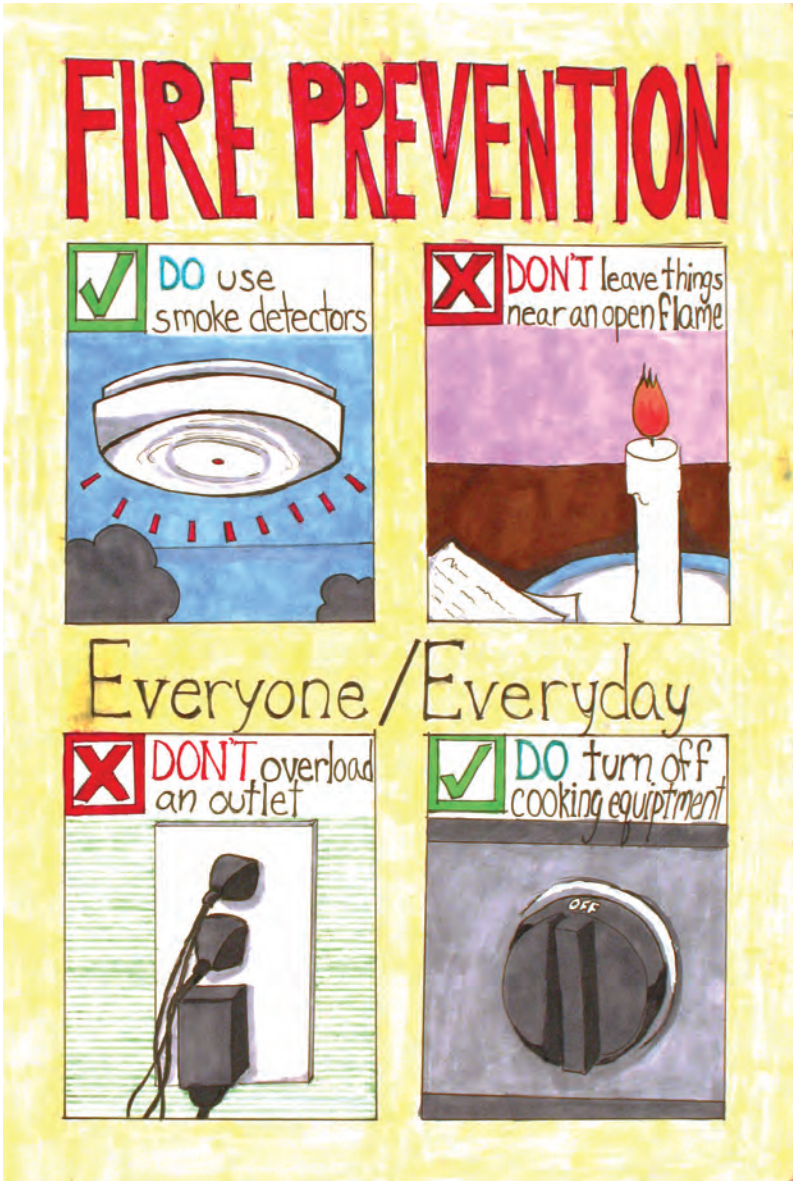
The Massachusetts Fire Problem



Annual Report of the Massachusetts Fire Incident Reporting System

2009

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 2010 First and Second Place winning entries of the 28th Annual Statewide Arson Watch Reward Program Poster Contest, sponsored by the Massachusetts Property Insurance Underwriting Association (FAIR Plan), on behalf of all property and casualty insurance companies of Massachusetts. This year's poster theme was **"FIRE PREVENTION – EVERYONE / EVERY DAY".**

A countywide contest was held for all students in grade 6-8. Thirteen out of 14 counties participated with over 1,300 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 June 3, 2010, at which time the three State Winners were announced and presented with their awards.

The front cover shows a drawing submitted by Annie Innes-Gold, a student at the JFK Middle School, Florence, Massachusetts. Annie's poster was chosen as the First Place Winner in the Hampshire County Poster Contest, and as a result, was automatically entered into the statewide contest, along with 13 other county winners, where it was chosen as the First Place Statewide Winner.

The back cover shows a drawing submitted by Amy Wang, a student at W. L. Chenery Middle School, Belmont, Massachusetts. Amy's poster was chosen as the First Place Winner in the Middlesex County Poster Contest and was also automatically entered into the statewide contest where it was chosen as the Second Place Statewide Winner.

The Massachusetts FAIR Plan has generously sponsored the printing of the 2009 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 27 years.

Massachusetts Fire Incident Reporting System

2009 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.*

November 2010

This is the *2009 Annual Report of the Massachusetts Fire Incident Reporting System* (MFIRS) which summarizes the Massachusetts fire experience for 2009. It is based on the 28,595 individual fire reports submitted by members of 366 fire departments and fire districts. It is this effort that makes it possible to look at the total fire experience, to identify our fire problems and to develop strategies to address these issues. One of the goals of the Division of Fire Safety is to provide the fire service and the public with accurate and complete information about the fire experience in Massachusetts

Civilian Fire Deaths Down 20% - New All Time Record Low

Thirty-six (36) civilians died in 29 Massachusetts fires during 2009. Civilian deaths decreased by 13, or 21%, from the 49 fire deaths in 2008. This is the lowest number of fire-related deaths on record since World War II[1]; and the third record low in the last five years. The previous record was 44 civilian fire deaths in 2006. The majority of these victims died at night, 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.

No Fire Related Firefighter Deaths in 2009

There were no fire-related fire service fatalities in the Commonwealth of Massachusetts in 2009

Declining Trend in Civilian Fire Deaths

Five (5) 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 and we must continue our focus on prevention. They have also measured the positive impact of smoke alarms in reducing fire deaths and multiple deaths in 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 own the fastest growing share of our population, so our prevention efforts must be expanded to include them, not just shift existing resources to them.

[1] Based upon available records in the State House Library and Division of Fire Safety.

Our relentless goal is to reduce the deaths, injuries and damage fires do 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 code compliance efforts, and use enforcement tools when necessary. An important part is educating the public as to why fire codes are in place. 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.

Fire Standard Compliant Cigarettes

The Reduced Ignition Propensity (RIP) legislation or 'fire safe cigarette' law making it mandatory for cigarette manufacturers to start selling only the self-extinguishing type of cigarettes in Massachusetts took effect on January 1, 2008. Since August of 2009 all of the states bordering Massachusetts have been selling self-extinguishing cigarettes; and since January 1, 2009 every state in the Northeast and Mid-Atlantic regions have been only selling consumers these types of cigarettes. By the end of 2009 only Wyoming did not enact a version of this legislation. On January 1, 2011, every state except Wyoming will have implemented their own state law banning the sale of ordinary cigarettes with Wyoming's law taking effect on July 1, 2011.

Since World War II smoking has been the leading cause of fatal fires in Massachusetts. The expectation is that when the effect of this 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 two years. In 2009, nine, or 30%, of residential fire deaths in Massachusetts were due to smoking; in 2008 it caused 11, or 26%, of these deaths. Smoking is also the leading cause of fatal fires nationwide.

Cooking Leading Cause of Fires & Fire Injuries

Cooking is the leading cause of most fires and civilian fire injuries in the Commonwealth. Sixty-eight percent (68%) of all residential building fires started in the kitchen. Over one quarter of all civilian fire injuries, 26%, occurred during cooking fires. We must put a renewed emphasis on cooking fire prevention and education in our communities. The implementation of 527 CMR 11, Commercial Cooking Operations, is a good start. However these efforts also need to be steered toward safe cooking at home.

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 Down 20% - New All Time Record Low
Thirty-six (36) civilians died in 29 Massachusetts fires during 2009. Civilian deaths decreased by 13, or 21%, from the 49 fire deaths in 2008. This is the lowest number of fire-related deaths on record since World War II[1]; and the third record low in the last five years. The previous record was 44 civilian deaths in 2006. Seventeen (17) men, 14 women, and five children died in Massachusetts' fires. Of the 36 civilian deaths in fires in 2009, 30 occurred in residential structure fires. Almost one-half, or 47%, of civilians died at night, while they were sleeping and did not have working smoke detectors. 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.

Five (5) deaths occurred in five motor vehicle fires and one person was killed in an outside fire in 2009.

No Fire Related Firefighter Death in 2009
There were no fire-related fire service fatalities in the Commonwealth of Massachusetts in 2009.

17,773 Structure Fires, 3,069 Vehicle Fires, 7,753 Outside & Other Fires in 2009
There were 28,595 fire and explosion incidents reported by fire departments to the Massachusetts Fire Incident Reporting System (MFIRS) in 2009. The 17,773 structure fires, 3,069 motor vehicle fires, and 7,753 outside and other fires caused 36 civilian deaths, 332 civilian injuries, 460 fire service injuries, and an estimated dollar loss of $183 million in property damages. In 2009 there were 1.3 civilian deaths for every 1,000 fires.

Structure Fires Increase & MV & Outside Fires Down in 2009
The total number of reported fires decreased by 5% from 30,254 in 2008 to 28,595 in 2009. Structure fires increased 3% from 2008 to 2009. From 2008 to 2009, motor vehicle fires decreased by 1%. Outside, brush, and other fires decreased by 22% 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

[1] Based upon available records in the State House Library and Office of the State Fire Marshal.

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 57%, of the 685,044 total responses that were reported to MFIRS in 2009.

Cooking Was the Leading Cause of Residential Building Fires
Sixty-six percent (66%) of all residential building fires were caused by unattended and other unsafe cooking practices in 2009. Sixty-eight percent (68%) of residential fires originated in the kitchen.

Once Again Smoking Fires Are the Leading Cause of Fire Deaths
In 2009, smoking fires were the leading cause of residential building fire deaths. These fires accounted for nine, or 32%, of residential fire deaths. For years, 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 fires that kill. 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 62% of Fires
Smoke or heat detectors operated in 8,991, or 62%, of the residential building fires in 2009. Detectors, in confined fires, did not alert the occupants in 9% of these fires. 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. Based on information reported, smoke detector performance was undetermined in 3,560 incidents, or 24% of Massachusetts' 2009 residential building fires.

Detectors Operated in Almost 1/2 of Building Fires that Caused Injuries
Detectors operated in just under half, or 48%, 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 injuring 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 Up Slightly
One thousand one hundred and eighty-four (1,184) Massachusetts fires were considered arson in 2009. The 291 structure arsons, 188 motor vehicle arsons, and 705 outside and other arsons caused eight civilian deaths, 19 civilian injuries, 18 fire service injuries, and an estimated dollar loss of $12 million. This is a 1% increase in arson from the 1,181 reported in 2008.

Structure arsons increased by 3%, while motor vehicle arsons rose 25% from 2008 to 2009, although motor vehicle arson has fallen 97% since 1987. The steady decline of motor vehicle arsons can be explained by the enactment of the Burned Motor Vehicle

Reporting Law, which took effect in 1987, and requires owners of burned motor vehicles to complete and sign a report which 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 6%.

Over 1/3 of All Vacant Building Arsons Occurred in Secured Buildings
Thirty-four percent (34%) of all vacant building arsons in 2009 occurred in secured vacant buildings. Thirty-three percent (33%) occurred in unsecured, vacant buildings; while 14% happened in idle buildings that are not routinely used. Buildings under major renovation accounted for 12% of the vacant building arsons in 2009. Buildings under construction accounted for 5% of vacant building arsons. One of the most dangerous types of fires for firefighters in 2009 was vacant building fires. On average there was one firefighter injury for every five vacant building fires.

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

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

Massachusetts Fire Departments

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

When most people think of the fire department, they think of fire trucks, sirens and flames. Actually, the priority of a fire department is prevention and education. If they fail, 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 maintaining clear paths of egress, fireworks, dry cleaning, oil burners, gas stations, liquid propane, plastics, transportation of flammable liquids, above ground storage tanks, electrical systems, explosives, storage of flammable substances, marine fueling, model rockets, lumber yards, bulk plants, tentage, salamanders, flammable decorations and curtains, cannon or mortar firing, fire extinguishers, smoke detectors, obstructions and hazards, combustible fibers, rubbish handling, crop ripening, pesticide storage, welding and storage, carbon monoxide, and unvented appliances. The fire department must also enforce the laws contained in Massachusetts General Law Chapter 148.

Inspectors must know the laws and 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 and educate people on violations and perform follow-up inspections. Just as firefighters are sent to the Massachusetts Firefighting Academy to learn the principles of suppression, fire prevention personnel must go to classes to learn the ins and outs of the regulations. These functions also produce a corresponding amount of documentation that is critical to be maintained.

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

The S.A.F.E. Program

The Student Awareness of Fire Education or S.A.F.E. program was implemented in fiscal year 1996. The Legislature appropriated $1,078,666 to fund public fire education grants. These grants provide local fire departments with funding to educate children about the dangers associated with fire, particularly fires caused by smoking. Any city or town whose fire department is committed to working with school systems, public health or other community agencies to develop a well conceived and coordinated fire safety education program message is invited to apply for these grants. In fiscal year 2009, 228 fire departments shared the $1.2 million in S.A.F.E. funding.

Boston Young Hero – Jack Gilbride

On May 24, 2009 around 1:00 a.m. smoke alarms sounded in the home of 7-year old Jack Gilbride. A fire, started by an unattended candle, was burning in the kitchen of his residence on the second floor of the 2-family dwelling on Farquhar Street. Jack ran downstairs to alert his uncle and grandfather, who lived on the first floor. He opened the door, shouted "Everybody wake up….Fire!". Thanks to Jack's quick thinking everyone got out safely before the arrival of the fire department. Jack learned fire safety lessons in school from the Boston Fire Department S.A.F.E. Program, a Public Fire and Life Safety Education Program, which uses specially trained firefighters to teach key fire safety behaviors to students.

2009 PFALSE Educator of the Year - FF/EMT Bonnie Lopez, Upton FD

Firefighter and Emergency Medical Technician Bonnie Lopez has been Upton's S.A.F.E. coordinator since 2000 and serves the Upton- Mendon School District. In 2006, Bonnie was awarded the Liberty Mutual National Fire Mark Award for Fire Educators out of 150 nationwide nominees. She brought her degree in elementary education to develop her school programs that reach nearly 600 elementary school aged children each year where she is known as "Firefighter Bonnie". Her efforts have made juvenile-set fires in the town of Upton almost nonexistent. Over the summer she holds a "Junior Fire Academy" for kids 8-12. FF Lopez teaches kids how to use fire hoses and put out small fires with extinguishers in addition to teaching them fire safety practices. She has built relationships with area businesses to support her programs, even during tough economic times. Refusing to let her programs grow stale, she continues to build and improve them. She has also mentored area fire educators, and works closely with neighboring fire departments that share the regional school system. Bonnie is certified as a Fire and Life Safety Educator by the Mass. Fire Training Council and serves on the MA Public Fire and Life Safety Education Task Force.

99 MA Departments Receive $11.8 Million in Federal Grants

In the seventh year of the Federal Assistance to Firefighter Grant program, 99 Massachusetts fire departments received $11.8 million. Eighty-nine (89) departments

received $8.5 million for fire operations and firefighter safety. Ten (10) departments received $3.3 million for the purchase of firefighting vehicles.

Eleven (11) fire departments were awarded $18.4 million in Federal SAFER grants that allow for the hiring and recruitment of more firefighters.

99.2% 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 Division of Fire Safety. This is done through the Massachusetts Fire Incident Reporting System (MFIRS). Three hundred fifty-three (353), or 96.7% of Massachusetts Fire Departments reported at least one fire during 2009. Ten (10), or 2.7%, 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 2009, 294, or 80%, 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.

57% of All Massachusetts Calls Were EMS Incidents

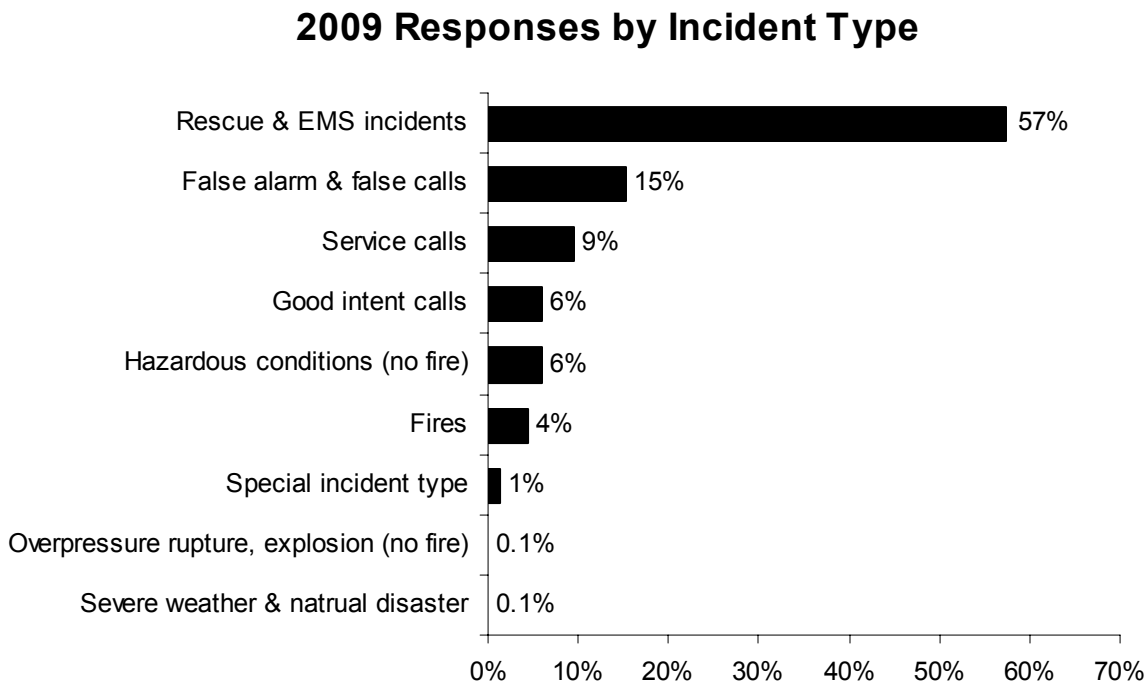
In 2009, 353 fire departments in Massachusetts reported 685,044 responses[2] to MFIRS. Of these 685,044 responses, 354,974 non-fire calls were voluntarily reported.

Of these 654,974 non-fire incidents there were 392,989 (57%) reported rescue and emergency medical services (EMS) calls; 105,193 (15%) reported false alarm or false calls; 64,999 (9%) reported service calls such as lock-outs, water or smoke problem, unauthorized burning or public service assistance; 40,898 (6%) reported good intent calls;

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

40,804 (6%) reported hazardous condition calls with no fire; 8,653 (1%) reported special incident type calls such as citizen complaints; 989 (0.1%) reported overpressure rupture, explosion or overheat calls with no fire; and 449 (0.1%) reported severe weather and natural disaster incidents..

Thirty thousand and seventy (30,070), or 4%, of the total responses submitted by Massachusetts fire departments were fires.



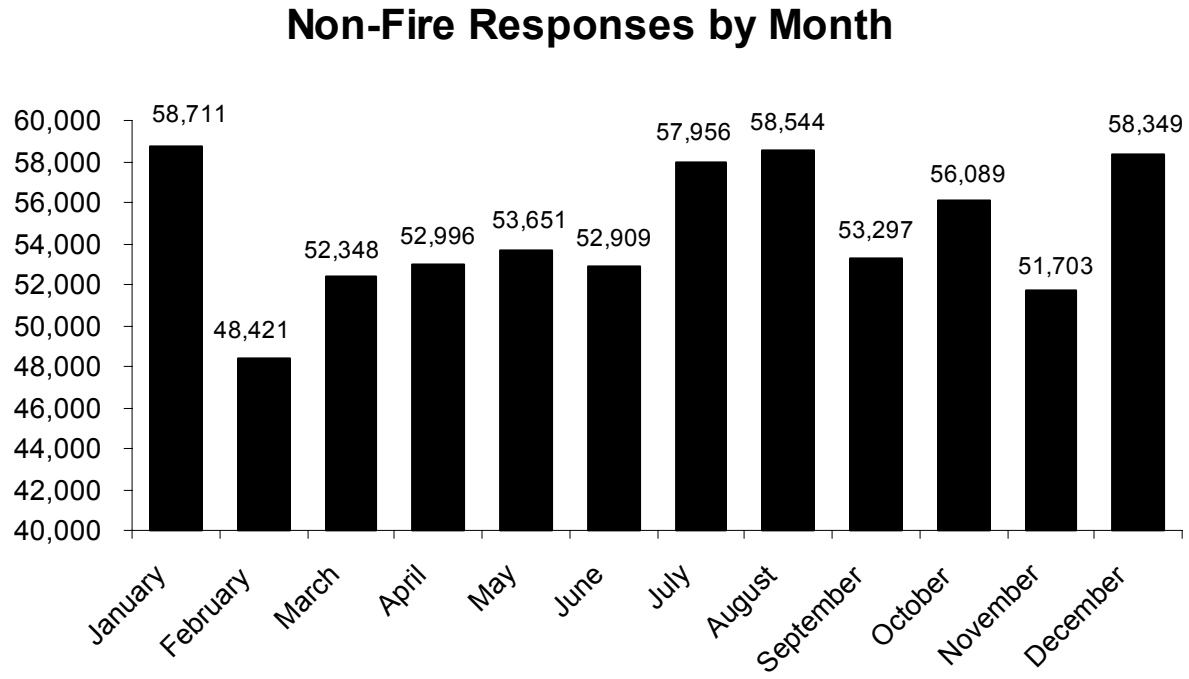
Most Large Cities Voluntarily Reporting All of Their Incidents
Boston, the largest city in the Commonwealth, reported 63,406 non-fire incidents in 2009. The City of Worcester, the second largest city in Massachusetts reported the second most non-fire incidents in 2009, 26,646 incidents. The next five cities in terms of the number of non-fire calls reported were: Springfield with 13,580; Cambridge, 12,444 calls; Lowell, 11,295 calls; Medford, 10,109 calls; and Framingham with 8,824 reported non-fire incidents in 2009.

57% of All Fire Department Responses Were EMS Calls
Fifty-seven percent (57%) of all reported 2009 fire department responses in the Commonwealth were emergency medical service calls. The top four types of all calls were all EMS type incidents. One third of all reported incidents, or 33%, were non-vehicle accident with injury - EMS calls. Twelve percent (12%) were calls where firefighters assisted the EMS crews. Six percent (6%) were classified as rescue, EMS call, other. Three percent (3%) of all reported incidents in 2009 were motor vehicle accidents with injuries. The fifth most reported call in 2009 was alarm system sounded, no fire - unintentional, accounting for 2% of all reported incidents.

Middlesex & Suffolk Counties Reported Over 1/3 of All Non-Fire Incidents
Middlesex and Suffolk Counties reported a combined 35% of all non-fire incidents to MFIRS in 2009. Middlesex County reported 23% of these types of incidents and Suffolk County reported 13%. Worcester County submitted the third most non-fire calls totaling 12% of all the 2009 non-fire incidents. Nantucket County reported 2,015 (0.3%) non-fire incidents and Dukes County reported 137 non-fire incidents; accounting for 0.02% of all non-fire incidents reported to MFIRS in 2009.

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

Non-Fire Incidents by Month
January was the month with the most reported non-fire incidents in 2009 (9%), followed by August (9%) and December (9%). February was the month with the least reported non-fire incidents (7%). Statistically these incidents are spread evenly from month to month. Six (6) months each accounted for 8% of the incidents, five months each accounted for 9%, and one month accounted for 7% of the incidents. The average number of monthly reported non-fire incidents in 2009 was 54,581 calls.



Aid Given & Received
In 2009, Massachusetts fire departments reported that they received mutual or automatic aid at 11,231, or 2%, of all calls. They also reported that they gave mutual, automatic or other aid to other fire departments 14,924 times, or another 2% of all calls.

Norfolk County Fire Departments Receive the Most Aid
Norfolk County fire departments reported receiving the most aid, accounting for 1,999 incidents, or 18%, of all aid received calls reported by Massachusetts fire departments in 2009. These 2,012 calls represent 3% of their total calls. Middlesex County also accounted for 18% of all aid received calls, but these calls only accounted for 1% of their total calls; and Plymouth County accounted for 17% of all aid received calls, but these calls only accounted for 4% of Plymouth County's total calls.

Norfolk County Give the Most Aid
Norfolk County fire departments reported giving aid, accounting for 3,097 incidents, or 21% of all aid given calls reported by Massachusetts fire departments in 2009. These 3,097 calls represent 4% of all of Norfolk County's reported calls in 2009. Middlesex County accounted for 18% of all aid given calls in 2009, 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; and Plymouth County also accounted for 13% of all aid received calls, but these calls only accounted for 4% of their total calls.

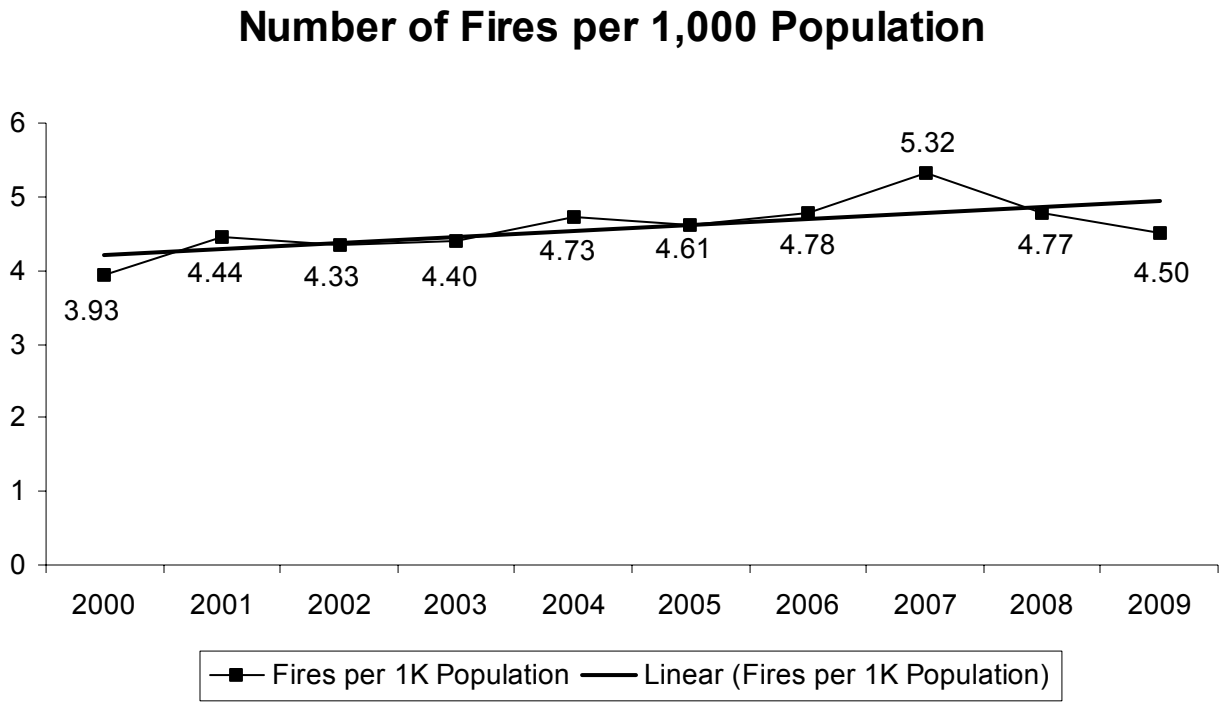
Fires by Incident Type

17,773 Structure Fires, 3,069 Vehicle Fires, 7,753 Outside & Other Fires in 2009
There were 28,595 fire and explosion incidents reported by fire departments to the Massachusetts Fire Incident Reporting System (MFIRS) in 2009. The 17,773 structure fires, 3,069 motor vehicle fires, and 7,753 outside and other fires caused 36 civilian deaths, 332 civilian injuries, 460 fire service injuries, and an estimated dollar loss of $183 million in property damages.

The following chart indicates the number of total fires reported per 1,000 citizens in Massachusetts per year from 2000 through 2009. In 2009, there were 4.50 fires for every 1,000 citizens in Massachusetts[3]. A figure like this allows one to compare our fire problem to other states of different sizes. For example in 2009, Washington reported 4.30 fires for every 1,000 of its citizens[4], and Florida reported 3.69 fires for every 1,000 of its citizens[5], and Oregon reported 3.26 fires for every 1,000 of its citizens[6]. There were 4.79 fires per 1,000 citizens for the entire United States in 2009.[7]. While Massachusetts is

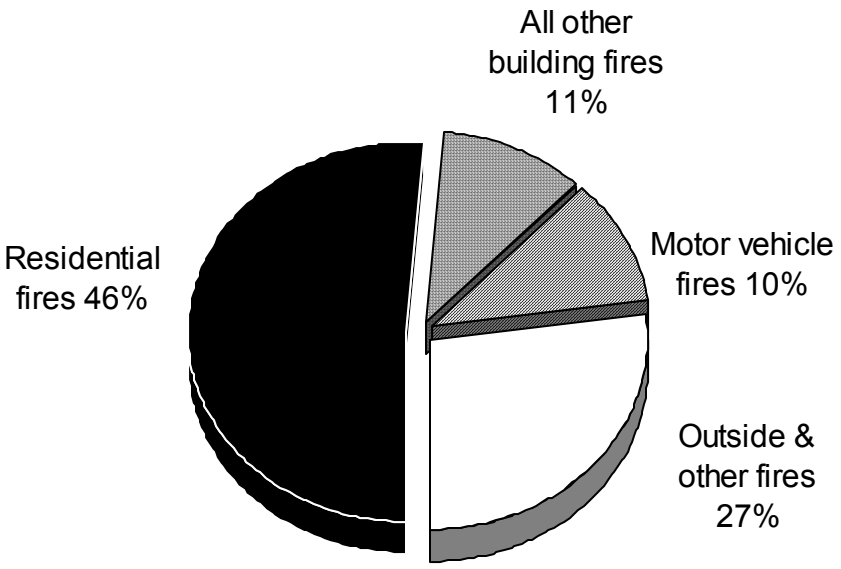
[3] The population figures used were from the 1990 and 2000 U.S. census. For 2000 – 2009, the population figure used was 6,319,097 people.
[4] Washington State Fire Marshal 2009 Fire in Washington Report, page 8.
[5] Florida Fires, State Fire Marshal Annual Report 2009, page 56, Summary Statistics.
[6] Per statistics obtained from Oregon's Office of the State Fire Marshal.
[7] The population used was the national population was 281,421,906 taken from the US Census Bureau's 2000 U.S. Census. The number of fires of 1,348,500 was obtained from **Fire Loss in the United States 2009,** page I, Karter, Michael J. Jr., National Fire Protection Agency, August 2010.

below the national average of fires per 1,000 citizens by 0.03, there continues to be room for improvement.



The following graph depicts the percentage of the major types of fires as part of the whole Massachusetts fire problem. In 2009, 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 86% 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.

2009 Fires by Incident Type



17,773 Structure Fires, 30 Civilian Deaths
Massachusetts fire departments reported 17,773 structure fires to the Massachusetts Fire Incident Reporting System (MFIRS) in 2009. These fires killed 30 civilians, caused 290 civilian injuries, 423 fire service injuries, and an estimated $166.9 million in property damage. Structure fires accounted for 62% of the total incidents and 83% of the civilian deaths in 2009. Structure fires were up 3% from 2008. There were 291 structure arsons in 2009. Structure fires in the Massachusetts Fire Incident Reporting System include any fires that occur inside or on a structure.

3,069 Motor Vehicle Fires Account for 10% of Reported Fires
The 3,069 motor vehicle fires caused five civilian deaths, 14 civilian injuries, 17 fire service injuries, and $13.2 million in property damage. These incidents accounted for 11% of the reported 28,595 fires in 2009. Motor vehicle fires accounted for 14% of civilian fire deaths. Motor vehicle fires were down 1% from 2008. There were 188 motor vehicle arsons in 2009. 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.

7,753 Brush, Trash, and Other Outside Fires
The 7,753 outside and other fires caused one civilian death, 28 civilian injuries, 20 fire service injuries, and an estimated dollar loss of $2.9 million. The 3,390 trees, grass and brush fires, 2,857 outside rubbish fires, 687 special outside fires, 29 cultivated vegetation or crop fires, and 790 other fires accounted for 27% of the total fire incidents in 2009 and 3% of civilian fire deaths. These fires were down 22% from the 9,900 such outside and other fire incidents reported in 2008. There were 705 outside and other arsons in 2009.

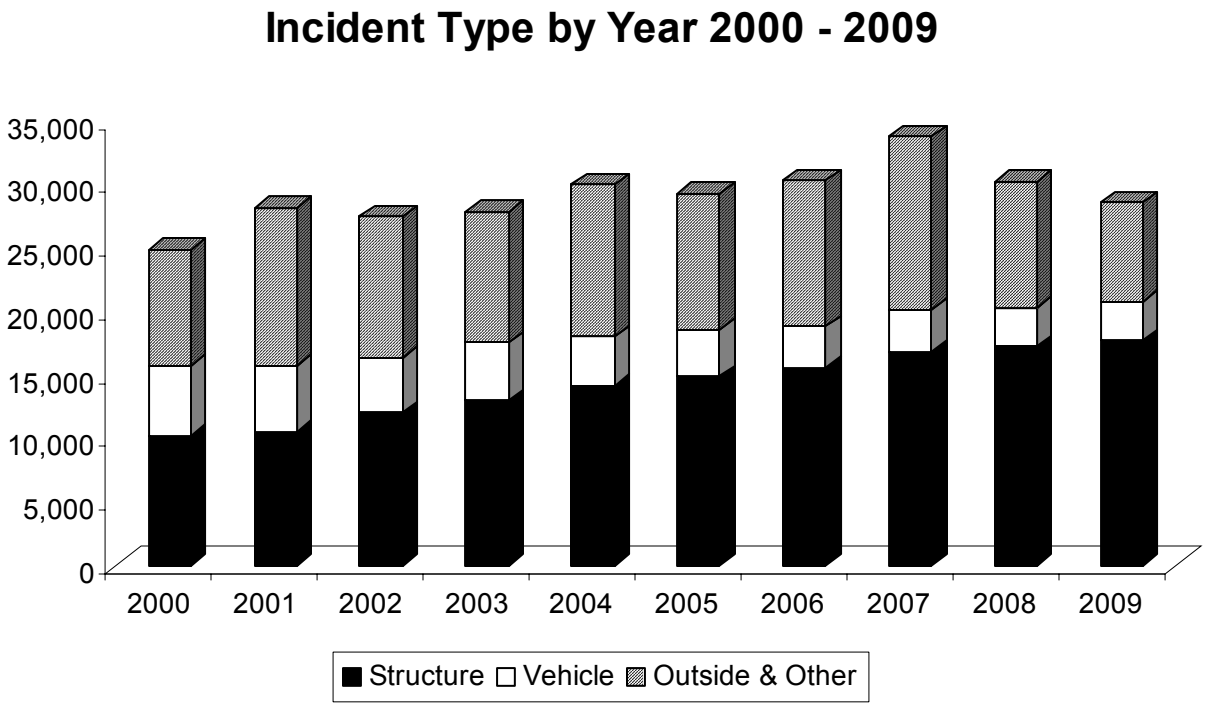
Fire departments are required to report any fire or explosion resulting in a dollar loss or human casualty to MFIRS. Fires that do not result in a loss may be reported. Many fire departments, particularly those that submit data electronically, voluntarily report these fires. These figures should be considered 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 2000 through 2009. The total number of fire incidents in 2009 was down 5% from the 30,254 incidents reported in 2008. Overall, fires have been on an increasing trend since 2000, though decreasing the last two years. This is due to 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
2009	28,595	17,773	3,069	7,753
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
2001	28,189	10,576	5,165	12,448
2000	24,931	10,279	5,473	9,179

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[8], 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.

[8] 2001 was the first year of MFIRS v5.0.



Structure Fires

17,773 Structure Fires Account for 62% of Reported Fires, 83% of Fire Deaths
The 17,773 structure fires caused 30 civilian deaths, 290 civilian injuries, 423 fire service injuries, and an estimated dollar loss of $166.9 million. The average structure fire caused $17,269 in property damage. Structure fires accounted for 62% of reported fires and 83% of the civilian fire deaths in 2009.

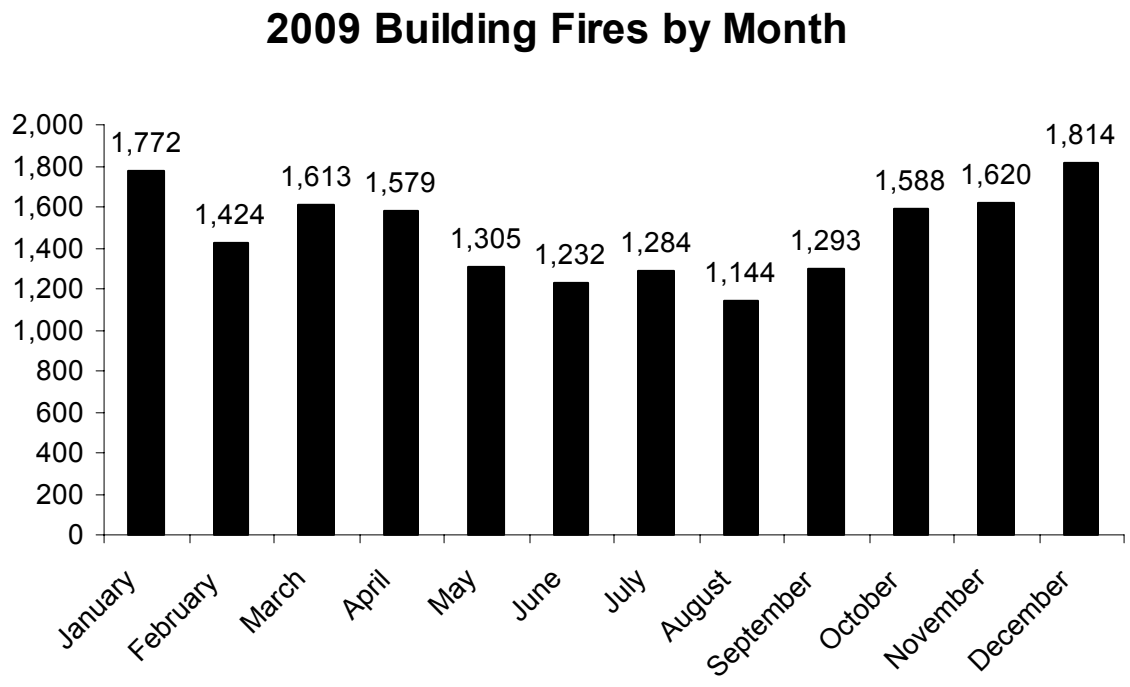
According to the MFIRS definition, any fire occurring inside or on a structure is considered a structure fire. This includes chimney fires, cooking fires, indoor waste basket fires, fires on a back porch, exterior trim fires, and vehicle fires that occur inside a garage that extend beyond the vehicle. The number of structure fires rose by 3% from the 17,269 reported in 2008.

Building Fires

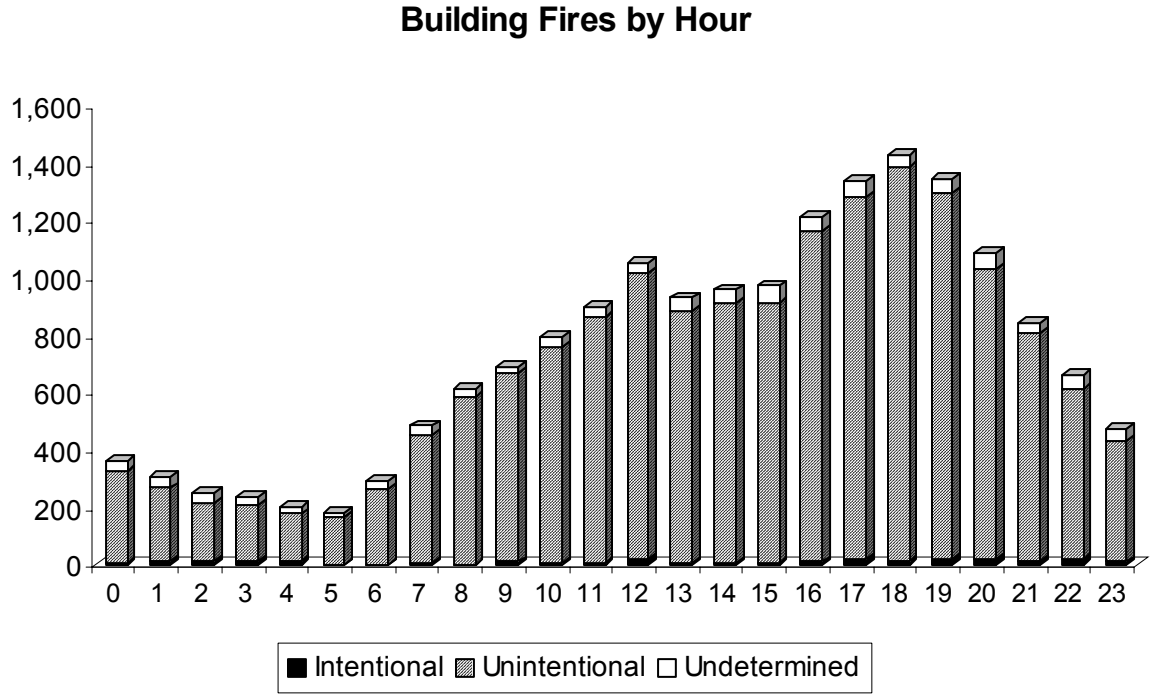
Most, but not all structure fires occur in buildings. It is important to distinguish between the two because many structures that are not buildings like bridges, tunnels, and towers, do not have the same fire prevention and alarm devices that many buildings are required to have, and their inclusion in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

There were 17,668 building fires of different types in Massachusetts in 2009. These 17,668 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 December was the peak month for these incidents in 2009. January 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 August. June had the second lowest frequency of these incidents, and July had the third lowest number of building fires in 2009.



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 6:00 p.m. and also between 10:00 p.m. and 11:00 p.m. Unintentional building fires reached their lowest point between 4:00 a.m. and 6:00 a.m. and increased fairly steadily to a peak between 5:00 and 6:00 p.m.



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

83% of Building Fires Occurred in Residential Occupancies

Eighty-three percent (83%) of the state's 17,668 building fires and all 30 of the 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.

Abington Building Fire Has Most Injuries

- On May 17, 2009, at 3:24 a.m., the Abington Fire Department was called to a fire at an 18-unit apartment complex. The fire began in a second floor bedroom. The fire smoldered undetected before erupting into open flames. Eleven (11) civilians were injured at this fire. Detectors were present and alerted the occupants but the building was not sprinklered. Damages from this fire were estimated to be $250,000.

BUILDING FIRES BY OCCUPANCY TYPE

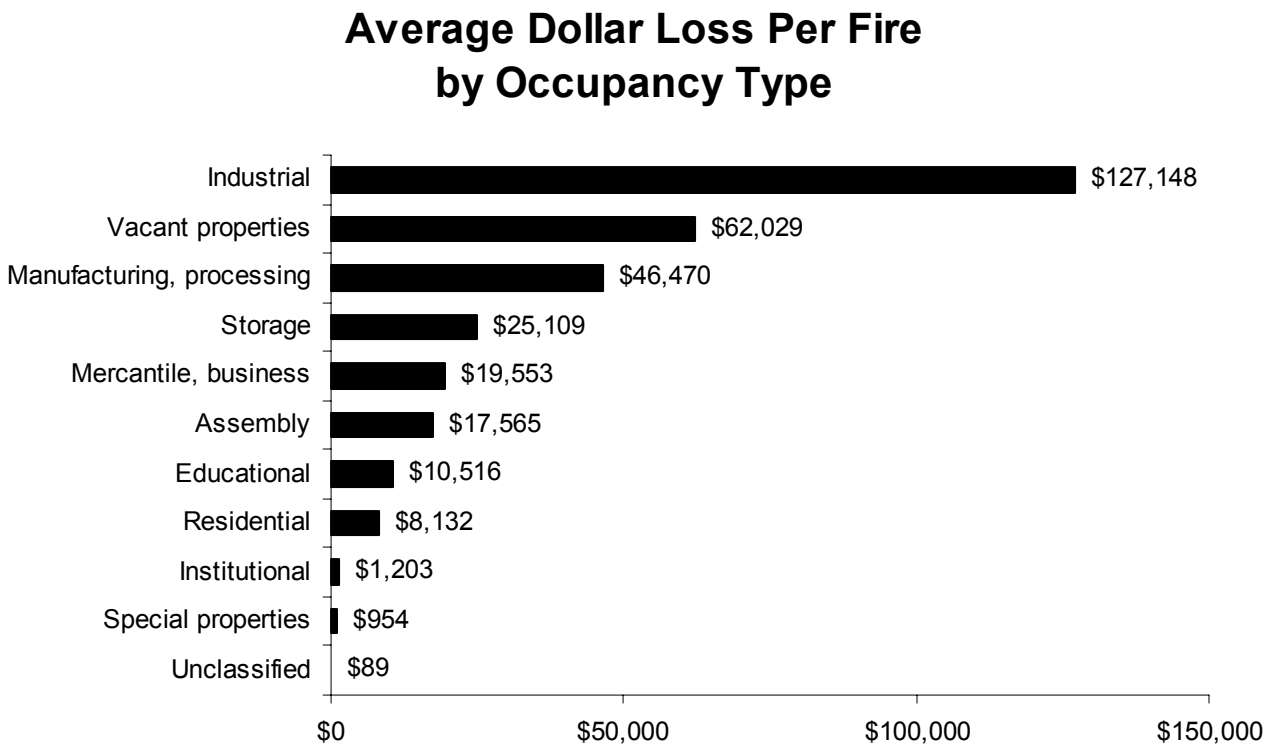
Occupancy	# of Fires	% of Total	Injuries FF	Injuries Civ	Deaths FF	Deaths Civ	Dollar Loss	Avg. Dollar Loss
Public assembly	643	4%	15	4	0	0	$11,294,027	$17,565
Educational	324	2%	3	2	0	0	3,407,238	10,516
Institutional	594	3%	3	1	0	0	714,352	1,203
Residential	**14,668**	**83%**	**335**	**262**	**0**	**30**	**119,274,529**	**8,132**
1- & 2-Family homes	*5,853*	*33%*	*207*	*152*	*0*	*23*	*80,554,790*	*13,763*
Apartments	*7,068*	*40%*	*122*	*100*	*0*	*7*	*36,306,523*	*5,137*
All other residential	*1,747*	*10%*	*6*	*10*	*0*	*0*	*2,413,216*	*1,381*
Mercantile, business	654	4%	19	6	0	0	12,787,666	19,553
Basic industry	52	0.3%	23	4	0	0	6,611,700	127,148
Manufact., processing	123	1%	5	2	0	0	5,715,810	46,470
Storage properties	234	1%	15	7	0	0	5,875,529	25,109
Special properties	343	2%	3	1	0	0	327,241	954
Unclassified	33	0.1%	0	0	0	0	301,451	9,135
Total	**17,668**	**100%**	**421**	**289**	**0**	**30**	**$166,299,343**	**$9,412**

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 property, outdoor properties, water areas, aircraft areas and equipment operating areas outbuildings.

Industrial Facilities Have Highest Average Dollar Loss Per Fire
Industrial facilities had the highest dollar loss per fire of any property type. In 2009, the average dollar loss for a building fire in an industrial property was $127,148[9]. This is a 449% increase over the 2008 average dollar loss per industrial facility fire at $23,157 per fire. Vacant properties[10] had the second highest dollar loss per fire for any property type. In 2009, the average dollar loss for a building fire in a vacant property was $62,029.

Manufacturing and processing facilities had the third highest average dollar loss at $46,470. Storage facilities had the next highest average dollar loss per fire at $25,109; mercantile and business properties were fifth with an average dollar loss per fire at $19,553. Public assembly properties had an average dollar loss per fire of $17,565; and educational facilities were next at $10,516 per fire. Residential properties were eighth in average dollar loss at $8,132 per fire; institutional facilities had $1,203 per fire; and special properties had an average dollar loss of $954 per fire. Unclassified properties had the lowest average dollar loss at $89 per fire.



[9] This is mainly due to a steel recycling plant fire in Everett on 7/2/09 that caused $4.4 million in estimated damages.
[10] 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.

2009 Massachusetts Building Fires by Property Use

MFIRS Code	Property Use	# of Building Fires
	Assembly	**643**
100	Assembly, other	15
110	Fixed use recreation places, other	13
113	Electronic amusement center	3
114	Ice rink: indoor, outdoor	4
115	Roller rink: indoor or outdoor	1
116	Swimming facility: indoor or outdoor	3
120	Variable use amusement, recreation places	4
121	Ballroom, gymnasium	6
122	Convention center, exhibition hall	1
123	Stadium, arena	4
124	Playground	30
129	Amusement center: indoor/outdoor	1
130	Places of worship, funeral parlors	4
131	Church, mosque, synagogue, temple, chapel	74
134	Funeral parlor	4
140	Clubs, other	13
141	Athletic/health club	10
142	Clubhouse	22
143	Yacht Club	3
144	Casino, gambling clubs	1
150	Public or government, other	19
151	Library	6
152	Museum	8
154	Memorial structure, including monuments & statues	1
155	Courthouse	3
160	Eating, drinking places	47
161	Restaurant or cafeteria	270
162	Bar or nightclub	30
170	Passenger terminal, other	1
171	Airport passenger terminal	8
173	Bus station	2
174	Rapid transit station	20
180	Studio/theater, other	2
181	Live performance theater	1
183	Movie theater	9

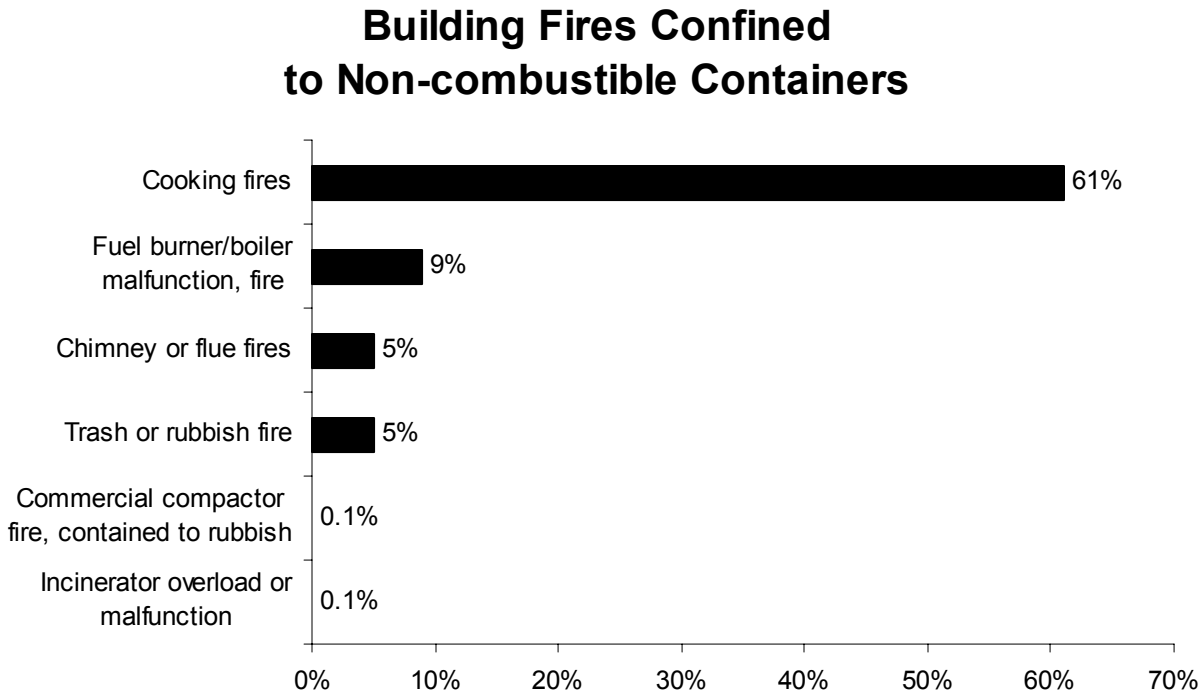
MFIRS Code	Property Use	# of Building Fires
	Educational	**324**
200	Educational, other	42
210	Schools, non-adult	14
211	Preschool	29
213	Elementary school, including kindergarten	59
215	High school/junior high school/middle school	86
241	Adult education center, college classroom	60
254	Day care, in commercial property	29
255	Day care, in residence, licensed	5
	Health care, detention & correction	**594**
300	Health care, detention, & correction, other	48
311	24-hour care nursing homes, 4 or more persons	158
321	Mental retardation/development disability facility	83
322	Alcohol or substance abuse recovery center	71
323	Asylum, mental institution	7
331	Hospital - medical or psychiatric	139
332	Hospices	7
340	Clinics, Doctors offices, hemodialysis centers	22
341	Clinic, clinic-type infirmary	7
342	Doctor, dentist or oral surgeon's office	18
343	Hemodialysis unit	2
361	Jail, prison (not juvenile)	16
363	Reformatory, juvenile detention center	11
365	Police station	5
	Residential	**14,668**
400	Residential, other	592
419	1 or 2 family dwelling	5,853
429	Multifamily dwellings	7,068
439	Boarding/rooming house, residential hotels	351
449	Hotel/motel, commercial	117
459	Residential board and care	142
460	Dormitory type residence, other	463
462	Sorority house, fraternity house	27
464	Barracks, dormitory	55
	Mercantile, Business	**654**
500	Mercantile, business, other	151
511	Convenience store	22
519	Food and beverage sales, grocery store	118

MFIRS Code	Property Use	# of Building Fires
529	Textile, wearing apparel sales	10
539	Household goods, sales, repairs	9
549	Specialty shop	28
557	Personal service, including barber & beauty shops	20
559	Recreational, hobby, home repair sales, pet store	6
564	Laundry, dry cleaning	28
569	Professional supplies, services	16
571	Service station, gas station	20
579	Motor vehicle or boat sales, services, repair	35
580	General retail, other	23
581	Department or discount store	9
592	Bank	20
593	Office: veterinary or research	4
596	Post office or mailing firms	5
599	Business office	130
	Industrial, Utility, Defense, Agriculture, Mining	**52**
600	Utility, defense, agriculture, mining, other	4
610	Energy production plant, other	2
614	Steam or heat generating plant	1
615	Electric generating plant	3
629	Laboratory or science laboratory	16
631	Defense, military installation	3
639	Communications center	2
640	Utility or distribution system, other	2
642	Electrical distribution	2
645	Flammable liquid distribution, pipeline, flammable	2
648	Sanitation utility	5
655	Crops or orchard	1
659	Livestock production	2
669	Forest, timberland, woodland	6
679	Mine or quarry	1
700	**Manufacturing, processing**	**123**
	Storage	**234**
800	Storage, other	11
807	Outside material storage area	17
808	Outbuilding or shed	71
819	Livestock, poultry storage	6
849	Outside storage tank	1

MFIRS Code	Property Use	# of Building Fires
880	Vehicle storage, other	13
881	Parking garage, (detached residential garage)	58
882	Parking garage, general vehicle	4
888	Fire station	6
891	Warehouse	39
899	Residential or self storage units	8
	Outside or special property	**343**
900	Outside or special property, other	39
919	Dump, sanitary landfill	8
921	Bridge, trestle	7
922	Tunnel	2
926	Outbuilding, protective shelter	14
931	Open land or field	36
935	Campsite with utilities	1
936	Vacant lot	13
937	Beach	9
938	Graded and cared-for plots of land	55
940	Water area, other	2
946	Lake, river, stream	3
951	Railroad right of way	6
952	Railroad yard	1
960	Street, other	22
961	Highway or divided highway	5
962	Residential street, road or residential driveway	58
963	Street or road in commercial area	13
965	Vehicle parking area	39
981	Construction site	5
984	Industrial plant yard - area	5
	Other	**33**
000	Property use, other	33
	Total Building Fires	**17,668**

80% of Building Fires Are Confined to Non-Combustible Containers[11]
Fourteen thousand one hundred and fifty-four (14,154), or 80% of all building fires, were reported as confined to non-combustible containers in 2009. Ten thousand seven hundred and ninety-four (10,794) of the reported fires were cooking fires confined to a non-combustible container accounting for 61% of building fires. One thousand six hundred and thirty-two (1,632), or 9%, were fires confined to a fuel burner or boiler malfunction. Eight hundred and eighty-four (884), or 5%, of all building fires reported in 2009 were fires confined to a chimney or flue. Eight hundred and eleven (811), or 5%, of these fires were contained rubbish fires. Twenty (20), or less than 1%, were commercial compactor fires that were confined to the rubbish. Thirteen (12), or less than 1%, of these fires in the Commonwealth were contained to an incinerator overload or malfunction.

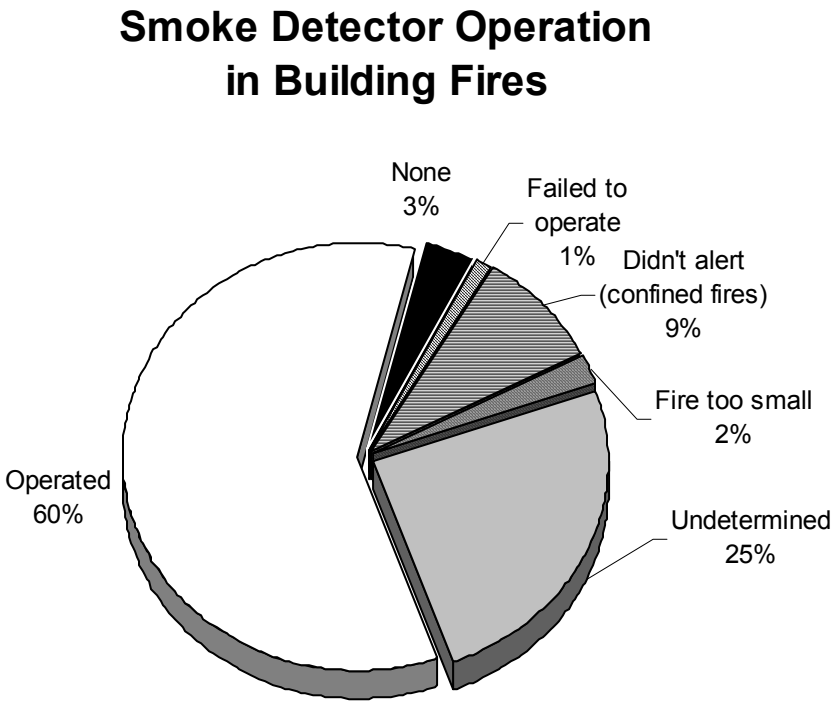
Confined building fires increased by 1,438 incidents, or 11%, from the 12,716 reported in 2008.



Detectors Operated in 60% of Building Fires
Smoke or heat detectors operated in 10,508, or 60%, of the building fires in 2009. In 9% of these fires[12], the detectors did not alert the occupants. Detectors were present but did

[11] 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.

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 2% of the residential fires. Smoke detector performance was undetermined in 4,345 incidents, or 25% of Massachusetts' 2009 building fires.



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

DETECTOR PERFORMANCE

	Operated	Failed to Operate	Didn't Alert (Conf.)	Fire Too Small	None	Unknown	Total
Public assembly	388	5	61	19	30	140	643
Educational	210	0	26	17	9	62	324
Institutional	470	1	17	9	5	92	594
Residential	8,995	210	1,269	337	290	3,567	14,668
Mercantile, business	331	10	57	30	66	160	654
Basic industry	19	1	5	1	10	16	52
Manufacturing	45	0	8	8	22	40	123
Storage properties	19	1	9	2	161	42	234
Special properties	22	0	88	0	21	212	343
Unclassified	9	0	6	0	4	14	33
Total	**10,508**	**228**	**1,546**	**423**	**618**	**4,345**	**17,668**

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

$4.4 Million Fire in Everett is Largest Loss Building Fire

- On July 2 2009, at 10:09 a.m., the Everett Fire Department was called to a fire at a steel recycling plant. Lightning struck the conveyor belt starting the fire. No one was injured at this fire. Detectors and sprinklers were not present. Damages from this fire were estimated to be $4.4 million.

Northampton Has 2nd Largest Loss Fire in 2009

- On April 13, 2009, at 2:57 p.m., the Northampton Fire Department was called to a smoking fire at an eight-unit apartment building. The fire began in a second story bedroom. One civilian and two firefighters were injured at this fire. Detectors were present and alerted the occupants. The building was not sprinklered. Damages from the blaze were estimated to be $3.75 million.

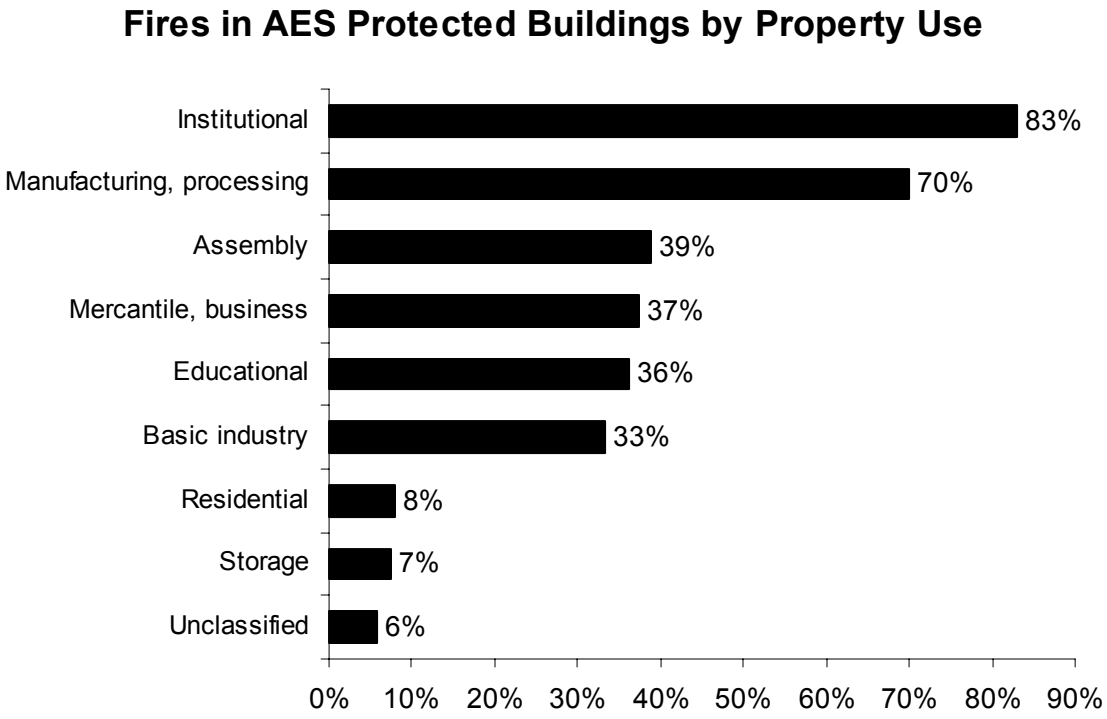
Overall, there were 19 large loss building fires reported to MFIRS in 2009 with a total combined dollar loss of $35.3 million representing 21% of all the estimated dollar loss of Massachusetts' building fires in 2009.

14% of Unconfined Fires Occurred in Buildings with AES

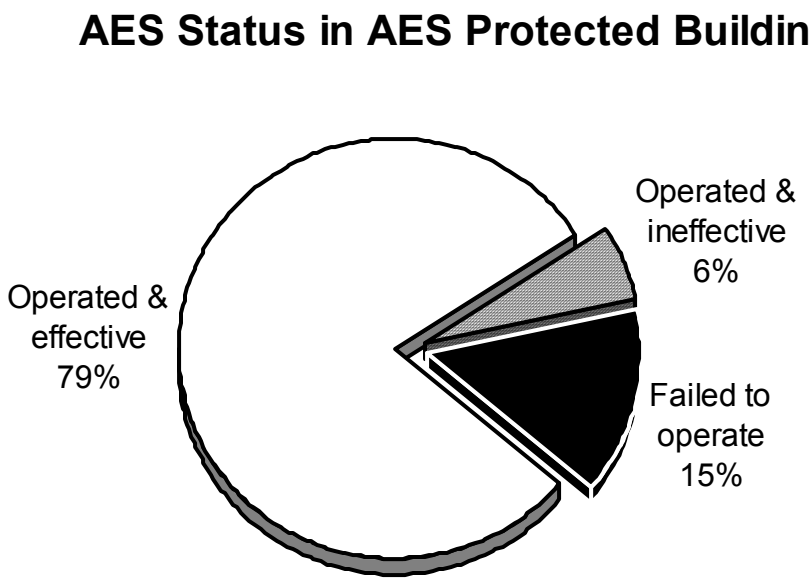
Overall, 481, or 14%, of the 3,504 unconfined[13] building fires in 2009 occurred in buildings that had automatic extinguishing systems (AES), regardless of whether the fire was large enough to activate the system. In MFIRS, an AES can be a wet or dry sprinkler system, a dry chemical system, a foam system, a halogen-type system, a CO^2 system, or some other fire suppression system.

The following chart lists the percentage of unconfined fires in buildings that were at least partially protected by an AES for that specific property use. Manufacturing and processing facilities and institutional properties were the most likely to have an AES. Eighty-three percent (83%) of the fires in health care, detention and correctional facilities; 70% of the fires in manufacturing or processing facilities; 39% of the fires in public assembly facilities, and 37% of the fires in mercantile and business properties occurred in buildings with these systems. Thirty-six percent (36%) of the fires in educational facilities, 33% of basic industrial facilities; and 8% of residential fires occurred in buildings with an automatic extinguishing system. Only 7% of fires in storage facilities occurred in buildings protected by an automatic extinguishing system, and 6% of these fires occurred in unclassified properties.

[13] 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 85% of Building Fires When Installed & Maintained
AES were present and operated in 147, or 85%, of the 172 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 2009. Of these 147 fires, the systems were effective in 137, or 79%, and ineffective in 10, or 6%, of these incidents. AES were present but failed to operate in 25, or 15%, of these 172 building fires. Some of the



reasons for the automatic extinguishing system failures were reported to be: the fire was not in an area 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

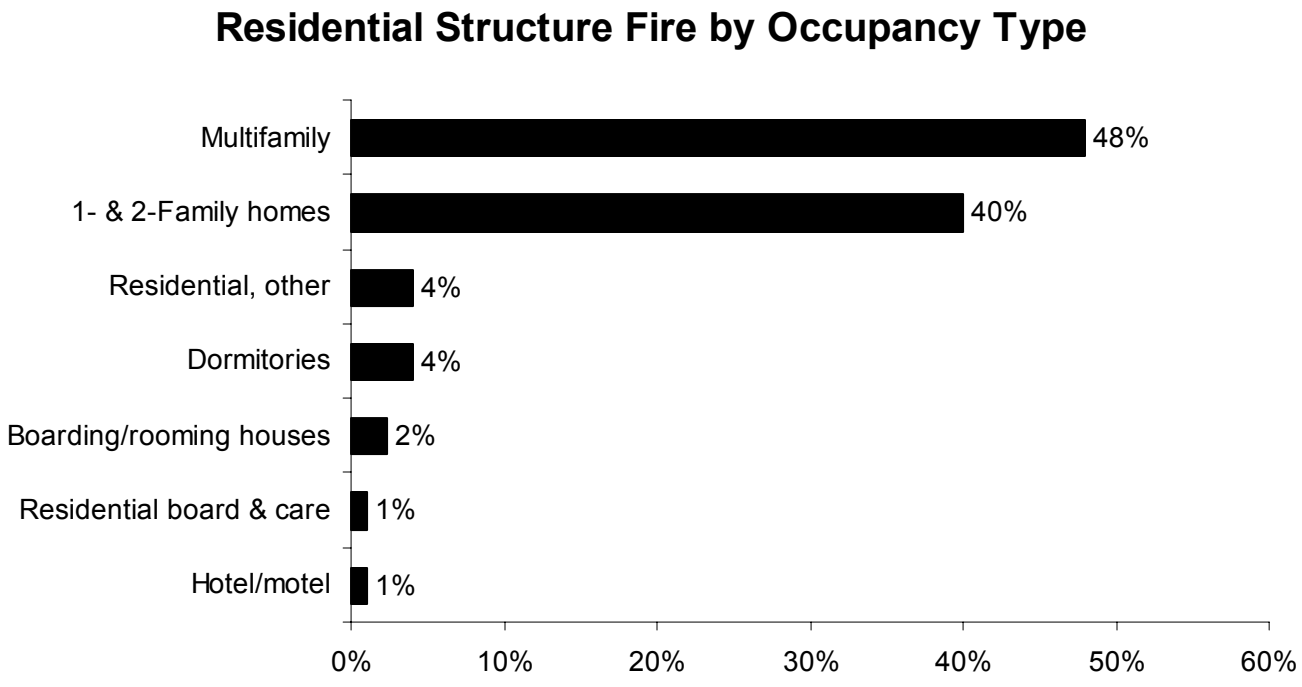
	Operated	Did Not Operate	Fire Too Small	None	Unknown	Total
Assembly	13	7	19	6	1	46
Educational	2	0	15	0	0	17
Institutional	9	0	25	9	0	43
Residential	74	3	86	37	3	203
Mercantile, business	16	6	32	16	4	74
Basic industry	2	0	3	2	0	7
Manufacturing	23	5	16	7	4	55
Storage properties	5	0	4	4	0	13
Special properties	0	0	0	0	0	0
Unclassified	0	0	0	0	0	0
Total	**144**	**21**	**202**	**81**	**12**	**460**

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

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

Residential Building Fires

83% of Building Fires Occurred in Residential Occupancies
Massachusetts fire departments reported that 14,668, or 83% of the 17,668 building fires occurred in residential occupancies. These fires caused 30 civilian deaths, 262 civilian injuries, 335 fire service injuries and an estimated dollar loss of $119.3 million. The average dollar loss per fire was $8,132. The total number of reported residential building fires increased 5% from the 14,008 reported in 2008. The following table shows the statistics for fires, firefighter and civilian casualties and the estimated dollar loss by residential occupancy.



RESIDENTIAL BUILDING FIRES

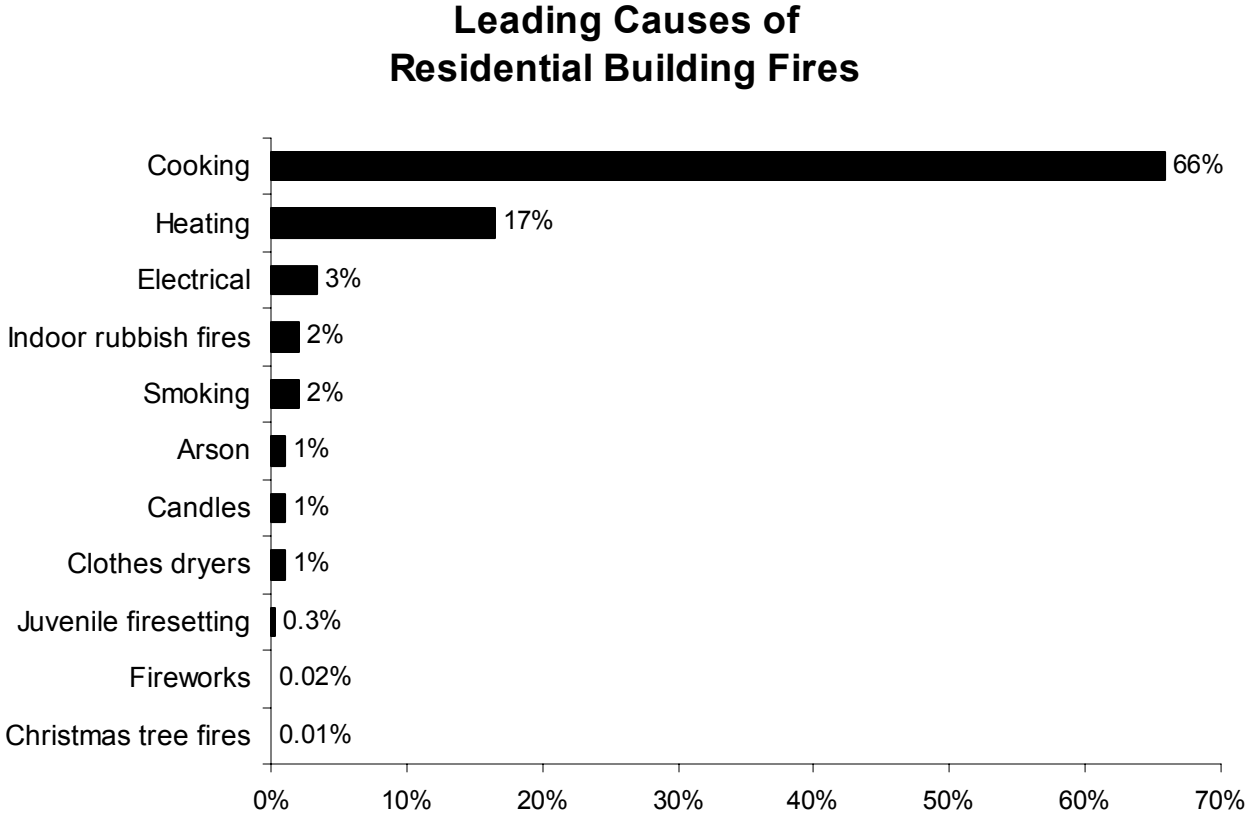
Occupancy	# of Fires	% of Total	Injuries FF	Injuries Civ	Deaths FF	Deaths Civ	Dollar Loss
1- & 2-Family homes	5,853	40%	207	152	0	23	$80,554,790
Multifamily	7,058	48%	122	100	0	7	36,306,523
Rooming houses	351	2%	5	3	0	0	495,392
Hotels & motels	117	1%	0	0	0	0	628,337
Residential board & care	142	1%	0	2	0	0	45,975
Dormitories	545	4%	0	1	0	0	265,695
Unclassified	592	4%	1	4	0	0	977,817
Total	**14,668**	**100%**	**335**	**262**	**0**	**30**	**$119,274,529**

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 house**: This category includes residential hotels and shelters.
- **Hotel, motel**: 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, monastery/convents, dormitories, bunk houses and workers' barracks.
- **Residential, other**: Any type of residential occupancy that is not defined above.

Cooking Causes Almost 2/3 of Residential Building Fires

The leading causes of residential building fires in 2009 were cooking, heating, electrical, smoking, indoor rubbish fires, arson, candles, clothes dryer fires, juvenile firesetting, and fireworks. Cooking was the leading cause of residential building fires accounting for 9,655, or 66%, of the 14,668 incidents. Heating equipment accounted for 2,421, or 17% of the total fires. Electrical problems caused 493, or 3%, of incidents. Indoor rubbish fires were the cause of 327, or 2%, of residential building fires. The unsafe use and disposal of smoking materials also accounted for 305, or 2%, of these incidents. Arson accounted for 186, or 1%, of residential building fires. One percent (1%), or 98, were caused by candles. Clothes dryer fires were the cause for 75, or 1%, of these incidents. Juvenile firesetting accounted for 42, or less than 1%, of residential building fires. Fireworks caused three and there were two Christmas tree fires in homes, each accounting for less than 1%, of these fires in Massachusetts in 2009.



Over 2/3 of Residential Fires Started in the Kitchen
Sixty-eight percent (68%), of the residential building fires in 2009 started in the kitchen. Ten percent (10%) began in a heating room or area; 6% started in the chimney or flue; 2% began in the bedroom; and 1% started in the living room and another 1% started on exterior balconies and unenclosed porches in Massachusetts residential building fires in 2009.

81% of Residential Building Fires Confined to Non-Combustible Containers[14]
Eleven thousand nine hundred and thirty-one (11,931), or 81% of all residential building fires, were reported as confined to non-combustible containers in 2009. Nine thousand two hundred and sixty (9,260) of the reported fires were cooking fires contained to a non-combustible container accounting for 63% of residential building fires. One thousand four hundred and forty-three (1,443), or 10%, were fires confined to a fuel burner or boiler malfunction. Eight hundred and fifty-three (853), or 6%, of all residential building fires reported in 2009 were fires confined to a chimney or flue. Three hundred and fifty-nine (359), or 2%, of these fires were contained rubbish fires. Nine (9), or less than 1%,

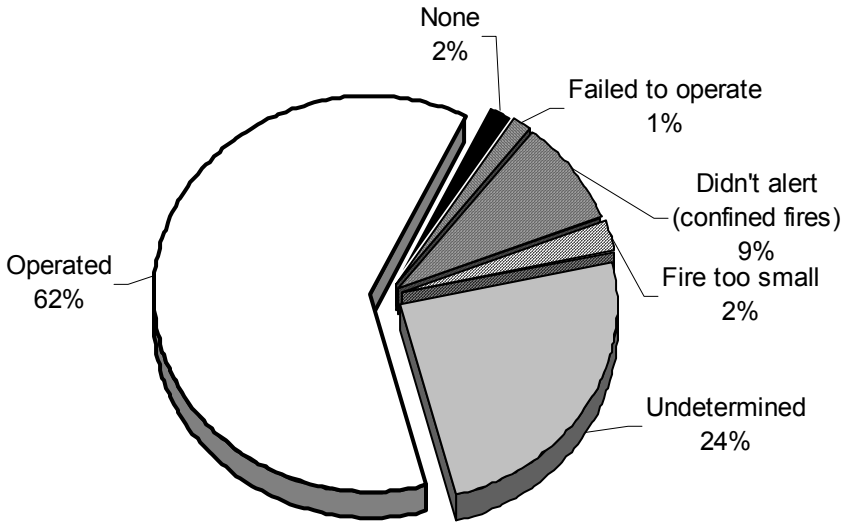
[14] In MFIRS v5 a fire in a building contained to a non-combustible container (Incident Type = 113-118) does not have to have a Fire Module completed. Therefore the following data fields do not need to be completed: Area of Origin, Detector Status, Item First Ignited, Heat Source, Factors Contributing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

of these fires in the Commonwealth were contained to an incinerator overload or malfunction. Seven (7), or less than 1%, of the residential building fires in 2009 were commercial compactor fires confined to the rubbish inside the compactor.

The number of contained fires in residential occupancies rose in 2009. Confined fires increased by 1,325 incidents, or 12%, from the 10,606 reported in 2008. This was mainly due to the rise in reported confined cooking fires that increased by 1,312, or 17%, reported incidents from the 7,948 in 2008.

Detectors Operated in 62% of Fires
Smoke or heat detectors operated in 8,991, or 62%, of the residential building fires in 2009. In 9% of these fires[15], 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 3,560 incidents, or 24% of Massachusetts' 2009 residential building fires.

Smoke Detector Status in Residential 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.

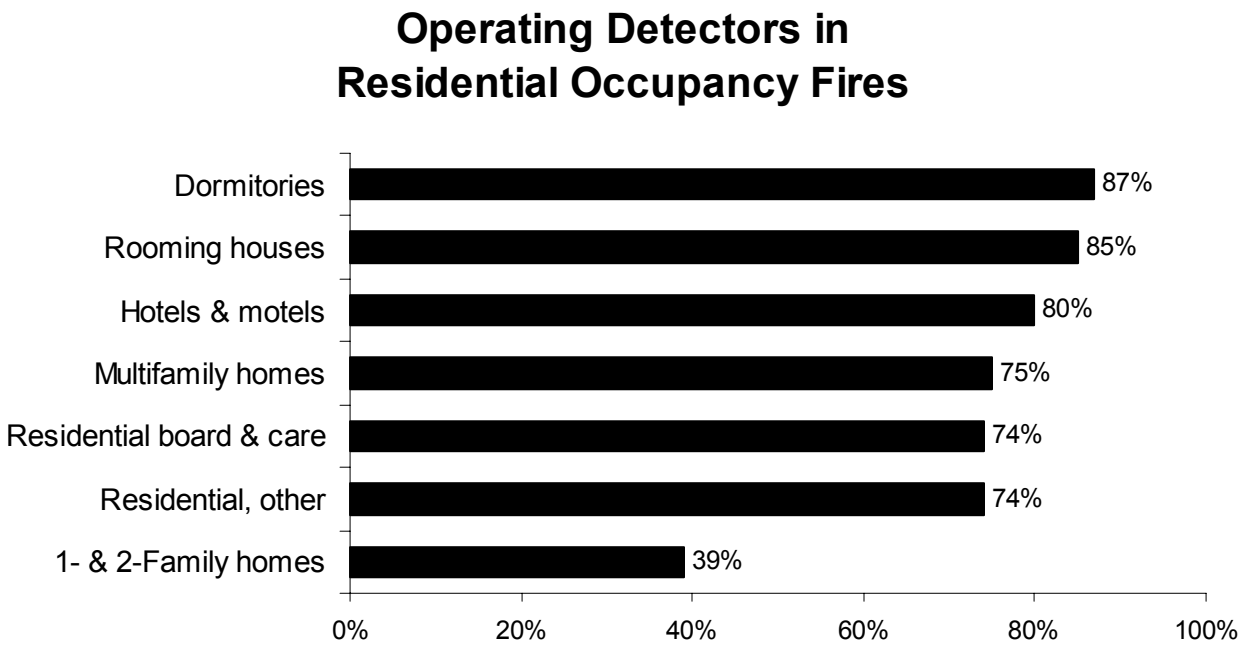
[15] These represent confined fires where it was reported that the detector did not alert the occupants.

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. 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. 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 not unlike 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 or older 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.

43% of Failed Detectors Had No Batteries or Dead Ones
Of the 210 fires where smoke detectors were present but failed to operate, 65, or 31%, failed because the batteries were either missing or disconnected. Twenty-five (25), or 12%, did not operate because of dead batteries. Twenty (20), or 10%, failed because of a power failure, shutoff or disconnect. Fourteen (14) detectors, or 7%, failed from a lack of maintenance such as not cleaning dust from the detector or painting over the detector. Three (3) units, or 1%, failed because they were defective. Another three, or 1% failed from improper installation or placement. For 80 cases, or 38%, the reason the detector failed was not determined.

1- & 2-Families Had Lowest Percentage of Operating Detectors
Dormitories were the most likely residential occupancy to have operating smoke detectors in 2009. Rooming houses were the second most likely residence to have working smoke detectors. Hotels and motels were the next most likely residential occupancy to have operating smoke detectors while one- and two-family homes were the least likely. The following chart shows the percentage of operating smoke detectors in fires in residential occupancies.

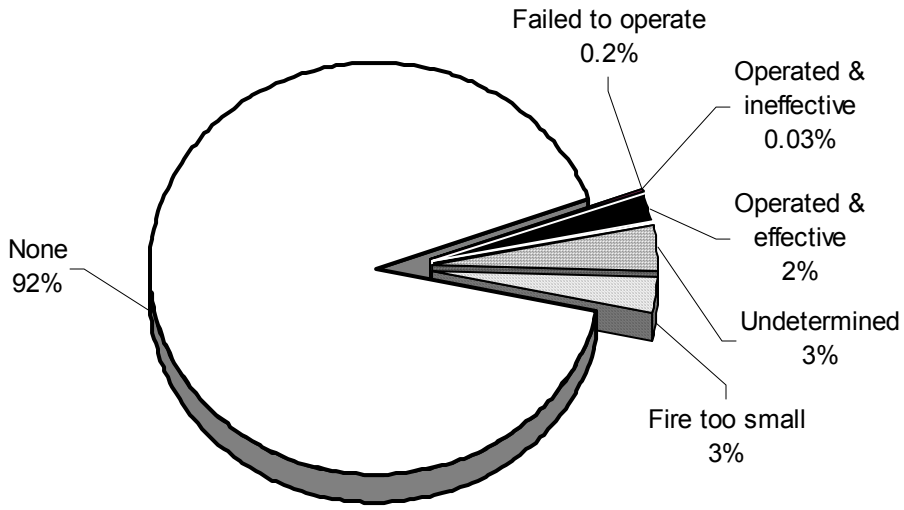


No Working Detectors for 40% of Residential Fire Victims
Of the 30 people who died in residential building fires in 2009, the smoke detector performance was known for 18 of the victims. Victims were not alerted by smoke detectors in eight fires that killed 12 people, or 40% of the victims. In three of these incidents, no detectors were present at all, killing five, or 17%, of these individuals. Detectors were present, but did not operate in five fires that killed seven people, or 23% of fatal residential fire victims. Detector performance was undetermined in 10 residential building fires that killed 12 people accounting for 40% of the residential building fire deaths in 2009.

AES Present in Only 5% of Residential Building Fires
In 2009, only 3,151 residential fires reported if the building had an automatic extinguishing system or not. This was only 5% of all residential building fires.

In fires where system performance was reported, automatic extinguishing systems (AES) were reported present and operated effectively in 75, or 2% of the 3,151 residential building fires. AES were present and operated ineffectively in one, or 0.03%, of these fires. In six, or 0.1%, of the fires in residential occupancies, the system did not operate. In 86, or 3%, the fire was too small to activate the system. In 2,873, or 92%, of the cases, there were no systems present or installed. AES performance was not classified in 110, or 3%, of the incidents involving residential building fires.

AES Status of
All Residential Building Fires

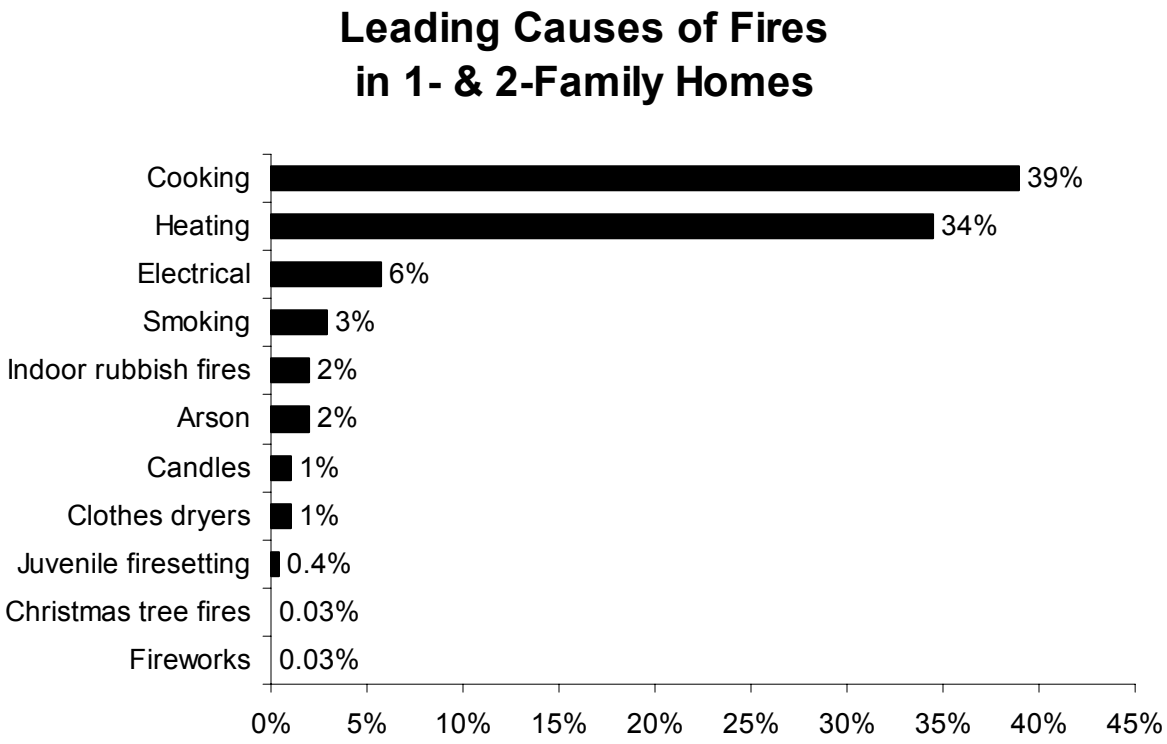


Only You Can Make Your Home Safer for You and Your Family
Eighty-three percent (83%) of building fires and 83% of fire deaths in 2009 took place in residential occupancies. Efforts to reduce the incidence of fire and fire deaths must be focused on home fire safety to have the greatest impact. Increased 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

5,853 Fires, 23 Civilian Deaths, $80 Million in Damage
Five thousand eight hundred and fifty-three (5,853) building fires in one- and two-family homes caused 23 civilian deaths, 152 civilian injuries, 207 fire service injuries, and an estimated $80 million in property damage. In 2009, 40% of the Commonwealth's 14,668 residential building fires occurred in one- and two-family homes. The average dollar loss from these types of fires was $13,763. Fires in one- and two-family homes were down 112, or 1%, from 5,965 in 2008.

Cooking & Heating Were the Leading Causes of Fires in 1- & 2-Family Homes
Cooking caused 39% of incidents occurring in one- and two-family homes. Heating equipment caused 34% of these fires. Six percent (6%) of one- and two-family residential building fires were caused by electrical problems. The unsafe and improper use of smoking materials caused 3% of these fires. Indoor rubbish fires and arson each caused 2% of these fires. Candles and clothes dryers each caused 1%. Juvenile-set fires, Christmas tree fires and fireworks each accounted for less than 1% of the fires in one- and two-family homes in 2009.



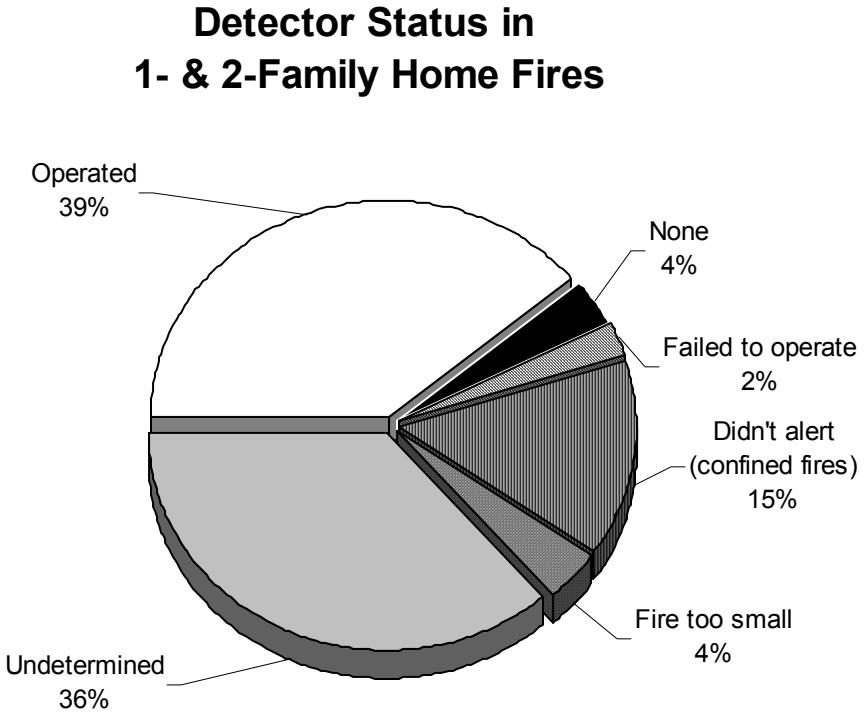
Cooking is the leading cause of fires overall and in every other residential occupancy. However, in one- and two-family homes for the previous eight years the leading cause of fires was heating equipment and cooking was the second leading cause except in 2003, and in 2008 when they were tied, and now in 2009. A reason for this difference is that multifamily dwellings 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.

41% 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, 41% started in the kitchen. The second leading area of origin was rooms or areas with heating equipment accounting for 20% of these fires. Fourteen percent (14%) started in the chimney or flue; 4% started in the bedroom. Three percent (3%) of these fires started in the bedroom and 2% started in the living room.

71% of 1- & 2-Family Fires Were Confined to Non-Combustible Containers[16]
Four thousand one hundred and sixty-six (4,166), or 71%, of all residential building fires in one- and two-family homes, were reported as confined to non-combustible containers in 2009. Two thousand and seventy-one (2,071) were cooking fires confined to a non-combustible container accounting for 35% of all the residential building fires in one- and two-family homes. One thousand one hundred and thirty-three (1,133), or 19%, were fires confined to a fuel burner or boiler. Seven hundred and ninety-four (794), or 14%, of all one- and two-family fires reported in 2009 were fires confined to a chimney or flue. One hundred and sixty-four (164), 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 2009.

The number of contained fires increased in 2009. Confined fires in one- and two-family homes increased by 213 incidents, or less than 5%, from the 3,953 reported in 2008.

Detectors Alerted Occupants in 39% of Fires
Detectors alerted occupants in 39% of one- and two-family residential fires. Smoke or heat detectors operated and alerted the occupants in 2,272, or 39%, of the one- and two-family home fires in 2009. In 15% of these fires[17], the detectors did not alert the



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

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 2,135 incidents, or 36% of Massachusetts' 2009 one- and two-family fires.

48% of Failed Detectors Had No Batteries or Dead Ones
Of the 143 fires where smoke detectors were present but failed to operate, 53, or 37%, failed because the batteries were either missing or disconnected. Sixteen (16), or 11%, did not operate because of dead batteries. Ten (10), or 7%, failed because of a power failure, shutoff or disconnect. Nine (9) detectors, or 6%, failed from a lack of maintenance. Two (2) units, or 1%, failed because they were defective. One (1), or 1%, failed from improper installation or placement. For 52 cases, or 36%, 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 include requiring installing smoke detectors in all bedrooms per the Commonwealth's Building Code.

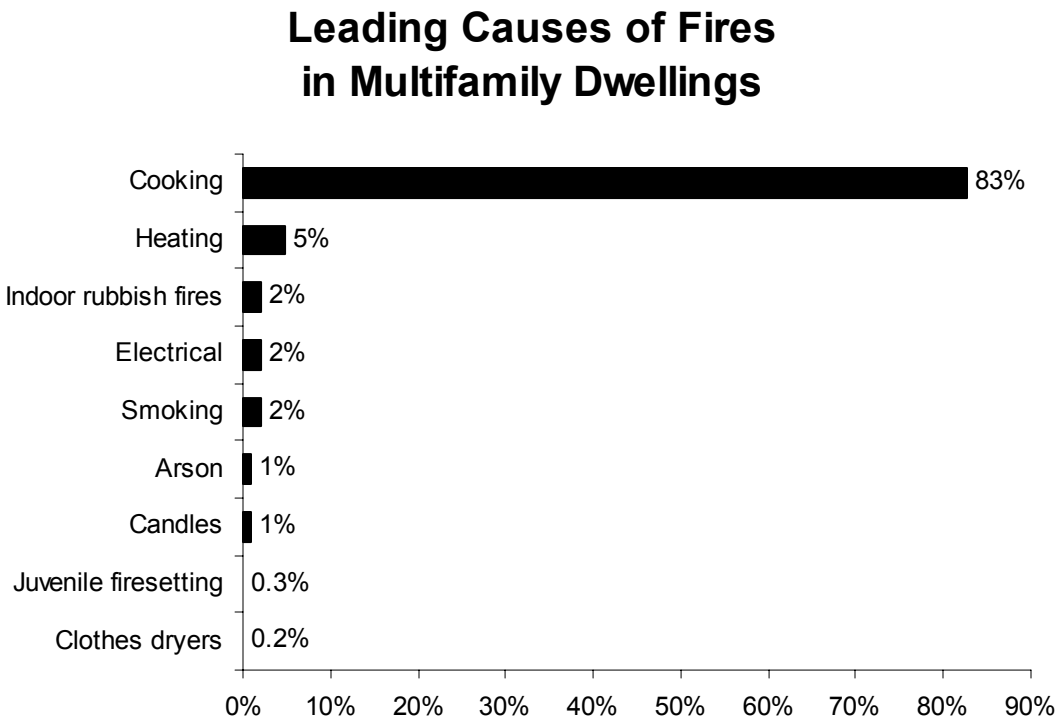
No AES Present in 99% of One- and Two-Family Building Fires
In 2009, in two, or less than 1%, of these incidents an automatic extinguishing system (AES) was present and operated effectively. In three, or less than 1% of the incidents, the fire was too small to activate the system. In 99% of the cases where AES status was known, there were no systems.

Multifamily Home Fires

7,058 Fires, 7 Civilian Deaths & $36.3 Million in Damage
Seven thousand and fifty-eight (7,058), or 48%, of the Commonwealth's 14,668 residential building fires occurred in multifamily dwellings in 2009. These 7,058 fires caused seven civilian deaths, 100 civilian injuries, 122 fire service injuries, and an estimated dollar loss of $36.3 million. The average dollar loss per fire was $5,137. Fires in apartments were up 508, or 8%, from 6,560 in 2008.

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

Unsafe Cooking Caused Over 83% of Apartment Fires
Eighty-three percent (83%) of the fires in apartments were caused by unsafe cooking in 2009. Heating accounted for 5% 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 2009.



85% of Apartment Fires Started in the Kitchen
For apartment fires where area of origin is known, 85% started in the kitchen. Four percent (4%) began in the heating room or area; 2% started in the bedroom; and 1% each started in living rooms, exterior balconies and bathrooms.

87% of Multifamily Home Fires Confined to Non-Combustible Containers[18]
Six thousand one hundred and fifty (6,150), or 87% of all building fires in multifamily homes, were reported as confined to non-combustible containers in 2009. Five thousand

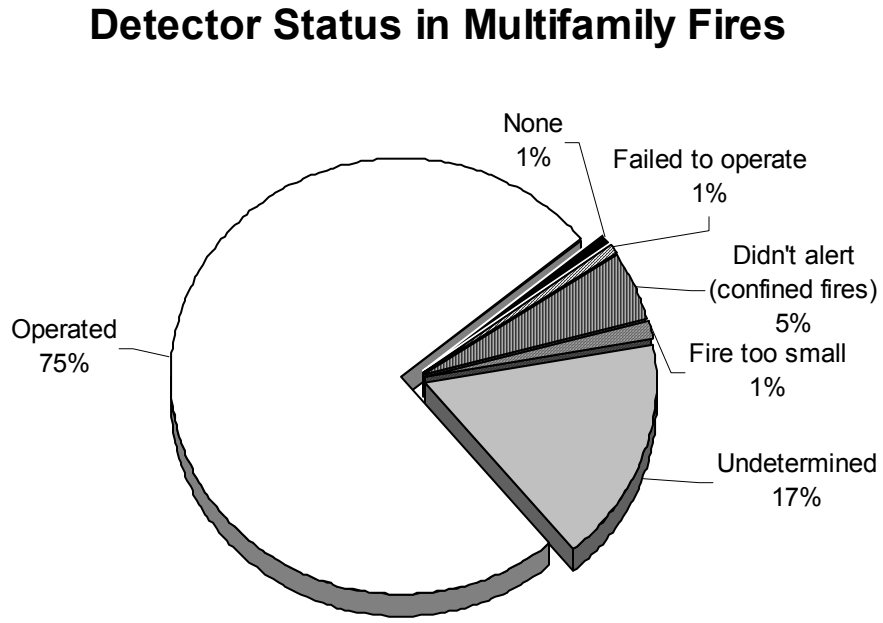
[18] In MFIRS v5 a fire in a building contained to a non-combustible container (Incident Type = 113-118) does not have to have a Fire Module completed. Therefore the following data fields do not need to be completed: Area of Origin, Detector Status, Item First Ignited, Heat Source, Factors Contributing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

six hundred and eighty-two (5,682) were cooking fires contained to a non-combustible container accounting for 80% of all the multifamily dwelling fires in 2009. Two hundred and seventy-nine (279), or 4%, were fires confined to a fuel burner or boiler malfunction. One hundred and forty-eight (148), or 2%, of these fires were contained rubbish fires. Twenty-nine (29), or less than 1%, of apartment fires reported in 2009 were fires confined to a chimney or flue. Seven (7), or less than 1%, were commercial compactor fires confined to the garbage; and five incinerator overloads or malfunctions contributed less than 1% to the multifamily home fires in 2009.

Confined fires in apartments increased by 784 incidents, or 15%, from the 5,366 reported in 2008.

Detectors Alerted Occupants in 3/4 of Fires

Smoke or heat detectors operated and alerted the occupants in 5,682, or three-quarters (75%), of the multifamily fires in 2009. 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 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 1,176 incidents, or 17% of Massachusetts' 2009 multifamily fires.



19% of Failed Detectors Failed Due to Missing Batteries

Of the 64 fires where smoke detectors were present but failed to operate, 12, or 19%, failed because the batteries were either missing or disconnected. Nine (9), or 14%, failed

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

because of a power failure, shutoff or disconnect. Eight (8), or 13%, did not operate because of dead batteries. Five (5), or 8%, didn't operate because of a lack of maintenance. Two (2), or 3%, failed from improper installation or placement. One (1), or 2% failed because it was defective. For 27 cases, or 42%, 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 be equipped with hard-wired smoke detectors. 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 10% of Multifamily Dwelling Fires
Automatic extinguishing systems (AES) were present and operated effectively in 54, or 5% of the 1,049 multifamily dwelling fires where system status was known in 2009. In one incident, or less than 1%, the system operated but was ineffective in suppressing the fire. In six of the fires, or 1%, the AES did not operate. In 49, or 5%, of these incidents, the fire was too small to activate the system. In 939, or 89%, of the cases, there were no systems present or installed. In 29 incidents, AES status was unknown. These fires were excluded from the percentage calculations.

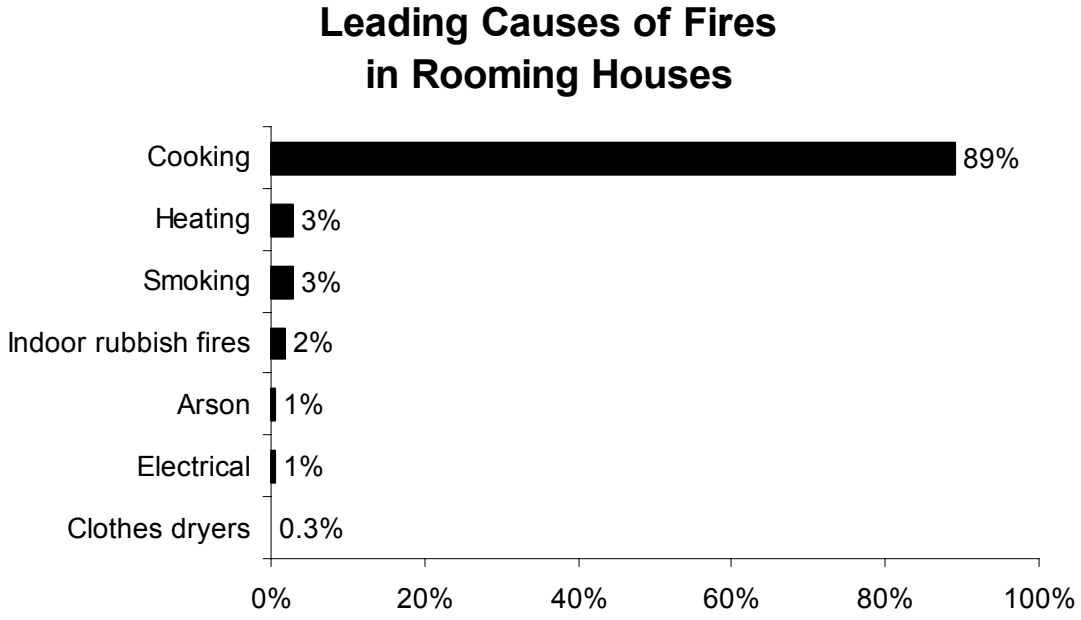
Apartments More Likely to Have Sprinklers Installed
Apartments are more likely than single-family dwellings to have sprinklers installed. Newly constructed apartments with three or more units are required by building codes to have them installed. Also, apartments are likely to be found in high-rise buildings that were required to be retrofitted with sprinklers by March 1998. Sprinklers were present in 10% of multifamily fires, but in less than 1% of fires in one- and two-family dwellings.

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

Rooming House Fires

351 Fires, 3 Civilian Injuries, 5 Fire Service Injuries & $1/2 Million in Damages
Three hundred and fifty-one (351) rooming, lodging, and boarding house fires were reported to the Massachusetts Fire Incident Reporting System (MFIRS) in 2009. These 351 fires caused three civilian injuries, five firefighter injuries and an estimated $495,392 in damages. The average dollar loss per fire was $1,411. Two percent (2%) of the 14,668 residential building fires in 2009 occurred in rooming, boarding, or lodging houses. Fires in rooming houses were up 9% from 321 in 2008.

Cooking Caused 89% of Rooming House Fires
Of the 351 incidents in rooming houses, cooking caused 89% of these fires. Heating equipment and the unsafe use and disposal of smoking materials each started 3%, of the rooming house fires. Indoor rubbish fires caused 2% of these fires, and arson and electrical problems each caused 1%. Clothes dryers caused less than 1% of the fires in rooming houses in 2009.



92% of Rooming House Fires Were Confined to Non-Combustible Containers[20]
Three hundred and twenty-four (324), or 92% of all building fires in rooming houses, were reported as confined to non-combustible containers in 2009. Three hundred and eight (308) were cooking fires contained to a non-combustible container accounting for 88% of all the fires in rooming or boarding houses in 2009. Seven (7) fires, accounting for 2% of rooming house fires were confined indoor rubbish fires. Six (6), or 2%, were fires confined to a fuel burner or boiler malfunction. There were three fires accounting for 1% of these fires that were confined to a chimney or flue.

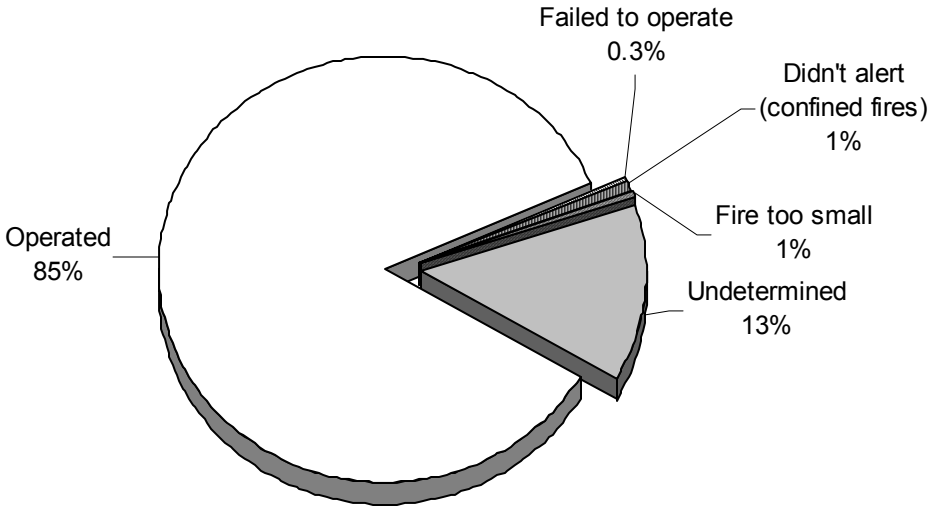
Confined fires in rooming houses increased by 45 incidents, or 16%, from the 279 reported in 2008.

[20] 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.

90% of Rooming House Fires Started in the Kitchen
Ninety percent (90%) of rooming house fires started in the kitchen. Bedrooms and heating rooms or areas each accounted for 2% of these fires. Chimneys or flues and interior stairways each accounted for 1% of rooming house fires. For confined fires, no area of origin is reported. For confined cooking fires, it is a valid assumption in most cases that they started in the kitchen. This is most likely not true in rooming houses where it is more than likely that many of these types of fires occurred in their own bedrooms instead of a common cooking area. Using this assumption, 90% of the fires occurred in the bedroom and 3% occurred in the kitchen.

Detectors Alerted Occupants in 85% of Fires
Smoke or heat detectors operated and alerted the occupants in 298, or 85%, of the rooming house fires in 2009. In 1% of these fires[21], 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 47 incidents, or 13% of Massachusetts' 2009 rooming house fires.

Detector Status in Rooming House Fires



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

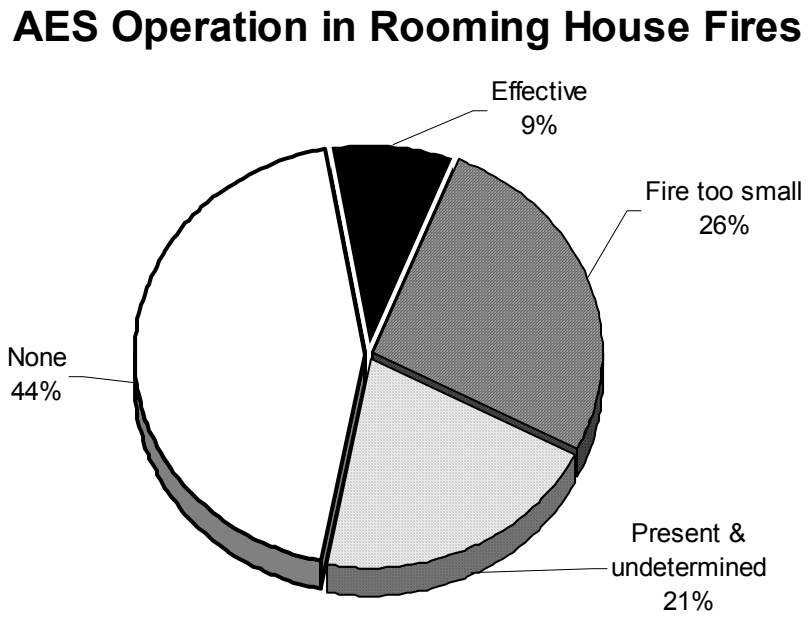
[21] These represent confined fires where it was reported that the detector did not alert the occupants.

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 Over 1/2 of Rooming House Residential Building Fires
AES were reported present in 19, or 56%, of the 34 rooming house fires where AES presence was known. In the other 15 incidents, or 44% there were no systems present.

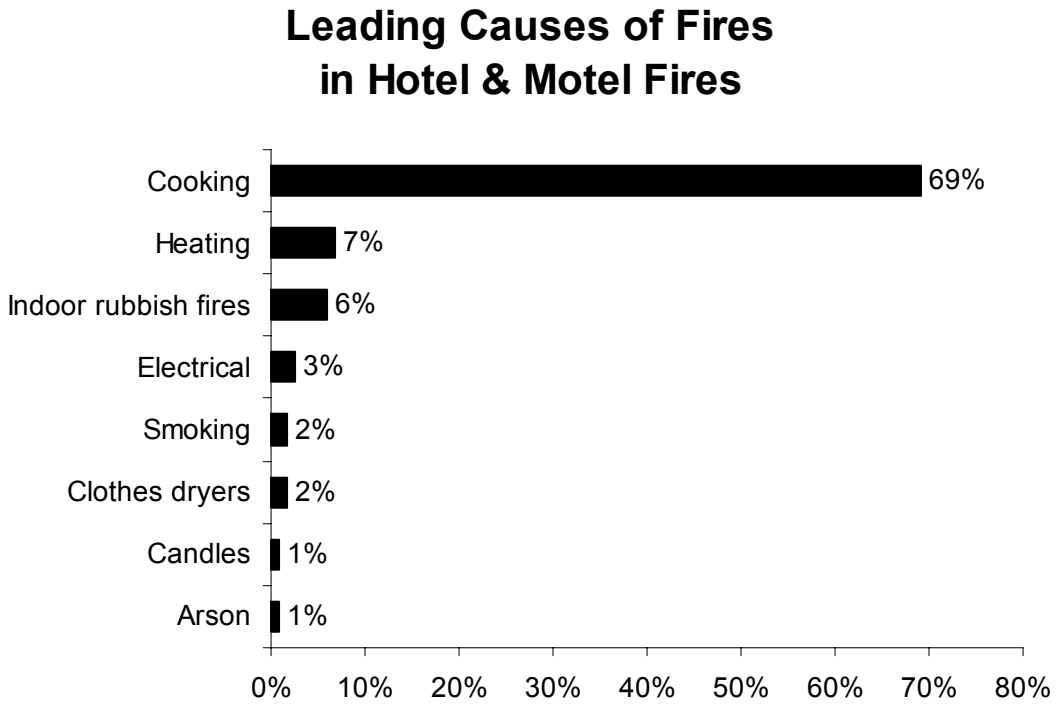
AES Effective in 9% of Rooming House Building Fires
In 9% of these rooming house building fires in 2009 where AES status was known, the AES operated effectively. The fire was too small to activate the automatic extinguishing system (AES) in 26% of these fires. In 21% of rooming house fires systems were present but it was undetermined if they operated. In 44% of the cases, no system had been installed.



Hotel and Motel Fires

117 Fires Caused $628,337 in Damages
One hundred and seventeen (117) building fires in hotels, motels and home hotels caused $628,337 in estimated property damage. The average dollar loss per fire was $5,370. In 2009, 1% of the 14,668 residential building fires occurred in hotels, motels, or home hotels. Fires in hotels and motels were down 8% from 127 in 2008.

Cooking Caused Over 2/3 of Hotel & Motel Fires
Of the 117 fires in hotels and motels in 2009, cooking was the leading cause, accounting for 69%, or more than two-thirds, of the fires in this occupancy. Heating equipment was responsible for 7% of these fires. Indoor rubbish fires caused 6% of these fires. Electrical problems caused 3% of the hotel and motel fires. Smoking and clothes dryers each caused 2% of these fires. Candles and arson each caused 1% of the fires in Massachusetts hotels and motels in 2009.

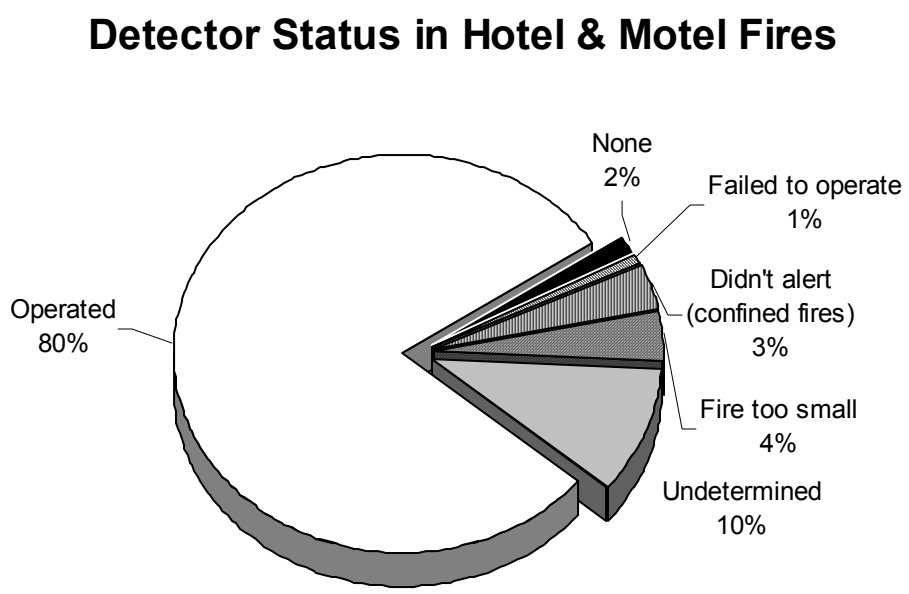


70% of Hotel and Motel Fires Started in the Kitchen
For hotel and motel fires 70% of the fires started in the kitchen. Five percent (5%) of these fires each began in laundry rooms and chimneys or flues. Three percent (3%) of these fires started in bedrooms; and 2% each started in bathrooms or heating rooms or areas.

82% of Hotel or Motel Fires Confined to Non-Combustible Containers[22]
Ninety-six (96), or 82% of all building fires in hotels and motels, were reported as confined to non-combustible containers in 2009. Eighty-one (81) were cooking fires contained to a non-combustible container accounting for 69% of these fires. Indoor rubbish fires caused seven, or 5%, of the hotel and motel fires in 2009. Six (6), or 5%, of hotel or motel fires in 2009 were confined to a chimney or flue. Two (2), or 2%, of the fires in hotels or motels were confined to a fuel burner or boiler malfunction.

The number of contained fires rose in 2009. Confined fires in hotels and motels increased by five incidents, or 5%, from the 91 reported in 2008.

Detectors Operated in 80% of Fires
Smoke or heat detectors operated in 93, or 80%, of the hotel or motel fires in 2009. In 3% of these fires[23], the detectors did not alert the occupants. Detectors were present but did not operate in 1% of these incidents. In 2% of these fires there were no detectors present at all. The fire was too small to trigger the detector in 4% of these residential fires. Smoke detector performance was undetermined in 12 incidents, or 10% of Massachusetts' 2009 hotel or motel fires.



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

Power Failure or Shutoff Caused Detector To Fail
The one detector reported to have failed in a hotel or motel fire, failed. Because of a power shutoff or disconnect.

AES Absent in 43% of Hotel and Motel Residential Building Fires
Automatic extinguishing systems (AES) were present and operated effectively in four, or 19%, of the 21 hotel and motel building fires in 2009 where AES status was known. In one, or 5% of these fires, a system was present but it was undetermined if it operated. In seven, or 33%, of these incidents, the fire was too small to activate the system. In nine, or 43%, of the cases, there were no AES systems.

Federal Hotel and Motel Fire Safety Act of 1990 Implemented in Massachusetts
The Federal Hotel and Motel Fire Safety Act of 1990 was implemented in Massachusetts in 1992. To increase the level of fire safety in hotels and motels, this act limits travel by federal employees to properties meeting certain fire safety standards. Each guestroom must be equipped with a hard-wired, single-station smoke detector installed in accordance with the National Fire Protection Association (NFPA) Standard 72. Hotels and motels over three stories in height must also be protected by an automatic sprinkler system installed in the sleeping area of each room in accordance with NFPA Standard 13 or 13R.

Only properties that meet the fire safety standards are listed in the Federal Travel Directory used by federal employees to select lodging while on official business.

The last provision of this act took effect on October 1, 1996. At that time, 90% of all travel nights by federal employees must be in 'approved accommodations.' The Congressional authors of the act have clarified the term 'place of public accommodation,' to include hotels and motels and all such meeting and sleeping facilities except those specifically exempted. Private conference centers are now included. Meetings funded wholly or in part by federal funds are subject to this requirement. For a list of certified hotels go to the U.S. Fire Administration's website at http://www.usfa.fema.gov/appplications/hotel.

Despite the federal goal of attempting to improve life safety in hotels and motels, the sprinkler provision only applies to buildings over three stories. In the 10 hotel fires that reported having no AES, nine, or 90%, were three stories or less.

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 fire. Travelers should test the smoke detector in their room.
- It is recommended that you keep the room key, eyeglasses and a flashlight on the night table. If a fire occurs or a fire alarm sounds, take them with you and go out the door. However before opening the door, test the door with the back of your hand. If the door feels cool, open the door a crack. Be ready to close the door if hot air, flames, or smoke rush through the crack. If this does not occur, yet the hall is hazy with smoke, crawl down the hall counting the doors to the nearest stairway exit. If this exit cannot be reached, turn around and count the doors back to your room. Unlock the door and re-enter.
- If it is unsafe to leave the room during a fire:
  Fill the tub with cold water; stuff wet towels around the door to keep the smoke out; if possible, open a window and hang a sheet outside to signal for help; cover your face with a wet cloth and stay low if smoke gets in the room; do not jump.
- Try to call out to emergency services on a cell phone or house phone and advise the emergency dispatcher of your exact location within the hotel.

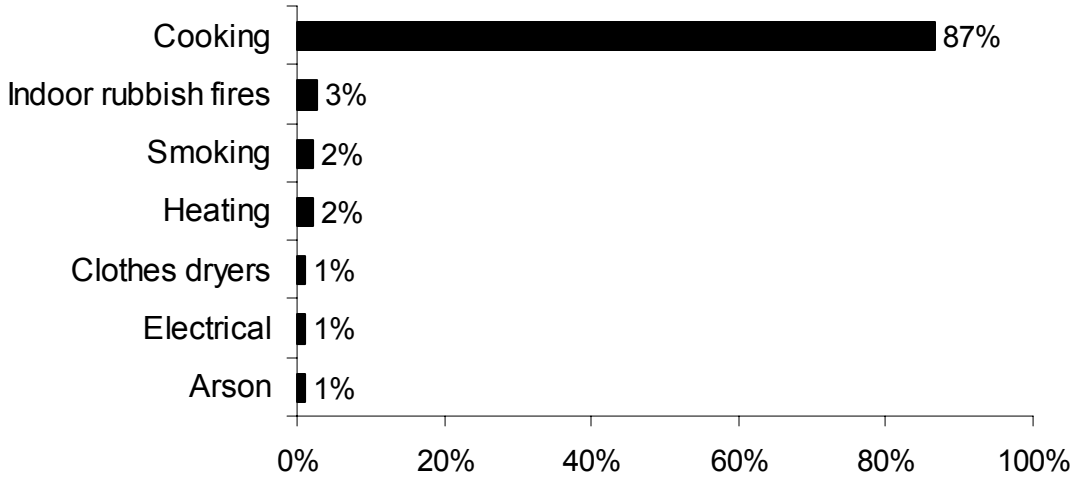
Residential Board & Care Fires

142 Fires Caused 2 Civilian Injuries & $45,975 in Damages
One hundred and forty-two (142) residential board and care building fires caused two civilian injuries and an estimated dollar loss of $45,975 in damages. The average dollar loss per fire was $324. In 2009, 1% of the 14,668 residential building fires occurred in residential board and care buildings. Fires in residential board and care facilities were down 16% from 169 in 2008.

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

Cooking Accounted for 87% Residential Board & Care Fires
In the 123 incidents of residential board and care building fires, the leading cause was cooking, accounting for 150 incidents, or 87%, of the fire incidents. Indoor rubbish fires caused 3% of these fires. Smoking and heating equipment each caused 2%; and electrical problems and arson each caused 1% of the fires in residential board and care facilities in 2009.

Leading Causes of Fires in Residential Board & Care Facility Fires



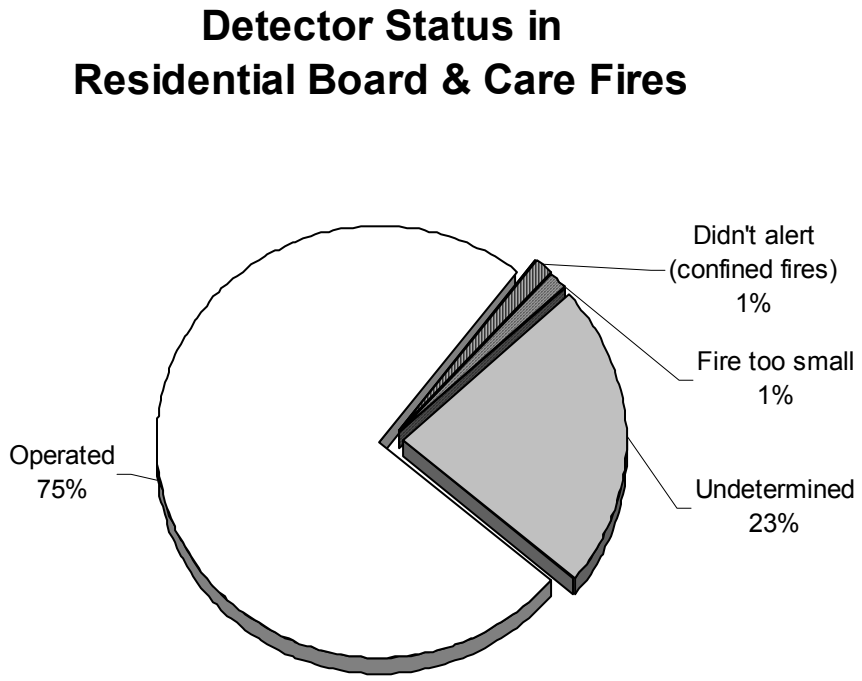
87% of Residential Board & Care Fires Started in the Kitchen
Of the 142 residential board and care building fires, 124, or 87%, started in the kitchen. Three (3), or 2%, started in the laundry room, and a heating room or area and the bathroom were each the area of origin in 1% of these fires.

92% of Board & Care Fires Confined to Non-Combustible Containers[24]
One hundred and thirty (130), or 92% of all building fires in residential board and care facilities, were reported as confined to non-combustible containers in 2009. One hundred and twenty-three (123) were cooking fires contained to a non-combustible container accounting for 87% of these fires. Four (4), or 3%, of these fires were contained rubbish fires. Two (2), or 1%, of the fires in residential board and care facilities was confined to a fuel burner or boiler malfunction; and one fire, or 1%, was confined to a chimney or flue.

The number of contained fires decreased in 2009. Confined fires in residential board and care facilities decreased by 26 incidents, or 17%, from the 156 reported in 2008.

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

Detectors Operated in 3/4 of Fires
Smoke or heat detectors operated in 105, or 75%, of the residential board and care facility fires in 2009. In 1% of these fires[25], the detectors did not alert the occupants. There were no reported fires where there were no working detectors. The fire was too small to trigger the detector in 1% of these residential fires. Smoke detector performance was undetermined in 32 incidents, or 23% of Massachusetts' 2009 residential board and care facility fires.



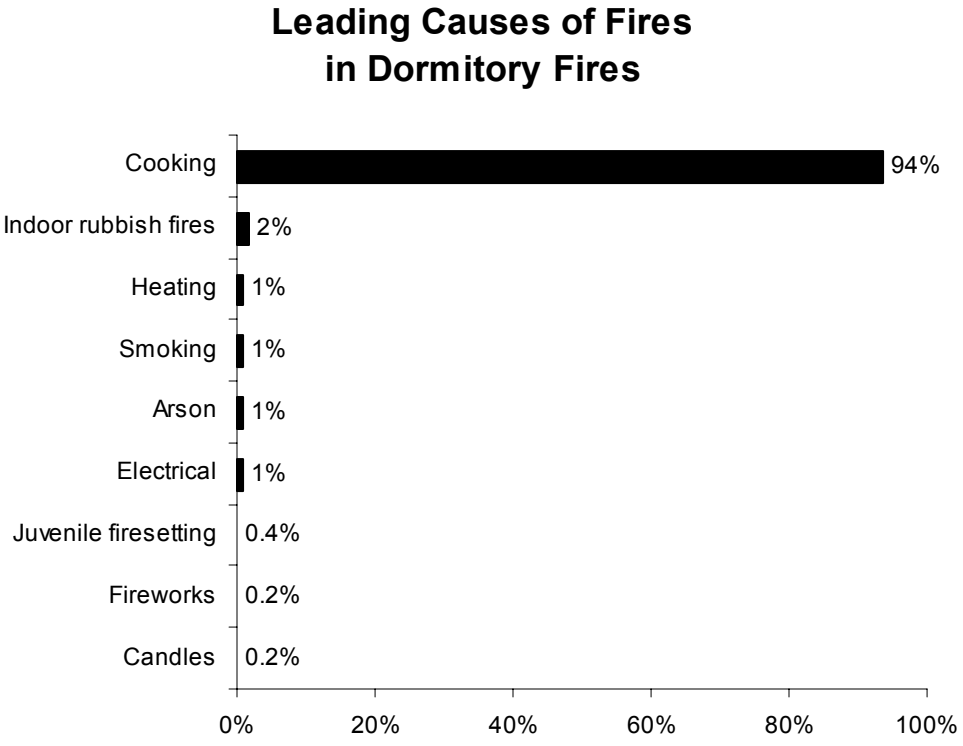
No AES in Almost 2/3 of Residential Board & Care Building Fires
Automatic extinguishing systems (AES) were present in eight, or 33%, of the 22 residential board and care building fires where AES presence was known. In three of these incidents, or 14%, the system operated effectively. An AES system was present but it was undetermined if it operated in one, or 5%, of these incidents. In four, or 18%, of these incidents, the fire was too small to activate the system. In 14, or 63%, of these incidents there were no systems present.

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

Dormitory Fires

545 Fires Caused 1 Civilian Injury & $265,695 in Damages
Five hundred and forty-five (545) dormitory building fires caused one civilian injury and estimated dollar loss of $265,695 in damages. The average dollar loss per fire was $488. In 2009, 4% of the 14,668 residential building fires occurred in dormitories. Fires in dormitories were up 120, or 28%, from 425 in 2008.

Cooking Accounted for 94% of Dormitory Fires
In the 545 incidents of dormitory fires, the leading cause was cooking, accounting for 510, or 94%, of these fires. Indoor rubbish fires were responsible for 2% of these incidents. Heating equipment, smoking, arson and electrical problems each caused 1% of these fires. Juvenile firesetting, fireworks and candles each accounted for less than 1% of Massachusetts dormitory fires in 2009.



94% Dormitory Fires Started in the Kitchen
For dormitory fires, 94% of the fires started in the kitchen[26]. One percent (1%) began in heating rooms or areas. However, if we assume that all of the confined cooking fires

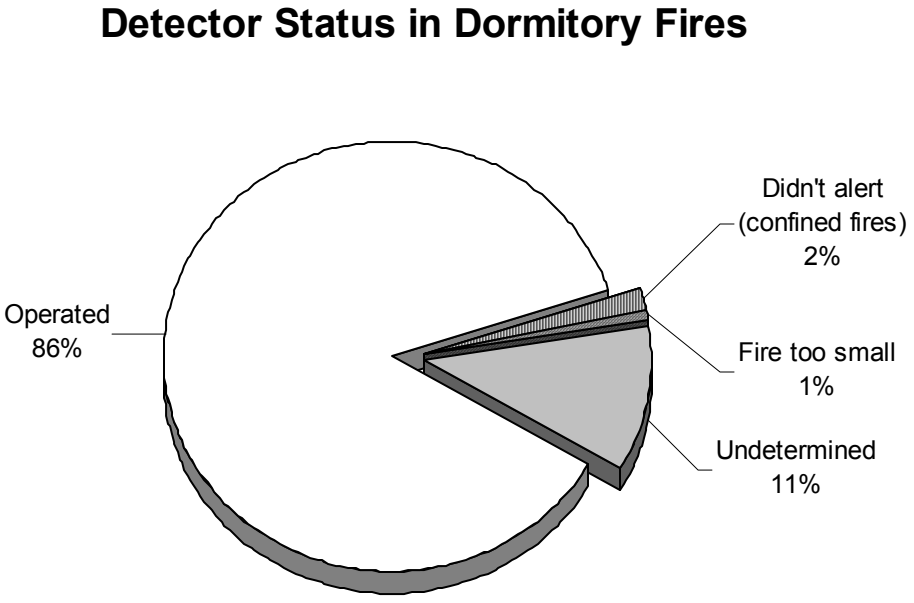
[26] The high number of fires that are reported to have originated in the kitchen may be misleading in dormitory fires. Ninety-one percent (91%) of the cooking fires in dormitories were confined cooking fires. In most cases we assign the area of origin of a confined cooking fire to the kitchen. However in the case of

occurred in the occupants bedrooms because most dormitory residents cook in their own bedrooms, 93% of the fires would have occurred in the bedroom, and only 1% would have occurred in kitchen areas.

96% of Dormitory Fires Confined to Non-Combustible Containers[27]
Five hundred and twenty-two (522), or 96% of all building fires in dormitories, were reported as confined to non-combustible containers in 2009. Five hundred and six (506) were cooking fires contained to a non-combustible container accounting for 93% of all dormitory fires. It may be surmised that many if not all of these occurred in a kitchen but the majority may have been in the students' bedrooms. Indoor rubbish fires accounted for 11, or 2% of the fires in dormitories in 2009. Four (4), or 1%, of fires in Massachusetts' dormitories in 2009 were confined to a fuel burner or boiler malfunction; and one, or less than 1%, was confined to a chimneys or flues.

The number of contained fires rose in 2009. Confined fires in dormitories increased by 119 incidents, or 30%, from the 403 reported in 2008. All 119 were cooking fires.

Detectors Operated in 86% of Fires
Smoke or heat detectors operated and alerted the occupants in 472, or 86%, of the dormitory fires in 2009. In 2% of these fires[28], the detectors did not alert the occupants.

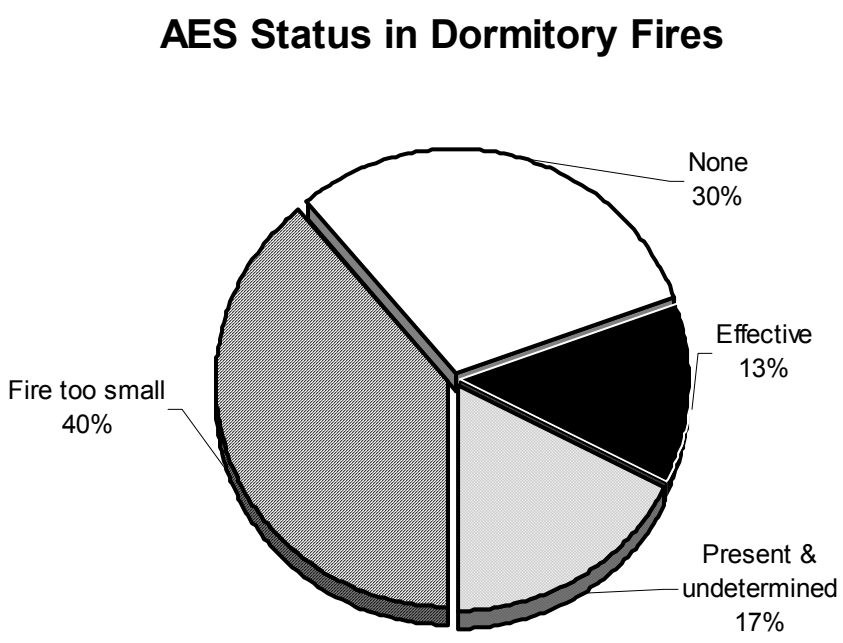


dormitories many of these fires probably occur in the students' bedrooms when they are using hot plates, coffee makers or microwave ovens.

[27] 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 were present but did not operate in less than 1% of these fires. There were no reported fires were detectors not present. The fire was too small to trigger the detector in 1% of these fires. Smoke detector performance was undetermined in 59 incidents, or 11% of Massachusetts' 2009 dormitory fires.

AES Present in 70% of Dormitory Fires
Automatic extinguishing systems (AES) were present and operated effectively in three, or 13% of the 23 building fires in dormitories where AES status was known. In 40% of these incidents, the fire was too small to activate the system. In 17% of these incidents, a system was present but it undetermined if it operated. In seven, or 30%, of these incidents there were no systems present.



5 to 1 Ratio of False Alarms to Fire Calls in MA Dorms
In 2009, Massachusetts fire departments responded to 2,581 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 four hundred and forty-seven, or 56%, were unintentional system or detector operations; 704, or 27% were system or detector malfunctions, 360, or 14% were malicious or mischievous false alarms; and 70, or 3% were unclassified false alarm calls.

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

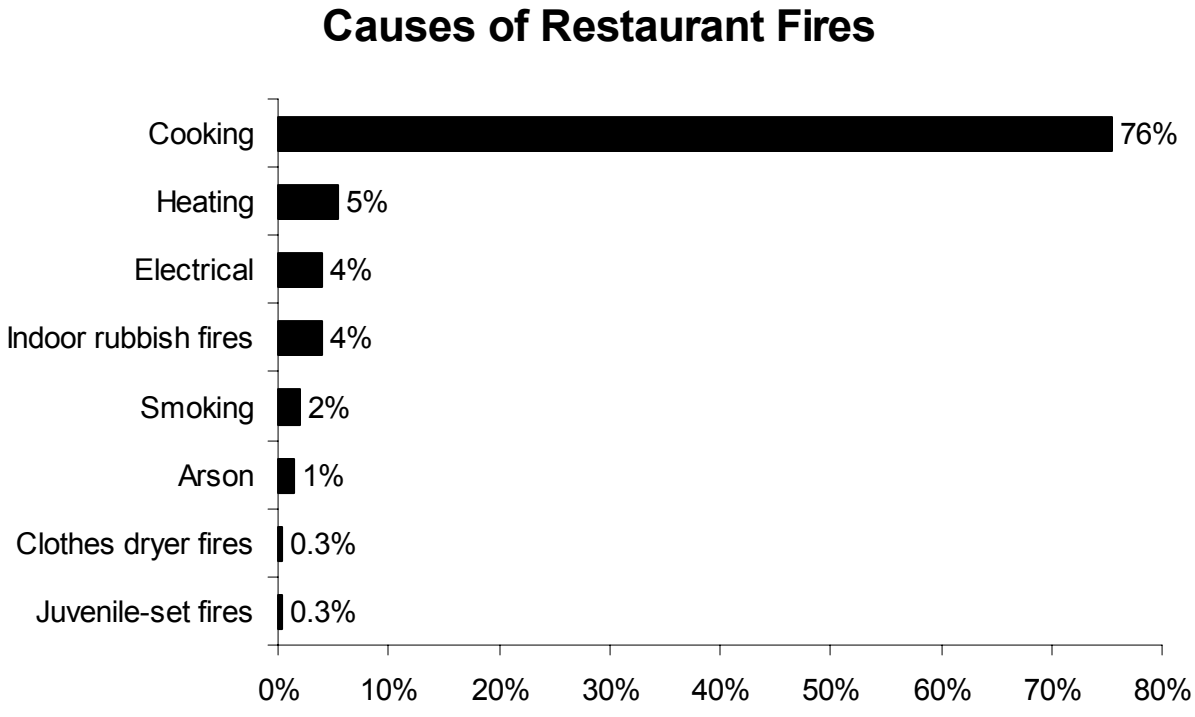
Restaurant Fires

347 Fires, 5 Firefighter Injuries & $4 Million in Damages

Three hundred and forty-seven (347) building fires in 2009 occurred in restaurants and other eating and drinking establishments, causing two civilian injuries, five firefighter injuries, and an estimated dollar loss of $4 million. The average dollar loss per fire was $11,733. In 2009, 2% of the 17,773 building fires in Massachusetts occurred in restaurants. Fires in restaurants were up 12% from 311 in 2008.

Over 3/4 of Restaurant Fires Caused by Cooking

Cooking caused 76% of the restaurant fires; heating equipment caused 5%; electrical problems and indoor rubbish fires each accounted for 4% of these fires; smoking caused 2% and arson caused 1% of these fires. Clothes dryers and juvenile-set fires each accounted for less than 1% of the fires in restaurants in 2009.



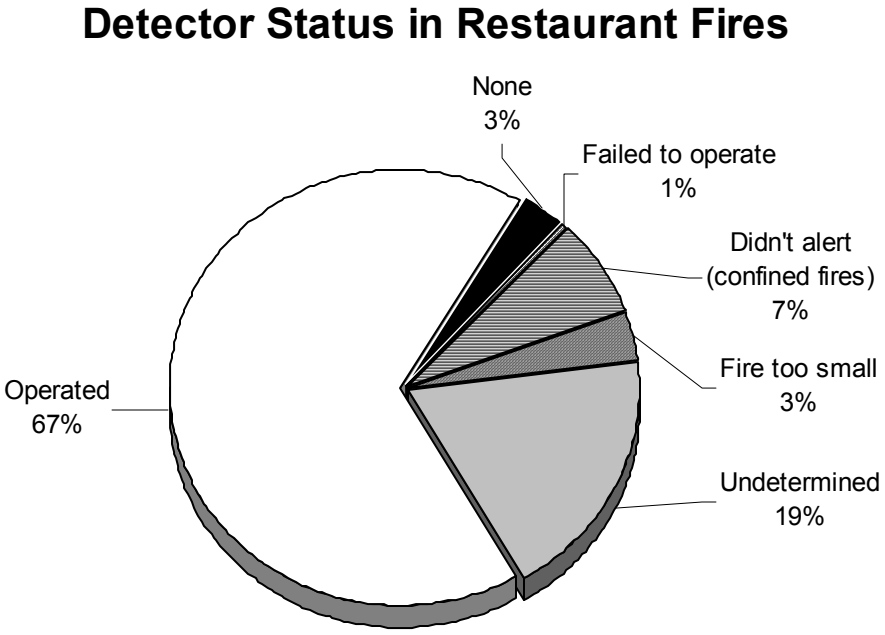
Over 3/4 of Restaurant Fires Started in the Kitchen

Over three quarters, or 76%, of the 347 fires in restaurants, started in the kitchen. Four percent (4%) each began in heating rooms or areas or chimneys or flues, 2% of these fires began on exterior wall surfaces, and 1% each began in concealed wall spaces and lobbies.

78% of Restaurant Building Fires Confined to Non-Combustible Containers[29]
Two hundred and seventy-one (271), or 78% of all restaurant building fires, were reported as confined to non-combustible containers in 2009. Two hundred and forty-three (243) were cooking fires contained to a non-combustible container accounting for 70% of restaurant building fires. Fourteen (14), or 4%, were fires confined to a fuel burner or boiler malfunction. Thirteen (13), or 4%, of all restaurant building fires reported in 2009 contained rubbish fires. One (1), or less than 1%, of restaurant fires was confined to a chimney.

The number of contained fires rose in 2009. Confined fires in restaurants increased by 56 incidents, or 26%, from the 215 reported in 2008.

Detectors Operated in 2/3 of Fires
Smoke or heat detectors operated in 232, or 67%, of the restaurant fires in 2009. In 7% of these fires[30], 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 restaurant fires. Smoke detector performance was undetermined in 65 incidents, or 19% of Massachusetts' 2009 restaurant fires.

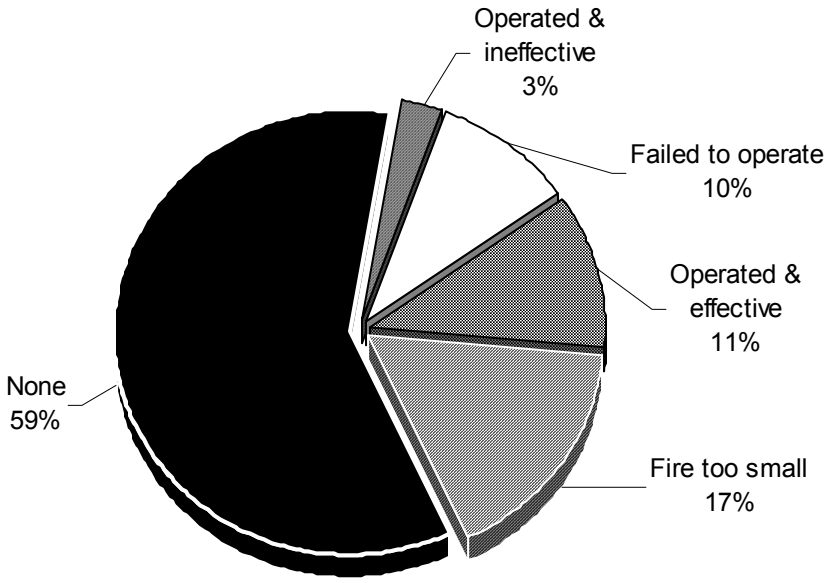


[29] In MFIRS v5 a fire in a building contained to a non-combustible container (Incident Type = 113-118) does not have to have a Fire Module completed. Therefore the following data fields do not need to be completed: Area of Origin, Detector Status, Item First Ignited, Heat Source, Factors Contributing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

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 2009 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 11% of the 72 restaurant fires where AES status was known. In 3% of these fires, systems were present but operated ineffectively. In 10% of these fires, an AES was present but did not operate. In 17% of these fires, the fire was too small to activate the system. No AES equipment was present in 59% of the restaurant fires in 2009. AES status was unknown in eight incidents. These incidents were excluded from the percentage calculations.

AES Status in Restaurant Fires



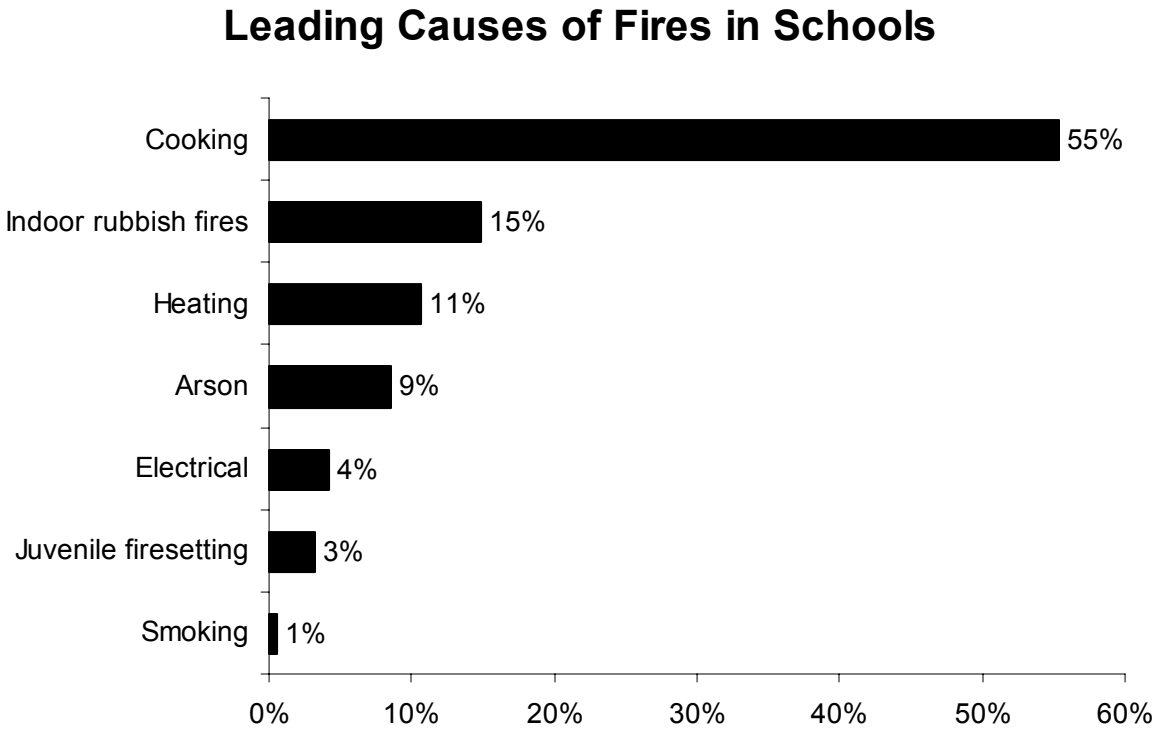
Egremont Has Largest Loss Restaurant Fire

- On December 11, 2009, at 4:45 a.m., the Egremont Fire Department was called to a fire in a restaurant of a historic inn. The cause of the fire was undetermined after the investigation was completed. No one was injured at this fire. Detectors were present and operated. The building was not sprinklered. Damages from this fire were estimated to be $1.5 million.

School Fires

188 Fires Caused 2 Civilian Injuries & 1 Fire Service Injury
One hundred and eighty-eight (188) building fires in schools[31] caused two civilian injuries, one fire service injury and $3.2 million in property damages. The average dollar loss per fire was $16,913. In 2009, 1% of the building fires occurred in schools. Fires in schools decreased by 36 from the 224 in 2008.

Over 1/2 of School Fires Were Cooking Fires
Over half (55%) of the 188 fires reported to have occurred in Massachusetts schools were caused by cooking. Fifteen percent (15%) of the school fires were confined indoor rubbish fires for which no causal information was reported[32]. Problems with heating equipment accounted for 11% of these fires. Arson accounted for 9% of these fires. Electrical problems caused 4%. Identified juvenile-set fires accounted for 3% of the fires in schools. Smoking caused 1% of the reported fires in schools in 2009. Smoking by students and faculty is generally prohibited in schools.



[31] School fires include version 5 Property Use codes 210 – Schools, non-adult, 211 – Preschool, 213 – Elementary school, including kindergarten, and 215 – High school/junior high school/middle school.
[32] 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.

Over 1/2 of School Fires Started in the Kitchen
Over half, or 55%, of the fires in schools started in kitchens; 10% started in a heating room or area; 4% began in a bathroom; 2% started in assembly areas for less than 100 persons; and another 2% started in unclassified structural 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 2009 there were 35 reported confined indoor rubbish fires reported in Massachusetts schools.

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.

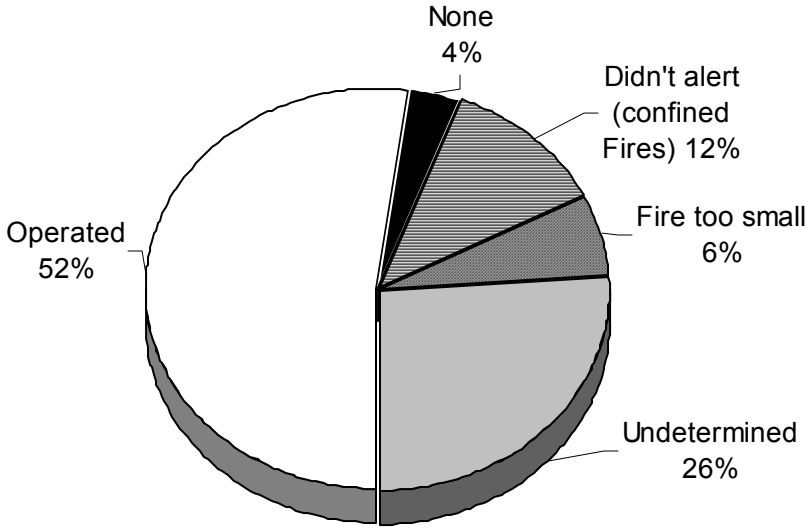
82% of School Building Fires Confined to Non-Combustible Containers[33]
One hundred and fifty-five (155), or 82% of all school building fires, were reported as confined to non-combustible containers in 2009. One hundred and three (103) were cooking fires contained to a non-combustible container accounting for 55% of school fires. Thirty-five (35), or 19%, of all school fires were contained rubbish fires. Of these 35 confined rubbish fires, six were considered intentionally set or arson, and one was determined to be set by a juvenile. Seventeen (17), or 9%, were fires confined to a fuel burner or boiler malfunction.

Confined fires in schools decreased by 14 incidents, or 8%, from the 169 reported in 2008.

Detectors Operated in Over 1/2 of Fires
Smoke or heat detectors operated in 98, or 52%, of the school fires in 2009. In 12% of these fires[34], the detectors did not alert the occupants. There were no reported fires where detectors were present but did not operate. In 4% of these fires, no detectors were present at all. The fire was too small to trigger the detector in 6% of school fires. Smoke detector performance was undetermined in 49 incidents, or 26% of Massachusetts' 2009 school fires.

[33] 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.
[34] These represent confined fires where it was reported that the detector did not alert the occupants.

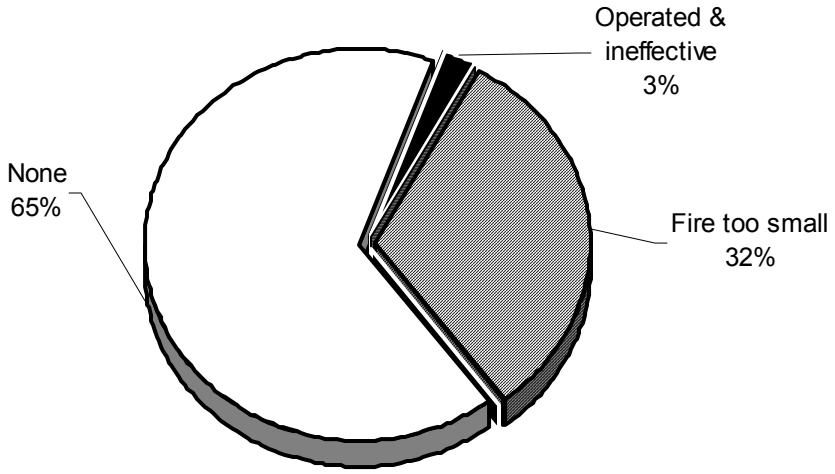
Detector Status in School Fires



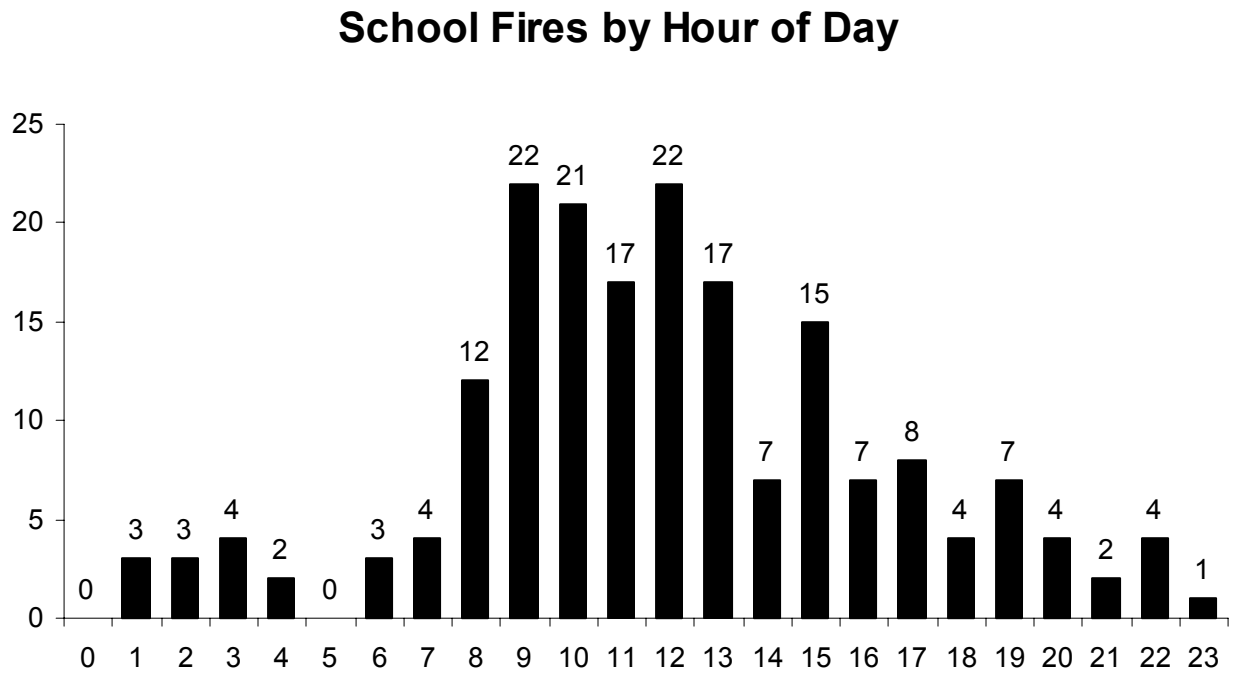
No AES in Almost 2/3 of Fires in Schools

There was one school fire, or 3%, where automatic extinguishing systems (AES) were reported to have been present and operated effectively. In 32% of school fires, the fires were too small to trigger the system. In 65% of the fires in schools, there were no systems.

AES Status in School Fires



Most School Fires Occur When School is in Session During Lunch
School fires generally occur during the school day. Seventy percent (70%) of the school building fires occurred during the hours between 8:00 a.m. and 3:00 p.m. with a sharp increase between 9:00 a.m. and 12:00 p.m. The following graph shows the hour of alarm on the 24-hour clock. Midnight to 1:00 a.m. is represented by 0, 1:00 a.m. to 2:00 a.m. is represented by 1, etc. Eighty-eight percent (88%) of these fires occurred between Monday and Friday.



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

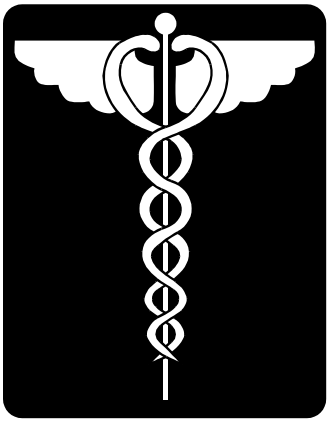
Schools Must Have Updated Multi-hazard Evacuation Plan
Under Section 363 of Chapter 159 of the Acts of 2000, "…the superintendent of each school district shall, prior to the beginning of the school year, meet with the fire chief and the police chief of the city, town or district to formulate a school specific "Multi-hazard evacuation plan" for each school under the superintendent's supervision…" These plans are to encompass evacuations for fires, natural disasters such as hurricanes and other storms, disasters where students and faculty may be injured, as well as shootings, bomb threats and terrorist activities. The plan should include the creation of a crisis response team (CRT); a chain of command for the CRT including substitutes; a communication

plan; procedures for safe entry to and exit from the school for students, parents and staff; and policies for enforcing school discipline and maintaining a safe and orderly environment during the crisis that forced the evacuation. The superintendent and the chiefs should review this plan annually and any necessary changes should be implemented before the new school year begins. At the start of the new school year students should be instructed on how the plan affects them.

Weston Had Largest Loss School Fire

- On December 23, 2009, at 6:08 a.m., the Weston Fire Department was called to a fire at the Gifford School. The fire was started when someone accidentally turned on a burner on a stove in the kitchen. Nearby combustible items ignited. No one was injured at this fire. Detectors were present and alerted the occupants. The building was not sprinklered. Damages from this fire were estimated to be $3 million.

Fires in Hospitals



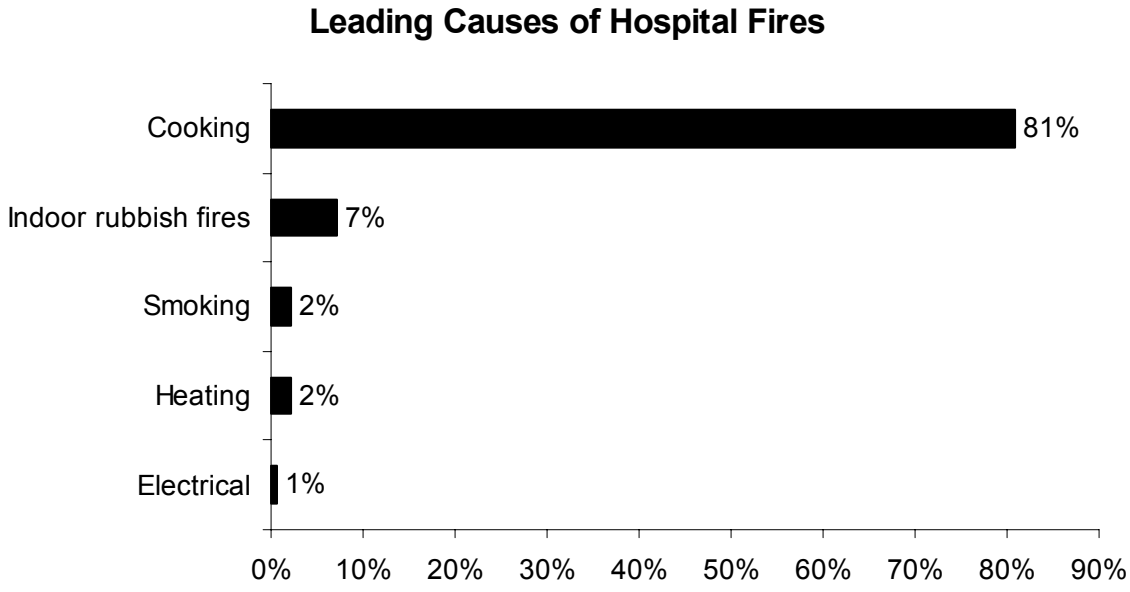
182 Fires Caused $348,528 in Damages

One hundred and eighty-two (182) building fires in hospitals caused an estimated dollar loss of $348,528. The average loss per fire was $2,113. In 2009, 1% of the 17,773 building fires occurred in hospitals. Fires in hospitals were up 18% from 154 in 2008.

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%, or almost three-fourths of the fires in hospitals in 2009. Indoor rubbish fires caused 7% of these fires. Smoking and heating equipment each caused 2% of these fires; and electrical problems accounted for 1% of the fires in hospitals in 2009.



80% of Hospital Fires Began in the Kitchen
Eighty percent (80%), of the fires in hospitals in 2009, started in the kitchen; 2% occurred in heating rooms or areas; 1% occurred in bedrooms; and another 1% in bathrooms.

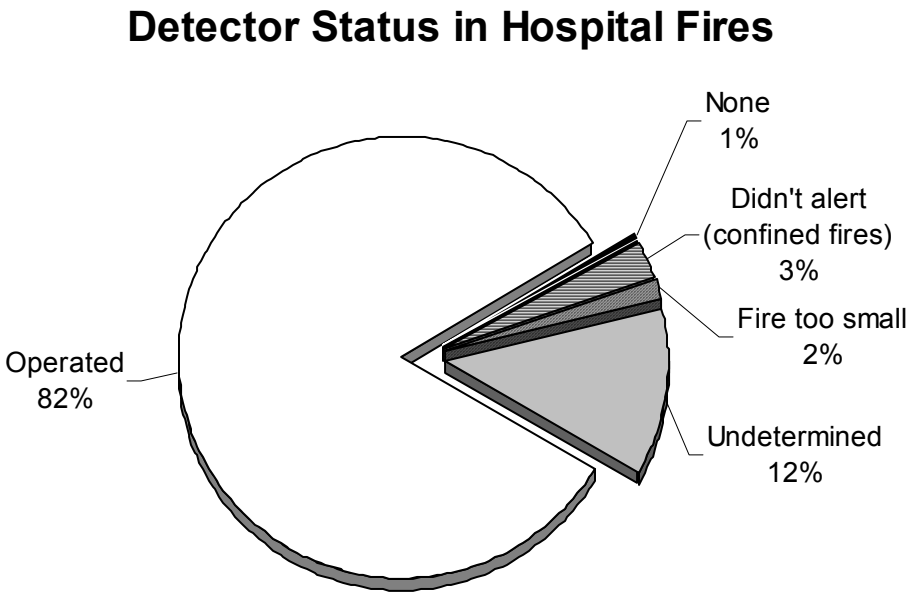
89% of Hospital Building Fires Confined to Non-Combustible Containers[35]
One hundred and sixty-two (162), or 89% of all hospital building fires, were reported as confined to non-combustible containers in 2009. One hundred and forty-four (144), or 79%, of these fires were contained cooking fires. Thirteen (13) were confined indoor rubbish fires accounting for 7% of hospital fires. Four (4), or 2%, were fires confined to a fuel burner or boiler malfunction. One (1), or 1% of the hospital fires in 2009, was confined to a commercial compactor.

The number of contained fires fell in 2009. Confined fires decreased by 53 incidents, or 25%, from the 215 reported in 2008.

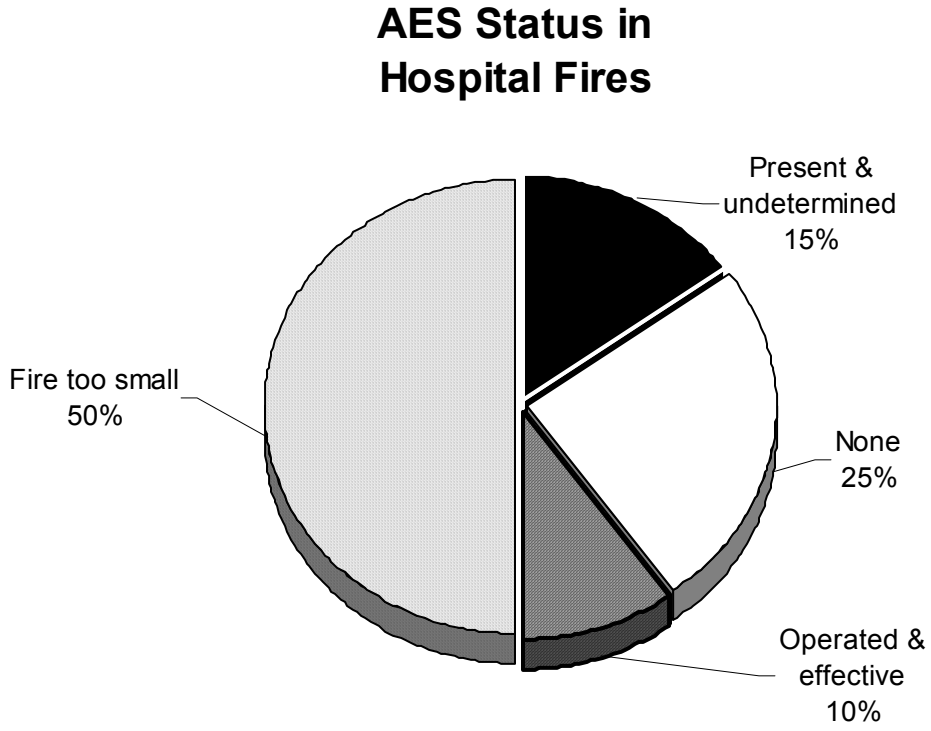
Detectors Operated in 82% of Fires
Smoke or heat detectors operated in 151, or 82%, of the hospital fires in 2009. In 3% of these fires[36], the detectors did not alert the occupants. There were no reported fires where the detectors failed to operate. In 1% of these fires, no detectors were present at all. The fire was too small to trigger the detector in 2% of the hospital fires. Smoke detector

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

performance was undetermined in 22 incidents, or 12% of Massachusetts' 2009 hospital fires.



Fire Too Small to Activate AES Systems in 1/2 of Fires
Of the 20 hospital fires where automatic extinguishing system (AES) performance was known, the fire was too small to activate the AES in 10, or 50%, of these fires. The



system operated effectively in two, or 10% of hospital fires. Twenty-five percent (25%), or five, of the hospital fires had no systems. An AES was present but its performance was unknown in three, or 15% of the fires in hospital facilities.

Milford Had Largest Loss Hospital Fire in 2009

- On September 2, 2009 at 4:35 p.m. the Milford Fire Department was called to an electrical fire at a hospital. A failure of a magnetic imaging scanner caused the fire. The fire did not cause any injuries and was confined to the scanner but did cause an estimated $250,000 in damages. 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.

Nursing Home and Rest Home Fires

158 Fires Caused 1 Civilian Injury & $108,272 in Damages

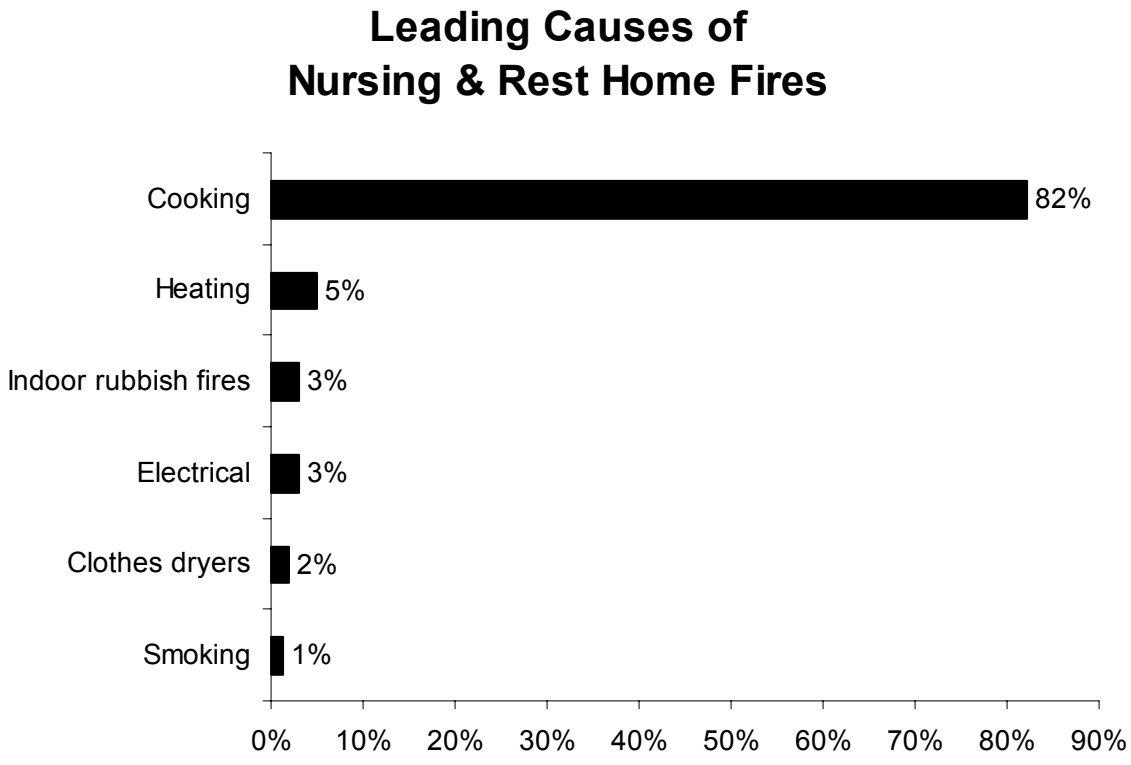
One hundred and fifty-eight (158) building fires occurred in nursing homes and rest homes[37] during 2009. These fires caused one civilian injury, one fire service injury and an estimated dollar loss of $108,272. The average loss per fire was $685. In 2009, 1% of the 17,773 building fires occurred in nursing homes and rest homes. Fires in nursing homes and rest homes increased by 10% from 144 in 2008.

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 82% of Nursing Home Fires

Unattended cooking and other unsafe cooking practices caused 82% of the fires in nursing and rest homes. Heating equipment caused 5% of these fires. Indoor rubbish fires and electrical problems each caused 3% of these fires. Clothes dryers caused 2% of nursing home fires; and smoking caused 1% of the fires in Massachusetts' nursing homes in 2009.

[37] 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.



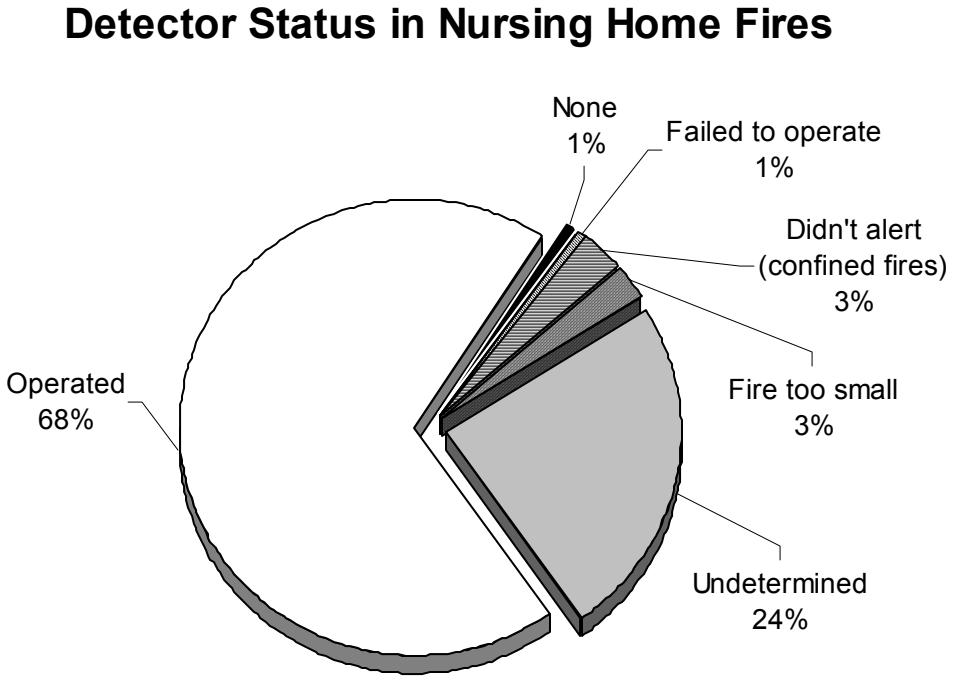
82% of Fires Began in the Kitchen
Eighty-two percent (82%) of the nursing and rest home fires began in the kitchen. Four percent (4%) started in the heating room or area. Three percent (3%) began in a patient's room, and another 3% started in laundry rooms.

89% of Nursing Home Fires Were Confined to Non-Combustible Containers[38]
One hundred and forty-one (141), or 89%, of all nursing home building fires were reported as confined to non-combustible containers in 2009. One hundred and twenty-nine (129) of the reported fires were cooking fires contained to a non-combustible container accounting for 82% of nursing home building fires. Seven (7), or 4%, were fires confined to a fuel burner or boiler malfunction. There were five confined indoor rubbish fires in Massachusetts' nursing homes in 2009, accounting for 3% of these fires.

The number of contained fires in nursing homes rose in 2009. Confined fires increased by 25 incidents, or 22%, from the 116 reported in 2008.

[38] 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.

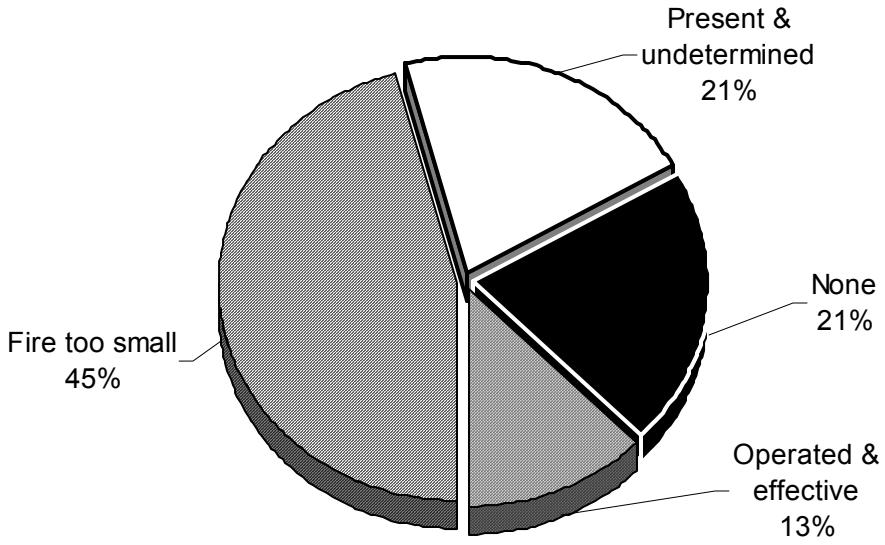
Detectors Operated in Over 2/3 of Fires
Smoke or heat detectors operated in 109, or 68%, of the nursing home fires in 2009. In 3% of these fires[39], the detectors did not alert the occupants. Detectors were present but did not operate in 1% of these incidents. In 1% of these fires, no detectors were present at all. The fire was too small to trigger the detector in 3% of the nursing home fires. Smoke detector performance was undetermined in 38 incidents, or 24% of Massachusetts' 2009 nursing and rest home fires.



AES Operated in 13% of Nursing Home Fires
Of the 24 nursing home fires where automatic extinguishing system (AES) performance was known or reported, systems were present and operated effectively in three, or 13% of these fires. In 11 incidents, or 45% of the fires where AES presence was known, the fire was too small to activate the system. No systems were present in five, or 21% of these fires. In five of these incidents, or 21%, AES were present but their operation was undetermined.

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

AES Status in Nursing & Rest Home Fires



Boston Has Largest Nursing Home Fire Loss

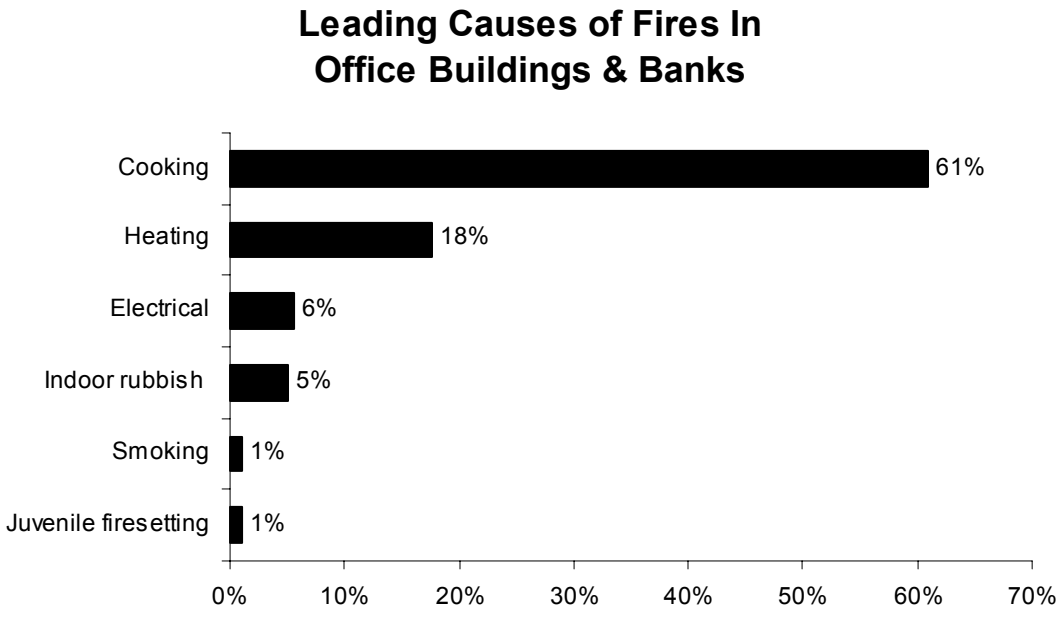
- On October 5, 2009 at 9:19 p.m., the Boston Fire Department was called to a fire in a nursing home. A resident's bedding was ignited by an undisclosed open flame. This fire caused $50,000 in damages. No one was injured in this fire. Smoke detectors were present and alerted the staff and occupants. Sprinklers were present and effectively suppressed the fire until firefighters arrived to extinguish the fire.

Office Building and Bank Fires

159 Fires, 1 Civilian Injury & 1.3 Million in Damages
One hundred and fifty-nine (159) building fires occurred in offices and banks during 2009. These fires caused one civilian injury, one fire service injury and an estimated dollar loss of $1.3 million. The average dollar loss per fire was $8,177. In 2009, 1% of the 17,773 building fires occurred in offices and banks. Fires in office buildings and banks were down 16% from 201 in 2008.

Cooking Caused 61% of Office & Bank Fires
Unattended cooking and other unsafe cooking practices caused 61% of the 159 fires in office buildings and banks in 2009. Heating equipment accounted for 18% of these fires. Electrical problems caused 6% of the office building fires. Indoor rubbish fires caused

5% of these fires. Smoking and juvenile-set fires were each the cause of 1% of the fires in Massachusetts' office buildings and banks in 2009.

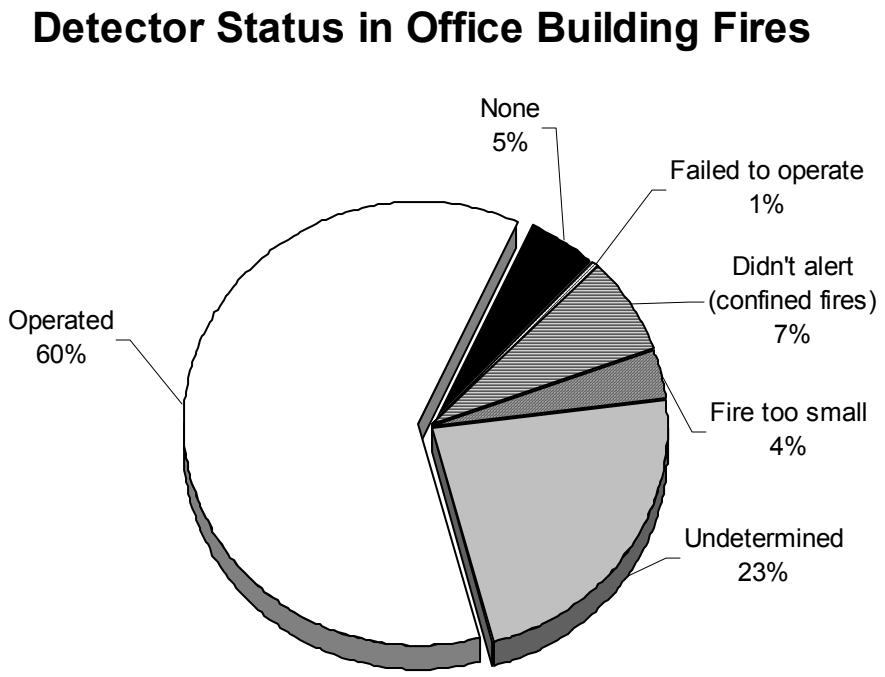


62% Office Building and Bank Fires Started in Kitchen
Sixty-two percent (62%) of the fires in office buildings or banks started in the kitchen. Fifteen percent (15%) of these fires began in a heating room or area. Two percent (2%) originated in a bathroom. One percent (1%) each started in an office, conduit or ventilation shaft or in the ducts.

81% of Office Building Fires Are Confined to Non-Combustible Containers[40]
One hundred and twenty-eight (128), or 81%, of all office building and bank building fires were reported as confined to non-combustible containers in 2009. Ninety-six (96) of the reported fires were cooking fires contained to a non-combustible container accounting for 60% of office building fires. Twenty-three (23), or 14%, were fires confined to a fuel burner or boiler malfunction. Eight (8), or 5%, of these fires were contained indoor rubbish fires[41]. One (1) of these fires was confined to an incinerator, accounting for 1% of the fires in office buildings and banks. Confined fires in offices decreased by nine incidents, or 7%, from the 137 reported in 2008.

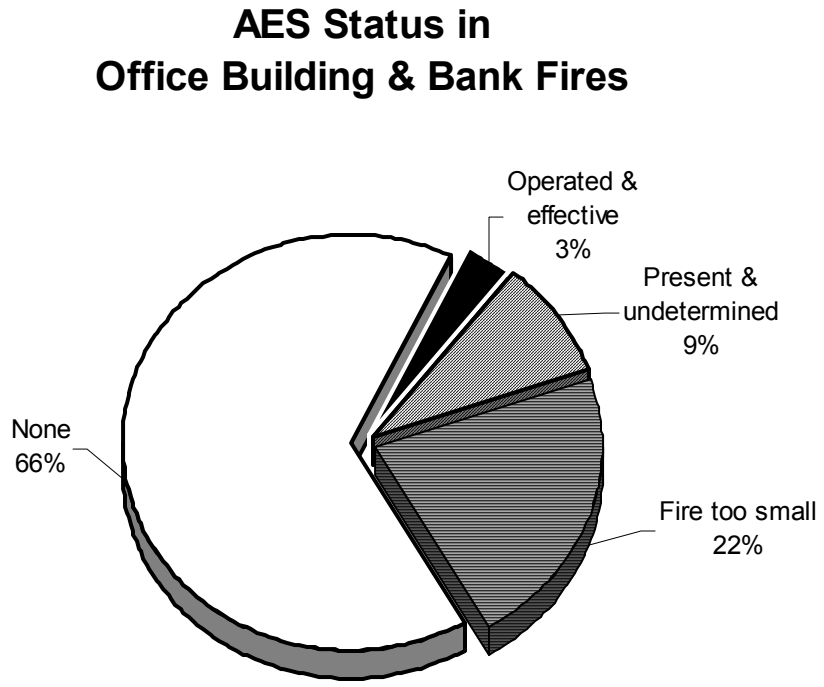
[40] In MFIRS v5 a fire in a building contained to a non-combustible container (Incident Type = 113-118) does not have to have a Fire Module completed. Therefore the following data fields do not need to be completed: Area of Origin, Detector Status, Item First Ignited, Heat Source, Factors Contributing to Ignition, Cause of Ignition, and Equipment Involved In Ignition. These incidents are not included in the analysis of these fields.
[41] Confined rubbish fires in office buildings increased by 18, or 225%, from the 8 reported in 2005.

Detectors Operated in Over 60% of Fires
Smoke or heat detectors operated and alerted the occupants in 97, or 60%, of the office building fires in 2009. In 7% of these fires[42], the detectors did not alert the occupants. In 5% 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 4% of the office building fires. Smoke detector performance was undetermined in 36 incidents, or 23% of the fires in Massachusetts' office buildings.



Almost 2/3 of Office Building and Banks Had No AES
No automatic extinguishing systems (AES) were installed in 21, or 66%, of the 32 fires occurring in office buildings and banks where AES performance was known. Systems were present and operated effectively in one, or 3%, of these incidents. The fire was too small to activate the system in seven, or 22%, of these incidents. AES were present but it was undetermined if they operated in three, or 9%, of the total number of office building and bank fires.

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



Medford Has Largest Loss Office Building Fire

- On March 21, 2009, at 3:54 a.m., the Medford Fire Department responded to a fire in a business office of undetermined cause. The fire originated in a first floor office. No on was injured at this fire. Detectors were not present; and the building was not sprinklered. Damages from this fire were estimated to be $1 million.

Vacant Building Fires

315 Fires Caused 67 Fire Service Injuries & $19.5 Million in Damages

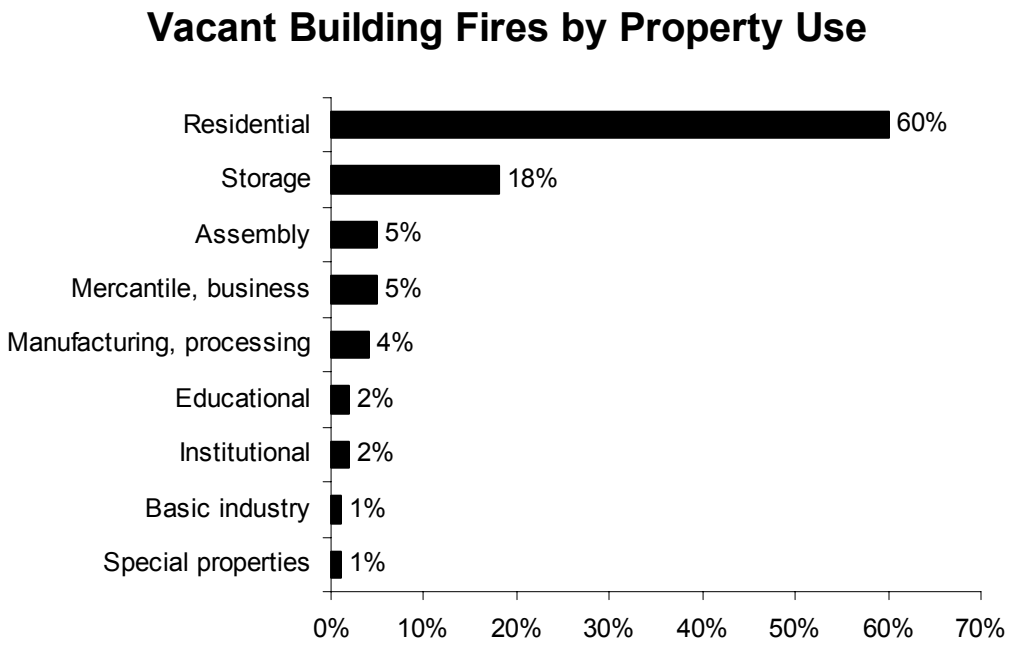
Three hundred and fifteen (315) building fires occurred in buildings that were vacant, under construction or demolition[43]. These 315 fires caused three civilian injuries, 67 firefighter injuries and an estimated $19.5 million in damages. The average dollar loss per vacant building fire was $62,029. Fires in vacant buildings were down 17% from 379 in 2008.

[43] 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.

18% of Vacant Building Fires Considered Arson
Fifty-eight (58), or 18%, of the fires in vacant buildings were considered arson. These 58 arsons caused six firefighter injuries and $2 million in damages. In 2009, 20% of the total 291 Massachusetts building arson fires occurred in vacant buildings.

46% of Vacant Building Fires Undetermined
Forty-six percent (46%) of vacant building fires were undetermined. Fifty-three (53), or 17%, of the 315 vacant building fires were undetermined after investigation. Eighty-six (86), or 27%, were coded as still under investigation; and five, or 2%, were classified as 'Other'.

60% of All Vacant Building Fires Were Residential
Out of the 315 vacant building fires, 189, or 60%, occurred in residential occupancies. This is a decrease of 37, or 16%, over the 226 that were reported in 2008. Fifty-seven (57), or 18%, happened in storage facilities; 17, or 5%, were in public assembly properties; 16, or 5%, happened at mercantile or business locations; 13, or 4%, happened at manufacturing or processing locations; six, or 2%, were at educational facilities; another six, or 2%, occurred at institutional facilities basic; five, or 1% of vacant building fires, occurred at industrial sites; and another five or 1% occurred in special properties.



Almost 2/3 of All Vacant Building Arsons Occurred in Residential Buildings
Almost two-thirds, or 66%, of the 58 vacant building arsons in 2009 occurred in residential occupancies. Sixteen percent (16%) took place in storage facilities; 9% occurred in mercantile or business properties; public assembly properties and industrial facilities each accounted for 3%; 2% happened in manufacturing or processing facilities; and another 2% happened at educational facilities.

The following table and chart illustrate the trend in vacant building fires and arsons over the past decade. These fires steadily declined to 73 in 2000. 2001 was the transition year to version 5, and its increased ability to track these fires and was also the year when the cause 'suspicious' was eliminated from our definition of arson. It should be noted that prior to 2004, these statistics did not include data from the Boston Fire Department. Data from the BFIRS system lost the capability to identify vacant buildings during conversion to MFIRS. This problem was eliminated when Boston completed its conversion to MFIRS version 5 in 2004. Therefore, the numbers in the table prior to 2004 should be considered to be underestimated.

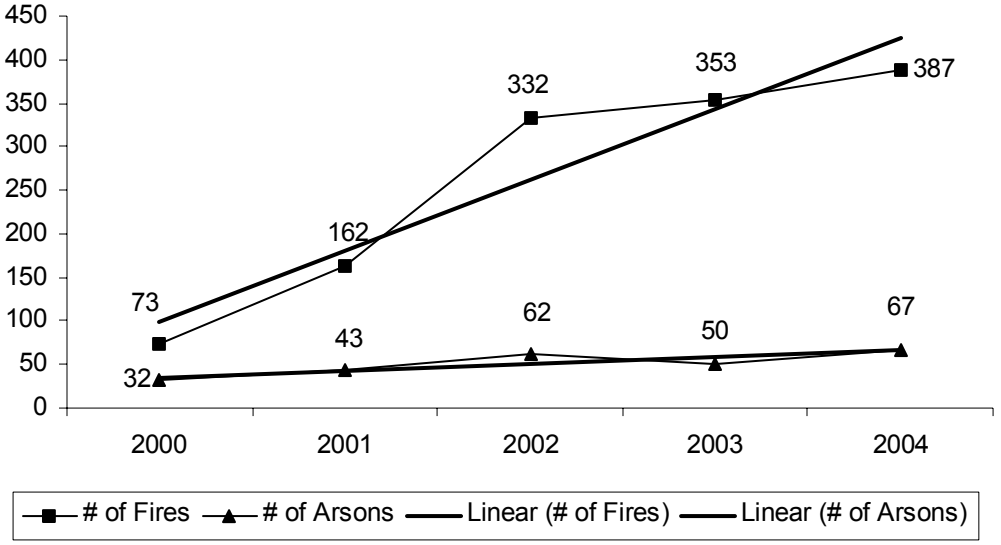
FIRES AND ARSONS IN VACANT BUILDINGS

Year	# of Fires	# of Arsons	% Arsons
2009	315	58	18%
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[44]	332	62	17%
2001	162	43	27%
2000	73	32	44%

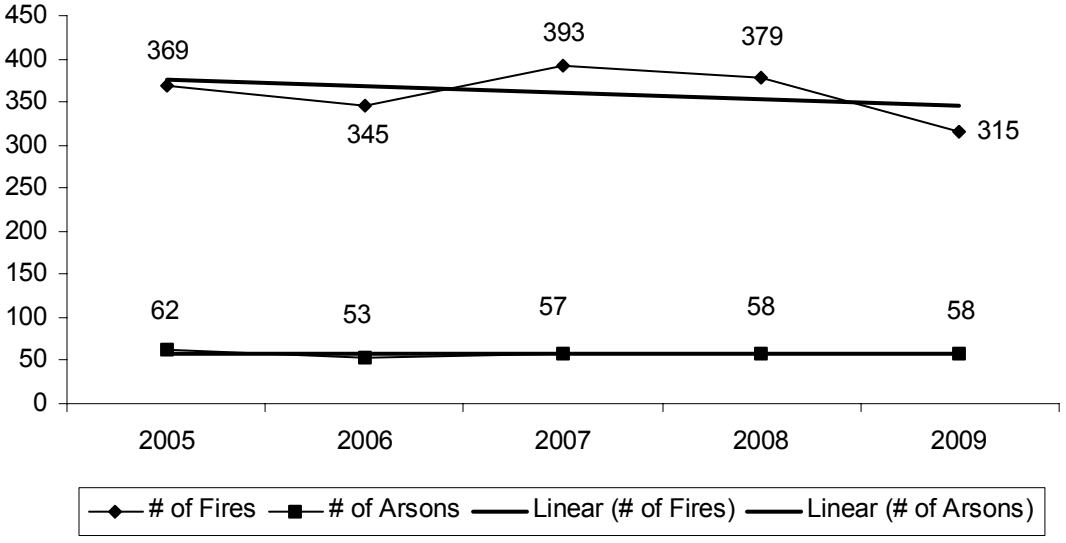
The following graphs clearly show an upward trend in vacant building fires and a level trend in vacant building arsons between 2000 and 2004. The large increases in 2001 and 2002 may be attributed to the switch to the version 5 format where a new field, *Building Status,* defines if the building is vacant or not. From 2005 through 2009 the number of vacant building fires and arsons seems to be holding steady in an even trend.

[44] 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.

Vacant Building Fires & Arsons by Year 2000 - 2004



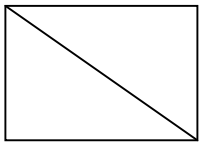
Vacant Building Fires & Arsons by Year 2005 - 2009



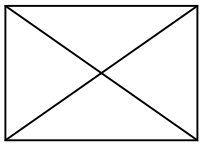
Communities Have Gone on the Offensive Against Vacant Buildings
Some communities have gone on the offensive against vacant buildings. The 32% drop in reported vacant building fires from 1999 to 2000 was likely due to the aftermath of the December 3, 1999 Worcester Cold Storage Warehouse Fire where six firefighters lost their lives. A homeless squatter couple that had been living in the abandoned Worcester Cold Storage Warehouse started the fire when a candle they were using was knocked over and ignited some of their clothes. This tragedy led to 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. Since the tragic death of six of its own firefighters, the city has marked vacant buildings with large placards for firefighters and other public safety personnel. These placards identify vacant buildings and either warn personnel to proceed with extreme caution when entering these buildings or that the building is off limits and a defensive, exterior attack is recommended.

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



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



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

These placards can now be seen in communities throughout the Commonwealth. Neither of these symbols limit the incident commander in directing the operations he deems necessary.

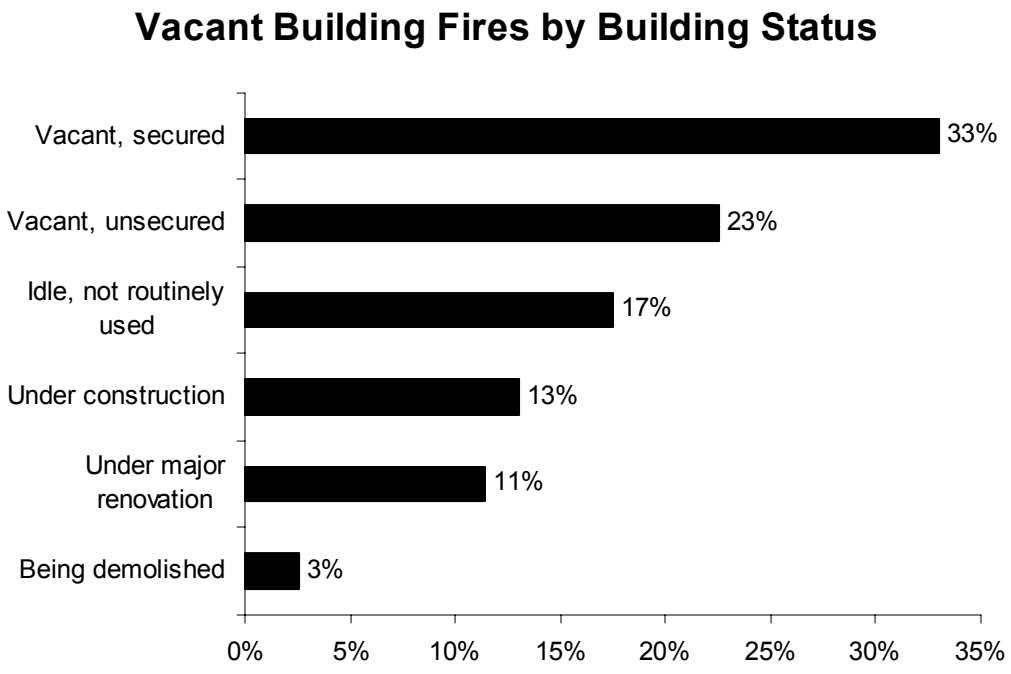
Vacant Buildings Also Threaten Community
Vacant buildings also pose a serious threat to the surrounding community. They become targets for vandalism. Children may find them attractive play spaces. Drug users or dealers may utilize the space for their activities. The homeless may seek shelter and set

fires to keep warm. Arsonists who enjoy fires may consider these buildings to be available for their use and entertainment. 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.

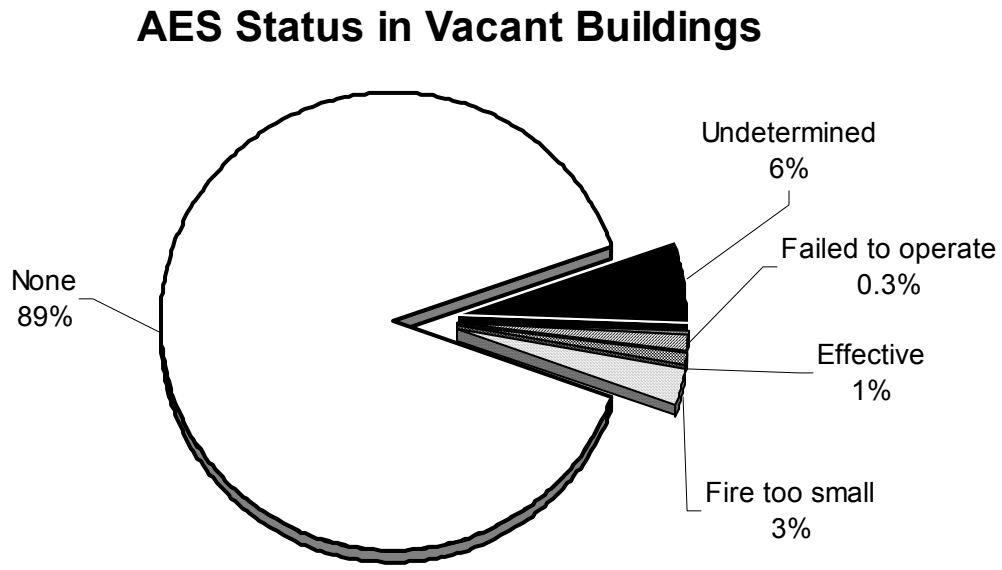
Effective Boarding Up Is Key To Protection
Removing furniture, contents and debris from the interior of the building, building officials insisting that all openings to the building are securely boarded up, preferably from the inside, and periodic security checks can reduce the risk of fire in any vacant 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 315 fires in vacant buildings in 2009, 104, or 33% were in vacant buildings that were secured. Seventy-one (71), or 23% of these fires occurred in vacant buildings that were unsecured; 55, or 17% of these fires took place in buildings that were idle or not routinely used; 41, or 13% were under construction; 36, or 11%, happened in buildings undergoing major renovations; and eight, or 3%, of the fires in these buildings occurred in buildings that were in the process of being demolished.



Over 1/3 of All Vacant Building Arsons Occurred in Secured Buildings
Twenty (20), or 34% of all vacant building arsons in 2009, occurred in secured vacant buildings. Nineteen (19), or 33% of these arsons occurred to vacant and unsecured buildings. Nine (9), or 45% of the arsons involving vacant and secured buildings reported having the fire start on the exterior of the building. Eight (8), or 14%, occurred in idle buildings that are not routinely used. Buildings under major renovation accounted for seven, or 12% of these fires. Buildings under construction accounted for 5% of vacant building arsons, or three of these incidents. One (1) vacant building arson occurred in a building that was being demolished, causing 2% of the vacant building arsons in 2009.

89% Vacant Buildings Had No AES
No automatic extinguishing systems (AES) were installed in 89% of the 313 fires occurring in vacant buildings where AES presence was known. In 3% of these incidents, the fire was too small to activate the system. The AES failed to operate in less than 1% of these incidents. Systems were present and operated effectively in 1%, of these incidents. AES performance was not known in 6% of the building fires in vacant buildings in 2009.



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

Firefighters Injured at 1 of Every 5 Vacant Building Fires
One of the most dangerous types of fires for firefighters in 2009 was vacant building fires. Vacant building fires accounted for 67, or 15%, of all firefighter injuries in 2009.

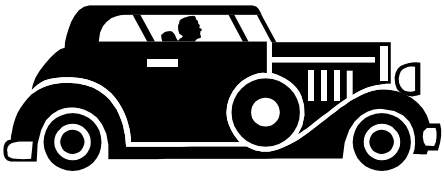
These 67 injuries also represent 16% of the number of firefighter injuries at all building fires. On average there was one firefighter injury for every five vacant building fires.

Large Loss Vacant Building Fire
In 2009, there were two vacant building fires that had an estimated dollar loss greater than $1 million. Both fires accounted for $4 million in estimated damages, or 21% of all vacant building dollar loss estimates in 2009. In 2008 there were four vacant building fires with more than $1 million in damages.

- On May 6, 2009, at 1:22 a.m., a Newton Fire Department engine was returning from a mutual aid call in another community when they discovered a fire in a single-family home that was under renovation. Because of the delay in reporting the fire and the subsequent collapse of the building, the cause of the fire could not be determined. Two firefighters were injured at this fire. It was undetermined if smoke detectors were in the building; and the home was not sprinklered. Damages from this fire were estimated to be $2.5 million.

Motor Vehicle Fires

3,069 Motor Vehicle Fires Account for 11% of All Reported Fires
Motor vehicle fires accounted for 11% of total reported fire incidents. The 3,069 motor vehicle fires in 2009 are a drop of less than 1% from the 3,074 motor vehicle fires reported in 2008. They caused five, or 14%, of civilian fire deaths, 14 civilian injuries, 17 fire service injuries, and an estimated property damage of $13.3 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.

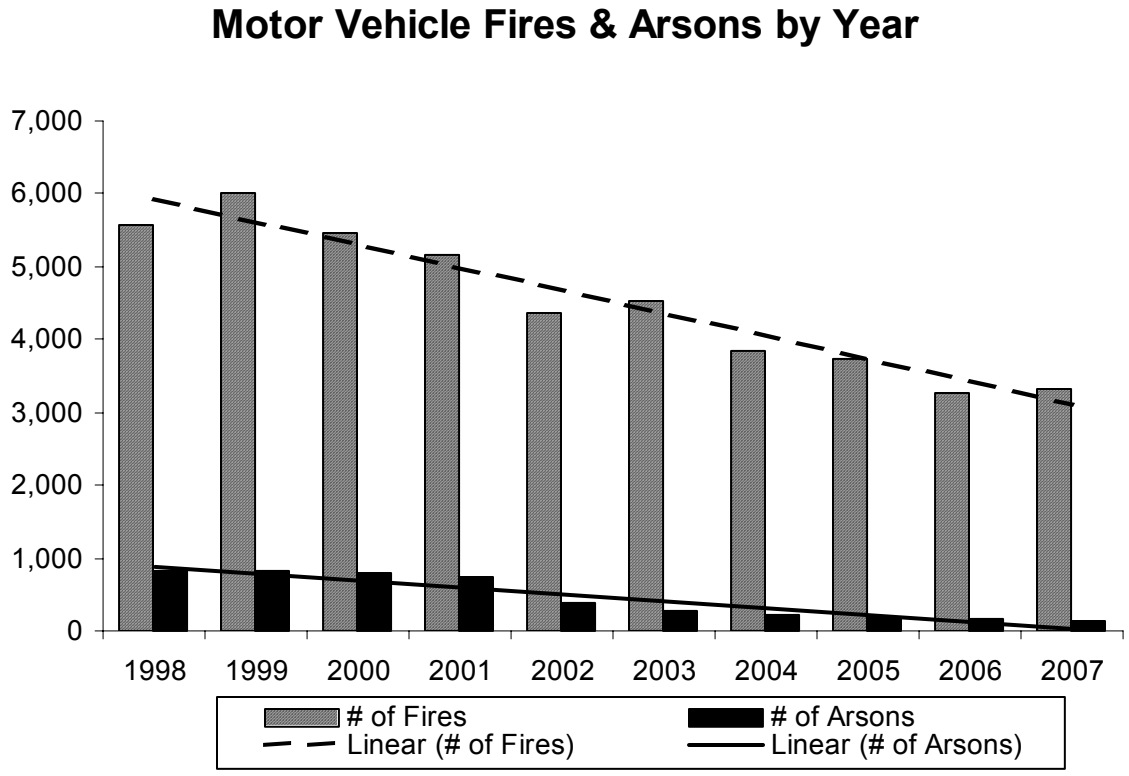
20 Years of the Burned Motor Vehicle Reporting Law
The Massachusetts Fire Incident Reporting System identified motor vehicle fires and motor vehicle arson as a major problem in 1985. The Burned Motor Vehicle Reporting Law took effect in August of 1987. The law requires owners of burned motor vehicles 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 96% from a high of 5,116 in 1987 to a low of 131 in 2007. The percentage of motor vehicle fires that are arsons has also dropped 58% in the past decade from 14.6% in 1999 to 6.1% in 2009.

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
2009	3,069	188	6.1%
2008	3,074	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[45]	4,331	395	9.1%
2001	5,127	743	14.5%
2000	5,473	798	14.6%

The following graph illustrates the data in the previous table.

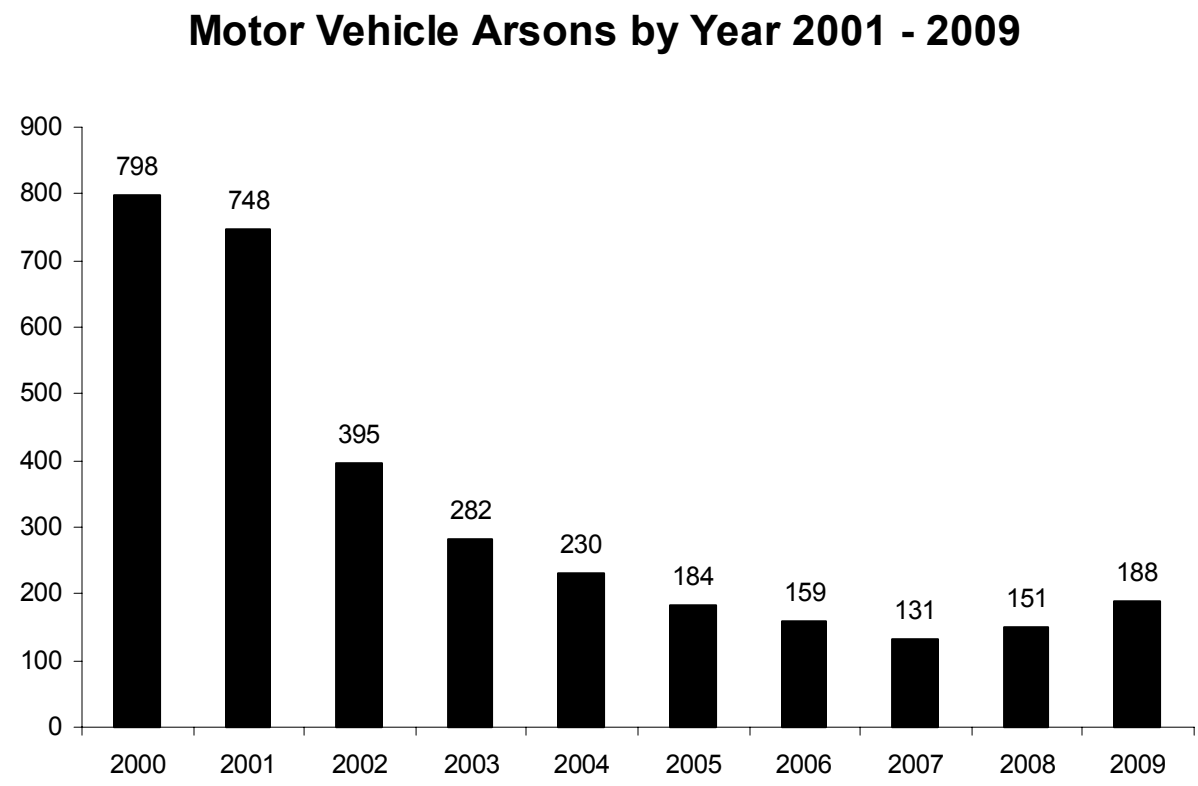


[45] 2002 was the first full year of using only V5 data. As a result, 'Suspicious' was eliminated as a cause and only 'Intentional' fires were counted as arson, thus the significant drop in MV arsons from 2001-2002.

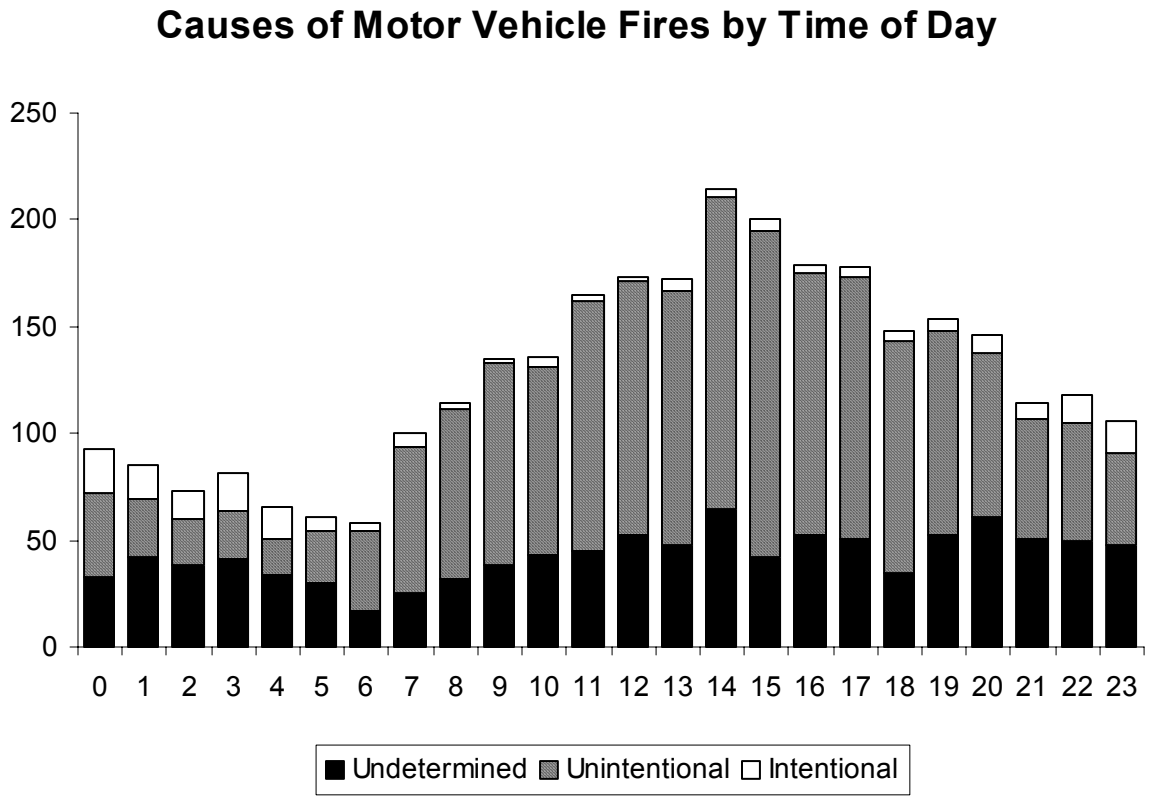
Mechanical Failures Caused 26% of Massachusetts Motor Vehicle Fires
Of the 3,069 motor vehicle fires in 2009, 26% were caused by some type of mechanical failure or malfunction; 6% were considered intentionally set and 35% resulted from other accidental causes. The cause was undetermined or not reported in 33% of the motor vehicle fires.

Motor Vehicle Arsons Increased by 25%
In 2009, there were 188 reported motor vehicle arsons. This is an increase of 25% from the 151 reported in 2008. This is the second year in a row, and only the second year since 1990 where reported motor vehicle arsons have increased from the previous year.

The following graph depicts the drop in motor vehicle arsons from 2000 to 2007 and the recent increasing trend in 2008 and 2009.



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.



61% of Massachusetts Motor Vehicle Fires Involved Automobiles
Automobiles and vans accounted for 61% of the 3,069 motor vehicle fires, 1% were trucks weighing less than one ton and 3% were trucks weighing more than one ton.

Largest Loss Motor Vehicle Fire

- On February 8, 2009, at 7:12 a.m., the Weston Fire Department responded to a construction vehicle fire parked near a warehouse. Investigators were unable to determine the cause of the fire. No one was injured by this fire. Damages were estimated to be $600,000.

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

What Should You Do if You Have a Car Fire?

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

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

Gasoline Deserves Respect

There were 42 motor vehicle fires at gas and service stations in 2009. There were 47 motor vehicle fires at facilities used for motor vehicle or boat sales, service or repairs. Many of these fires were started by gasoline or the 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.

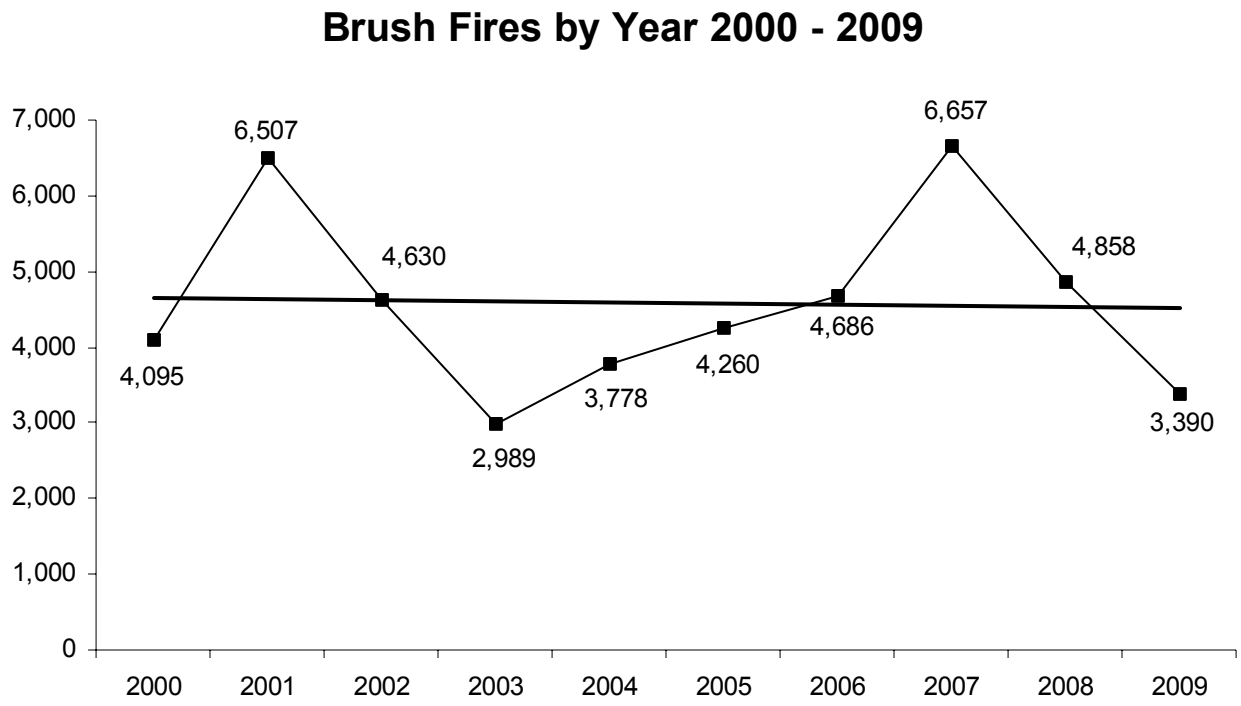
Gas Station Safety

- 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

7,753 Brush, Trash, & Other Outside Fires Down 22%
The 7,753 outside and other fires and explosions caused one civilian death, 28 civilian injuries, 20 fire service injuries, and an estimated dollar loss of $2.9 million. The 3,390 trees, grass and brush fires, 2,857 outside trash fires, 687 special outside fires, 29 cultivated vegetation or crop fires, and 790 other fires accounted for 27% of the total fire incidents in 2009. These fires were down 22% from the 9,900 incidents reported in 2008.

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 2009, the reported number of brush fires decreased by 1,468 or 30% from the 4,858 reported in 2008.



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 7,753 reported outside and other fires include:

- 3,390 natural vegetation fires (tree, grass, and brush fires) that caused three civilian injuries, 12 firefighter injuries, and an estimated dollar loss of $98,970; this is a 30% decrease from the 4,858 incidents reported in 2008.

- 2,857 trash fires that caused four fire service injuries and an estimated dollar loss of $372,527; this is a 13% decrease from the 3,280 incidents reported in 2008.

- 687 special outside fires (including outside, storage, equipment, mailbox fires and outside gas or vapor explosions) that caused one civilian death, four civilian injuries, three fire service injuries and an estimated dollar loss of $727,317; this is a 20% decrease from the 861 incidents reported in 2008.

- 29 cultivated vegetation or crop fires that caused an estimated dollar loss of $4,000; this is a 37% decrease from the 46 incidents reported in 2008.

- 790 other fires that could not be classified further which caused 21 civilian injuries, one fire service injury, and an estimated dollar loss of $1.7 million; this is an 8% decrease from the 855 incidents reported in 2008.

705 Brush, Trash, & Other Outside Arsons

There were 705 reported brush, trash and other outside arsons in 2009. There were 369 natural vegetation arsons; 126 outside rubbish arsons, 125 special outside arsons, four, cultivated vegetation or crop arsons, and 81 arsons that could not be classified any further. These 705 arsons caused one civilian death[46], five civilian injuries, and $77,430 in estimated damages.

1,542 Fires with Cause Still Under Investigation or Undetermined

In 2009, 188 outside and other fires were still listed as Cause Under Investigation. There were 1,354 fires where the Cause of Ignition was listed as Undetermined.

Large Loss Outside and Other Fires

- On March 26, 2009 at 1:24 p.m. the Stoughton Fire Department was called to an outside equipment fire. A tub grinder, used in logging, caught fire when the diesel fuel line sprung a leak and ignited it. No one was injured at this fire. Damages from this fire were estimated to be $400,000.

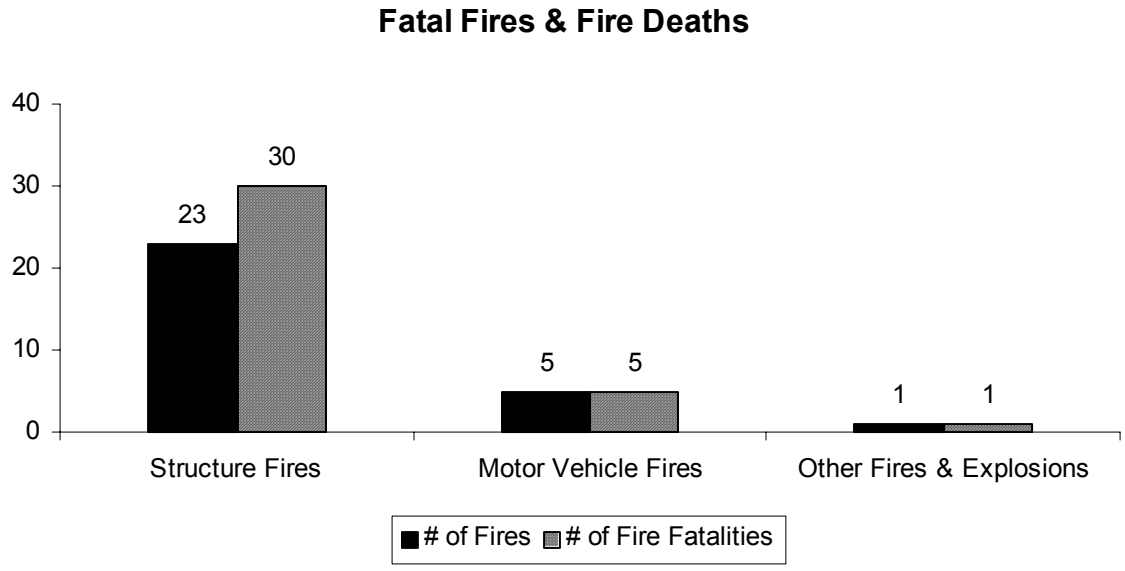
[46] This was a suicide by self-immolation.

2009 Massachusetts Fire Deaths

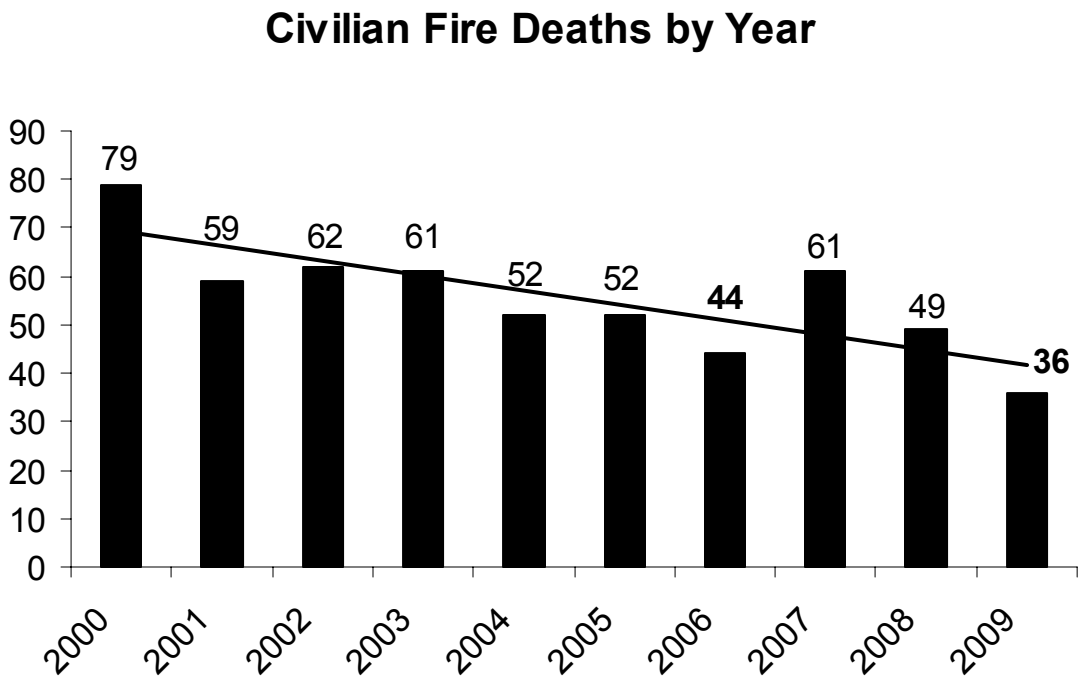
Civilian Fire Deaths

36 Civilians Died in Massachusetts Fires –All-Time Record Low
Thirty-six (36) civilians died in 23 Massachusetts fires during 2009. This is a 27% decrease from the 49 civilian fire deaths recorded in 2008. Thirty (30) civilians died in 23 structure fires. Five (5) people died in five motor vehicle fires. One person died in one outside fire in Massachusetts in 2009. In 2009, there were 5.7 fire deaths per one million population in Massachusetts down from 7.7 fire deaths per one million population in 2008.

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



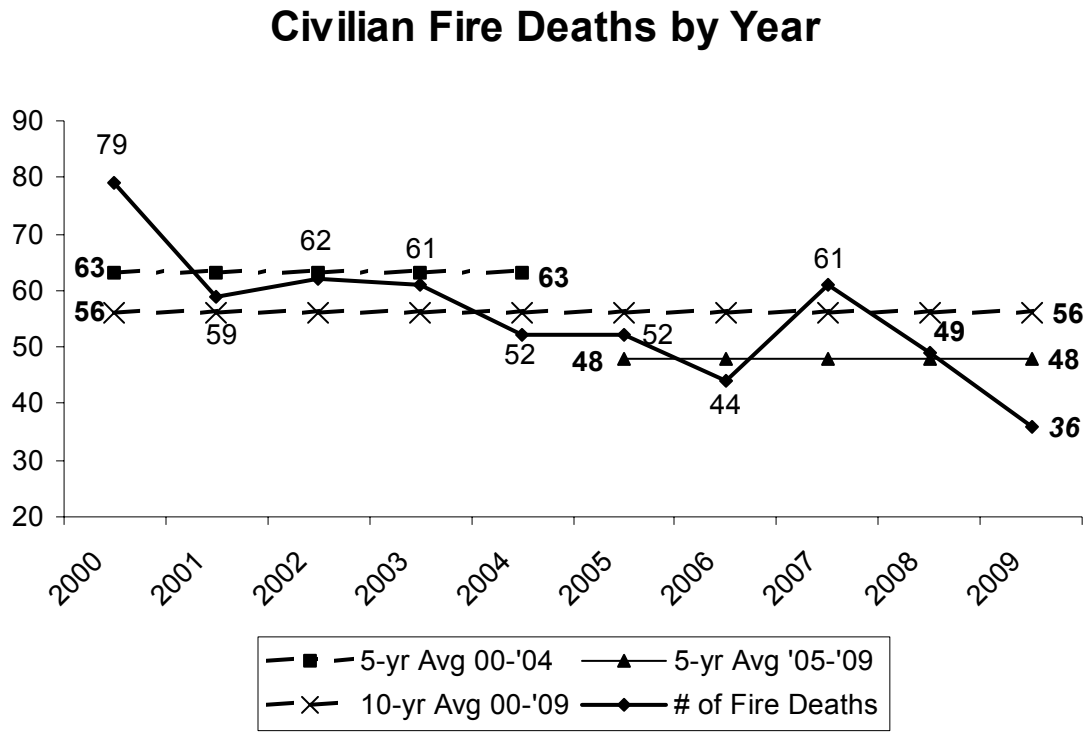
Fire Deaths Decrease 27% from 2008
The 36 civilian fire deaths reported in 2009, is a decrease of 13, or 27%, from the 49 reported in 2008. The following chart shows the trend of civilian fire deaths for the past decade on a general decline. Civilian fire deaths have decreased by 66% from the high of 105 in 1990.



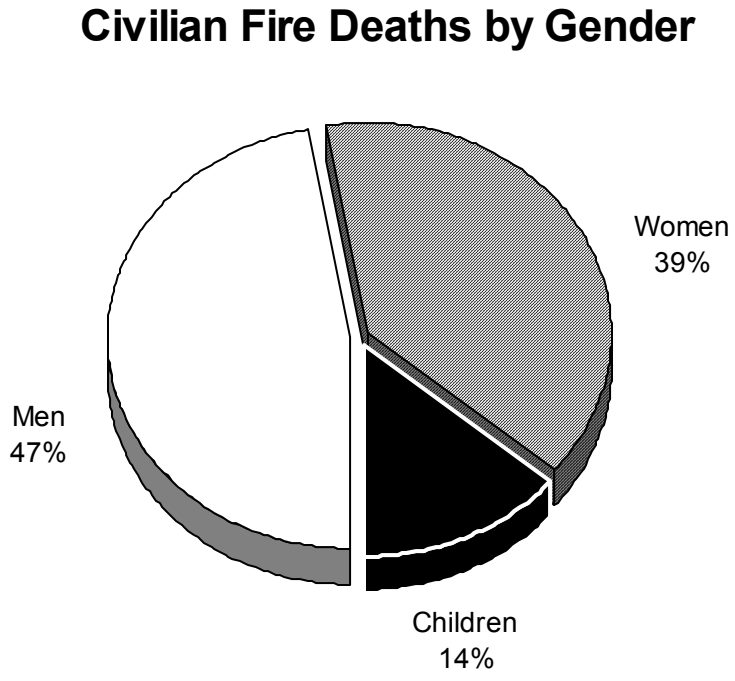
2009 Is Below Both the 10- & 5-Year Averages

Because the number of fire deaths fluctuates from year to year and may be influenced by uncontrollable outside factors such as high energy costs for heating, it is helpful to look at averages over five and 10-year periods. The following graph illustrates the number of fire deaths for the past 10 years in relation to the five-year average for fire deaths for the periods from 2000 through 2004 and from 2005 through 2009. The average number of fire deaths per year from 2000 through 2004 was 63 deaths. The average number of fire deaths per year from 2005 through 2009 was 48 deaths. This was mainly due to four of the five years having record low fire deaths from 2005 through 2009. The graph also depicts the relationship of the number of fire deaths in relation to the 10-year average of 56 deaths for the same time period. Four (4) of the last five years have been below the 10-year average and two of last five years have been below the five-year average.

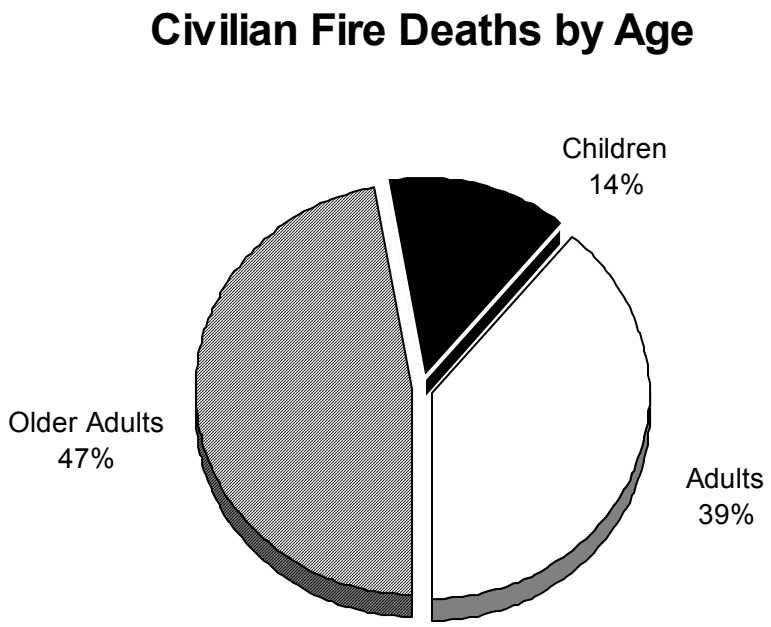
Note that the following chart starts at 20 rather than the traditional zero value. This is so the reader can concentrate on the sometimes subtle changes in the figures. The 36 fire deaths in 2009 are 25% below the five-year average and 36% below the 10-year average.



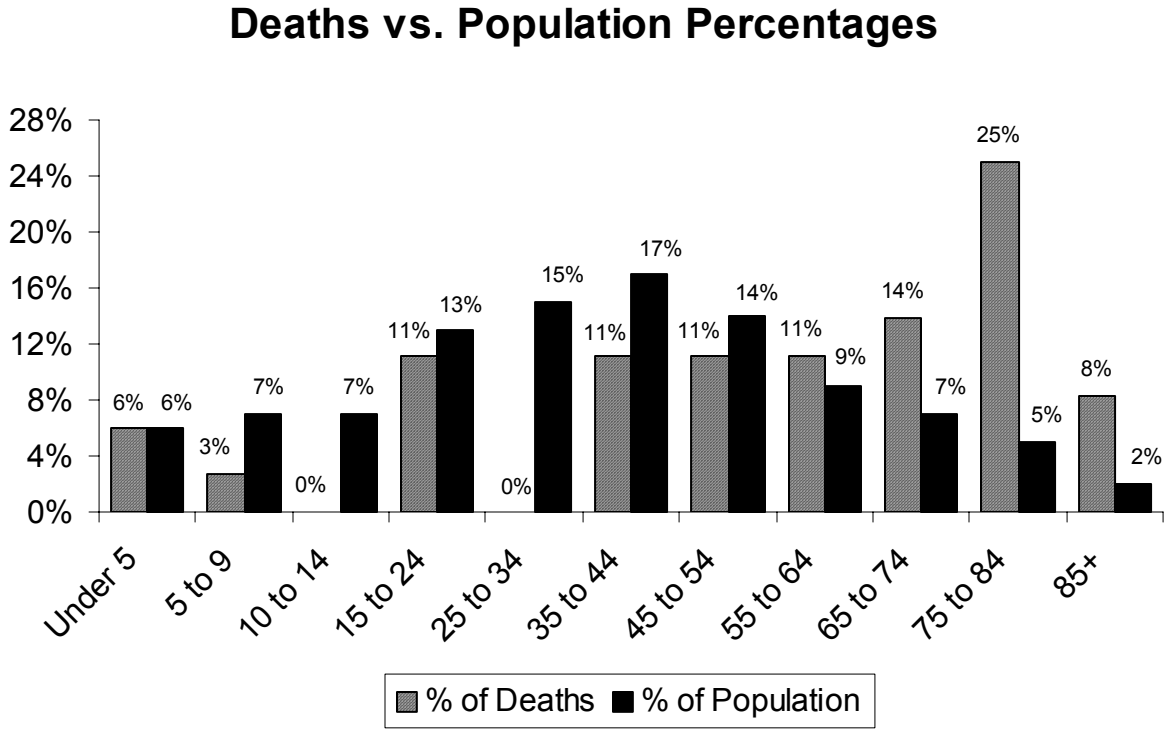
17 Men, 14 Women and 5 Children under 18 Died from Fires in 2009
Of the 36 fire deaths, 17 or 47%, were men, 14, or 39%, were women and five, or 14%, were children under 18. The following pie chart illustrates the above figures.



Almost 1/2 of Fire Deaths Were Over 65
Seventeen (17), or 47%, of the civilian fatal fire victims were over 65 years of age. This included seven elderly men and 10 elderly women. Five (5), or 14%, of the civilian fatal fire victims were under 18-years old. Fourteen (14), or 39%, 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 65 had the greatest risk of dying in a fire. Older adults, between the ages of 75 and 84, account for 5% of the population but 25% of the fire deaths. The risk of fire death for these adults is 5.0. This means that these adults were five times as likely to be fire-related fatalities. The following graph shows the percentage of fire deaths versus population percentage by age groups in 2009. Other older adults, over the age of 85, account for 2% of the population but 8% of the fire deaths. Their risk of fire death at 4.2 is just below that of the group above them 75 to 84 year olds.



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.

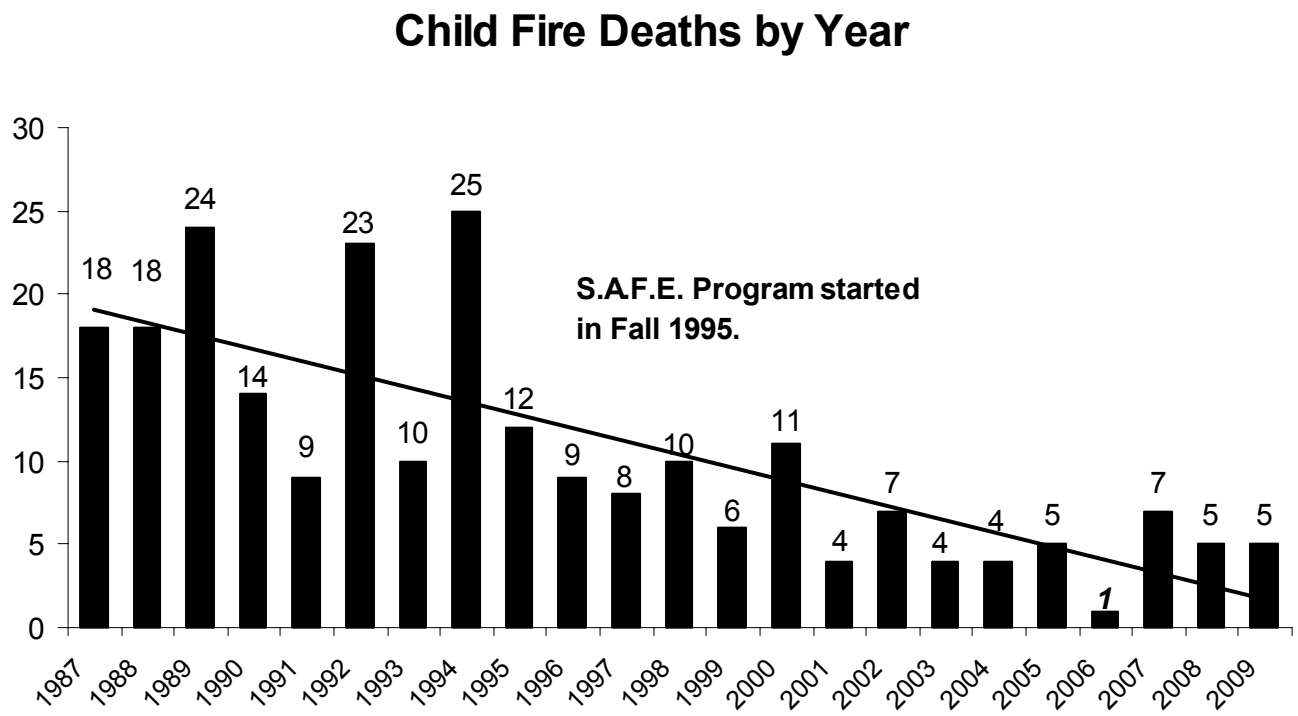
The percentages of the population in each age group were calculated using data from the 2000 Census from the U.S. Census Bureau.

Adults 25 to 34 Had the Lowest Risk of Fire Deaths
Children under the age of five had an average risk of dying in a fire. Children under five years old accounted for 6% of the population and 6% of fire deaths in 2009. Children between the ages of five and nine had a low risk of dying in a fire, they accounted for 7% of the population and 3% of the civilian fire deaths; children between the ages of 10 and 14 accounted for none of the deaths and 7% of the population; young adults ages 15 to 24 accounted for 11% of the fire deaths and 13% of the population; no one between the ages 25 to 34 died in a fire in Massachusetts in 2009; adults between the ages of 35 and 44 were 11% of the fire fatalities and account for 17% of the population; people ages 45 to 54 accounted for 11% fatal fire victims and 14% of the Massachusetts population; victims between the ages of 55 to 64 accounted for 11% of the fatal fire deaths and 9% of the population; and older adults over the age of 65 accounted for 47% of the fire fatalities in Massachusetts in 2009, but only 14% of the population. Older adults between the ages of 75 and 84 had the greatest risk of dying in a fire; they accounted for 25% of the fire

deaths in 2009, and only 5% of the population, making them five 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 2009. 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. According to United States Fire Administration statistics, children under 10 accounted for an estimated 14% of all fire-related deaths nationally in 2002.[47] In 2009, children under 10 accounted for 8% of all Massachusetts fire-related deaths.

Child Fire Deaths Drop 58% Since Start of S.A.F.E. Program
Fire deaths of children under age 18 have fallen 58% since the start of the S.A.F.E. Program in the fall of 1995.



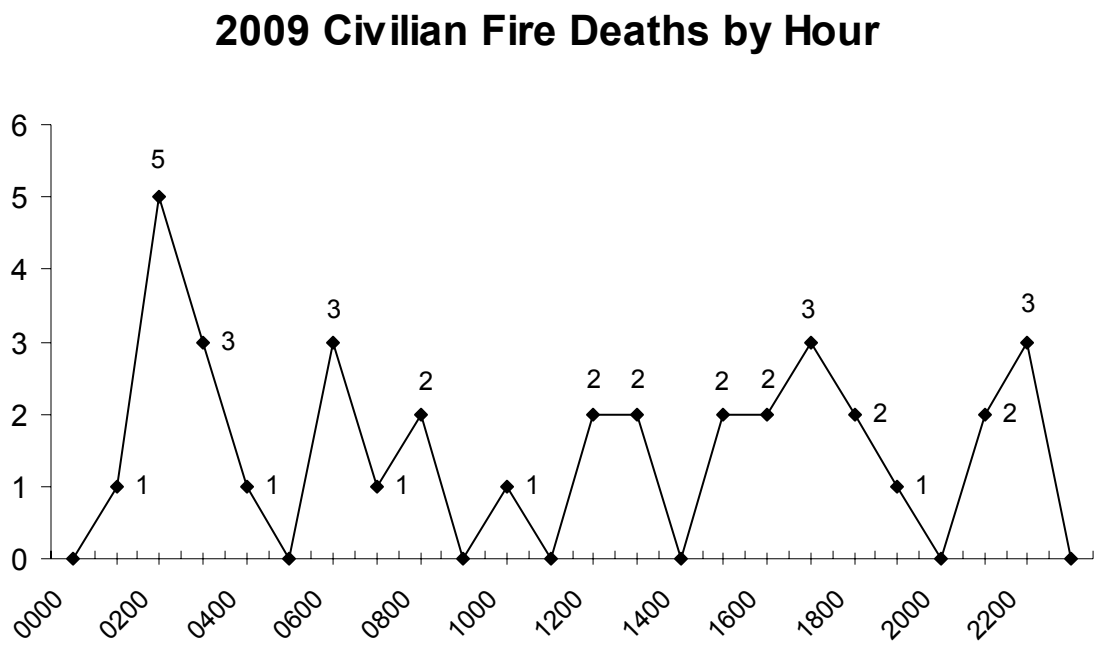
Average Annual Child Deaths Down 62%
Since fire death numbers fluctuate quite a bit from year to year, it is helpful to look both at the trendline in the graph above and at averages over several years. During the 14 full years where the S.A.F.E. Program has been in effect, from 1996 to 2009, the average number of child fire deaths per year has been 6.1. In the 14 years prior to the S.A.F.E.

[47] Source: United States Fire Administration's **Fatal Fires, Topical Fire Research Series, Vol. 5 – Issue 1, March 2005.** Most recent national data available.

Program, 1982 to 1994, the average number of child fire deaths per year was 18.0. This 66% drop in the average number of child fire deaths is significant when compared to the 39% 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.

Almost 1/2 of People Died in Fires While They Slept
Almost half of the people died in fires that occurred at night, when people are usually asleep. Seventeen (17), or 47%, of the fire victims died in fires that occurred between 10:00 p.m. and 7:00 a.m. 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.



Historically over one-half of fire victims die during normal sleeping hours; the need to quickly awaken sleepers to the presence of danger is paramount. In years like 2009, when fire deaths from smoking are well below their historical average there is usually a decline in the number of fire deaths during the time when people are usually sleeping.

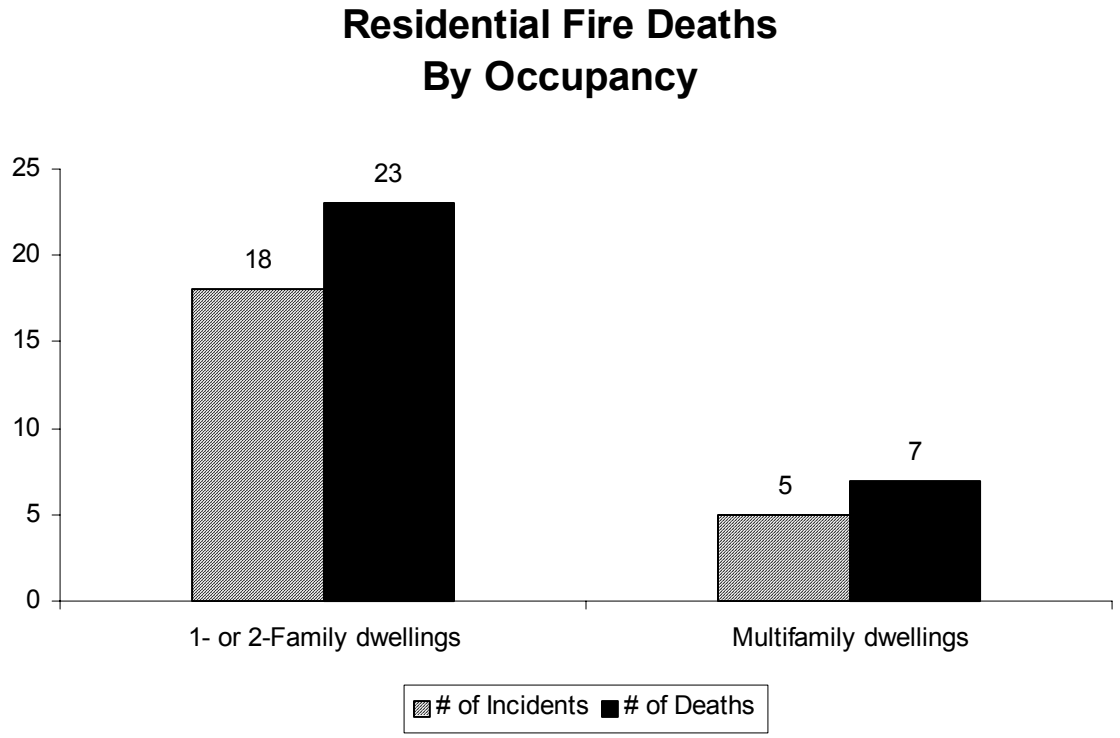
Structure Fire Deaths

In 2009, there were 30 structure fire deaths in 23 fatal fires. All of the structure fire deaths occurred in residential occupancies.

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 2009, there were 30 fire deaths in 23 fatal residential building fires. This represents all of the structure fire deaths and 64% of all fire deaths. Twenty-three (23) fire deaths occurred in 18 fires in one- and two-family dwellings; and seven fire deaths occurred in five apartment fires. Typically more fatal fires and associated deaths occur in and 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 2009.

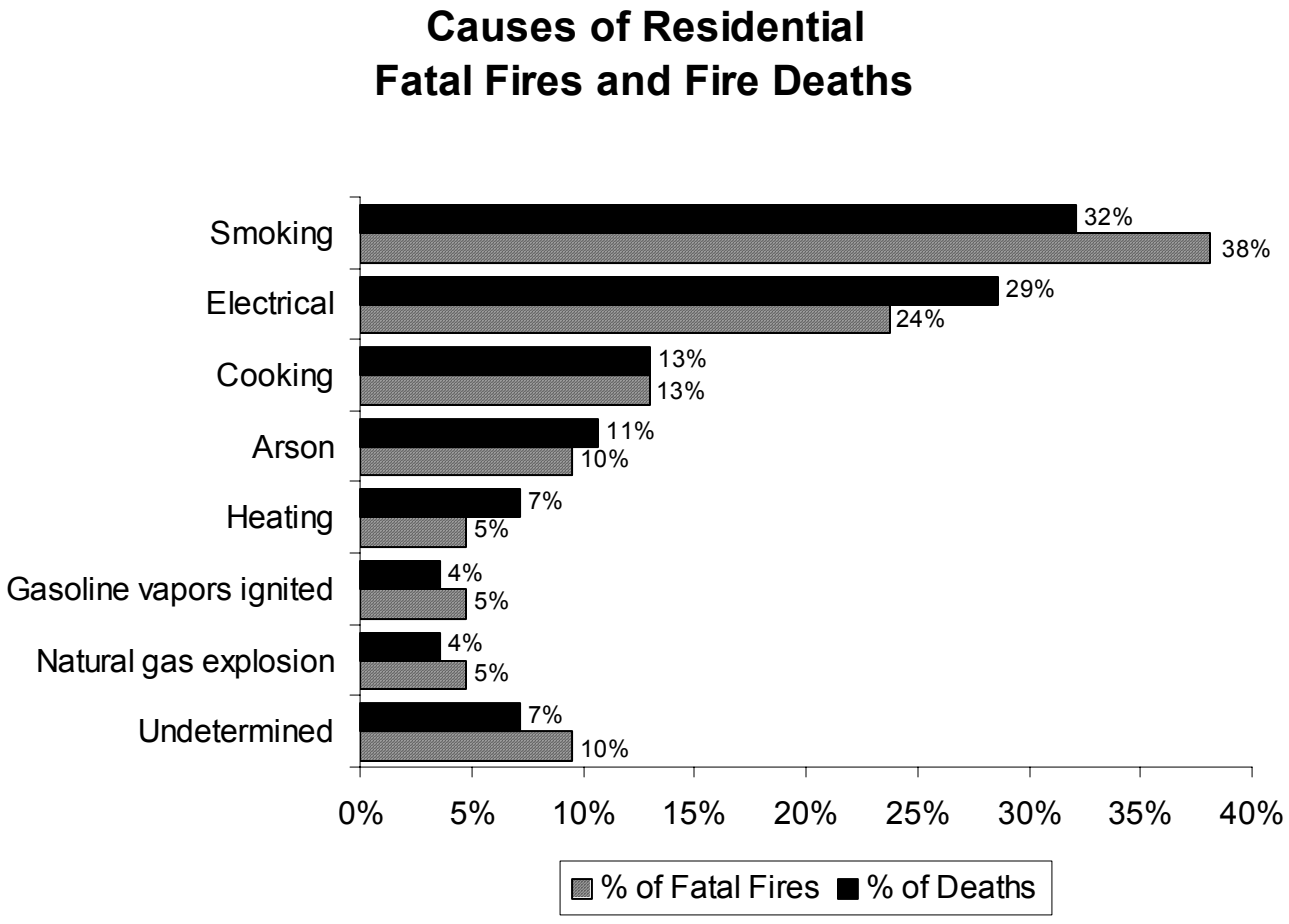


Once Again Smoking Fires Are Leading Cause of Fire Deaths
Smoking was once again the leading cause of residential fire deaths and fatal residential building fires. These fires accounted for nine, or 30%, of residential fire deaths. Electrical fires were the second leading cause of fire deaths accounting for eight, or 27%, of residential fire deaths. Cooking fires were the third leading cause of fire deaths in 2009 accounting for four, or 13%, 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 2009 cooking was the leading cause of residential fires in Massachusetts but only the third leading cause of fatal residential fires. Residential fires caused by the improper or 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.



8 Fatal Smoking Fires Cause 9 Deaths in Homes
In 2009, the improper use and disposal of smoking materials caused nine, or 30%, of residential building fire deaths and eight, or 35%, of fatal residential building fires.

7 Elderly Fire Deaths Caused by Smoking
In 2009, seven, or 41%, of all the older adult fire deaths were caused by the improper disposal of smoking materials while at home. In 2008, four older adults died in smoking-related fires. 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 January 23, 2009, at 10:39 a.m., the Malden Fire Department was called to a fatal smoking fire in a two-family home. The victim, a 62-year old woman, fell asleep while smoking on her living room couch. Arriving firefighters found her unconscious on the couch with the fire self-extinguished. She was transported to a local hospital where she died from smoke inhalation and burns. Detectors were present but didn't work because of a missing battery. The building was not sprinklered. No one else was injured in this fire, and damages were not estimated.

- On February 10, 2009, at 4:46 p.m. the Plymouth Fire Department was called to a fatal smoking fire in a single-family home. The 77-year old woman fell asleep while smoking on the living room couch. She was able to attempt an escape before being overcome by the heat and smoke. Firefighters found her in the kitchen and transported her to a local hospital. She was then life-flighted to a Boston hospital where she died two days later. No one else was injured at this fire. There were no smoke detectors in the home; and it was not sprinklered. Damages from this fire were estimated to be $60,000.

- On February 18, 2009 at 1:59 p.m., the Chicopee Fire Department was called to a fatal smoking fire in a four-unit apartment building. The fire began on a living room couch. The victim, an 84-year old physically disabled woman was transported to a local hospital where she later succumbed to her injuries. One firefighter was injured in this fire, and damages were estimated at $60,000.

- On April 3, 2009, at 4:59 p.m., the Brockton Fire Department was called to a fatal smoking fire in a single-family home. The victim, an 83-year old woman, ignited her clothing with a match she was using to light her cigarette. Her badly burned body was discovered by a family member, after the fire had extinguished itself, who then called the fire department. Smoke detectors were present but it was undetermined if they operated. The building was not sprinklered. No estimation was made of the damages from the fire.

- On July 6, 2009, at 2:21 a.m., the Raynham Fire Department was called to a fatal smoking fire in a single-family home (trailer). The victims, an 83-year old woman and her 60-year old son, were both asleep at the time of the fire. The victims were overcome by heat and smoke. No one else was injured at this fire. It was undetermined if detectors were present; and there were no sprinklers. Damages from the blaze were estimated to be $125,000.

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 2009, the use of oxygen while smoking contributed to three of the nine smoking-related fire deaths in three of the eight smoking-related fatal fires.

- On May 16, 2009, at 1:10 a.m., the Whitman Fire Department was called to a fatal smoking while using home oxygen fire in a single-family home. The 73-year old physically disabled female victim was smoking in her bedroom while using home oxygen. The cigarette ignited her clothes and spread to the room's other contents. The victim's four grandchildren and their babysitter were able to escape the fire. After getting the four children out of the house, the babysitter was injured attempting rescue the victim. One firefighter was also injured in this fire. Detectors were present but did not operate because of a missing battery. The home did not have sprinklers. Damages from this fire were estimated to be $80,000.

- On August 12, 2009, at 10:23 p.m., the Fitchburg Fire Department was dispatched for an EMS call to a two-family home. Upon arrival, firefighters discovered a 70-year old woman with burns to her face. She had been smoking while using home oxygen. She was transported to a local hospital where she succumbed to her injuries in December of 2009. It was undetermined if smoke detectors were present and the home was not sprinklered. No estimation was made for damages from this fire.

- On December 26, 2009, at 7:54 a.m., the Quincy Fire Department was called to a fatal smoking while on home oxygen fire in a 150-unit apartment building. The victim, a 75-year old physically disabled woman, had her clothing ignited while she was smoking on home oxygen. It is believed that she became disoriented and chose an inappropriate escape route and was overcome by the heat and smoke. Three (3) firefighters were injured at this fire. Smoke detectors were present and alerted the other occupants of the building. Sprinklers were present and suppressed the fire. Damages from this fire were estimated to be $200,000.

5 Fatal Electrical Fires Cause 8 Deaths

Eight (8) people died in five residential electrical fires in 2009. Electrical fires accounted for 27% of residential fire deaths and 22% of fatal residential fires.

- On March 25, 2009 at 3:05 a.m., the Quincy Fire Department was called to a fatal electrical fire in a six-unit apartment building. The fire was caused by a faulty lamp that had already been banned in Europe. The victims, a 45-year old man and his 2-month and 1-year old sons were sleeping in their basement apartment at the time of the fire. They were overcome by the heat and smoke. The victims' wife and mother also received life-threatening injuries at this fire. Six firefighters were also injured at this fire. Detectors were present but they failed because of a hardwired power failure. Sprinklers were not present. Damages were estimated to be $200,000.

- On May 18, 2009 at 2:55 a.m., the Plymouth Fire Department was called to a fatal electrical fire in a single-family home (trailer). The fire was caused by arcing from heat tape that was used the keep the water in the home's pipes from freezing. The victim, a 69-year old woman, was sleeping at the time of the fire. She was overcome by the heat and smoke and never attempted to escape. It was undetermined if detectors were present; and the home did not have sprinklers. No one else was injured at this fire. Damages from this fire were estimated to be $30,000.

- On June 27, 2009, at 08:20 a.m., the Springfield Fire Department was called to a fatal electrical fire in a single-family home. The fire began in an electrical junction box in the basement ceiling. The victims, a 4-year old boy that was found in the first floor living room and his 17-year old brother who was found in the second floor bathroom, were both overcome by the fire. They both died from smoke inhalation and burns. Four (4) other civilians and two firefighters were injured at this fire. Neither smoke detectors nor sprinklers were present. Damages from the blaze were estimated to be $80,000.

- On August 12, 2009, at 4:55 a.m., the Waltham Fire Department was called to a fatal electrical fire at a three-unit apartment building. The victim, a 22-year old man, was sleeping at the time of the fire. A fluorescent lighting fixture in the illegal basement apartment failed starting the fire. No one else was injured at this fire. Detectors were present but failed due to a missing battery and sprinklers were not present. Damages were not estimated.

- On September 16, 2009, at 10:54 p.m., the Leominster Fire Department was called to an electrical fire in a two-family home. The victim, a 16-year old boy was trapped above the fire in his third floor bedroom. Two other civilians were injured at this fire. Detectors were present but it was undetermined if they operated. The building was not sprinklered. No estimation was made for damages from this fire.

3 Cooking Fires Caused 4 Deaths

Four (4) people, all in their eighties, died in three residential cooking fires in 2009. Cooking fires accounted for 13% of residential fire deaths and 13% of fatal fires in residential buildings.

- On March 21, 2009, at 5:18 p.m., the Hopedale Fire Department was dispatched for an EMS call to a single-family home. Upon arrival, firefighters discovered the

remnants of a cooking fire and an 85-year old man with severe burns. A book next to the stove had caught fire and ignited the victim's clothing. There were no other injuries associated with this fire. Detectors were present but the fire was too small to activate them. The victim was transported to a local hospital where he later succumbed to his injuries. The home was not sprinklered. No estimation was made for damages from this fire.

- On May 20, 2009, at 3:35 p.m., the Attleboro Fire Department was called to a fatal cooking fire in a single-family home. The victim, an 80-year old man got too close to his electric stove while cooking and ignited his clothes. The victim was the only thing that burned. There were no other injuries associated with this fire. Smoke detectors were present but the fire was too small to activate them. There were no sprinklers. No estimation of the damages was made for this fire.

- On November 2, 2009, at 5:20 p.m., the North Attleboro Fire Department was called to a fatal cooking fire in a single-family home. The victims, an 86-year old woman and her 87-year old husband apparently forgot that they used their oven for storage. One of them had turned the oven on to preheat it, starting the fire. Both victims were overcome by smoke while they attempted to escape. Both were transported to a local hospital where they later succumbed to their injuries. There were no other injuries associated with this fire. It was undetermined if smoke detectors operated and sprinklers were not present. Damages from this fire were estimated to be $5,000.

2 Fatal Arson Fires Cause 3 Deaths – 1 Suicide
Three (3) people died in two (2) residential arson fires in 2009. Arson accounted for 10% of fire deaths and 9% of the fatal fires in residential buildings. One (1) of these victims committed suicide by self-immolation. Self-immolation is considered arson because the fire is intentionally set.

- On April 21, 2009, at 9:06 p.m., the Spencer Fire Department was called to an arson fire in a single-family home. The victim, a 57-year old woman, poured gasoline on herself in a suicide by self-immolation. No one else was injured at this fire. Detectors were present but failed to operate because of a missing battery. The home was not sprinklered; and no estimation of damages was made.

- On December 27, 2009, at 2:11 a.m., the Northampton Fire Department was called to a fatal arson in a single-family home that took the life of a father and son. The fire was one of 18 fires set in the town between the hours of 2:00 a.m. and 3:15 a.m. The victims, a 39-year old man and his 82-year old father were asleep when their front porch was set on fire. They were unable to escape and were overcome by the heat and smoke. No one else was injured at this fire. Detectors were present and operated. Sprinklers were not present. Damages from the blaze were estimated to be $368,300.

1 Fatal Heating Fire Caused 2 Deaths
One (1) fatal heating fire, or 5% of fatal residential building fires, caused two, or 7%, of residential building fire deaths in 2009. A woodstove caused this fire.

- On February 12, 2009 at 6:41 a.m., the Plymouth Fire Department was called to a fatal heating fire in a single-family home. The fire was caused by either the improper cleaning or lighting of the wood stove in the living room. The physically disabled victims, a 69-year old woman and her 77-year old husband, were attempting to escape when they were overcome by smoke. The female victim was transported to a local hospital where she later succumbed to her injuries. One firefighter was injured at this fire. The home had neither smoke detectors nor sprinklers. Damages from this fire were not estimated.

1 Gasoline Vapor Fire Caused 1 Death
One (1) person died in one residential fire caused by gasoline vapors igniting in the basement. This fire accounted for 4% of residential fire deaths and 5% of the fatal fires in residential buildings.

- On December 31, 2009, at 1:20 p.m., the Ware Fire Department was called to a fatal fire in a two-family home. The victim, a 42-year old man, was thought to be working on a lawnmower in the basement. It is believed that the furnace pilot ignited the vapors from a gasoline can that the victim had nearby. One firefighter was injured at this fire. Detectors were present and alerted the other occupants of the building. Sprinklers were not present. Damages from the fire were estimated to be $250,000.

1 Natural Gas Explosion Caused 1 Death
One (1) person died in one residential fires started by a natural gas explosion in 2009. This fire accounted for 4% of residential fire deaths and 5% of fatal residential fires.

- On February 19, 2009, at 6:18 p.m., the Somerset Fire Department was called to a fatal natural gas explosion in a single-family home. The blast occurred approximately an hour after a neighbor called in a smell of gas in the vicinity. The victim, a 62-year old woman, was inside her home when it exploded. The victim was found deceased on top of the remnants of her home. Because of the total destruction of the home, it was undetermined if detectors were present; and the home was not believed to be sprinklered. However, neither would have likely impacted life-safety in this incident. Two firefighters were injured in this fire. Total damages from this fire were estimated to be $300,000.

2 Fatal Fires of Undetermined Cause
Two (2) fatal residential building fires that took the lives of two Massachusetts residents in 2009 remain undetermined. These represent 10% of the fatal residential fires, and 7% of the residential fire deaths in 2009. 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 January 6, 2009, at 10:27 p.m., the Worcester Fire Department was dispatched to a fire in a three-unit apartment building of undetermined cause. The victim, a 46-year old man, was found by firefighters on his bed in his third floor bedroom. He was transported to a local hospital where he succumbed to his 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 $56,000.

- On February 21, 2009, at 12:11 p.m., the Norton Fire Department was called to a fatal fire in a single-family home of undetermined cause. The victim, a 24-year old man, was overcome by the heat and smoke while attempting to escape. One other civilian was injured by this fire. It was undetermined if detectors were present and the building was not sprinklered. Damages from the blaze were estimated to be $260,000.

Bedroom or Living Room Is the Area of Origin for 40% of All Victims
Given the time most fatal fires occur, and that many people fall asleep in their living rooms, it is not surprising that 40% were killed in fires that started in the bedroom or living room. Twelve (12), or 40% of residential fire victims died in a fire originating in the bedroom or living room. Eight (8), or 27%, succumbed to fires that originated in the living room, and four victims, or 13%, died in fires that began in the bedroom. Five (5), victims, or 17%, also perished in fires that began in the kitchen. Three (3) victims, or 10%, died when the area of origin was an unclassified function room. Heating rooms, a substructure crawl space, the courtyard or patio, and an unclassified structural area were each the area of origin of fires for two, or 7%, of the deaths. A ceiling and floor assembly was the area of origin of the fire for one, or 3% of the residential fire deaths in 2009. The area of origin was undetermined for one, or 3% of these fire fatalities.

40% of Deaths Involved Operating Equipment as a Heat Source
Of the 30 residential building fire deaths, 40% involved heat from operating equipment; 27% involved heat from unclassified operating equipment, 10% was from radiated or conducted heat from operating equipment, and 3% involved a spark, ember or flame from operating equipment. Thirty percent (30%) involved smoking materials: 23% were from cigarettes, and 10% were from unspecified smoking materials. A lighter[48] caused 7% of these deaths. Arcing was involved in 3% of residential fire deaths in 2009. Heat source was undetermined or unclassified in six deaths, or 20%, of the residential building fire deaths in 2009.

Upholstered Sofa or Chair Is Ignited First in Almost 1/4 of Deaths
Of the 30 residential building fire deaths, 23% were from fires where an upholstered sofa or chair was the item first ignited. Clothing on a person was the item first ignited for 13% of these fire deaths. A structural component or finish, a flammable liquid or gas, cooking materials, electrical wire or cable insulation, and a magazine, newspaper or writing paper were each the item first ignited in 7% of the fire deaths in 2009. An interior wall covering, a structural member or framing, a book and an undetermined piece of furniture

[48] The fire ignited by a lighter was used by an arsonist to start his fire.

or utensils were each the item first ignited in 3% of fire deaths. Multiple items were identified in three, or 10% of fire deaths. Item first ignited was undetermined or unclassified in two, or 7%, of the residential building fire deaths in 2009.

The National Association of State Fire Marshals (NASFM) has supported mandatory national fire safety standards for mattresses and upholstered furniture for the past decade. NASFM and the CPSC has recommended the national adoption of the most recently revised California standard (California Technical Bulletins 116 & 117) for upholstered furniture that addresses both small open flame (match, lighter, candle) and cigarette ignitions and the California standard (California Technical Bulletin 603) for resistance of a mattress/box spring set to a large open flame. These standards make the average piece of furniture less likely to ignite rapidly, and if ignited, less likely to burn quickly or sustain burning[49].

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 40% of Residential Fire Victims

Of the 30 people who died in residential building fires in 2009, the smoke detector performance was known for 18 of the victims. Victims were not alerted by smoke detectors in eight fires that killed 12 people, or 40% of the victims. No detectors were present at all, in five, or 17% of the deaths. In seven of these deaths, or 23%, there were detectors present but they failed to operate.

Four (4) people died in three separate residential fires with detectors that did operate, accounting for 13% 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 two fires with two fatalities where the fire was too small to activate the detector. This fire accounted for 7% of residential fire deaths in 2009.

In 2009, two of the four fatal residential fire victims that had their smoke detector operate were in the area of origin. One (1) of the victims was intimately involved with ignition; she fell asleep while smoking. The other victim was in the basement and working on a lawn mower when gasoline vapors were ignited by the furnace and there was no chance for an escape.

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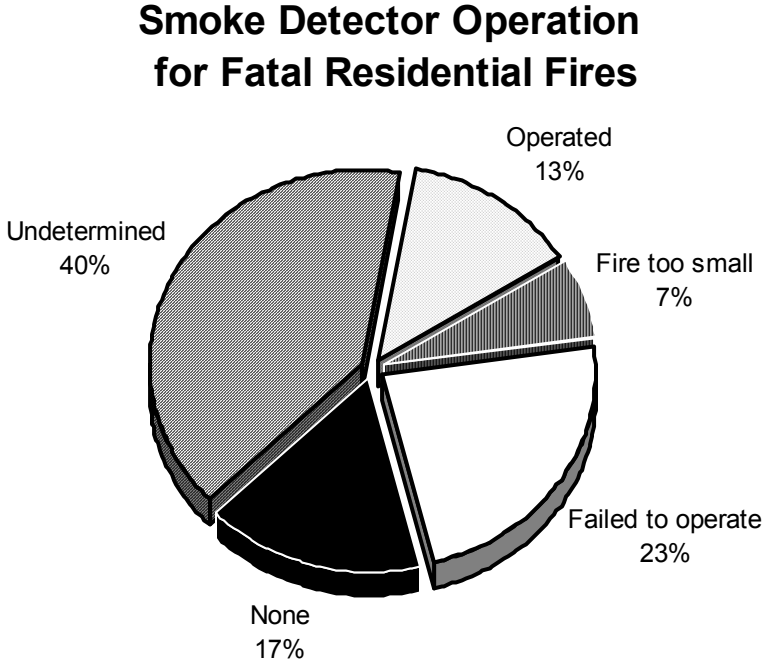
[49] There has been some debate about the use of certain types of flame retardant used to make products conform to these standards. The issue is about using polybrominated diphenyl ethers (PBDEs) that have caused health concerns in animals in lab tests. According to the U.S. Environmental Protection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

The other two victims were not in the area of origin and not involved in the ignition of the fire. These two victims were asleep when someone set their front porch on fire. The fire eventually blocked their escape routes out of the building. 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 12 people accounting for 40% of the residential building fire deaths in 2009. The pie chart shows the smoke detector status as a percentage of the civilian residential building fire deaths in 2009.



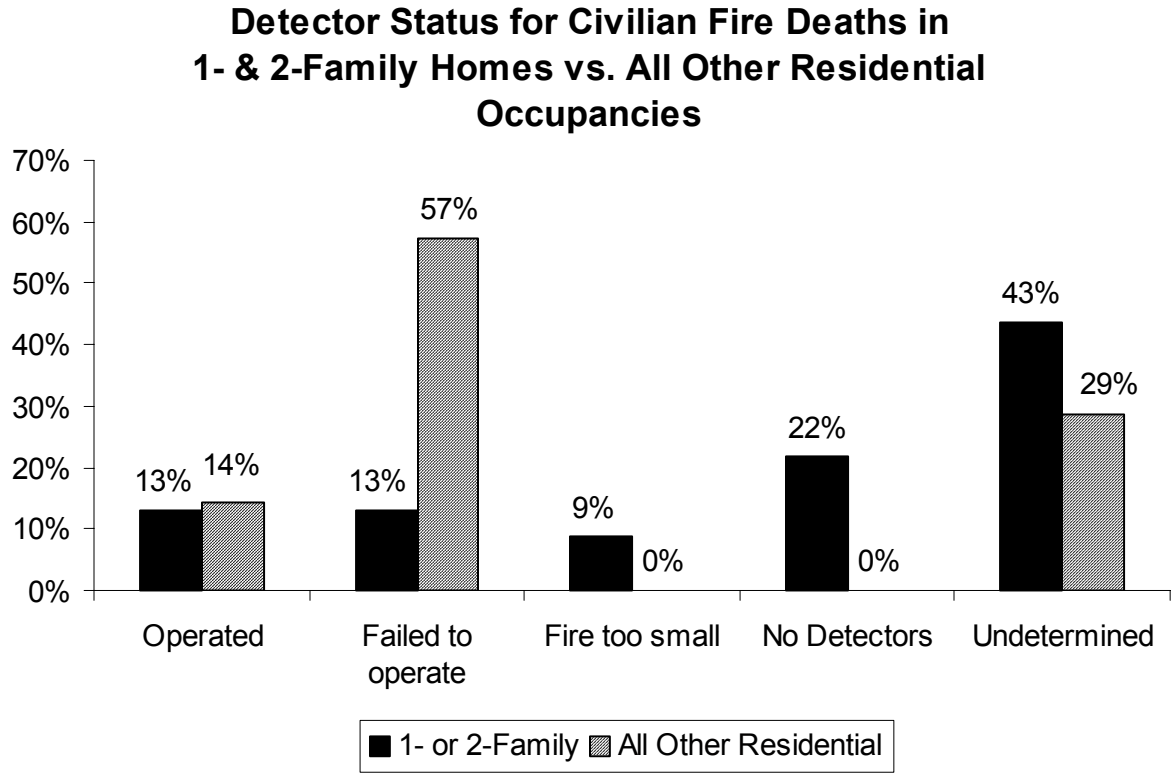
No Working Smoke Detectors in 35% of Fire Deaths in 1 & 2-Family Homes
In 2009, you were more likely to die in a fire in a one- and two-family home than in any other residence. There were two and quarter more fire deaths in one- and two-family homes than all other residential occupancies combined. Twenty-three (23) people died in 18 one- and two-family dwelling fires in 2009. Eleven (11), or 35%, 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 11 deaths, three occurred in homes where smoke detectors failed to work while the other eight deaths were in homes where there were no smoke detectors present. Three (3) deaths, or 6%, occurred in homes where the smoke detectors

operated[50]. Ten (10) deaths, or 43%, occurred in four fires where smoke detector performance was undetermined.

Over 1/2 of Detectors Failed from Missing or Disconnected Batteries
Of the seven residential fire deaths where smoke detectors were present but failed to operate; in four cases, or 57%, they failed to operate because the batteries were either missing or disconnected. Three (3) deaths, or 43%, occurred where the detectors failed because of a power shut-off, failure or disconnect.

Other Residential Occupancies More Likely to be Protected by Smoke Detectors
Seven (7) people died in five apartment fires in 2009. The detector performance was known for five of the seven victims. Four people died in these fires where there were smoke detectors, but they failed to operate. One (1) person died in a fire where smoke detectors were present and working. Detector performance was unknown or not reported in two apartment fires where two people lost their lives.

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



[50] Two of these were victims of an arson and the third victim was trapped in the basement when gasoline vapors were ignited by the furnace.

Physically Disabled Led Human Factors Contributing to Injury[51]
Of the 30 fatal residential building fire victims, 16 had some human factor contributing to their injury reported to MFIRS. Twenty-seven percent (27%) of the victims were bedridden or had another physical handicap; 17% were asleep; 10% were possibly mentally disabled; 7% were unattended or unsupervised persons; and 3% were unconscious at the time of the fire. Fourteen (14), or 47%, of the 30 civilians fire deaths did not have a human factor contributing to injury reported.

Time is the Enemy in a Fire
A human factor contributing to injury is defined as the physical or mental state of the person shortly before becoming a casualty. Our data reports 17% of fatalities were asleep shortly before becoming a casualty. It also shows that 30% of these victims were attempting to escape the fire when they were overcome. This would seem to indicate that some people were awakened from their sleep and attempted to escape before being overcome. This combined with the lack of working smoke detectors in 40% of the fire deaths indicates that victims did not have enough time to get to safety.

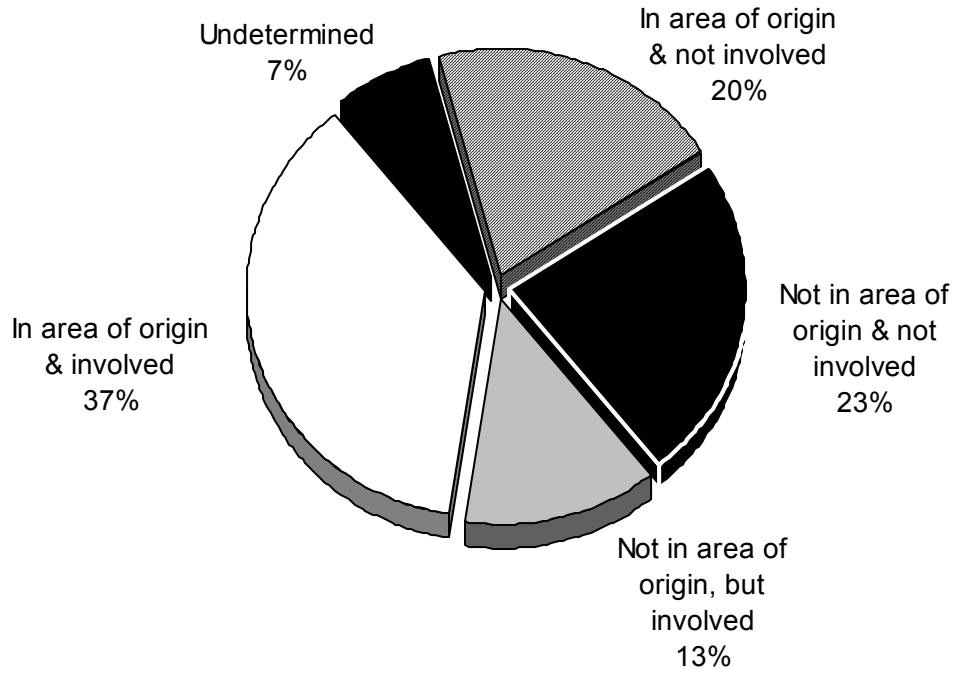
Most Victims Were Either Sleeping or Escaping When They Were Overcome
Eight (8), or 53%, of the 30 fatal fire victims were trying to escape when they incurred their fatal injuries. Forty percent (40%) were sleeping when they were fatally injured. An irrational act was the activity at the time of death for 4% of these victims. Activity at time of death was undetermined for 12, or 44%, victims of fatal residential fires in 2009. 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 22, or 73%, of the victims where the primary apparent symptom of their injury was known; 13, or 43%, suffered burns and smoke inhalation; seven, or 23%, suffered from smoke inhalation only, and two victims, or 7% died from only the burns incurred in the fire. Being unconscious was the primary apparent symptom for two, or 7%, of these victims. The primary apparent symptom was undetermined in six, or 20% of the 2009 residential fire deaths.

61% 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.

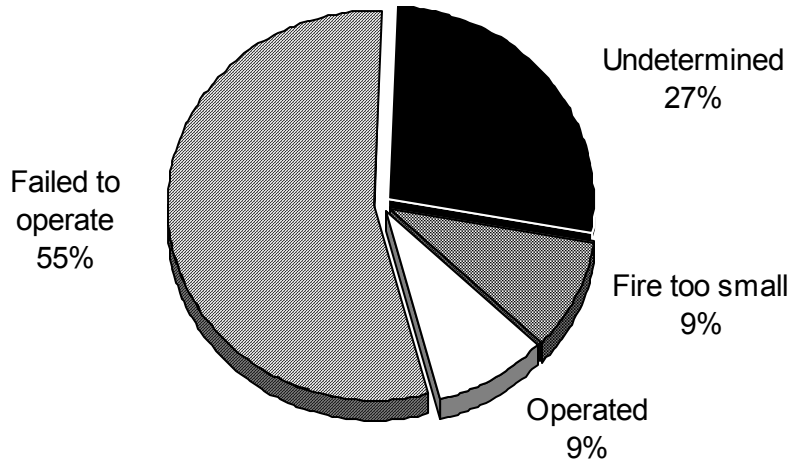
[51] Some fields in version 5 allow for multiple entries. Therefore the number of entries may be greater than the actual number of incidents being analyzed.

Civilian Fatalities
Location at Time of Incident



1/2 of All Fatalities Were Somehow Involved in Ignition
Seventeen (17), or 61%, of the residential fatal fire victims were in the area of origin of the fire. Eleven (11), or 39%, of these victims were intimately involved with the ignition of the fire that killed them. These 11 were in the area of origin and somehow involved with the fire's ignition. Six (6), or 21%, were in the area of origin but not involved with the ignition, such as the victim who was working in the basement and became trapped by the fire. Four (4), or 14%, 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 to go to bed, leaving the cigarette behind unattended. Seven (7), or 25%, 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 two of the residential fatal fire victims. These two were excluded from the calculations.

Detector Perfomance of Fire Deaths When Victim Was in Intimately Involved with Ignition



9% of Detectors Operated When the Victim Was Intimately Involved in Ignition
There were 11 victims that were reportedly in the area of origin and involved with the ignition of the fire that killed them. One (1), or 9%, of these 11 victims, actually had a working smoke detector in their home at the time of the fire. One (1) victim, or 9%, had a fire that was too small to activate the detector. Six (6) victims, or 55%, had a detector that failed to operate. There were no reported fires where the victim was intimately involved in ignition and did not have any smoke detectors in their home. It was undetermined for three, or 27% of the victims that were intimately involved with ignition, whether their homes had operating smoke detectors.

In the case of the one victim where the detectors operated and she was involved with the ignition, the victim started the fire with the improper disposal of smoking materials before she fell asleep

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.

Fatal Motor Vehicle Fires

In 2009, five motor vehicle fires killed five 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. Four (4) of the fires and four of the deaths involved suicides and the cause of the fifth motor vehicle fire and death was undetermined.

4 Suicide Car Fires Kill 4 Occupants
Four suicides by self-immolation caused four motor vehicle fire deaths. These incidents accounted for 14% of the fatal fires and 11% of the fire fatalities in the Commonwealth in 2009.

- On February 6, 2009, at 7:00 p.m., the Becket Fire Department was called to a fatal car fire that was a suicide by self-immolation at a rest stop along Route 20. The victim, a 40-year old possibly mentally disabled man, doused himself with gasoline inside his car and ignited it. No one else was injured at this fire. Damages from this fire were estimated to be $2,675.

- On April 1, 2009, at 3:44 p.m., the Springfield Fire Department was called to a fatal motor vehicle arson on Interstate - 91. The fire was a suicide by self-immolation. The victim, a 45-year old man doused himself and the inside of his car with gasoline and ignited it. He was transported to a local hospital where he later died from his injuries. Damages from the fire were estimated to be $3,000.

- On April 7, 2009, at 12:07 p.m., the Springfield Fire Department was called to a fatal motor vehicle arson. The fire was a suicide self-immolation. The victim, a 42-year old man, doused himself and the inside of his car with gasoline and ignited it. Passers-by and arriving firefighters were unable to extricate the victim from the vehicle before he died. Damages from the fire were estimated to be $2,000.

- On June 14, 2009, at 9:41 p.m., the Sudbury Fire Department was called to a fatal car fire in a field. The fire was most likely a suicide by self-immolation. The unidentified female victim was discovered in the vehicle after the fire was extinguished. No one else was injured in this fire, and damages were not estimated.

1 Undetermined Car Fire Kills Only Occupant
One undetermined car fire caused one motor vehicle fire death. This incident accounted for 3% of the fatal fires and 3% of the fire fatalities in the Commonwealth in 2009[52].

[52] The most probable cause of this fire was a suicide by self-immolation.

- On June 13, 2009, at 6:15 p.m., the Plymouth Fire Department was notified by the state police of a fatal undetermined single-car fire that self-extinguished previous to its discovery. The remains of the 67-year old male driver were found in his car on a road near the Myles Standish State forest. The most likely cause of the fire was a suicide attempt by self-immolation. No one else was injured in this fire, and damages were not estimated.

Other Fatal Fires

In 2009, one outside fire incident killed one civilian. This incident accounted for 3% of the fatal fires and 3% of the fire fatalities in Massachusetts in 2007.

1 Arson Kills 1 Massachusetts Resident
One (1) Massachusetts resident was killed in one outside arson. This suicide by self-immolation accounted for 3% of the fatal fires and 3% of the fire fatalities in 2009.

- On April 8, 2009, at 6:29 a.m. the Waltham Fire Department was called to a fatal outside arson fire, a successful attempt at self-immolation. The 78-year old male victim, had poured lighter fluid over himself and ignited it. No one else was injured at this fire. Damages from this fire were not estimated.

Multiple Fire Deaths

For statistical purposes, a fire is considered a multiple death fire if it kills three or more people. In 2009, there was one multiple death fires in Massachusetts. It occurred on March 25, 2009 and was a residential electrical fire.[53]

Civilian Fire Deaths - Conclusion

36 Civilians Died in Massachusetts Fires –All-Time Record Low
In 2009, there were 29 fatal fires in Massachusetts with 36 accompanying fatalities. This is a 27% decrease from the 49 deaths reported in 2008. Of these 36 deaths, 30 occurred in residential fires. This is the lowest number of fire deaths on record since World War II[54].

[53] The anecdote for this multiple death fire is on page 12.
[54] Based upon available records.

Drop in Most Causes of Fatal Fires Caused Decline in Fire Deaths
There were 13 fewer civilian fire deaths in 2009 than in 2008. The main reason for this was a decrease in all causes of residential fire deaths except cooking. Three (3) fewer people died in fires caused by heating in 2009. Smoking fires, electrical fires, clothes dryer fires, and juvenile-set fires each had two fewer people die in these fires in 2009. One less person died in intentionally set fires in 2009; and there were three less deaths in fatal fires where the cause of the fire could not be determined.

Majority of Fire Deaths Occur in Residential Occupancies
We focus our analysis on residential fire deaths because it is where prevention can have the most impact. All fatal structure fire victims, died in residential building fires. Twenty-three (23) of these deaths occurred in one- or two-family homes, accounting for over three-quarters, or 77%, of all fire deaths, which is typical.

Smoking the Leading Causes of Fire Deaths
In 2009, smoking fires were once again the leading cause of residential structure fire deaths. These fires accounted for nine, or 32%, of residential 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 2009, electrical fires were the second leading cause of fire deaths, accounting for eight, or 29%, of residential fire deaths. Cooking fires were the third leading cause of fire deaths in 2009 accounting for four, or 13%, of the residential fire deaths.

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 between the ages of 75 and 84 is 5.0. The risk of fire death for adults over the age of 85 is just below that at 4.2.

Adults 65 to 74 at Greater Risk for Fire Death
Adults, especially those between the ages of 65 and 74, had a greater risk of dying in a fire. The risk of fire death for these adults is 2.0. This means that they were twice as likely to be fire-related fatalities.

Almost 1/2 of All Fire Deaths are Older Adults
Seventeen (17) older adults died in fires, accounting for almost half, or 47%, of all fire deaths in Massachusetts in 2009. Seven (7), or 41%, of these victims died smoking fires. The lack of working smoke detectors was a significant factor in senior fire deaths. In 29% of senior fire deaths there were no working smoke alarms.

Almost 1/2 of People Died in Fires While They Slept
Almost half of the people who died in fires died while they slept. Seventeen (17), or 47%, of the fire victims died in fires that occurred between 10:00 p.m. and 7:00 a.m.

Historically, over one-half of fire victims die during normal sleeping hours, the need to quickly awaken sleepers to the presence of danger is paramount. In years like 2009, when fire deaths from smoking are well below their historical average there is also usually a decline in the number of fire deaths during the time when people are usually sleeping.

40% of Fatalities Did Not Have Working Smoking Detectors
Forty percent (40%) 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 percent (40%) of the victims died in fires that began in either the bedroom or living room. Upholstered sofas or chairs were the leading item first ignited in residential structure fire deaths; clothing on a person and multiple items were the second and third leading items first ignited, respectively. Also, 73% of these victims suffered burns, smoke inhalation or both.

61% of Fatalities Were in the Area of Origin
Eighteen (18), or 61%, of all the civilians that died in residential fires were reported to be in the area of fire origin. Of these 18 victims, 11, or 39%, 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.

6 Suicides by Self-Immolation
This past year there were a tragic number of people who used fire to take their own lives. In 2009, there were six confirmed and one suspected suicide by self-immolation. 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.

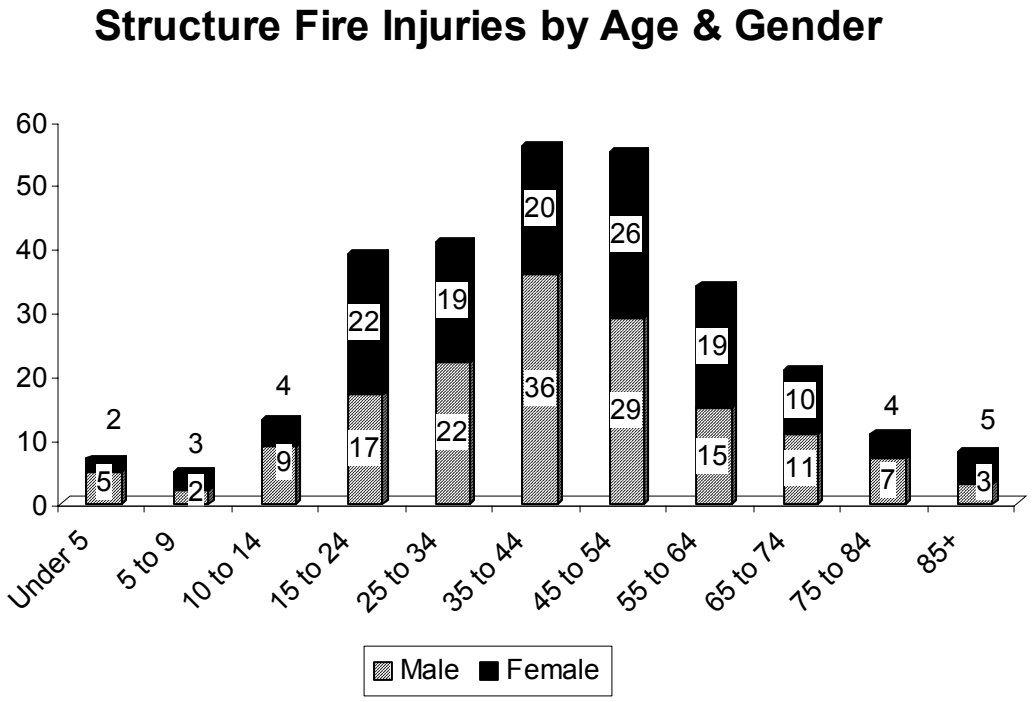
Civilian Injuries

332 Civilians Injured in Fires in 2009 – Mostly at Home

Massachusetts' fires injured 332 civilians in 2009. Two hundred and ninety (290), or 87%, of civilian injuries occurred in structure fires. Two hundred and sixty-two (262) injuries occurred in residential building fires, accounting for 79% of all injuries and 90% of all structure fire injuries. Fourteen (14), or 4%, occurred in motor vehicle fires. Twenty-eight (28), or 8%, of civilian injuries occurred in outside and other fires. Special outside fires accounted for four, or 1%, of civilian all civilian injuries. Brush fires accounted for three, or 1%, of civilian fire injuries. Twenty-one (21), or 6%, of civilian injuries were caused by unclassified fires.

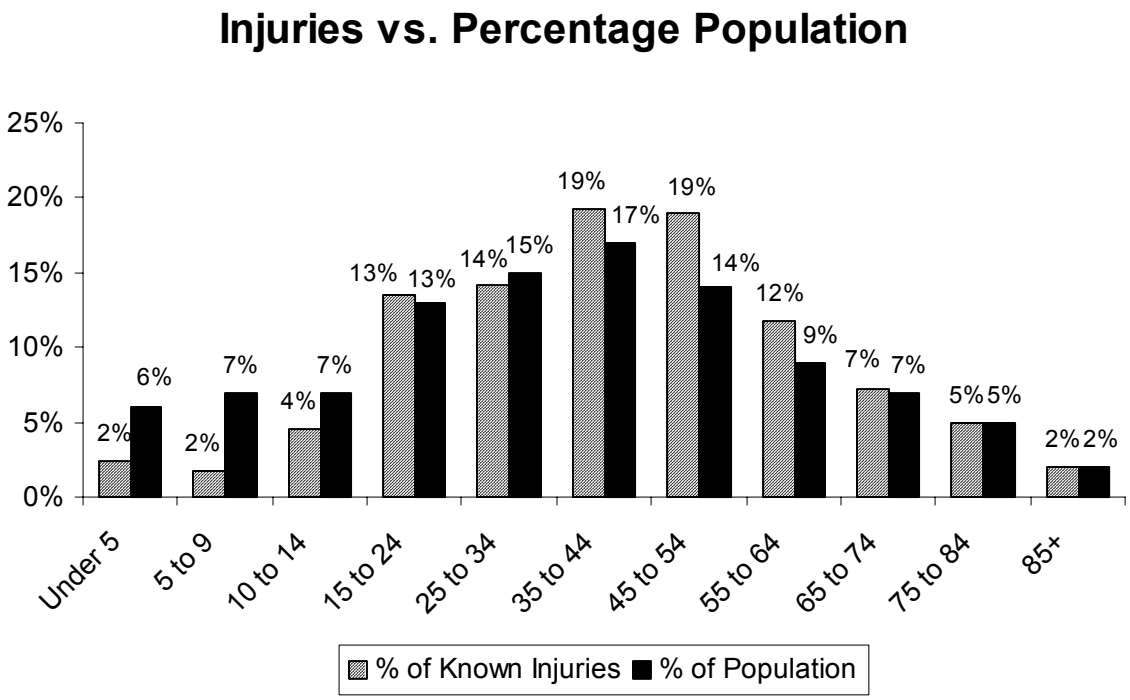
Structure Fire Injuries

Of the 290 civilian injuries resulting from structure fires where gender was reported, 156, or 54%, were men and 134, or 46%, were women. Overall, 36 children under 18 years of age, 214 adults, aged 18 to 64 years old, and 40 older adults over the age of 65, were injured in structure fires in 2009. The following chart illustrates the structure fire injuries by age and gender in 2009. Men and women ages 35-44 and 45-54 were injured the most and youths between under nine and older adults over the age of 85 were injured the least in 2009. Seven (7) children ages 0-4 were injured; five children ages 5-9; 13 children ages 10-14; 39 people ages 15-24; 41 people ages 25-34; 56 people ages 35-44; 55 people ages 45-54; 34 people ages 55-64; 21 people ages 65-74; 11 people ages 75-84; and eight



people were injured that were over 85 years of age, three whom were men and five 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 45 to 64 at High Risk for Fire Injury
Adults between the ages of 45 and 54 represent 14% of the Massachusetts population, yet the accounted for 19% of the injuries at structure fires in 2009. Adults between the ages of 55 and 64 represent 9% of the population and yet they accounted for 12% of the injuries in 2009. The disparity in the percentage of injuries to the percentage of population is most likely caused by the tendency to try and control the fire. In these age groupings, 40%, of the fire-related injuries were incurred while trying to control the fire.

83% of Injuries Were Directly Related to Exposure to Fire Products
Of the 255 civilian injuries in structure fires where the *Cause of Injury* was known, 83% were directly linked to exposure to fire products; 4% of the casualties were exposed to hazardous materials or toxic fumes; and 2% each were caused by the victim falling, slipping or tripping or overexertion, or by being struck by or coming in contact with an object; and 1% each were caused by the victim jumping in an escape attempt or being caught or trapped. Five percent (5%) of the civilian fire injuries were caused by 'Other' causes; and 1% were reported to have multiple causes. The *Cause of Injury* was undetermined or not reported for 45 victims. These figures were not included in this analysis.

Over 3/4 of Injuries Were Due to Smoke Inhalation or Burns or Both
Of the 241 civilian injuries in structure fires where the *Primary Apparent Symptom* was known, 32%, were caused by smoke inhalation only. Twenty-eight percent (28%) were caused by thermal burns only. Burns and smoke inhalation together caused 17% of the injuries. Breathing difficulty or shortness of breath caused 6%; hazardous fumes inhalation, and only pain each caused 3%; and cuts or lacerations, and scald burns were each responsible for 2% of these injuries. Cardiac symptoms, fractures and strains or

sprains each accounted for 1% of the injuries. Electrical burns, contusions or bruises, disorientation and vomiting each accounted for less than 1% of the structure fire-related injuries in 2009. 'None' was reported as the *Primary Apparent Symptom* for one of these victims. The nature of injury was undetermined or not reported in 48 civilian fire injuries. These were excluded from the percentage calculations.

42% Injured While Trying to Control the Fire

Of the 209 victims for whom A*ctivity at Time of Injury* was known, 42% were attempting to control the fire. Twenty-one percent (21%) were escaping. Nine percent (9%) were sleeping; 5% were attempting a rescue; 4% were acting irrationally; 3% returned to the vicinity of the fire before it was under control; 2% were unable to act; and less than 1% tried to return to the vicinity of the fire after it was under control. Fourteen percent (14%) were injured in 'Other' activities. There were 81 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 2009, 49% of male victims sustained their injuries while attempting to control the fire as compared to 41% of female victims. This returns us to the historical trend before 2003 of men being more likely to be hurt while attempting to control the fire. A higher percentage of men (8%) sustained their injuries while making a rescue attempt than did women (3%), and 27% of women were attempting to escape compared to 16% of men. Seven percent (7%) of men and 11% of women were injured while sleeping; 3% of men and 1% of the women were unable to act; 4% of men and 3% of women were injured in irrational acts. There is a 1% or less difference between men and women in every other activity.

Historically Men More Apt to Get Hurt Trying to Fight the Fire

Historically, a higher percentage of men received fire-related injuries from trying to extinguish the fire themselves. In 2000, twice as many men than women were injured while trying to control the fire. In 2001 structure fires, men and women were equally likely to be injured attempting to control the fire. In 2002, men were 1.2 times more likely to be injured attempting to control the fire. In 2007 men were 2.8 times more likely to be injured this way.

The key to prevention of 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.

Over 1/3 of Victims Were Asleep Just Before the Injury

Of the 73 victims for which the *Human Factor Contributing to the Injury* was known, 34% were asleep; 16% were physically disabled; 15% were possibly impaired by alcohol; 14% were possibly mentally disabled; 8% were unconscious 7% were unattended or unsupervised persons; and 5% were possibly impaired by drugs.

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. In version 4 being awake was a valid entry for *Condition Before Injury*. However in version 5 there is no equivalent code in the field *Human Factors Contributing to Injury*.

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	**11**	3	0	0	0	1	0	0
Rescue attempt	0	0	0	0	1	1	0	0
Fire control	2	0	2	0	0	2	0	3
Return before fire control	0	1	1	0	0	0	0	1
Return after fire control	0	0	0	0	0	0	0	0
Sleeping	**7**	2	1	0	0	1	0	0
Unable to act	0	0	0	0	1	2	0	0
Irrational action	0	0	2	1	1	0	0	0
Other	1	0	1	1	0	3	0	0
Unknown	4	0	0	0	0	2	0	1
Total	25	6	9	2	3	12	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. The next leading result was when someone was asleep, awoke and attempted to escape.

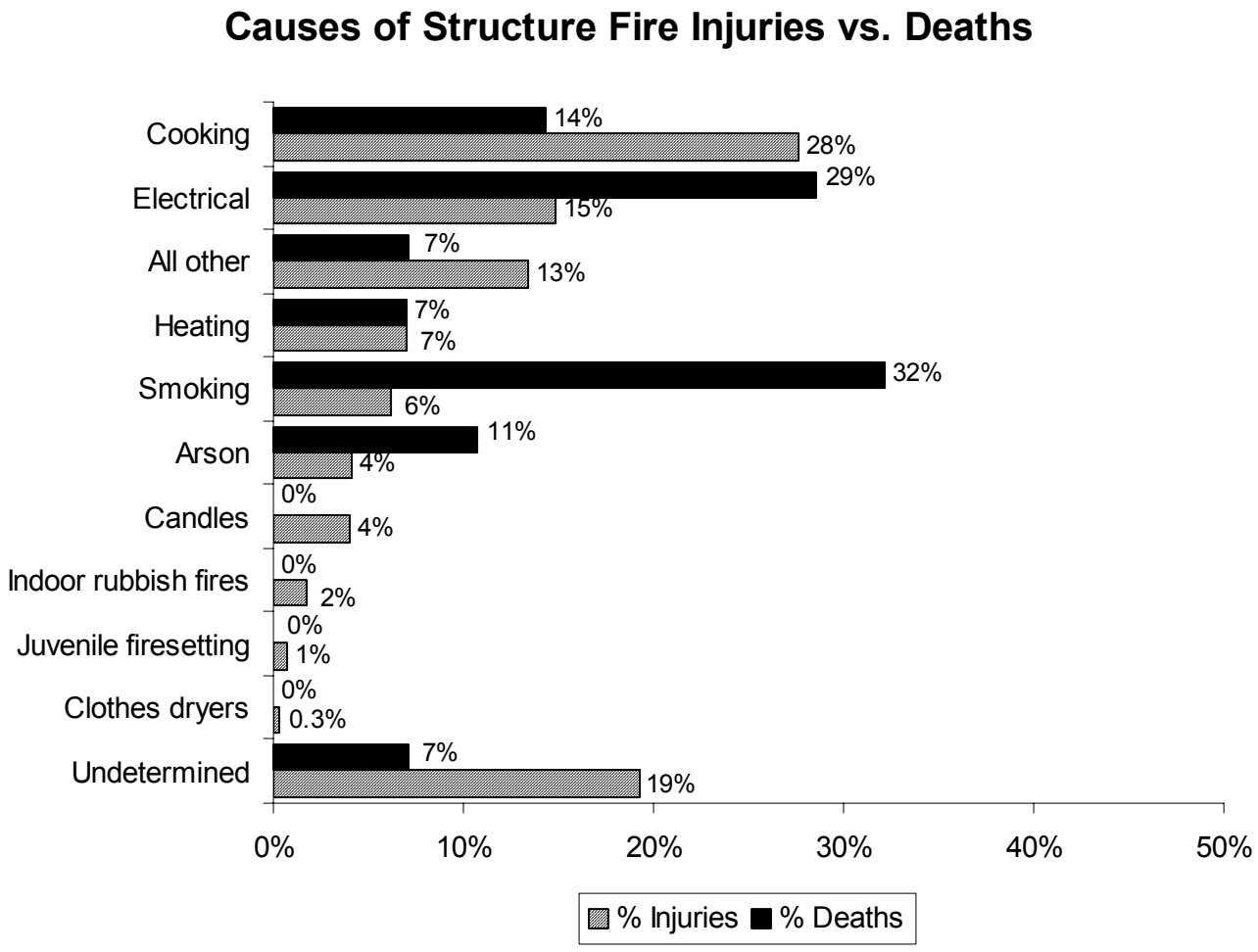
However in 2009 the two were reversed with more people waking up and being injured during their escape than failing to awaken at all. This is most likely due to the educational and regulatory efforts of having working smoke detectors in buildings especially homes.

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

Fifty percent (50%) of all victims were involved with the ignition of the fire that injured them. Eighty-one (81), or 39%, of the 206 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. Twenty-two (22), or 11%, were not in the area of origin but were involved with the start of the fire. An example of this is when someone is involved with the start of the fire (e.g. cooking, smoking, arson), leaves the area but becomes trapped by the heat or smoke of the fire and is injured in their attempt to escape. Sixty-one (61), or 30%, of the 206 victims were in the area of origin but not involved with the ignition of the fire. An example of this is when someone leaves food unattended on the stove in the kitchen and leaves the room. After the fire starts and the individual is alerted to its presence they are

injured trying to put out the fire. Forty-two (42), or 20%, 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 65 civilian fire injuries. These were excluded from the percentage calculations.

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 28% of structure fire injuries and 14% of structure fire deaths. Electrical fires caused 15% of structure fire injuries and 29% of structure fire deaths. Heating equipment fires caused 7% of injuries and 7% of deaths. Fires started by smoking caused 6% of structure fire injuries and 32% of structure fire deaths. Arson caused 4% of structure fire injuries and 11% of structure fire deaths. Candles also caused 4% of injuries and none of the deaths. Indoor rubbish fires caused 2% of civilian injuries with no deaths. Juvenile-set fires caused 1% of structure fire injuries and none of the structure fire deaths in 2009. 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 13% of the structure fire injuries and 7% of the structure fire deaths. In 2009, undetermined fires caused 19% of structure fire injuries and 7% of structure fire deaths in Massachusetts.



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 2009, cooking fires caused the most injuries and smoking fires caused the most 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.

Detectors Operated in Almost 1/2 of Civilian Injuries
Of the 290 injuries, 48% occurred where smoke detectors were present and operated. In 2% of these fires[55], the detectors did not alert the occupants. Six percent (6%) 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. Four percent (4%) of civilian structure fire injuries occurred where the fire was too small to activate the smoke detector. Smoke detector performance was undetermined in 85 injuries, or 29% of all injuries. The presence of operating smoke detectors generally gives the victims the time needed to escape the byproducts of the fire; heat, flame and smoke.

Motor Vehicle Fire Injuries

There were 14 motor vehicle fire injuries in 2009. Seventy-nine percent (79%) were men and 21% were women. Sixty-seven percent (67%) of the injuries were caused by exposure to fire products, when cause was known. Twenty-two percent (22%) were struck by or came into contact with an object. When the primary apparent symptom was reported, 35% of these were reported as burns only, 25% were reported as smoke inhalation only; and 20% were reported as burns and smoke inhalation. Where activity at time of injury was known, 57% of the victims were trying to control the fire when injured and 14% were acting irrationally. The causes of motor vehicle fires that injured civilians in 2009 included fuel spills, collisions, arson, and mechanical malfunctions. See the Motor Vehicle Fire section for safety tips in the event of a car fire.

Outside and Other Fire Injuries

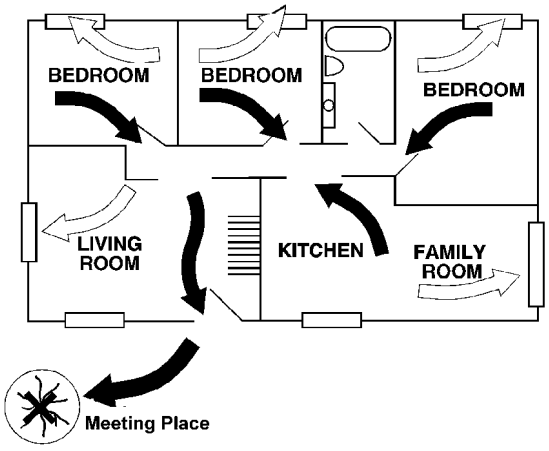
Twenty-eight (28), or 8%, of civilian fire injuries occurred in outside and other fire incidents in 2009. Four (4), or 1% of civilian injuries were caused by special outside fires. Three (3), or 1%, of civilian injuries occurred in brush fires. Twenty-one (21), or 6%, of civilian injuries were caused by unclassified fires.

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

Where gender was known, 61% of the civilian victims were men and 39% were women. Burns accounted for 46%, 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 2-4 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. It is these types of basic fire safety practices that are ignored by too many Massachusetts residents and results in fires, injuries, and deaths.

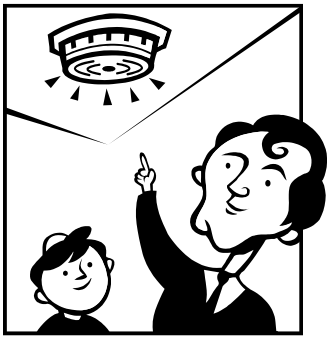


Home Escape Plan

- 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 a safe distance from the building.

Smoke Detectors

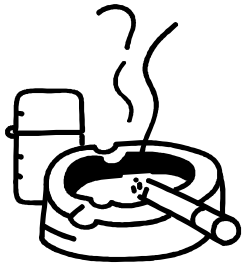
- Install smoke detectors on every level and outside each sleeping area.
- Test smoke detectors monthly.
- Replace the batteries twice a year.
- Never disable your detector.
- Replace detectors every 10 years.



Cooking Safety

- Put a lid on a grease fire to smother it then turn off the heat. Baking soda will also work.
- 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 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.

2009 Firefighter Deaths

In 2009, there were no fire-related fire service fatalities in the Commonwealth of Massachusetts.

Fire Service Injuries

460 Firefighters Injured in 2009
In 2009, 460 firefighters were injured while fighting the 28,595 reported fires in Massachusetts. On average, one firefighter was injured at one of every 62 fires in 2009. Four hundred and twenty-three (423) firefighters were injured at structure fires. Seventeen (17) firefighters were injured at motor vehicle fires. Twenty (20) firefighters were injured at outside and other fires. This is a decrease of 164, or 26%, from the 624 fire-related fire service injuries reported in 2008.

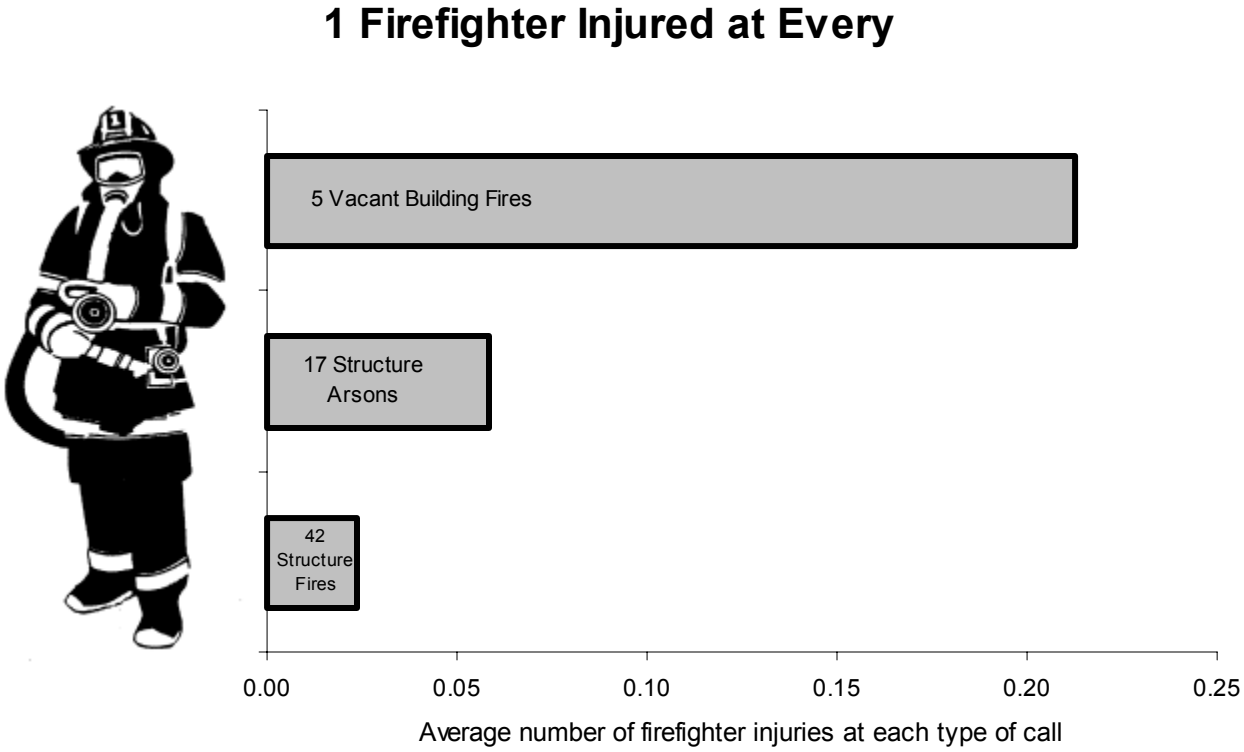
92% of Firefighter Injuries Occurred at Structure Fires
Firefighters were injured more frequently at structure fires than any other fire incident type. Ninety-two percent (92%) of firefighter injuries occurred at structure fires, while structure fires only accounted for 62% of all fires.

Electrical Fires Caused the Most Injuries at Structure Fires
The largest number of firefighter injuries took place at electrical-caused fires. Seventy-nine (79), or 19% of structure fire firefighter injuries occurred at electrical fires. Smoking fires accounted for 29, or 7%, of structure fire firefighter injuries. Cooking fires caused 25, or 6%, of all fire service fire injuries, even though cooking fires are the leading cause of structure fires and civilian fire injuries. Fires caused by heating equipment accounted for 24, or 5%, of fire service injuries at structure fires.

Firefighters Injured at 1 of Every 5 Vacant Building Fires
One of the most dangerous types of fires for firefighters in 2009 were vacant building fires. Vacant building fires accounted for 67, or 15%, of all firefighter injuries in 2009. These 67 injuries also represent 16% of the number of firefighter injuries incurred fighting structure fires in 2009. On average there was one firefighter injury for every five vacant building fires; one firefighter injury for every 17 structure arsons; and one firefighter injury for every 42 structure fires[56].

The graph on the following page illustrates this.

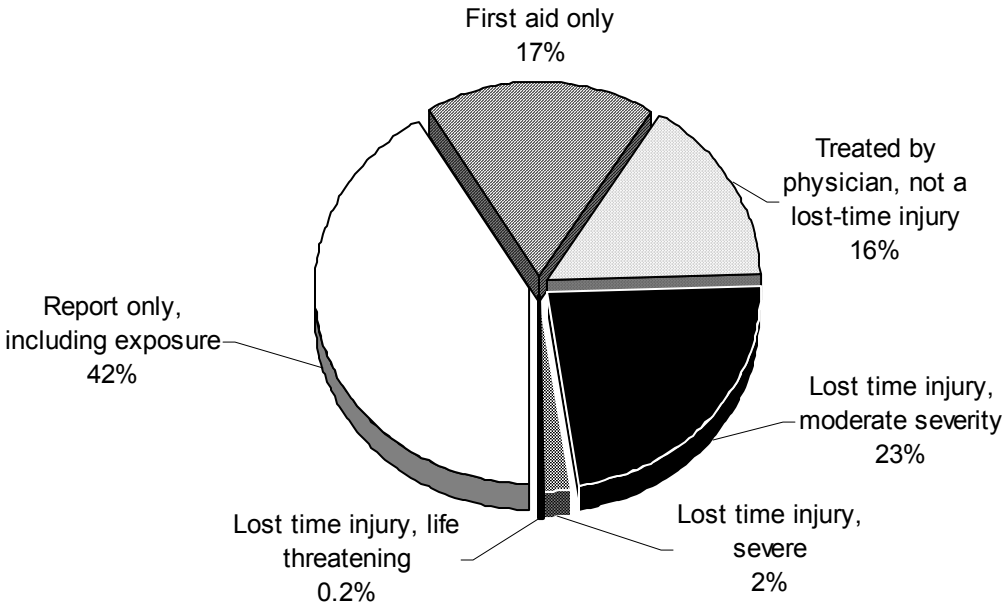
[56] On average there were 0.23 firefighter injuries at every vacant building fire; there were only 0.15 reported firefighter injuries per structure arson in 2008; and there was 0.03 reported firefighter injuries per structure fire in the Commonwealth in 2008.



3/4 of Firefighter Injuries Minor

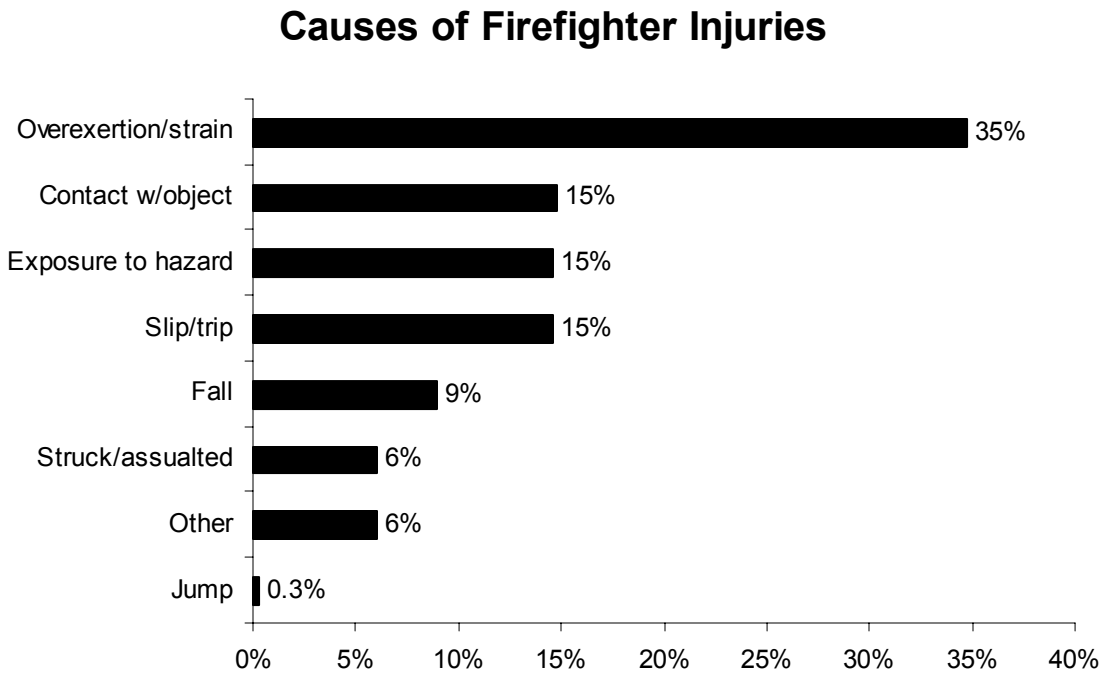
Three-quarters of reported firefighter injuries were minor. Forty-two percent (42%) of the injuries were reports only, including exposures to toxic substances or harmful physical agents through any route of entry into the body. Injuries reported as moderate accounted for 23% of firefighter injuries, meaning that immediate medical attention was needed but there is little danger of death or permanent disability. Seventeen percent (17%) of these injuries were recorded as only needing first aid. Sixteen percent (16%) reported having been treated by a physician with no time lost. Two percent (2%) of firefighter injuries were coded as severe. This means that the injury was potentially life threatening if the condition was not controlled. Less than 1% were reported life-threatening firefighter injuries where body processes and vital signs were not normal.

Severity of Firefighter Injuries

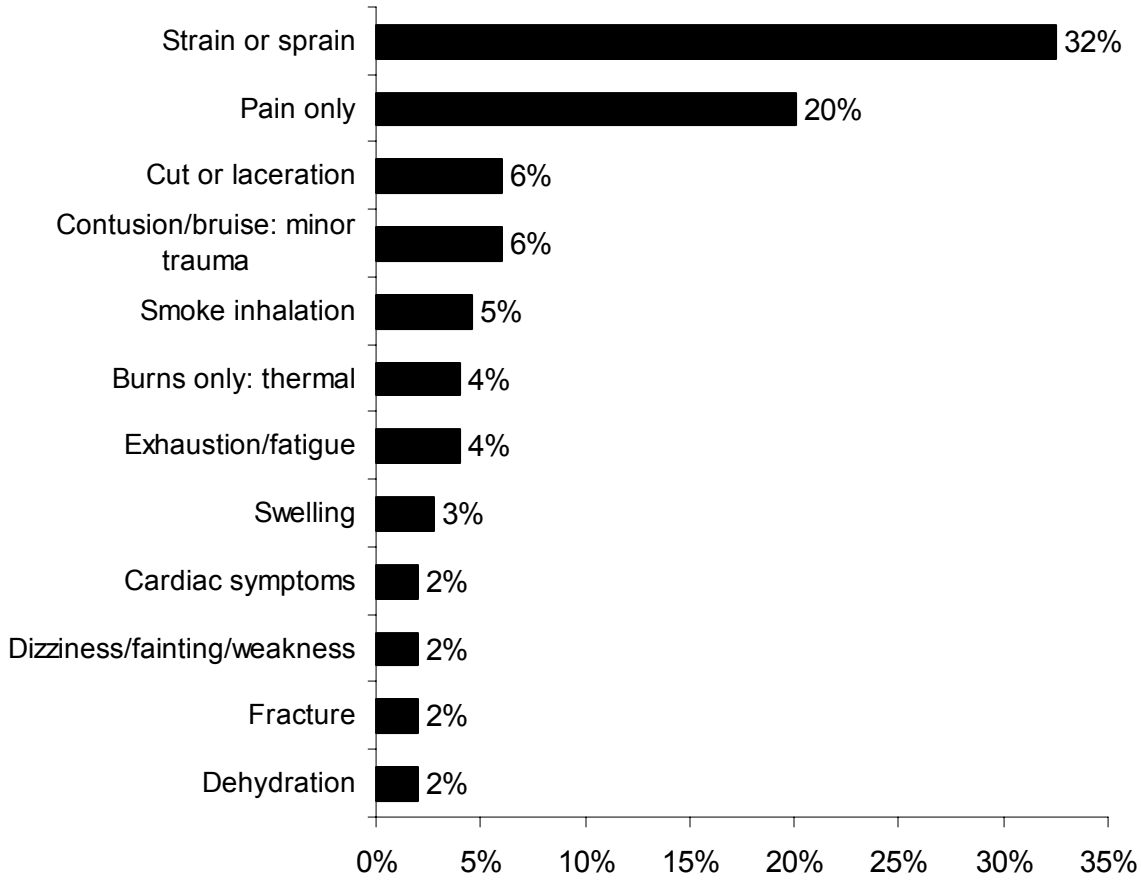


Over 1/3 of Injuries from Overexertion or Strain

Thirty-five percent (35%), or over one-third, of the 391 firefighter injuries where cause is known were due to overexertion or strain; 15% were caused by contact with some object; another 15% were exposed to some form of hazard including heat, smoke or toxic agents; 15% were injured when they slipped or tripped; 9% of firefighters were injured from falls; 6% 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 6% 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 69 firefighter injuries, and these injuries were excluded from the percentage calculations.



Almost 1/3 Experienced Sprains or Strains; 1/5 of Firefighters Reported Pain
Of the 394 firefighter injuries where P*rimary Apparent Symptom* was known, almost one-third, 32%, of injured firefighters reported sprains or strains as their primary symptom; 20% reported pain only; 6% reported cuts or lacerations or bruising; 5% reported smoke inhalation; 4% reported thermal bruises; and another 4% reported exhaustion and fatigue. Swelling caused 3% of these injuries; and cardiac symptoms, dizziness, fainting or weakness, fractures and dehydration each caused 2% of these injuries. Eye trauma and stab or penetrating puncture wounds each caused 1% of firefighter injuries in Massachusetts in 2009. *Primary Apparent Symptom* was undetermined or not reported for 66 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.

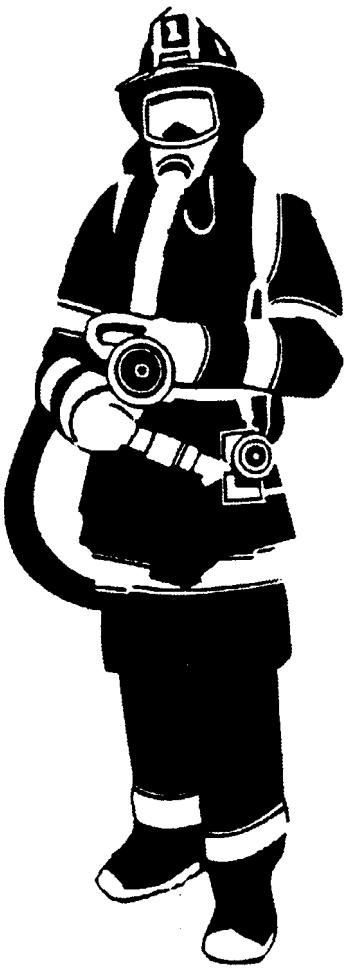
Look at Symptoms Incurred by Different Parts of Body to Prevent Injuries
Different parts of the body suffer different types of injuries. The following chart shows the types of injuries suffered by different parts of the body. For example, 25% of eye injuries were caused by avulsions; cuts or lacerations caused 41% of the injuries to the hands and fingers; 52% of the injuries to the back and spine were sprains or strains; and smoke inhalation caused 48% of the internal injuries.

21% 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. Eighty-four (84), or 21% of all

firefighter injuries were to the trunk part of the body that includes the lower back. Thirty-six (36), or 43% of these injuries were from strains or sprains and 25, 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 (20)	
Avulsion	25%
Foreign body obstr.	20%
Trunk (84)	
Strain or sprain	43%
Pain only	30%
Smoke inhalation	6%
Internal (25)	
Smoke inhalation	48%
Cardiac symptoms	24%
Breathing difficulty	8%
Hand, Fingers (44)	
Cut, laceration	41%
Pain, only	11%
Swelling	9%
Contusion, bruise	9%
Legs (8)	
Strain or sprain	63%
Scald burn	13%
Contusion, bruise	13%
Cut or laceration	13%



Ears & Face (8)	
Thermal burns	50%
Pain, only	13%
Burns & smoke inhal.	13%
Back & Spine (54)	
Strain or sprain	52%
Pain only	39%
Arms (18)	
Strain or sprain	39%
Swelling	17%
Contusion, bruise	11%
Cut or laceration	11%
Wrists (4)	
Strain or sprain	75%
Scald burn	25%
Knees (41)	
Strain or sprain	51%
Pain only	32%
Contusion, bruise	12%
Feet & Toes (9)	
Strain or sprain	33%
Cut or laceration	22%
Stab or punct. wound	22%

Storage Fire in Yarmouth Injures 22 Firefighters – Most Fire Service Injuries

- On July 10, 2009, at 11:15 a.m., the Yarmouth Fire Department was called to a fire at a 5,000 ft^2 storage building containing fertilizer at the Old Colony Cranberry Bog. The cause of the fire was undetermined. Three (2) civilians, one police officer and 22 firefighters were injured at this fire. None of the injuries were severe and required only on-site first aid. There were no detectors; and the building was not sprinklered. Damages from this fire were estimated to be $75,000.

3 Alarm Fire in Newton Injures 9 Firefighters – 2nd Most Fire Service Injuries

- On January 1, 2009, at 9:26 a.m., the Newton Fire Department was called to a heating fire in a single-family home. Embers from the fireplace landed on some furniture starting the fire. No civilians were injured at this fire. Nine (9) firefighters were injured at this fire. Smoke detectors were present and operated but sprinklers were not present. Damages from this fire were estimated to be $1 million.

Worcester, Quincy and Chelsea each had incidents with six firefighter injuries in 2009.

Arson Fires

1,184 Arsons - 291 Structures, 188 Vehicles, 705 Other Arsons

One thousand one hundred and eighty-four (1,184), or 4%, of the 28,595 fire incidents reported to the Massachusetts Fire Incident Reporting System, were considered to be intentionally set, or for the purpose of analysis, arson[57]. The 291 structure arsons, 188 motor vehicle arsons, and 705 outside and other arsons caused eight civilian deaths, accounting for 22% of civilian fire deaths, 19 civilian injuries and 18 fire service injuries. The estimated dollar loss from arsons was $12 million. The average dollar loss per arson fire was $10,081. Total arson was up less than 1% from 1,181 in 2008.

'Suspicious' Eliminated as a Cause of Ignition

In version 5, arson is defined as Cause of Ignition is intentional and the age of the person involved is greater than 17, whereas in version 4 we included both intentionally set and suspicious fires in our definition of arson. In version 5, suspicious is eliminated, and the more accurate description Cause of Ignition = Cause Under Investigation is used.

929 Fires with Cause Still Under Investigation

In 2009, 929 Massachusetts fires were still listed as Cause Under Investigation. There were 2,519 fires where the Cause of Ignition was listed as Undetermined. In the past (in version 4) many of these fires would have been coded as 'Suspicious' and would have been counted as arsons. The change in coding requirements created a substantial drop in

[57] 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.

2002. However, after nine years with the new system, the number of reported arsons continues to decrease at a slower rate. 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.

Rubbish Fires Collect No Causal Data
Another reason for this large drop is that in version 5, outside rubbish fires such as dumpster fires and confined indoor rubbish fires use the abbreviated reporting format where a Fire Module is not needed and the field Cause of Ignition is not captured. Thus many intentionally set rubbish fires will not be counted as arsons or juvenile-set fires.

Arson Module Brings Better Understanding & Tracking of Arsons
The Arson Module contains data fields that we can use to identify when and where the crime takes place, what form it takes, and the characteristics of its targets and perpetrators. With this information we can develop and implement arson prevention initiatives and track trends to see if any arsons in an area exhibit similar characteristics.

One of the fields is 'Other Investigative Information.' This field identifies other information pertinent to the case. In 2009, 34%, of the 47 reported arsons which had this field completed, occurred in vacant structures; 28% had some code violations; 19% had some other crime involved; 9% were reported to have criminal or civil actions pending; 6% reported financial problems; 2% occurred in structures that were for sale; and another 2% had a recent change in insurance.

Suspected Motives
Another field is 'Suspected Motivation Factors.' It indicates the suspected stimulus that caused the subject to burn any real or personal property. In 21% of the 124 reported arsons that had this field completed, the motive was thought to be from playing with or curiosity of fire. In 19% the motive was personal motivation; thrills was suspected in 18% of these arsons; intimidation in 7%; and suicide in another 7% of these fires. Attention or sympathy was the suspected motivation factor in 6% of these fires; in 5% someone was committing insurance fraud; in 4% the arson was part of a domestic violence incident. Auto theft concealments was a factor in 2%; and vanity and recognition and the ability to void a contract or lease each were also a factor in 2% of these arson fires. Burglary, burglary concealment, hate crimes, homicide concealment, institutional grudges, labor unrest, and a protest were each the suspected motivation factor in 1% of arsons.

Incendiary Devices
Gasoline or other fuel cans were the leading container 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 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, structure, motor vehicle and outside and other arsons are at an all time low.

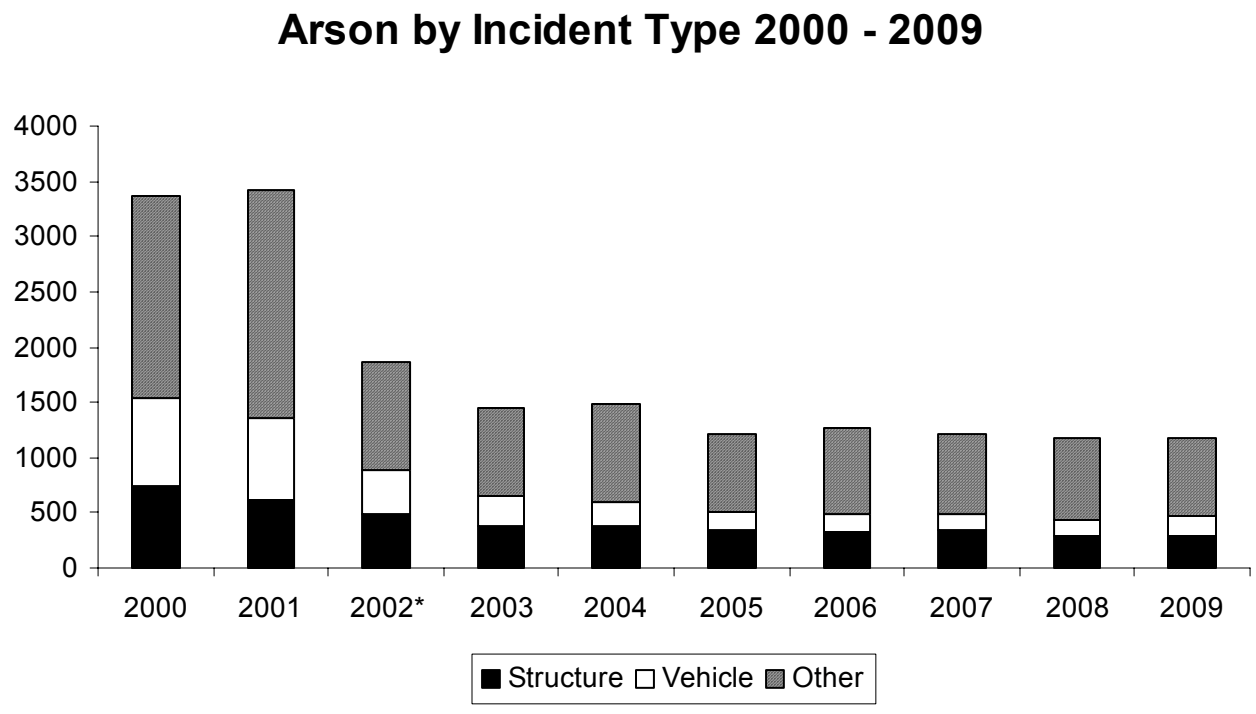
ARSONS BY YEAR

Year	Total Arsons	Structure Arsons	% All Arsons	Vehicle Arsons	%All Arsons	Other Arsons	% All Arsons
2009	1,184	291	25%	188	16%	705	60%
2008	1,181	282	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%
2001	3,426	620	18%	743	22%	2,063	60%
2000	3,360	747	22%	798	24%	1,815	54%

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

Largest Reduction in Motor Vehicle Arsons

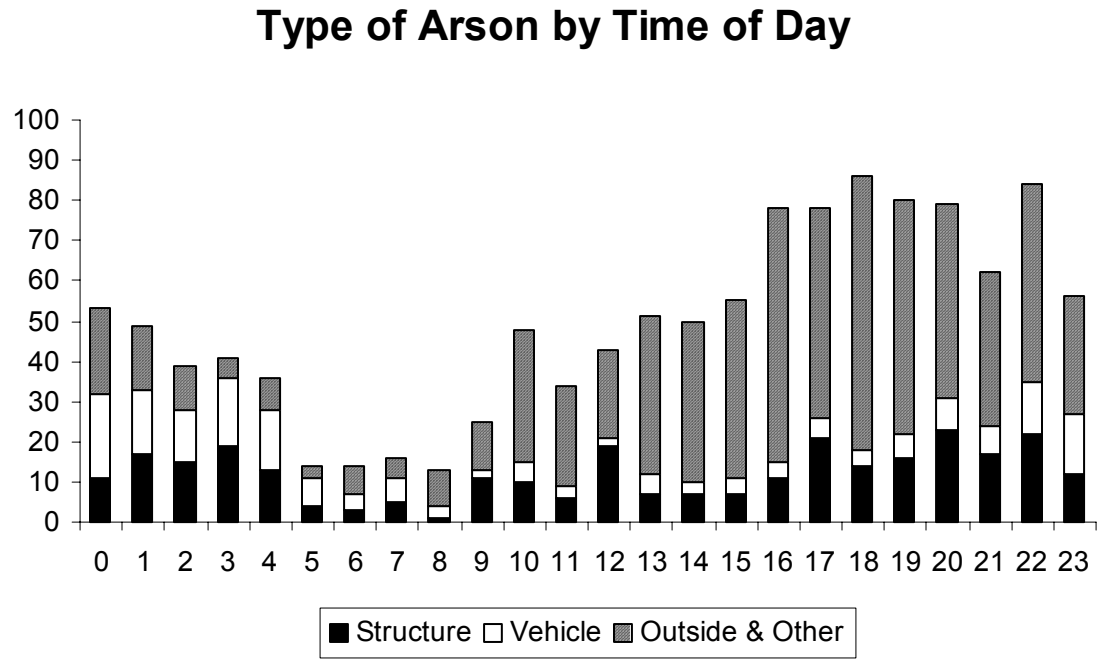
The following chart illustrates arson by incident type over the past decade. This type of chart can be used as a visual representation of the ratios between the three types of arson, structure, motor vehicle and outside and other arsons. The trend has been for motor vehicle arsons to comprise a smaller 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 24% of arson fires in 2000 but only 16% of the total reported arson fires in 2009. 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 1,815 in 2000 and 705 in 2009. 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 3:00 p.m. to 11:00 p.m. The peak times for structure arson were from 5:00 p.m. and 1:00 a.m. Motor vehicle arsons were most likely to occur between 10:00 p.m. and 4:00 a.m. Outside and other arsons peaked from 2:00 p.m. to 10:00 p.m.



Newbury & Boston Had Largest Loss Arsons in 2009

- On September 9, 2009, at 6:42 p.m., the Newbury Fire Department was called to an intentionally set fire in a single-family home. The homeowner used the stove to ignite ordinary combustibles to start the home on fire. No one was injured at this fire. Detectors were present but it was undetermined if they operated and the building was not sprinklered. Damages from this fire were estimated to be $1 million.

- On February 21, 2009, at 1:23 a.m., the Boston Fire Department responded to an intentionally set fire at the old Franklin Theater. Investigators determined that the fire had several points of origin. No one was injured at this fire. Detectors were not present, but a partial automatic extinguishing system was present and

operated. However it was ineffective because it was an inappropriate system for that type of fire. Damages from this fire were estimated to be $1 million.

Structure Arson

291 Arsons, 3 Civilian Deaths, 12 Civilian Injuries, 17 Fire Service Injuries
In 2009, there were 291 reported structure arsons. They caused three civilian deaths, 12 civilian injuries, 17 fire service injuries and an estimated dollar loss of $10.3 million. These 291 incidents accounted for 2% of the 17,773 structure fires in 2009, and were up 3% from the 282 reported structure arsons in 2008.

The three civilian deaths accounted for 8% of the total civilian death count and 10% of all structure fire deaths. The 12 civilian injuries accounted for 4% of the overall civilian injuries and 4% of all civilian injuries at structure fires. Seventeen (17) fire service injuries accounted for 4% of the total fire service injuries and 4% of the injuries fire fighters sustained at all structure fires in 2009. The estimated dollar loss for structure arsons was $10,308,805, accounting for 6% of the overall dollar loss and 6% of the estimated dollar loss in all reported structure fires. The average loss per structure arson was $35,425.

In 2009, 405 Massachusetts structure fires were still listed as Cause Under Investigation. There were 350 structure fires where the Cause of Ignition was listed as Undetermined. In the past (in version 4) many of these fires would have been coded as 'Suspicious' and would have been counted as arsons. The change in coding requirements did create a decrease in reported structure arsons.

Building Arsons
In 2009 there were 213 building arsons. These 213 arsons accounted for 73% of all the structure arsons in Massachusetts. These 213 building arsons caused three civilian deaths, 10 civilian injuries, 17 fire service injuries and an estimated dollar loss of $10.2 million.

70% of Building Arsons Occurred in Residences
Two hundred and thirteen (213), or 70%, of the 213 building arsons occurred in residential occupancies. Educational occupancies accounted for 14, or 7%, of these arsons. The following table shows the number of structure arsons, civilian deaths, civilian injuries, fire service injuries, dollar loss and the percentage of the total structure arsons for each occupancy type.

BUILDING ARSON BY OCCUPANCY TYPE

Occupancy	Building Arsons	Percent of Total	Injuries FF	Injuries Civ	Deaths FF	Deaths Civ	Dollar Loss
Assembly	12	6%	0	0	0	0	$1,057,003
Educational	14	4%	0	0	0	0	16,475
Institutional	1	0.5%	0	0	0	0	500
Residential	**149**	**70%**	**14**	**10**	**0**	**3**	**6,570,750**
1- & 2-Family	*106*	*50%*	*9*	*8*	*0*	*3*	*4,424,552*
Multifamily	*70*	*33%*	*3*	*2*	*0*	*0*	*1,857,050*
All Other Residential	*10*	*5%*	*2*	*2*	*0*	*0*	*299,850*
Mercantile, business	19	9%	3	0	0	0	2,466,550
Basic Industry	2	1%	0	0	0	0	1,000
Manufacturing	2	1%	0	0	0	0	11,000
Storage	13	6%	0	0	0	0	96,400
Special Properties	1	0.5%	0	0	0	0	1,200
Unclassified	0	0%	0	0	0	0	0
Total	**213**	**100%**	**17**	**10**	**0**	**3**	**$10,220,878**

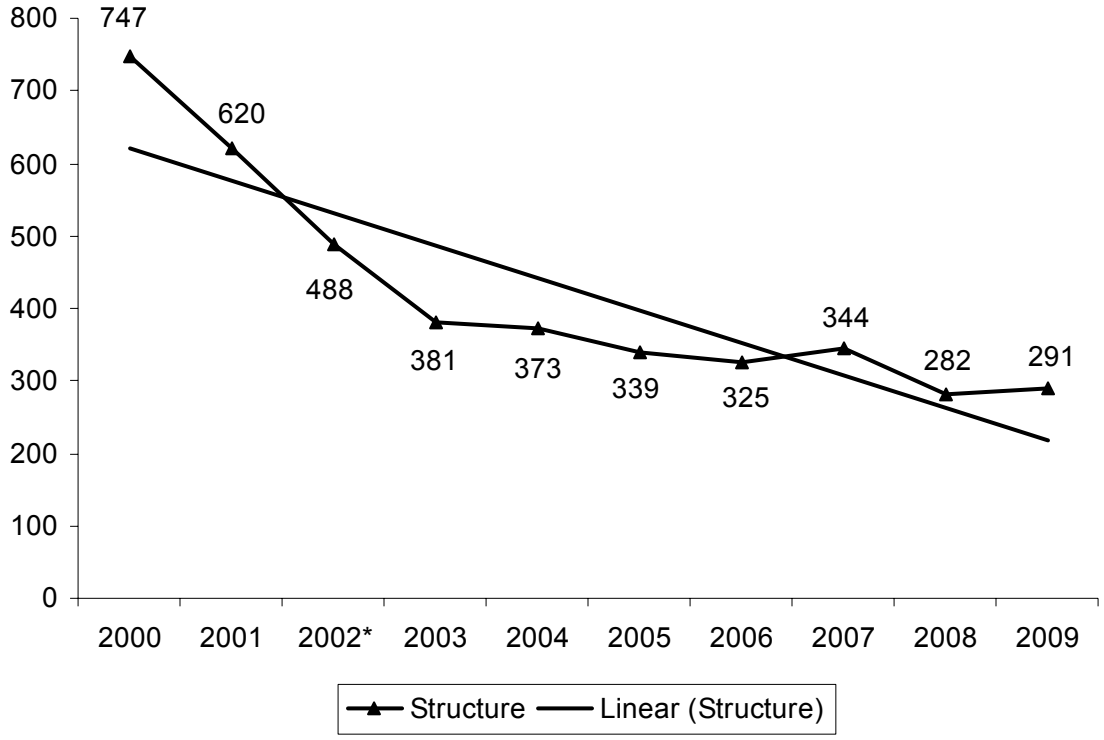
Structure Arsons Increase

Structure arsons increased in 2009. These 291 arsons are an increase of nine, or 3%, from the 282 reported in 2008. This is the second year in the past three years that structure arsons increased.

Structure Arson Down 61% Since 2000

Structure arson has been on a downward trend since 1991 when 1,974 structure arsons were reported to MFIRS. Structure arsons have decreased 61% since 747 were reported in 2000. The chart below shows the trend of structure arsons in the past decade.

Structure Arson by Year 2000 - 2009



*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 2009, their 2000 population according to the United States Census, the number of structure arsons reported in 2009, the rate of structure arsons per 1,000 people in 2009, and the same information for 2008. The cities are ranked by the 2009 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, the Town of Freetown had a higher structure arson rate. Although Freetown had only five structure arsons and ranked 13th, its rate of 0.59 structure arsons per 1,000 population was the highest in the state and was over 10 times the state structure arson rate of .05 per 1,000 population.

MASSACHUSETTS CITIES WITH THE MOST STRUCTURE ARSONS IN 2009

City	Population	2009 Arsons	2009 Rate/ 1,000 Pop.	2008 Arsons	2008 Rate/ 1,000 Pop.
Freetown	8,472	5	0.59	0	0.00
Hyannis	12,543	6	0.48	2	0.16
Pittsfield	45,793	14	0.31	5	0.11
Duxbury	14,248	4	0.28	0	0.00
Swampscott	14,412	4	0.28	1	0.07
Lawrence	72,043	17	0.24	5	0.07
Chelsea	35,080	7	0.20	2	0.06
Everett	38,037	7	0.20	4	0.11
Fall River	91,938	16	0.17	7	0.08
Northampton[58]	28,978	5	0.17	0	0.00
New Bedford	93,768	14	0.15	16	0.17
Sandwich	20,136	3	0.15	0	0.00
Fitchburg	39,102	5	0.13	4	0.10
Milford	26,799	3	0.11	0	0.00
Brockton	94,304	10	0.11	9	0.10
Massachusetts	**6,349,097**	**291**	**0.05**	**281**	**0.05**

Motor Vehicle Arson

188 Arsons, 4 Civilian Deaths & $1.5 Million in Damages

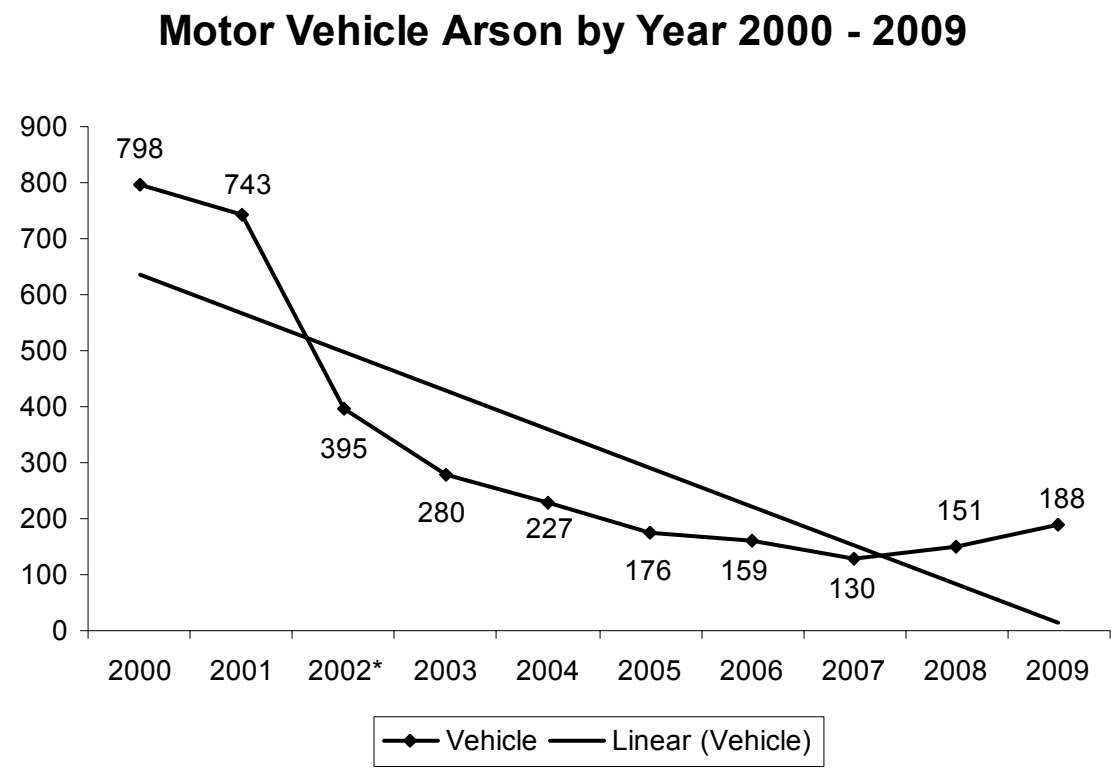
One hundred and eighty-eight (188), or 6%, of the 3,069 vehicle fires were considered intentionally set in 2009. The four civilian deaths accounted for 11% of the total civilian deaths and 80% of the civilian deaths associated with motor vehicle fires. The two civilian injuries accounted for 1% of all civilian injuries and 14% of all civilian injuries associated with motor vehicle fires. There were no firefighter deaths associated with motor vehicle arsons in 2009. The one fire service injury accounted for less than 1% of all the fire service injuries and 6% of all fire service injuries associated with motor vehicle fires. The estimated dollar loss in motor vehicle arsons was $1,549,295, accounting for 1% of the overall fire dollar loss and 12% of the dollar loss associated with all the 2009 motor vehicle fires. The average loss per vehicle arson was $8,241. Passenger cars and vans accounted for 86% of the 188 motor vehicle arsons.

In 2009, 307 Massachusetts motor vehicle fires were still listed as Cause Under Investigation. There were 669 motor vehicle fires where the Cause of Ignition was listed as Undetermined. In the past (in version 4) many of these fires would have been coded as 'Suspicious' and would have been counted as arsons. The change in coding requirements did create a large drop in reported motor vehicle arsons in 2002; and the declining trend has continued during the past five years using the new coding format.

[58] 4 of the 5 structure arsons occurred during the same night and were set by the same individual.

Motor Vehicle Arsons Increase
Motor vehicle arsons increased in 2009. These 188 arsons are an increase of 37, or 25%, from the 151 reported in 2008. This is the second year in a row that motor vehicle arsons increased.

The Burned Motor Vehicle Reporting Law
The Massachusetts Fire Incident Reporting System first identified motor vehicle fires and motor vehicle arson as a major problem in 1985 and 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 96% from 5,116 in 1987 to 188 in 2009.

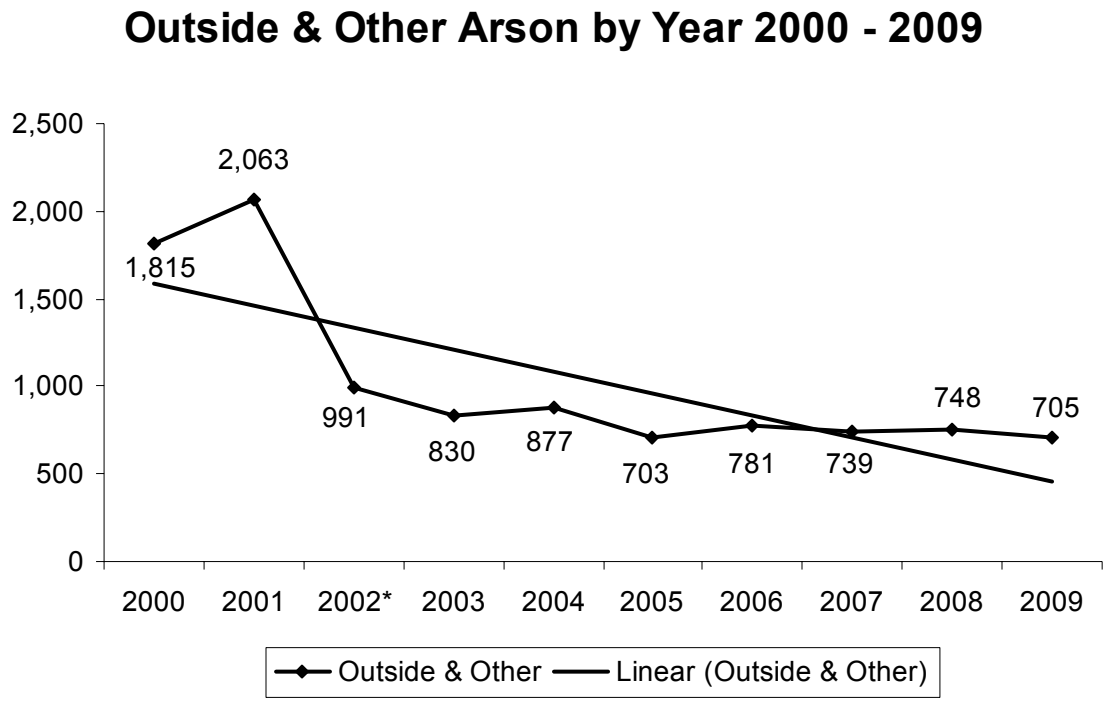


*2002 was the 1st full year of version 5 with a new definition of arson with 'suspicious' eliminated.

Outside and Other Arson

705 Arsons, 1 Civilian Death & 5 Civilian Injuries
Seven hundred and five (705), or 9%, of the total outside and other fires were considered intentionally set in 2009. The one civilian death, accounted for 3% of the total civilian deaths and was the only civilian death in all outside and other fires. The five civilian injuries in outside and other arson fires accounted for 2% of the total civilian injuries and 18% of civilian injuries in all outside and other fires. There were no fire service injuries or deaths associated with outside and other arsons. The estimated dollar loss for these arsons was $77,430. The average loss per outside and other arson was $110.

In 2009, 187 outside and other fires were still listed as 'Cause Under Investigation.' There were also 1,350 outside and other fires where the "Cause of Ignition" was listed as 'Undetermined.' In the past (in version 4) many of these fires would have been coded as 'Suspicious' and would have been counted as arsons. The change in coding requirements did create a large drop in reported outside and other arsons but the declining trend has continued during the past five years using the new coding format.



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

No Causal Data for Outside Rubbish Fires
Another reason for this large drop is that in version 5, outside rubbish fires such as dumpster fires use the abbreviated reporting format where a Fire Module is not needed

and the field Cause of Ignition is not captured. Thus many intentionally set outside rubbish fires will not be counted as arsons.

It is important to keep in mind that no-loss fires are voluntarily reported and these numbers represent only a fraction of the problem.

Outside & Other Arsons Drop
Outside and other arsons were the only group of arsons not to increase in 2009. These 705 arsons are a decrease of 43, or 6%, from the 748 reported in 2008. Brush arsons decreased by 77, or 17%; outside rubbish arsons increased by 27, or 27%; special outside arsons increased by 12, or 11%; cultivated vegetation or crop arsons increased by one or 33%; and unclassified arsons decreased by six, or 7%, from those reported in 2008.

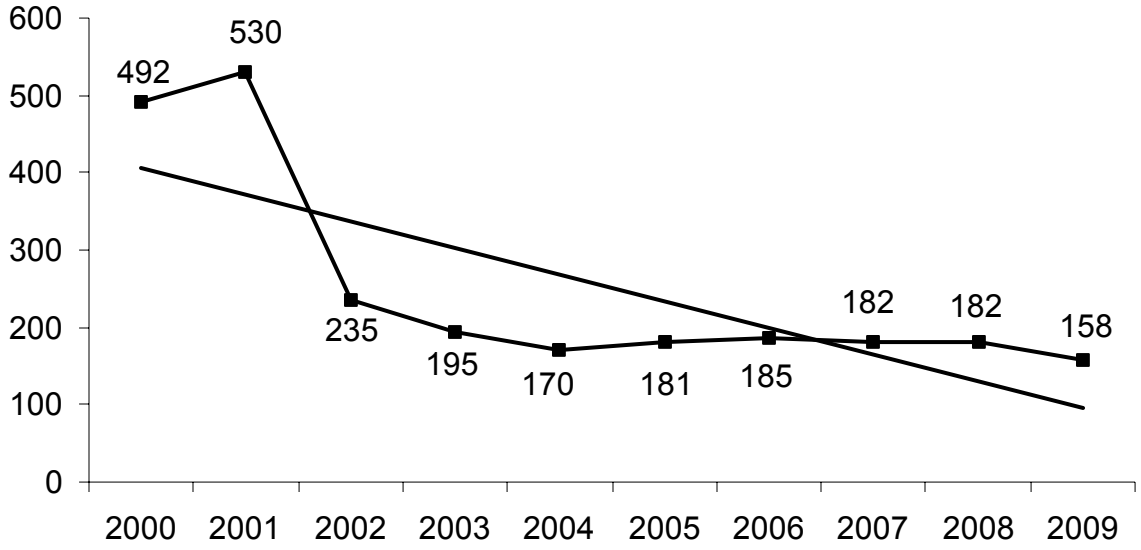
10 Arsons in Northampton in Just Over an Hour

- On December 27, 2009, at 1:58 a.m., the Northampton Fire Department was called to the first of a string of at least 10 arsons that morning. There were four structure arsons and six reported motor vehicle arsons. One of the fatal arsons was in a single-family home that took the life of a father and son. The victims, a 39-year old man and his 82-year old father were asleep when their front porch was set on fire. They were unable to escape and were overcome by the heat and smoke. No one else was injured at this fire. Damages from these arsons were estimated to be $779,075.

Juvenile-set Fires

Children Playing With Fire Caused 158 Fires, 2 Civilian Injuries & $887,306
In 2009, children playing with matches, lighters and other heat sources caused 158 reported fires, two civilian injuries, eight fire service injuries and an estimated dollar loss of $887,306. The average dollar loss per fire was $5,616. These fires were down 13% from 182 incidents in 2008. This reverses the steady increasing trend over the previous five years. Over the past decade however, there has been an overall downward trend in juvenile-set fires.

Juvenile-Set Fires In Massachusetts
2000 - 2009



2/3 of Juvenile Firesetters Were Male

The field Motivation Risk Factors[59] is an attempt to identify the possible motivation for the subject to burn, or attempt to burn, any real or personal property. In 2009, five of the juveniles had mild curiosity about fire and two youths had moderate curiosity about fire. The leading family type was the single-parent family followed by the two-parent family. When age was given, the majority of the subjects were between 12 and 17 years old. When gender was completed 67% of the children were listed as males.

62 Structure Fires – 8 Motor Vehicle Fire – 88 Outside & Other Fires

The 158 fires set by children included: 62 structure fires; 55 brush, tree or grass fires; 13 special outside fires; 10 outside rubbish fires; eight motor vehicle fires; and 10 fires that could not be classified further.

Juvenile-set Structure Fires Cause 2 Civilian Injuries & $848,901 in Damages

Two (2) civilian injuries and seven fire service injuries occurred in the 62 structure fires set by children. Child-set structure fires caused an estimated dollar loss of $848,901 with an average dollar loss of $5,616 per fire.

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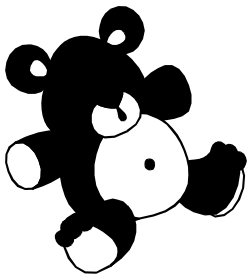
[59] Please note that the U.S. Fire Administration determines the codes for the National Fire Incident Reporting System (NFIRS). Discussing juvenile firesetting in terms of mild, moderate & extreme curiosity is out of step with today's way of looking at the behavior that looks at a range of motivations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

Thirty-five percent (35%) of the 62 building fires caused by children occurred in one- or two-family homes; 29% occurred in multifamily homes; 4% occurred in high schools, junior high schools or middle schools with another 6% occurring in outbuildings or sheds. Twenty-one percent (21%) of the juvenile-set fires started in the bedroom; 11% began in the kitchen; and bathrooms and garages were the area of origin in 12% of these fires.

62% of Structure Fires Set by Children Using Smoking Materials

Sixty-two percent (62%), of juvenile-set fires were started by smoking materials[60]. Thirty-two percent (32%) of the structure fires set by children were started with lighters. Twenty-seven percent (27%) of the structure fires were started using matches. Cigarettes and undetermined smoking materials each caused 2% of these fires. Unclassified open flames were the heat source for 8% of juvenile-set fires in 2009. Flames and torches used for lighting and unclassified hot or smoldering objects were each the cause in 4% of the juvenile-set fires. Fireworks, candles, and radiated heat from operating equipment each caused 4% 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 safer candle use.

Child with Lighter Sets Home on Fire

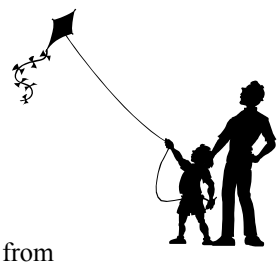


- On October 26, 2009 at 12:22 p.m., the Saugus Fire Department was called to a fire at a single-family home caused by a five-year old boy playing with a lighter. No civilians were injured; but one firefighter was hurt at this fire. Detectors were present alerted the occupants; but the building was not sprinklered. Damages were estimated to be $250,000. This was the largest loss juvenile-set fire in Massachusetts in 2009.

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 must be able to resist the efforts of 85% of children under five who tried 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, such as 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



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

intervention program. Don't assume the child will 'grow out of it.' Juvenile firesetting is dangerous and must be addressed.
- Smoking parents should keep their lighter 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. In addition, state police fire investigators assigned to the Office of the State Fire Marshal have determined that a fatal fire originally classified as undetermined in 2008, was started by a juvenile.

Cooking Fires

Cooking Caused 11,368 Fires & 4 Civilian Deaths & 85 Civilian Injuries
Unattended cooking, other unsafe cooking practices and defective cooking equipment caused 11,368 fires, four civilian deaths, 85 civilian injuries, 25 firefighter injuries and an estimated dollar loss of $10.6 million. The average dollar loss per fire was $934. Cooking fires accounted for 40% of the total 28,595 fires that occurred in 2009.

Ninety-nine percent (99%) of the fires caused by cooking occurred in structures. The 11,368 fires included: 11,241 structure fires; 40 special outside fires; four brush fires; and 83 fires that could not be classified further.

Confined Cooking Fires Account for Over 1/3 of Total Fires
There were 10,794 cooking fires confined to a non-combustible container. These 10,794 fires represent 38% of the total 28,595 fires that occurred in Massachusetts in 2009. This is the largest single cause of fires in Massachusetts. Confined cooking fires increased 15% from the 9,870 reported in 2008.

82% of Cooking Fires Were Unintentional
In 847, or 82% of the 1,035 cooking 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. Less than 1% of the reported cooking fires were classified as intentional. In 11% of cooking fires, the cause of ignition was undetermined. Ten thousand one hundred and ninety-four (10,194), or 90%, of all cooking fires, were fires contained to non-combustible containers that did not require having a cause reported.[61]

[61] In version 5, 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

Unattended Cooking Starts 11% – Stand by Your Pan!

Human error was responsible for the majority of cooking fires. Eleven percent (11%) of cooking fires where 'Factors Contributing to Ignition' was completed were caused by unattended cooking; 5% were caused by the misuse of materials or product; 4% were caused by combustibles left too close to the cooking equipment; 3% started when the equipment was accidentally turned on or not turned off; abandoned or discarded cooking materials, a failure to clean the cooking equipment, and unclassified operational deficiencies each caused 2% of these fires. Ninety-one percent (91%) of cooking fires were confined fires where this data is not collected.

Cooking Was the Leading Cause of Injury in Fires in 2009

Cooking was the leading cause of injury in fires in 2009. This is not surprising considering that 68%, of residential fires start in the kitchen. Of the 85 cooking fire injuries, 51% of victims were male and 49% were female. Six percent (6%) of victims were under age 10; 2% of the victims were between the ages of 10-14; 16% were 15-24; 14% were 25-34; 22% were 35-44; 14% were 45-54; 12% were 55-64; 6% were 65-74; 2% were 75-84 and 5% were over the age of 85. People aged 25 to 54 accounted for 51% of the people injured in cooking fires.

85% of Victims in Room or Area of Fire Origin

Of the 65 cooking fire injuries where location at ignition is known 85% of the victims were injured in the room or area of fire origin. Forty-three percent (43%) were intimately involved with the ignition; 42% of victims were in the room or space of fire origin but not involved; 6% were not in the area of origin but involved, most likely these are the people who initially left the cooking unattended; and 9% were not in the area of origin and not involved.

Almost 2/3 of Cooking Injuries Occurred When Trying to Control Fire

Almost two-thirds of cooking injuries occurred when trying to control the fire. Of the 65 cooking fire injuries for which activity at time of injury was known, 62% of victims were attempting to control the fire; of the 40 victims injured while attempting to control the fire 55% were male. Nine percent (9%) were sleeping at the time of injury and another 9% were escaping; 5% were unable to act; 2% were attempting to return to the vicinity of the fire before the fire was under control; and another 3% acted irrationally; and 12% of the victims activities were classified as 'Other'.

Almost 1/2 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 75 cooking fire injuries where nature of injury was known, 36% suffered only from smoke

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Modules and all associated fields if it wants to. In 2006, there were 6,726 confined cooking fires. However fire departments filed a Fire Module in 581, or 9%, of these incidents.

inhalation, breathing difficulty or shortness of breath; 11% suffered from burns and smoke inhalation; 41% of victims suffered only from thermal burns; and 5% received scald burns.

4 Civilian Fire Deaths in 2009
While cooking is the leading cause of residential building fires, it is not the leading cause of fire deaths. There were four civilian fire deaths attributed to cooking fires in 2009.

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. They should also wear tight fitting clothes to keep from having their sleeves ignite while they are cooking.

- **Put a lid** on a grease fire to smother it, then turn off the heat. Baking soda will also work.
- Wear short or tight fitting sleeves when cooking. Loose sleeves can 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, boiling, broiling, or frying unattended.
- Stop, drop and roll if clothing ignites, no matter how young or old.

Fires Caused by Smoking

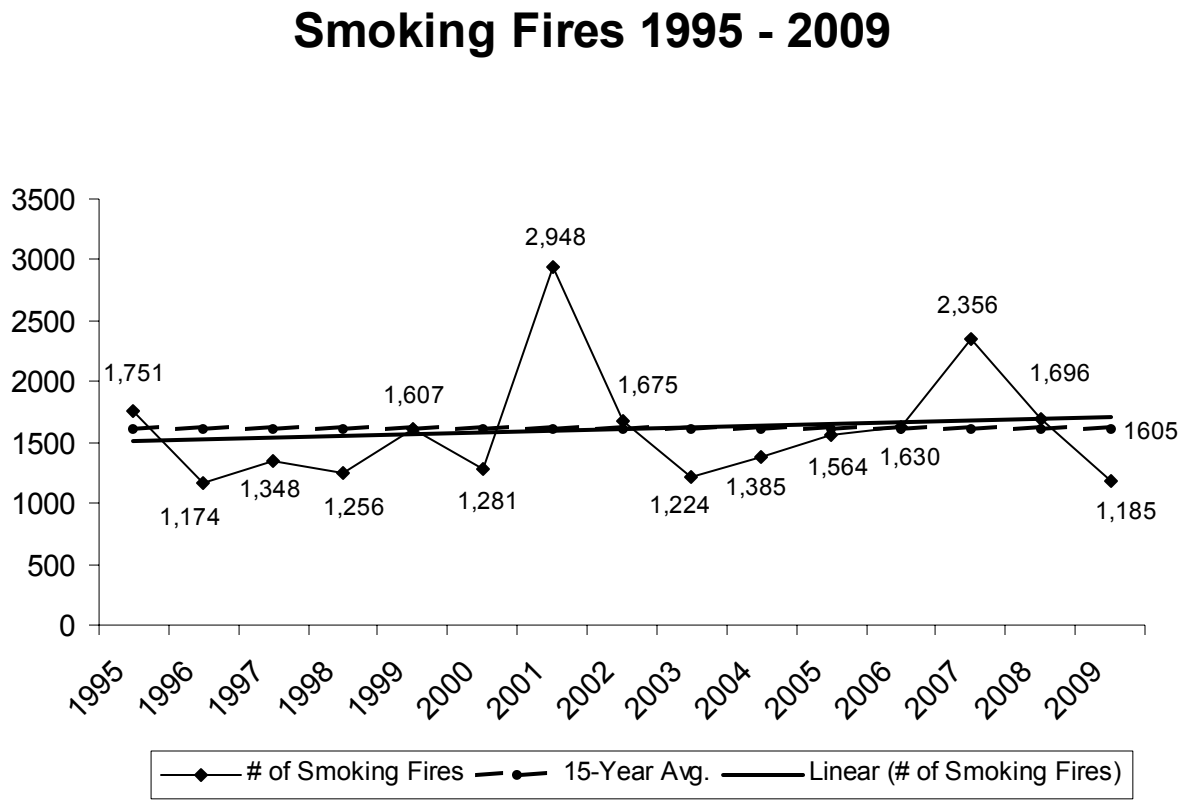
Smoking Caused 4% of Fires and 25% of Deaths
During 2009, 1,185, or 4%, of the 28,595 reported incidents were caused by the improper use or disposal of smoking materials. These 1,185 fires caused nine, or 25% of the 36 civilian deaths and nine, or 30%, of the 30 structure fire deaths, 22 civilian injuries, 31 fire service injuries, and an estimated dollar loss of $13 million. The average dollar loss per fire was $10,937. The number of smoking fires decreased by 511, or 30%, from 1,696 in 2008.

402 Structure Fires - Down From 493 In 2008
The 1,185 fires caused by smoking included: 402 structure fires, down 91 from 493 in 2008; 42 motor vehicle fires, down two from 44 in 2008; 536 tree, brush or grass fires, down 339 from 875 in 2008; 60 trash or rubbish fires, down 21 from 81 in 2008; 60 special outside fires, down 77 from 137 in 2008; two cultivated vegetation or crop fires, down 10 from 12 in 2008, and 83 fires that could not be classified further, up 29 from 54 in 2008.

The total number of fires caused by smoking has decreased by 521, or 30%, from 2008. The largest decrease came in brush fires, with a decrease of 339, or 39%, from the 875 reported in 2008. Structure fires also saw a significant decrease in fires started by smoking materials. They decreased by 91, or 18%, for the 493 reported in 2008.

This drop in smoking related fires continues the decreasing trend started in 2008 and continues to go against the previous increasing trend started in 2003.

Over the last 15-year period, smoking fires have had a slightly increasing trend. In 2007 there was a sudden spike in the number of smoking related fires, predominantly outdoor brush fires caused by smoking materials. The two year drop from 2007 to 2009 should be viewed cautiously and interpreted as a return to an average year's worth of these types of fires after a one year spike. The 2009 number is the lowest number of recorded smoking fires on record since 1986 and one that is far below the 15 year average or 1,605 smoking fires.

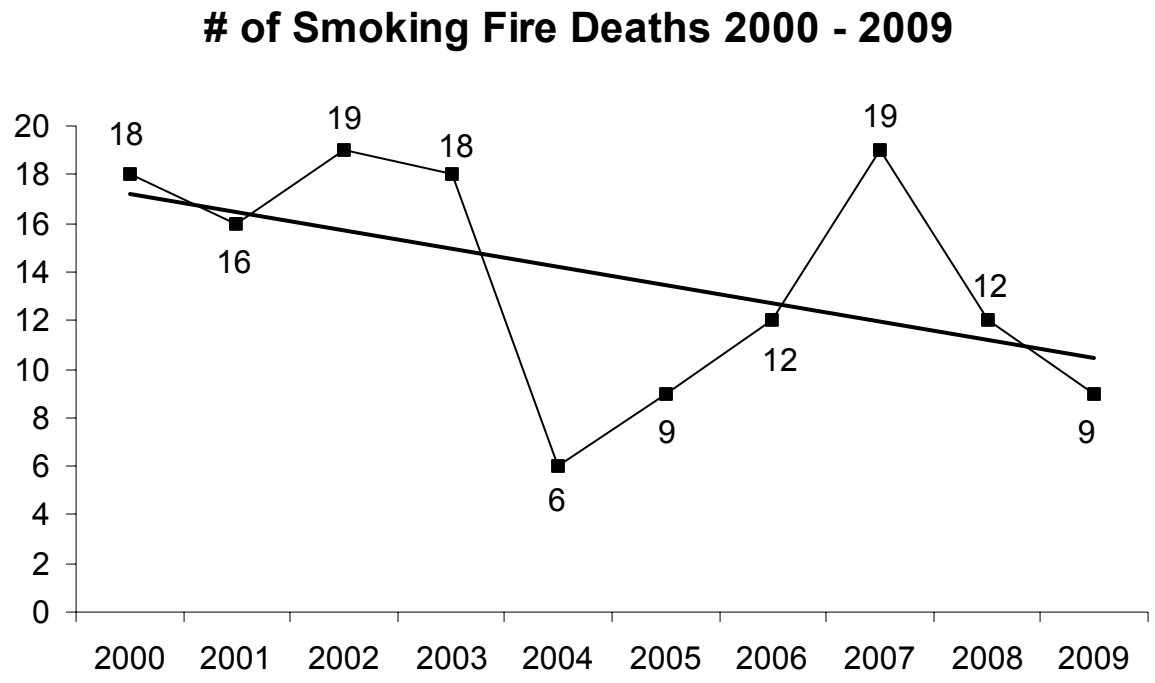


85% of All Smoking Building Fires Occurred in Residences
Eighty-five percent (85%) of all smoking-related building fires occurred in residential occupancies. The occupancies with the next highest percentages of smoking-related structure fires in Massachusetts in 2009 were storage facilities and special properties each accounting for 3%.

An explanation for this are the 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. People may now be more likely to smoke more heavily at home because it is one of the few 'sanctuaries' where they can do so.

Smoking is the Leading Cause of Fire Deaths
The 402 smoking-related structure fires caused all of the nine smoking-related fire deaths, 18 civilian injuries, 29 fire service injuries, an estimated dollar loss of $12.7 million and an average dollar loss of $31,665. Smoking fires accounted for 30% of the fatal structure fires and 35% of structure fire deaths in 2009. The unsafe and improper use of smoking materials caused 35% of residential structure fire deaths and 30% of fatal residential structure fires. Seven (7), or 47%, of the 15 home fire deaths to seniors (over 65) were caused by smoking.

2009 is 35% Below the 10-Year Average of Smoking Fire Deaths
In 2009, nine people died in smoking-related fires of all types. These nine deaths are 35% below the 10-year average of 14 smoking-related fire deaths per year since 2000. 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, 12 people died in smoking-related fires of all types, and in 2008 there were 12 smoking-related fire deaths.



No Working Detectors in 38% of Fatal Smoking Fires
In three, or 38%, of fatal residential smoking fires, there were no working smoke detectors; two of these incidents occurred where smoke detectors did not operate; and one of these deaths occurred where there was no detector present at all. One (1) smoking fatal fire occurred in a structure where smoke detectors were present and operated, however this victim was intimately involved with the ignition when she fell asleep while smoking on home oxygen. The smoke detectors helped prevent these fires from claiming any additional lives. In the four other fires, the smoking-related death occurred where smoke detector status was undetermined.

For a listing of all the smoking-related fire deaths in 2009, please refer to the *2009 Massachusetts Fire Deaths* section of this report.

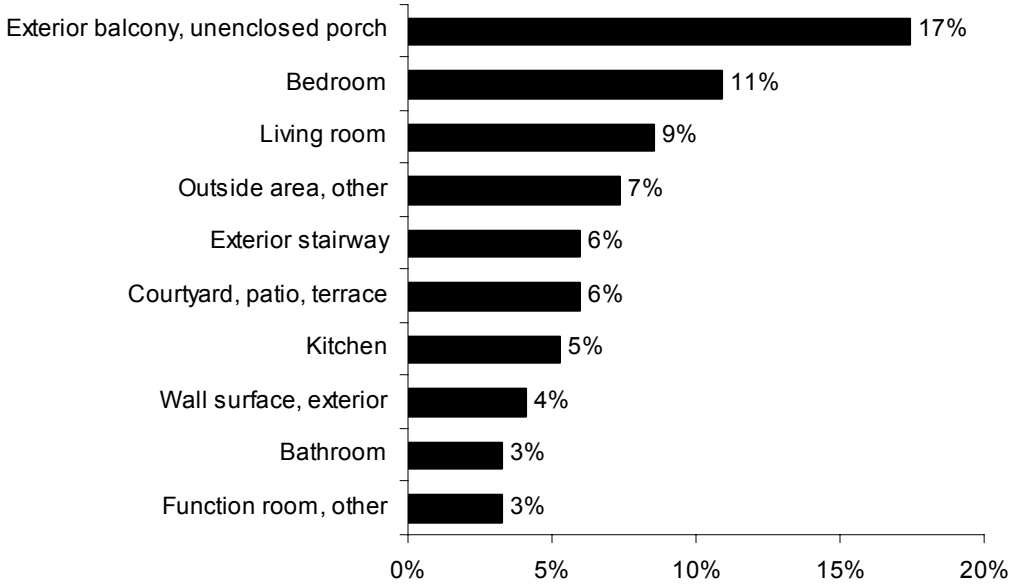
Smoking on Oxygen
The use of oxygen while smoking caused three of the smoking-related structure fire deaths in 2009. These three deaths occurred in three separate fires in Whitman, Fitchburg and Quincy. One (1) of these deaths occurred in a single-family home, another occurred in a two-family home and the last one happened in an apartment building.

85% of Building Smoking Fires Occurred in Residences
Of the 402 smoking-related building fires, 339, or 85%, occurred in residences. Smoke detectors operated in 38% of the smoking-related residential structure fires. Detectors were present but failed to operate in 4% of these incidents. No smoke detectors were present in 10% of these incidents. In 17%, the fire was too small to activate the smoke detector. It was undetermined if the detectors were present or if they operated in 31% of these fires.

44% of Smoking Fires in the Home Start in the Exterior
The number of exterior areas of origin in residential smoking fires continued to increase in 2009. These exterior area of origins accounted for 149, or 44%, of all residential smoking fires. 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. In 2008, only 33% of residential smoking fires started in these exterior areas.

The leading areas of origin were exterior balconies or porches, where 17% of residential smoking fires occurred; bedrooms, where 11% of the fires occurred; living rooms, where 9% of the fires occurred; unclassified outside areas, where 7% of the fires occurred; exterior stairways and courtyard, patios or terraces, where each accounted for 6%; kitchens, where 5% started; exterior wall surfaces where 4% started; and bathrooms and unclassified function rooms where each the area of origin for 3% of residential smoking fires. This is the second year where bedrooms were not the leading area of origin for smoking fires.

2009 Residential Smoking Fires Area of Origin



Fire Standard Compliant Cigarettes

In January of 2008, the Resistant Ignition Propensity (RIP) 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. However by the end of 2009 all Northeast and Mid-Atlantic states had enacted legislation that made the sale of fire standard cigarettes mandatory[62]. By the end of 2009 only Wyoming did not enact a version of this legislation. On January 1, 2011, every state except Wyoming will have 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 items first ignited by smoking fires in the home was rubbish, trash or waste, accounting for 17% 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

[62] From the Coalition for Fire-Safe Cigarettes.

standard cigarettes may have little or no impact on trash fires, as they are not designed to resist igniting these items. Twenty percent (20%) of smoking fires ignited upholstered furniture and bedding. Fire standard compliant cigarettes cannot prevent every cigarette caused 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 2009, 4% of these fires ignited light vegetation, mostly potted plants on balconies or porches

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.

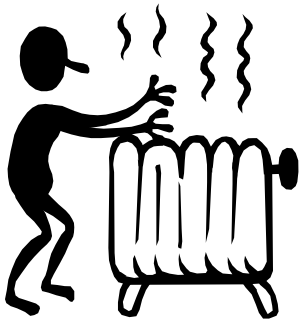
Never Smoke Where Oxygen is in Use
No smoking should ever be permitted in a home where oxygen is in use. The oxygen-enriched environment increases the speed at which the fire will burn once it starts. "Most materials will ignite at considerably lower temperatures in oxygen-enriched environments than in air, and once ignited, combustion rates are greater in oxygen-enriched environments."[63]

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

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

Illegal to Throw Cigarettes Out Car Window
The improper disposal of smoking materials has been a major problem to 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."

Heating Equipment Fires



2,685 Fires, 4 Civilian Deaths, 23 Civilian Injuries
Massachusetts fire departments reported that some form of heating equipment was involved in 2,685, or 15%, of the 17,773 building fires in 2009. These heating equipment fires caused four civilian fire deaths, 23 civilian injuries, 24 fire service injuries, and an estimated dollar loss of $7.5 million. The average loss per fire was $2,782.

94% of All Heating Fires Were Confined Fires
In 2009, 94% of heating fires were confined to the container of origin. One thousand six hundred and thirty-two (1,632), or 61% of all heating related building fires in Massachusetts, were coded as fuel burner/boiler malfunction, fire contained. Eight hundred and eighty-four (884), or 33%, were determined to be chimney or flue fires, confined to the chimney or flue.

The number of contained heating fires fell in 2009. Confined heating equipment fires decreased by 67 incidents, or 3%, from the 2,583 reported in 2008.

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 (which caused fires), 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	1,649	59%	3	3	0	1	$821,277
Confined	*1,553*	*58%*	*2*	*3*	*0*	*0*	*$362,025*
Furnace, central heating unit	*39*	*1%*	*1*	*0*	*0*	*1*	*332,352*
Boiler (power, process, heating)	*20*	*1%*	*0*	*0*	*0*	*0*	*126,900*
Chimney, flue	904	34%	2	2	0	0	1,343,535
Confined	*860*	*32%*	*1*	*1*	*0*	*0*	*168,334*
Chimney, brick, stone, masonry	*17*	*1%*	*0*	*0*	*0*	*0*	*10,912*
Chimney, metal, incl. stovepipe	*16*	*1%*	*0*	*1*	*0*	*0*	*744,700*
Fireplace, chimney, other	*10*	*0.4%*	*1*	*1*	*0*	*0*	*65,001*
Chimney connector, vent connect.	*1*	*0.04%*	*0*	*0*	*0*	*0*	*180,000*
Fixed, local heating	51	2%	4	4	0	2	1,030,160
Stove, heating	*48*	*2%*	*4*	*4*	*0*	*2*	*1,009,160*
Furnace, local heat. unit, built-in	*3*	*0.1%*	*0*	*0*	*0*	*0*	*21,000*
Water heater	12	0.4%	1	1	0	0	1,429,500
Fireplace	12	0.4%	10	4	0	0	1,468,000
Fireplace, masonry	*4*	*0.1%*	*9*	*0*	*0*	*0*	*1,143,000*
Fireplace, factory built	*1*	*0.04%*	*0*	*0*	*0*	*0*	*22,000*
Fireplace insert/stove	*7*	*0.3%*	*1*	*4*	*0*	*0*	*303,000*
Space heaters	17	1%	1	2	0	0	402,650
Portable space heaters	*10*	*1%*	*1*	*2*	*0*	*0*	*206,900*
Heating, vent. & air cond., other	34	1%	0	7	0	0	571,600
All other reported equipment	18	1%	4	8	0	1	2,515,352
Total	**2,685**	**100%**	**24**	**23**	**0**	**4**	**$7,468,722**

Central Heating Units

1,649 Fires, 1 Civilian Death & 3 Civilian Injuries

Central heating units[64] were involved in 1,649 structure fires in 2009. These fires caused one civilian death, three civilian injuries, three fire service injuries, and an estimated dollar loss of $821,277. The average loss per fire was $498. One thousand six hundred and thirty-two (1,632) of these fires involving central heating units were confined fires.

11% Caused by Mechanical Failures or Malfunctions

Of the 175 central heating unit fires where Factors Contributing to Ignition was completed, 11% were caused by mechanical failures or malfunctions; 4% were caused by backfires; another 4% were caused by automatic control failures; 2% were caused when

[64] 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.

combustibles were placed too close to the heater; a failure to clean the equipment and the equipment being worn out each also caused 4% of these fires in 2009.

Forty-one (41), or 43%, of the 96 central heating unit fires where the power source was known were caused by liquid-fueled equipment. These fires caused one civilian death, one civilian injuries and an estimated dollar loss of $327,000. The average loss per fire was $7,976.

Thirty-four (34), or 36%, were caused by electrically powered equipment[65]. Seventeen (17), or 18%, of the central heating unit fires were caused by gas-fueled equipment; and three, or 2%, 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

904 Fires Caused 2 Fire Service Injuries & $1.3 Million in Damages

Nine hundred and four (904) building fires involved chimneys[66], gas vent flues, chimney connectors or vent connectors. These 904 fires caused two civilian injuries, two fire service injuries and an estimated dollar loss of $1.3 million. The average dollar loss per fire was $1,486.

Eight hundred and eighty-four (884) of these chimney or flue fires were confined to the chimney or flue. Eight hundred and seventeen (817) of these did not report any equipment involved or they were reported using only a Basic Module.

Twenty-one percent (21%) of the 182 fires where Factors Contributing to Ignition was reported, were caused by a failure to clean the creosote buildup; 2% were when combustibles were too close to the chimney or flue; and another 2% were caused by installation deficiencies.

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

[66] 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. Before using your chimney again, have the chimney inspected by a professional after chimney fire.

Fixed Heater Fires

51 Fires, 2 Civilian Death, 4 Civilian Injuries & $1 Million
Fifty-one (51) fixed heater structure fires caused two civilian deaths, four civilian injuries, four fire service injuries and an estimated dollar loss of $1 million. The average dollar loss per fire was $20,199.

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.

20% Caused by Combustibles Being Too Close to the Heat Source
Twenty percent (20%) of fixed heater fires were caused by combustibles being too close to the heat source. Twelve percent (12%) were caused from the heater being left unattended. Failure to clean the equipment caused 10%; and an unclassified misuse of materials caused 6% of the fixed heater fires in 2009.

Electrical powered fixed heaters caused 23, or 46%, of these fires and were responsible for one civilian injury, two fire service injuries and a dollar loss of $428,060. Twelve (12), or 24%, were caused by gas-fueled fixed heaters and they were responsible for two fire service injuries and a dollar loss of $68,000. The average loss per fire was $5,667. Fifteen (15), or 30% of fixed heater fire incidents in 2009, involved solid fueled fixed heaters, 12 of which were wood fueled. These fires caused two civilian deaths, two civilian injuries and an estimated dollar loss of $532,850 and the average dollar loss was $35,523. There was one fire where the power source of the fixed heater was undetermined. This was excluded from the calculations.

Install Wood Stoves According to Building Code Standards
A homeowner must obtain a building permit prior to installing a wood 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, a black

tarry fire by-product, 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 outdoors, away from the house, porch or other outside buildings. Hot ashes may stay "live" for 24 hours.

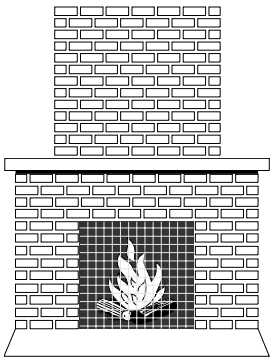
Fires Caused by Hot Water Heaters

12 Fires, 1 Civilian Injury & $1.4 Million in Damages
Twelve (12) structure fires were caused by hot water heaters[67] in 2009. These 12 fires caused one civilian injury, one fire service injury and an estimated dollar loss of $1.4 million. The average dollar loss per fire was $119,125. Combustibles being too close to the water heater caused 25% of these fires. Thirty-three percent (33%) were ignited from a spark, ember or flame from operating equipment; and 17% of these fires were started by arcing.

Sixty-seven percent (67%) were identified as gas fueled water heaters. Thirty-three percent (35%) of the 12 fires involving hot water heaters were identified as electric powered water heaters.

Fires Caused by Fireplaces

12 Fires, 10 Fire Service Injuries & $1.5 Million in Damages
Twelve (12) fireplaces[68] were involved in Massachusetts structure fires in 2009. These 12 fires caused four civilian injuries, 10 fire service injuries and an estimated dollar loss of $1.5 million. The average dollar loss per fire was $122,333.



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

Installation deficiencies caused 33% of fireplace fires. Eight percent (8%) were caused when combustibles were placed too close to the fireplace, another 8% were from an arcs from the equipment, 8% were also from a failure to clean the water heater, 8% from an unclassified operational deficiency, and 8% from an unclassified electrical failure or malfunction.

Nine (9), or 75%, of fireplaces involved in fires were solid-fueled. Two (2), or 17%, of these fireplaces were gas fueled. One (1) incident, or 8% was electric.

Space Heater Fires

17 Fires, 2 Civilian Injuries & $402,650 in Losses
Space heaters of all kinds accounted for 17 fires and caused two civilian injuries, one fire service injury, and an estimated dollar loss of $402,650. The average dollar loss per fire was $23,685.

Portable Space Heater Fires

10 Fires, 2 Civilian Injuries & 206,900
Ten (10) portable space heater[69] fires caused two civilian injuries, one fire service injury and an estimated dollar loss of $206,900. The average dollar loss per fire was $20,690. The heater being too close to combustibles caused 40% of these fires. Overloaded equipment caused 30%; and electrical failures, unattended equipment and spilled flammable gas each caused 10% of the space heater fires in 2009.

Six (6), or 67% of the portable heaters involved in fires were electric; two, or 22%, were gas-fueled; and one, or 11%, was liquid-fueled.

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 (2005– 2009), there have been 59 reported residential fires started by portable space heaters with eight civilian deaths, seven civilian injuries, 14 fire service injuries and almost $3 million in estimated losses resulting from these fires. That is one fire death for every seven 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.

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

- Keep the heater three feet away from drapes, furniture or other things that can burn. Place it on a level surface away from areas where a person or a pet might bump it and knock it over.
- If you must use an extension cord, make sure it is a heavy-duty cord marked with a power rating as least as high as that on the label of the heater itself.
- Never leave a space heater unattended or running while you sleep.
- Keep electric heaters away from water. Never use them near a sink or in the bathroom.
- Do not use space heaters to thaw pipes. They were not designed for this task. Space heaters must be kept at least 3 feet away from any combustibles including walls and wall coverings.

According to MGL Chapter 148, Section 5A, 25A and 25B, the sale and use of liquid-fired unvented space heaters using kerosene, range oil, number one fuel oil, or any oil as fuel are illegal in Massachusetts. The use of unvented space heaters using natural gas or propane gas as fuel is acceptable only if they meet the requirements of 527 CMR 30.00.

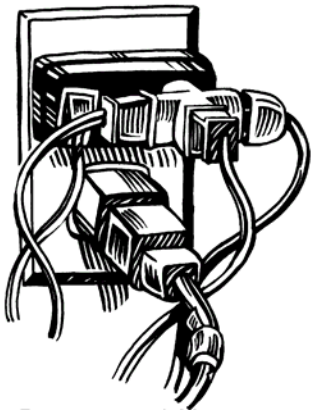
Fires Caused by HVAC, Other

34 Fires, 7 Civilian Injuries and $571,600 in Damages
Thirty-four (34) structure fires were caused by unclassified heating, ventilation and air conditioning equipment (HVAC, other)[70] in 2009. These 34 fires caused seven civilian injuries and an estimated dollar loss of $571,600. The average dollar loss per fire was $16,812. Unclassified mechanical failures and combustibles placed too close to the equipment each caused 9% of these fires. Worn out equipment, unspecified short-circuit arcs, and unclassified electrical failures or malfunctions each caused 6% of these fires.

Seventy-eight percent (78%) of the 34 fires involving unclassified heating, ventilating or air conditioning equipment were identified as electric powered. Nineteen percent (19%) were identified as gas-fueled equipment, and 3% were identified as liquid-fueled equipment. The power source was unknown for two of these incidents. These two were not included in the above calculations.

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

Electrical Fires



632 Electrical Fires Caused 8 Civilian Deaths
Local fire departments reported that there were 632 structure fires caused by electrical problems in Massachusetts in 2009. These fires caused eight civilian deaths, 43 civilian injuries, 79 fire service injuries and an estimated dollar loss of $23.6 million, 13% of the total dollar loss to fire in 2009. The average loss per fire was $37,417.

Electrical Fires Were the 2nd Leading Cause of Fire Deaths
Electrical fires were the second leading cause of structure fire deaths in 2009. Five (5) fatal electrical fires, or 22% of fatal structure fires, caused eight, or 27%, of structure fire deaths in 2009. In 2005, electrical fires were 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 Almost 1/3 of Electrical Fires[71]
Almost one-third of electrical fires caused by unspecified electrical failure. One hundred and eighty-eight (188), or 30% of electrical fires, were caused by an unclassified electrical failure or malfunction. One hundred and twelve (112), or 18%, were caused by an unspecified short circuit arc. Eight percent (8%), or 48 of these fires, had a short circuit arc from defective or worn insulation. An arc or spark from operating equipment caused and an arc from a faulty contact or broken conductor each caused 23, or 4% of these fires. Mechanical failures caused 17, or 3% of these electrical fires. Another 3% or 16 of the fires, were caused by overloaded equipment. The heat source being too close to combustibles also caused 14, or 2%, of these fires. Thirteen (13), or 2%, of electrical fires were caused by a short circuit arc from mechanical damage. Another 13, or 2%, of electrical fires were caused by an arc from a faulty contact or broken conductor. Water caused a short circuit arc in 11, or 2%, of electrical fires in 2009.

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

Electrical Equipment Fires

Three hundred and nine (309), or 49%, of the 632 electrical fires reported the type of equipment involved in ignition. These 309 fires caused eight civilian deaths, 24 civilian injuries, 36 fire service injuries and an estimated dollar loss of $9.6 million. The average dollar loss per fire was $31,041.

95 Electrical Service, Wiring, Meter Boxes & Circuit Breaker Fires
The most common reported equipment involved in ignition in 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 95, or 31%, of the fires. These fires caused three civilian deaths, five civilian injuries, 12 fire service injuries and an estimated dollar loss of $3.7 million. The average dollar loss per electrical wiring fire was $39,189.

Lamp, Lighting Fixtures Involved in 51 Fires
Lamps and other lighting fixtures were involved in 51, or 17%, of electrical equipment fires where equipment involved in ignition was reported. These fires caused four civilian deaths, six civilian injuries, nine fire service injuries and an estimated dollar loss of $1.5 million. The average loss per fire was $29,238.

42 Fires Involving Kitchen & Cooking Equipment
Forty-two (42) electrical equipment fires involving kitchen or cooking equipment caused one fire service injury and an estimated dollar loss of $992,380. These fires accounted for 14% of the structure fires involving electrical equipment when equipment involved in ignition was reported. The average dollar loss per fire was $23,628.

Cords or Plugs Caused 32 Fires
Thirty-two (32), or 10%, of the structure fires where electrical equipment involved was reported were caused by cords or plugs. These fires caused three civilian injuries, six fire service injuries and an estimated dollar loss of $1.1 million. The average dollar loss per fire was $34,951.

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 309 electrical structure fires where equipment involved in ignition was reported. These 21 fires caused five fire service injuries and an estimated $687,986 in damages. The average dollar loss was $32,761.

Ventilation & Air Conditioners Caused 21 Fires
Twenty-one (21), or 7%, of the structure fires involving known electrical equipment were caused by air conditioning or ventilation units. These fires caused one civilian injury, one fire service injury and an estimated dollar loss of $535,050. The average dollar loss per fire was $25,479.

Heating Equipment Caused 12 Fires[72]
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 one civilian death, two fire service injuries and an estimated dollar loss of $254,150. The average dollar loss per fire was $21,179.

Transformer, Generator, Battery or Chargers Caused 11 Fires
Transformers, generators, batteries and chargers were involved in 11, or 4%, of the electrical fires where equipment involved in ignition was reported. These fires caused three civilian injuries and an estimated dollar loss of $336,000. The average loss per fire was $30,545.

5 Fires Involving Commercial or Medical Equipment
Five (5) electrical fires involving commercial or medical equipment caused two civilian injuries and an estimated dollar loss of $20,600. This fire accounted for less than 2% of the structure fires involving electrical equipment. The average dollar loss per fire was $4,120.

5 Fires Involving Unspecified Electrical Distribution Equipment
Five (5) electrical equipment fires involving unspecified electrical distribution equipment caused four civilian injuries and an estimated dollar loss of $50,750. These fires accounted for 2% of the building fires involving reported electrical equipment. The average dollar loss per fire was $10,150.

5 Fires Involving Electronic & Other Electrical Equipment
Five (5) electrical equipment fires involving electronic and other electrical equipment caused an estimated dollar loss of $20,500. These fires accounted for 2% of the structure fires involving reported electrical equipment. The average dollar loss per fire was $4,100.

5 Fires Involving Shop Tools & Industrial Equipment
Five (5) electrical fires involving shop tools or industrial equipment caused an estimated dollar loss of $11,100. These fires accounted for 2% of the structure fires involving electrical equipment. The average dollar loss per fire was $2,220.

2 Fires Involving Decorative Lighting & Signs
Two (2) electrical fires involving decorative or landscaping lights or electric signs caused an estimated dollar loss of $770. These fires accounted for 1% of the structure fires involving electrical equipment. The average dollar loss per fire was $385.

2 Fires Involving Garden Tools & Agricultural Equipment
Two (2) electrical fires involving garden tools and agricultural equipment caused an estimated dollar loss of $350,000. These fires accounted for 1% of the structure fires involving electrical equipment. The average dollar loss per fire was $175,000.

[72] Six (6) of these fires are stationary electric space heaters fires.

323 Unspecified Electrical Equipment Fires Caused $14 Million in Damages
There were 323 electrical fires where the piece of equipment involved in ignition was unknown or not reported. These 323 fires caused 16 civilian injuries, 34 fire service injuries and an estimated dollar loss of $14 million. The average dollar loss per fire was $43,517.

Large Loss Electrical Fire
There was one large loss ($1 million+) electrical fire in 2009. This fire caused an estimated $1.1 million in damages, accounting for 4% of the total dollar of electrical structure fires in 2009. There were also 84 fires with estimated damages between $100,000 and $999,999.

- On May 25, 2009 at 6:37 a.m., the Middleborough Fire Department was called to an electrical fire in a church. The fire was started by an electrical failure inside a first floor wall assembly. Three firefighters were injured at this fire. Detectors were present and operated, but the building was not sprinklered. Damages from this fire were estimated to be $1.1 million.

Electrical Fire with Most Civilian Injuries
- On January 18, 2009 at 9:14 a.m. the New Bedford Fire Department was called to an electrical fire in a four-unit apartment building. The fire started when lightning struck an awning and traveled to the building's electrical distribution equipment. There were three civilian injuries at this fire. Detectors were present and alerted the occupants. The building was not sprinklered and damages from this fire were estimated to be $7,500.

Electrical Fire with 3 Civilian Deaths Also Had Most Fire Service Injuries
- On March 25, 2009 at 3:05 a.m., the Quincy Fire Department was called to a fatal electrical fire in a six-unit apartment building. The fire was caused by a faulty lamp that had already been banned in Europe. The victims, a 45-year old man and his 2-month and 1-year old sons were sleeping in their basement apartment at the time of the fire. They were overcome by the heat and smoke. The victims' wife and mother also received life-threatening injuries at this fire. Six firefighters were also injured at this fire. Detectors were present but failed because of a power failure. Sprinklers were not present. Damages were estimated to be $200,000.

Over 3/4 of Electrical Fires Occurred in Residential Occupancies
Over three-quarters of electrical fires occurred in residential occupancies. Of the 632 electrical fires, 493, or 78% occurred in residential occupancies. Fifty-three (53), or 8%, occurred in mercantile or business properties, such as offices, banks, retail stores or markets. Public assembly buildings like restaurants, libraries and courthouses accounted for 26, or 4%, of these fires. Storage properties accounted for 21, or 3%, of these fires. Educational properties accounted for 10, or 2%, of Massachusetts' electrical fires in 2009. Institutional buildings such as hospitals and asylums had nine, or 1%, of the electrical fires occur on their premises. Six (6), or 1%, of Massachusetts' electrical fires occurred in basic industry properties such as laboratories, communications centers, electrical

distribution sites and utility and distribution centers. Manufacturing or processing facilities had six, or 1%, of these incidents. Five (5), or 1%, of electrical fires occurred in special or outside properties

Over 1/4 of Electrical Fires Began in the Kitchen or Bedroom
Twenty-eight percent (28%) of electrical fires began in the kitchen or bedroom. Ninety-four (94), or 15%, originated in the kitchen. Eighty (80), or 13%, of the 632 electrical fires occurred in the kitchen. The ceiling and floor assembly or crawl space between stories accounted for 8%, or 50, of these electrical fires. A wall assembly or concealed wall space was the area of origin for 34, or 5%, of these fires. The bathroom accounted for 5%, or 31, of the electrical fires. Living rooms, accounted for 29, or 5%, of the electrical in Massachusetts in 2009.

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 over one-third of electrical fires. In 202, or 32% 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 90, or 14% of these fires, a structural member or framing, was the first item ignited. Exterior sidewall coverings, thermal or acoustical insulation within a wall and unclassified structural components were each the item first ignited in 4% of electrical fires in 2009. Appliance housings or casings, interior wall coverings and clothes not on a person were each the item first ignited in 3% of electrical fires in 2009. Bedding, floor coverings and unclassified furniture or utensils were each the item first ignited in 2% of electrical fires in 2009.

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.

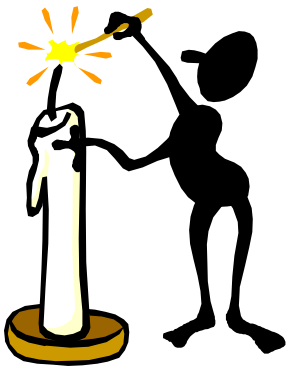
Fuses and circuit breakers are safety devices. They blow or trip when the amount of current cannot safely travel through the wires. *Trying to bypass the fuse or circuit breaker protection is an invitation to danger.*

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

130 Candle Fires Caused 13 Civilian & 20 Fire Service Injuries
In 2009, candles caused 130 fires of all types. These fires caused 13 civilian injuries, 20 firefighter injuries and an estimated dollar loss of $4 million in damages. There was an 18% decrease from the 158 fires of all types started by candles in Massachusetts in 2008.



Over 3/4 of Candle Fires are Structure Fires
Of the 130 candles fires in 2009, 102, or 78%, were classified as structure fires. None were reported as motor vehicle fires. Four, or 3%; were brush fires; one, or 1%, was a special outside fire; another fire, or 1%, was an outside rubbish fire; and 22, or 17%, were unclassified fires.

Candle Fires Happen Most During the Holidays
Between 2005 and 2009, the day of the year the most candle fires occurred was December 24, Christmas Eve, with 12 candle fires. December 12 had nine candle fires and October 31, Halloween and December 19 each had the third most candle fires during any one day of the year during the past five years with eight.

Boston Has Largest Loss Candle Fire
On August 16, 2009, at 8:42 a.m., the Boston Fire Department was called to a candle fire in a three-unit apartment building. The fire started when an unattended candle tipped over onto an upholstered chair on the exterior balcony of the first floor apartment. No one was injured in this fire. Smoke detectors were present but it was undetermined if they operated and the building was not sprinklered. The fire extended to two other buildings. Total damages to all three buildings were estimated to be $905,000.

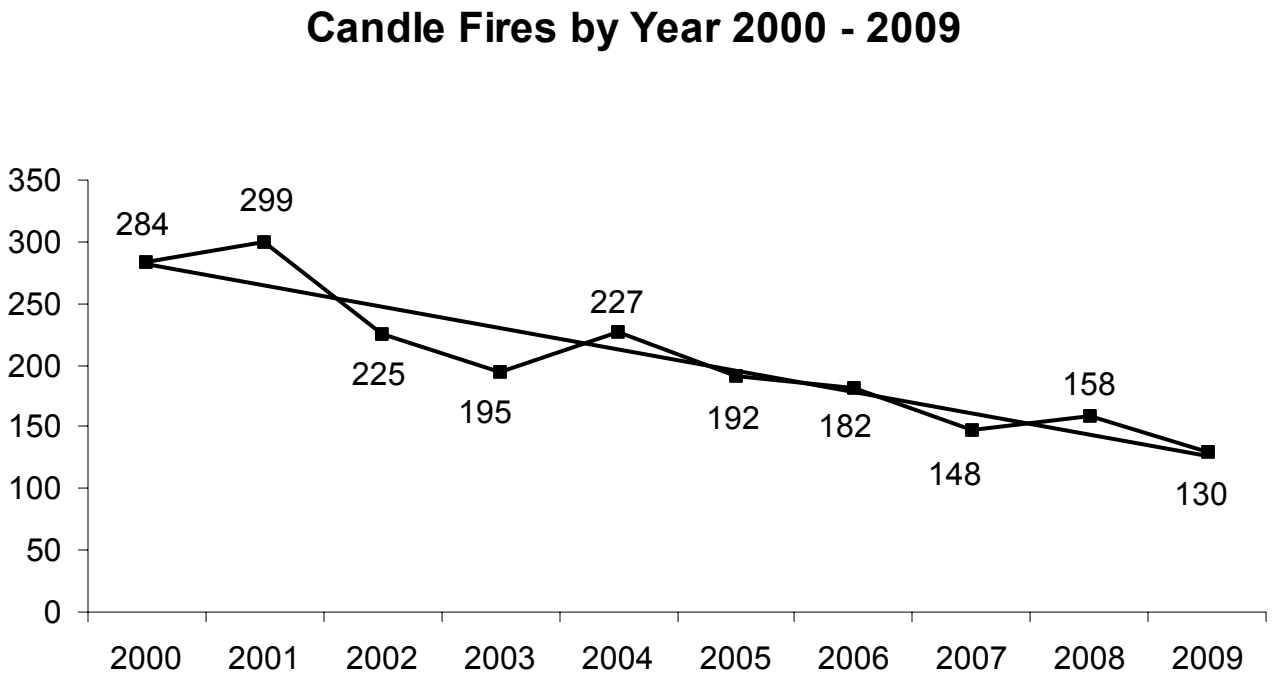
97% of Candle Fires Occurred in Homes
Of the 102 candle fires that occurred in buildings, 97% were residential fires. Candles caused 98 residential building fires, 11 civilian injuries, 20 firefighter injuries and an estimated dollar loss of $4 million. One (1) candle fire, or 1%, occurred in public assembly properties, and two fires, or 2%, occurred in special properties.

29% of Candle Fires in Homes Occurred in the Bedroom
Of the 98 candle fires in residential structures, 29% occurred in the bedroom. Fifteen percent (15%) occurred in the kitchen; 14% occurred in the living room; another 14% happened in unclassified function rooms such as three-season rooms; 9% started in the bathroom; and 4% occurred in closets. It is all too easy to fall asleep and leave a candle burning unattended in the bedroom.

Smoke Detectors Operated in Almost 2/3 of Candle Fires in Homes
Of the 98 candle fires in homes, smoke alarms operated in 66%. Smoke detectors were present but did not operate in 6% of these incidents. No detectors were present in 5% of candle fires in people's homes. Eight percent (8%) of the candle fires were too small to activate the smoke detector. In 15 incidents, or 15%, the smoke detector status was undetermined.

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.

Candle fires had become a serious problem in Massachusetts during the decade of the 1990's, nearly tripling from 93 incidents in 1990 to an all time high of 342 in 1999. The following chart shows candle fires over the past decade decreasing from the peak of 342 candle fires in 1999 to 130 in 2009. In 1999, a new effort to analyze these incidents began. In conjunction with the National Fire Protection Association (NFPA), the Office



of the State Fire Marshal conducted a follow-up survey that went out to any fire department having a candle fire for one year. The goal was to gain a greater understanding of these incidents, why they are happening and what we can do to prevent them.

Major findings from the report were:

- 75% of the fires occurred when the candle was left unattended.
- 40% of the fires resulted from combustible materials being too close to the candle.
- Teenagers face the greatest risk of starting candle fires. Although teens account for only 9% of the state population, 21% of the candle fires were attributed to them. Two-thirds of candle users, however, were between 20 and 64 years old.
- 98% of the candles used in Massachusetts' candle fires were not needed as sources of light but were used for other purposes such as decoration, pleasure or mood.

There has been a downward trend in candle fires since the year 2000. Stronger public education and tougher industry standards are the main reasons for this downturn. From 2000 to 2009 there was 54% decrease in candle fires. In 2000, State Fire Marshal Coan began reaching out to candle manufacturers and retailers in Massachusetts to ask for their help in educating consumers on candle fire safety and to highlight and separate fire safety information from other fire safe use tips. He also asked them to adopt the candle **Circle of Safety** logo, to use it in their printed materials and on their webpages.

The initial downward trend was contrary to the national trend of increasing candle fires, especially in residences in the late 1990's and early 2000's. Since 2002 this downward trend has taken on nationally. According to the NFPA's most recent statistics[73], candles started 4% of fires in homes. In Massachusetts candle fires only represent 1% of total residential building fires.

[73] Ahrens, Marty, "Home Candle Fires," NFPA, Quincy, MA (September, 2007); pg. i.

A recent National Candle Association's (NCA), Safety Committee report[74] suggests that the new fire safety standards that the committee created since 1997 have been a major factor in this decline of fires. From developing an industry wide terminology standard, to creating warning labels to help educate consumers on the proper use of candles, to the development of a glass standard which put requirements on glass containers used for filled candles, the candle industry has tried to reduce the number of fires started by their product.

And it seems to be working. Although nationally candle fires accounted for proportionately more residential fires than they have in Massachusetts, the NFPA statistics show that residential candle fires have been decreasing from a high of 18,900 fires in 2001 to a low of 12,700 fires in 2007[75], a 33% 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 & $1.8 Million in Damages

Ninety-three (93) clothes dryer fires caused one civilian injury, one firefighter injury, and an estimated dollar loss of $1.8 million. The average dollar loss per fire was $18,893. Of these 93 fires, 75, or 82%, occurred in residential occupancies.

Twenty percent (20%) of the dryer fires were caused by a failure to clean the machines; 9% were caused by mechanical failures or malfunctions; another 9% were caused by electrical failures or malfunctions; operational deficiencies, misuse of materials and unattended dryers each accounted for 3% of dryer fires in the Commonwealth.

61% of Dryers Were Electrical

Sixty-one percent (61%), of the 93 dryers involved in fires were identified as having electricity as their power source. Thirty-five percent (35%) involved gas-fueled clothes dryers. This may be a reflection of the market share of electrical and gas-powered dryers rather than any inherent danger of one power source over another.

[74] Candle Fire Safety Update, (August 2009), NCA Safety Committee, ASTM F 15.45 Candle Products Subcommittee

[75] Ahrens, Marty, "Home Candle Fires," NFPA, Quincy, MA (June, 2010); pg. 1. 2007 is the most recent annual data that the NFPA has analyzed and published as of the writing of this report.

Forty-two percent (42%) of dryer fires identified the heat source as heat coming from the dryer itself but could not be any more specific. Thirty-five percent (35%) of clothes dryer fires identified the heat source as radiated or conducted heat from equipment inside the dryer itself; and 9% identified the heat source as a spark, ember or flame from inside the dryer.

58% of Clothes Dryer Fires Occurred In 1- & 2-Family Homes
Fifty-eight percent (58%) of the dryer fires occurred in one- and two-family homes; 18% occurred in apartments; 13% occurred in mercantile or business properties such as laundry or dry cleaning businesses; 4% occurred in institutional properties such as nursing homes hospitals and jails; 2% occurred in hotels and motels; 2% occurred in dormitories; 1% happened in public assembly properties; and 1% occurred in unclassified properties.

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.

Stoneham Has Largest Loss Clothes Dryer Fire
- On May 30, 2009 at 12:58 p.m., the Stoneham Fire Department was called to a dryer fire in a three-unit apartment building. The fire began in an electrically powered clothes dryer in a second floor laundry room. No one was injured at this fire. Damages from this fire were estimated to be $400,000. Detectors were present and operated, and there were no sprinklers in the building.

Fireworks Incidents

52 Incidents Involving Fireworks Caused $36,050 In Damages
There were 52 fire and explosion incidents reported that involved fireworks in 2009. This is a 25% decrease from the 69 fire and explosion incidents reported in 2008. Incidents involving fireworks caused an estimated $36,050 in property damages. The average dollar loss per fireworks incident was $1,803.

Thirty-five percent (35%) of the fireworks incidents were brush fires, while 20%, were structure fires.

A fireworks explosion without fire is coded as an Incident Type 243 – Fireworks explosion (no fires). In 2009, 32 such incidents were reported.

Almost 1/3 of Fireworks Fires Occurred the Week of July 4th
Six (6), or 30%, of the 20 fireworks-caused fires in 2009 took place during the week of the 4th of July. Five (5) of the six incidents occurred between July 3 and July 5.

Largest Loss Fireworks Fire –Amesbury 1-Family Fire

- On June 8, 2009, at 11:52 a.m., the Amesbury Fire Department was called to a structure fire in a single-family home that was started by fireworks. The fireworks ignited an exterior stairway. Smoke detectors were present and alerted the occupants in the home. No one was injured in this fire. Damages from this fire were estimated to be $22,000.

Refer to M–BIRS Annual Report for More Information about Fireworks Injuries
For more information about the causes of burn injuries, please refer to the *Massachusetts Burn Injury Reporting System — 2009 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 Division Fire Safety are reviewed for possible suspicious circumstances. Gasoline burns, burns on the hands and arms or other unusual scenarios are referred for further investigation.

There were five fireworks-related burn injuries reported to M-BIRS in 2009. These five victims were between the ages of six months and 42-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

55 Incidents Involving Grills in 2009 Caused $190,826 in Damages
In 2009, there were 55 fires and explosion incidents reported to the Massachusetts Fire Incident Reporting System (MFIRS) involving open fired grills. These incidents caused two civilian injuries, and an estimated dollar loss of $190,86. This is a 4% decrease from the 57 grill fires in 2008.

Predictably almost two-thirds, or 65%, 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 55 grill incidents, 50, or 91%, of the grills were gas grills and 9% used solid fuels such as charcoal briquettes. Gas grill fire incidents caused both civilian injuries and an estimated $190,826 in damages. Sixty-four percent (64%) 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.

Lynnfield Had Largest Loss Grill Fire
- On August 18, 2009, at 5:30 p.m., the Lynnfield Fire Department was called to a grill fire at a single-family home. Radiated heat from the LP-gas grill ignited the exterior wall adjacent to the patio. No one was injured at this fire. Detectors were present and alerted the occupants of the home. The building was not sprinklered. Damages from the blaze were estimated to be $100,000.

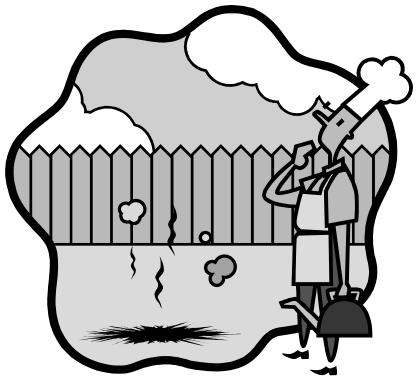
- On August 8, 2009, at 3:36 p.m., the Milton Fire Department was called to a grill fire at a single-family home. Hot embers from the charcoal grill ignited the vinyl siding on an exterior wall adjacent to porch. No one was injured at this fire. Detectors were present but the fire was too small to activate them. The building was not sprinklered. Damages from the blaze were estimated to be $13,000.

- On July 11, 2009, at 5:46 p.m., the Wareham Fire Department was called to a grill fire at a single-family home. Radiated heat from the LP-gas grill ignited the exterior wall adjacent to the porch. One civilian burned his upper extremities when he attempted to extinguish the fire. Detectors were not present. The building was not sprinklered. Damages from the blaze were estimated to be $55,000.

- On April 16, 2009, at 6:28 p.m., the Webster Fire Department was called to a grill fire in a detached residential garage. A LP-gas grill ignited the exterior wall of the garage. No one was injured at this fire. Detectors were not present and the building was not sprinklered. Damages from the blaze were estimated to be $50,000.

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 — 2009 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. Seven (7) civilians were reported to M-BIRS in 2009 with burn

injuries from a grill including two pre-schoolers. One burn occurred in February and June, three burns occurred in July, and one burn also occurred in August and November.



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, 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 2009, 279 fire departments voluntarily reported 15,708 carbon monoxide (CO) incidents; hazards[76], carbon monoxide detector activation due to malfunction[77] and carbon monoxide detector activation – no CO[78]. 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 5,401 confirmed CO hazard incidents.

3% Increase from 2008
There was a 3% increase in reported carbon monoxide incidents between 2008 and 2009. In 2009, the number or reported carbon monoxide incidents increased by 469 calls, or 3%, from the 15,308 calls reported in 2008. Many reasons can explain this increase including but not limited to: an increase in fire departments voluntarily reporting these

[76] Carbon monoxide hazards = Incident Type – 424.
[77] Carbon monoxide detector activation due to a malfunction = Incident Type – 736.
[78] Carbon monoxide detector activation, no CO = Incident Type – 746.

types of calls to MFIRS; a better educated public that may have purchased CO detectors for the first time after the tragedies of the Winter of 2004 – 2005; and the installation of CO detectors because of Nicole's Law, which made them mandatory in most residential occupancies throughout the Commonwealth.

Boston, the largest city in the Commonwealth, reported 545 carbon monoxide incidents, the most CO incidents of any one community where above normal levels of carbon monoxide were found in 2009. The City of Lowell reported the second most CO incidents in 2009, 130 CO calls. The next five cities in terms of the number of carbon monoxide calls reported were: Malden, 119 calls, Springfield, 116 calls, Billerica, 100 calls, Quincy, 94 calls, and Methuen reported 91 carbon monoxide incidents in 2009.

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 10,376 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 forty-two (242) fire departments reported 5,218 CO detector activations due to malfunction. While 240 fire departments reported 5,158 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.

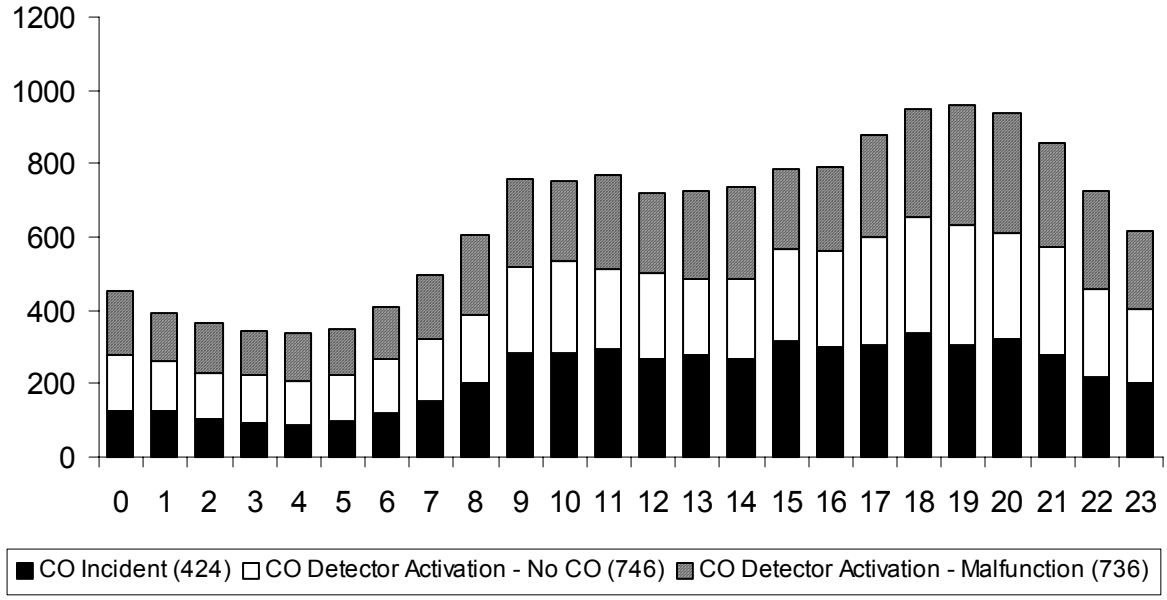
96% of All CO Incidents Occur in Residences

Ninety-six percent (96%) 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, public assembly facilities and educational facilities each accounted for 1% of these calls. Special properties, storage facilities, basic industrial, and manufacturing and processing facilities each accounted for less than 1% of the carbon monoxide calls in 2009.

45% of All CO Calls Occur During the Winter

Forty-five percent (45%) of all the CO calls that occurred in 2009 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.

Carbon Monoxide Calls by Hour



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.

Only a special gas meter can detect if carbon monoxide is present and in what quantities. Because you can't see it or smell it, you may not know that it is there. Human senses don't provide enough information. Carbon monoxide is a by-product of combustion. It is one of the toxic gases produced in a fire. Many people falsely believe they will awaken to the smell of smoke. In fact, when a person falls asleep, so does their sense of smell. Carbon monoxide usually causes fatigue and will put someone into a deeper sleep so that people are less likely to awaken before their life slips away. This is why smoke detectors are so important. Large amounts of carbon monoxide are produced in a fire.

Mapping the Fire Experience

Boston & Worcester Had the Most Reported Fires
Boston reported having the most fires, with 5,547 in 2009. Worcester had the second highest number of reported fires at 1,232. Springfield (955), Cambridge (874), Quincy (531), and Lowell (506), rounded out the top six communities in the Commonwealth in terms of reported fires.

However if we look at the number of reported fires compared to the total population of the individual community we get a different picture. One would expect that the bigger cities and towns to have more fires because of their populations. When we calculate the rate of reported fires for every 10,000 people in a given municipality, the ranking changes. Usually the top communities in terms of number of reported fires fall towards the bottom of the rankings. Communities with one, two or three reported fires take over the top spots. These communities may have a rate that far exceeds that actual number of fires that they reported. For example towns like Alford, Cummington and Tyringham all reported one fire in 2009 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.

2009 Fires per 10,000 Population by Community, on page 166, displays the rate of reported fires by community for every 10,000 of that community's population. The map's legend indicates to which group a municipality belongs. Cities and towns that are blank had 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.

Sandisfield had the highest rate of 182 reported fires per 10,000 population. Next highest was Middleton with 161 fires per 10,000 population; Florida had 148; Tolland had 117; Great Barrington had 116; and Topsfield had 114 fires per 10,000 population.

Boston & Cambridge Had the Most Reported Structure Fires
Boston reported having the most structure fires, with 4,126 in 2009. Cambridge had the second highest number of reported structure fires at 775. Worcester (696), Springfield (579), Brookline (387) and Revere (377) rounded out the top six communities in the Commonwealth in terms of reported structure fires.

2009 Structure Fires per 10,000 Population by Community, on page 167, displays the rate of reported structure fires by community for every 10,000 of that community's population. The more shading a community shows the more structure fires per 10,000 people were reported from that municipality. Cities and towns that are blank did not report any structure fires or failed to report at all.

Middleton, with 113 structure fires, had the highest rate of 146 structure fires per 10,000 population. Sandisfield was the next highest with 10 structure fires and 121 structure fires per 10,000 population; Great Barrington had 98; Clinton had 95; and Stoughton had 91 structure fires per 10,000 population.

Boston & Cambridge Had the Most Reported Residential Building Fires
Boston reported having the most residential building fires, with 3,407 in 2009. Cambridge had the second highest number of reported building fires at 636. Worcester (589), Springfield (515), Brookline (332), and Revere (309) rounded out the top six communities in the Commonwealth in terms of reported residential building fires.

2009 Residential Building Fires per 10,000 Population by Community, on page 168, displays the rate of reported building fires by community for every 10,000 of that community's population. The more shading a community shows the more residential building fires per 10,000 people were reported from that municipality. Cities and towns that are blank did not report any residential building fires or failed to report at all.

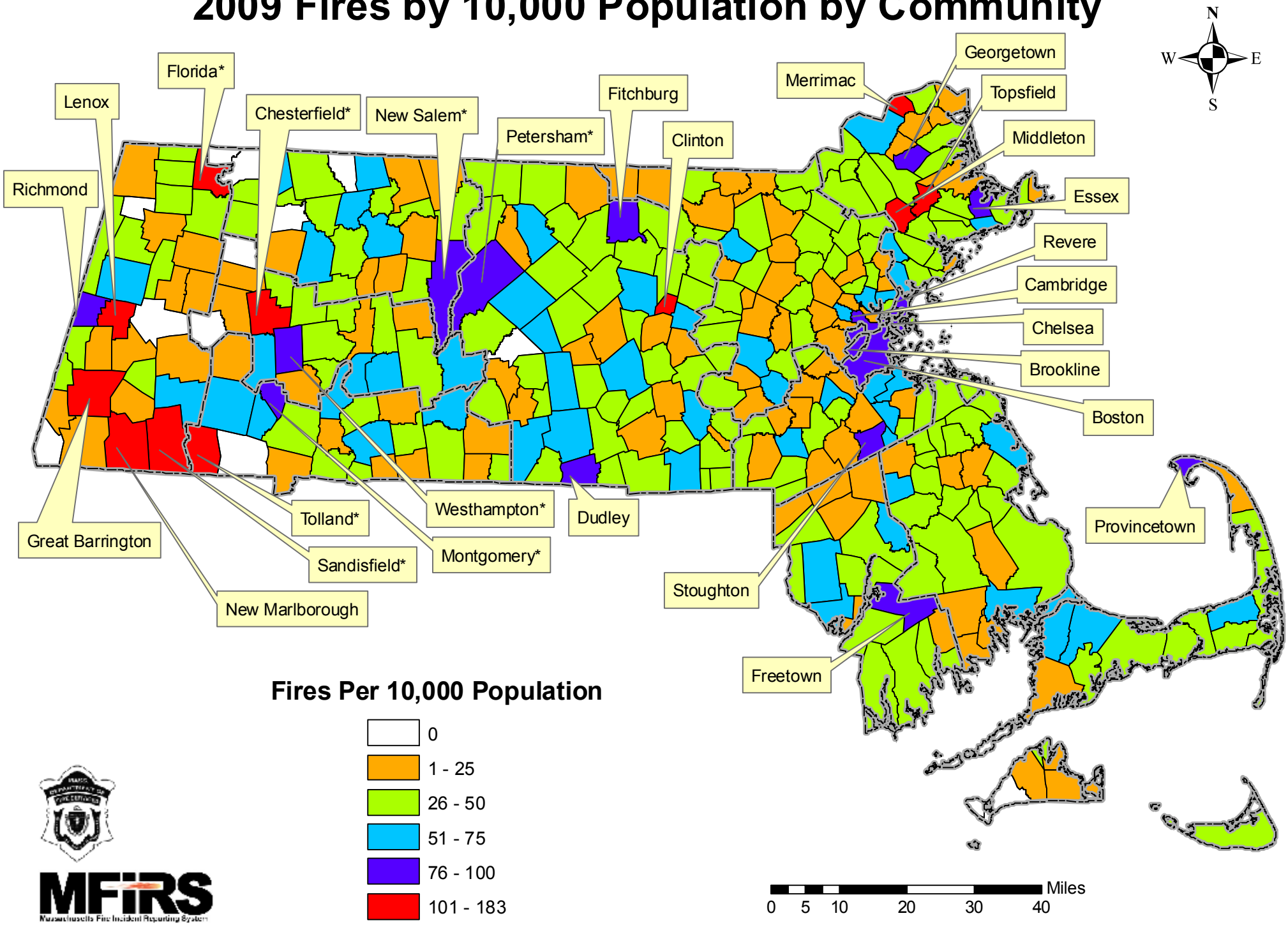
Middleton, with 105 residential building fires, had the highest rate of 136 residential building fires per 10,000 population. Next highest was Sandisfield with 121 residential building fires per 10,000 population; Clinton had 89; Topsfield had 77; Petersham had 76; and Stoughton had 75 residential building fires per 10,000 population.

Boston & Haverhill Had the Most Reported Arsons
Boston reported having the most arsons, with 104 in 2009. Haverhill had the second highest number of reported arsons at 69. Worcester (56), Lawrence (43), New Bedford (32), and Fall River (29) rounded out the top six communities in the Commonwealth in terms of reported arsons.

2009 Arsons per 10,000 Population by Community, on page 169, displays the rate of the total reported arsons by community for every 10,000 of that community's population. The more shading a community shows the more arsons per 10,000 people were reported from that municipality. Cities and towns that are blank had no reported of arsons or failed to report at all.

Upton, with nine arsons, had the highest rate of any department reporting more than five arsons, with 16 reported arsons per 10,000 population. Next highest was Freetown and Merrimac, each with 15 arsons per 10,000 population; Haverhill had 12; Mendon had 11, Bourne had nine; and Dudley had seven arsons per 10,000 population.

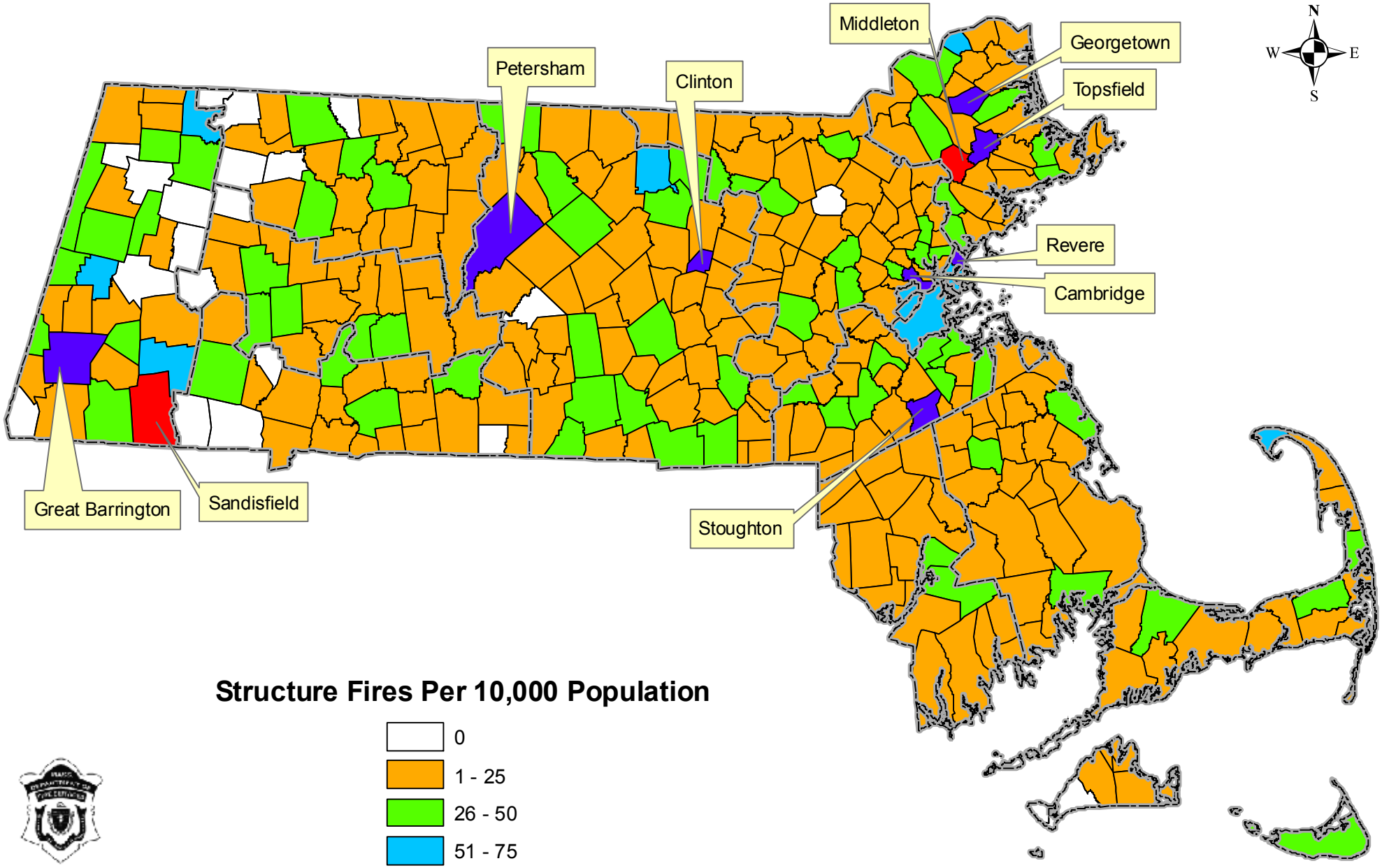
2009 Fires by 10,000 Population by Community



MFIRS
Massachusetts Fire Incident Reporting System

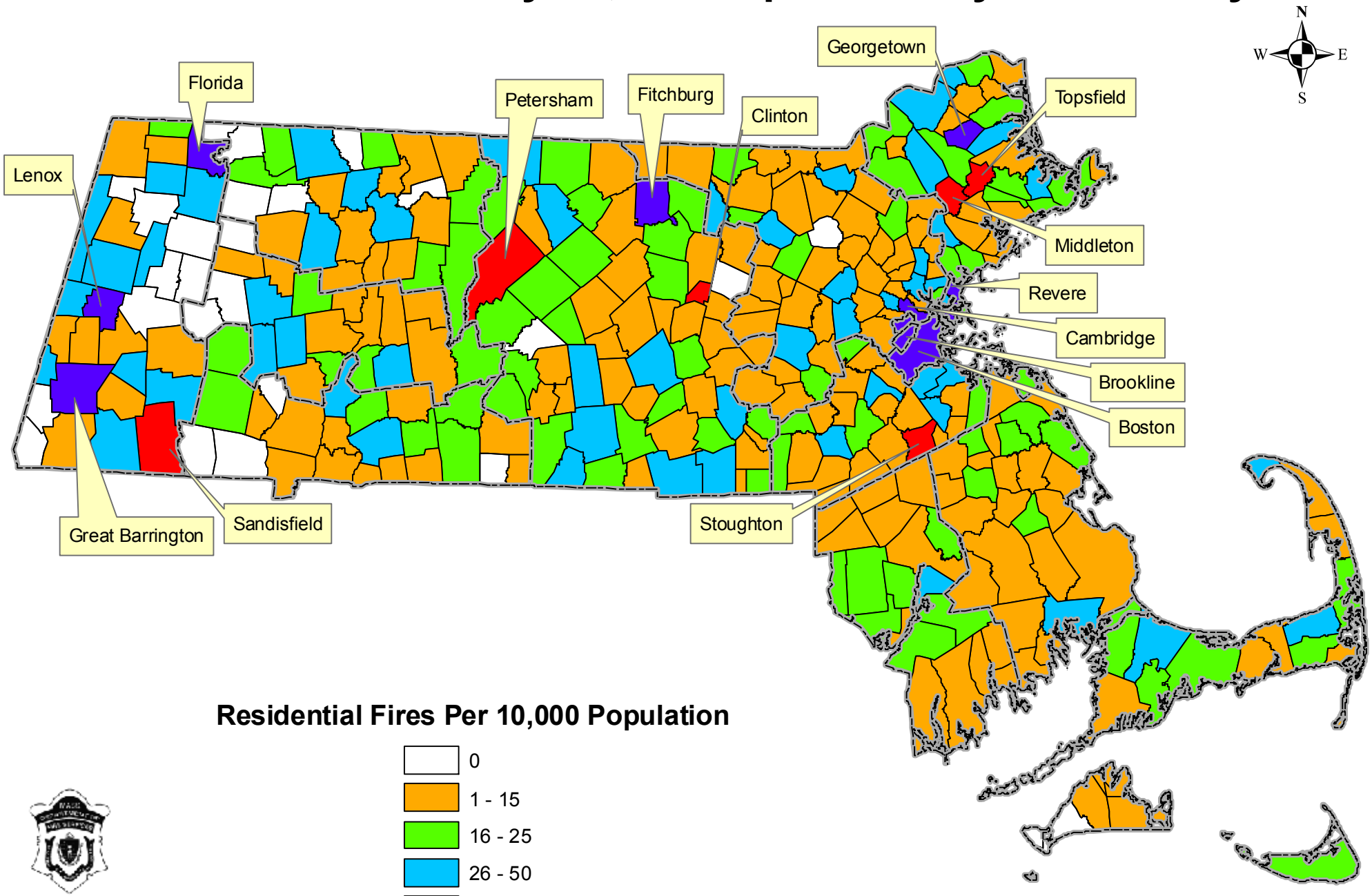
*These communities reported 15 fires or less in 2009

2009 Structure Fires by 10,000 Population by Community



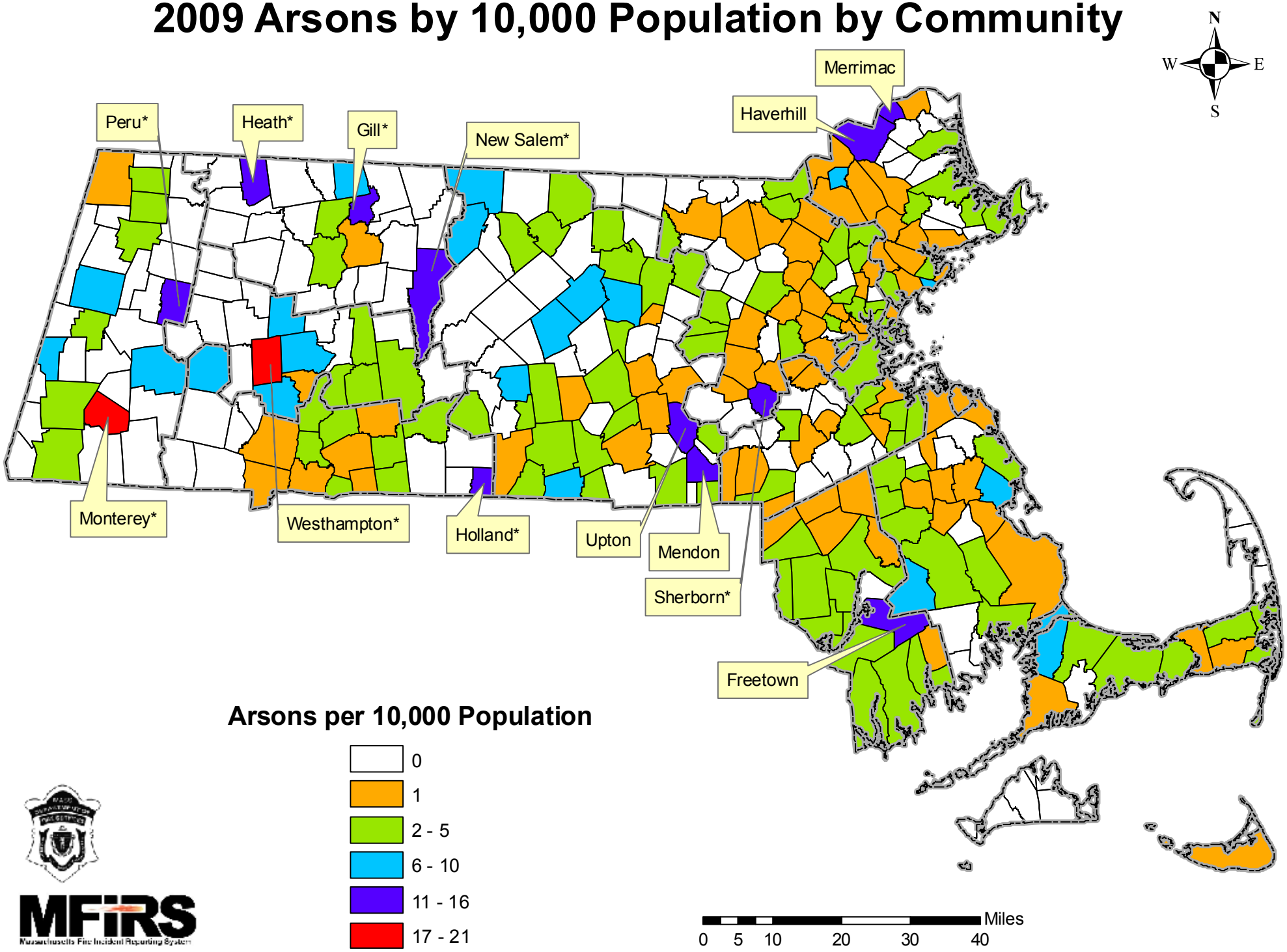
MFIRS
Massachusetts Fire Incident Reporting System

2009 Residential Fires by 10,000 Population by Community



MFIRS
Massachusetts Fire Incident Reporting System

2009 Arsons by 10,000 Population by Community



MFIRS
Massachusetts Fire Incident Reporting System

*These communities reported 5 or less arsons in 2009

Overview of DFS construction project continuing construction in 2009

Appendix

2009 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	61	34	9	18	0	12	0	1	$1,552,600
Acton	58	43	4	11	0	0	0	1	$170,725
Acushnet	21	10	4	7	0	0	0	0	$12,000
Adams	44	35	1	8	0	1	0	2	$169,950
Agawam	76	36	14	26	0	0	0	0	$531,125
Alford	1	1	0	0	0	0	0	0	$0
Amesbury	52	35	8	9	0	0	0	0	$982,371
Amherst	98	44	8	46	0	4	0	1	$161,925
Andover	127	75	22	30	0	1	0	0	$1,139,662
Aquinnah	0	0	0	0	0	0	0	0	$0
Arlington	72	41	5	26	0	2	0	0	$120,700
Ashburnham	13	7	3	3	0	1	0	0	$11,000
Ashby	3	2	1	0	0	0	0	0	$47,000
Ashfield	2	2	0	0	0	0	0	0	$3,000
Ashland	10	8	0	2	0	1	0	0	$28,000
Athol	56	21	5	30	0	1	0	0	$32,100
Attleboro	130	61	19	50	1	1	0	1	$1,242,358
Auburn	50	23	11	16	0	0	0	0	$330,900
Avon	30	8	11	11	0	0	0	0	$80,915
Ayer	31	22	2	7	0	0	0	0	$71,400
Barnstable Fire Districts									
Barnstable	*19*	*3*	*9*	*7*	*0*	*0*	*0*	*0*	*$500*
Cotuit	*1*	*1*	*0*	*0*	*0*	*0*	*0*	*0*	*$100,000*
C.O.M.M.	*69*	*39*	*10*	*20*	*0*	*1*	*0*	*0*	*$283,749*
Hyannis	*118*	*55*	*14*	*49*	*0*	*11*	*0*	*0*	*$370,775*
West Barnstable	*12*	*8*	*3*	*1*	*0*	*0*	*0*	*0*	*$30,000*
Barre	26	11	2	13	0	0	0	0	$8,000
Becket	2	1	1	0	1	0	0	0	$129,675
Bedford	33	18	6	9	0	1	0	0	$220,650
Belchertown	33	16	4	13	0	0	0	0	$0
Bellingham	50	25	6	19	0	2	0	0	$502,665
Belmont	148	118	4	26	0	0	0	1	$27,000
Berkley	27	17	1	9	0	0	0	1	$4,000
Berlin	16	5	2	9	0	0	0	0	$3,050
Bernardston	16	4	3	9	0	0	0	0	$1,100
Beverly	128	66	17	45	0	0	0	0	$173,500

2009 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	0	0	0	0	0	0	0	0	$0
Acton	0	0	0	0	0	0	0	0	$0
Acushnet	1	1	0	0	0	0	0	0	$0
Adams	4	2	0	2	0	0	0	1	$80,000
Agawam	2	0	2	0	0	0	0	0	$13,000
Alford	0	0	0	0	0	0	0	0	$0
Amesbury	1	0	0	1	0	0	0	0	$0
Amherst	16	2	0	14	0	0	0	0	$1,350
Andover	4	1	1	2	0	0	0	0	$30,000
Aquinnah	0	0	0	0	0	0	0	0	$0
Arlington	5	0	0	5	0	0	0	0	$1,200
Ashburnham	1	1	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	1	1	0	0	0	0	0	0	$0
Athol	7	1	0	6	0	0	0	0	$5,000
Attleboro	9	2	0	7	0	0	0	0	$65,003
Auburn	0	0	0	0	0	0	0	0	$0
Avon	0	0	0	0	0	0	0	0	$0
Ayer	0	0	0	0	0	0	0	0	$0
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.	*3*	*0*	*0*	*3*	*0*	*1*	*0*	*0*	*$0*
Hyannis	*19*	*6*	*1*	*12*	*0*	*1*	*0*	*0*	*$1,150*
West Barnstable	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Barre	0	0	0	0	0	0	0	0	$0
Becket	1	0	1	0	1	0	0	0	$2,675
Bedford	1	0	1	0	0	0	0	0	$120,000
Belchertown	2	0	0	2	0	0	0	0	$0
Bellingham	2	0	0	2	0	2	0	0	$0
Belmont	6	0	0	6	0	0	0	0	$0
Berkley	0	0	0	0	0	0	0	0	$0
Berlin	0	0	0	0	0	0	0	0	$0
Bernardston	2	0	0	2	0	0	0	0	$0
Beverly	5	0	2	3	0	0	0	0	$500

2009 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	150	71	20	59	0	3	0	9	$1,859,155
Blackstone	41	18	5	18	0	0	0	0	$0
Blandford	9	4	3	2	0	0	0	0	$30,000
Bolton	19	5	2	12	0	0	0	0	$40,400
Boston	5,547	4,126	426	995	0	8	0	12	$27,024,722
Bourne	104	43	21	40	0	2	0	6	$979,825
Boxborough	11	1	3	7	0	0	0	0	$9,500
Boxford	25	12	5	8	0	0	0	1	$3,000
Boylston	5	3	1	1	0	2	0	0	$18,500
Braintree	81	15	16	50	0	0	0	1	$1,258,800
Brewster	53	32	2	19	0	2	0	4	$406,500
Bridgewater	67	24	13	30	0	1	0	1	$704,517
Brimfield	6	3	2	1	0	0	0	0	$304,000
Brockton	199	138	35	26	1	11	0	12	$2,763,954
Brookfield	3	3	0	0	0	0	0	0	$0
Brookline	430	387	11	32	0	1	0	8	$1,352,850
Buckland	0	0	0	0	0	0	0	0	$0
Burlington	68	34	8	26	0	1	0	1	$575,300
Cambridge	874	775	17	82	0	3	0	12	$4,003,570
Canton	31	10	17	4	0	0	0	0	$214,030
Carlisle	1	0	0	1	0	0	0	0	$10,000
Carver	10	6	4	0	0	0	0	0	$268,000
Charlemont	6	3	0	3	0	0	0	0	$0
Charlton	59	37	6	16	0	0	0	0	$358,650
Chatham	22	11	4	7	0	0	0	0	$20,300
Chelmsford	36	13	16	7	0	1	0	2	$411,480
Chelsea	271	209	18	44	0	2	0	27	$1,687,151
Cheshire	3	0	1	2	0	0	0	0	$2,900
Chester	2	2	0	0	0	0	0	0	$201,500
Chesterfield	13	6	1	6	0	0	0	0	$0
Chicopee	224	131	26	67	1	7	0	4	$667,221
Chilmark	0	0	0	0	0	0	0	0	$0
Clarksburg	5	4	1	0	0	0	0	0	$182,100
Clinton	149	127	0	22	0	1	0	0	$13,177
Cohasset	27	16	0	11	0	0	0	0	$3,000

2009 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	1	0	0	1	0	0	0	0	$20,000
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	104	25	34	45	0	0	0	0	$2,838,400
Bourne	17	2	0	15	0	0	0	0	$4,100
Boxborough	0	0	0	0	0	0	0	0	$0
Boxford	1	0	0	1	0	0	0	0	$0
Boylston	0	0	0	0	0	0	0	0	$0
Braintree	5	0	0	5	0	0	0	0	$0
Brewster	5	0	1	4	0	0	0	0	$0
Bridgewater	8	2	2	4	0	1	0	0	$36,612
Brimfield	0	0	0	0	0	0	0	0	$0
Brockton	18	11	5	2	0	1	0	2	$1,044,500
Brookfield	0	0	0	0	0	0	0	0	$0
Brookline	1	0	1	0	0	0	0	0	$5,000
Buckland	0	0	0	0	0	0	0	0	$0
Burlington	5	1	0	4	0	0	0	1	$350,000
Cambridge	4	0	0	4	0	1	0	0	$0
Canton	3	1	0	2	0	0	0	0	$1,030
Carlisle	0	0	0	0	0	0	0	0	$0
Carver	0	0	0	0	0	0	0	0	$0
Charlemont	2	0	0	2	0	0	0	0	$0
Charlton	2	1	0	1	0	0	0	0	$1,000
Chatham	1	0	0	1	0	0	0	0	$0
Chelmsford	2	0	1	1	0	0	0	0	$3,550
Chelsea	11	7	1	3	0	0	0	0	$14,650
Cheshire	1	0	0	1	0	0	0	0	$0
Chester	1	1	0	0	0	0	0	0	$200,000
Chesterfield	0	0	0	0	0	0	0	0	$0
Chicopee	11	4	1	6	0	0	0	0	$8,500
Chilmark	0	0	0	0	0	0	0	0	$0
Clarksburg	0	0	0	0	0	0	0	0	$0
Clinton	1	0	0	1	0	0	0	0	$200
Cohasset	1	0	0	1	0	0	0	0	$0

2009 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	9	5	1	3	0	0	0	0	$175,550
Concord	38	14	4	20	0	0	0	0	$830,660
Conway	12	8	0	4	0	0	0	0	$5,000
Cummington	1	1	0	0	0	0	0	0	$340,200
Dalton	25	23	2	0	0	0	0	0	$521,000
Danvers	90	31	13	46	0	0	0	2	$408,000
Dartmouth Fire Districts									
Dartmouth #1	*30*	*11*	*4*	*15*	*0*	*0*	*0*	*1*	*$257,300*
Dartmouth #2	*6*	*2*	*3*	*1*	*0*	*0*	*0*	*0*	*$245,000*
Dartmouth #3	*49*	*8*	*7*	*34*	*0*	*0*	*0*	*0*	*$116,850*
Dedham	34	19	7	8	0	0	0	0	$144,450
Deerfield Fire Districts									
Deerfield	*10*	*2*	*1*	*7*	*0*	*0*	*0*	*0*	*$0*
South Deerfield	*12*	*5*	*1*	*6*	*0*	*0*	*0*	*0*	*$53,000*
Dennis	56	24	7	25	0	5	0	1	$498,000
Devens	16	2	1	13	0	0	0	0	$16,080
Dighton	21	14	3	4	0	0	0	0	$234,200
Douglas	33	22	3	8	0	0	0	0	$573,600
Dover	7	4	1	2	0	0	0	0	$95,600
Dracut	87	45	14	28	0	0	0	3	$1,459,525
Dudley	80	24	7	49	0	0	0	0	$400,500
Dunstable	3	3	0	0	0	0	0	0	$6,000
Duxbury	41	18	4	19	0	0	0	1	$1,020
East Bridgewater	51	34	5	12	0	1	0	0	$410,000
East Brookfield	6	1	0	5	0	0	0	0	$0
East Longmeadow	28	10	6	12	0	0	0	0	$4,500
Eastham	21	14	0	7	0	0	0	0	$275,000
Easthampton	48	30	3	15	0	1	0	0	$66,925
Easton	19	11	4	4	0	1	0	3	$1,221,000
Edgartown	3	2	0	1	0	0	0	0	$0
Egremont	1	1	0	0	0	0	0	0	$1,500,000
Erving	4	3	1	0	0	0	0	0	$21,000
Essex	27	11	5	11	0	0	0	0	$0
Everett	152	90	27	35	0	2	0	2	$5,133,270
Fairhaven	48	24	11	13	0	3	0	0	$203,842
Fall River	369	206	54	109	0	6	0	8	$1,590,950

2009 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	1	1	0	0	0	0	$7,000
Conway	0	0	0	0	0	0	0	0	$0
Cummington	0	0	0	0	0	0	0	0	$0
Dalton	0	0	0	0	0	0	0	0	$0
Danvers	1	0	1	0	0	0	0	0	$0
Dartmouth Fire Districts									
Dartmouth #1	*6*	*1*	*0*	*5*	*0*	*0*	*0*	*0*	*$0*
Dartmouth #2	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Dartmouth #3	*5*	*2*	*2*	*1*	*0*	*0*	*0*	*0*	*$24,000*
Dedham	0	0	0	0	0	0	0	0	$0
Deerfield Fire Districts									
Deerfield	*1*	*0*	*0*	*1*	*0*	*0*	*0*	*0*	*$0*
South Deerfield	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Dennis	1	0	0	1	0	0	0	0	$0
Devens	0	0	0	0	0	0	0	0	$0
Dighton	1	1	0	0	0	0	0	0	$4,000
Douglas	0	0	0	0	0	0	0	0	$0
Dover	0	0	0	0	0	0	0	0	$0
Dracut	11	2	2	7	0	0	0	0	$166,550
Dudley	7	0	1	6	0	0	0	0	$0
Dunstable	0	0	0	0	0	0	0	0	$0
Duxbury	8	4	1	3	0	0	0	0	$500
East Bridgewater	1	1	0	0	0	0	0	0	$180,000
East Brookfield	1	0	0	1	0	0	0	0	$0
East Longmeadow	1	0	0	1	0	0	0	0	$0
Eastham	0	0	0	0	0	0	0	0	$0
Easthampton	2	0	0	2	0	0	0	0	$500
Easton	1	1	0	0	0	0	0	0	$20,000
Edgartown	0	0	0	0	0	0	0	0	$0
Egremont	0	0	0	0	0	0	0	0	$0
Erving	0	0	0	0	0	0	0	0	$0
Essex	1	0	0	1	0	0	0	0	$0
Everett	12	7	3	2	0	0	0	1	$297,400
Fairhaven	7	2	2	3	0	0	0	0	$118,000
Fall River	29	16	1	12	0	0	0	1	$517,250

2009 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	52	20	14	18	0	2	0	2	$583,331
Fitchburg	366	293	19	54	1	6	0	4	$1,067,991
Florida	10	5	1	4	0	0	0	0	$21,000
Foxborough	36	17	8	11	0	0	0	1	$590,500
Framingham	385	313	19	53	0	2	0	11	$1,704,506
Franklin	51	15	8	28	0	0	0	1	$25,000
Freetown	64	37	14	13	0	2	0	2	$735,386
Gardner	89	41	10	38	0	2	0	0	$417,355
Georgetown	70	59	5	6	0	2	0	2	$455,250
Gill	6	3	0	3	0	0	0	0	$0
Gloucester	124	65	20	39	0	6	0	1	$872,550
Goshen	4	1	0	3	0	0	0	0	$0
Gosnold	0	0	0	0	0	0	0	0	$0
Grafton	37	17	7	13	0	0	0	0	$55,300
Granby	41	19	2	20	0	0	0	1	$0
Granville	0	0	0	0	0	0	0	0	$0
Great Barrington	87	74	3	10	0	0	0	0	$9,000
Greenfield	100	62	7	31	0	0	0	5	$712,375
Groton	10	6	4	0	0	0	0	0	$0
Groveland	6	4	2	0	0	0	0	0	$23,500
Hadley	9	4	2	3	0	2	0	1	$501,425
Halifax	20	9	4	7	0	1	0	0	$162,900
Hamilton	21	16	2	3	0	1	0	0	$250,000
Hampden	4	3	1	0	0	1	0	0	$410,200
Hancock	3	2	1	0	0	0	0	0	$0
Hanover	47	25	7	15	0	0	0	0	$40,450
Hanson	21	14	2	5	0	0	0	0	$0
Hardwick	8	5	0	3	0	0	0	0	$1,000
Harvard	24	6	2	16	0	0	0	0	$0
Harwich	44	25	5	14	0	2	0	1	$1,243,260
Hatfield	11	7	2	2	0	0	0	0	$172,300
Haverhill	305	182	21	102	0	0	0	0	$678,710
Hawley	1	0	1	0	0	0	0	0	$5,000
Heath	5	2	0	3	0	0	0	0	$500
Hingham	69	33	8	28	0	1	0	0	$223,775

2009 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	2	2	0	0	0	1	0	0	$0
Fitchburg	14	5	2	7	0	1	0	2	$198,450
Florida	0	0	0	0	0	0	0	0	$0
Foxborough	0	0	0	0	0	0	0	0	$0
Framingham	4	2	2	0	0	0	0	2	$204,000
Franklin	1	0	0	1	0	0	0	0	$0
Freetown	13	5	2	6	0	0	0	0	$173,100
Gardner	3	1	0	2	0	0	0	0	$600
Georgetown	0	0	0	0	0	0	0	0	$0
Gill	2	0	0	2	0	0	0	0	$0
Gloucester	7	1	1	5	0	0	0	0	$0
Goshen	0	0	0	0	0	0	0	0	$0
Gosnold	0	0	0	0	0	0	0	0	$0
Grafton	2	0	0	2	0	0	0	0	$0
Granby	1	0	0	1	0	0	0	0	$0
Granville	0	0	0	0	0	0	0	0	$0
Great Barrington	2	1	1	0	0	0	0	0	$0
Greenfield	7	2	0	5	0	0	0	0	$700
Groton	1	1	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	1	0	1	0	0	0	0	0	$19,500
Hamilton	0	0	0	0	0	0	0	0	$0
Hampden	1	1	0	0	0	0	0	0	$1,200
Hancock	0	0	0	0	0	0	0	0	$0
Hanover	0	0	0	0	0	0	0	0	$0
Hanson	1	0	0	1	0	0	0	0	$0
Hardwick	0	0	0	0	0	0	0	0	$0
Harvard	1	0	0	1	0	0	0	0	$0
Harwich	1	1	0	0	0	0	0	0	$115,000
Hatfield	0	0	0	0	0	0	0	0	$0
Haverhill	69	2	2	65	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	2	0	1	1	0	0	0	0	$6,500

2009 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	$90,000
Holbrook	36	18	7	11	0	0	0	0	$173,570
Holden	34	24	3	7	0	2	0	0	$42,300
Holland	10	3	0	7	0	0	0	0	$0
Holliston	7	7	0	0	0	0	0	0	$223,250
Holyoke	244	147	24	73	0	1	0	0	$876,070
Hopedale	5	5	0	0	1	0	0	0	$1,050
Hopkinton	50	23	11	16	0	1	0	0	$16,000
Hubbardston	19	10	0	9	0	0	0	1	$56,350
Hudson	59	24	7	28	0	7	0	1	$298,730
Hull	27	13	2	12	0	0	0	0	$361,500
Huntington	11	6	0	5	0	0	0	0	$0
Ipswich	24	13	7	4	0	0	0	1	$1,600
Kingston	41	14	8	19	0	0	0	0	$2,000
Lake Pleasant	0	0	0	0	0	0	0	0	$0
Lakeville	39	7	4	28	0	0	0	0	$6,000
Lancaster	19	10	3	6	0	1	0	0	$290,020
Lanesborough	9	3	1	5	0	0	0	0	$211,000
Lawrence	219	112	45	62	0	2	0	4	$2,642,781
Lee	6	2	4	0	0	0	0	0	$32,700
Leicester	29	6	9	14	0	1	0	1	$608,000
Lenox	55	33	2	20	0	0	0	0	$576,800
Leominster	203	120	25	58	1	3	0	1	$14,002
Leverett	2	1	0	1	0	0	0	0	$237,800
Lexington	47	28	8	11	0	2	0	5	$530,046
Leyden	0	0	0	0	0	0	0	0	$0
Lincoln	35	23	3	9	0	0	0	0	$20,000
Littleton	48	32	6	10	0	1	0	0	$112,600
Logan Airport FD	65	11	10	44	0	0	0	0	$5,000
Longmeadow	42	16	6	20	0	1	0	1	$185,000
Lowell	506	324	45	137	0	5	0	2	$1,394,749
Ludlow	53	25	11	17	0	3	0	0	$442,851
Lunenburg	41	26	1	14	0	0	0	1	$461,670
Lynn	257	199	19	39	0	0	0	5	$470,625
Lynnfield	83	54	10	19	0	0	0	0	$271,250
MA Mil. Res.	7	1	2	4	0	0	0	0	$0

2009 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	2	0	2	0	0	0	0	0	$18,500
Holden	0	0	0	0	0	0	0	0	$0
Holland	3	0	0	3	0	0	0	0	$0
Holliston	0	0	0	0	0	0	0	0	$0
Holyoke	11	1	1	9	0	0	0	0	$5,100
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	5	1	1	3	0	1	0	0	$11,530
Hull	1	1	0	0	0	0	0	0	$300,000
Huntington	0	0	0	0	0	0	0	0	$0
Ipswich	2	0	0	2	0	0	0	0	$0
Kingston	1	0	0	1	0	0	0	0	$0
Lake Pleasant	0	0	0	0	0	0	0	0	$0
Lakeville	5	1	1	3	0	0	0	0	$0
Lancaster	3	0	0	3	0	0	0	0	$1,000
Lanesborough	0	0	0	0	0	0	0	0	$0
Lawrence	43	17	6	20	0	0	0	0	$376,795
Lee	0	0	0	0	0	0	0	0	$0
Leicester	1	1	0	0	0	0	0	0	$40,000
Lenox	1	0	0	1	0	0	0	0	$0
Leominster	8	0	6	2	0	0	0	0	$1
Leverett	0	0	0	0	0	0	0	0	$0
Lexington	2	0	1	1	0	0	0	0	$15,000
Leyden	0	0	0	0	0	0	0	0	$0
Lincoln	1	0	0	1	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	$0
Longmeadow	4	0	0	4	0	0	0	0	$0
Lowell	24	8	6	10	0	0	0	0	$65,320
Ludlow	3	0	0	3	0	0	0	0	$0
Lunenburg	0	0	0	0	0	0	0	0	$0
Lynn	4	3	1	0	0	0	0	0	$0
Lynnfield	1	0	0	1	0	0	0	0	$0
MA Mil. Res.	2	0	0	2	0	0	0	0	$0

2009 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	355	267	25	63	1	0	0	17	$36,500
Manchester	27	16	5	6	0	0	0	0	$100,000
Mansfield	56	20	11	25	0	4	0	3	$1,007,150
Marblehead	39	25	3	11	0	0	0	0	$2,747,953
Marion	1	1	0	0	0	1	0	0	$250
Marlborough	120	52	18	50	0	3	0	1	$1,188,748
Marshfield	127	63	11	53	0	0	0	0	$2,000
Mashpee	42	23	7	12	0	1	0	0	$334,250
Mattapoisett	14	9	2	3	0	0	0	0	$48,511
Maynard	3	1	2	0	0	0	0	0	$6,400
Medfield	19	9	3	7	0	0	0	0	$3,500
Medford	367	217	34	116	0	2	0	4	$1,442,000
Medway	50	41	3	6	0	0	0	0	$0
Melrose	25	13	7	5	0	1	0	0	$657,700
Mendon	18	4	4	10	0	1	0	0	$37,000
Merrimac	62	35	4	23	0	0	0	0	$0
Methuen	150	86	23	41	0	1	0	1	$475,700
Middleborough	73	26	17	30	0	1	0	3	$1,689,900
Middlefield	0	0	0	0	0	0	0	0	$0
Middleton	125	113	2	10	0	0	0	0	$20,000
Milford	117	67	20	30	0	2	0	3	$1,075,560
Millbury	49	31	8	10	0	1	0	3	$1,124,667
Millis	1	1	0	0	0	1	0	0	$35,000
Millville	9	4	0	5	0	0	0	0	$14,150
Milton	160	111	17	32	0	1	0	6	$17,950
Monroe	0	0	0	0	0	0	0	0	$0
Monson	37	16	5	16	0	2	0	2	$340,000
Montague Fire Districts									
Montague Center	*22*	*11*	*0*	*11*	*0*	*0*	*0*	*0*	*$205,000*
Turners Falls	*30*	*22*	*1*	*7*	*0*	*0*	*0*	*0*	*$367,400*
Monterey	2	1	1	0	0	0	0	0	$44,000
Montgomery	6	0	3	3	0	0	0	0	$0
Mount Washington	0	0	0	0	0	0	0	0	$0
Nahant	7	3	1	3	0	0	0	0	$25,000
Nantucket	38	26	3	9	0	0	0	0	$3,500
Natick	94	58	8	28	0	0	0	1	$532,480
Needham	49	25	7	17	0	0	0	0	$165,500

2009 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	9	0	4	5	0	0	0	0	$0
Manchester	0	0	0	0	0	0	0	0	$0
Mansfield	2	0	0	2	0	0	0	0	$0
Marblehead	2	0	0	2	0	0	0	0	$1,002
Marion	0	0	0	0	0	0	0	0	$0
Marlborough	2	1	1	0	0	2	0	0	$2,000
Marshfield	6	0	2	4	0	0	0	0	$0
Mashpee	0	0	0	0	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	6	1	0	5	0	0	0	0	$0
Medford	18	1	1	16	0	0	0	0	$0
Medway	0	0	0	0	0	0	0	0	$0
Melrose	0	0	0	0	0	0	0	0	$0
Mendon	6	1	0	5	0	1	0	0	$1,000
Merrimac	9	0	0	9	0	0	0	0	$0
Methuen	4	1	1	2	0	0	0	0	$1,500
Middleborough	3	0	1	2	0	0	0	0	$10,000
Middlefield	0	0	0	0	0	0	0	0	$0
Middleton	1	0	0	1	0	0	0	0	$0
Milford	5	3	1	1	0	0	0	1	$203,000
Millbury	2	1	1	0	0	0	0	0	$2,075
Millis	0	0	0	0	0	0	0	0	$0
Millville	0	0	0	0	0	0	0	0	$0
Milton	8	0	0	8	0	0	0	0	$200
Monroe	0	0	0	0	0	0	0	0	$0
Monson	0	0	0	0	0	0	0	0	$0
Montague Fire Districts									
Montague Center	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Turners Falls	*1*	*0*	*0*	*1*	*0*	*0*	*0*	*0*	*$0*
Monterey	0	0	0	0	0	0	0	0	$0
Montgomery	2	0	1	1	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	1	0	0	1	0	0	0	0	$0
Natick	4	1	0	3	0	0	0	0	$200
Needham	4	0	0	4	0	0	0	0	$0

2009 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	343	172	65	106	0	14	0	6	$2,017,939
New Braintree	0	0	0	0	0	0	0	0	$0
New Marlborough	16	5	3	8	0	0	0	0	$0
New Salem	9	2	1	6	0	1	0	0	$175,025
Newbury	21	13	1	7	0	0	0	0	$1,000,000
Newburyport	13	6	1	6	0	4	0	0	$106,600
Newton	111	66	16	29	0	3	0	20	$8,192,300
Norfolk	62	50	1	11	0	0	0	0	$253,200
North Adams	52	20	9	23	0	0	0	1	$463,825
North Andover	135	104	8	23	0	0	0	0	$1,124,150
North Attleboro	56	20	16	20	2	0	0	0	$227,600
North Brookfield	22	6	3	13	0	0	0	0	$71,000
North Reading	49	26	2	21	0	0	0	1	$330,500
Northampton	89	34	23	32	2	5	0	2	$6,122,195
Northborough	27	5	10	12	0	0	0	0	$40,250
Northbridge	43	29	3	11	0	2	0	2	$617,850
Northfield	6	3	2	1	0	0	0	0	$0
Norton	37	14	4	19	1	2	0	0	$1,926,450
Norwell	36	20	6	10	0	0	0	0	$89,704
Norwood	75	33	9	33	0	2	0	2	$628,000
Oak Bluffs	1	1	0	0	0	0	0	0	$0
Oakham	9	4	0	5	0	0	0	0	$0
Orange	32	14	5	13	0	2	0	0	$0
Orleans	29	14	5	10	0	0	0	0	$2,000
Otis	9	8	0	1	0	0	0	0	$0
Oxford	54	35	7	12	0	3	0	0	$202,620
Palmer Fire Districts									
Bondsville	*15*	*2*	*2*	*11*	*0*	*0*	*0*	*0*	*$51,150*
Palmer	*44*	*29*	*5*	*10*	*0*	*0*	*0*	*0*	*$424,635*
Three Rivers	*5*	*2*	*1*	*2*	*0*	*0*	*0*	*0*	*$0*
Paxton	5	3	0	2	0	0	0	0	$5,000
Peabody	127	61	21	45	0	0	0	5	$1,963,750
Pelham	1	1	0	0	0	0	0	1	$100,000
Pembroke	13	9	3	1	0	0	0	2	$310,999
Pepperell	38	21	2	15	0	2	0	0	$340,200

2009 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	32	14	9	9	0	1	0	0	$346,200
New Braintree	0	0	0	0	0	0	0	0	$0
New Marlborough	0	0	0	0	0	0	0	0	$0
New Salem	1	0	1	0	0	1	0	0	$0
Newbury	1	1	0	0	0	0	0	0	$1,000,000
Newburyport	0	0	0	0	0	0	0	0	$0
Newton	5	1	0	4	0	0	0	0	$750
Norfolk	0	0	0	0	0	0	0	0	$0
North Adams	6	0	2	4	0	0	0	0	$2,700
North Andover	1	0	0	1	0	0	0	0	$0
North Attleboro	3	0	1	2	0	0	0	0	$0
North Brookfield	4	0	1	3	0	0	0	0	$11,000
North Reading	4	0	0	4	0	0	0	0	$0
Northampton	15	5	7	3	2	0	0	0	$781,076
Northborough	0	0	0	0	0	0	0	0	$0
Northbridge	0	0	0	0	0	0	0	0	$0
Northfield	0	0	0	0	0	0	0	0	$0
Norton	0	0	0	0	0	0	0	0	$0
Norwell	0	0	0	0	0	0	0	0	$0
Norwood	1	1	0	0	0	0	0	0	$85,000
Oak Bluffs	0	0	0	0	0	0	0	0	$0
Oakham	0	0	0	0	0	0	0	0	$0
Orange	0	0	0	0	0	0	0	0	$0
Orleans	1	0	0	1	0	0	0	0	$0
Otis	0	0	0	0	0	0	0	0	$0
Oxford	2	2	0	0	0	0	0	0	$400
Palmer Fire Districts									
Bondsville	*5*	*0*	*0*	*5*	*0*	*0*	*0*	*0*	*$0*
Palmer	*1*	*1*	*0*	*0*	*0*	*0*	*0*	*0*	*$335,000*
Three Rivers	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Paxton	0	0	0	0	0	0	0	0	$0
Peabody	2	0	0	2	0	0	0	0	$0
Pelham	0	0	0	0	0	0	0	0	$0
Pembroke	2	2	0	0	0	0	0	0	$183,000
Pepperell	0	0	0	0	0	0	0	0	$0

2009 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	2	0	0	2	0	0	0	0	$0
Petersham	11	9	0	2	0	0	0	0	$0
Phillipston	1	1	0	0	0	0	0	0	$150,000
Pittsfield	275	157	23	95	0	1	0	1	$1,111,511
Plainfield	0	0	0	0	0	0	0	0	$0
Plainville	29	9	8	12	0	0	0	0	$3,000
Plymouth	167	66	37	64	5	3	0	5	$837,450
Plympton	12	6	3	3	0	0	0	0	$672,000
Princeton	12	3	2	7	0	0	0	0	$0
Provincetown	28	21	3	4	0	0	0	0	$8,000
Quincy	531	308	44	179	4	1	0	17	$785,000
Randolph	187	136	22	29	0	0	0	0	$1,162,500
Raynham	70	23	15	32	2	0	0	0	$403,000
Reading	71	32	9	30	0	0	0	0	$14,000
Rehoboth	55	23	6	26	0	2	0	0	$0
Revere	414	377	10	27	0	2	0	2	$417,650
Richmond	16	8	0	8	0	0	0	0	$42,200
Rochester	9	6	3	0	0	0	0	0	$169,500
Rockland	58	23	12	23	0	2	0	2	$284,100
Rockport	10	7	1	2	0	0	0	0	$0
Rowe	0	0	0	0	0	0	0	0	$0
Rowley	27	20	5	2	0	0	0	0	$26,700
Royalston	6	4	1	1	0	0	0	0	$124,000
Russell	9	1	2	6	0	0	0	0	$12,000
Rutland	30	10	1	19	0	0	0	0	$182,250
Salem	171	59	25	87	0	0	0	1	$320,000
Salisbury	10	3	5	2	0	0	0	0	$100,000
Sandisfield	15	10	1	4	0	0	0	0	$40,000
Sandwich	110	81	17	12	0	2	0	0	$1,450,080
Saugus	166	68	14	84	0	0	0	2	$1,532,990
Savoy	2	2	0	0	0	0	0	0	$0
Scituate	55	25	5	25	0	5	0	1	$143,000
Seekonk	59	28	9	22	0	1	0	0	$283,550
Sharon	38	23	12	3	0	0	0	0	$266,425
Sheffield	2	1	0	1	0	0	0	0	$0

2009 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	1	0	0	1	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	25	14	2	9	0	1	0	0	$100,800
Plainfield	0	0	0	0	0	0	0	0	$0
Plainville	1	0	0	1	0	0	0	0	$0
Plymouth	6	1	3	2	0	0	0	1	$15,000
Plympton	0	0	0	0	0	0	0	0	$0
Princeton	3	2	1	0	0	0	0	0	$0
Provincetown	0	0	0	0	0	0	0	0	$0
Quincy	7	0	1	6	0	0	0	0	$0
Randolph	1	0	0	1	0	0	0	0	$0
Raynham	1	0	0	1	0	0	0	0	$0
Reading	6	0	0	6	0	0	0	0	$0
Rehoboth	2	1	1	0	0	0	0	0	$0
Revere	3	3	0	0	0	0	0	0	$500
Richmond	0	0	0	0	0	0	0	0	$0
Rochester	0	0	0	0	0	0	0	0	$0
Rockland	2	0	1	1	0	0	0	0	$0
Rockport	0	0	0	0	0	0	0	0	$0
Rowe	0	0	0	0	0	0	0	0	$0
Rowley	0	0	0	0	0	0	0	0	$0
Royalston	1	1	0	0	0	0	0	0	$100,000
Russell	0	0	0	0	0	0	0	0	$0
Rutland	4	1	0	3	0	0	0	0	$0
Salem	10	1	3	6	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	4	3	0	1	0	0	0	0	$170,120
Saugus	7	1	1	5	0	0	0	0	$5,000
Savoy	0	0	0	0	0	0	0	0	$0
Scituate	2	0	0	2	0	0	0	0	$0
Seekonk	2	2	0	0	0	0	0	0	$0
Sharon	0	0	0	0	0	0	0	0	$0
Sheffield	1	1	0	0	0	0	0	0	$0

2009 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	*2*	*1*	*0*	*1*	*0*	*0*	*0*	*0*	*$0*
Shelburne Falls	*4*	*1*	*1*	*2*	*0*	*0*	*0*	*0*	*$0*
Sherborn	26	10	3	13	0	0	0	1	$360,000
Shirley	23	23	0	0	0	3	0	0	$22
Shrewsbury	107	71	11	25	0	0	0	0	$577,400
Shutesbury	5	3	0	2	0	0	0	0	$0
Somerset	32	14	2	16	1	0	0	2	$330,600
Somerville	49	32	16	1	0	2	0	5	$2,095,920
South Hadley Fire Districts									
South Hadley #1	*46*	*9*	*7*	*30*	*0*	*1*	*0*	*0*	*$383,000*
South Hadley #2	*44*	*42*	*0*	*2*	*0*	*1*	*0*	*0*	*$150,000*
Southampton	11	1	0	10	0	0	0	0	$0
Southborough	25	15	6	4	0	1	0	0	$86,101
Southbridge	76	55	7	14	0	4	0	3	$1,249,800
Southwick	21	11	1	9	0	0	0	0	$255,000
Spencer	68	40	8	20	1	1	0	0	$43,000
Springfield	960	583	109	268	4	23	0	49	$4,518,247
Sterling	41	15	6	20	0	1	0	0	$349,801
Stockbridge	1	1	0	0	0	0	0	0	$4,286
Stoneham	87	72	6	9	0	0	0	0	$1,990,000
Stoughton	266	246	11	9	0	2	0	7	$1,405,000
Stow	18	5	3	10	0	0	0	0	$21,500
Sturbridge	40	17	7	16	0	1	0	0	$152,500
Sudbury	32	13	4	15	1	0	0	1	$0
Sunderland	3	2	0	1	0	0	0	0	$0
Sutton	20	10	2	8	0	0	0	0	$722,999
Swampscott	40	23	4	13	0	0	0	0	$42,850
Swansea	87	34	20	33	0	2	0	0	$0
Taunton	143	32	25	86	0	0	0	1	$3,000
Templeton	47	26	4	17	0	1	0	0	$10,000
Tewksbury	92	44	15	33	0	0	0	0	$637,150
Tisbury	14	4	5	5	0	0	0	0	$5,000
Tolland	5	0	1	4	0	0	0	0	$0
Topsfield	70	55	5	10	0	1	0	1	$303,000
Townsend	8	6	2	0	0	0	0	0	$99,000
Truro	4	2	1	1	0	0	0	0	$387,000

2009 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	5	1	1	3	0	0	0	0	$0
Shirley	1	1	0	0	0	0	0	0	$0
Shrewsbury	4	0	0	4	0	0	0	0	$0
Shutesbury	0	0	0	0	0	0	0	0	$0
Somerset	3	1	0	2	0	0	0	0	$100
Somerville	2	2	0	0	0	0	0	0	$1,000
South Hadley Fire Districts									
South Hadley #1	*4*	*0*	*1*	*3*	*0*	*0*	*0*	*0*	*$5,000*
South Hadley #2	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Southampton	3	0	0	3	0	0	0	0	$0
Southborough	0	0	0	0	0	0	0	0	$0
Southbridge	3	2	1	0	0	0	0	0	$11,500
Southwick	1	0	0	1	0	0	0	0	$0
Spencer	4	1	1	2	1	0	0	0	$18,000
Springfield	16	7	6	3	2	0	0	4	$171,100
Sterling	4	1	1	2	0	1	0	0	$70,500
Stockbridge	0	0	0	0	0	0	0	0	$0
Stoneham	1	1	0	0	0	0	0	0	$40,000
Stoughton	0	0	0	0	0	0	0	0	$0
Stow	2	0	0	2	0	0	0	0	$0
Sturbridge	1	0	0	1	0	0	0	0	$0
Sudbury	1	0	1	0	1	0	0	0	$0
Sunderland	0	0	0	0	0	0	0	0	$0
Sutton	1	0	0	1	0	0	0	0	$0
Swampscott	8	4	0	4	0	0	0	0	$3,000
Swansea	3	2	0	1	0	2	0	0	$0
Taunton	11	2	0	9	0	0	0	0	$3,000
Templeton	3	0	0	3	0	0	0	0	$0
Tewksbury	2	1	0	1	0	0	0	0	$3,500
Tisbury	0	0	0	0	0	0	0	0	$0
Tolland	0	0	0	0	0	0	0	0	$0
Topsfield	2	0	0	2	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

2009 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	19	7	4	8	0	0	0	0	$10,500
Tyringham	1	1	0	0	0	0	0	0	$2,000
Upton	42	23	6	13	0	1	0	0	$179,600
Uxbridge	58	35	6	17	0	0	0	0	$258,700
Wakefield	54	38	13	3	0	0	0	0	$100,000
Wales	3	0	0	3	0	0	0	0	$781,500
Walpole	86	58	8	20	0	1	0	2	$719,000
Waltham	148	74	13	61	2	4	0	2	$574,450
Ware	51	16	4	31	1	2	0	2	$565,509
Wareham Fire Districts									
Onset	*36*	*19*	*6*	*11*	*0*	*2*	*0*	*0*	*$0*
Wareham	*94*	*44*	*24*	*26*	*0*	*3*	*0*	*0*	*$536,497*
Warren	21	11	3	7	0	0	0	0	$6,500
Warwick	1	1	0	0	0	0	0	0	$68,300
Washington	0	0	0	0	0	0	0	0	$0
Watertown	50	24	7	19	0	1	0	4	$436,550
Wayland	25	15	3	7	0	0	0	0	$343,623
Webster	46	12	3	31	0	0	0	1	$108,000
Wellesley	77	48	6	23	0	0	0	0	$379,350
Wellfleet	11	5	1	5	0	0	0	0	$750
Wendell	2	1	0	1	0	0	0	0	$0
Wenham	16	9	4	3	0	0	0	0	$85,000
West Boylston	21	6	0	15	0	0	0	0	$5,500
West Bridgewater	34	6	16	12	0	0	0	1	$127,425
West Brookfield	9	7	0	2	0	0	0	0	$95,240
West Newbury	1	1	0	0	0	0	0	0	$0
West Springfield	65	22	13	30	0	1	0	1	$208,600
West Stockbridge	4	2	0	2	0	0	0	0	$94,000
West Tisbury	1	1	0	0	0	0	0	0	$0
Westborough	59	29	10	20	0	0	0	0	$286,500
Westfield	123	72	17	34	0	3	0	1	$1,826,260
Westford	68	22	8	38	0	2	0	0	$328,660
Westhampton	13	6	2	5	0	0	0	0	$0
Westminster	24	10	4	10	0	1	0	0	$62,900
Weston	56	32	10	14	0	0	0	0	$3,600,000
Westport	52	15	9	28	0	1	0	1	$842,780
Westwood	81	64	8	9	0	1	0	0	$121,000
Weymouth	220	137	21	62	0	4	0	14	$925,735

2009 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	9	0	0	9	0	0	0	0	$0
Uxbridge	3	0	0	3	0	0	0	0	$0
Wakefield	1	0	1	0	0	0	0	0	$0
Wales	0	0	0	0	0	0	0	0	$0
Walpole	2	2	0	0	0	0	0	0	$150,500
Waltham	6	1	0	5	1	0	0	0	$0
Ware	0	0	0	0	0	0	0	0	$0
Wareham Fire Districts									
Onset	*2*	*0*	*1*	*1*	*0*	*0*	*0*	*0*	*$0*
Wareham	*2*	*0*	*1*	*1*	*0*	*0*	*0*	*0*	*$2,300*
Warren	2	1	0	1	0	0	0	0	$0
Warwick	0	0	0	0	0	0	0	0	$0
Washington	0	0	0	0	0	0	0	0	$0
Watertown	0	0	0	0	0	0	0	0	$0
Wayland	0	0	0	0	0	0	0	0	$0
Webster	5	0	0	5	0	0	0	0	$0
Wellesley	2	1	0	1	0	0	0	0	$0
Wellfleet	0	0	0	0	0	0	0	0	$0
Wendell	0	0	0	0	0	0	0	0	$0
Wenham	0	0	0	0	0	0	0	0	$0
West Boylston	3	0	0	3	0	0	0	0	$0
West Bridgewater	2	0	2	0	0	0	0	0	$34,000
West Brookfield	0	0	0	0	0	0	0	0	$0
West Newbury	0	0	0	0	0	0	0	0	$0
West Springfield	4	0	0	4	0	0	0	0	$0
West Stockbridge	1	0	0	1	0	0	0	0	$0
West Tisbury	0	0	0	0	0	0	0	0	$0
Westborough	2	0	0	2	0	0	0	0	$0
Westfield	2	1	1	0	0	0	0	0	$50
Westford	1	0	0	1	0	0	0	0	$0
Westhampton	0	0	0	0	0	0	0	0	$0
Westminster	3	1	1	1	0	0	0	0	$8,300
Weston	2	0	0	2	0	0	0	0	$0
Westport	5	0	0	5	0	0	0	0	$0
Westwood	0	0	0	0	0	0	0	0	$0
Weymouth	8	3	1	4	0	0	0	1	$16,785

2009 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	5	2	2	1	0	0	0	0	$0
Whitman	42	20	3	19	1	2	0	1	$150,650
Wilbraham	46	32	3	11	0	0	0	0	$401,500
Williamsburg	10	6	0	4	0	0	0	0	$12,000
Williamstown	16	10	5	1	0	0	0	1	$604,573
Wilmington	92	51	14	27	0	0	0	0	$54,900
Winchendon	26	20	2	4	0	0	0	0	$440,003
Winchester	64	42	7	15	0	3	0	0	$1,356,000
Windsor	2	0	0	2	0	0	0	0	$22,000
Winthrop	89	45	11	33	0	1	0	0	$382,937
Woburn	70	42	17	11	0	1	0	0	$495,000
Worcester	1,232	696	111	425	1	5	0	36	$5,349,841
Worthington	1	1	0	0	0	0	0	0	$50,000
Wrentham	39	15	3	21	0	0	0	0	$10,510
Yarmouth	81	32	15	34	0	7	0	23	$608,022

2009 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	3	0	0	3	0	0	0	0	$500
Wilbraham	2	0	0	2	0	0	0	0	$0
Williamsburg	2	0	0	2	0	0	0	0	$0
Williamstown	1	0	0	1	0	0	0	0	$0
Wilmington	4	2	1	1	0	0	0	0	$6,000
Winchendon	0	0	0	0	0	0	0	0	$0
Winchester	3	2	0	1	0	0	0	0	$140,000
Windsor	0	0	0	0	0	0	0	0	$0
Winthrop	8	1	1	6	0	0	0	0	$31,400
Woburn	0	0	0	0	0	0	0	0	$0
Worcester	56	13	12	31	0	0	0	1	$86,150
Worthington	0	0	0	0	0	0	0	0	$0
Wrentham	4	0	0	4	0	0	0	0	$0
Yarmouth	10	2	1	7	0	0	0	0	$40,102

2009 Fires By Incident Type

Incident Type	Total Fires	% of Total	Civilian Deaths	Civilian Inj.	Fire Service Deaths	Fire Service Inj.	Dollar Loss
Structure Fires	17,198	57%	44	273	0	582	$234,770,019
Vehicle Fires	3,076	10%	5	23	1	16	14,831,503
Brush Fires	4,834	16%	0	7	0	15	340,679
Outside Rubbish Fires	3,270	11%	0	2	0	3	137,285
Special Outside Fires	858	3%	0	11	0	3	1,108,479
Cult. Veg.& Crop Fires	46	0.2%	0	0	0	0	8,200
Other Fires	854	3%	0	21	0	3	2,997,568
Total Fires	**30,136**	**100%**	**49**	**337**	**1**	**622**	**$254,193,733**

2009 Arsons* By Incident Type

Incident Type	Total Fires	% of Total	Civilian Deaths	Civilian Inj.	Fire Service Deaths	Fire Service Inj.	Dollar Loss
Structure Arsons	280	24%	4	5	0	41	$12,916,623
Vehicle Arsons	150	13%	1	2	0	0	870,397
Brush Arsons	445	38%	0	0	0	0	11,360
Outside Rubbish Arsons	99	10%	0	1	0	1	12,141
Special Outside Arsons	115	10%	0	1	0	0	9,236
Cult. Veg.& Crop Arsons	3	0.3%	0	0	0	0	600
Other Arsons	90	8%	0	1	0	0	144,307
Total Arsons	**1,182**	**100%**	**5**	**10**	**0**	**42**	**$13,964,664**

*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.

2009 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	883	454	140	289	0	35	0	37	$7,581,342
Berkshire	668	412	60	196	1	2	0	5	5,874,520
Bristol	1,774	796	306	672	7	39	0	29	12,904,955
Dukes	19	8	5	6	0	0	0	0	5,000
Essex	2,775	1,642	333	800	0	18	0	26	18,346,492
Franklin	302	163	27	116	0	3	0	5	2,017,050
Hampden	2,032	1,146	255	631	5	42	0	58	12,467,359
Hampshire	535	250	58	227	3	16	0	8	8,625,479
Middlesex	5,150	3,381	503	1,266	4	58	0	106	44,543,999
Nantucket	38	26	3	9	0	0	0	0	3,500
Norfolk	2,780	1,845	275	660	4	16	0	59	11,322,050
Plymouth	1,444	699	248	497	7	45	0	30	11,452,952
Suffolk	6,386	4,768	475	1,143	0	13	0	41	29,517,460
Worcester	3,850	2,183	381	1,241	5	45	0	56	18,433,647
Total	**28,595**	**17,773**	**3,069**	**7,753**	**36**	**332**	**0**	**460**	**$183,095,805**

2009 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	66	16	3	47	0	3	0	0	$330,742
Berkshire	44	18	6	20	1	1	0	1	186,175
Bristol	137	53	18	66	0	3	0	1	1,270,653
Dukes	0	0	0	0	0	0	0	0	0
Essex	186	32	19	135	0	0	0	0	1,418,397
Franklin	17	2	1	14	0	1	0	0	700
Hampden	70	16	12	42	2	0	0	4	733,950
Hampshire	45	7	8	30	2	0	0	0	787,926
Middlesex	173	41	29	103	2	4	0	4	1,455,204
Nantucket	1	0	0	1	0	0	0	0	0
Norfolk	58	8	5	45	0	2	0	1	277,015
Plymouth	75	22	22	31	0	2	0	3	1,831,912
Suffolk	129	36	36	57	0	0	0	0	2,884,950
Worcester	183	40	29	114	1	3	0	4	758,176
Total	**1,184**	**291**	**188**	**705**	**8**	**19**	**0**	**18**	**$11,935,530**

*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.

2009 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	222,230	883	4.0	0	0.0	0.00	66	0.3
Berkshire	134,953	668	4.9	1	1.5	0.07	44	0.3
Bristol	534,678	1,774	3.3	7	3.9	0.13	137	0.3
Dukes	14,987	19	1.3	0	0.0	0.00	0	0.0
Essex	723,419	2,775	3.8	0	0.0	0.00	186	0.3
Franklin	71,535	306	4.3	0	0.0	0.00	17	0.2
Hampden	456,228	2,032	4.5	5	2.5	0.11	70	0.2
Hampshire	152,251	535	3.5	3	5.6	0.20	45	0.3
Middlesex	1,465,396	5,150	3.5	4	0.8	0.03	173	0.1
Nantucket	9,520	38	4.0	0	0.0	0.00	1	0.1
Norfolk	650,308	2,780	4.3	4	1.4	0.06	58	0.1
Plymouth	472,822	1,444	3.1	7	4.8	0.15	75	0.2
Suffolk	689,807	6,386	9.3	0	0.0	0.00	129	0.2
Worcester	750,963	3,805	5.1	5	1.3	0.07	183	0.2
Massachusetts	**6,349,097**	**28,595**	**4.5**	**36**	**1.3**	**0.06**	**1,184**	**0.2**

*Population statistics based on 2000 U.S. Census Bureau data.

2009 Non-Fire Responses By County and By Incident Type

County	Total Non-Fire Responses	Overpressure Rupt. & Explos. (No-fire)	Rescue EMS Incidents	Hazardous Conditions (No-fire)	Service Calls	Good Intent Calls	False Alarm Calls	Severe WX[1] & Natural Disaster	Special Incident Type
Barnstable	37,298	47	27,129	1,865	2,582	1,343	4,156	23	153
Berkshire	10,372	13	5,882	868	1,240	508	1,796	25	40
Bristol	41,484	68	24,192	2,399	3,233	2,955	8,322	30	285
Dukes	131	1	7	3	5	1	114	0	0
Essex	72,417	123	41,287	3,968	8,628	4,906	12,998	73	434
Franklin	5,575	11	2,767	400	999	535	834	14	214
Hampden	38,507	77	23,326	1,690	3,090	3,488	6,686	13	137
Hampshire	11,106	40	6,760	693	673	622	2,182	11	125
Middlesex	144,955	137	82,751	9,927	14,009	8,279	24,896	84	4,872
Nantucket	2,154	0	1,014	136	362	86	551	0	5
Norfolk	74,078	109	45,997	5,054	7,006	3,938	11,000	34	940
Plymouth	43,468	94	27,200	3,527	4,107	2,734	5,553	46	207
Suffolk	83,847	97	45,696	5,780	10,607	6,323	14,977	11	356
Worcester	75,927	152	50,403	4,167	5,780	3,885	10,641	78	821
Massachusetts	**641,519**	**970**	**384,411**	**40,477**	**62,321**	**39,603**	**104,706**	**442**	**8,589**

[1] WX is the abbreviation for Weather.

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

"In any city or town which accepts the provisions of this section, every building of more than seventy-five hundred gross square feet in floor area or every addition of more than seventy-five hundred gross square feet in floor area shall be protected throughout with an adequate system of automatic sprinklers in accordance with the state building code; provided, however, that in the case of said addition, such an adequate system of automatic sprinklers shall be installed in said addition only. No such sprinkler system shall be required unless sufficient water and water pressure exists. For the purposes of this section, the gross square feet of a building or addition shall include the sum total of the floor areas for all floor levels, basements and sub-basements, measured from outside walls, irrespective of the existence of interior fire resistive walls, floors and ceilings.

In such buildings or additions, or in certain areas of such buildings or additions, 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 a one-story building having a fire resistance rating as prescribed in the state building code that is used solely for offices provided the building is protected by 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 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 board as provided in section two hundred and one of chapter six."

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

Abington
Acton
Acushnet
Agawam
Amesbury
Amherst
Arlington
Ashburnham
Ashland
Attleboro
Auburn
Avon
Ayer
Barnstable
Barre
Belchertown
Bellingham
Belmont
Berkley
Beverly
Billerica
Boston
Boxborough
Braintree
Bridgewater
Brockton
Brookfield
Brookline
Burlington
Cambridge
Centerville
Chatham
Chelsea
Chelmsford
Chicopee
Cohasset
Concord
Cotuit
Danvers
Dartmouth Dist. 1
Dartmouth Dist. 3
Dedham
Dighton
Duxbury
East Bridgewater
East Longmeadow
Easton
Edgartown
Everett
Fairhaven
Fall River
Falmouth
Fitchburg
Foxborough
Framingham
Franklin
Gardner
Georgetown
Grafton
Granby
Great Barrington
Groton
Hamilton
Hanover
Hanson
Harwich
Haverhill
Hingham
Holbrook
Holden
Holliston
Holyoke
Hopedale
Hubbardston
Hudson
Hull
Hyannis
Ipswich
Kingston
Lakeville
Lancaster
Lawrence
Leicester
Leominster
Lexington
Lowell
Ludlow
Lunenburg
Manchester
Mansfield
Marblehead
Marlborough
Marshfield
Mashpee
Maynard
Medfield
Medford
Medway
Melrose
Methuen
Middleborough
Middleton
Milford
Millbury
Natick
Needham
Newburyport
Newton
North Andover
North Attleboro
North Reading
Northborough
Norton
Norwell
Orange
Paxton
Pelham
Pittsfield
Plainville
Plymouth
Randolph
Raynham
Reading
Revere
Rockland
Rutland
Salem
Sandwich
Saugus
Scituate
Seekonk
Sharon
Shirley
Shrewsbury
Somerset
Somerville
S. Hadley-Dist. 2
Southborough
Southbridge
Sterling
Stoneham
Stoughton
Sudbury
Sutton
Swampscott
Swansea
Taunton
Tewksbury
Tisbury
Turners Falls
Tyngsboro
Upton
Wakefield
Walpole
Waltham
Ware
Wareham
Warren
Watertown
Wayland
Wellesley
Wenham
West Barnstable
West Boylston
West Bridgewater
West Brookfield
West Springfield
Westborough
Westfield
Westford
Westminster
Westport
Westwood
Whitman
Wilbraham
Wilmington
Winchester
Winthrop
Woburn
Worcester
Wrentham
Yarmouth

Total : 182

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 home 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 Which Have Adopted M.G.L. Chapter 148 Section 26H

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

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

Total: 115


FIRE ALARM
PULL DOWN
Fire Prevention-Everyone/Everyday