Needham	Turners Falls
Amherst	Framingham	Newburyport	Tyngsboro
Arlington	Franklin	Newton	Upton
Ashland	Gardner	North Andover	Wakefield
Auburn	Georgetown	North Reading	Ware
Ayer	Grafton	Northborough	Warren
Belmont	Hamilton	Norton	Watertown
Berkley	Hanson	Pelham	Wayland
Beverly	Haverhill	Plainville	Wenham
Billerica	Holyoke	Plymouth	Westborough
Boston	Hopedale	Randolph	Westford
Braintree	Hull	Raynham	Westminster
Brockton	Ipswich	Revere	Westport
Brookfield	Kingston	Rutland	Westwood
Brookline	Lancaster	Salem	Whitman
Burlington	Lawrence	Saugus	Wilmington
Chatham	Lee	Scituate	Winchester
Chelsea	Lowell	Seekonk	Winthrop
Chelmsford	Ludlow	Sharon	Woburn
Chicopee	Lunenburg	Somerset	Worcester
Clinton	Mansfield	Somerville	Wrentham
Cohasset	Marlborough	Southborough	
Concord	Marshfield	Sterling	**Total: 113**
Danvers	Maynard	Stoneham	
Dartmouth Dist. 1	Medford	Stoughton	
Dartmouth Dist. 3	Medway	Sudbury	
Dennis	Melrose	Sutton	

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	Fairhaven	Mashpee	Sudbury
Acton	Fall River	Maynard	Swansea
Acushnet	Falmouth	Medfield	Taunton
Agawam	Fitchburg	Medford	Tewksbury
Amesbury	Foxborough	Medway	Tyngsboro
Amherst	Framingham	Melrose	Upton
Arlington	Franklin	Milford	Wakefield
Ashland	Georgetown	Millbury	Walpole
Athol	Grafton	Natick	Waltham
Avon	Great Barrington	Newton	Ware
Ayer	Groton	North Andover	Watertown
Barnstable	Hamilton	North Attleboro	Wayland
Barre	Hanover	North Reading	Wellesley
Bellingham	Hanson	Northborough	Wenham
Belmont	Harwich	Norton	West Barnstable
Berkley	Haverhill	Norwell	West Boylston
Beverly	Hingham	Orange	West Springfield
Billerica	Holden	Paxton	Westborough
Boston	Holliston	Pelham	Westford
Brewster	Holyoke	Plainville	Westminster
Brookfield	Hopedale	Plymouth	Westport
Brookline	Hopkinton	Randolph	Westwood
Burlington	Hudson	Raynham	Whitman
Centerville	Hull	Revere	Wilmington
Chatham	Hyannis	Rockland	Winchester
Chelmsford	Ipswich	Rutland	Winthrop
Clinton	Kingston	Salem	Woburn
Cohasset	Lancaster	Saugus	Wrentham
Concord	Lawrence	Scituate	Yarmouth
Cotuit	Lexington	Shrewsbury	
Dartmouth Dist. 1	Longmeadow	Somerset	**Total: 115**
Dartmouth Dist. 3	Lowell	Somerville	
Dedham	Lunenburg	S. Hadley-Dist. 2	
Duxbury	Mansfield	Southborough	
E. Longmeadow	Marblehead	Sterling	
Easton	Marlborough	Stoneham	
Everett	Marshfield	Stoughton	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