The Massachusetts Fire Problem

Annual Report of the Massachusetts Fire Incident Reporting System

2010

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 2011 First and Second Place winning entries of the 29th 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. The poster theme was **"FIRE PREVENTION – EVERYONE / EVERY DAY".**

A countywide contest was held for all students in grade 6-8. Eleven out of 14 counties participated with over 1,000 posters submitted. Posters were judged, and First and Second Place County Winners were chosen at MPIUA by an impartial panel of judges. All First Place County Winners were then entered into the Massachusetts Statewide Contest. An Award Ceremony was held in honor of all county winners at the Sheraton Framingham Hotel on May 19, 2011, at which time the three State Winners were announced and presented with their awards.

The front cover shows a drawing submitted by Meghan Messer, a student at the Lakeview Junior High School, Dracut, Massachusetts. Meghan's poster was chosen as the First Place Winner in the Middlesex County Poster Contest, and as a result, was automatically entered into the statewide contest, along with 10 other county winners, where it was chosen as the First Place Statewide Winner.

The back cover shows a drawing submitted by Jessica Morris, a student at the Silver Lake Regional Middle School, Kingston, Massachusetts. Jessica's poster was chosen as the First Place Winner in the Plymouth 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 2010 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 28 years.

Massachusetts Fire Incident Reporting System

2010 Annual Report

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

www.mass.gov/dfs/

Fireman's Prayer

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

-Unknown

Foreword from the State Fire Marshal

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

December 2011

This is the *2010 Annual Report of the Massachusetts Fire Incident Reporting System* (MFIRS), which summarizes the Massachusetts fire experience for 2010. It is based on the 32,680 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 3% - New All Time Record Low

Thirty-six (36) civilians died in 30 Massachusetts fires during 2010. Civilian deaths decreased by one, or 3%, from the previous record low of 37 fire deaths in 2009. This is the lowest number of fire-related deaths on record since World War II[1], and the third new record low in the last five years. The majority of these victims died at night at home, while they were sleeping and did not have working smoke detectors or residential sprinklers which could have saved them. 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. 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.

2 Fire-Related Firefighter Deaths in 2010

There were two fire-related fire service fatalities in the Commonwealth of Massachusetts in 2010. One (1) firefighter suffered a heart attack hours after responding as part of a mutual aid company to a house fire, and the other firefighter suffered a heart attack while driving an engine responding to a cooking fire on Thanksgiving.

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. We must continue our focus on prevention and education. Our annual reports have also measured the positive impact of smoke alarms in reducing fire deaths and multiple death fires, as well as the impact of smoking laws and tobacco control programs in reducing fires and fire deaths. The Student Awareness of Fire Education Program (S.A.F.E.) has had the planned impact of reducing child fire deaths. Seniors 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 Office of the State Fire Marshal.

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

Smoking Still Leading Cause of Fire Deaths
Since World War II smoking has been the leading cause of fatal fires in Massachusetts. The expectation is that when the effect of Fire Standard Compliant law is fully realized, it will help reduce the number of fatal fires and fire deaths in the Commonwealth. This may already be happening since we have had a reduction in the total number of fire deaths caused by smoking the past four years from a high of 19 deaths in 2007 to 10 deaths in both 2009 and 2010. 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-six percent (66%) of all residential building fires started in the kitchen. Over one quarter of all civilian fire injuries, or 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.

Stand by Your Pan & Put a Lid On It
Because cooking is the leading cause of fires and civilian fire injuries, in 2011 the Department of Fire Services will be launching a new public awareness campaign on cooking safety that will include television and radio spots and a toolkit for local fire chiefs that will contain educational materials, a hard copy public service announcement, lesson plans, bookmarks and a customizable press release. The two main messages of this campaign are ‘Stand by your Pan’ and ‘Put a Lid on it’.

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

We would like to thank the Massachusetts Property Insurance Underwriting Association for printing this report and for their support throughout the year. We also wish to thank Governor Deval L. Patrick and Public Safety and Security Secretary Mary Elizabeth Heffernan for their commitment and support to the Massachusetts fire service through the Department of Fire Services.

Stephen D. Coan
State Fire Marshal

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Executive Summary

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

-Massachusetts General Laws, Chapter 148, Section 2.

Civilian Fire Deaths Down 3% - New All Time Record Low

Thirty-six (36) civilians died in 30 Massachusetts fires in 2010. Civilian deaths decreased by one, or 3%, from the 37 fire deaths in 2009. 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 low was 37 civilian deaths in 2009. Twenty-five (25) men, 10 women, and one child died in Massachusetts' fires. Of the 36 civilian deaths in fires in 2010, 25 occurred in residential structures. Almost one-half, or 47%, of civilians died at night at home, while they were sleeping and did not have working smoke detectors or residential sprinklers. It is also important to remember that detectors only provide an early warning of a fire. They do not guarantee an escape. Federal studies show in a typical flaming fire, one has only about three minutes to evacuate safely before untenable conditions are encountered. 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 three people were killed in three outside fires in 2010.

2 Fire-Related Firefighter Deaths in 2010

There were two fire-related fire service fatalities in the Commonwealth of Massachusetts in 2010. One (1) firefighter suffered a heart attack hours after responding as part of a mutual aid company to a house fire; the other firefighter suffered a heart attack while driving an engine responding to a cooking fire on Thanksgiving.

18,560 Structure Fires, 2,967 Vehicle Fires, 11,153 Outside & Other Fires in 2010

There were 32,680 fire and explosion incidents reported by fire departments to the Massachusetts Fire Incident Reporting System (MFIRS) in 2010. The 18,560 structure fires, 2,967 motor vehicle fires, and 11,153 outside and other fires caused 36 civilian deaths, two fire service deaths, 366 civilian injuries, 531 fire service injuries, and an estimated dollar loss of $196.5 million in property damages. In 2010 there were 1.1 civilian deaths for every 1,000 fires.

Structure Fires & Outside Fires Up in 2010

The total number of reported fires increased by 5% from 28,705 in 2009 to 32,680 in 2010. Structure fires increased by 4% from 2009 to 2010. From 2009 to 2010, motor

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

vehicle fires decreased by 4%. Outside, brush, and other fires increased by 43% during the same time period.

Although the law states that only fires where a loss is sustained must be reported, many fire departments are wisely reporting all of the fire incidents that they respond to, giving a more accurate picture of the fire problem in Massachusetts. Knowing the importance of data, we all need to work on more accurate figures. Many departments are also reporting the non-fire calls to which they respond. Emergency medical and rescue calls represent over half, or 56%, of the 727,626 total responses that were reported to MFIRS in 2010.

Cooking Was the Leading Cause of Residential Building Fires
Sixty-four percent (64%) of all residential building fires were caused by unattended or other unsafe cooking practices in 2010. Sixty-six percent (66%) of residential fires originated in the kitchen.

Once Again Smoking Fires Are the Leading Cause of Fire Deaths
In 2010, smoking fires were the leading cause of residential building fire deaths. These fires accounted for 10, or 40%, 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 fatal fires. In 2005, electrical fires were the leading cause of residential fire deaths, but smoking remained the leading cause of fatal residential fires. Because a fire can kill more than one person, it is important to look at the causes of both fatal fires and fire deaths.

Detectors Operated in 63% of Fires
Smoke or heat detectors operated in 9,457, or 63%, of the residential building fires in 2010. 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 3,522 incidents, or 23%, of Massachusetts' 2010 residential building fires.

Detectors Operated in Over 1/2 of Building Fires that Caused Injuries
Detectors operated in just over half, or 54%, 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, allowing the professionals with the proper training and equipment to extinguish the fire.

Overall Arson Down Slightly
One thousand one hundred and sixty-nine (1,169) Massachusetts fires were considered arson in 2010. The 268 structure arsons, 1115 motor vehicle arsons, and 786 outside and other arsons caused eight civilian deaths, 13 civilian injuries, 17 fire service injuries, and

an estimated dollar loss of $7.1 million. This is a 1% decrease in arson from the 1,185 reported in 2009.

Structure arsons decreased by 9%, while motor vehicle arsons dropped by 39% from 2009 to 2010, although motor vehicle arson has fallen by 98% since 1987. The steady decline of motor vehicle arsons can be explained by the enactment of the Burned Motor Vehicle Reporting Law. It took effect in 1987, and requires owners of burned motor vehicles to complete and sign a report that must also be signed by a fire official from the department in the community where the fire occurred before they can collect on their fire insurance. Outside and other arsons increased by 12%.

Firefighters Injured at 1 of Every 5 Vacant Building Fires

One of the most dangerous types of fires for firefighters in 2010 was vacant building fires. Vacant building fires accounted for 64, or 12%, of all firefighter injuries in 2010. These 64 injuries also represent 13% of the number of firefighter injuries at all 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. We must all work to address these problems.

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.

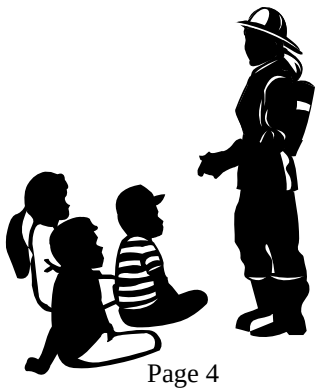
Massachusetts Fire Departments

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

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

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

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



Firefighters Teach the Community Fire and Burn Prevention
Firefighters go out in the community to teach children, seniors and interested community groups how to protect themselves from fire and burns. The statistics in this report are critical to these educators in

developing injury prevention programs. We should regularly 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 2010, 206 fire departments shared the $980,422 in S.A.F.E. funding.

Hanson Young Hero – Christian Silva

On Monday, February 1, 2010, 6-year old Christian Silva's mother suffered a medical emergency and her son called for help. Christian phoned 9-1-1, spoke clearly, stayed calm, gave the correct address, and waited for the arrival of the fire department and EMS personnel. During the emergency, Christian had the presence of mind to secure the family dog in its crate and met the fire department at the front door upon their arrival. Christian learned about 9-1-1 at home from his parents and the Hanson S.A.F.E. program reinforced his learning in school. When it counted, he put his knowledge and skills to use and his actions resulted in a very quick response by the fire department to help his mom.

Lt. Donald Parsons, Westford Fire Department

Lt. Don Parsons came to the fire service with experience as a teacher of professionals. He has been instrumental in challenging the department members to take a proactive approach to fire education, especially young new firefighters. His leadership and mentoring of firefighters has on-duty personnel attend Saturday soccer games and distribute fire education materials to parent spectators. Westford's fire education programs include the school-based S.A.F.E. program that has produced young heroes. They also work with scouting programs, a school for children with autism, a group home with mentally challenged adults, older adults and other community groups. As a key to the door to the technical high school, Lt. Parson's program allows seniors to receive OSHA certificates for training in flammables, combustibles and emergency preparedness. This helps them work in their fields as well as increasing their knowledge of fire safety. The technical high school has also had winners in the YouTube Burn Awareness Video Contest. In addition to leadership within his own town, Don has used his ability to teach at the state level. As a member of the MA Public Fire and Life Safety Education Task Force, Lt. Parsons works on the annual conference, and revising the state *Curriculum Planning Guidebook* in addition to other projects. His workshop *Fire Prevention through Education* has been delivered at the FPAM conference, the Public Education Conference and has been requested by individual fire chiefs for their members. The premise is that

when fire inspectors teach the 'why', they get long-term compliance with fire prevention rules, not just until the moment they walk away.

107 MA Departments Receive $42.7 Million in Federal Grants
One hundred and seven (107) local Massachusetts fire departments received $42.7 million in federal grants during fiscal year 2010.

In the eighth year of the Federal Assistance to Firefighters Grant program, 96 Massachusetts fire departments received $10 million. Eighty-nine (89) departments received $7.4 million for fire operations and firefighter safety. Seven (7) departments received $2.6 million for the purchase of firefighting vehicles.

Fifteen (15) fire departments were awarded $32.7 million in Federal SAFER grants that allow for the hiring and recruitment of more firefighters, and two fire departments were awarded $29,480 for fire prevention programs.

97.8% of Massachusetts Fire Departments Participated in MFIRS
By law, fire departments are required to report any fire or explosion resulting in a human casualty or dollar loss to the Office of the State Fire Marshal. This is done through the Massachusetts Fire Incident Reporting System (MFIRS). Three hundred and forty-nine (349), or 95.6%, of Massachusetts' fire departments reported at least one fire during 2010. Eight (8), or 2.2%, certified that they had no fires that met the criteria. As an added incentive to comply with the law, a community had to be participating in MFIRS to be eligible for the federal FIRE Act, SAFER grants and state S.A.F.E. funding.

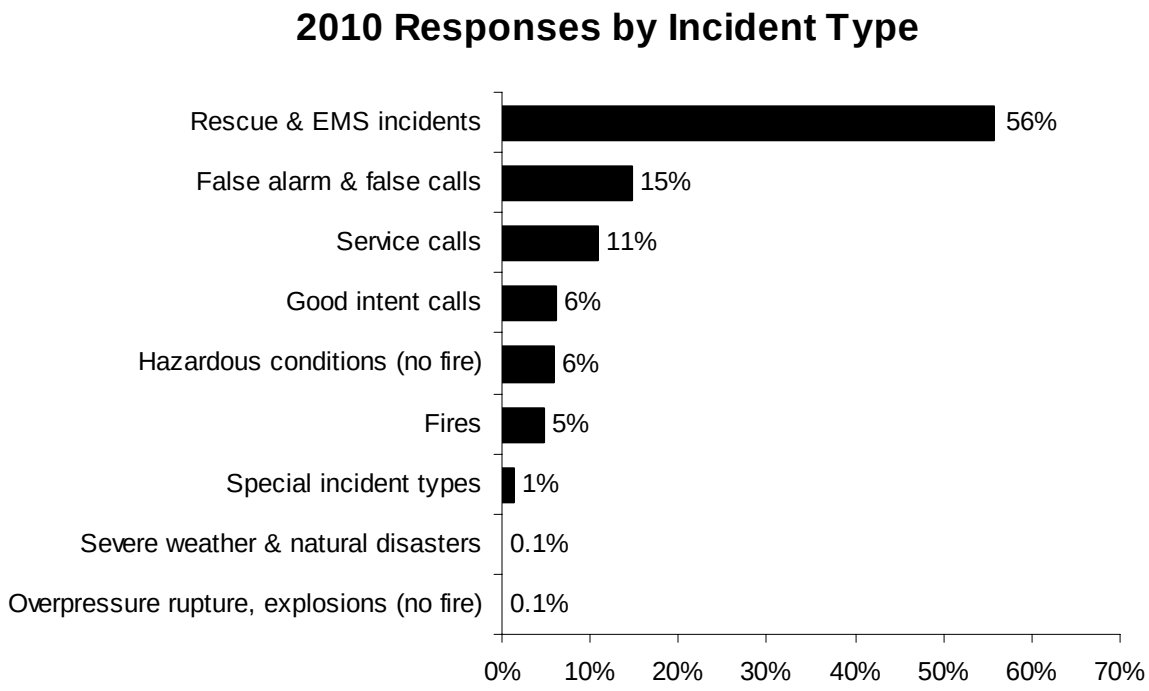
More and more departments are automating fire incident reporting and other department functions. In 2010, 274, or 75%, of Massachusetts' fire departments submitted their data electronically.

Non-Fire Incidents

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

56% of All Massachusetts Calls Were EMS Incidents
In 2010, 349 fire departments in Massachusetts reported 727,626 responses[2] to MFIRS. Of these 727,626 responses, 693,099 non-fire calls were voluntarily reported.

Of these 693,099 non-fire incidents there were 406,253 (56%) reported rescue and emergency medical services (EMS) calls; 107,743 (15%) reported false alarms or false calls; 79,655 (11%) reported service calls such as lock-outs, water or smoke problems, unauthorized burning or public service assistance; 44,315 (6%) reported good intent calls; 43,176 (6%) reported hazardous condition calls with no fire; 9,240 (1%) reported special incident type calls such as citizen complaints; 1,762 (0.1%) reported severe weather and natural disaster incidents; and 955 (0.1%) reported overpressure rupture, explosion or overheat calls with no fire.



Thirty-four thousand and five hundred and twenty-seven (34,527), or 5%, of the total responses submitted by Massachusetts fire departments were fires.

Most Large Cities Voluntarily Reported All of Their Incidents
Boston, the largest city in the Commonwealth, reported 69,939 non-fire incidents in 2010. The City of Worcester, the second largest city in Massachusetts, reported the second most non-fire incidents in 2010: 27,677 incidents. The next five cities in terms of the number of non-fire calls reported were: Springfield with 14,726; Cambridge with 13,425 calls; Lowell with 13,213 calls; New Bedford with 10,401 calls; and Lynn with 10,040 reported non-fire incidents in 2010.

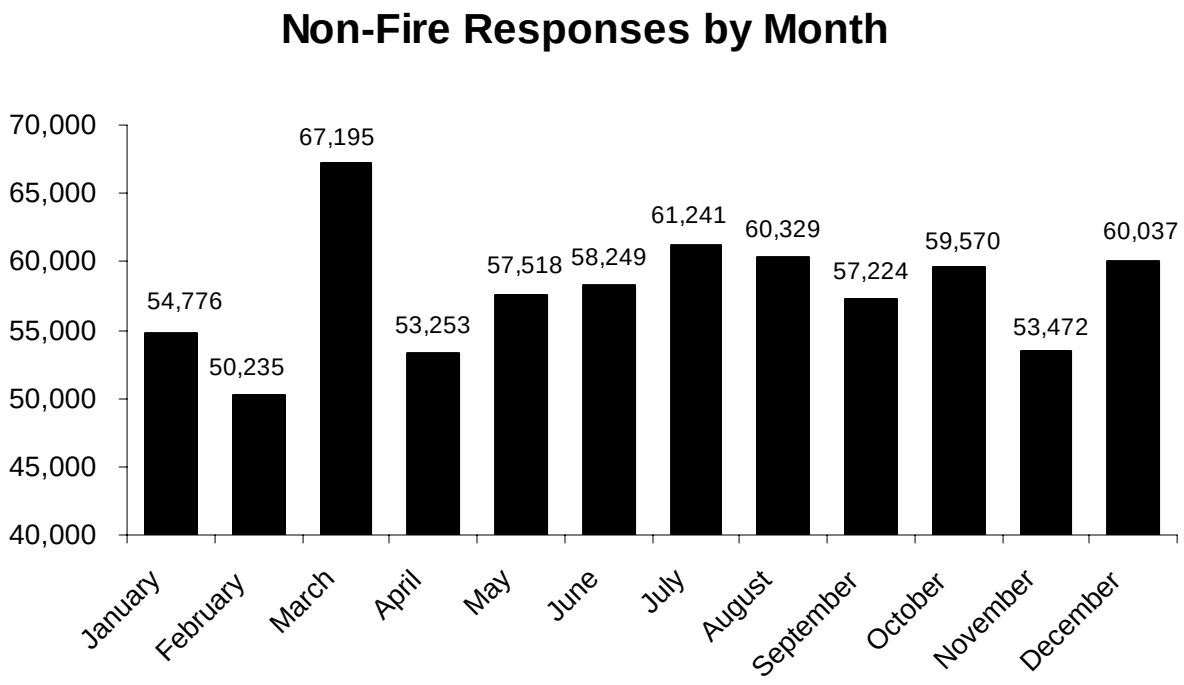
[2] These figures include responses in which fire departments gave mutual aid to other fire departments.

56% of All Fire Department Responses Were EMS Calls
Fifty-six percent (56%) of all reported 2010 fire department responses in the Commonwealth were emergency medical service calls. The top four types of all calls were all EMS type incidents. Over one-third of all reported incidents, or 34%, were non-vehicle accident with injury - EMS calls. Eleven percent (11%) were calls where firefighters assisted the EMS crews. Four percent (4%) were classified as rescue, EMS call, other. Three percent (3%) of all reported incidents in 2010 were motor vehicle accidents with injuries. The fifth most reported call type in 2010 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 2010. Middlesex County reported 22% of these types of incidents and Suffolk County reported 12%. Norfolk County submitted the third most non-fire calls, totaling 12% of all the 2010 non-fire incidents. Nantucket County reported 2,170 (0.3%) non-fire incidents and Dukes County[3] reported 128 non-fire incidents, accounting for 0.02% of all non-fire incidents reported to MFIRS in 2010.

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

Non-Fire Incidents by Month
March was the month with the most reported non-fire incidents in 2010 (10%), followed by July (9%) and August (9%). February was the month with the least reported non-fire incidents (7%). Statistically these incidents are spread evenly from month to month. Six (6) months each accounted for 8% of the incidents, four months each accounted for 9%, one month accounted for 10% and one month accounted for 7% of the incidents. The average number of monthly reported non-fire incidents in 2010 was 57,758 calls.



Aid Given & Received
In 2010, Massachusetts fire departments reported that they received mutual or automatic aid at 11,357, or 2%, of all calls. They also reported that they gave mutual, automatic or other aid to other fire departments 15,834 times, or another 2% of all calls.

Plymouth County Fire Departments Received the Most Aid
Plymouth County fire departments reported receiving the most aid, accounting for 1,919 incidents, or 17%, of all aid received calls reported by Massachusetts fire departments in 2010. These 1,919 calls represent 3% of their total calls. Middlesex County also accounted for 17% of all aid received calls, but these calls only accounted for 1% of their total calls. Norfolk County accounted for 16% of all aid received calls, but these calls only accounted for 2% of Norfolk County's total calls.

Middlesex County Gave the Most Aid
Middlesex County fire departments reported giving the most aid, accounting for 2,943 incidents, or 19%, of all aid given calls reported by Massachusetts fire departments in 2010. These 2,943 calls represent 2% of all of Middlesex County's reported calls in 2010. Norfolk County accounted for 18% of all aid given calls in 2010, but these calls only accounted for 3% of their total calls. Worcester County accounted for 13% of all aid received calls, but these calls only accounted for 2% of their total calls. Plymouth County accounted for 12% of all aid received calls, but these calls only accounted for 3% of their total calls.

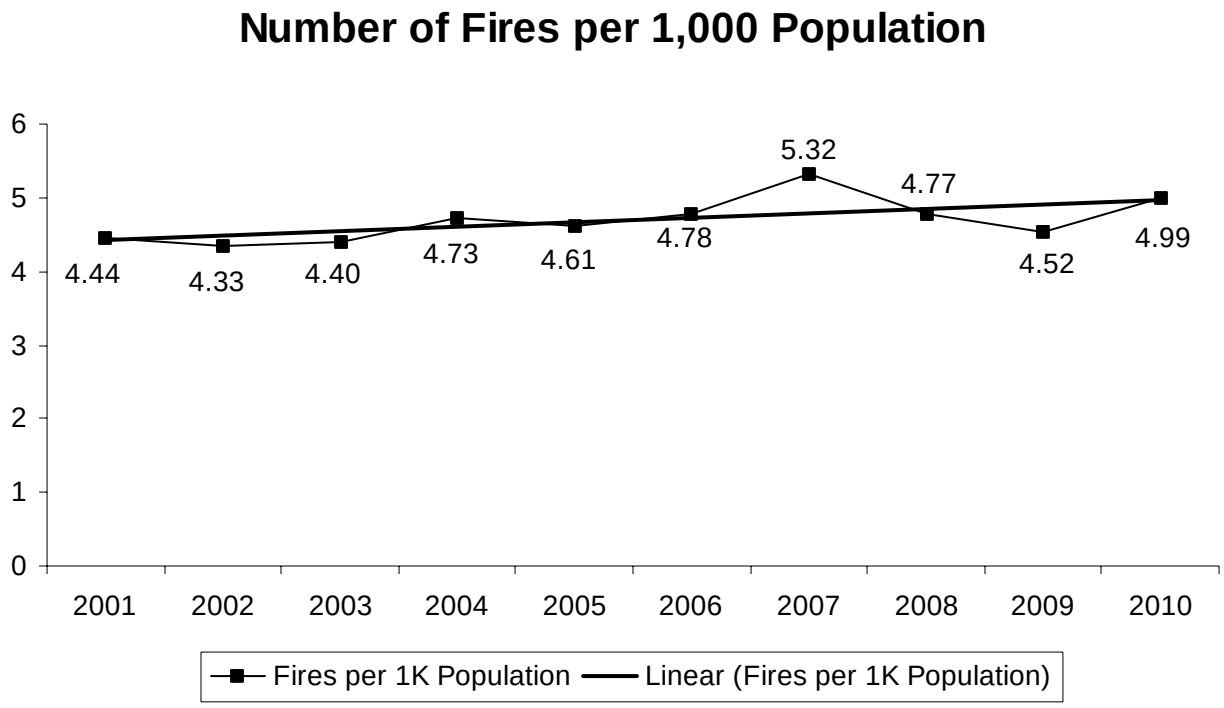
Fires by Incident Type

18,560 Structure Fires, 2,967 Vehicle Fires, 11,153 Outside & Other Fires in 2010
There were 32,680 fire and explosion incidents reported by fire departments to the Massachusetts Fire Incident Reporting System (MFIRS) in 2010. The 18,560 structure fires, 2,967 motor vehicle fires, and 11,153 outside and other fires caused 36 civilian deaths, two fire service deaths, 366 civilian injuries, 531 fire service injuries, and an estimated dollar loss of $196.5 million in property damages.

The following chart indicates the number of total fires reported per 1,000 citizens in Massachusetts per year from 2001 through 2010. In 2010, there were 4.99 fires for every 1,000 citizens in Massachusetts[4]. A figure like this allows one to compare our fire problem to other states of different sizes. For example in 2010, Washington reported 2.98 fires for every 1,000 of its citizens[5], Florida reported 3.21 fires for every 1,000 of its citizens[6], and Oregon reported 2.72 fires for every 1,000 of its citizens[7]. There were 4.31

[4] The population figures used were from 2000 and 2010 U.S. censuses. For 2001 – 2009, the population figure used was 6,319,097 people. For 2010 the population figure used was 6,547,629.
[5] Washington State Fire Marshal website - 2010 Fire in Washington.
[6] Florida Fires, State Fire Marshal Annual Report 2010, page 56, Summary Statistics.

fires per 1,000 citizens for the entire United States in 2010.[8] Massachusetts is above the national average of fires per 1,000 citizens by 0.68.

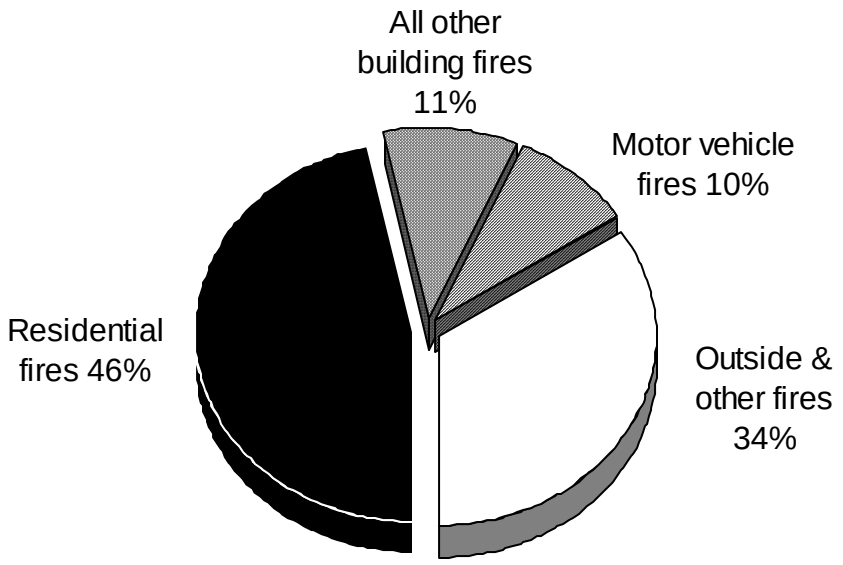


The following graph depicts the percentage of the major types of fires as part of the whole Massachusetts fire problem. In 2010, 57% of all reported fires were structure fires. The majority of fires were in people's homes. Forty-six percent (46%) of all fires in the Commonwealth and 82% of all structure fires occurred in someone's home; only 11% of all fires, and 18% of all structure fires, occurred in a type of building other than a residence. Ten percent (10%) were reported motor vehicle fires, while 34% were classified as outside and other fires.

[7] Per statistics obtained from Oregon's Office of the State Fire Marshal.

[8] 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.

2010 Fires by Incident Type



18,560 Structure Fires, 28 Civilian Deaths & 2 Firefighter Deaths
Massachusetts fire departments reported 18,560 structure fires to the Massachusetts Fire Incident Reporting System (MFIRS) in 2010. These fires killed 28 civilians and two firefighters, caused 309 civilian injuries, 491 fire service injuries, and an estimated $176.8 million in property damage. Structure fires accounted for 57% of the total incidents and 78% of the civilian deaths in 2010. Structure fires were up by 4% from 2009. There were 268 structure arsons in 2010. Structure fires in the Massachusetts Fire Incident Reporting System include any fires that occur inside or on a structure.

2,967 Motor Vehicle Fires Account for 10% of Reported Fires
The 2,967 motor vehicle fires caused five civilian deaths, 27 civilian injuries, 13 fire service injuries, and an estimated $15.5 million in property damage. These incidents accounted for 9% of the reported 32,680 fires in 2010. Motor vehicle fires accounted for 14% of civilian fire deaths. Motor vehicle fires were down by 4% from 2009. There were 115 motor vehicle arsons in 2010. According to MFIRS, a motor vehicle fire is defined as one involving a car, truck, boat, airplane, construction equipment or other mobile property that does not occur inside a structure.

11,153 Brush, Trash, and Other Outside Fires
The 11,153 outside and other fires caused three civilian deaths, 30 civilian injuries, 27 fire service injuries, and an estimated dollar loss of $4.2 million. The 5,926 trees, grass and brush fires, 3,260 outside rubbish fires, 918 special outside fires, 42 cultivated vegetation or crop fires, and 1,007 other fires accounted for 34% of the total fire incidents in 2010 and 8% of civilian fire deaths. These fires were up by 43% from the 7,806 outside and other fire incidents reported in 2009. There were 786 outside and other arsons

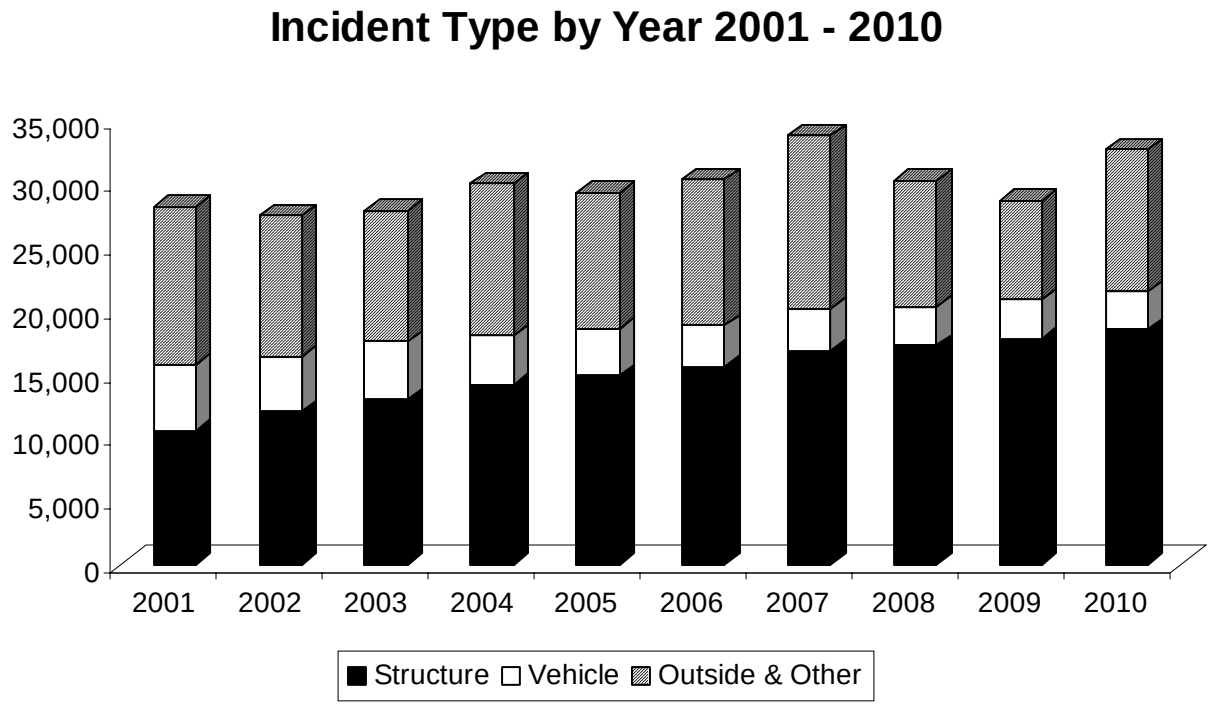
in 2010. Fire departments are required to report any fire or explosion resulting in a dollar loss or human casualty to MFIRS. Fires that do not result in a loss may be reported. Many fire departments, particularly those that submit data electronically, voluntarily report these fires. These figures should 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 2001 through 2010. The total number of fire incidents in 2010 was up by 14% from the 28,705 incidents reported in 2009. Overall, fires have been on an increasing trend since 2001. This is due to the increased number of departments that have automated their incident reporting and because of this automation, have begun to use the codes for confined fires inside of structures, Incident Types 113 – 118. In the past many of these confined fires may have been coded as smoke scares or other non-fire types of incidents.

Year	Total Fires	Structure Fires	Vehicle Fires	Other Fires
2010	32,680	18,560	2,967	11,153
2009	28,705	17,818	3,081	7,806
2008	30,254	17,269	3,085	9,900
2007	33,806	16,837	3,346	13,623
2006	30,324	15,607	3,270	11,447
2005	29,272	14,909	3,717	10,646
2004	30,057	14,226	3,831	12,000
2003	27,992	13,024	4,536	10,362
2002	27,519	12,035	4,356	11,128
2001	28,189	10,576	5,165	12,448

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[9], the number of structure fires steadily increased. During the past 10 years motor vehicle fires have steadily declined. However, the trend for outside and other fires seems to be developing a 'wave' pattern where the number of these types of fires rises or 'crests' every two to three years mostly due to the dry and hot weather patterns in the spring and summer that allow for an increased vulnerability of vegetation to brush fires.

[9] 2001 was the first year of MFIRS v5.0.



Structure Fires

18,560 Structure Fires Account for 57% of Reported Fires, 78% of Fire Deaths
The 18,560 structure fires caused 28 civilian deaths, two fire service deaths, 309 civilian injuries, 491 fire service injuries, and an estimated dollar loss of $176.8 million. The average structure fire caused $9,526 in property damage. Structure fires accounted for 57% of reported fires and 78% of the civilian fire deaths in 2010.

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 4% from the 17,818 reported in 2009.

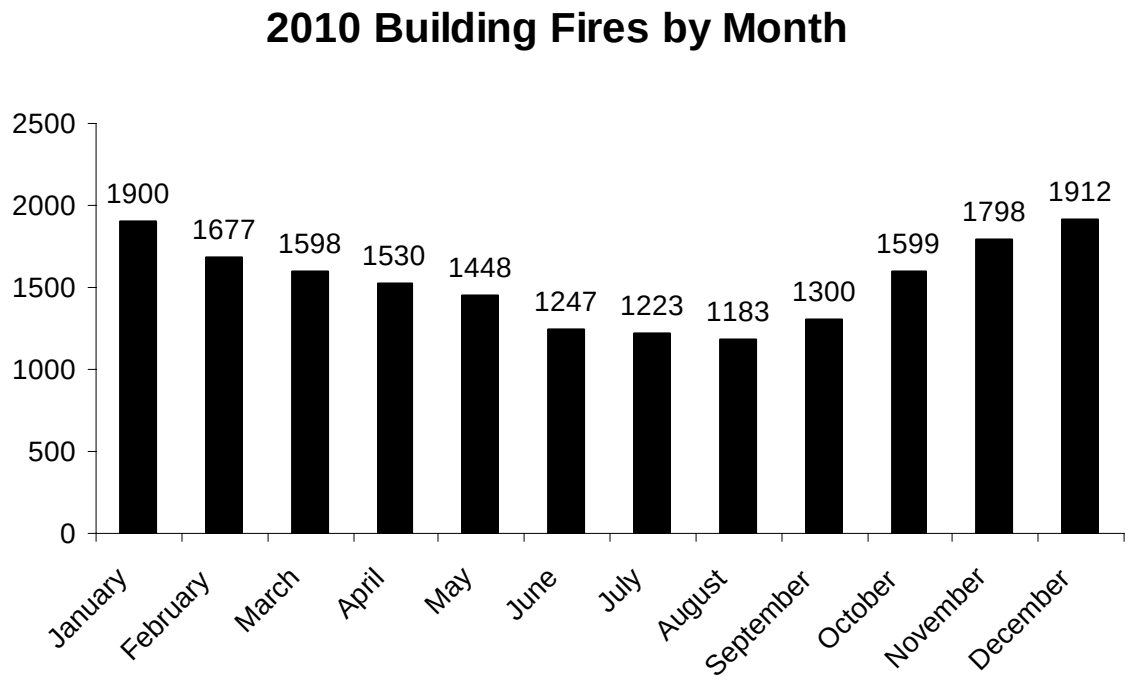
Building Fires

Most, but not all structure fires occur in buildings. It is important to distinguish between the two because many structures that are not buildings, like bridges, tunnels, and towers,

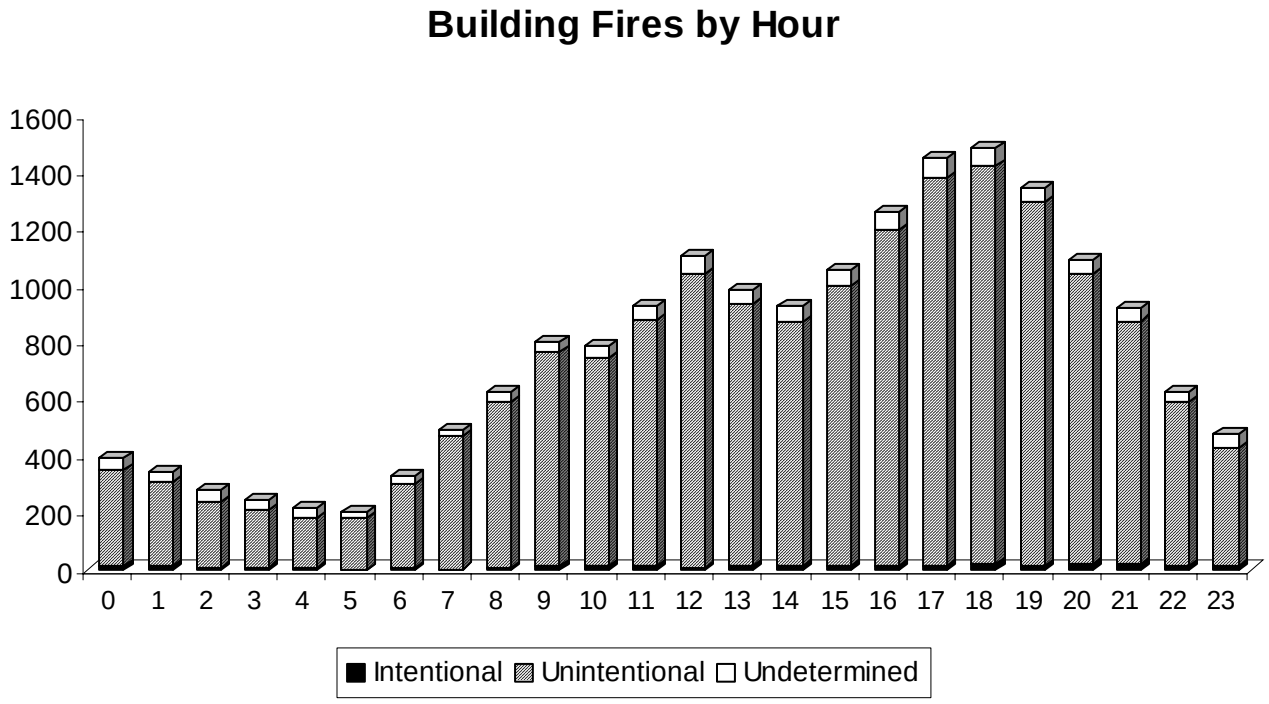
do not have the same fire prevention and alarm devices that many buildings are required to have, and their inclusion in this discussion could skew the figures.

There were 18,414 building fires of different types in Massachusetts in 2010. These 18,414 building fires accounted for 99.2% 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 2010. 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; July had the second lowest frequency of these incidents; and June had the third lowest number of building fires in 2010.



Building Fires Most Common Around Dinner Time
Cooking is the leading cause of building fires. Predictably, building fires occurred most often around dinnertime. Intentionally set building fires were most common between 5:00 p.m. and 7:00 p.m. Unintentional building fires reached their lowest point between 3:00 a.m. and 5:00 a.m. and increased fairly steadily to a peak between 5:00 p.m. and 6:00 p.m.



The 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 18,414 building fires and 25 of the 27 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.

Malden Building Fire Has Most Injuries

- On August 27, 2010, at 8:14 a.m., the Malden Fire Department was called to a fire of undetermined cause at a three-unit apartment complex. The fire began in a second floor bathroom. Eight (8) civilians were injured at this fire. It was undetermined if detectors were present and the building was not sprinklered. Damages from this fire were not estimated.

BUILDING FIRES BY OCCUPANCY TYPE

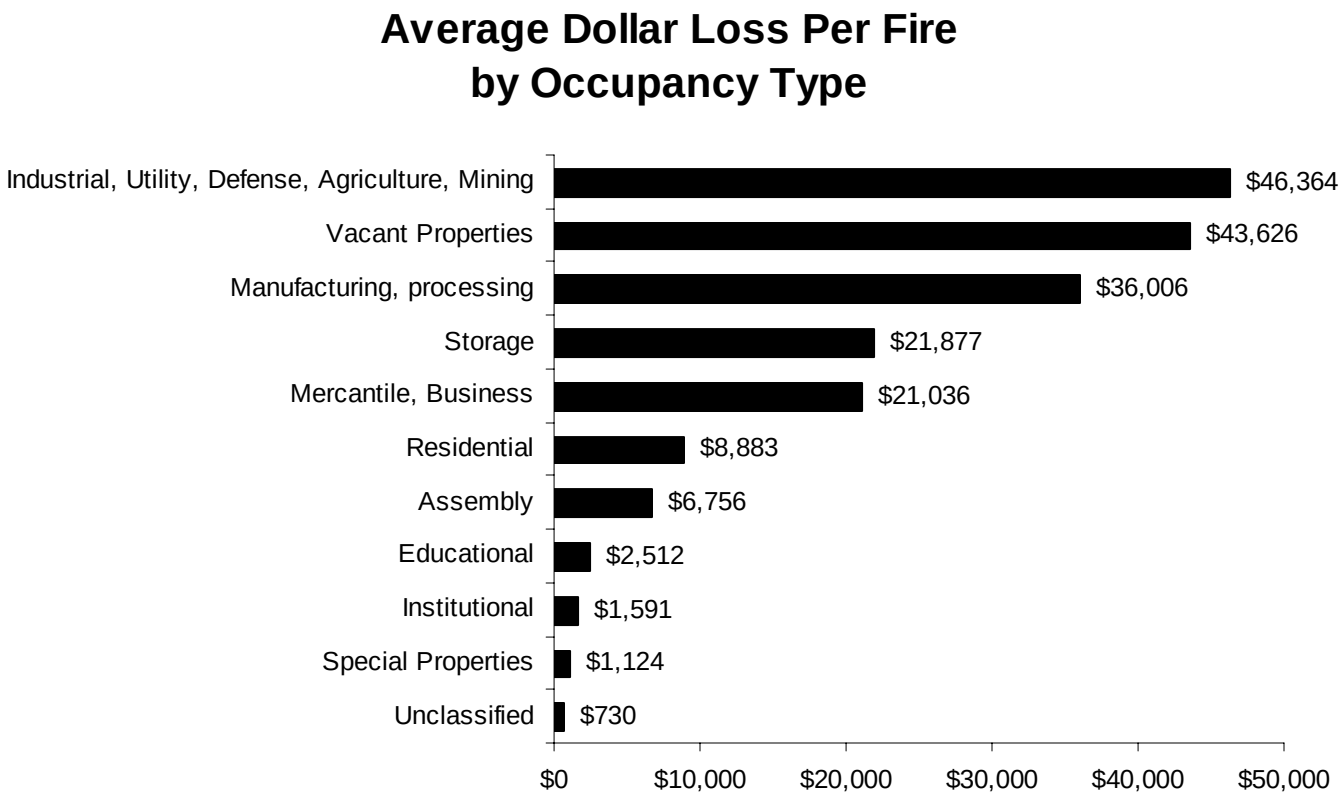
Occupancy	# of Fires	% of Total	Injuries FF	Injuries Civ	Deaths FF	Deaths Civ	Dollar Loss	Avg. Dollar Loss
Public assembly	695	4%	12	8	0	0	$4,695,525	$6,756
Educational	353	2%	11	1	0	0	886,702	2,512
Institutional	581	3%	3	2	0	0	924,271	1,591
Residential	**15,272**	**83%**	**388**	**285**	**2**	**25**	**135,653,790**	**8,883**
1- & 2-Family homes	*6,014*	*33%*	*221*	*151*	*2*	*15*	*82,795,468*	*13,767*
Apartments	*7,490*	*41%*	*158*	*126*	*0*	*10*	*43,361,511*	*5,789*
All other residential	*1,768*	*10%*	*9*	*8*	*0*	*0*	*9,496,811*	*5,371*
Mercantile, business	685	4%	37	4	0	0	14,409,652	21,036
Basic industry	55	0.3%	1	3	0	1	2,550,000	46,364
Manufact., processing	131	1%	12	1	0	0	4,716,743	36,606
Storage properties	255	1%	19	4	0	1	5,578,524	21,877
Special properties	356	2%	4	0	0	0	400,069	1,124
Unclassified	31	0.1%	1	0	0	0	625,261	20,170
Total	**18,414**	**100%**	**488**	**308**	**2**	**27**	**$170,090,486**	**$9,237**

Occupancy Group Definitions

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

Industrial Facilities Have Highest Average Dollar Loss Per Fire
Industrial facilities had the highest dollar loss per fire of any property type. In 2010, the average dollar loss for a building fire in an industrial property was $46,364. This is a 59% decrease from the 2009 average dollar loss per industrial facility fire at $112,063 per fire[10]. Vacant properties[11] had the second highest dollar loss per fire for any property type. In 2010, the average dollar loss for a building fire in a vacant property was $43,626.

Manufacturing and processing facilities had the third highest average dollar loss at $36,006. Storage facilities had the next highest average dollar loss per fire at $21,877; mercantile and business properties were fifth with an average dollar loss per fire at $21,036. Residential properties were next in average dollar loss at $8,883 per fire; and public assembly properties had an average dollar loss per fire of $6,756. Educational facilities were eighth at $2,512 per fire; institutional facilities had $1,591 per fire; and special properties had an average dollar loss of $1,124 per fire. Unclassified properties had the lowest average dollar loss at $730 per fire.



[10] This is mainly due to a steel recycling plant fire in Everett on 7/2/09 that caused $4.4 million in estimated damages.
[11] 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.

2010 Massachusetts Building Fires by Property Use

MFIRS Code	Property Use	# of Building Fires
	Assembly	**95**
100	Assembly, other	34
110	Fixed use recreation places, other	16
111	Bowling alley	2
113	Electronic amusement center	2
114	Ice rink: indoor, outdoor	5
115	Roller rink: indoor or outdoor	1
116	Swimming facility: indoor or outdoor	1
120	Variable use amusement, recreation places	9
121	Ballroom, gymnasium	5
122	Convention center, exhibition hall	3
123	Stadium, arena	4
124	Playground	31
129	Amusement center: indoor/outdoor	3
130	Places of worship, funeral parlors	5
131	Church, mosque, synagogue, temple, chapel	75
134	Funeral parlor	1
140	Clubs, other	19
141	Athletic/health club	13
142	Clubhouse	13
150	Public or government, other	12
151	Library	6
152	Museum	4
155	Courthouse	3
160	Eating, drinking places	57
161	Restaurant or cafeteria	301
162	Bar or nightclub	41
170	Passenger terminal, other	2
171	Airport passenger terminal	5
174	Rapid transit station	12
180	Studio/theater, other	2
181	Live performance theater	1
182	Auditorium or concert hall	1
183	Movie theater	6
	Educational	**353**
200	Educational, other	49
210	Schools, non-adult	24
211	Preschool	28
213	Elementary school, including kindergarten	65
215	High school/junior high school/middle school	91
241	Adult education center, college classroom	66

MFIRS Code	Property Use	# of Building Fires
254	Day care, in commercial property	26
255	Day care, in residence, licensed	3
256	Day care in residence, unlicensed.	1
	Health care, detention & correction	**518**
300	Health care, detention, & correction, other	43
311	24-hour care Nursing homes, 4 or more persons	154
321	Mental retardation/development disability facility	93
322	Alcohol or substance abuse recovery center	56
323	Asylum, mental institution	8
331	Hospital - medical or psychiatric	154
332	Hospices	3
340	Clinics, Doctors offices, hemodialysis centers	15
341	Clinic, clinic-type infirmary	10
342	Doctor, dentist or oral surgeon's office	14
361	Jail, prison (not juvenile)	15
363	Reformatory, juvenile detention center	7
365	Police station	9
	Residential	**15,272**
400	Residential, other	615
419	1- or 2-Family dwelling	6,014
429	Multifamily dwellings	7,490
439	Boarding/rooming house, residential hotels	389
449	Hotel/motel, commercial	139
459	Residential board and care	175
460	Dormitory type residence, other	392
462	Sorority house, fraternity house	13
464	Barracks, dormitory	45
	Mercantile, business	**685**
500	Mercantile, business, other	142
511	Convenience store	25
519	Food and beverage sales, grocery store	122
529	Textile, wearing apparel sales	11
539	Household goods, sales, repairs	12
549	Specialty shop	38
557	Personal service, including barber & beauty shops	11
559	Recreational, hobby, home repair sales, pet store	7
564	Laundry, dry cleaning	33
569	Professional supplies, services	9
571	Service station, gas station	9
579	Motor vehicle or boat sales, services, repair	32
580	General retail, other	28

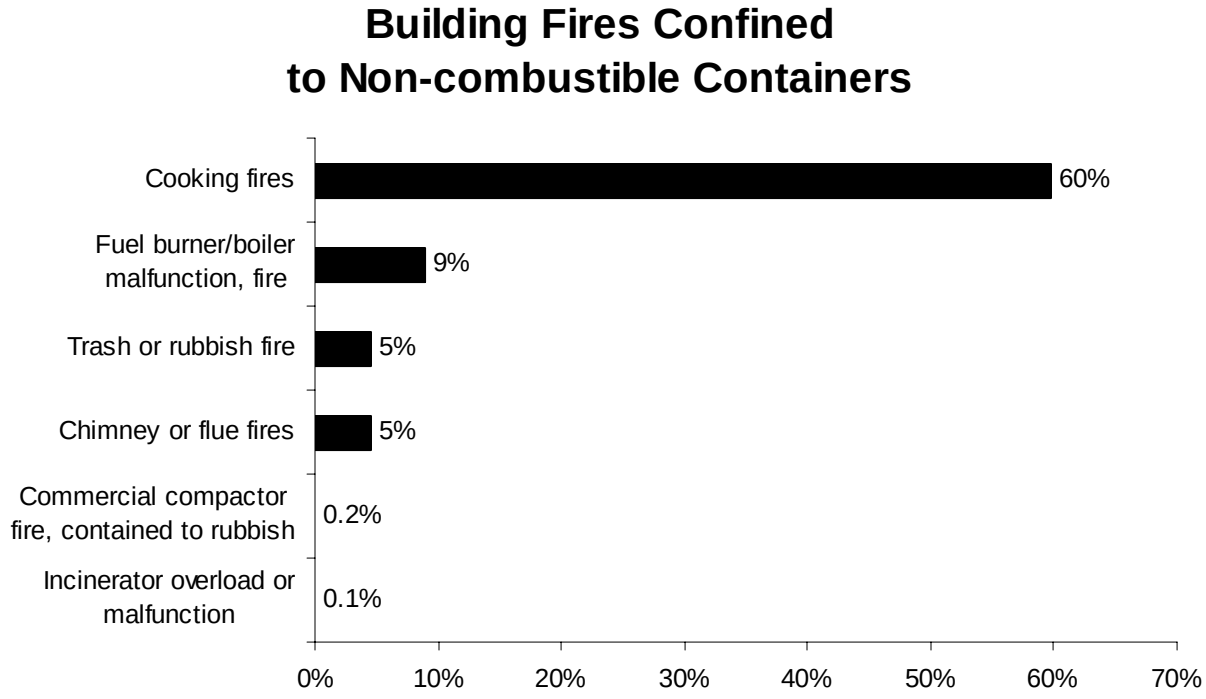
MFIRS Code	Property Use	# of Building Fires
581	Department or discount store	9
592	Bank	25
593	Office: veterinary or research	2
596	Post office or mailing firms	3
599	Business office	167
	Industrial, utility, defense, agriculture, mining	**55**
600	Utility, defense, agriculture, mining, other	4
610	Energy production plant, other	1
615	Electric generating plant	1
629	Laboratory or science laboratory	19
631	Defense, military installation	4
635	Computer center	2
639	Communications center	3
640	Utility or Distribution system, other	1
642	Electrical distribution	3
644	Gas distribution, pipeline, gas distribution	1
647	Water utility	2
648	Sanitation utility	5
655	Crops or orchard	1
659	Livestock production	3
669	Forest, timberland, woodland	5
700	**Manufacturing, processing**	**131**
	Storage	**255**
800	Storage, other	19
807	Outside material storage area	13
808	Outbuilding or shed	90
819	Livestock, poultry storage	13
839	Refrigerated storage	1
880	Vehicle storage, other	6
881	Parking garage, (detached residential garage)	51
882	Parking garage, general vehicle	11
888	Fire station	4
891	Warehouse	44
898	Dock, marina, pier, wharf	2
899	Residential or self storage units	1
	Outside or special property	**356**
900	Outside or special property, other	45
919	Dump, sanitary landfill	11
921	Bridge, trestle	7
922	Tunnel	2

MFIRS Code	Property Use	# of Building Fires
926	Outbuilding, protective shelter	14
931	Open land or field	33
935	Campsite with utilities	2
936	Vacant lot	12
937	Beach	4
938	Graded and cared-for plots of land	54
940	Water area, other	1
946	Lake, river, stream	2
951	Railroad right of way	3
960	Street, other	16
961	Highway or divided highway	3
962	Residential street, road or residential driveway	82
963	Street or road in commercial area	10
965	Vehicle parking area	48
981	Construction site	4
984	Industrial plant yard - area	3
	Other	**31**
000	Property Use, other	31
	Total Building Fires	**18,414**

78% of Building Fires Are Confined to Non-Combustible Containers[12]
Fourteen thousand three hundred and sixty-five (14,365), or 78% of all building fires, were reported as confined to non-combustible containers in 2010. Ten thousand nine hundred and ninety-six (10,996) of the reported fires were cooking fires confined to a non-combustible container, accounting for 60% of building fires. One thousand six hundred and thirty (1,630), or 9%, were fires confined to a fuel burner or boiler malfunction. Eight hundred and forty-five (845), or 5%, of these fires were contained rubbish fires. Eight hundred and thirty-nine (839), or 5%, of all building fires reported in 2010 were fires confined to a chimney or flue. Thirty-three (33), or less than 1%, were commercial compactor fires that were confined to the rubbish. Twenty-two (22), or less than 1%, of these fires in the Commonwealth were contained to an incinerator overload or malfunction.

Confined building fires increased by 210 incidents, or 1%, from the 14,155 reported in 2009.

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

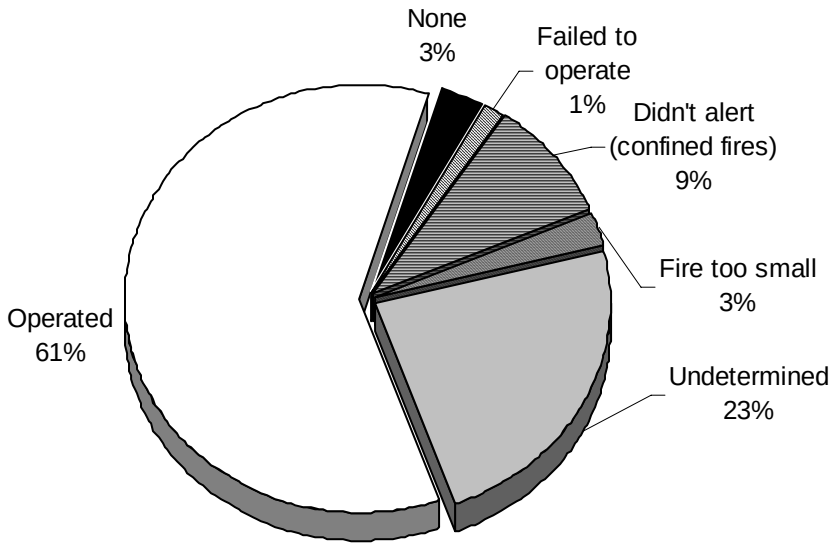


Detectors Operated in 61% of Building Fires

Smoke or heat detectors operated in 11,100, or 61%, of the building fires in 2010. In 9% of these fires[13], the detectors did not alert the occupants. Detectors were present but did not operate in 1% of these incidents. In 3% of these fires, no detectors were present at all. The fire was too small to trigger the detector in 3% of the fires. Smoke detector performance was undetermined in 4,285 incidents, or 23%, of Massachusetts' 2010 building fires.

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

Smoke Detector Operation in 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	423	3	60	15	35	145	695
Educational	232	2	21	15	7	76	353
Institutional	451	2	14	15	5	94	581
Residential	9,457	222	1,399	366	312	3,516	15,272
Mercantile, business	387	7	53	35	53	150	685
Basic industry	28	0	4	2	8	13	55
Manufacturing	62	4	7	10	18	30	131
Storage properties	22	0	13	3	161	56	255
Special properties	28	0	106	1	26	195	356
Unclassified	10	0	7	0	5	9	31
Total	**11,100**	**240**	**1,684**	**476**	**630**	**4,284**	**18,414**

$4.5 Million Fire in Sudbury is Largest Loss Building Fire

- On May 10, 2010, at 11:59 p.m., the Sudbury Fire Department was called to a fire of undetermined cause at a large greenhouse. The fire went to five alarms. No one was injured at this fire. Detectors and sprinklers were not present. Damages from this fire were estimated to be $4.5 million.

Boston Has 2nd Largest Loss Building Fire in 2010

- On April 7, 2010, at 1:48 p.m., the Boston Fire Department was called to an undetermined fire at a 10-story, 80-unit apartment building at 483 Beacon St. The fire originated in a seventh floor apartment. Detectors were present and alerted the occupants. The building was not sprinklered. There were no injuries associated with this fire and damages were estimated to be $3.5 million.

Overall, there were 17 large loss building fires reported to MFIRS in 2010 with a total combined dollar loss of $26.5 million, representing 16% of all the estimated dollar loss of Massachusetts' building fires in 2010.

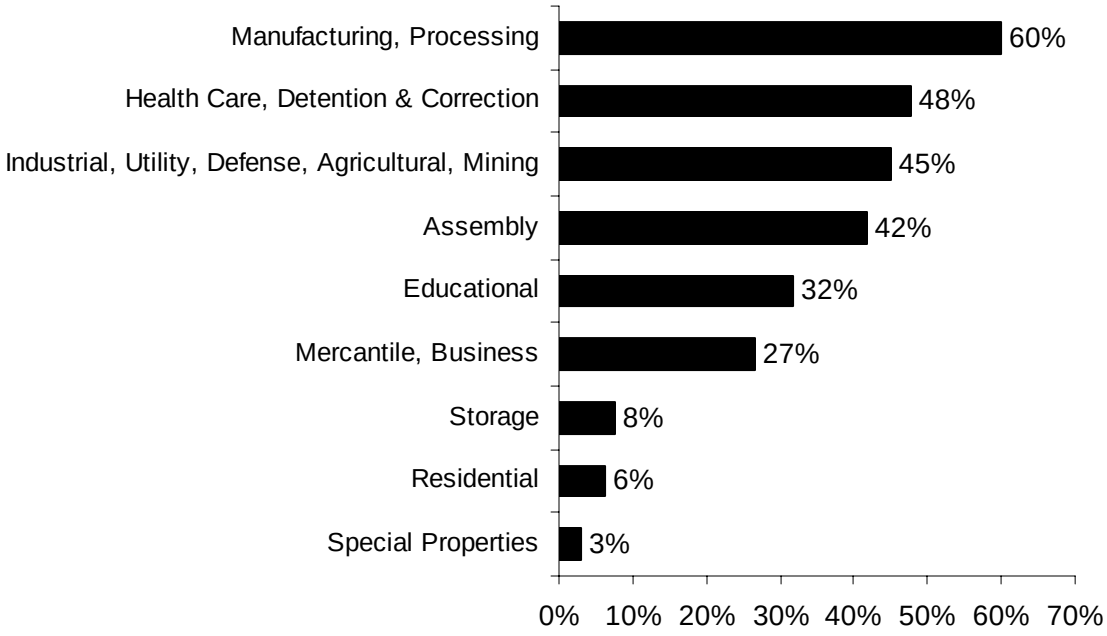
13% of Unconfined Fires Occurred in Buildings with AES

Overall, 580, or 13%, of the 4,610 unconfined[14] building fires in 2010 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. Sixty percent (60%) of the fires in manufacturing or processing facilities; 48% of the fires in health care, detention and correctional facilities; and 45% of the fires in basic industrial facilities occurred in buildings with these systems. Forty-two percent (42%) of the fires in public assembly facilities, 32% of the fires in educational facilities, and 27% of the fires in mercantile and business properties occurred in buildings with an automatic extinguishing system. Only 8% of fires in storage facilities occurred in buildings protected by an automatic extinguishing system. Six percent (6%) of residential fires occurred in buildings with an automatic extinguishing system, and 3% of these fires occurred in unclassified properties.

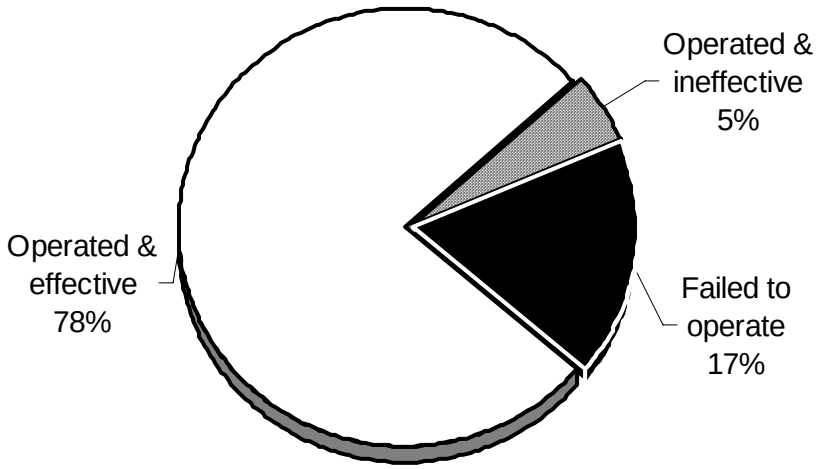
[14] In MFIRS v5 a fire in a building contained to a non-combustible container (Incident Type = 113-118) also does not have to have a Structure Fire Module completed. Therefore the fields concerned with detector and sprinkler presence and performance would not be completed. These incidents are not included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

Fires in AES Protected Buildings by Property Use



AES Worked in 83% of Building Fires When Installed & Maintained
AES were present and operated in 152, or 83%, of the 184 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 2010. Of these 152 fires, the systems were effective in 142, or 78%, and ineffective in 10, or 5%, of these incidents. AES were present but failed to operate in 32, or 17%, of these 184 building fires. Some of the

AES Status in AES Protected Buildings



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	18	7	39	14	2	80
Educational	1	2	16	10	1	30
Institutional	6	1	26	14	0	47
Residential	76	12	107	59	5	259
Mercantile, business	16	7	36	24	1	84
Basic industry	6	1	2	1	0	10
Manufacturing	21	1	26	6	1	55
Storage properties	7	1	5	0	1	14
Special properties	1	0	0	0	0	1
Unclassified	0	0	0	0	0	0
Total	**152**	**32**	**257**	**128**	**11**	**580**

High Rise Buildings Must be Fully Equipped with Sprinklers

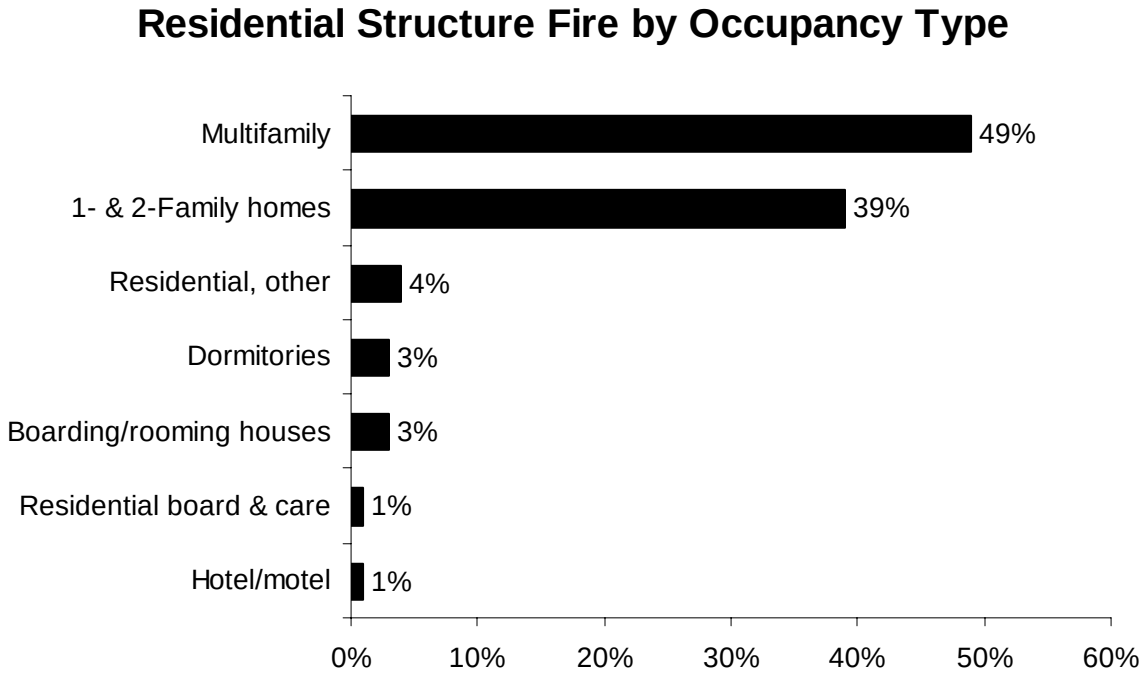
Evacuating a high-rise building while fighting a raging fire is a logistical nightmare for firefighters. Automatic sprinklers make these buildings much safer for residents, office workers, visitors and firefighters. Under the provision of MGL Chapter 148, Section 26A 1/2, all existing buildings of more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

Written Permit Required from Fire Department before Disconnecting Sprinklers

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

Residential Building Fires

83% of Building Fires Occurred in Residential Occupancies
Massachusetts fire departments reported that 15,272, or 83%, of the 18,414 building fires occurred in residential occupancies. These fires caused 25 civilian deaths, two fire service deaths, 285 civilian injuries, 388 fire service injuries and an estimated dollar loss of $135.7 million. The average dollar loss per fire was $8,883. The total number of reported residential building fires increased by 4% from the 14,735 reported in 2009.



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

RESIDENTIAL BUILDING FIRES

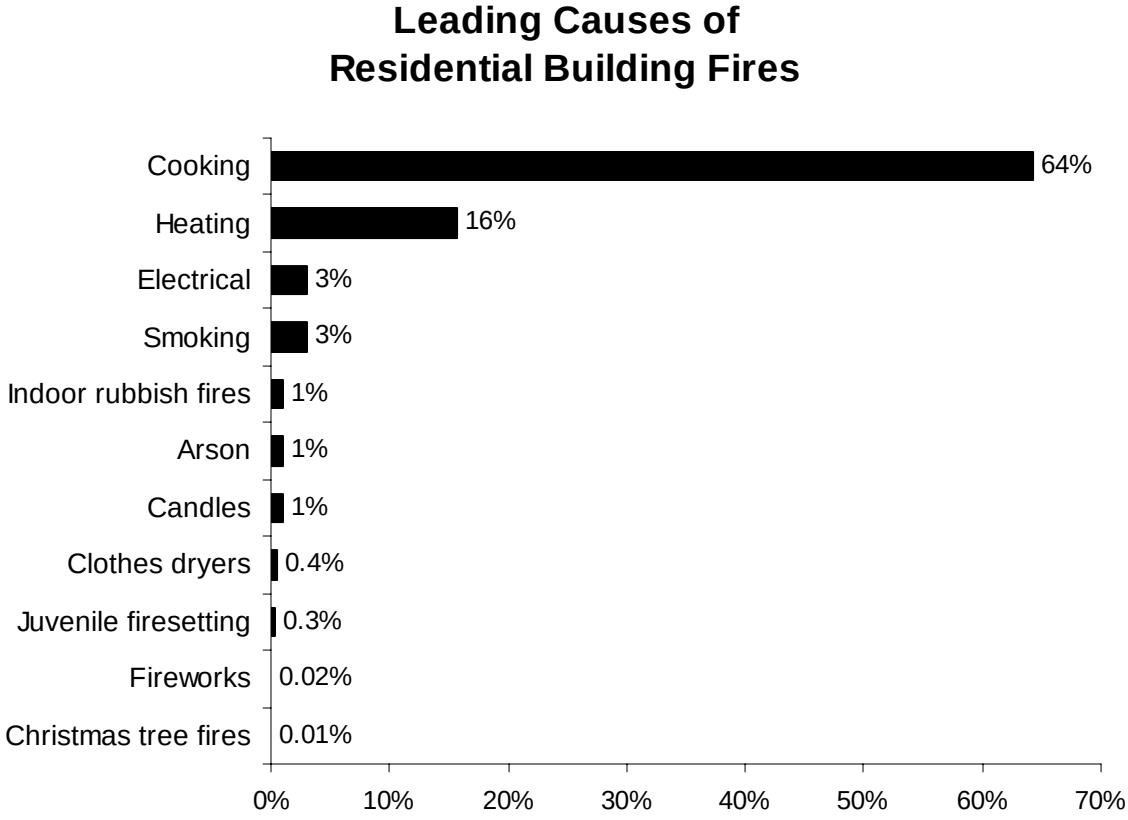
Occupancy	# of Fires	% of Total	Injuries FF	Injuries Civ	Deaths FF	Deaths Civ	Dollar Loss
1- & 2-Family homes	6,014	39%	221	151	2	15	$82,795,468
Multifamily	7,490	49%	158	126	0	10	43,361,511
Rooming houses	389	3%	1	0	0	0	493,242
Hotels & motels	139	1%	0	1	0	0	2,706,695
Residential board & care	175	1%	4	1	0	0	200,642
Dormitories	450	3%	0	3	0	0	341,412
Unclassified	615	4%	4	3	0	0	5,754,820
Total	**15,272**	**100%**	**388**	**285**	**2**	**25**	**$135,653,790**

Residential Occupancy Sub-Group Definitions

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

Cooking Causes Almost 2/3 of Residential Building Fires

The leading causes of residential building fires in 2010 were cooking, heating, smoking, indoor rubbish fires, electrical problems, arson, candles, clothes dryer fires, juvenile firesetting, and fireworks. Cooking was the leading cause of residential building fires, accounting for 9,806, or 64%, of the 15,272 incidents. Heating equipment accounted for 2,387, or 16%, of the total fires. Electrical problems caused 524, or 3%, of incidents. The unsafe use and disposal of smoking materials accounted for 483, or 3%, of these incidents. Indoor rubbish fires were the cause of 422, or 3%, of residential building fires. Arson accounted for 151, or 1%, of residential building fires. One percent (1%), or 118, were caused by candles. Clothes dryer fires were the cause for 65, or less than 1%, of these incidents. Juvenile firesetting accounted for 41, or less than 1%, of residential building fires. Fireworks caused three and there was one Christmas tree fire in a home, each accounting for less than 1% of these fires in Massachusetts in 2010.



2/3 of Residential Fires Started in the Kitchen
Sixty-six percent (66%) of the residential building fires in 2010 started in the kitchen. Ten percent (10%) began in a heating room or area; 5% started in the chimney or flue; 2% began in the bedroom; 1% started on exterior balconies and unenclosed porches; and another 1% started in the living room in Massachusetts residential building fires in 2010.

79% of Residential Building Fires Confined to Non-Combustible Containers[15]
Twelve thousand and ninety-four (12,094), or 79% of all residential building fires, were reported as confined to non-combustible containers in 2010. Nine thousand four hundred and six (9,406) of the reported fires were cooking fires contained to a non-combustible container, accounting for 62% of residential building fires. One thousand four hundred and fifty-five (1,455), or 10%, were fires confined to a fuel burner or boiler malfunction. Eight hundred and fourteen (814), or 5%, of all residential building fires reported in 2010 were fires confined to a chimney or flue. Three hundred and ninety-eight (398), or 3%, of these fires were contained rubbish fires. Fifteen (15), or less than 1%, of these fires in the Commonwealth were contained to an incinerator overload or malfunction. Six (6), or less

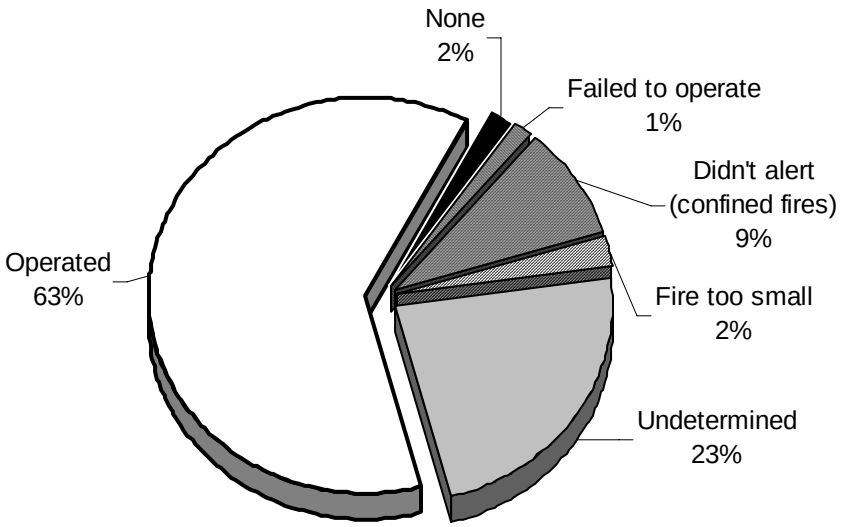
[15] In MFIRS v5 a fire in a building contained to a non-combustible container (Incident Type = 113-118) does not have to have a Fire Module completed. Therefore the following data fields do not need to be completed: Area of Origin, Detector Status, Item First Ignited, Heat Source, Factors Contributing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

than 1%, of the residential building fires in 2010 were commercial compactor fires confined to the rubbish inside the compactor.

The number of contained fires in residential occupancies rose in 2010. Confined fires increased by130 incidents, or 1%, from the 11,964 reported in 2009. This was mainly due to the small increases in reported confined cooking fires and confined indoor rubbish fires.

Detectors Operated in 63% of Fires
Smoke or heat detectors operated in 9,457, or 63%, of the residential building fires in 2010. In 9% of these fires[16], 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 3,522 incidents, or 23%, of Massachusetts' 2010 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.

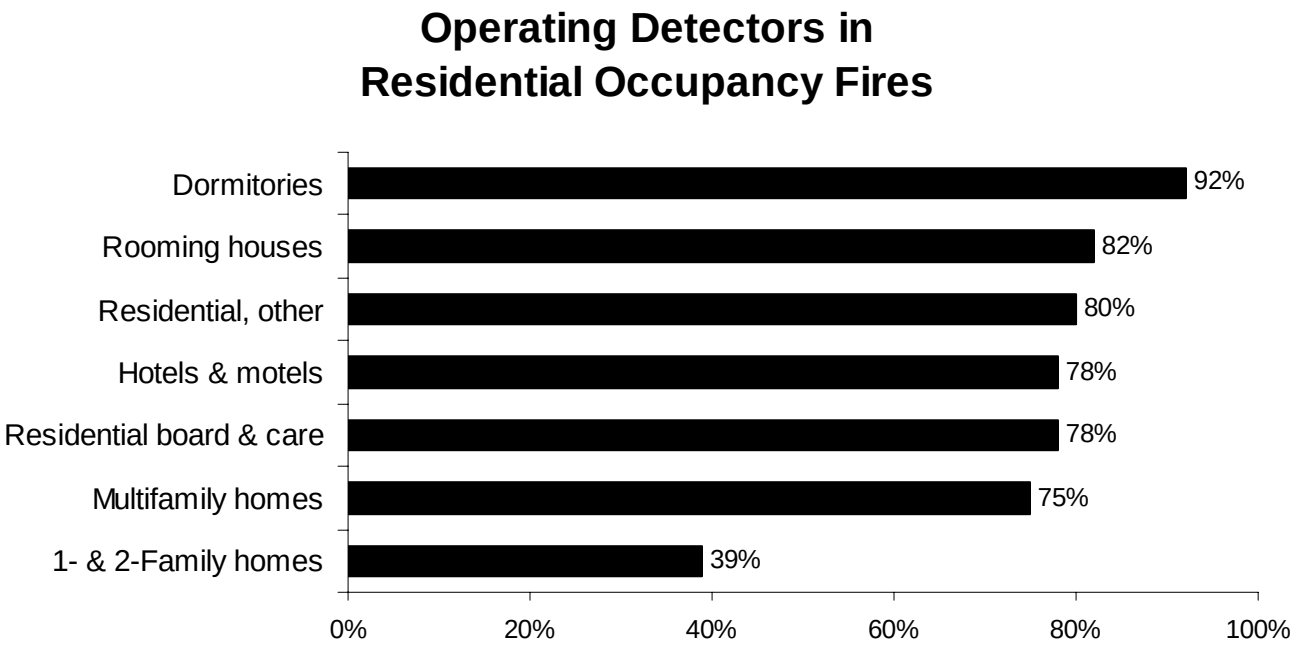
[16] These represent confined fires where it was reported that the detector did not alert the occupants.

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.

40% of Failed Detectors Had No Batteries or Dead Ones
Of the 222 fires where smoke detectors were present but failed to operate, 63, or 28%, failed because the batteries were either missing or disconnected. Twenty-five (25), or 11%, did not operate because of dead batteries. Eighteen (18), or 8%, failed because of a power failure, shutoff or disconnect. Ten (10) detectors, or 5%, failed from a lack of maintenance such as not cleaning dust from the detector or painting over the detector. Seven (7) units, or 3%, failed because they were defective. Four (4), or 2%, failed from improper installation or placement. For 95 cases, or 43%, the reason the detector failed was not determined.

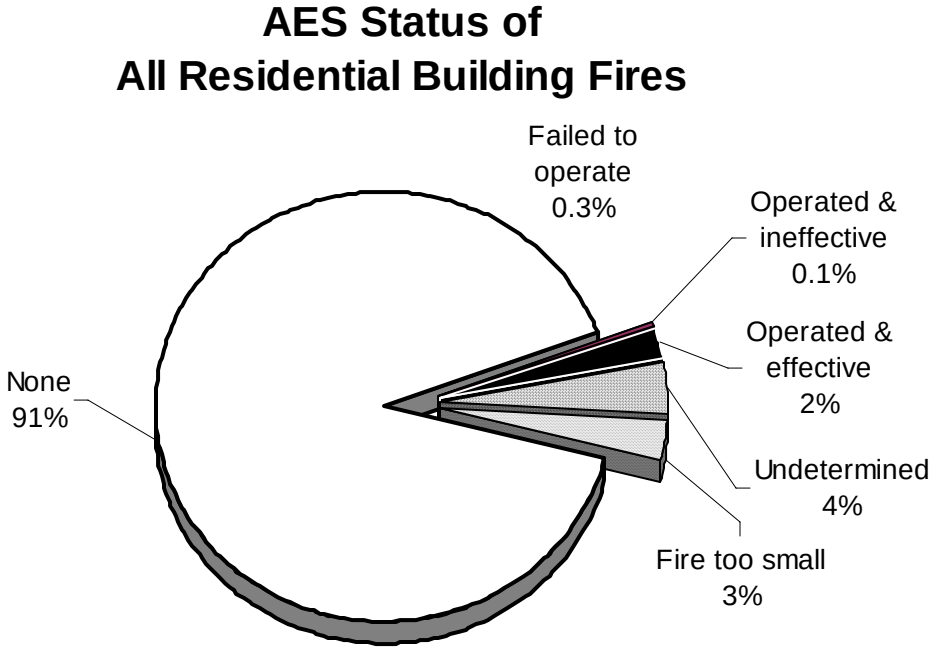
1- & 2-Family Homes Had Lowest Percentage of Operating Detectors
Dormitories were the most likely residential occupancy to have operating smoke detectors in 2010. Rooming houses were the second most likely residence to have working smoke detectors. Unclassified residences and hotels and motels were the next most likely residential occupancies 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 28% of Residential Fire Victims
Of the 25 people who died in residential building fires in 2010, the smoke detector performance was known for 15 of the victims. Victims were not alerted by smoke detectors in five fires that killed seven people, or 28%, of the victims. In three of these incidents, no detectors were present at all, killing four, or 16%, of these individuals. Detectors were present, but did not operate in two fires that killed three people, or 12%, of fatal residential fire victims. Detector performance was undetermined in nine residential building fires that killed 10 people, accounting for 40% of the residential building fire deaths in 2010.

AES Present in Only 5% of Residential Building Fires
In 2010, only 3,666 residential fires reported if the building had an automatic extinguishing system or not. This was only 24% of all residential building fires.

In fires where system performance was reported, automatic extinguishing systems (AES) were reported present and operated effectively in 73, or 2%, of the 3,666 residential building fires. AES were present and operated ineffectively in three, or 0.1%, of these fires. In 12, or 0.3%, of the fires in residential occupancies, the system did not operate. In 107, or 3%, the fire was too small to activate the system. In 3,321, or 91%, of the cases, there were no systems present or installed. AES performance was not classified in 150, or 4%, of the incidents involving residential building fires.



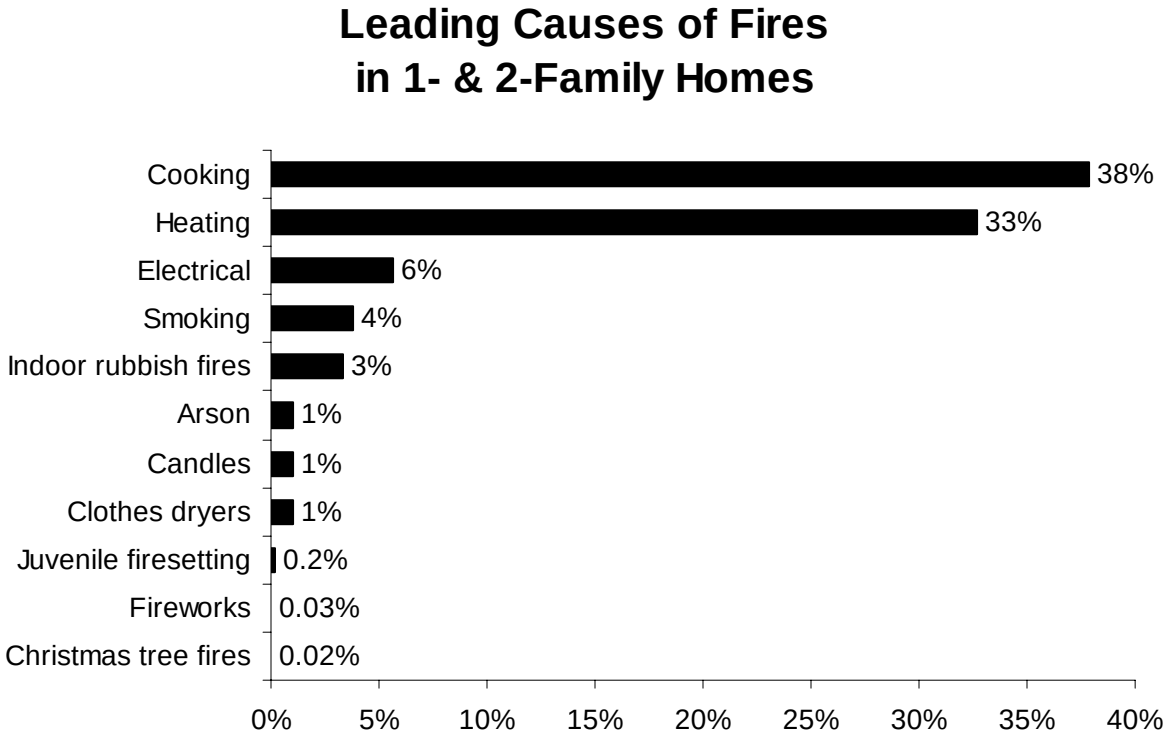
Only You Can Make Your Home Safer for You and Your Family
Eighty-three percent (83%) of building fires and 69% of fire deaths in 2010 took place in residential occupancies. Efforts to reduce the incidence of fire and fire deaths must be focused on home fire safety to have the greatest impact. Increased 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

6,014 Fires, 15 Civilian Deaths, 2 FF Deaths & $82.8 Million in Damage
Six thousand and fourteen (6,014) building fires in one- and two-family homes caused 15 civilian deaths, two fire service deaths, 151 civilian injuries, 221 fire service injuries, and an estimated $82.8 million in property damage. In 2010, 39% of the Commonwealth's 15,272 residential building fires occurred in one- and two-family homes. The average dollar loss from these types of fires was $13,767. Fires in one- and two-family homes were up by 116, or 2%, from 5,898 in 2009.

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

Cooking & Heating Were the Leading Causes of Fires in 1- & 2-Family Homes
Cooking caused 38% of incidents occurring in one- and two-family homes. Heating equipment caused 33% 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 4% of these fires. Indoor rubbish fires caused 3% of these fires. Arson, candles and clothes dryers each caused 1% of these fires. Juvenile-set fires, Christmas tree fires and fireworks each accounted for less than 1% of the fires in one- and two-family homes in 2010.



Cooking is the leading cause of fires overall in every residential occupancy. In the past eight years, except 2003, heating equipment was the leading cause of fires in one- and two-family homes and cooking was the second leading cause. Since 2008 cooking has overtaken heating equipment as the leading cause of fires in one- and two-family homes.

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

46% 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, 46% started in the kitchen. The second leading area of origin was rooms or areas with heating equipment, accounting for 19% of these fires. Thirteen percent (13%) started in the chimney or flue;

3% started in the bedroom; 2% of these fires started in the living room; and 2% started on exterior balconies or unenclosed porches.

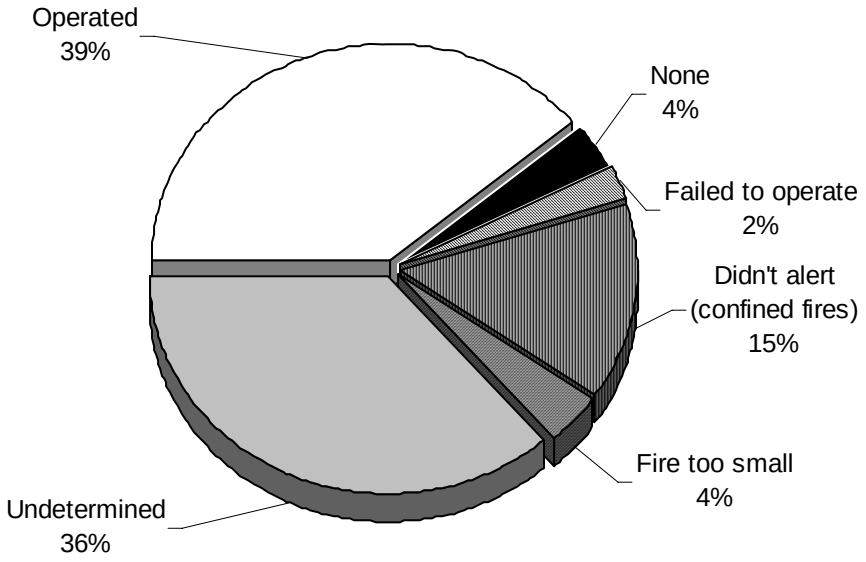
69% of 1- & 2-Family Fires Were Confined to Non-Combustible Containers[17]
Four thousand one hundred and sixty-nine (4,169), or 69%, of all residential building fires in one- and two-family homes, were reported as confined to non-combustible containers in 2010. Two thousand and ninety-five (2,095) were 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 nine (1,109), or 18%, were fires confined to a fuel burner or boiler. Seven hundred and sixty-nine (769), or 13%, of all one- and two-family fires reported in 2010 were fires confined to a chimney or flue. One hundred and eighty-nine (189), or 3%, of these fires were contained rubbish fires. Seven (7), or less than 1%, of the one- and two-family building fires were contained to an incinerator overload or malfunction in 2010.

The number of contained fires decreased in 2010. Confined fires in one- and two-family homes decreased by 19 incidents, or less than 1%, from the 4,188 reported in 2009.

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 2,373, or 39%, of the one- and two-family home fires in 2010. In 15% of these fires[18], the detectors did not alert the occupants. Detectors were present but did not operate in 2% of these incidents. In 4% of these fires, no detectors were present at all. The fire was too small to trigger the detector in 4% of these residential fires. Smoke detector performance was undetermined in 2,149 incidents, or 36%, of Massachusetts' 2010 one- and two-family fires.

[17] 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.
[18] These represent confined fires where it was reported that the detector did not alert the occupants.

Detector Status in 1- & 2-Family Home Fires



47% of Failed Detectors Had No Batteries or Dead Ones

Of the 129 fires where smoke detectors were present but failed to operate, 48, or 37%, failed because the batteries were either missing or disconnected. Thirteen (13), or 10%, did not operate because of dead batteries. Ten (10), or 8%, failed because of a power failure, shutoff or disconnect. Four (4) units, or 3%, failed because they were defective. Three (3) detectors, or 2%, failed from a lack of maintenance. Another two, or 2%, failed from improper installation or placement. For 48 cases, or 37%, the reason the detector failed was not determined.

Detectors Required in All One- and Two-Family Homes

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

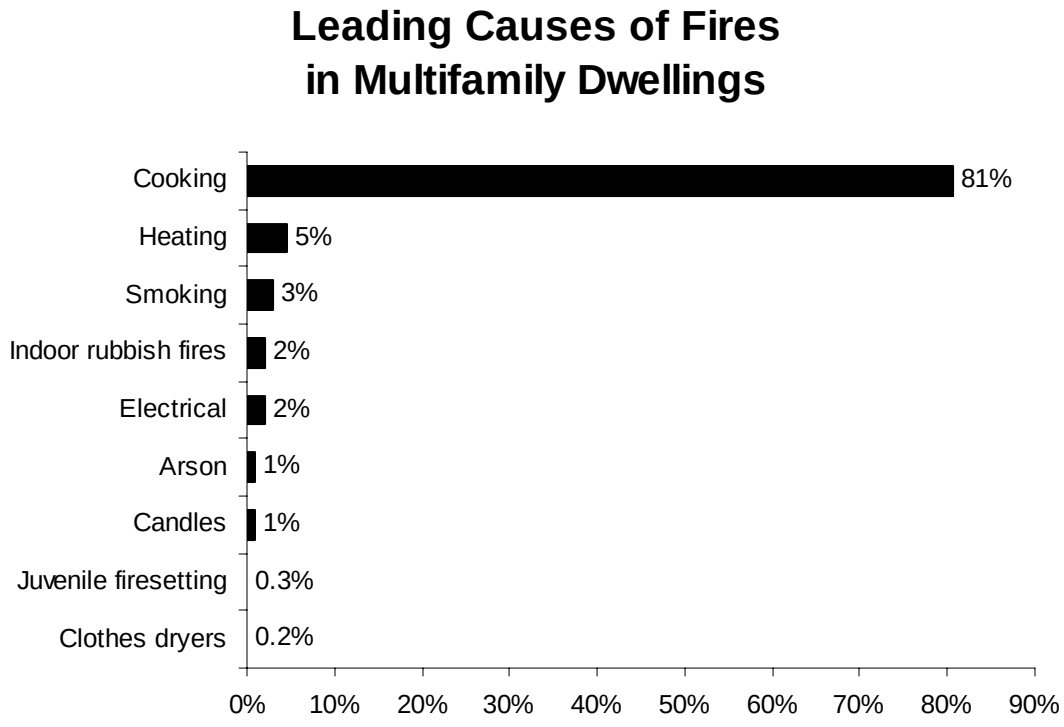
No AES Present in 99% of One- and Two-Family Building Fires
In 2010, in two, or less than 1%, of these incidents an automatic extinguishing system (AES) was present and operated effectively. In one, or less than 1% of the incidents, the fire was too small to activate the system. In 99% of the cases where AES status was known, there were no systems.

Multifamily Home Fires

7,490 Fires, 10 Civilian Deaths & $43.3 Million in Damage
Seven thousand four hundred and ninety (7,490), or 49%, of the Commonwealth's 15,272 residential building fires occurred in multifamily dwellings in 2010. These 7,490 fires caused 10 civilian deaths, 126 civilian injuries, 158 fire service injuries, and an estimated dollar loss of $43.3 million. The average dollar loss per fire was $5,789. Fires in apartments were up by 404, or 6%, from 7,086 in 2009.

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

Unsafe Cooking Caused Over 81% of Apartment Fires
Eighty-one percent (81%) of the fires in apartments were caused by unsafe cooking in 2010. Heating accounted for 5% of apartment fires. Smoking caused 3% and indoor rubbish fires and electrical problems 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 2010.



83% of Apartment Fires Started in the Kitchen
For apartment fires where the *Area of Origin* is known, 83% 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.

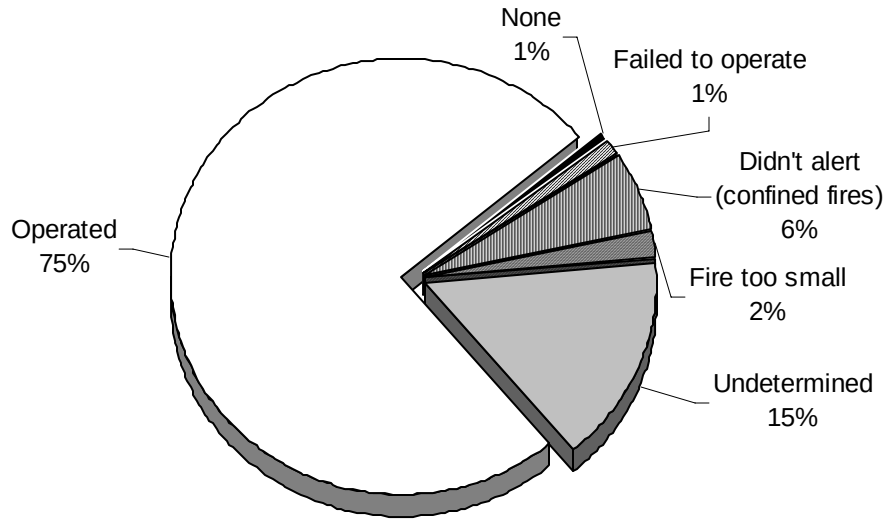
85% of Multifamily Home Fires Confined to Non-Combustible Containers[19]
Six thousand three hundred and thirty-three (6,333), or 85% of all building fires in multifamily homes, were reported as confined to non-combustible containers in 2010. Five thousand eight hundred and thirty-three (5,833) were cooking fires contained to a non-combustible container, accounting for 78% of all the multifamily dwelling fires in 2010. Three hundred and two (302), or 4%, were fires confined to a fuel burner or boiler malfunction. One hundred and fifty-eight (158), or 2%, of these fires were contained rubbish fires. Twenty-eight (28), or less than 1%, of apartment fires reported in 2010 were fires confined to a chimney or flue. Eight (8), or less than 1%, were commercial compactor fires confined to the garbage; and four incinerator overloads or malfunctions contributed less than 1% to the multifamily home fires in 2010.

Confined fires in apartments increased by 174 incidents, or 3%, from the 6,159 reported in 2009.

Detectors Alerted Occupants in 3/4 of Fires
Smoke or heat detectors operated and alerted the occupants in 5,617, or three-quarters (75%), of the multifamily fires in 2010. In 6% of these fires[20], the detectors did not alert the occupants. Detectors were present but did not operate in 1% of these incidents. In 1% of these fires, no detectors were present at all. The fire was too small to trigger the detector in 2% of these residential fires. Smoke detector performance was undetermined in 1,150 incidents, or 15%, of Massachusetts' 2010 multifamily fires.

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

Detector Status in Multifamily Fires



16% of Failed Detectors Failed Due to Missing Batteries
Of the 88 fires where smoke detectors were present but failed to operate, 14, or 16%, failed because the batteries were either missing or disconnected. Fifteen (15), or 17%, failed because of a power failure, shutoff or disconnect. Seven (7), or 8%, didn't operate because of a lack of maintenance. Four (4), or 5%, did not operate because of dead batteries. Three (3), or 3%, failed because they were defective. One (1), or 1%, failed from improper installation or placement. For 44 cases, or 50%, 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 4%, of the 1,321 multifamily dwelling fires where system status was known in 2010. In three incidents, or less than 1%, the system operated but was ineffective in suppressing the fire. In 10 of the fires, or 1%, the AES did not operate. In 64, or 5%, of these incidents, the fire was too small to activate the system. In 1,190, or 90%, of the cases, there were no systems present or installed. In 80 incidents, AES status was unknown. These fires were excluded from the percentage calculations.

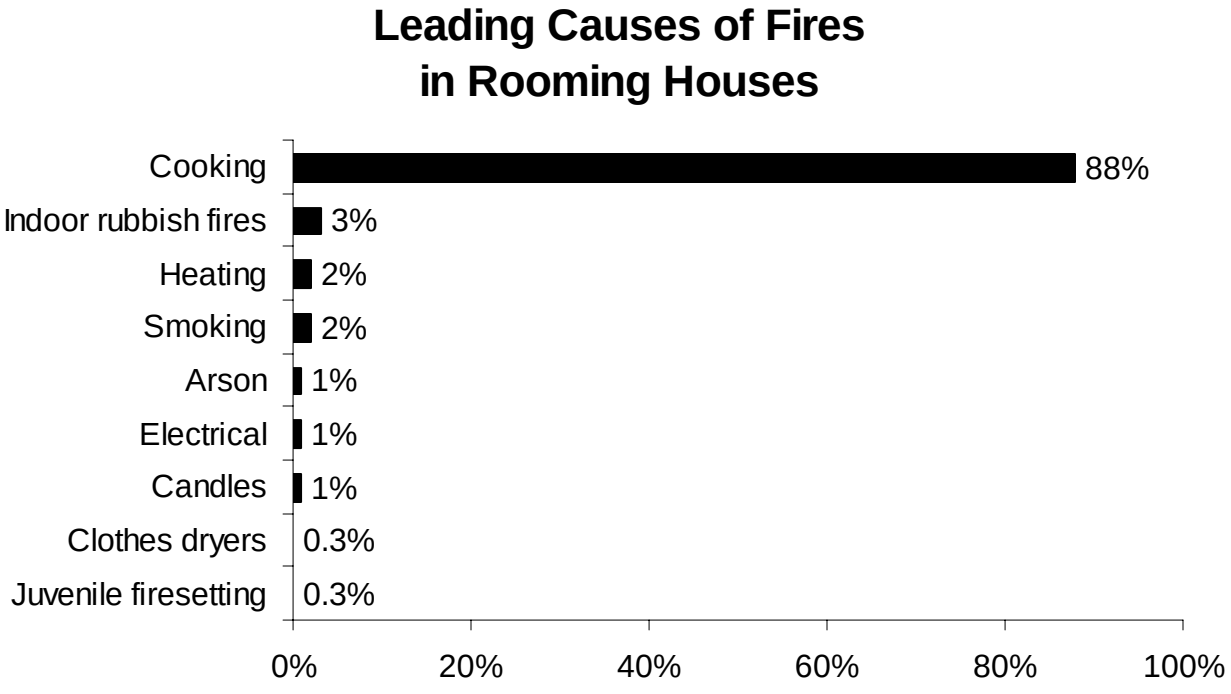
Apartments More Likely to Have Sprinklers Installed
Apartments are more likely than single-family dwellings to have sprinklers installed. Newly constructed apartments with three or more units are required by building codes to have them installed. Also, apartments are likely to be found in high-rise buildings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

389 Fires, 1 Fire Service Injury & $493,242 in Damages
Three hundred and eighty-nine (389) rooming, lodging, and boarding house fires were reported to the Massachusetts Fire Incident Reporting System (MFIRS) in 2010. These 389 fires caused one firefighter injury and an estimated $493,242 in damages. The average dollar loss per fire was $1,268. Three percent (3%) of the 15,272 residential building fires in 2010 occurred in rooming, boarding, or lodging houses. Fires in rooming houses were up by 10% from 353 in 2009.

Cooking Caused 88% of Rooming House Fires
Of the 389 incidents in rooming houses, cooking caused 88% of these fires. Indoor rubbish fires caused 3% of these fires. Heating equipment and the unsafe use and disposal of smoking materials each started 2% of the rooming house fires. Arson, electrical problems and candles each caused 1%. Clothes dryers and juvenile-set fires each caused less than 1% of the fires in rooming houses in 2010.



92% of Rooming House Fires Were Confined to Non-Combustible Containers[21]
Three hundred and fifty-eight (358), or 92% of all building fires in rooming houses, were reported as confined to non-combustible containers in 2010. Three hundred and thirty-nine (339) were cooking fires contained to a non-combustible container, accounting for 87% of all the fires in rooming or boarding houses in 2010. Eleven (11) fires, accounting for 3% of rooming house fires, were confined indoor rubbish fires. Eight (8), or 2%, were fires confined to a fuel burner or boiler malfunction.

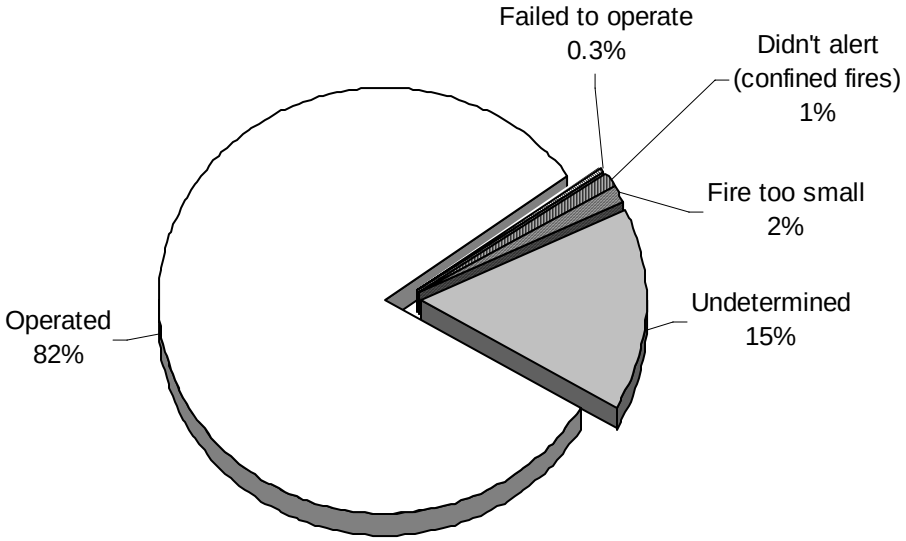
Confined fires in rooming houses increased by 33 incidents, or 10%, from the 325 reported in 2009.

89% of Rooming House Fires Started in the Kitchen
Eighty-nine percent (89%) of rooming house fires started in the kitchen[22]. Bedrooms and heating rooms or areas each accounted for 2% of these fires. Hallways, bathrooms and wall assembly areas each accounted for 1% of rooming house fires.

Detectors Alerted Occupants in 82% of Fires
Smoke or heat detectors operated and alerted the occupants in 318, or 82%, of the rooming house fires in 2010. In 1% of these fires[23], 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 2% of these residential fires. Smoke detector performance was undetermined in 59 incidents, or 15%, of Massachusetts' 2010 rooming house fires.

[21] In MFIRS v5 a fire in a building contained to a non-combustible container (Incident Type = 113-118) does not have to have a Fire Module completed. Therefore the following data fields do not need to be completed: Area of Origin, Detector Status, Item First Ignited, Heat Source, Factors Contributing to Ignition, Cause of Ignition, and Equipment Involved In Ignition. These incidents are not included in the analysis of these fields.
[22] The high number of fires that are reported to have originated in the kitchen may be misleading in dormitory fires. Eighty-nine percent (89%) of the cooking fires in rooming houses were confined cooking fires. In most cases we assign the *Area of Origin* of a confined cooking fire to the kitchen. However in the case of rooming houses many of these fires probably occur in the residents' bedrooms when they are using hot plates, coffee makers or microwave ovens.
[23] These represent confined fires where it was reported that the detector did not alert the occupants.

Detector Status in Rooming House Fires



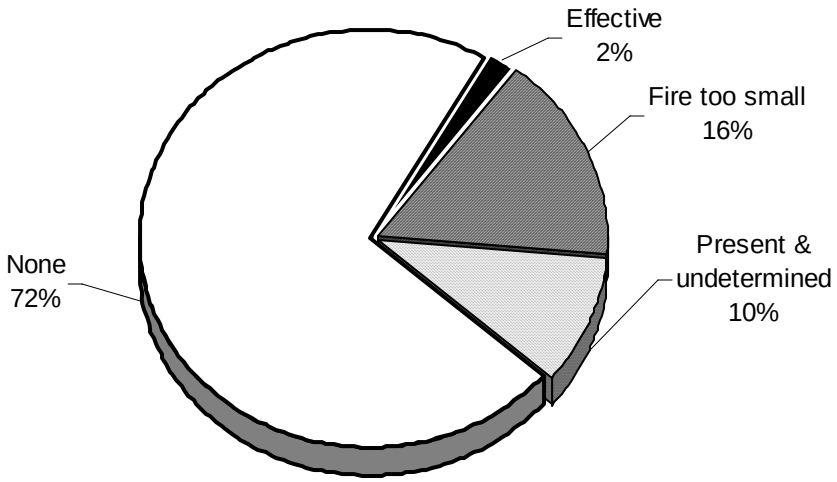
Smoke Detectors Required in Rooming Houses
Smoke detectors are required in rooming houses. Local communities may elect to adopt the provisions of Massachusetts General Law Chapter 148, Section 26H. This law mandates an adequate system of automatic sprinklers in every lodging or boarding house in the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

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

AES Present in Only 31% of Rooming House Residential Building Fires
AES were reported present in 16, or 31%, of the 52 rooming house fires where AES presence was known. In the other 36 incidents, or 69%, there were no systems present.

AES Effective in 2% of Rooming House Building Fires
In 2% of these rooming house building fires in 2010 where AES status was known, the AES operated effectively. The fire was too small to activate the automatic extinguishing system (AES) in 16% of these fires. In 10% of rooming house fires, systems were reported to be present but undetermined if they operated. In 72% of the cases, no system had been installed.

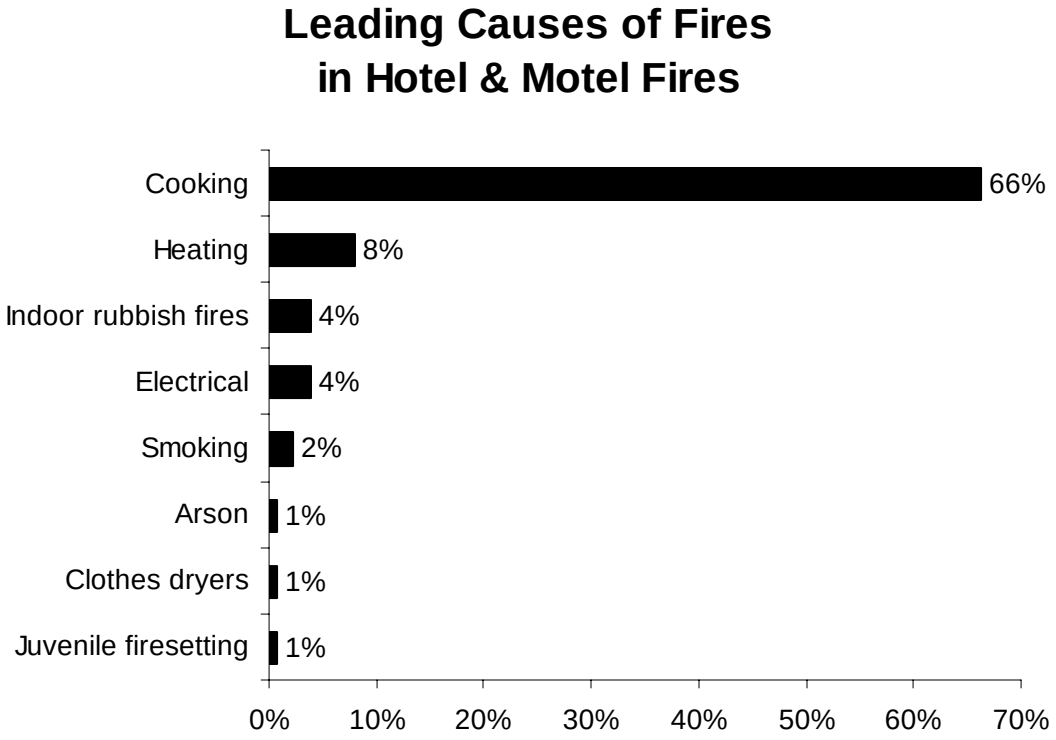
AES Operation in Rooming House Fires



Hotel and Motel Fires

139 Fires Caused 1 Civilian Injury & $2.7 Million in Damages
One hundred and thirty-nine (139) building fires in hotels, motels and home hotels caused one civilian injury and $2.7 million in estimated property damages. The average dollar loss per fire was $19,473. In 2010, 1% of the 15,272 residential building fires occurred in hotels, motels, or home hotels. Fires in hotels and motels were up by 18% from 118 in 2009.

Cooking Caused 2/3 of Hotel & Motel Fires
Of the 139 fires in hotels and motels in 2010, cooking was the leading cause, accounting for 66%, or two-thirds, of the fires in this occupancy. Heating equipment was responsible for 8% of these fires. Indoor rubbish fires and electrical problems each caused 4% of these fires. Smoking fires caused 2% of the hotel and motel fires. Arson, clothes dryers and juvenile-set fires each caused 1% of the fires in Massachusetts hotels and motels in 2010.



68% of Hotel and Motel Fires Started in the Kitchen
For hotel and motel fires, 68% started in the kitchen. Four percent (4%) of these fires each began in chimneys or flues and exterior wall surfaces. Two percent (2%) of these fires started each in bedrooms or laundry rooms.

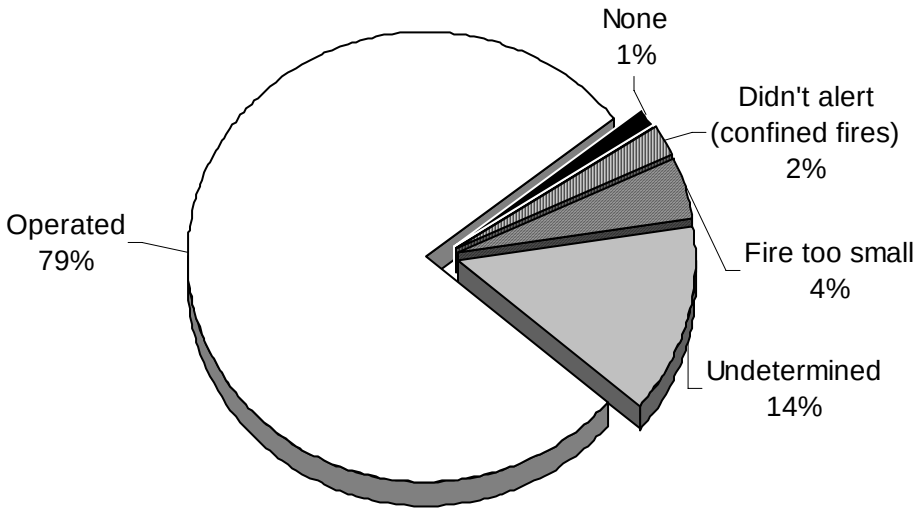
3/4 of Hotel or Motel Fires Confined to Non-Combustible Containers[24]
One hundred and four (104), or 75% of all building fires in hotels and motels, were reported as confined to non-combustible containers in 2010. Ninety (90) were cooking fires contained to a non-combustible container, accounting for 65% of these fires. Indoor rubbish fires caused six, or 4%, of the hotel and motel fires in 2010. Another six, or 4%, of hotel or motel fires in 2010 were confined to a chimney or flue. A fuel burner or boiler malfunction and a confined commercial compactor fire each caused 1% of the fires in hotels and motels in 2010.

The number of contained fires rose in 2010. Confined fires in hotels and motels increased by eight incidents, or 8%, from the 96 reported in 2009.

[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 79% of Fires
Smoke or heat detectors operated in 109, or 79%, of the hotel or motel fires in 2010. In 2% of these fires[25], the detectors did not alert the occupants. There were no reported fires where the detectors were present but did not operate. In 1% of these fires 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 19 incidents, or 14%, of Massachusetts' 2010 hotel or motel fires.

Detector Status in Hotel & Motel Fires



No Detectors Failed
In 2010, none of the detectors in hotel and motel fires was reported to have failed.

AES Absent in 44% of Hotel and Motel Residential Building Fires
Automatic extinguishing systems (AES) were present and operated effectively in five, or 14%, of the 36 hotel and motel building fires in 2010 where AES status was known. In two, or 6% of these fires, a system was present but it was undetermined if it operated. In 13, or 36%, of these incidents, the fire was too small to activate the system. In 16, or 44%, of the cases, there were no AES.

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

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

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, 28, or 74%, 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.

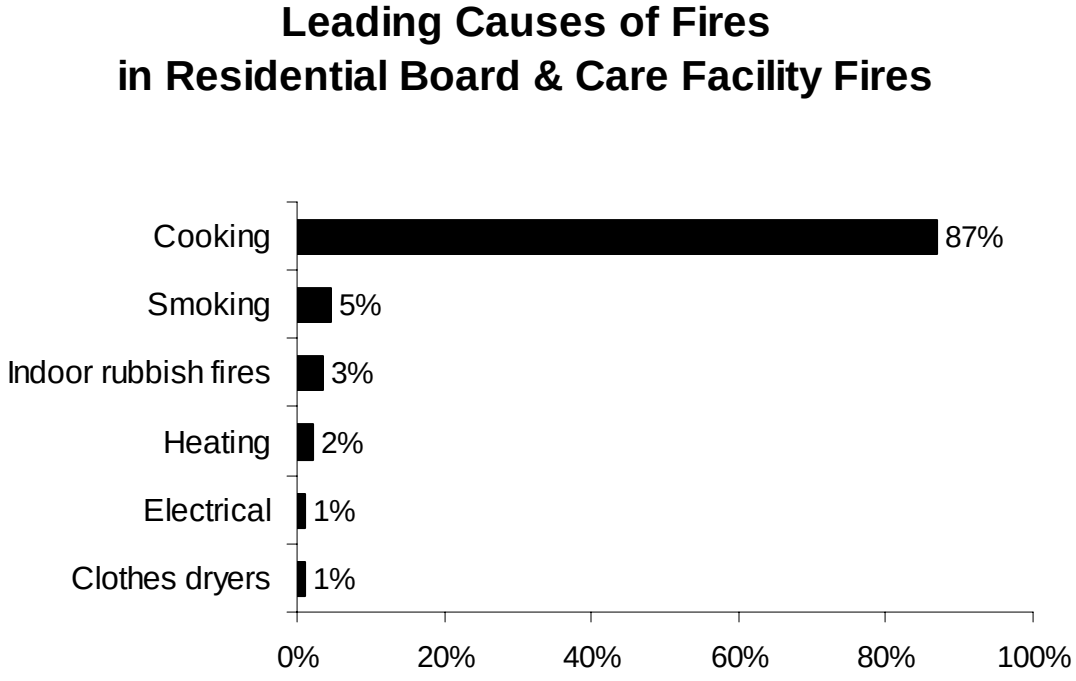
- Choose lodging equipped with sprinklers and smoke detectors in each room.
- If you are hearing impaired, you may request a room with an appropriate smoke detector with a flashing strobe light.
- Think about fire safety when checking into a hotel or motel. Count the number of doors down the hall to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

Residential Board & Care Fires

175 Fires Caused 1 Civilian Injury & $200,642 in Damages
One hundred and seventy-five (175) residential board and care building fires caused one civilian injury, four fire service injuries and an estimated dollar loss of $200,642 in damages. The average dollar loss per fire was $1,147. In 2010, 1% of the 15,272 residential building fires occurred in residential board and care buildings. Fires in residential board and care facilities were up by 23% from 142 in 2009.

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 175 incidents of residential board and care building fires, the leading cause was cooking, accounting for 152 incidents, or 87%, of the fire incidents. Smoking caused 5%, and indoor rubbish fires caused 3% of these fires. Heating equipment caused 2%, and electrical problems and clothes dryers caused 1% of the fires in residential board and care facilities in 2010.

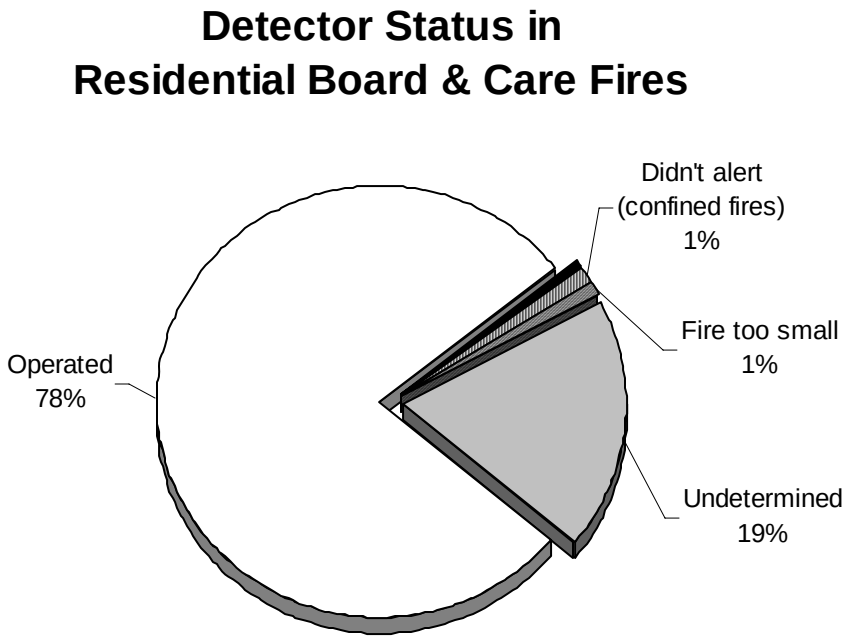


87% of Residential Board & Care Fires Started in the Kitchen
Of the 175 residential board and care building fires, 153, or 87%, started in the kitchen. Four (4), or 2%, started in the heating room or area and three, or 1%, started in a laundry room.

92% of Board & Care Fires Confined to Non-Combustible Containers[26]
One hundred and sixty-one (161), or 92% of all building fires in residential board and care facilities, were reported as confined to non-combustible containers in 2010. One hundred and fifty-one (151) were cooking fires contained to a non-combustible container accounting for 86% of these fires. Six (6), or 3%, of these fires were contained rubbish fires. Four (4), or 2%, of the fires in residential board and care facilities were confined to a fuel burner or boiler malfunction.

The number of contained fires increased in 2010. Confined fires in residential board and care facilities increased by 31 incidents, or 24%, from the 130 reported in 2009.

Detectors Operated in Over 3/4 of Fires
Smoke or heat detectors operated in 137, or 78%, of the residential board and care facility fires in 2010. In 1% of these fires[27], 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 33 incidents, or 19%, of Massachusetts' 2010 residential board and care facility fires.



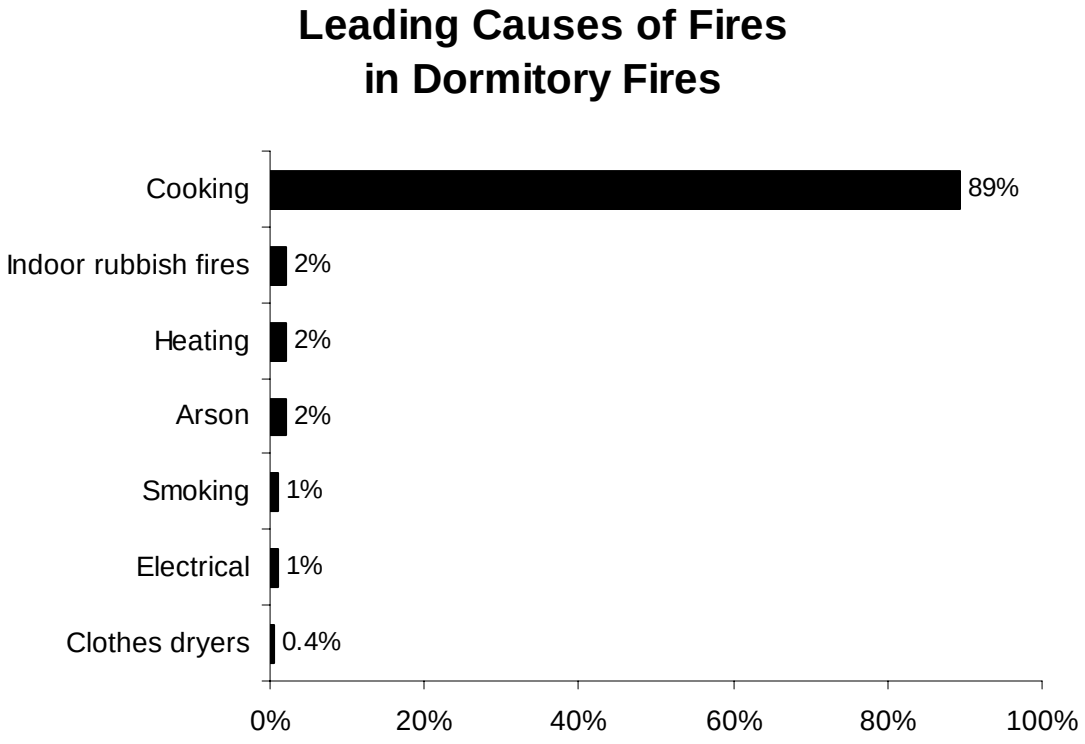
[26] In MFIRS v5 a fire in a building contained to a non-combustible container (Incident Type = 113-118) does not have to have a Fire Module completed. Therefore the following data fields do not need to be completed: Area of Origin, Detector Status, Item First Ignited, Heat Source, Factors Contributing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

No AES in Over 3/4 of Residential Board & Care Building Fires
Automatic extinguishing systems (AES) were present in five, or 21%, of the 25 residential board and care building fires where AES presence was known. There were no reported incidents where the system operated. It was undetermined if an AES system was present in one, or 4%, of these incidents. In five, or 20%, of these incidents, the fire was too small to activate the system. In 19, or 76%, of these incidents there were no systems present.

Dormitory Fires

450 Fires Caused 3 Civilian Injuries & $341,412 in Damages
Four hundred and fifty (450) dormitory building fires caused three civilian injuries and an estimated dollar loss of $341,412 in damages. The average dollar loss per fire was $759. In 2010, 3% of the 15,272 residential building fires occurred in dormitories. Fires in dormitories were down by 96, or 18%, from 546 in 2009.

Cooking Accounted for 89% of Dormitory Fires
In the 450 incidents of dormitory fires, the leading cause was cooking, accounting for 402, or 89%, of these fires. Indoor rubbish fires, heating equipment and arson were each responsible for 2% of these incidents. Smoking and electrical problems each caused 1% of these fires. Clothes dryers accounted for less than 1% of Massachusetts dormitory fires in 2010.



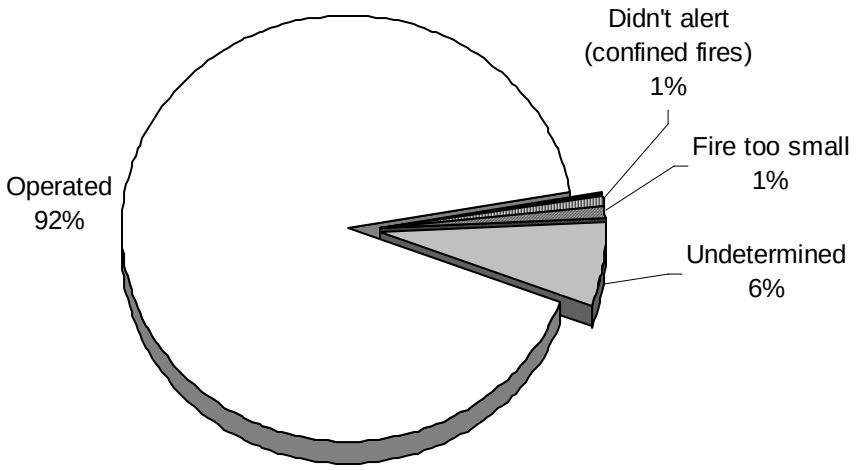
90% of Dormitory Fires Started in the Kitchen
For dormitory fires, 90% started in the kitchen[28]. Heating rooms or areas and bedrooms were each the area of origin for 2% of dormitory fires. One percent (1%) started in halls or corridors.

93% of Dormitory Fires Confined to Non-Combustible Containers[29]
Four hundred and seventeen (417), or 93% of all building fires in dormitories, were reported as confined to non-combustible containers in 2010. Three hundred and ninety-nine (399) were cooking fires contained to a non-combustible container, accounting for 89% of all dormitory fires. It may be surmised that many if not all of these occurred in a kitchen, some may have been in the students' bedrooms. Indoor rubbish fires accounted for 11, or 2% of the fires in dormitories in 2010. Seven (7), or 2%, of fires in Massachusetts' dormitories in 2010 were confined to a fuel burner or boiler malfunction. The number of contained fires rose in 2010. Confined fires in dormitories increased by 119 incidents, or 30%, from the 403 reported in 2009. All 119 were cooking fires.

Detectors Operated in 92% of Fires
Dormitories have the highest percentage of operating smoke detectors of any residential occupancy in Massachusetts. Smoke or heat detectors operated and alerted the occupants in 413, or 92%, of the dormitory fires in 2010. In 1% of these fires[30], the detectors did not alert the occupants. There were no reported fires where the detectors were present but did not operate. There were no reported fires where detectors were not present. The fire was too small to trigger the detector in 1% of these fires. Smoke detector performance was undetermined in 29 incidents, or 6% of Massachusetts' 2010 dormitory fires.

[28] The high number of fires that are reported to have originated in the kitchen may be misleading in dormitory fires. Eighty-nine percent (89%) of the cooking fires in dormitories were confined cooking fires. In most cases we assign the *Area of Origin* of a confined cooking fire to the kitchen. However in the case of dormitories many of these fires probably occur in the students' bedrooms when they are using hot plates, coffee makers or microwave ovens.
[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.

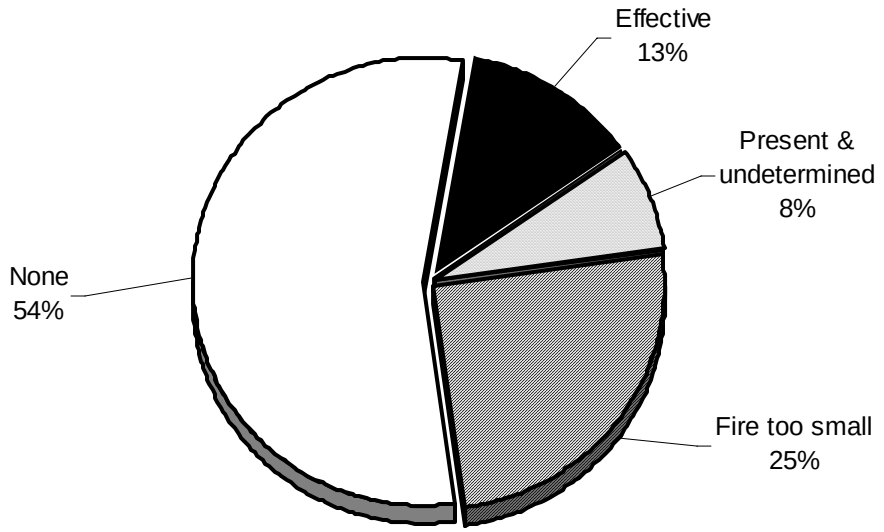
Detector Status in Dormitory Fires



AES Present in Only 45% of Dormitory Fires

Automatic extinguishing systems (AES) were present and operated effectively in five, or 13%, of the 40 building fires in dormitories where AES status was known. In 25% of these incidents, the fire was too small to activate the system. In 8% of these incidents, a system was present but it undetermined if it operated. In 22, or 54%, of these incidents there were no systems present.

AES Status in Dormitory Fires

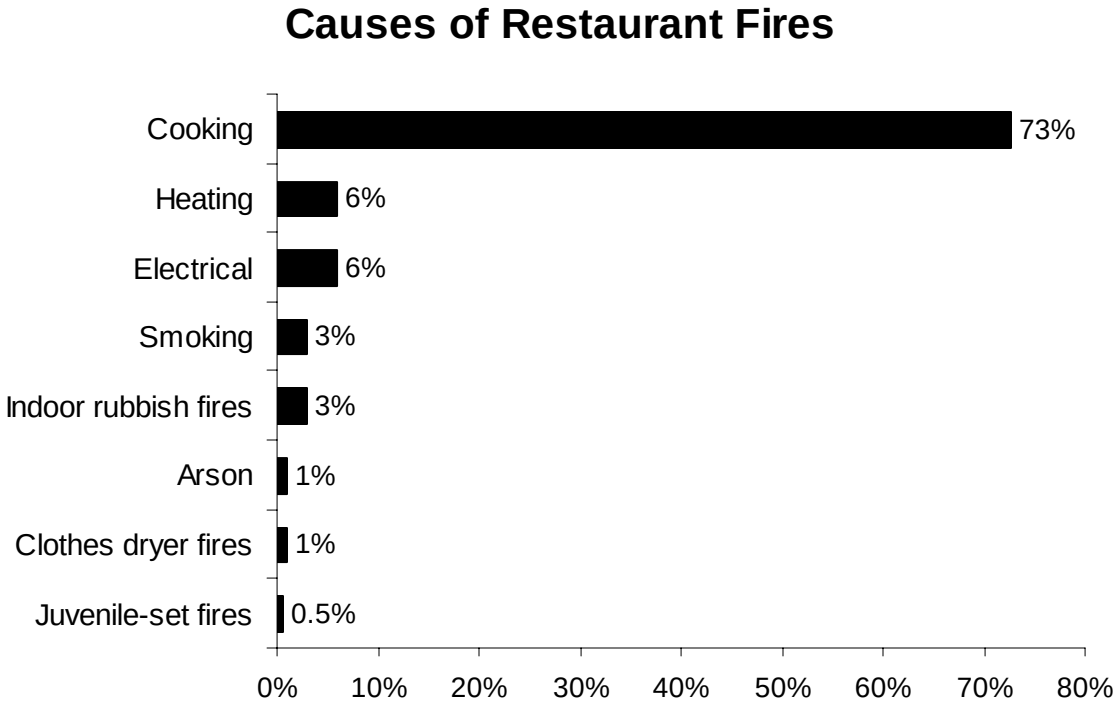


5 1/2 to 1 Ratio of False Alarms to Fire Calls in MA Dorms
In 2010, Massachusetts fire departments responded to 2,458 false alarm calls of all types in dormitory type residences. This means that there were five and a half times as many false alarms as legitimate fire calls at these types of residences. One thousand four hundred and forty (1,440), or 59%, were unintentional system or detector operations; 636, or 26%, were system or detector malfunctions; 294, or 12%, were malicious or mischievous false alarms; and 88, or 4%, were unclassified false alarm calls.

Restaurant Fires

399 Fires, 10 Firefighter Injuries & $3 Million in Damages
Three hundred and ninety-nine (399) building fires in 2010 occurred in restaurants and other eating and drinking establishments, causing one civilian injury, 10 firefighter injuries, and an estimated dollar loss of $3 million. The average dollar loss per fire was $7,741. In 2010, 2% of the 18,415 building fires in Massachusetts occurred in restaurants. Fires in restaurants were up 15% from 347 in 2009.

Almost 3/4 of Restaurant Fires Caused by Cooking
Cooking caused 73% of the restaurant fires; heating equipment and electrical problems each caused 6%; smoking caused 4%; indoor rubbish fires accounted for 3% of these fires; and arson and clothes dryers each caused 1% of these fires. Juvenile-set fires accounted for less than 1% of the fires in restaurants in 2010.



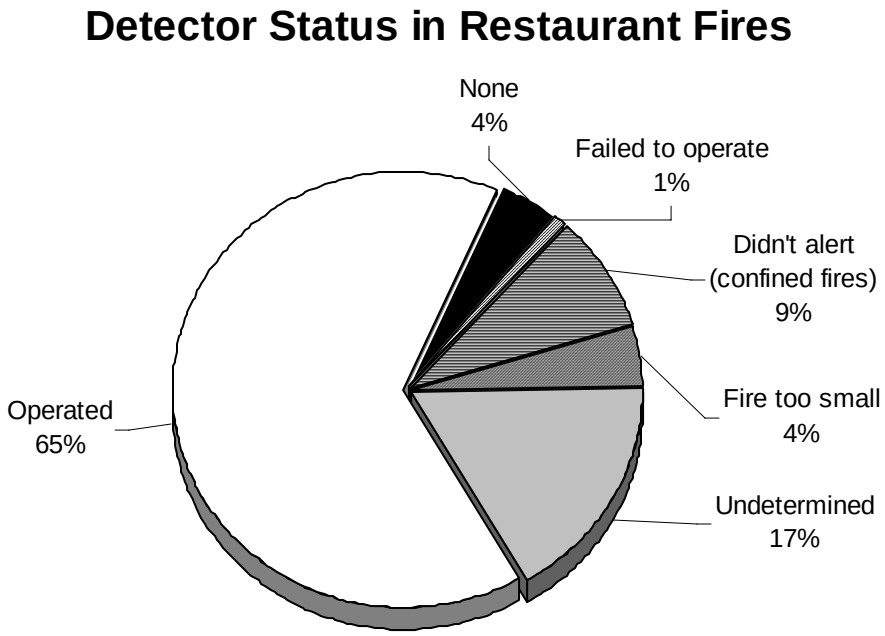
3/4 of Restaurant Fires Started in the Kitchen
Three quarters, or 75%, of the 399 fires in restaurants, started in the kitchen. Four percent (4%) began in heating rooms or areas. Exterior wall surfaces, bathrooms and unclassified storage areas were each the area of origin for 2% of these fires. One percent (1%) each began on exterior roof surfaces and concealed wall spaces.

3/4 of Restaurant Building Fires Confined to Non-Combustible Containers[31]
Three hundred (300), or 75% of all restaurant building fires, were reported as confined to non-combustible containers in 2010. Two hundred and seventy (270) were cooking fires contained to a non-combustible container, accounting for 68% of restaurant building fires. Fifteen (15), or 4%, were fires confined to a fuel burner or boiler malfunction. Ten (10), or 3%, of all restaurant building fires reported in 2010 contained rubbish fires. Four (4), or 1%, of restaurant fires were confined to chimneys or flues; and one, or less than 1%, was confined to a commercial compactor.

The number of contained fires rose in 2010. Confined fires in restaurants increased by 29 incidents, or 11%, from the 271 reported in 2009.

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

Detectors Operated in Almost 2/3 of Fires
Smoke or heat detectors operated in 259, or 65%, of the restaurant fires in 2010. In 9% of these fires[32], the detectors did not alert the occupants. Detectors were present but did not operate in 1% of these incidents. In 4% of these fires, no detectors were present at all. The fire was too small to trigger the detector in 4% of the restaurant fires. Smoke detector performance was undetermined in 68 incidents, or 17%, of Massachusetts' 2010 restaurant fires.

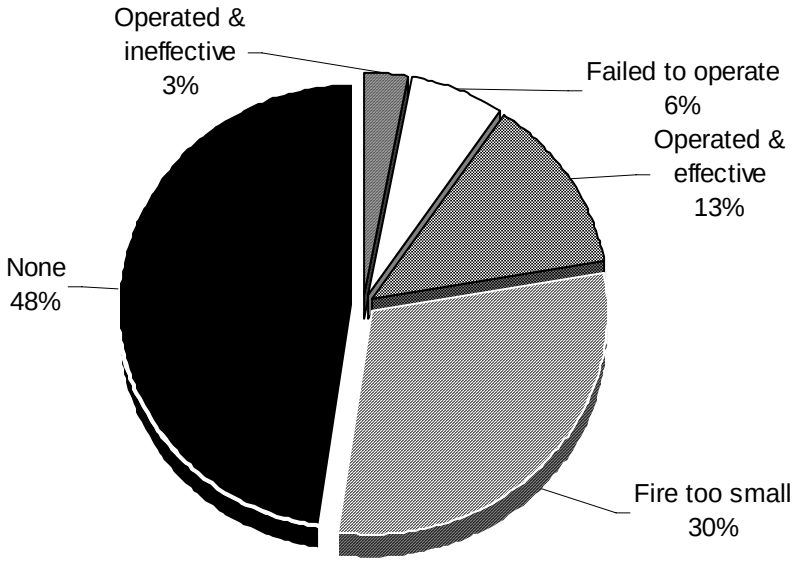


Restaurants Must Have Kitchen Exhaust & Fire Extinguishing Systems
According to Massachusetts 527 CMR 11, restaurants must have commercial kitchen exhaust systems and fire extinguishing systems installed and maintained in accordance with NFPA 96 for any cooking equipment that produces grease-laden vapors. An automatic fire extinguishing system would be the primary protection and portable fire extinguishers would be used as a secondary backup. These systems are usually located in the direct vicinity of, and specially designed for cooking equipment such as stoves, deep fryers and ovens. In 2009 this was changed from the previous standard, 527 CMR 10.03 (8).

No AES in Almost 1/2 of Restaurant Fires
Automatic extinguishing systems (AES) were present and operated effectively in 13% of the 94 restaurant fires where AES status was known. In 3% of these fires, systems were present but operated ineffectively. In 6% of these fires, an AES was present but did not operate. In 30% of these fires, the fire was too small to activate the system. No AES equipment was present in 48% of the restaurant fires in 2010. AES status was unknown in nine incidents. These incidents were excluded from the percentage calculations.

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

AES Status in Restaurant Fires



Methuen Has Largest Loss Restaurant Fire

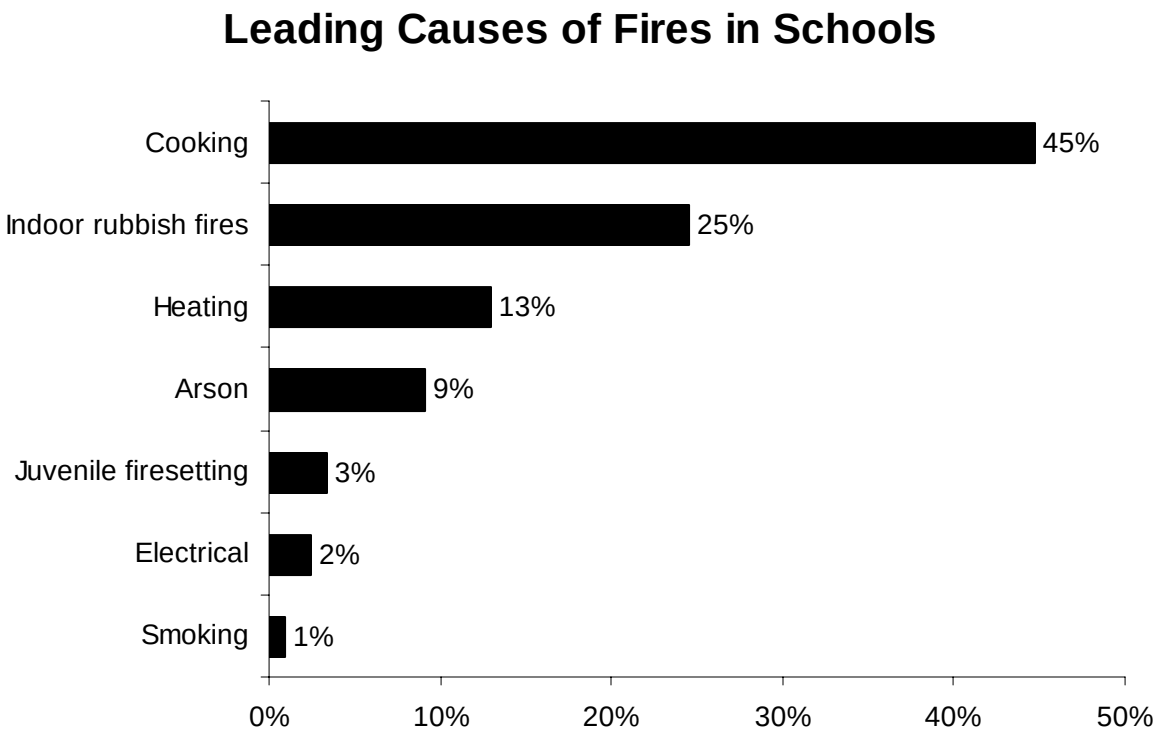
- On Christmas day, December 25, 2010, at 8:05 a.m., the Methuen Fire Department was called to a fire in a restaurant. The cause of the fire was undetermined after the investigation was completed. No one was injured at this fire. It was undetermined if detectors were present. A partial automatic extinguishing system was present but it was undetermined if it operated. Damages from this fire were estimated to be $600,000.

School Fires

208 Fires Caused 1 Civilian Injury & 11 Fire Service Injuries
Two hundred and eight (208) building fires in schools[33] caused one civilian injury, 11 fire service injuries and $240,471 in property damages. The average dollar loss per fire was $1,156. In 2010, 1% of the building fires occurred in schools. Fires in schools decreased by 20, or 11%, from the 188 in 2009.

[33] 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.

45% of School Fires Were Cooking Fires
Forty-five percent (45%) of the 208 fires reported to have occurred in Massachusetts schools were caused by cooking. Twenty-five percent (25%) of the school fires were confined indoor rubbish fires for which no causal information was reported[34]. Problems with heating equipment accounted for 13% of these fires. Arson accounted for 9% of these fires. Identified juvenile-set fires accounted for 3% of the fires in schools. Electrical problems caused 2%. Smoking caused 1% of the reported fires in schools in 2010. Smoking by students and faculty is generally prohibited in schools.



45% of School Fires Started in the Kitchen
Forty-five percent (45%) of the fires in schools started in kitchens; 13% started in a heating room or area; 7% began in a bathroom; and 2% each started in assembly areas for less than 100 persons, hallways and corridors, offices and computer rooms. 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 2010 there were 49 reported confined indoor rubbish fires reported in Massachusetts schools, of which 38 did not report an area of origin.

[34] 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.

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.

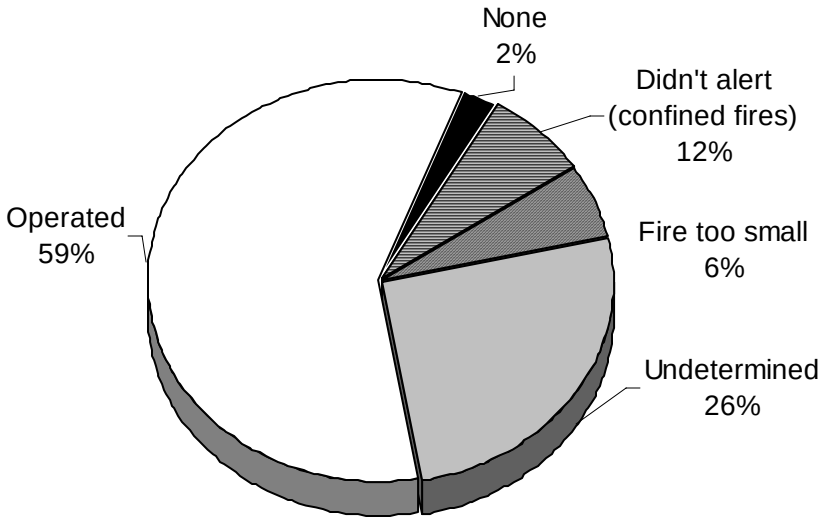
81% of School Building Fires Confined to Non-Combustible Containers[35]
One hundred and sixty-nine (169), or 81% of all school building fires, were reported as confined to non-combustible containers in 2010. Ninety-two (92) were cooking fires contained to a non-combustible container, accounting for 44% of school fires. Forty-nine (49), or 24%, of all school fires were contained rubbish fires. Of these 49 confined rubbish fires, five were considered intentionally set or arson, and two were determined to be set by juveniles. Twenty-seven (27), or 13%, were fires confined to a fuel burner or boiler malfunction; and one, or less than 1%, was confined to an incinerator overload or malfunction.

Confined fires in schools increased by 14 incidents, or 9%, from the 155 reported in 2009.

Detectors Operated in 59% of Fires
Smoke or heat detectors operated in 122, or 59%, of the school fires in 2010. In 12% of these fires[36], the detectors did not alert the occupants. There were no reported fires where detectors were present but did not operate. In 2% of these fires, no detectors were present at all. The fire was too small to trigger the detector in 6% of school fires. Smoke detector performance was undetermined in 54 incidents, or 26%, of Massachusetts' 2010 school fires.

[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.

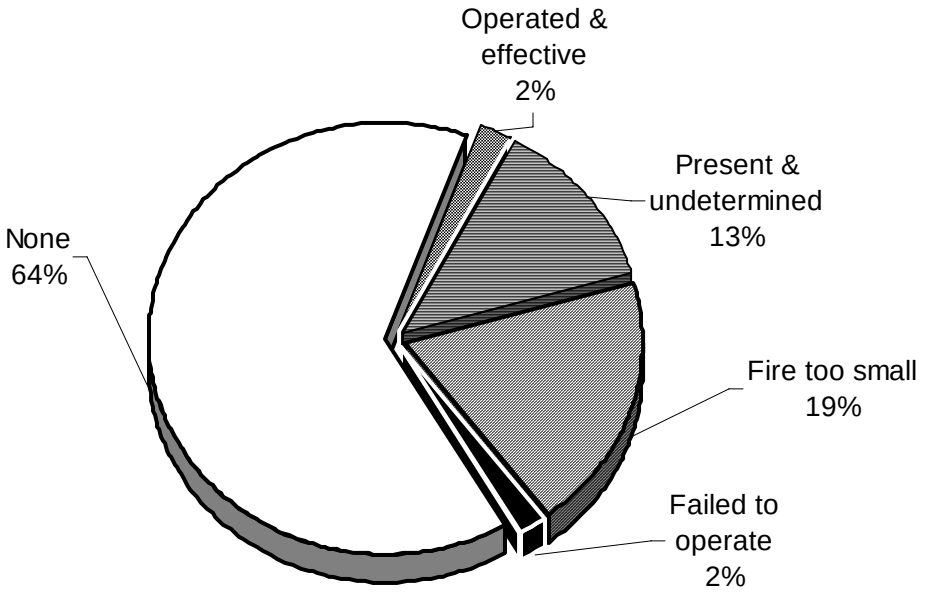
Detector Status in School Fires



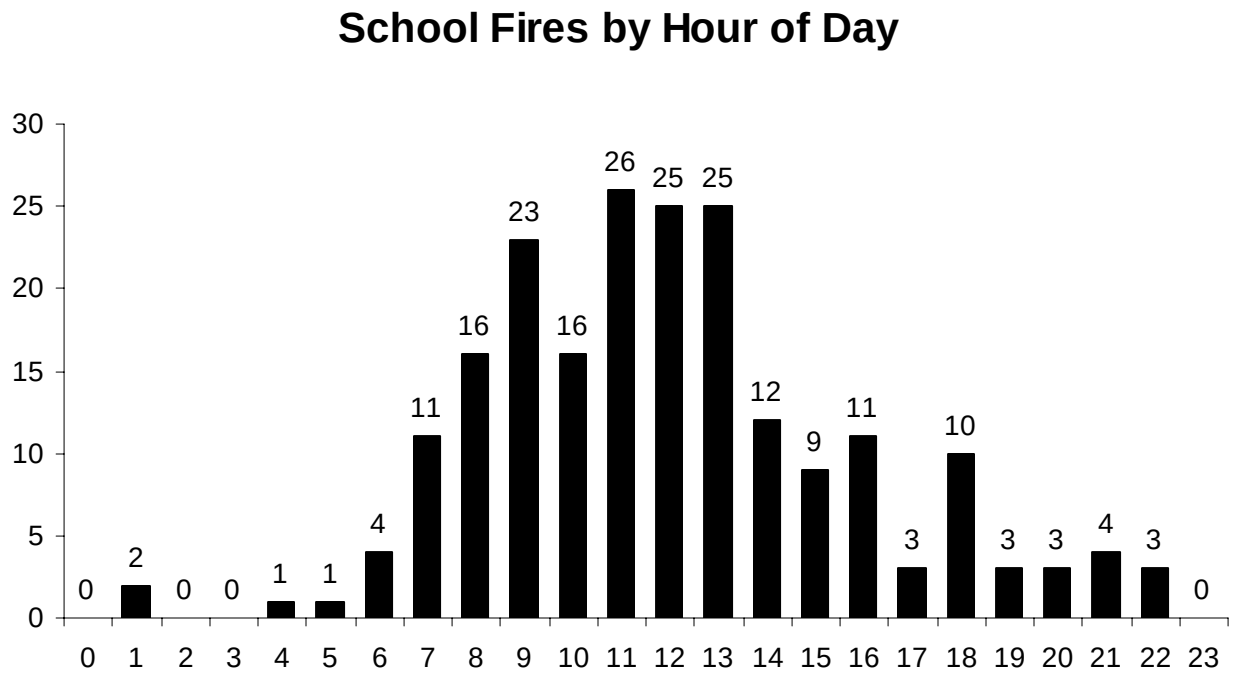
No AES in Almost 2/3 of Fires in Schools

There was one school fire, or 2%, where automatic extinguishing systems (AES) were reported to have been present and operated effectively. In 2% of the fires the system failed to operate. In 19% of school fires, the fires were too small to trigger the system. An AES was present but it was undetermined if it operated in 13% of these fires. In 64% 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-three percent (73%) of the school building fires occurred during the hours between 8:00 a.m. and 3:00 p.m. with a sharp increase between 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-nine percent (89%) of these fires occurred between Monday and Friday.



Schools Must Hold Fire Drills Four Times a Year
Effective fire prevention has undoubtedly contributed to the low injury rate at school fires. According to 527 CMR 10.09, fire drills must be conducted four times a year. 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.

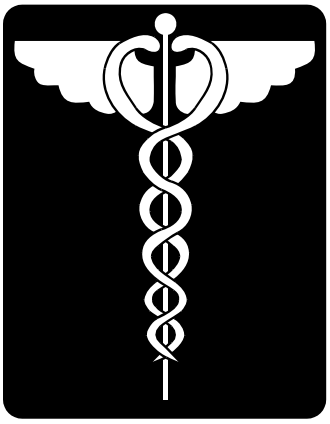
Schools Must Have Updated Multi-hazard Evacuation Plan
Under Section 363 of Chapter 159 of the Acts of 2000, "…the superintendent of each school district shall, prior to the beginning of the school year, meet with the fire chief and the police chief of the city, town or district to formulate a school 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.

Boston Had Largest Loss School Fire

- On December 9, 2010, at 11:54 a.m., the Boston Fire Department was called to an intentionally set fire at an elementary school. The fire was started when someone intentionally ignited five plastic toilet paper dispensers in a girl's bathroom in the basement. No one was injured at this fire. Detectors were not present and the building was not sprinklered. Damages from this fire were estimated to be $75,000.

Fires in Hospitals



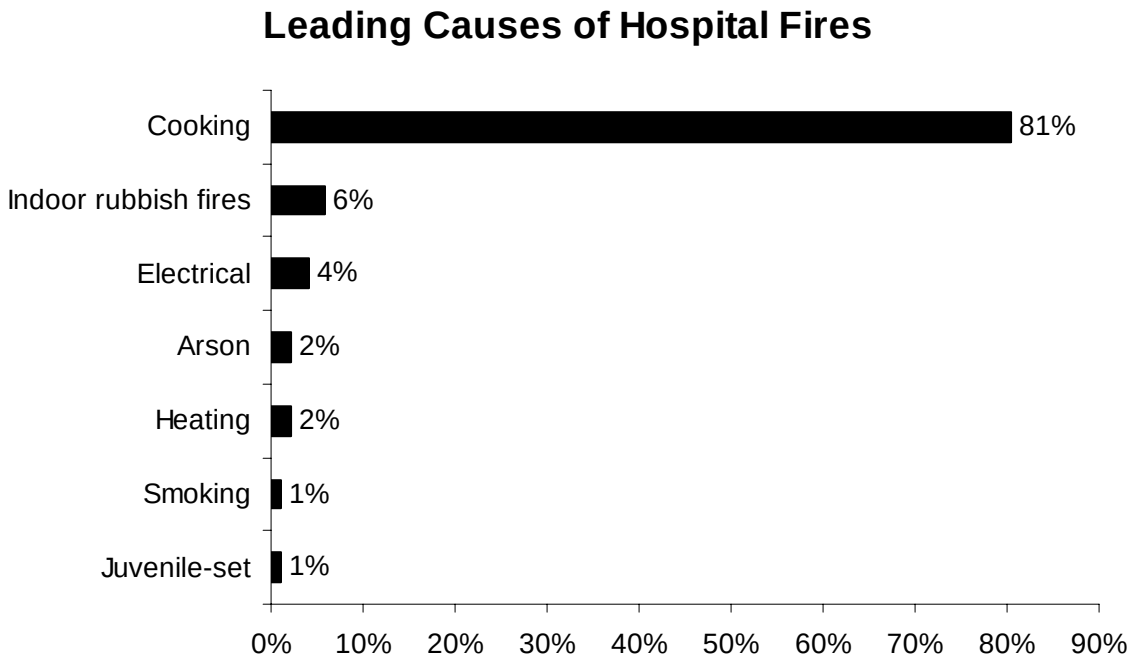
190 Fires Caused $315,523 in Damages

One hundred and ninety (190) building fires in hospitals caused an estimated dollar loss of $315,523. The average loss per fire was $1,659. In 2010, 1% of the 18,415 building fires occurred in hospitals. Fires in hospitals were up by 4% from the 182 reported in 2009.

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

Cooking Caused 81% of Hospital Fires

Unattended cooking and other unsafe cooking practices caused 81% of the fires in hospitals in 2010. Indoor rubbish fires caused 6% of these fires. Electrical problems caused 6% of hospital fires. Arson, and heating equipment each caused 2% of these fires; and smoking and juvenile-set fires each accounted for 1% of the fires in hospitals in 2010.



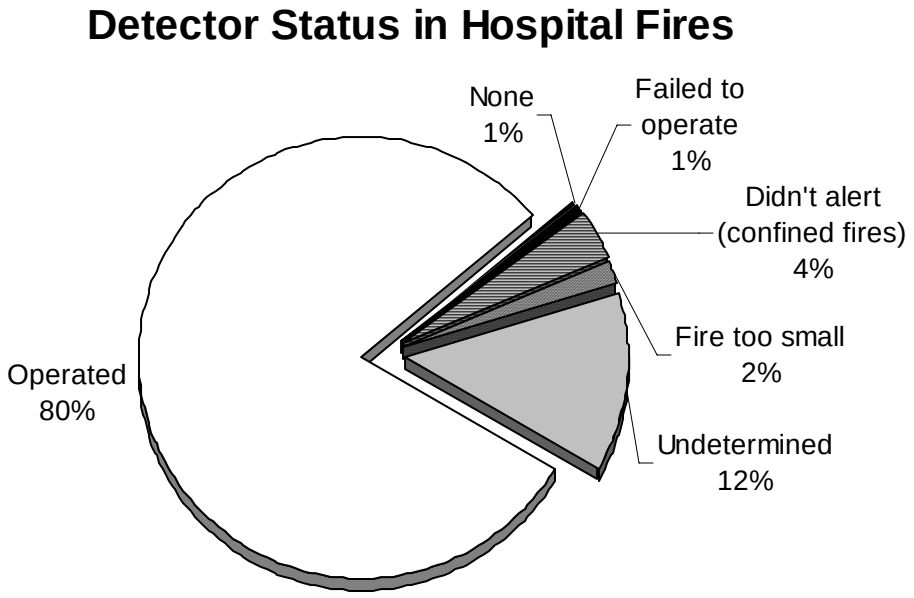
81% of Hospital Fires Began in the Kitchen
Eighty-one percent (81%) of the fires in hospitals in 2010 started in the kitchen. Two percent (2%) occurred each in heating rooms or areas and bedrooms. Bathrooms, laboratories, unclassified function rooms and conduit or pipe shafts were each the area of origin for 1% of hospital fires in 2010.

87% of Hospital Building Fires Confined to Non-Combustible Containers[37]
One hundred and sixty-six (166), or 87%, of all hospital building fires, were reported as confined to non-combustible containers in 2010. One hundred and fifty-one (151), or 79%, of these fires were contained cooking fires. Eleven (11) were confined indoor rubbish fires accounting for 6% of hospital fires. Four (4), or 2%, were fires confined to a fuel burner or boiler malfunction.

The number of contained fires increased in 2010. Confined fires increased by four incidents, or 2%, from the 162 reported in 2009.

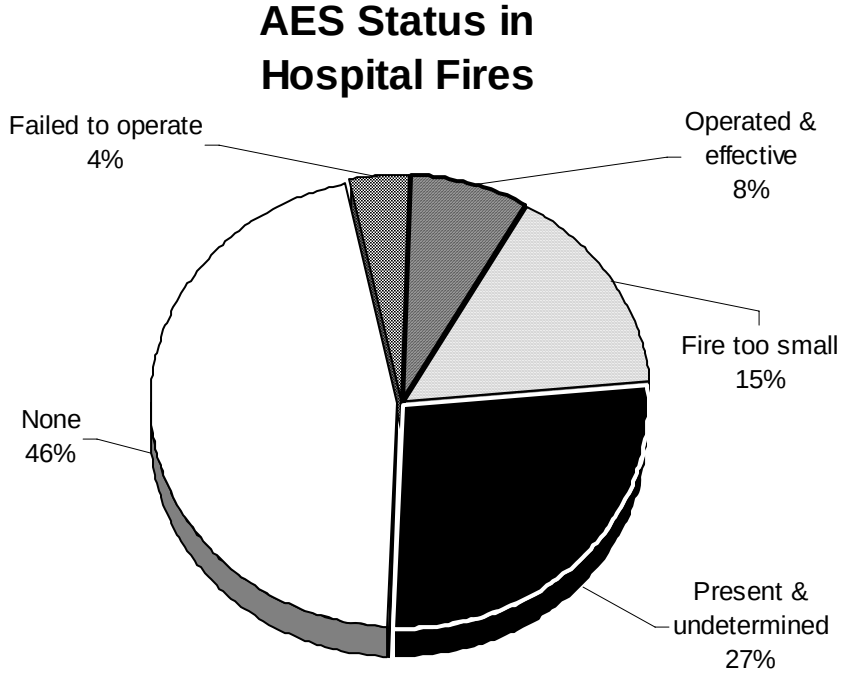
Detectors Operated in 80% of Fires
Smoke or heat detectors operated in 153, or 80%, of the hospital fires in 2010. In 4% of these fires[38], the detectors did not alert the occupants. The detectors failed to operate in 1% of these fires. In another 1% of these fires, no detectors were present at all. The fire was too small to trigger the detector in 2% of the hospital fires. Smoke detector performance was undetermined in 25 incidents, or 12%, of Massachusetts' 2010 hospital fires.

[37] 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.
[38] These represent confined fires where it was reported that the detector did not alert the occupants.



No AES in Almost 1/2 of Fires

Of the 26 hospital fires where automatic extinguishing system (AES) performance was known, 46%, or 12, of the hospital fires had no systems. The fire was too small to activate the AES in four, or 15%, of these fires. The system operated effectively in two, or 8%, of hospital fires. An AES was present but its performance was unknown in seven, or 27%, of the fires in hospital facilities.



Boston Had Largest Loss Hospital Fire in 2010

- On December 21, 2010, at 8:29 a.m., the Boston Fire Department was called to an electrical fire on the roof of a hospital. The fire did not cause any injuries. Detectors were present and alerted the other occupants of the hospital. The building was equipped with sprinklers but the fire was not in an area protected by them. Damages from this fire were estimated to be $100,000.

Nursing Home and Rest Home Fires

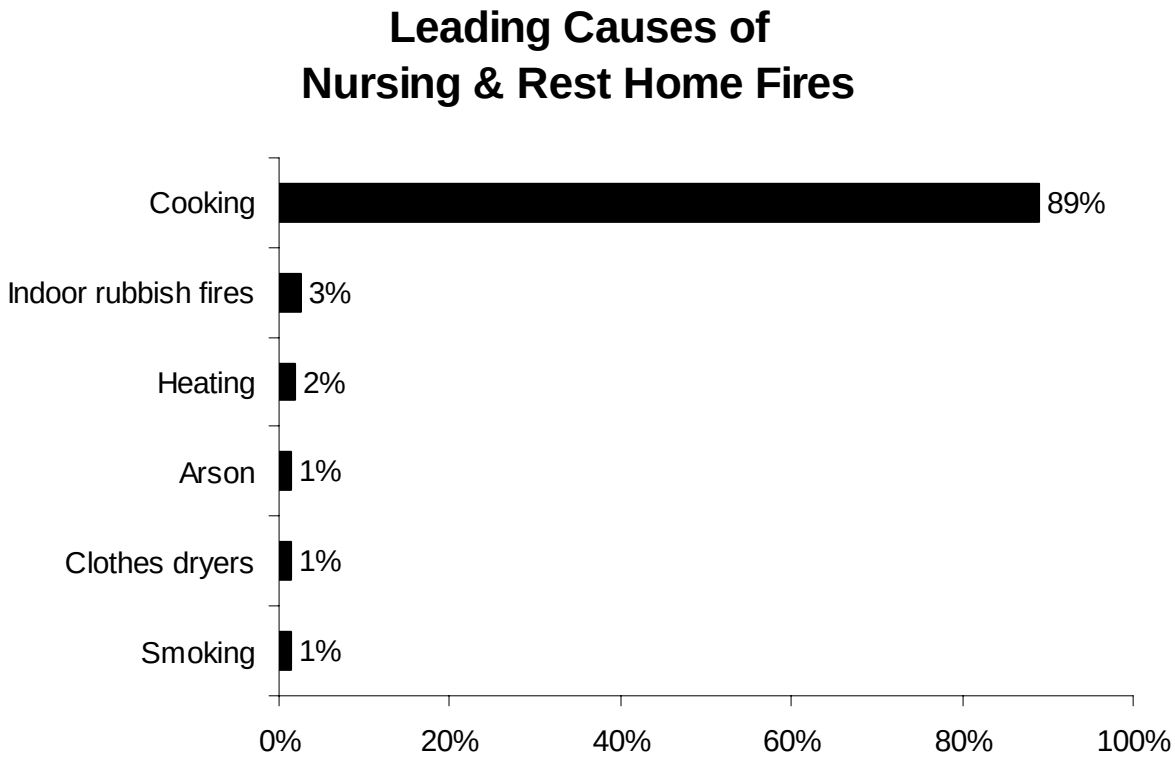
154 Fires Caused 1 Civilian Injury & $40,438 in Damages

One hundred and fifty-four (154) building fires occurred in nursing homes and rest homes[39] during 2010. These fires caused one civilian injury and an estimated dollar loss of $40,438. The average loss per fire was $263. In 2010, 1% of the 18,415 building fires occurred in nursing homes and rest homes. Fires in nursing homes and rest homes decreased by 2% from 157 in 2009.

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 89% of Nursing Home Fires

Unattended cooking and other unsafe cooking practices caused 89% of the fires in nursing and rest homes. Indoor rubbish fires caused 3% of these fires. Heating equipment



caused 2% of these fires. Arson, clothes dryers and smoking each caused 1% of nursing home fires in 2010.

88% of Fires Began in the Kitchen
Eighty-eight percent (88%) of the nursing and rest home fires began in the kitchen. Three percent (3%) began in laundry rooms and 1% started in the heating room or area.

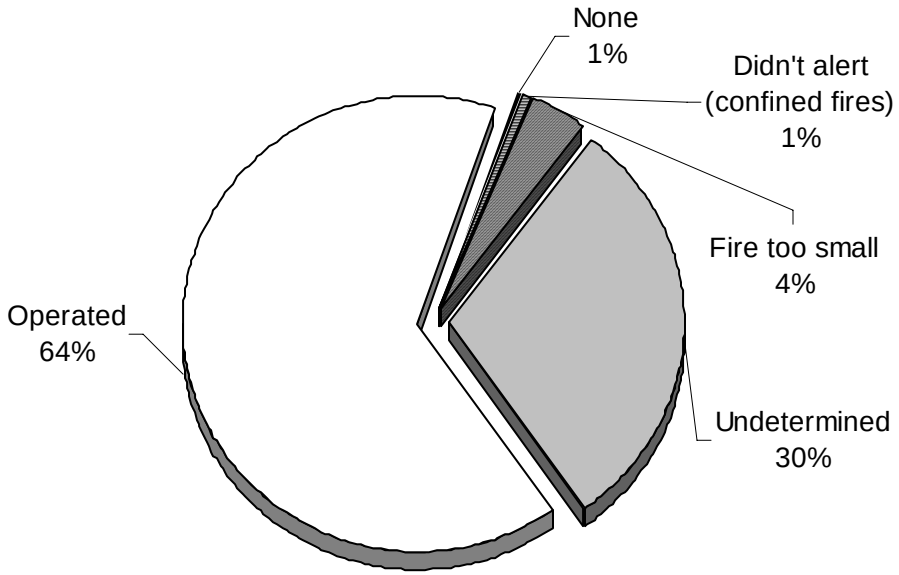
90% of Nursing Home Fires Were Confined to Non-Combustible Containers[40]
One hundred and thirty-eight (138), or 90%, of all nursing home building fires were reported as confined to non-combustible containers in 2010. One hundred and thirty-two (132) of the reported fires were cooking fires contained to a non-combustible container, accounting for 86% of nursing home building fires. There were four confined indoor rubbish fires in Massachusetts' nursing homes in 2010, accounting for 3% of these fires. Two (2), or 1%, were fires confined to a fuel burner or boiler malfunction.

The number of contained fires in nursing homes dropped slightly in 2010. Confined fires decreased by three incidents, or 2%, from the 141 reported in 2009.

Detectors Operated in Almost 2/3 of Fires
Smoke or heat detectors operated in 100, or 64%, of the nursing home fires in 2010. In 1% of these fires[41], the detectors did not alert the occupants. There were no reported fires where the detectors were present but did not operate. In 1% of these fires, no detectors were present at all. The fire was too small to trigger the detector in 4% of the nursing home fires. Smoke detector performance was undetermined in 46 incidents, or 30%, of Massachusetts' 2010 nursing and rest home fires.

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

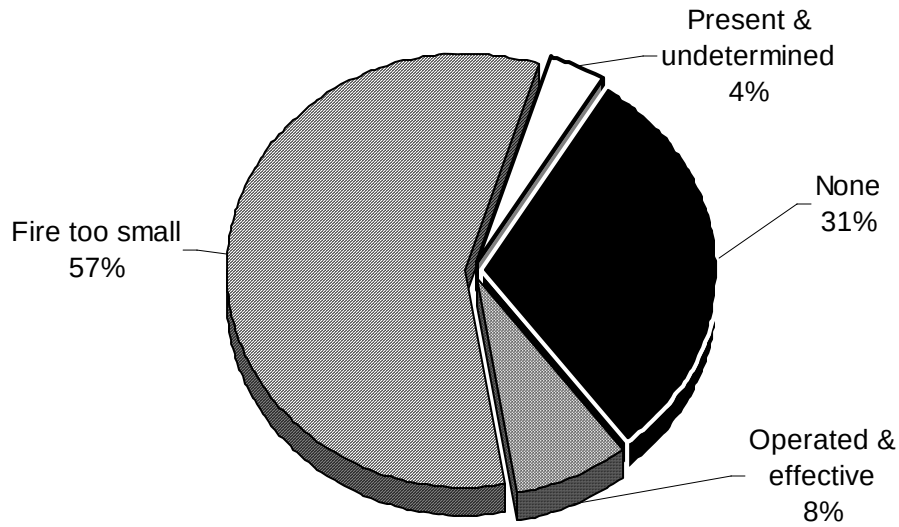
Detector Status in Nursing Home Fires



AES Operated in 8% of Nursing Home Fires

Of the 26 nursing home fires where automatic extinguishing system (AES) performance was known or reported, systems were present and operated effectively in two, or 8%, of these fires. In 15 incidents, or 57% of the fires where AES presence was known, the fire was too small to activate the system. No systems were present in eight, or 31%, of these fires. In one of these incidents, or 4%, AES were present but their operation was undetermined.

AES Status in Nursing & Rest Home Fires



Worcester Has Largest Nursing Home Fire Loss

- On August 23, 2010, at 12:15 a.m., the Worcester Fire Department was called to a dryer fire in a nursing home. This fire caused $15,000 in damages. No one was injured in this fire. Smoke detectors were present and alerted the staff and occupants. It was undetermined if sprinklers were present.

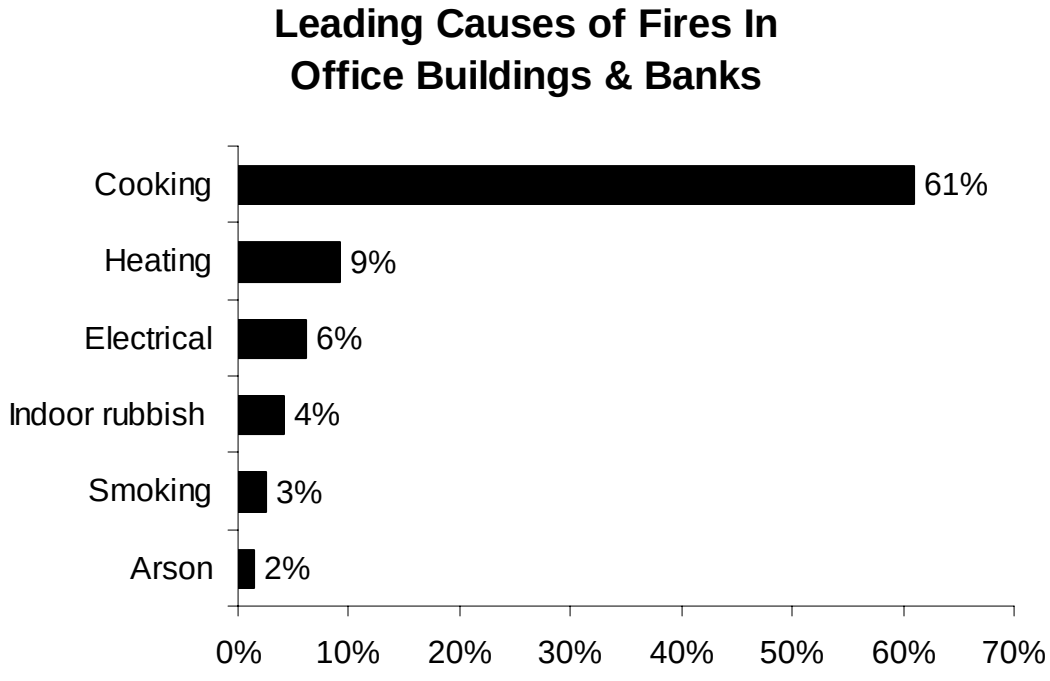
Office Building and Bank Fires

197 Fires, 7 FF Injuries & $2.9 Million in Damages

One hundred and ninety-seven (197) building fires occurred in offices and banks during 2010. These fires caused one civilian injury, seven fire service injuries and an estimated dollar loss of $2.9 million. The average dollar loss per fire was $14,762. In 2010, 1% of the 18,415 building fires occurred in offices and banks. Fires in office buildings and banks were up by 23% from 160 in 2009.

Cooking Caused 61% of Office & Bank Fires

Unattended cooking and other unsafe cooking practices caused 61% of the 197 fires in office buildings and banks in 2010. Heating equipment accounted for 9% of these fires. Electrical problems caused 6% of the fires and indoor rubbish fires caused 4% of these fires. Smoking caused 3% and arson was the cause of 2% of the fires in Massachusetts' office buildings and banks in 2010.



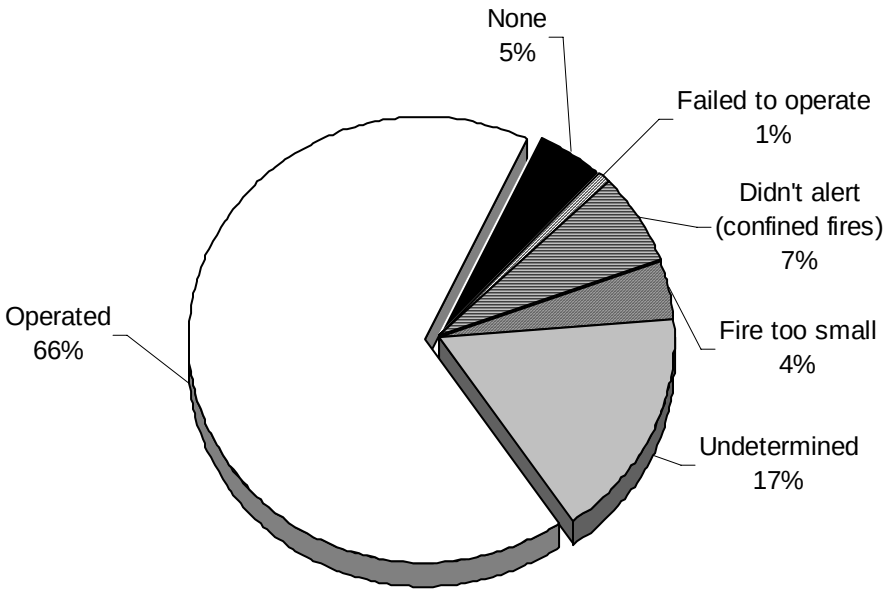
62% Office Building and Bank Fires Started in Kitchen
Sixty-two percent (62%) of the fires in office buildings or banks started in the kitchen. Nine percent (9%) of these fires began in a heating room or area. Five percent (5%) began in offices. Two percent (2%) each originated in bathrooms, exterior wall surfaces and entranceways or lobbies. One percent (1%) each started in bathrooms, storage rooms or unclassified service or equipment areas.

3/4 of Office Building Fires Are Confined to Non-Combustible Containers[42]
One hundred and forty-eight (148), or 75%, of all office building and bank building fires were reported as confined to non-combustible containers in 2010. One hundred and nineteen (119) of the reported fires were cooking fires contained to a non-combustible container, accounting for 60% of office building fires. Seventeen (17), or 9%, were fires confined to a fuel burner or boiler malfunction. Eight (8), or 4%, of these fires were contained indoor rubbish fires[43]. Four (4) of these fires were confined to a commercial compactor, accounting for 2% of the fires in office buildings and banks. Confined fires in offices increased by 20 incidents, or 16%, from the 128 reported in 2009.

Detectors Operated in 2/3 of Fires
Smoke or heat detectors operated and alerted the occupants in 132, or 66%, of the office building fires in 2010. In 7% of these fires[44], 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 33 incidents, or 17%, of the fires in Massachusetts' office buildings.

[42] 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.
[43] Confined rubbish fires in office buildings increased by 18, or 225%, from the 8 reported in 2005.
[44] These represent confined fires where it was reported that the detector did not alert the occupants.

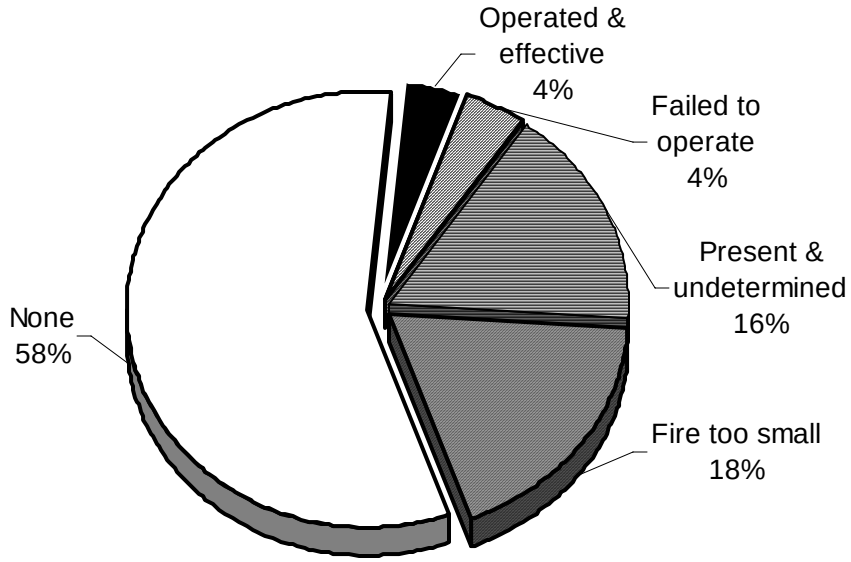
Detector Status in Office Building Fires



58% of Office Buildings and Banks Had No AES

No automatic extinguishing systems (AES) were installed in 28, or 58%, of the 49 fires occurring in office buildings and banks where AES performance was known. Systems were present and operated effectively in two, or 4%, of these incidents. A system was present but failed to operate in two, or 4%, of these fires. The fire was too small to activate the system in nine, or 18%, of these incidents. AES were present but it was undetermined if they operated in eight, or 16%, of the total number of office building and bank fires.

AES Status in Office Building & Bank Fires



Westford Has Largest Loss Office Building Fire

- On August 17, 2010, at 11:20 p.m., the Westford Fire Department responded to a fire of undetermined cause in a business office. The fire originated in a first floor office. No one was injured at this fire. The building was not sprinklered. Damages from this fire were estimated to be $935,000.

Vacant Building Fires

319 Fires Caused 64 Fire Service Injuries & $13.9 Million in Damages

Three hundred and nineteen (319) building fires occurred in buildings that were vacant, under construction or demolition[45]. These 319 fires caused one civilian death, eight civilian injuries, 64 firefighter injuries and an estimated $13.9 million in damages. The average dollar loss per vacant building fire was $43,626. The same number of fires in vacant buildings were reported in both 2009 and 2010.

Vacant Buildings Account for 1/5 of Building Arsons

Forty-eight (48), or 15%, of the fires in vacant buildings were considered arson. These 48 arsons caused nine firefighter injuries and $2.5 million in damages. In 2010, 18%, or nearly one-fifth, of the total 268 Massachusetts building arson fires occurred in vacant buildings.

46% of Vacant Building Fires Undetermined

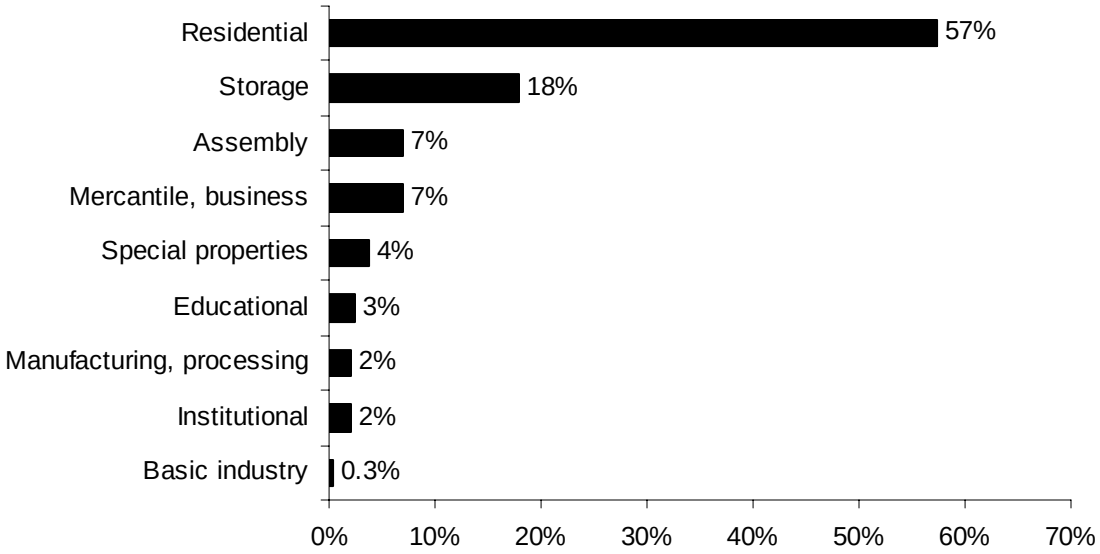
Forty-three percent (43%) of vacant building fires were undetermined. Forty-four (44), or 14%, of the 319 vacant building fires were undetermined after investigation. Ninety-one (91), or 29%, were coded as still under investigation; and one, or less than 1%, was classified as 'Other'.

57% of All Vacant Building Fires Were Residential

Out of the 319 vacant building fires, 183, or 57%, occurred in residential occupancies. This is a decrease of 11, or 6%, from the 194 that were reported in 2009. Fifty-seven (57), or 18%, happened in storage facilities; 23, or 7%, were in public assembly properties; 22, or 7%, happened at mercantile or business locations; 12, or 4%, occurred in special properties; eight, or 3%, were at educational facilities; six, or 2%, happened at manufacturing or processing locations; five, or 2%, occurred at institutional facilities; and one, or less than 1%, of vacant building fires, occurred at industrial sites.

[45] 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.

Vacant Building Fires by Property Use



58% of All Vacant Building Arsons Occurred in Residential Buildings
Fifty-eight percent (58%) of the 48 vacant building arsons in 2010 occurred in residential occupancies. Seventeen percent (17%) took place in storage facilities; public assembly properties accounted for 13%; 3% happened at educational facilities; 2% occurred in mercantile or business properties; and 6% happened in special properties.

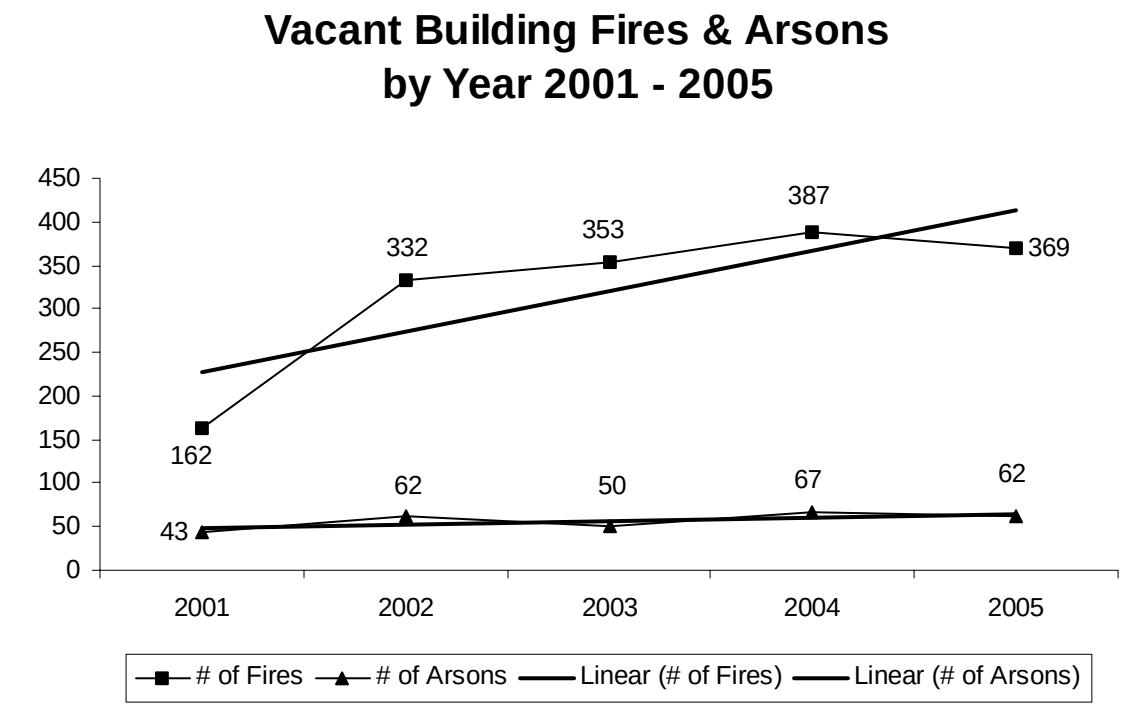
The following table illustrates the trend in vacant building fires and arsons over the past decade.

FIRES AND ARSONS IN VACANT BUILDINGS

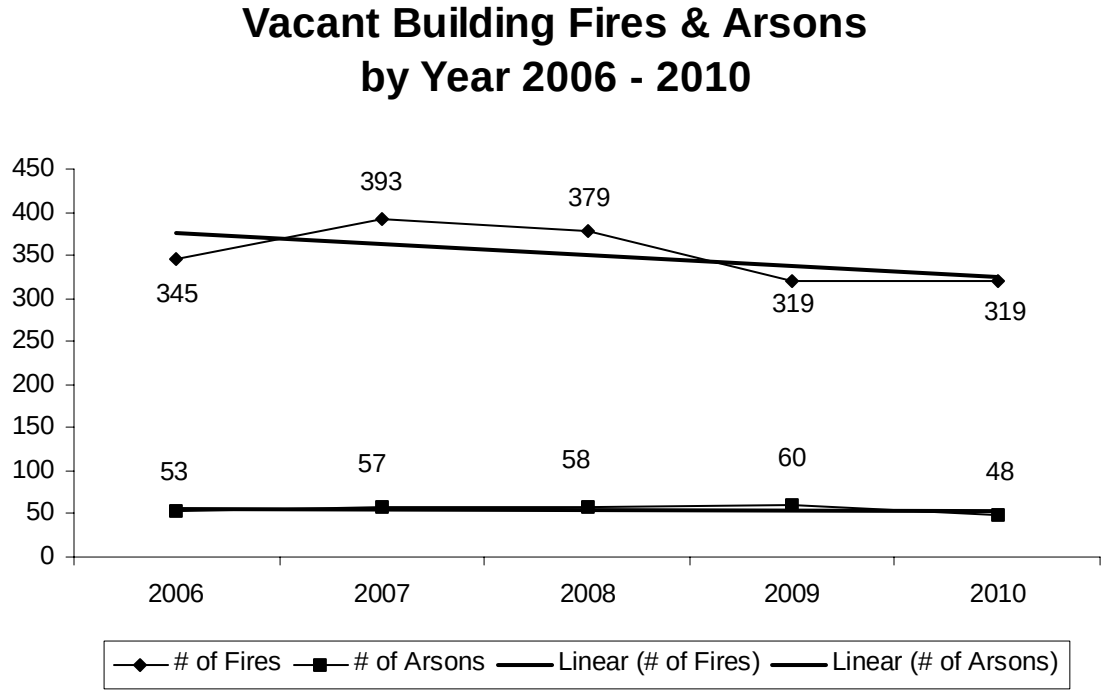
Year	# of Fires	# of Arsons	% Arsons
2010	319	48	15%
2009	319	60	19%
2008	379	58	15%
2007	393	57	15%
2006	345	53	15%
2005	369	62	17%
2004	387	67	17%
2003	353	50	14%
2002[46]	332	62	17%
2001	162	43	27%

[46] 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.

The following graphs clearly show an upward trend in vacant building fires and a level trend in vacant building arsons between 2001 and 2005. 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.



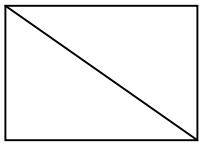
From 2006 through 2010, the number of vacant building fires and arsons seems to be holding steady in an even trend.



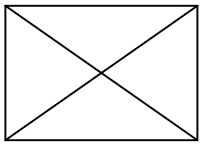
Communities Have Gone on the Offensive Against Vacant Buildings
Some communities have gone on the offensive against vacant buildings. In the aftermath of the December 3, 1999 Worcester Cold Storage Warehouse Fire, where six firefighters lost their lives, there has been an increased awareness of the dangers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

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

These standards are now mandatory throughout the Commonwealth. Under both the Building Code (780 CMR 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.

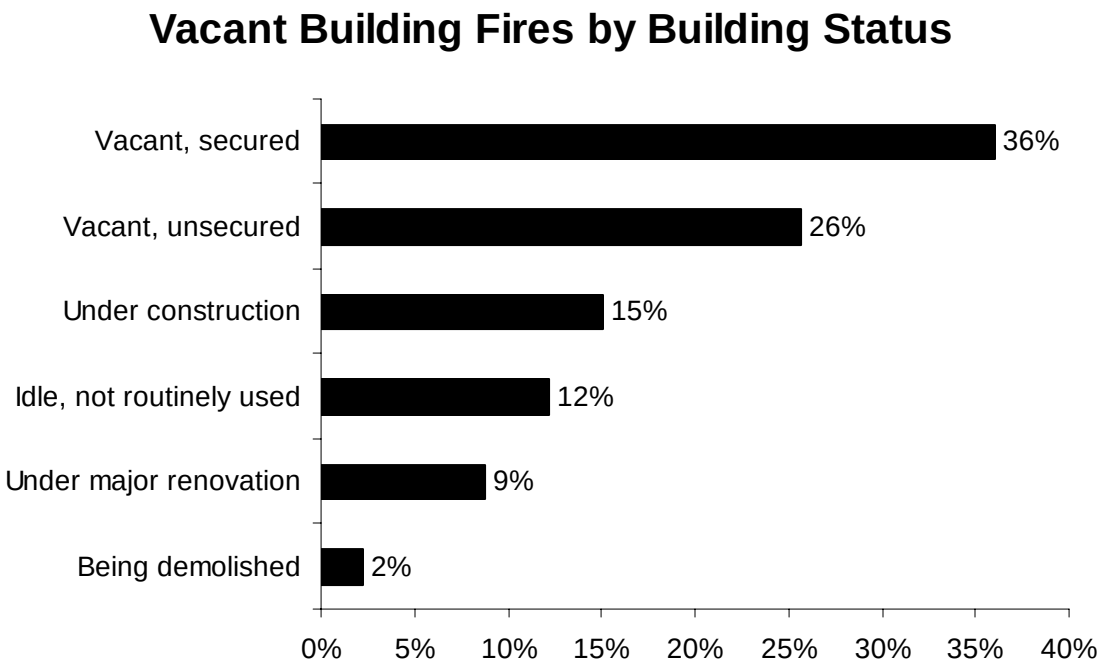
These placards can now be seen in communities throughout the Commonwealth. Neither of these symbols limit the incident commander in directing the operations he deems necessary.

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 may consider these buildings to be easy targets. All of these activities threaten the safety of the neighborhood and surrounding homes.

A more recent development in vacant buildings is urban mining. Urban mining is when someone scavenges the metal wiring and plumbing in a building and sells it for scrap. In some instances the thieves do not know what they are cutting or disconnecting and may start a fire. In many ways vacant building fires "tax" the finances of the municipalities where they are located.

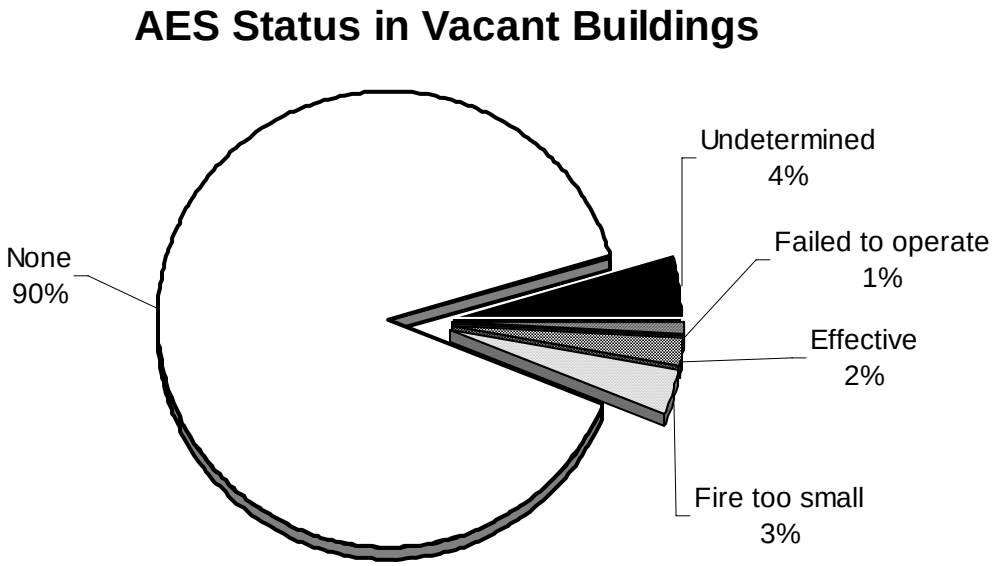
Effective Boarding Up Is Key to Protection
Removing furniture, contents and debris from the interior of the building, building officials insisting that all openings to the building are securely boarded up, preferably from the inside, and periodic security checks can reduce the risk of fire in any vacant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

Over 1/3 Were Vacant and Secured Buildings
Of the 319 fires in vacant buildings in 2010, 115, or 36%, were in vacant buildings that were secured. Eight-two (82), or 26%, of these fires occurred in vacant buildings that were unsecured; 48, or 15%, were under construction; 39, or 12%, of these fires took place in buildings that were idle or not routinely used; 28, or 9%, happened in buildings undergoing major renovations; and seven, or 2%, of the fires in these buildings occurred in buildings that were in the process of being demolished.



Almost 1/2 of All Vacant Building Arsons Occurred in Secured Buildings
Twenty-two (22), or 45% of all vacant building arsons in 2010, occurred in secured vacant buildings. Eight (8), or 40%, of the arsons involving vacant and secured buildings reported having the fire start on the exterior of the building. Twenty (20), or 41%, of these arsons occurred in vacant and unsecured buildings. Buildings under construction accounted for 8% of vacant building arsons, or four of these incidents. Two (2), or 4%, occurred in idle buildings that are not routinely used. Buildings under major renovation accounted for one, or 2%, of these fires.

90% Vacant Buildings Had No AES
No automatic extinguishing systems (AES) were installed in 90% of the 317 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 1% of these incidents. Systems were present and operated effectively in 2% of these incidents. AES performance was not known in 4% of the building fires in vacant buildings in 2010.



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.

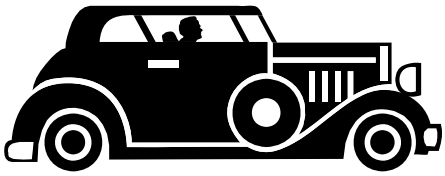
Firefighters Injured at 1 of Every 5 Vacant Building Fires
One of the most dangerous types of fires for firefighters in 2010 was vacant building fires. Vacant building fires accounted for 64, or 12%, of all firefighter injuries in 2010. These 64 injuries also represent 13% of the number of firefighter injuries at all building fires. On average there was one firefighter injury for every five vacant building fires.

Large Loss Vacant Building Fires
In 2010, there was one vacant building fire that had an estimated dollar loss greater than $1 million. This fire accounted for $1 million in estimated damages, or 7%, of all vacant building dollar loss estimates in 2010. In 2009 there were two vacant building fires with more than $1 million in damages.

- On August 21, 2010, at 10:27 p.m., the Boston Fire Department was dispatched to a building fire in an abandoned industrial warehouse that was vacant and unsecured. One hundred and sixty (160) firefighters from Boston and 14 neighboring communities fought the nine-alarm fire for 16 hours. Multiple persons were playing with fireworks on the roofs of nearby buildings. No one was injured in this fire and damages were estimated at $1 million. The fire spread to two adjacent buildings, causing another $199,000 in estimated damages.

Motor Vehicle Fires

2,967 Motor Vehicle Fires Account for 9% of All Reported Fires
Motor vehicle fires accounted for 9% of the total reported fire incidents. The 2,967 motor vehicle fires in 2010 were a drop of 3% from the 3,081 motor vehicle fires reported in 2009. They caused five, or 14%, of civilian fire deaths, 27 civilian injuries, 13 fire service injuries, and an estimated property damage of $15.5 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.

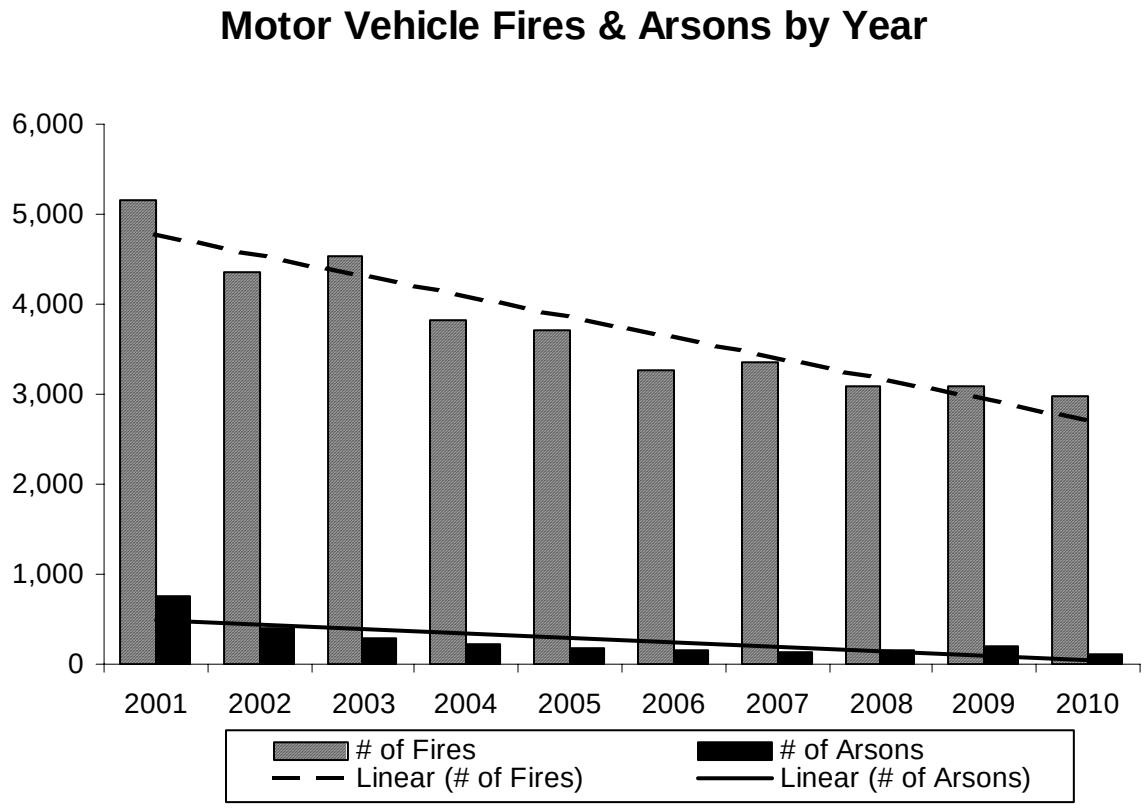
20 Years of the Burned Motor Vehicle Reporting Law
The Massachusetts Fire Incident Reporting System identified motor vehicle fires and motor vehicle arson as a major problem in 1985. The Burned Motor Vehicle Reporting Law took effect in August of 1987. The law requires owners of burned motor vehicles 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. Motor vehicle arsons have decreased by 98% from a high of 5,116 in 1987 to a low of 115 in 2010. The percentage of motor vehicle fires that are arsons has also dropped by 73% in the past decade from 14.5% in 1999 to 3.9% in 2010.

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
2010	2,967	115	3.9%
2009	3,081	189	6.1%
2008	3,085	151	4.9%
2007	3,346	131	3.9%
2006	3,270	159	4.9%
2005	3,717	184	5.0%
2004	3,825	227	5.9%
2003	4,533	280	6.2%
2002[47]	4,331	395	9.1%
2001	5,127	743	14.5%

The following graph illustrates the data in the previous table.

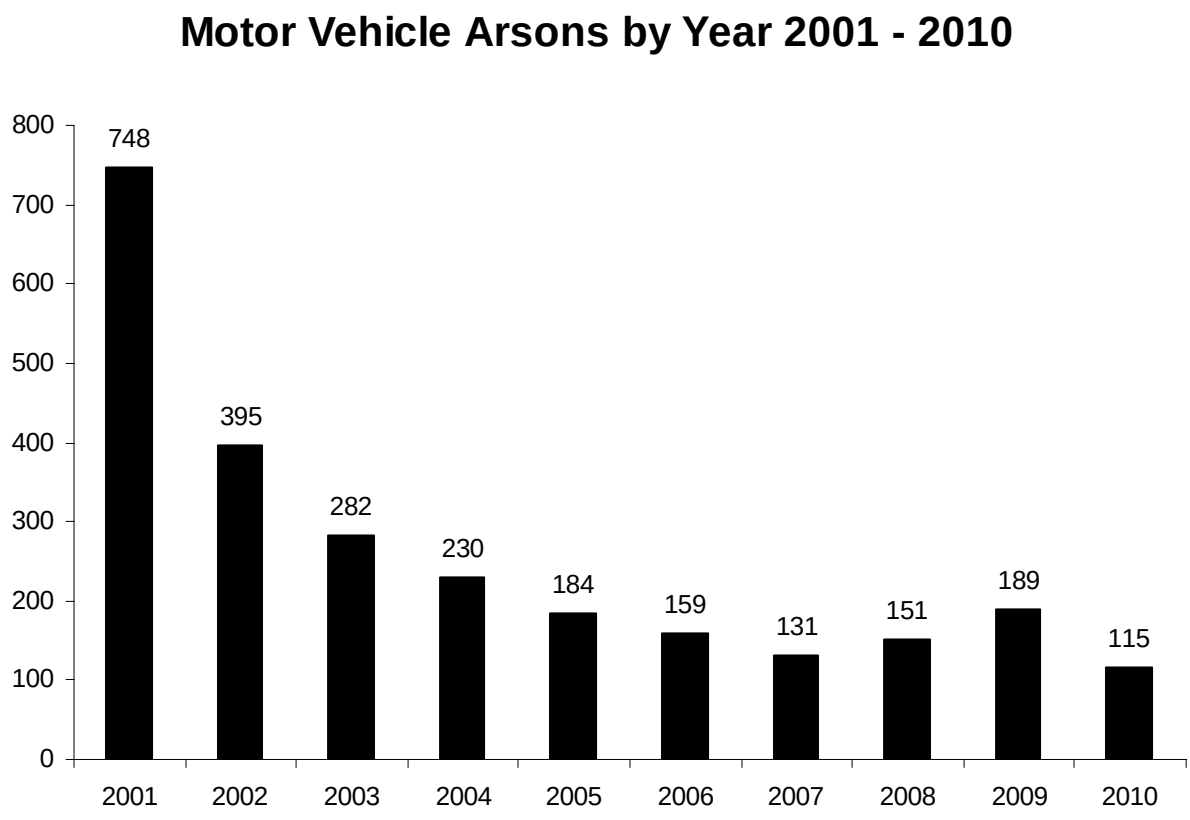


[47] 2002 was the first full year of using only V5 data. As a result, 'Suspicious' was eliminated as a cause and only 'Intentional' fires were counted as arson, thus the significant drop in MV arsons from 2001-2002.

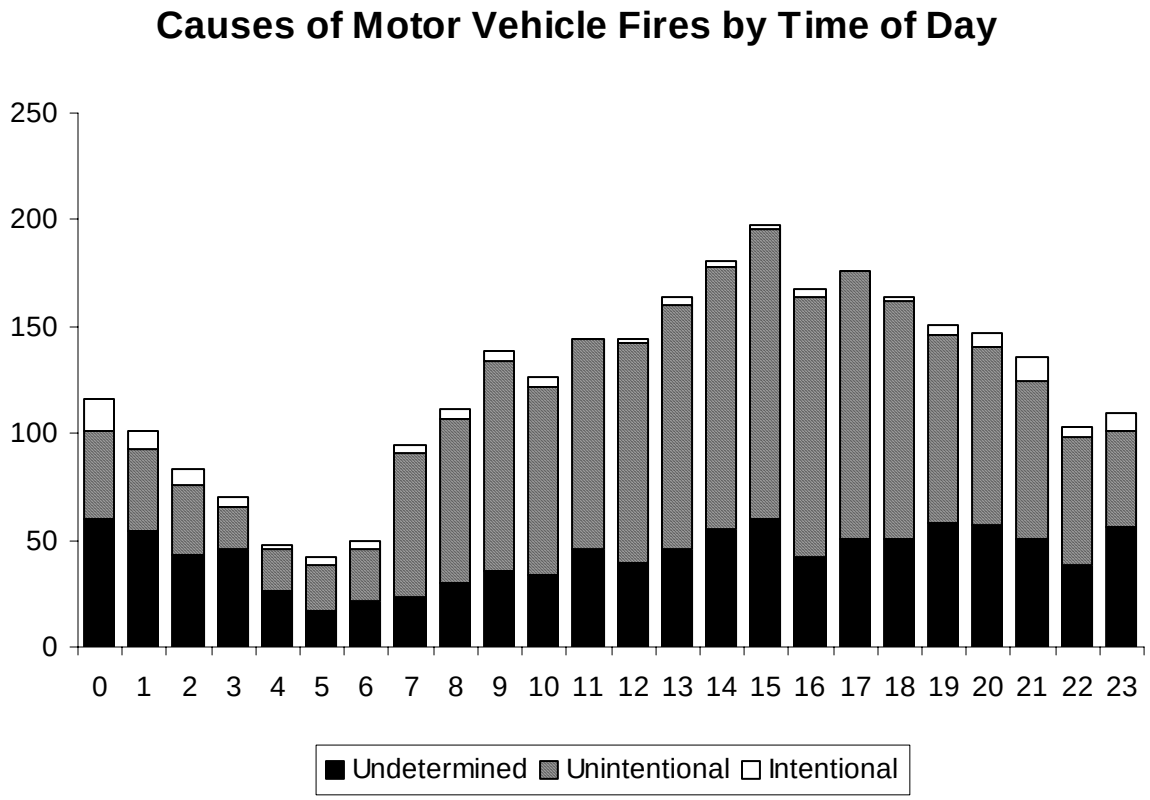
Mechanical Failures Caused 24% of Massachusetts Motor Vehicle Fires
Of the 2,967 motor vehicle fires in 2010, 24% were caused by some type of mechanical failure or malfunction; 4% were considered intentionally set; and 37% resulted from other accidental causes. The cause was undetermined or not reported in 35% of the motor vehicle fires.

Motor Vehicle Arsons Decreased by 39%
In 2010, there were 115 reported motor vehicle arsons. This is a decrease of 39% from the 189 reported in 2009. This is the continuation of the trend of decreasing motor vehicle arsons since 1990. The trend was only interrupted in 1994, 2008 and 2009.

The following graph depicts the drop in motor vehicle arsons from 2001 to 2010.



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



58% of Massachusetts Motor Vehicle Fires Involved Automobiles
Automobiles and vans accounted for 58% of the 2,967 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 June 15, 2010, at 6:00 p.m., the Massport Fire Department with aid from the Boston Fire Department responded to a jet engine fire in an airliner returning to Logan International Airport. The plane landed safely and the fire was extinguished with halon extinguishers. No one was injured by this fire and damages were estimated to be $1.2 million.

Largest Loss Ground Motor Vehicle Fire

- On November 26, 2010, at 7:05 p.m., the Palmer Fire Department responded to a fire in a propane tanker truck. The fire started when arcing from a downed utility pole ignited one of the tires. The entire tractor unit was destroyed and the outside of the tanker-trailer unit was heavily scorched. None of the propane ignited. No one was injured at this fire and damages were estimated to be $360,350.

Car Fire Safety Tips
Regular maintenance is the best way to prevent car fires. Leaking gasoline, oil and hydraulic fluids can catch fire. Electrical problems can cause short circuits and heat build-up. A properly operating catalytic converter can reach 1,100° F. It can get even

hotter if the car has worked hard or needs a tune-up. If other parts come in contact with it, they can ignite. Catalytic converters on parked cars will sometimes ignite a pile of leaves or dried grass underneath.

What Should You Do if You Have a Car Fire?

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

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

Gasoline Deserves Respect

There were 32 motor vehicle fires at gas and service stations in 2010. There were 29 motor vehicle fires at facilities used for motor vehicle or boat sales, service or repairs. Many of these fires were started by gasoline or gasoline fumes. Gasoline is so much a part of our lives that we don't think about it. However, it is a very dangerous substance and certain measures should be taken to minimize the chances of an incident.

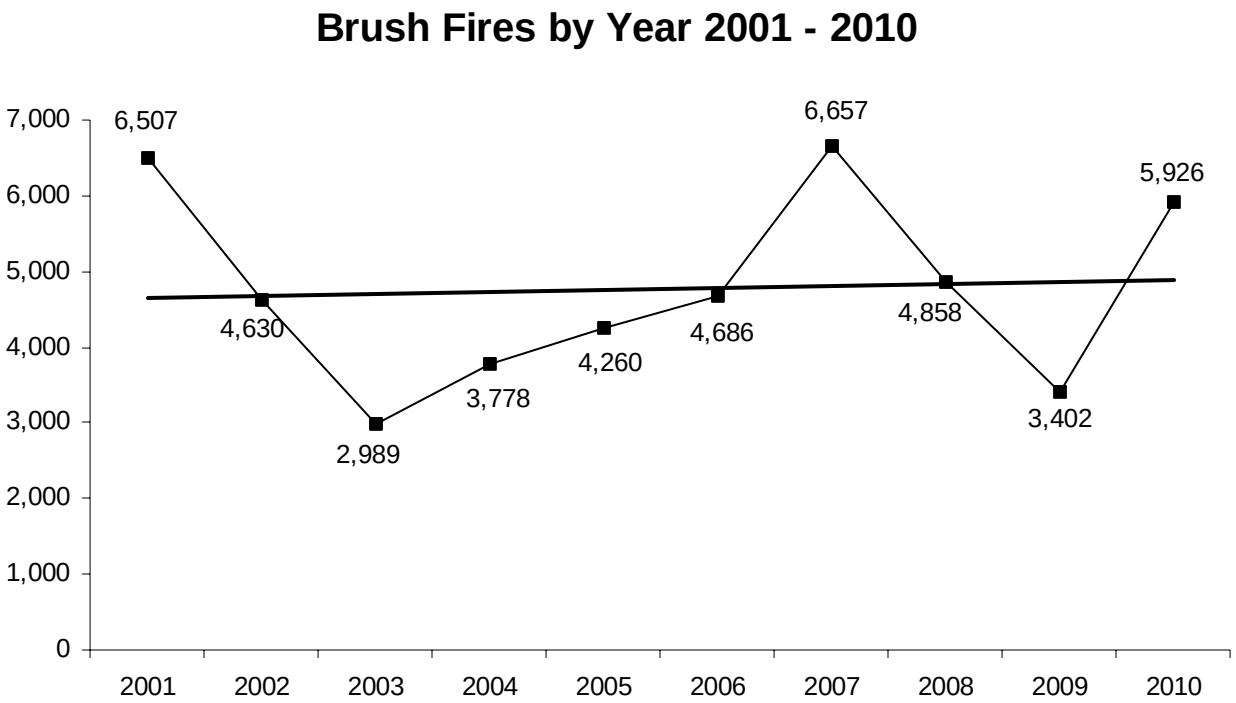
Gas Station Safety

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

Outside and Other Fires

11,153 Brush, Trash, & Other Outside Fires Up 43%
The 11,153 outside and other fires and explosions caused three civilian deaths, 30 civilian injuries, 27 fire service injuries, and an estimated dollar loss of $4.2 million. The 5,926 trees, grass and brush fires, 3,260 outside trash fires, 918 special outside fires, 42 cultivated vegetation or crop fires, and 1,007 other fires accounted for 34% of the total fire incidents in 2010. These fires were up by 43% from the 7,806 incidents reported in 2009.

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 2010, the reported number of brush fires increased by 2,524, or 74%, from the 3,402 reported in 2009. 2010 had an abnormally dry summer.



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

The 11,153 reported outside and other fires include:

- 5,926 natural vegetation fires (tree, grass, and brush fires) that caused one civilian death, three civilian injuries, 20 fire service injuries, and an estimated dollar loss of $1.3 million; this is a 74% increase from the 3,402 incidents reported in 2009.

- 3,260 trash fires that caused five civilian injuries, one fire service injury and an estimated dollar loss of $103,412; this is a 13% increase from the 2,891 incidents reported in 2009.

- 918 special outside fires (including outside, storage, equipment, mailbox fires and outside gas or vapor explosions) that caused two civilian deaths, 11 civilian injuries, one fire service injury and an estimated dollar loss of $898,350; this is a 33% increase from the 690 incidents reported in 2009.

- 42 cultivated vegetation or crop fires that caused an estimated dollar loss of $2,620; this is a 45% decrease from the 29 incidents reported in 2009.

- 1,007 other fires that could not be classified further which caused 11 civilian injuries, five fire service injuries, and an estimated dollar loss of $1.8 million; this is a 27% increase from the 794 incidents reported in 2009.

786 Brush, Trash & Other Outside Arsons

There were 786 reported brush, trash and other outside arsons in 2010. There were 443 natural vegetation arsons, 100 outside rubbish arsons, 145 special outside arsons, six cultivated vegetation or crop arsons, and 92 arsons that could not be classified any further. These 786 arsons caused two civilian deaths[48], three civilian injuries, one fire service injury and $219,120 in estimated damages.

2,378 Fires with Cause Still Under Investigation or Undetermined

In 2010, 271 outside and other fires were still listed as 'Cause Under Investigation'. There were 2,107 fires where the *Cause of Ignition* was listed as 'Undetermined'.

Large Loss Outside and Other Fires

♦ On June 20, 2010, at 3:29 p.m., the Peabody Fire Department was called to an outside mulch yard fire. The fire spread across the yard and consumed two large construction vehicles. Fire suppression efforts lasted two days. One (1) firefighter was injured at this fire. Damages from this fire were estimated to be $1.2 million.

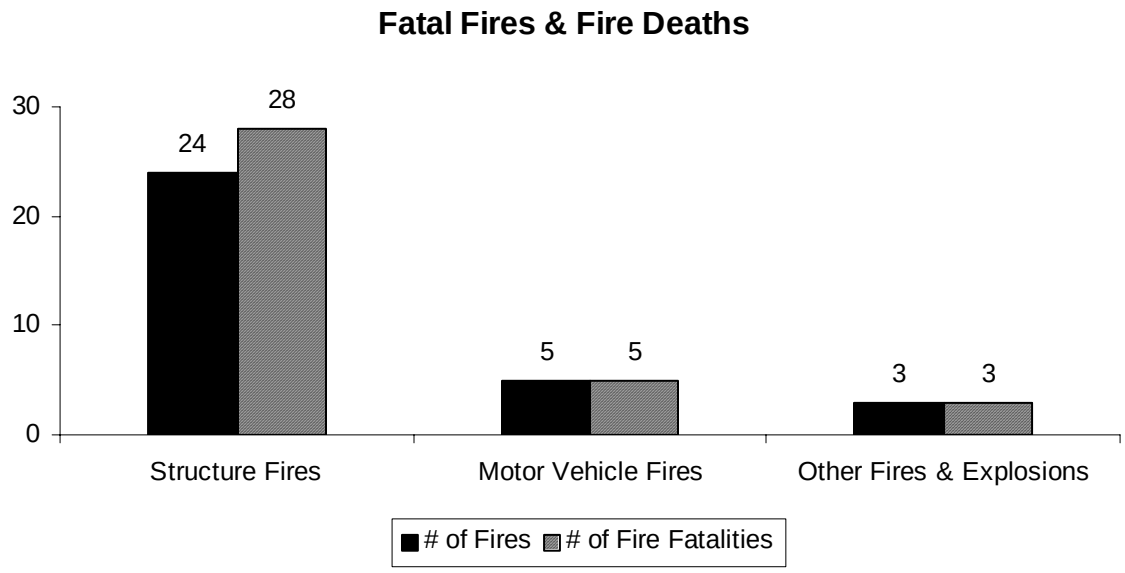
[48] One of the two deaths was a suicide by self-immolation.

2010 Massachusetts Fire Deaths

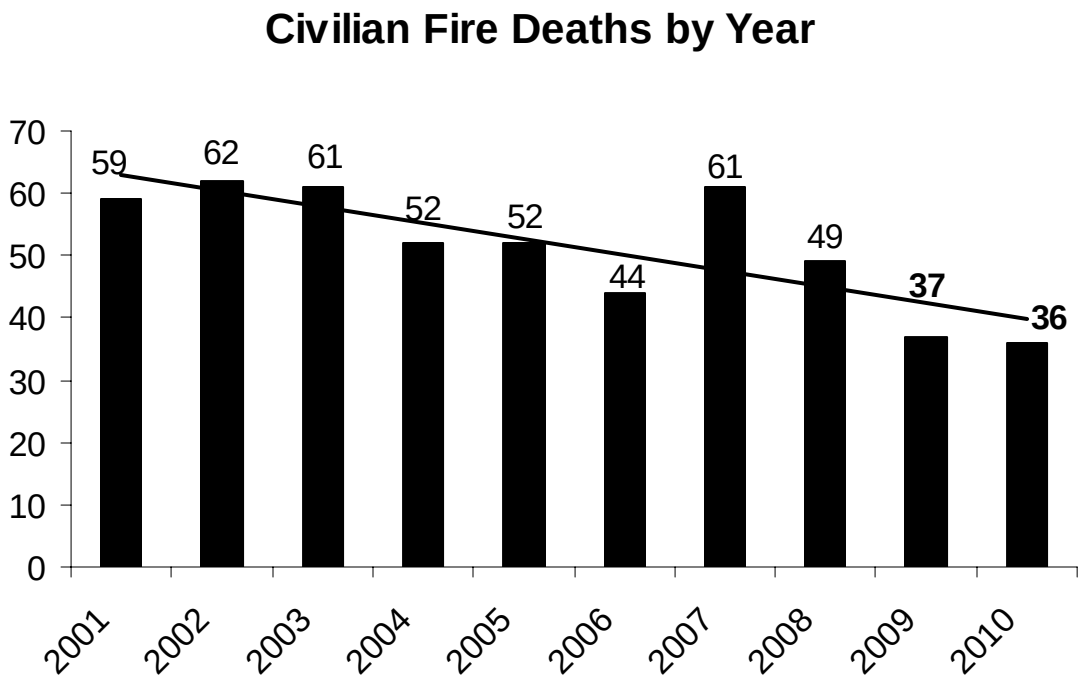
Civilian Fire Deaths

36 Civilians Died in Massachusetts Fires –All-Time Record Low
Thirty-six (36) civilians died in 32 Massachusetts fires during 2010. This is a 3% decrease from the 37 civilian fire deaths recorded in 2009. Twenty-eight (28) civilians died in 24 structure fires. Five (5) people died in five motor vehicle fires. Three (3) people died in three outside fires in Massachusetts in 2010. In 2010, there were 5.5 fire deaths per one million population in Massachusetts down from 5.8 fire deaths per one million population in 2009.

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.



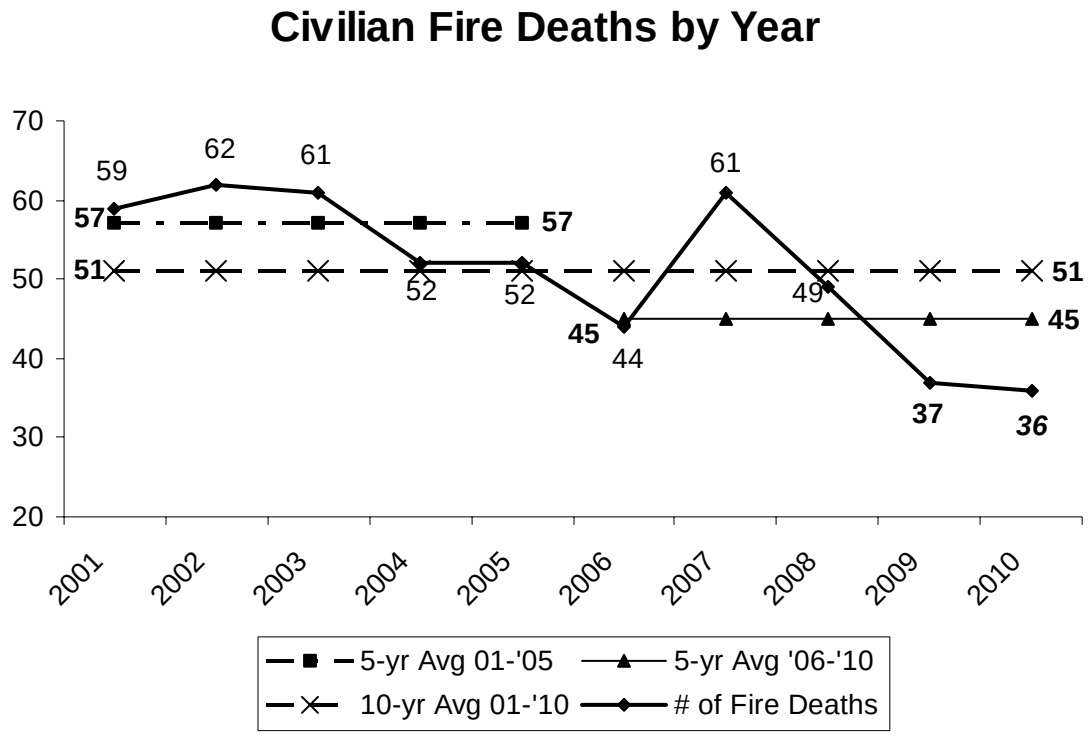
Fire Deaths Decrease 3% from 2009
The 36 civilian fire deaths reported in 2010 is a decrease of one, or 3%, from the 37 reported in 2009. The following chart shows the trend of civilian fire deaths for the past decade on a general decline. Civilian fire deaths have decreased by 66% from the high of 105 in 1990.



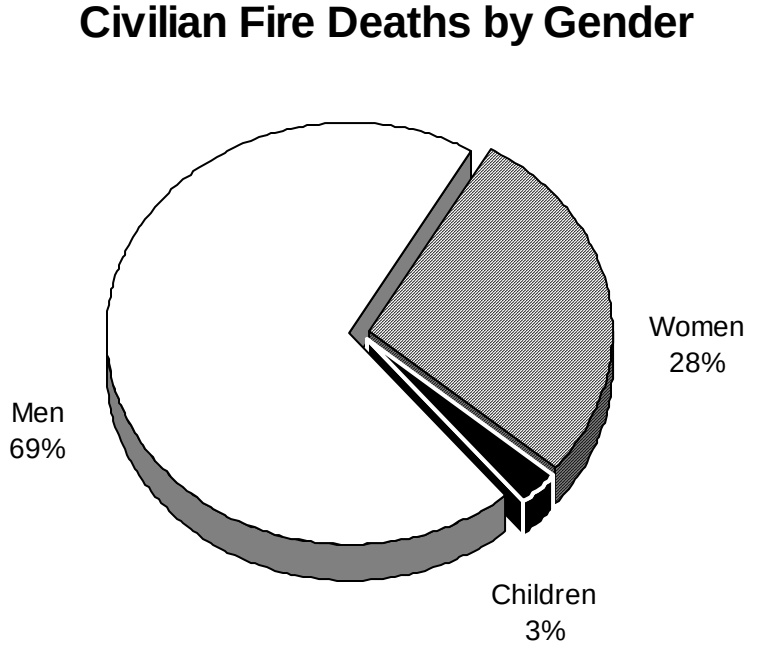
2010 Is Below Both the 10- & 5-Year Averages

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 2001 through 2005 and from 2006 through 2010. The average number of fire deaths per year from 2001 through 2005 was 57 deaths. The average number of fire deaths per year from 2006 through 2010 was 45 deaths. This was mainly due to four of the five years having record low fire deaths from 2005 through 2010. The graph also depicts the relationship of the number of fire deaths in relation to the 10-year average of 51 deaths for the same time period. Four (4) of the last five years have been below the 10-year average and three of the last five years have been below the five-year average.

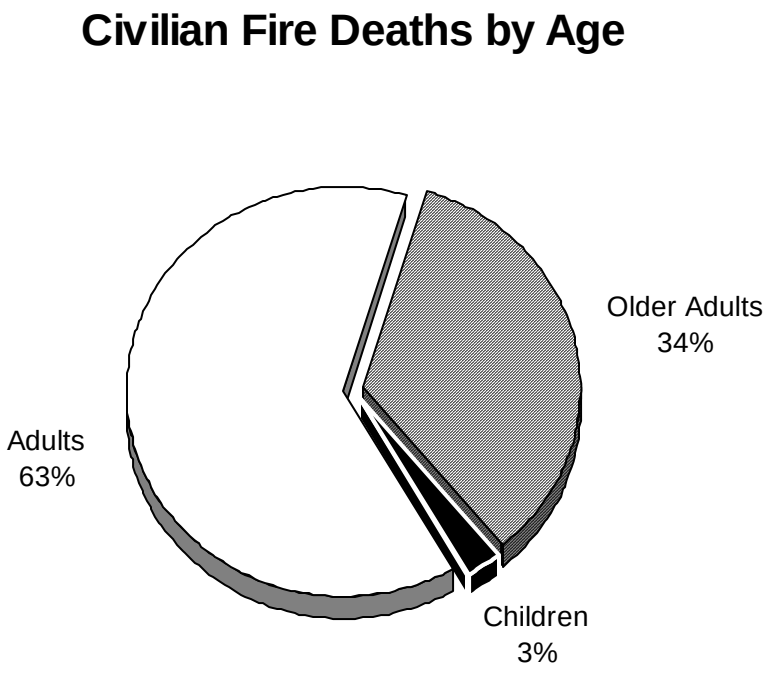
Note that the following chart starts at 20 rather than the traditional zero value. This is so the reader can concentrate on the sometimes subtle changes in the figures. The 36 fire deaths in 2010 are 25% below the five-year average and 29% below the 10-year average.



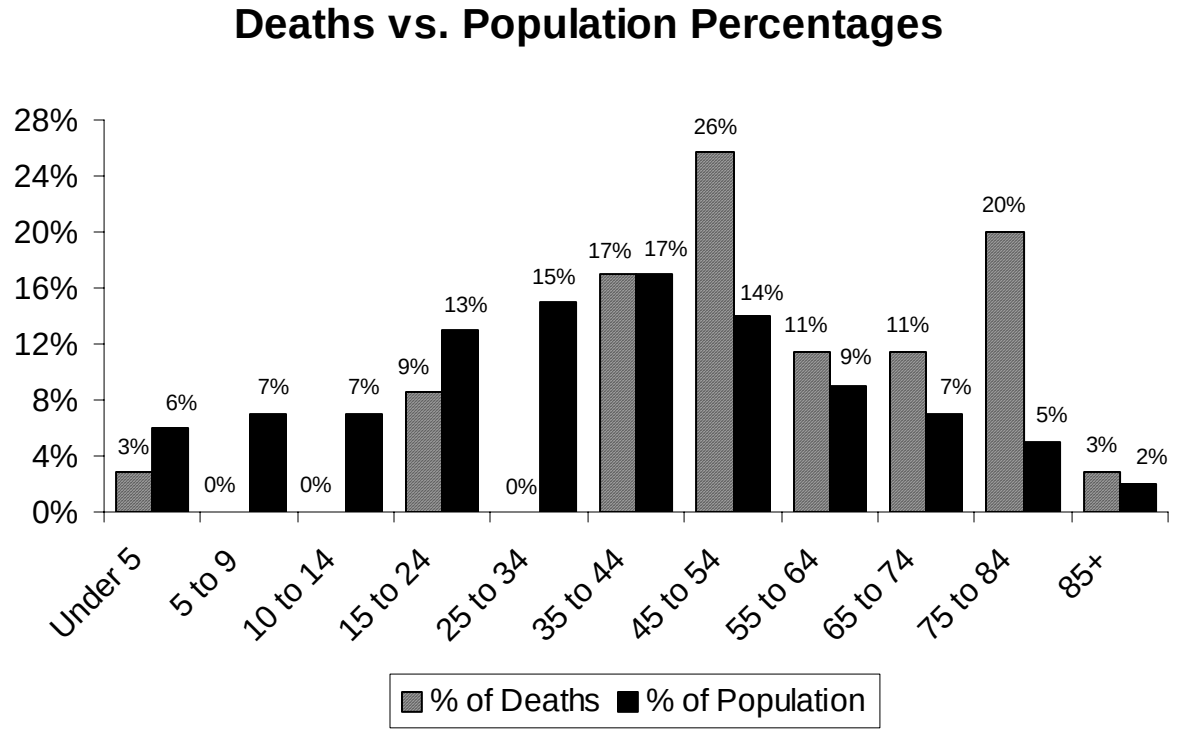
25 Men, 10 Women and 1 Child under 18 Died from Fires in 2010
Of the 36 fire deaths, 25, or 69%, were men, 10, or 28%, were women and one, or 3%, was a child under 18. The following pie chart illustrates the above figures.



Over 1/3 of Fire Deaths were Over 65
Twelve (12), or 34%, of the civilian fatal fire victims were over 65 years of age. This included seven elderly men and five elderly women. One (1), or 14%, of the civilian fatal fire victims were under 18 years old. Twenty-two (22), or 63%, were adults between 18 and 65 years of age. The following pie chart illustrates the figures on the previous page.



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 20% of the fire deaths. The risk of fire death for these adults is 4.0. This means that these adults were four times as likely to be fire-related fatalities. The following graph shows the percentage of fire deaths versus population percentage by age groups in 2010. Other older adults, between the ages of 65 and 74, account for 7% of the population but 11% of the fire deaths. Their risk of fire death at 1.6 is just above that of the group of older adults over 84 year olds at 1.4.



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.

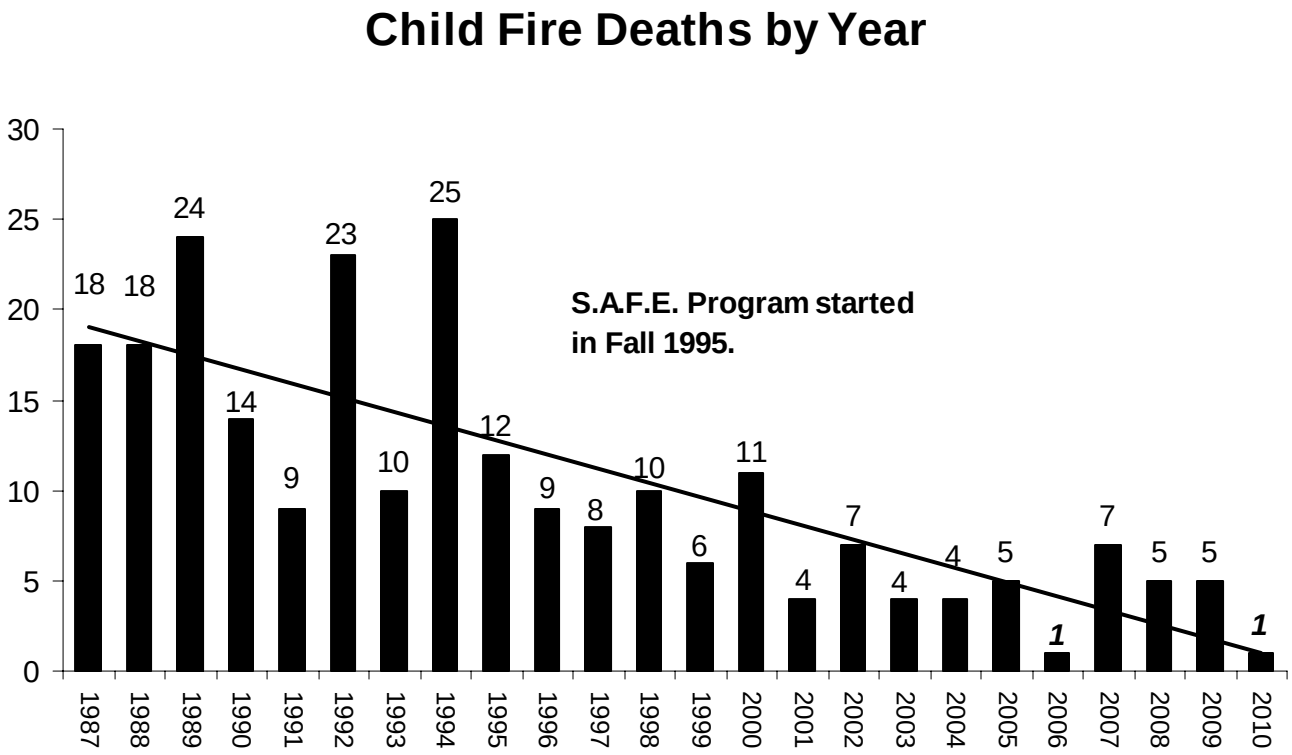
The percentages of the population in each age group were calculated using data from the 2000 Census from the U.S. Census Bureau.

Children 5 to 14 & Adults 25 to 34 Had the Lowest Risk of Fire Deaths
Children under the age of five had a below average risk of dying in a fire. Children under five years old accounted for 6% of the population and 3% of fire deaths in 2010. Children between the ages of five and nine and 10 and 14 years of age accounted for none of the deaths while each age group accounted for 7% of the population. Young adults ages 15 to 24 accounted for 9% of the fire deaths and 13% of the population; no one between the ages 25 to 34 died in a fire in Massachusetts in 2010. Adults between the ages of 35 and 44 were 17% of the fire fatalities and account for 17% of the population; people ages 45 to 54 accounted for 26% 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 34% of the fire fatalities in Massachusetts in 2010, 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 20% of

the fire deaths in 2010, and only 5% of the population, making them four 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 2010. 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 and 2010. According to United States Fire Administration statistics, children under 10 accounted for an estimated 10% of all fire-related deaths nationally in 2007.[49] In 2010, children under 10 accounted for 3% of all Massachusetts fire-related deaths.

Child Fire Deaths Drop 58% Since the Start of the S.A.F.E. Program
Fire deaths of children under the age of 18 have fallen by 89% 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 15 full

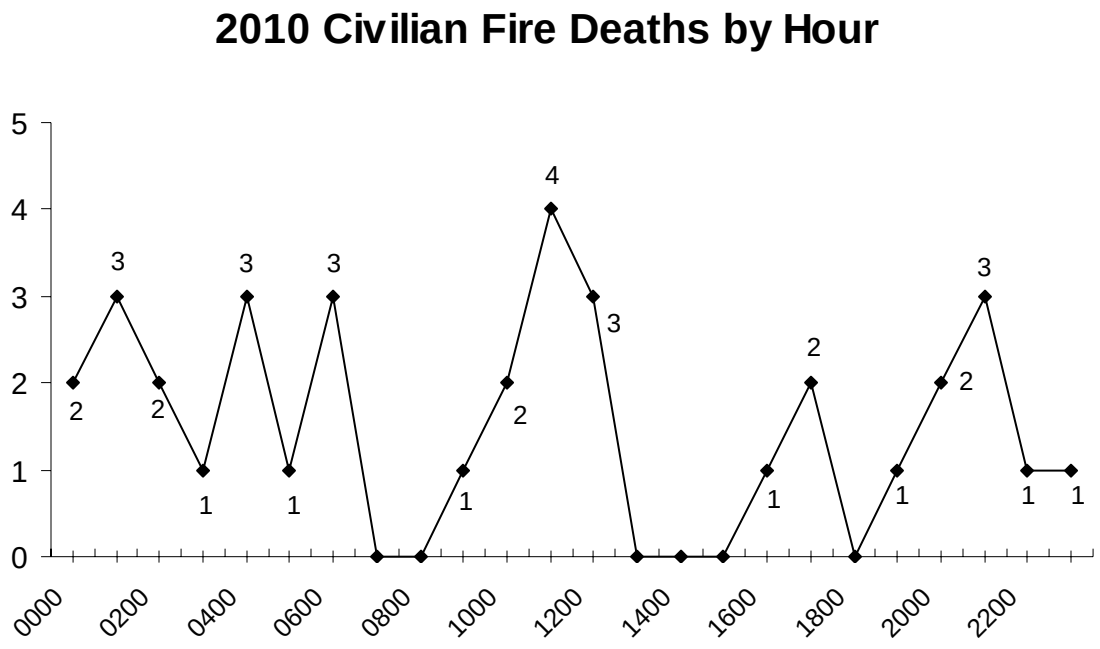
[49] Source: United States Fire Administration's **Fire Risk in 2007, Topical Fire Research Series, Vol. 11 – Issue 8 February 2011** and **Fire Risk to Children in 2007, Topical Fire Research Series, Vol. 11 – Issue 9 February 2011.** Most recent national data available.

years where the S.A.F.E. Program has been in effect, from 1996 to 2010, the average number of child fire deaths per year has been 5.8. In the 14 years prior to the S.A.F.E. Program, 1982 to 1994, the average number of child fire deaths per year was 17.6. This 67% drop in the average number of child fire deaths is significant when compared to the 40% drop in the average number of all fire deaths during the same time period.

The one thing that is happening in Massachusetts to improve fire safety exclusively for this age group, which is not happening for 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 victims 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 2010, 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 2010, there were 28 structure fire deaths in 24 fatal fires. All but three of the structure fire deaths occurred in residential occupancies. Of the non-residential structure fire deaths, one occurred at an unclassified storage facility, another occurred in a lean-to and the other one occurred in a building in a crops or orchard.

Hampden County Resident Commits Self-immolation in Shed

- On June 23, 2010, at 9:38 p.m., the West Springfield Fire Department was called to a fatal arson fire in a shed. The fire was a suicide by self-immolation. The victim, a 47-year old man, doused himself and the shed with gasoline and ignited it. No one else was injured at this fire. Damages from the fire were not estimated.

Hampshire County Resident Killed Using Propane Torch

- On July 11, 2010, at 12:19 p.m., the Chesterfield Fire Department was called to a fatal fire in an orchard structure. The victim, a 91-year old man, was working on pipes in the building with a propane torch when he accidentally ignited his clothing. He had burns over his entire body. He died enroute while being airlifted to a Boston hospital. No one else was injured at this fire. Detectors were not present and the building did not have any sprinklers. Damages from the blaze were not estimated.

Middlesex County Homeless Man Dies in Lean-to Fire

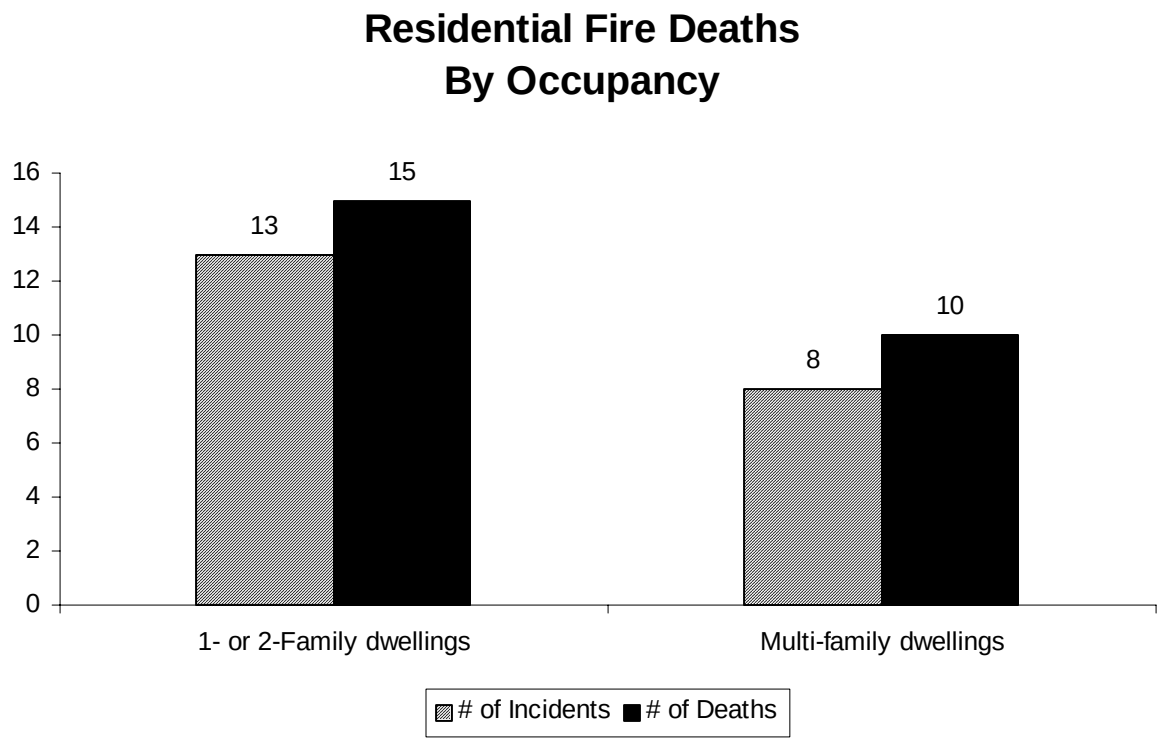
- On October 22, 2010, at 12:46 a.m., the Lowell Fire Department was called to a fatal fire of undetermined cause in a lean-to. The body of the victim, a 42-year old homeless man, was discovered during overhaul operations. No one else was injured at this fire. Damages were not estimated.

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 2010, there were 25 fire deaths in 21 fatal residential building fires. This represents 89% of the structure fire deaths and 69% of all fire deaths. Fifteen (15) fire deaths occurred in 13 fires in one- and two-family dwellings; and 10 fire deaths occurred in eight apartment fires. Typically more fatal fires and associated deaths occur in one- and two-family homes than occur in apartment fires. The graph on the next page shows the number of fatal fire incidents and the number of civilian fatalities associated with various types of residential occupancies in 2010.



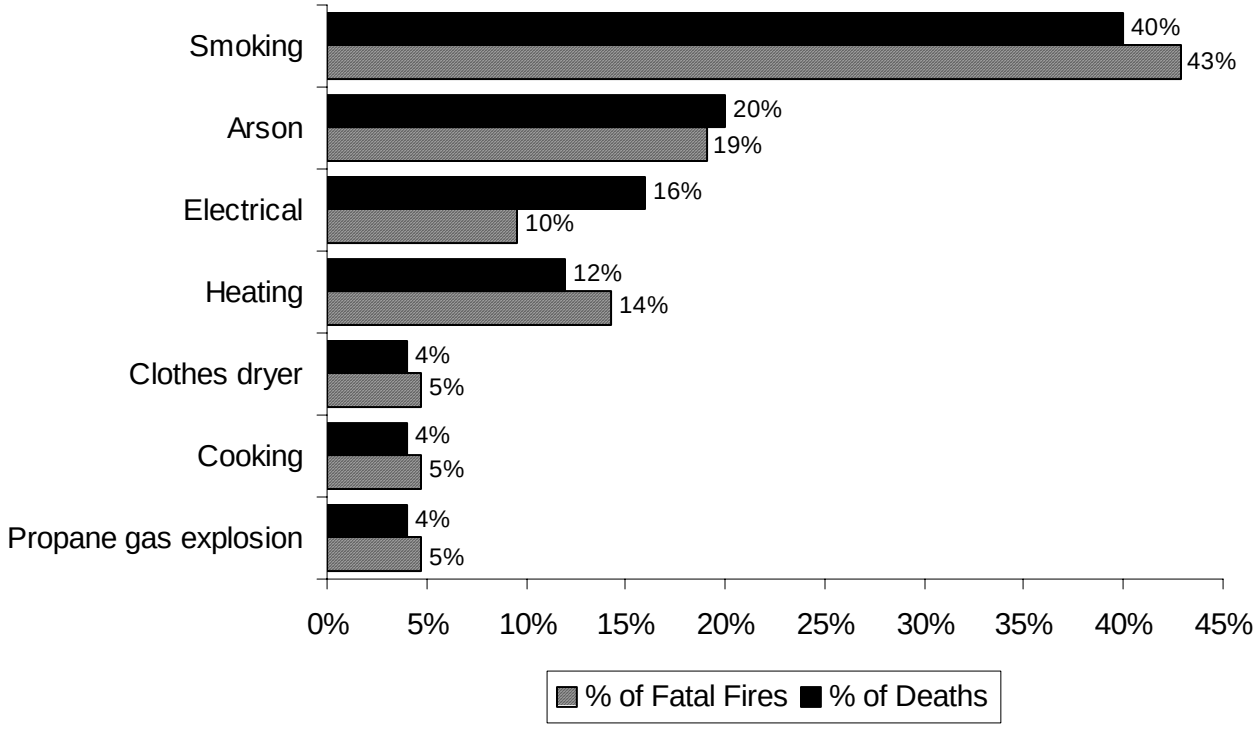
Once Again Smoking Fires Are Leading Cause of Fire Deaths
Smoking was once again the leading cause of residential fire deaths and fatal residential building fires. These fires accounted for 10, or 40%, of residential fire deaths. Arson was the second leading cause of fire deaths, accounting for five, or 20%, of residential fire deaths. Electrical fires were the third leading cause of fire deaths in 2010, accounting for four, or 16%, 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 2010 cooking was the leading cause of residential fires in Massachusetts but tied for the fifth leading cause of fatal residential fires. Residential fires caused by the improper use or disposal of smoking materials was only the fifth leading cause of fires in the home.

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

Causes of Residential Fatal Fires and Fire Deaths



9 Fatal Smoking Fires Cause 10 Deaths in Homes
In 2010, the improper use and disposal of smoking materials caused 10, or 40%, of residential building fire deaths and nine, or 43%, of fatal residential building fires.

6 Elderly Fire Deaths Caused by Smoking
In 2010, six, or half, of all the older adult fire deaths were caused by the improper disposal of smoking materials while at home. In 2009, seven older adults died in smoking-related fires. In 2008, four older adults died in smoking fires and in 2007, nine older adults died in a smoking-related fire. In 2006 only one older adult died in one of these fires; in 2005 there were two of these deaths; and in 2004 there were no fire deaths to older adults caused by smoking at home.

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

- On March 10, 2010, at 9:18 p.m., the Everett Fire Department was called to a fatal smoking fire in a two-family home. The victims were an 80-year old physically

disabled woman and her 76-year old physically disabled brother. The fire was started by someone carelessly disposing of a cigarette on the first floor front porch. Home oxygen was present and may have contributed to the fire spreading so quickly. A state police sergeant tried to get the brother to escape the fire, but he wouldn't leave his sister. She died in the fire and he was transported to a local hospital where he later died from smoke inhalation. There were no detectors present and the building was not sprinklered. No one else was injured in this fire. Damages were estimated to be $250,000.

- On April 13, 2010, at 4:47 a.m., the Woburn Fire Department was called to a fatal smoking fire in a 98-unit apartment building. The 61-year old male victim was asleep at the time of the fire. He was transported to a local hospital where he succumbed to his injuries. No one else was injured at this fire. Detectors were present and alerted the other occupants of the building. There were no sprinklers. Damages from this fire were estimated to be $60,000.

- On April 24, 2010, at 11:23 p.m., the Webster Fire Department was called to a smoking fire in a single-family home. The victim, a 46-year old man, was smoking and possibly impaired by alcohol. Two (2) firefighters were injured at this fire. Detectors were present and operated. The home was not sprinklered. Damages were estimated to be $50,000.

- On June 12, 2010, at 11:43 a.m., the Wellesley Fire Department was called to a fatal smoking fire in a single-family home. The victim, an 81-year old woman, was smoking when she accidentally ignited herself. She went to the bathroom to try and extinguish the flames. Her husband found her and extinguished the fire with a garden hose. No one else was injured at this fire. Smoke detectors were present but it was undetermined if they operated. No sprinklers were present. Damages from this fire were estimated to be $1,000.

- On June 14, 2010, at 4:07 a.m., the Taunton Fire Department was called to a fatal smoking fire in a single-family home. The victim, a 51-year old woman, fell asleep while smoking in bed. No one else was injured by this fire. Detectors were not present and the building was not sprinklered. Damages from the blaze were not estimated.

- On December 12, 2010, at 1:56 a.m., the Fall River Fire Department was called to a fatal smoking fire in a six-unit apartment building. The victim, an 80-year old woman, ignited her bedding after falling asleep while smoking. She was overcome by the heat and smoke of the fire while escaping. She was transported to a Rhode Island hospital where she later succumbed to her injuries. There were three other civilian injuries associated with this fire. It was undetermined if detectors were present in the building and there were no sprinklers. Damages from this fire were estimated to be $170,000.

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 2010, the use of oxygen while smoking contributed to three of the 10 smoking-related fire deaths in three of the nine smoking-related fatal fires.

- On February 12, 2010, at 12:00 p.m., the Worcester Fire Department was dispatched to a smoking fire in a single-family home. The victim, an 83-year old man, was able to call 911 and tell them that he just ignited his cigarette while using oxygen and that his clothing had caught fire. He was transported to a local hospital where he succumbed to his injuries. There were no other injuries associated with this fire. Detectors were present, but it was undetermined if they operated. The home was not sprinklered. Damages from this fire were not estimated.

- On February 13, 2010, at 11:44 a.m., the Lynn Fire Department was dispatched to a fatal smoking fire in a 99-unit apartment building. The victim, a 68-year old man, was smoking while using home oxygen. The victim's clothes ignited and the sprinklers activated, suppressing the fire. He was transported to a local hospital where he later succumbed to his injuries. There were no other injuries associated with this fire. Detectors were present and they alerted the other occupants of the building. No estimation of damages was made for this incident.

- On October 19, 2010, at 5:54 p.m., the Springfield Fire Department was called to a fatal smoking fire in a single-family home. The victim, a 56-year old terminally ill woman, was smoking while using home oxygen. She was unable to attempt an escape and was overcome by the heat and smoke of the fire. She was transported to a local hospital where she later died from her injuries. Damages from the fire were estimated to be $55,000.

4 Fatal Arson Fires Cause 5 Deaths – 1 Murder-Suicide & 2 Suicides
Five (5) people died in four residential arson fires in 2010. Arson accounted for 20% of fire deaths and 19% of the fatal fires in residential buildings. One (1) fire was a murder-suicide event; and two of the other victims committed suicide by self-immolation. Self-immolation is considered arson because the fire is intentionally set.

- On January 14, 2010, at 6:18 a.m., the Spencer Fire Department responded to a fatal arson fire at a single-family home. The fire was a murder-suicide event. The victim was a 66-year old woman. Her 69-year old husband set the fire, shot her, their horse, and then himself. He was transported to a local hospital where he later succumbed to his injuries. One (1) firefighter was injured at this fire. There were no detectors and the home was not sprinklered. No estimation was made for damages from this fire.

- On June 6, 2010, at 10:58 p.m., the Medway Fire Department was called to a fatal arson fire in a single-family home. The victim, a 41-year old man, successfully committed self-immolation by igniting combustibles in his bedroom. No one else was injured at this fire. The victim was transported to a local hospital where he later

succumbed to his injuries. It was undetermined if smoke detectors were present and no sprinklers were present. Damages from this fire were not estimated.

- On November 11, 2010, at 6:08 p.m., the Andover Fire Department was called to a fatal arson fire in a single-family home. The home had been foreclosed upon and was going up for auction in the near future. The victim, a 53-year old man, ignited the fire in various parts of the home. He even left a note on the door warning of booby traps and explosions. No one else was injured at this fire. Detectors were not present and the home was not sprinklered. Damages were estimated to be $350,000.

- On December 24, 2010, at 10:59 p.m., the Chelsea Fire Department was called to a fatal arson fire in a five-unit apartment building. The fire was set in the living room using ordinary combustibles. The victim, a 20-year old woman, was trying to escape when she was overcome by the heat and smoke. She was transported to a local hospital where she succumbed to her injuries. A 13-year old boy was trapped above the fire. He was rescued and transported to a local hospital. Detectors were present but it was undetermined if they operated. There were no sprinklers. The fire caused an estimated $150,000 in damages.

2 Fatal Electrical Fires Cause 4 Deaths
Four (4) people died in two residential electrical fires in 2010. Electrical fires accounted for 16% of residential fire deaths and 10% of fatal residential fires.

- On May 29, 2010, at 2:40 a.m., the Boston Fire Department was called to a fatal electrical fire in a three-unit apartment building. The fire started in a first floor corridor. The victims, a 35-year old woman and her 48-year old husband, were sleeping at the time of the fire and were unable to escape. They were overcome by the heat and smoke. Another woman was also injured at this fire. Detectors were present but they failed to operate. There were no sprinklers. The fire caused an estimated $250,000 worth of damage and one exposure fire to the building next door.

- On October 10, 2010, at 4:00 a.m., the Lowell Fire Department was called to a fatal electrical fire at a 12-unit apartment building. The victims, a 23-year old man and a 47-year old man, were most likely sleeping at the time of the fire. No one else was injured at this fire. Detectors were present and alerted the other occupants to the fire. Sprinklers were not present. Damages were estimated to be $571,100.

3 Fatal Heating Fires Caused 3 Deaths
Three (3) fatal heating fires, or 14% of fatal residential building fires, caused three, or 14%, of the residential building fire deaths in 2010.

- On January 9, 2010, at 7:44 p.m., the Shelburne Fire Department responded to an EMS call for a patient with severe burns at a single-family home. The victim, a 52-year old man, was loading wood into a wood stove when his pants caught fire. He was transported to a local hospital and then transferred to a Boston hospital where he succumbed to his injuries two weeks later. No one else was injured at this fire. It was

undetermined if detectors were present, and the building was not sprinklered. Damages from this fire were not estimated.

- On January 30, 2010, at 5:05 a.m., the West Tisbury Fire Department responded to a heating equipment fire at a single-family home. The fire was caused by the boiler. The victim was a 63-year old man who was also a call firefighter on the department. It was undetermined if there were detectors and the home was not sprinklered. No estimation was made for damages from this fire.

- On November 6, 2010, at 10:27 a.m., the Holden Fire Department was dispatched for a burned patient with unknown fire spread in a single-family home. Upon arrival, firefighters discovered a 68-year old man with burns on his body. The victim had collapsed into his fireplace and his clothing ignited. He was transported to a local hospital where he succumbed to his injuries. The fire was contained to the fireplace and the victim. It was undetermined if smoke detectors were present and the home was not sprinklered. No estimation was made for damages from this fire.

1 Fatal Clothes Dryer Fire Caused 1 Death
One (1) fatal clothes dryer fire, or 5%, of fatal residential building fires caused one, or 4%, of the residential building fire deaths in 2010.

- On July 13, 2010, at 10:07 a.m., the Medway Fire Department was called to a fatal clothes dryer fire in a single-family home. The victim, an 80-year old woman, was found by the first arriving firefighters on the front lawn with burns over approximately 35% of her body surface area. She was transported to a local hospital where she succumbed to her injuries six days later. No one else was injured at this fire. Smoke detectors were present but it was undetermined if they operated. No sprinklers were present. Damages from this fire were not estimated.

1 Child Killed in Cooking Fire
One (1) child died in the only fatal residential cooking fire in 2010. Cooking fires accounted for 4% of residential fire deaths and 5% of fatal fires in residential buildings.

- On April 16, 2010, at 3:49 a.m., the Fall River Fire Department was called to a fatal cooking fire in a three-unit apartment building. Radiated heat from the stovetop ignited the cooking liquids, starting the fire. The victim, a 4-year old girl, was asleep at the time of the fire. The victim's 23-year old mother received life-threatening injuries. Smoke detectors were present, but it was undetermined if they operated. The building was not sprinklered. Damages from this fire were estimated to be $280,100.

1 Propane Gas Explosion Caused 1 Death
One (1) person died in one residential fire started by a propane gas explosion in 2010. This fire accounted for 4% of residential fire deaths and 5% of fatal residential fires.

- On July 30, 2010, at 12:32 p.m., the Norfolk Fire Department was called to a fatal propane explosion with ensuing fire in a two-family home. The victim, a 48-year old

male construction worker, was working in the unoccupied unit when the explosion occurred. He was buried under debris as firefighters extinguished the fire and dug him out. He was transported to a Boston hospital where he later succumbed to his injuries. Five (5) other workers and two firefighters were also injured at this fire. Smoke detectors were present but it was undetermined if they operated. No sprinklers were present. Damages from this fire were estimated to be $820,000.

Bedroom or Living Room is the Area of Origin for 44% of Fire Victims

Given the time most fatal fires occur, and that many people fall asleep in their living rooms, it is not surprising that 44% were killed in fires that started in the bedroom or living room. Eleven (11), or 44%, of residential fire victims died in a fire originating in the bedroom or living room. Six (6), or 24%, succumbed to fires that originated in the bedroom, and five victims, or 20%, died in fires that began in the living room. Three (3) victims, or 12%, died when the area of origin was a hallway or corridor; and two victims, or 8%, died when the area of origin was an exterior balcony or unenclosed porch. A bathroom, the ceiling and floor assembly, dining room, an exit, an unclassified function room, a kitchen, a laundry room, a basement, and an unclassified structural area were each the area of origin of the fire for one, or 4%, of the residential fire deaths in 2010.

40% of Deaths Involved Smoking Materials as a Heat Source

Of the 25 residential building fire deaths, 40% involved heat from smoking materials; 24% were from cigarettes; 4% were from undetermined smoking materials; 4% were from matches[50]; and another 4% were from lighters. Sixteen percent (16%) involved electrical arcing. Another 16% involved heat from operating equipment; 8% involved a spark, ember or flame from operating equipment; 4% involved heat from unclassified operating equipment; and another 4% was from radiated or conducted heat from operating equipment. A chemical reaction and an unclassified open flame each caused 4% of these deaths. Heat source was undetermined or unclassified in four deaths, or 16%, of the residential building fire deaths in 2010.

Clothing & Magazines-Newspaper are Ignited First in Almost 1/4 of Deaths

Of the 25 residential building fire deaths, clothing on a person and newspaper and magazines were each the item first ignited in 12% of these fire deaths. Bedding, floor coverings, unclassified furniture and upholstered sofas and chairs were each the item first ignited in 8% of the fire deaths in 2010. Propane escaping from its pipe, a human body, linen other than bedding, a structural member or framing, and clothing not on a person were each the item first ignited in 4% of fire deaths. The item first ignited was undetermined or unclassified in five, or 20%, of the residential building fire deaths in 2010.

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

[50] 1 victim used a match to commit self-immolation - i.e. for arson and is not considered a smoking material.

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[51].

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

No Working Detectors for 28% of Residential Fire Victims

Of the 25 people who died in residential building fires in 2010, the smoke detector performance was known for 15 of the victims. Victims were not alerted by smoke detectors in five fires that killed seven people, or 28% of the victims. No detectors were present at all in four, or 16%, of the deaths. In three deaths, or 12%, there were detectors present but they failed to operate.

Eight (8) people died in seven separate residential fires with detectors that did operate, accounting for 32% of fatal fire victims. It is important to remember that detectors provide an early warning of a fire. They do not guarantee an escape if exits are blocked or an individual's clothing ignites. A fire that appears small when discovered can quickly grow beyond an individual's ability to control or escape it.

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

In 2010, five of the fatal residential fire victims that had their smoke detector operate were in the area of origin. Three (3) of these five victims were intimately involved with ignition; they were smoking. The other two were unable to act during an electrical fire that started in the walls of their apartment.

Two (2) other victims were not in the area of origin and not involved in the ignition of the fires. One (1) of the victims was sleeping in her bedroom during a cooking fire; and the other victim fell asleep in her living room while the smoking fire started in a bedroom. 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.

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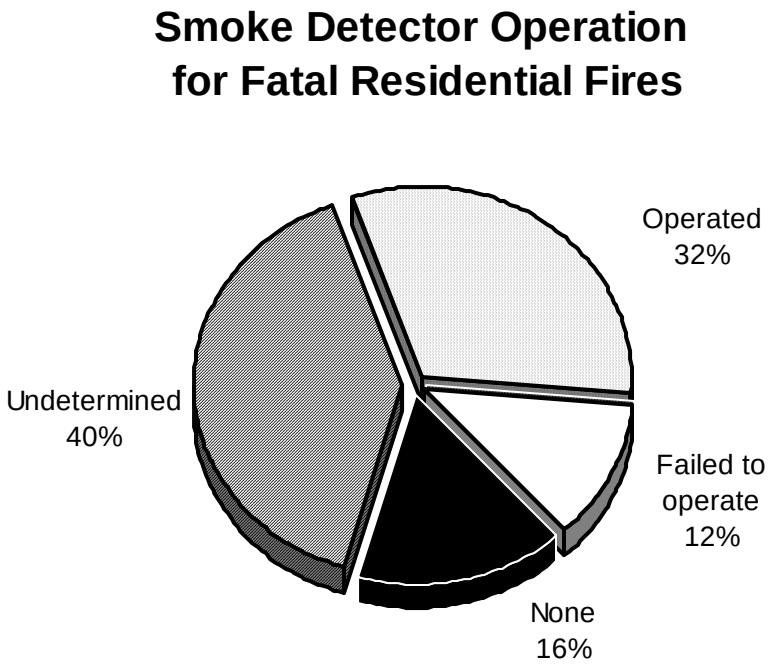
[51] There has been some debate about the use of certain types of flame retardant used to make products conform to these standards. The issue is about using polybrominated diphenyl ethers (PBDEs) that have caused health concerns in animals in lab tests. According to the U.S. Environmental Protection 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.

Detector performance was undetermined in nine residential building fires that killed 10 people, accounting for 40% of the residential building fire deaths in 2010. The pie chart shows the smoke detector status as a percentage of the civilian residential building fire deaths in 2010.



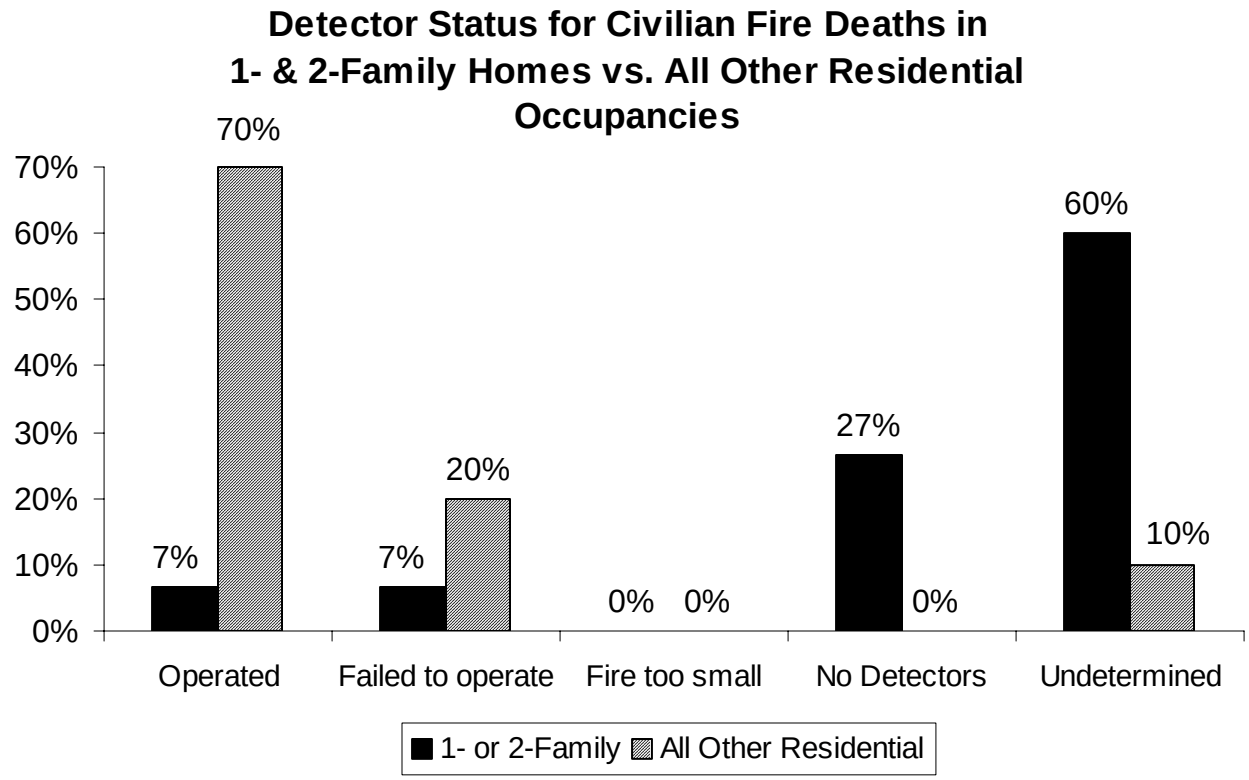
No Working Smoke Detectors in 33% of Fire Deaths in 1 & 2-Family Homes
In 2010, you were more likely to die in a fire in a one- and two-family home than in any other residence. There were 150% more fire deaths in one- and two-family homes than all other residential occupancies combined. Fifteen (15) people died in 13 one- and two-family dwelling fires in 2010. Five (5), or 33%, of the fire deaths in one- and two-family homes occurred in fires with no detectors at all or with detectors that failed to operate. Of these five deaths, one occurred in a home where smoke detectors failed to work while the other four deaths were in homes where there were no smoke detectors present. One (1) death, or 7%, occurred in a home where the smoke detectors operated[52]. Nine (9) deaths, or 60%, occurred in eight fires where smoke detector performance was undetermined.

1 Detector Failed from Missing or Disconnected Batteries
Of the three residential fire deaths where smoke detectors were present but failed to operate, in one case, or 33%, they failed to operate because the batteries were either missing or disconnected. It was undetermined why the detectors failed in the other two deaths, or 67%.

[52] This victim was smoking in the bathroom when she ignited herself.

Other Residential Occupancies More Likely to be Protected by Smoke Detectors
Ten (10) people died in eight apartment fires in 2010. The detector performance was known for nine of the 10 victims. Two (2) people died in these fires where there were smoke detectors, but they failed to operate. Seven (7) people died in fires where smoke detectors were present and working. Detector performance was unknown or not reported in one apartment fire where one person lost his life.

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



Physically Disabled Led Human Factors Contributing to Injury[53]
Of the 25 fatal residential building fire victims, 10 had some human factor contributing to their injury reported to MFIRS. Sixteen percent (16%) of the victims were asleep; 12% were bedridden or had another physical handicap; 8% were possibly mentally disabled; and 4% were possibly impaired by alcohol at the time of the fire. Fifteen (15), or 60%, of the 25 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 16% of fatalities were asleep

[53] 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.

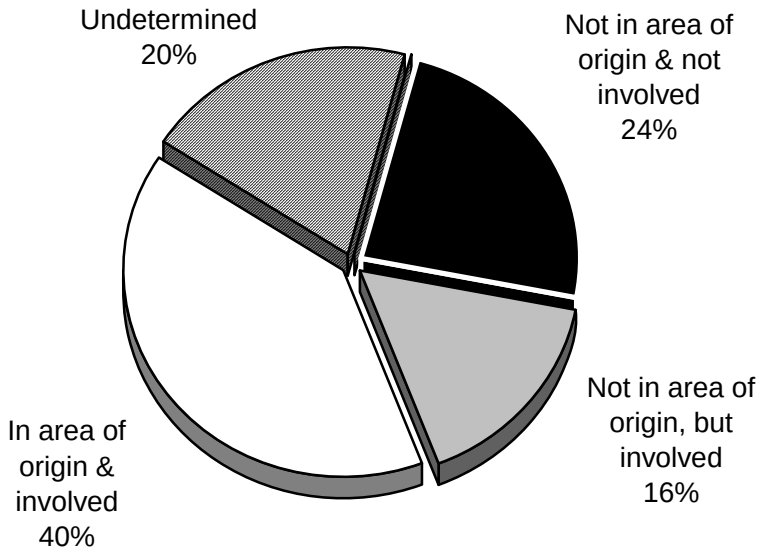
shortly before becoming a casualty. It also shows that 15% of these victims were attempting to escape the fire when they were overcome. This would seem to indicate that some people were awakened from their sleep and attempted to escape before being overcome. This combined with the lack of working smoke detectors in 28% of the fire deaths indicates that victims did not have enough time to get to safety.

Most Victims Were Either Escaping or Unable to Act When They Were Overcome
Three (3), or 15%, of the 25 fatal fire victims were trying to escape when they incurred their fatal injuries. Being unable to act and an irrational act were each the activity at the time of death for 15% of these victims. Ten percent (10%) were sleeping when they were fatally injured; and 5% were attempting a rescue when they were overcome. Activity at time of death was undetermined for eight, or 40%, victims of fatal residential fires in 2010. Working smoke detectors combined with a home escape plan are essential to escape a fire.

Over 3/4 of Victims Suffered Burns, Smoke Inhalation or Both
Burns or smoke inhalation was the primary apparent symptom for 19, or 76%, of the victims where the primary apparent symptom of their injury was known; 12, or 48%, suffered burns and smoke inhalation; six, or 24%, suffered from smoke inhalation only, and one victim, or 4%, died from only the burns incurred in the fire. A gunshot wound was the primary apparent symptom for two, or 8%, of these victims. Cardiac arrest was the primary apparent symptom in one, or 4%, of these deaths. The primary apparent symptom was undetermined in three, or 12%, of the 2010 residential fire deaths.

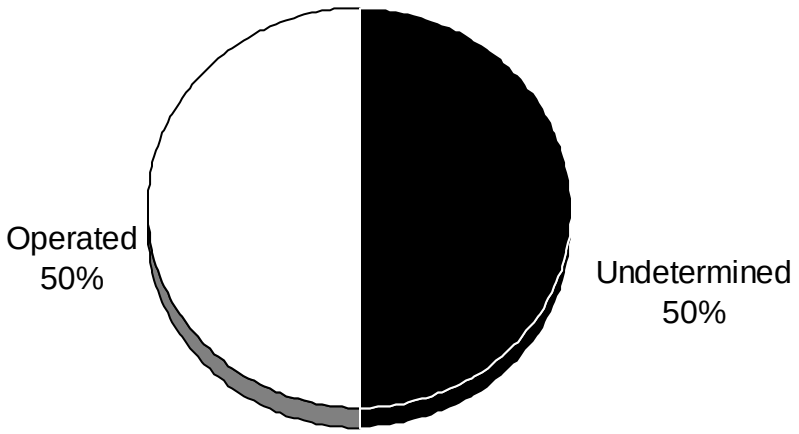
40% of the Victims Were in the Area of Origin
Knowing where the victim was at the time of the incident and if they were intimately involved with the ignition of the fire, helps us determine if they could have escaped to safety with appropriate warning from smoke or heat detectors and more tenable conditions from sprinklers.

Civilian Fatalities
Location at Time of Incident



Over 1/2 of All Fatalities Were Somehow Involved in Ignition
Ten (10), or 40%, of the residential fatal fire victims were in the area of origin of the fire. All 10 of these victims were intimately involved with the ignition of the fire that killed

Detector Perfomance of Fire Deaths When Victim was Intimately Involved with Ignition



them. Four (4), or 16%, of these victims were not in the area of origin but were somehow involved in starting these fires; such as the person who is smoking and exits the room, leaving the cigarette behind unattended, or the person who forgets that they started cooking on the stove. Six (6), or 24%, 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 five of the residential fatal fire victims.

50% of Detectors Operated When the Victim Was Intimately Involved in Ignition
There were 10 victims that were reportedly in the area of origin and they were involved with the ignition of the fire that killed them. Five (5), or 50%, of these 10 victims, actually had a working smoke detector in their home at the time of the fire. It was undetermined for the other five, or 50%, of the victims that were intimately involved with ignition, whether their homes had operating smoke detectors.

In the case of three of these victims where the detectors operated and they were involved with the ignition, the victims started the fire with the improper disposal of smoking materials; and in the other fire, both victims were asleep at the time an electrical fire started in the walls of their apartment.

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 2010, 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. All five of these fires and deaths involved motor vehicle crashes.

5 Fires Caused by MVC's Killed 5 Occupants
Five (5) motor vehicle fires and the subsequent five deaths were all caused by motor vehicle crashes. These incidents accounted for 16% of the fatal fires and 14% of the fire fatalities in the Commonwealth in 2010.

- On February 1, 2010, at 5:44 p.m., the Oak Bluffs Fire Department was dispatched to a single car motor vehicle crash with ensuing fire. The vehicle left the road and continued into a patch of woods near the entrance to the Martha's Vineyard Hospital's emergency department. The victim, a 37-year old woman, was trapped inside the vehicle and unable to extricate herself. No one else was injured in this fire.

- On February 8, 2010, at 1:02 a.m., the Stoughton Fire Department was called to a fatal motor vehicle crash with ensuing fire. A pick-up truck crashed into a utility pole

and the driver was trapped inside. The victim, a 21-year old man, was the only occupant of the truck.

- On November 25, 2010, at 12:37 a.m., the Waltham Fire Department was called to a fatal motor vehicle fire. Upon arrival, firefighters found the SUV fully involved and on its side in a culvert. The body of the victim, a John Doe, was discovered during operations. No one else was injured at this fire.

- On December 4, 2010, at 1:14 a.m., the Acushnet Fire Department was called to a motor vehicle crash with ensuing fire. The victim, a 46-year old male driver, was trapped inside the vehicle and had to be extricated. Two other civilian passengers were helped out of the vehicle by police and good samaritans. Damages were estimated to be $40,500.

- On December 17, 2010, at 8:24 p.m., the Marion Fire Department was dispatched to a fatal motor vehicle crash with ensuing fire. The victim, the 75-year old male driver, made the initial 911 call to report the accident. He was trapped in the vehicle as the car became fully involved. No one else was injured in this fire.

Other Fatal Fires

In 2010, three outside fire incidents killed three civilians. These incidents accounted for 9% of the fatal fires and 8% of the fire fatalities in Massachusetts in 2010. One (1) fire was an outside electrical fire, one was a successful attempt at self-immolation and the cause of the third fire was undetermined.

1 Undetermined Fire Kills 1 Massachusetts Resident

- On February 7, 2010, at 9:17 a.m., the Methuen Fire Department responded to an outside fire behind a single-family home. A partly burned body was found beside a fire pit. The victim was a 43-year old man. No one else was injured at this fire. No estimation was made for damages from this fire.

1 Arson Kills 1 Massachusetts Resident

- On May 10, 2010, at 11:05 a.m., the Medford Fire Department was called to a fatal outside fire in a field. The fire was a suicide by self-immolation. The victim, a 47-year old man, poured gasoline on himself and ignited it. No one else was injured in this fire.

1 Outside Electrical Fire Kills 1 Person

- On October 11, 2010, at 11:54 a.m., the Heath Fire Department responded to a brush fire underneath some power lines. The body of the victim, a 55-year old man from Missouri, was found at the base of one of the towers. There was charring up the tower to 80 feet. It is believed that he climbed the tower and somehow caused arcing from

the power lines. 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 2010, there were no multiple death fires in Massachusetts.

Civilian Fire Deaths - Conclusion

36 Civilians Died in Massachusetts Fires –All-Time Record Low
In 2010, there were 32 fatal fires in Massachusetts with 36 accompanying fatalities. This is a 3% decrease from the 37 deaths reported in 2009. Of these 36 deaths, 25 occurred in residential fires. This is the lowest number of fire deaths on record since World War II[54].

Drop in Most Causes of Fatal Fires Caused Decline in Fire Deaths
There was a decrease in most causes of residential fire deaths. Four (4) fewer people died in electrical fires in 2010 and three fewer people died in fires caused by cooking. The number of people killed in smoking fires and gas explosions remained the same in 2010. There were two 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 they are where prevention can have the most impact. Twenty-five (25), or 89%, of the 28 fatal structure fire victims died in residential building fires. Fifteen (15) of these deaths occurred in one- or two-family homes, accounting for 60% of all fire deaths, which is typical.

Smoking the Leading Cause of Fire Deaths
In 2010, smoking fires were once again the leading cause of residential structure fire deaths. These fires accounted for 10, or 40%, 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 2010, arsons, including suicides, were the second leading cause of fire deaths, accounting for five, or 20%, of residential fire deaths. Electrical fires were the third leading cause of fire deaths in 2010 accounting for four, or 16%, of the residential fire deaths.

[54] Based upon available records.

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 4.0. The risk of fire death for all older adults over the age of 65 is 2.4. This means that adults 65 to 74 were almost two and a half times as likely to be fire-related fatalities.

Over 1/3 of All Fire Deaths Were Older Adults
Twelve (12) older adults died in fires, accounting for over one-third, or 34%, of all fire deaths in Massachusetts in 2010. Six (6), or 50%, of these victims died in smoking fires. Historically, the lack of working smoke detectors is a significant factor in senior fire deaths. In 2010, three of these six senior fire deaths had working smoke alarms and in the other three deaths, detectors were present but it was undetermined if they operated.

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 2010, 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.

28% of Fatalities Did Not Have Working Smoke Detectors
Twenty-eight percent (28%) of the residential fire victims did not have a working smoke detector so they were never afforded the chance of escape because they had no prior warning. Forty-four percent (44%) of the victims died in fires that began in either the bedroom or living room. Clothing on a person and magazines, newspaper or writing paper were tied as the leading items first ignited. Also, 76% of these victims suffered burns, smoke inhalation or both.

40% of Fatalities Were in the Area of Origin
Ten (10), or 40%, of all the civilians that died in residential fires were reported to be in the area of fire origin. All 10 victims were intimately involved in the ignition of the fire that killed them. It is most probable that no amount of early warning would have saved any of these victims. This is where fire prevention and education become key components in saving lives.

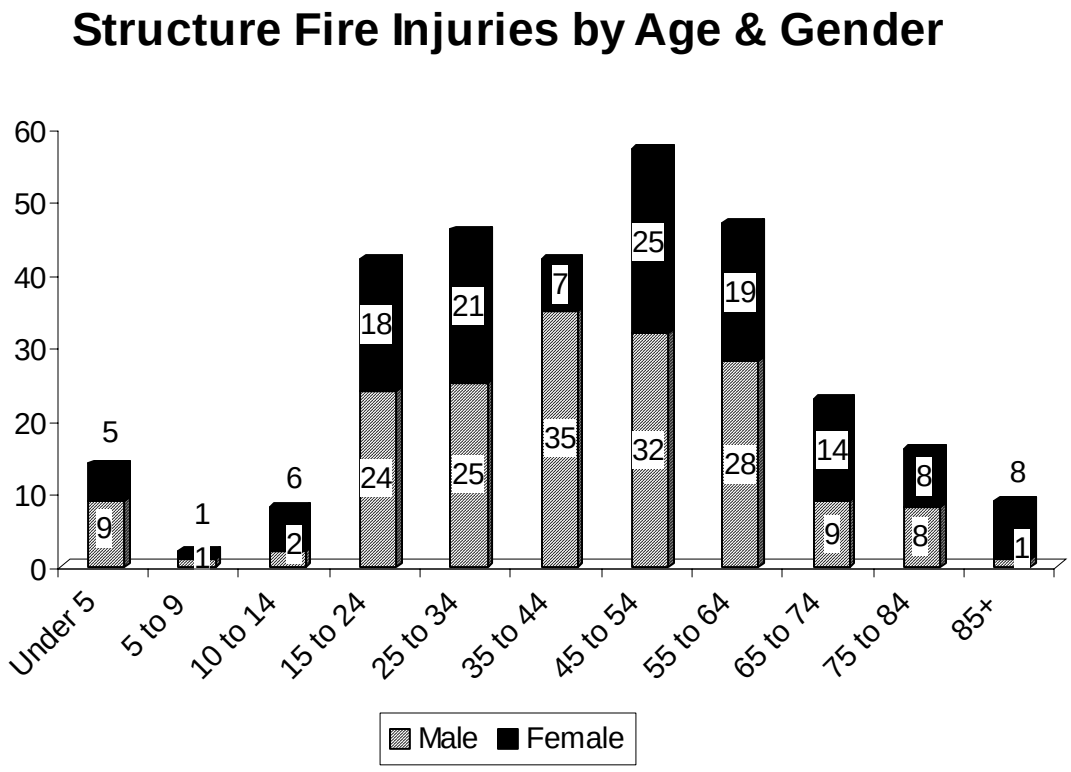
5 Suicides by Self-Immolation
This past year there were a tragic number of people who used fire to take their own lives. In 2010, there were five confirmed suicides by self-immolation. One of these was a murder-suicide. In 2009 there were six self-immolations; in 2008, there were three self-immolations;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

Civilian Injuries

366 Civilians Injured in Fires in 2010 – Mostly at Home
Massachusetts' fires injured 366 civilians in 2010. Three hundred and nine (309), or 84%, of civilian injuries occurred in structure fires. Two hundred and eighty-five (285) injuries occurred in residential building fires, accounting for 78% of all injuries and 92% of all structure fire injuries. Twenty-seven (27), or 7%, occurred in motor vehicle fires. Thirty (30), or 8%, of civilian injuries occurred in outside and other fires. Special outside fires accounted for 11, or 3%, of all civilian injuries. Outside rubbish fires accounted for five, or 1%, of civilian injuries. Brush fires accounted for three, or 1%, of civilian fire injuries. Eleven (11), or 3%, of civilian injuries were caused by unclassified fires.

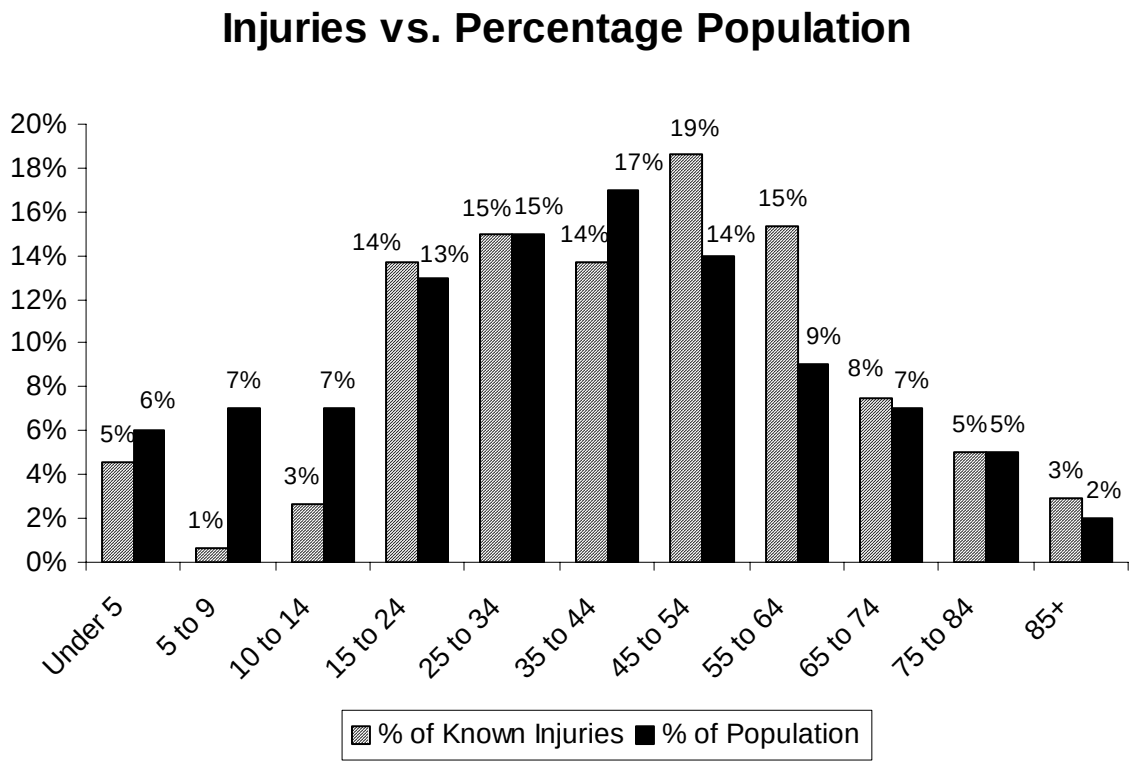
Structure Fire Injuries

Of the 308 civilian injuries resulting from structure fires where gender was reported, 174, or 56%, were men and 134, or 44%, were women. Overall, 29 children under 18 years of age, 229 adults aged 18 to 64 years old, and 50 older adults over the age of 65, were injured in structure fires in 2010. The following chart illustrates the structure fire injuries by age and gender in 2010. Men and women ages 45-54 and 55-64 were injured the most and youths between five and nine were injured the least in 2010. Fourteen (14) children ages 0-4 were injured; two children ages 5-9; eight children ages 10-14; 42 people ages



15-24; 46 people ages 25-34; 42 people ages 35-44; 57 people ages 45-54; 47 people ages 55-64; 23 people ages 65-74; 16 people ages 75-84; and nine people were injured that were over 85 years of age, one was a man and eight were women.

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



Adults 45 to 64 at High Risk for Fire Injury
Adults between the ages of 45 and 54 represent 14% of the Massachusetts population, yet they accounted for 19% of the injuries at structure fires in 2010. Adults between the ages of 55 and 64 represent 9% of the population and yet they accounted for 15% of the injuries in 2010. People in these age groups are most at risk being injured in a fire because they are more likely to try and control the fire. In these age groupings, 40% of the fire-related injuries were incurred while trying to control the fire.

85% of Injuries Were Directly Related to Exposure to Fire Products
Of the 261 civilian injuries in structure fires where the *Cause of Injury* was known, 85% were directly linked to exposure to fire products; 5% of the casualties were exposed to hazardous materials or toxic fumes; and 3% were struck by or came in contact with an object. One percent (1%) were injured in a structural collapse; and less than 1% each were caused by the victim falling, slipping or tripping, overexertion, jumping in an

escape attempt or being caught or trapped. Five percent (5%) of the civilian fire injuries were caused by 'Other' causes; and less than 1% were reported to have multiple causes. The *Cause of Injury* was undetermined or not reported for 47 victims. These figures were not included in this analysis.

82% of Injuries Were Due to Smoke Inhalation or Burns or Both

Of the 260 civilian injuries in structure fires where the *Primary Apparent Symptom* was known, 40% were caused by smoke inhalation only. Twenty-eight percent (28%) were caused by thermal burns only. Burns and smoke inhalation together caused 15% of the injuries. Breathing difficulty or shortness of breath and scald burns each caused 4% of these injuries; and emotional or psychological stress caused 2%. Cardiac symptoms, cuts or lacerations, and pain were each responsible for 1% of these injuries. An abrasion, amputation, disorientation, dizziness, electric shock, fracture, hazardous fumes inhalation, mental disorder and strains or sprains each accounted for less than 1% of the injuries. 'None' was reported as the *Primary Apparent Symptom* for three of these victims. The nature of injury was undetermined or not reported in 48 civilian fire injuries. These were excluded from the percentage calculations.

40% Injured While Trying to Control the Fire

Of the 203 victims for whom A*ctivity at Time of Injury* was known, 42% were attempting to control the fire. Seventeen percent (17%) were escaping. Eight percent (8%) were sleeping; 7% were attempting a rescue; 5% were unable to act; 3% were acting irrationally; another 3% returned to the vicinity of the fire before it was under control; and less than 1% tried to return to the vicinity of the fire after it was under control. Fifteen percent (15%) were injured in 'Other' activities. There were 78 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 2010, 43% of male victims sustained their injuries while attempting to control the fire as compared to 37% 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 (12%) sustained their injuries while making a rescue attempt than did women (1%), and 23% of women were attempting to escape compared to 12% of men. Seven percent (7%) of men and 11% of women were injured while sleeping; 2% of men and 9% of the women were unable to act; and 2% of men and 5% 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. In 2010 men were 1.7 times as likely to be injured attempting to control a fire.

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

43% of Victims Were Asleep Just Before the Injury

Of the 54 victims for which the *Human Factor Contributing to the Injury* was known, 43% were asleep; 24% were possibly impaired by alcohol; 13% were unconscious; 7% were possibly mentally disabled; 6% were physically disabled; 6% were unattended or unsupervised persons; and 2% were possibly impaired by drugs. Fire sprinklers can provide the extra time to escape to safety for people who are impaired, have a disability, are very young or are very old.

The following table is a cross tabulation which allows us to know what the person was doing when injured and what was either their physical or mental state shortly before becoming a victim. The overall majority of civilian fire injuries came about through trying to control the fire. 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: Alcohol	Possibly Impaired: Drugs	Mentally Disabled	Physically Disabled	Physically Restrained	Unsuper-vised
Escaping	**7**	0	0	0	0	0	0	0
Rescue attempt	1	0	0	0	0	0	0	0
Fire control	1	3	3	1	2	0	0	1
Return before fire control	1	0	0	0	0	0	0	0
Return after fire control	0	0	0	0	0	0	0	0
Sleeping	**8**	2	0	0	0	0	0	0
Unable to act	0	0	2	0	0	2	0	0
Irrational action	0	0	3	0	2	0	0	0
Other	1	0	0	0	0	0	0	1
Unknown	3	0	0	0	0	1	0	0
Total	22	5	8	1	4	3	0	2

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

Historically when both of the fields, *Activity When Injured* and *Human Factors Contributing to Injury,* were completed, the majority of civilian fire injuries occurred when people were asleep at the time of injury and were still asleep at the time of the fire.

Although not the overwhelming majority of past years, the leading cause of civilian fire injuries was when people were asleep at the time of injury and were still asleep at the time of the fire. The next leading result was when someone was asleep, awoke and attempted to escape.

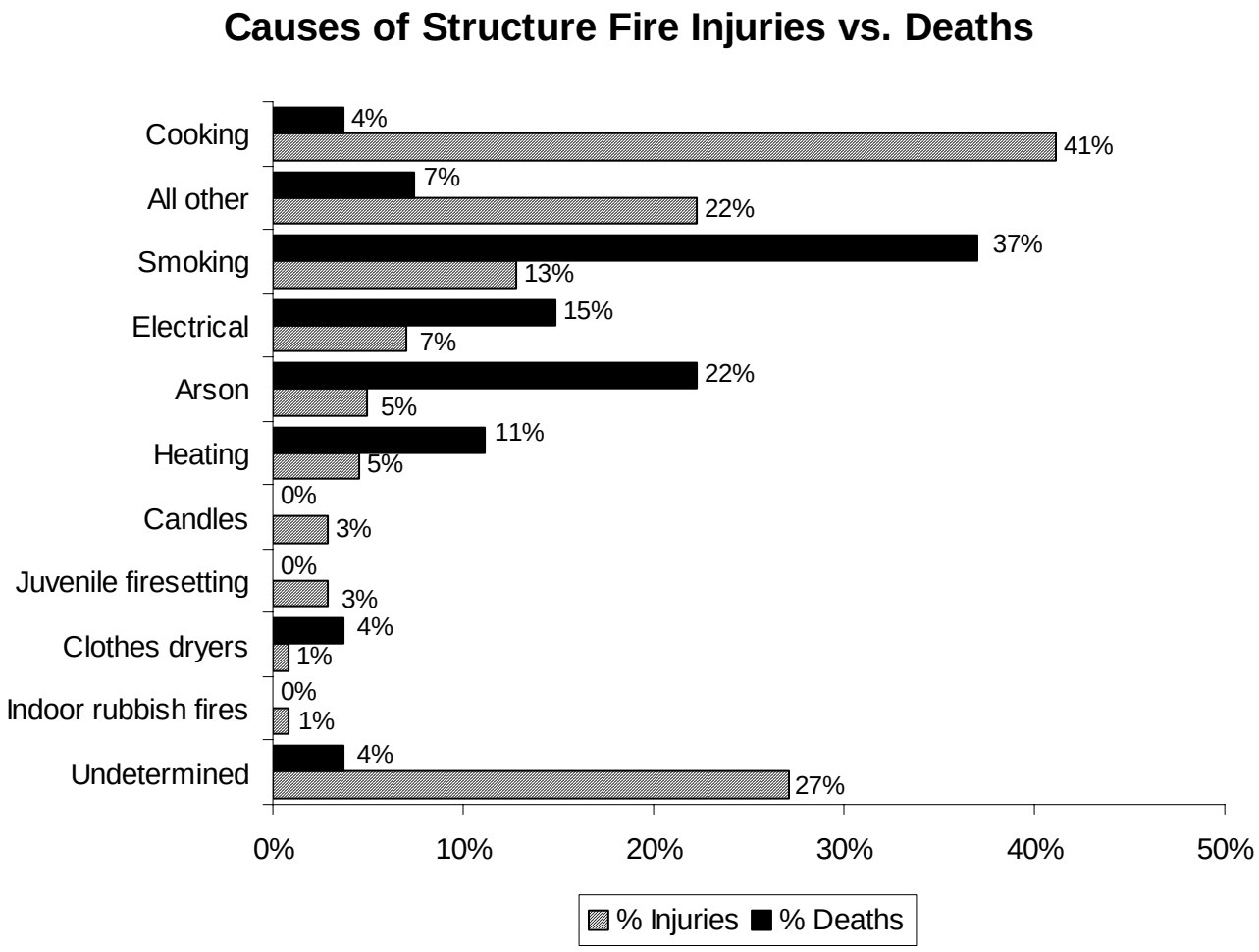
However in 2009 the two were reversed with more people waking up and being injured during their escape than failing to awaken at all. 2010 saw a reversal to the earlier trend just slightly. This is most likely due to the educational and regulatory efforts of having working smoke detectors in buildings, especially homes.

Over 1/2 of All Victims Were Involved With the Ignition of the Fire
Fifty-three percent (53%) of all victims were involved with the ignition of the fire that injured them. One hundred and five (105), or 46%, of the 230 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. Eighteen (18), or 8%, were not in the area of origin but were involved with starting the fire. An example of this is when someone is involved with starting the fire (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. Fifty-nine (59), or 26%, of the 230 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-eight (48), or 21%, of these victims were not in the area of fire origin and were also not involved with its ignition. The *Location at Time of Incident* was undetermined or not reported in 78 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 41% of structure fire injuries and 4% of structure fire deaths. Fires started by smoking caused 13% of structure fire injuries and 37% of structure fire deaths. Electrical fires caused 7% of structure fire injuries and 15% of structure fire deaths. Arson caused 5% of structure fire injuries and 22% of structure fire deaths. Heating equipment fires caused 5% of injuries and 11% of deaths. Candles caused 3% of injuries and none of the deaths. Juvenile-set fires also caused 3% of structure fire injuries and none of the structure fire deaths in 2010. Clothes dryer fires caused 1% of the structure fire injuries and 4% of the structure fire deaths. Indoor rubbish fires caused 1% of civilian injuries with no deaths. All the other known causes of structure fires combined caused 22% of the structure fire injuries and 7% of the structure fire deaths. In 2010, undetermined fires caused 27% of structure fire injuries and 4% of structure fire deaths in Massachusetts.

Cooking was the leading cause of fires that injured the most children. Twelve (12), or 41%, were injured in cooking structure fires in 2010. Electrical problems and heating equipment fires were tied as the second leading cause of injuries with four apiece, or 14% of child injuries in structure fires. Cooking was also the leading cause of fires that injured older adults. Seventeen (17) older adults were injured in cooking fires accounting for

34% of structure fire injuries to older adults. Smoking fires caused the second most injuries to older adults with 11, or 22%, of these injuries.



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 2010, 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 Over 1/2 of Civilian Injuries
Of the 335 injuries where detector status was reported, 54% occurred where smoke detectors were present and operated. In 3% of these fires[55], the detectors did not alert the occupants. Nine percent (9%) of the injuries occurred in structure fires where detectors were present but did not operate. Nine percent (9%) of the injuries occurred where there were no detectors present in the structure at all. One percent (1%) of civilian structure fire injuries occurred where the fire was too small to activate the smoke detector. Smoke detector performance was undetermined in 82 injuries, or 24% 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 27 motor vehicle fire injuries in 2010. Ninety-three percent (93%) were men and 7% were women. Seventy-two percent (72%) of the injuries were caused by exposure to fire products, when the cause was known. Eleven percent (11%) were struck by or came into contact with an object. When the *Primary Apparent Symptom was Reported*, 32% of these were reported as burns only, 23% were reported as smoke inhalation only; and 18% were reported as burns and smoke inhalation. Where the *Activity at Time of Injury* was known, 40% of the victims were trying to control the fire when injured and 10% were acting irrationally. The causes of motor vehicle fires that injured civilians in 2010 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

Thirty (30), or 8%, of civilian fire injuries occurred in outside and other fire incidents in 2010. Eleven (11), or 2%, of civilian injuries were caused by special outside fires. Five (5), or 1%, of these injuries occurred during outside rubbish fires. Three (3), or 1%, of civilian injuries occurred in brush fires. Eleven (11), or 3%, of civilian injuries were caused by unclassified fires.

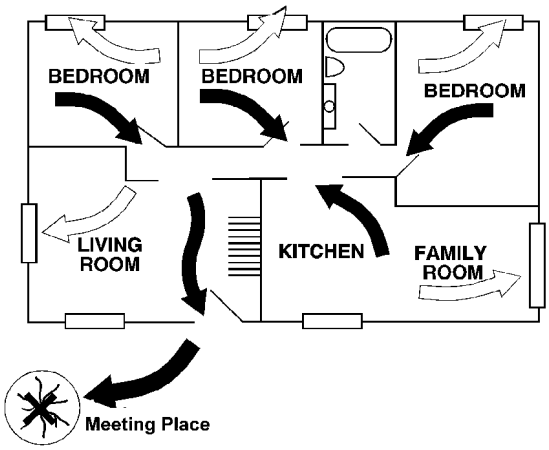
Where gender was known, 73% of the civilian victims were men and 27% were women. Burns accounted for 76%, of the injuries to this group, when the *Primary Apparent Symptom* was known. The victim was intimately involved with the ignition in 61% of these injuries where *Location at Ignition* was known.

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

Safety Practices Are the Best Prevention Methods

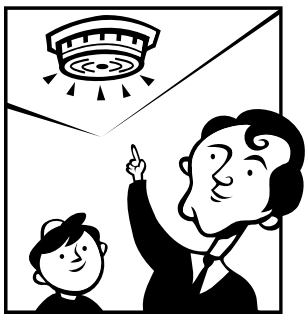
In a typical nighttime fire, there is a window of 2-4 minutes in the average home after the smoke alarm sounds for the family to get out safely. In a few minutes, heat and toxic gases make escape impossible. To survive a fire, one must install and maintain smoke detectors as well as make and practice an escape plan. These types of basic fire safety practices are ignored by too many Massachusetts residents and result in fires, injuries, and deaths.

Home Escape Plan



- Practice your home escape plan with the whole family at least twice a year.
- Hold a nighttime drill to test if your children will react properly to a smoke alarm activation. Adjust your escape plan accordingly.
- Plan two ways out of each room. The easy way out is probably a door and the second way out might be a window.
- If you plan for a child or a senior to exit a window, make sure they can open it easily.
- If you can't get out, close your door and go to the window and signal for help.
- Teach children to never hide under beds or in closets.
- If you must go through smoke, crawl low. The coolest, cleanest air will be about 18 inches off the ground.
- Have a meeting place outside where everyone will meet. Be able to tell the fire department if everyone is out safely.
- Get out and stay out; don't go back into a burning building for anything.
- Telephone the fire department from a neighbor's house or use the fire alarm emergency box or a cell phone at a safe distance from the building.

Smoke Detectors



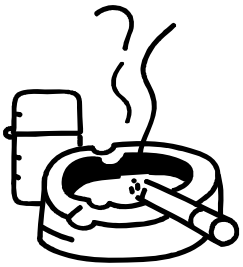
- Install smoke detectors on every level and outside each sleeping area.
- Test smoke detectors monthly.
- Replace the batteries twice a year.
- Never disable your detector.
- Replace detectors every 10 years.

Cooking Safety

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

Safe Smoking

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



Dryer Safety

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

2010 Firefighter Deaths

In 2010, there were two fire-related fire service fatalities in two fires in the Commonwealth of Massachusetts. Firefighter David Sullivan of the Otis Fire Department suffered an apparent heart attack after fighting a fire in neighboring Tolland and Rehoboth Firefighter Kenneth Marshall Jr. suffered a heart attack while driving an engine en route to a cooking fire. In the past five years there have been six fire-related fire service deaths for an average of one fire-related fire service death per year.

Otis FF David Sullivan

Rehoboth FF Kenneth Marshall Jr.

1 Firefighter Dies After Electrical Fire
On July 24, 2010, at 3:37 p.m., the Otis Fire Department responded to a mutual aid call to the Town of Tolland for an electrical fire in a single-family home. FF Sullivan and the rest of his crew worked at the scene of the fire, cleared the scene and returned home. The following day, he complained that he was not feeling well, and went back to his home, where he died from an apparent heart attack. He was 70 years old.

1 Firefighter Dies En Route to a Cooking Fire
On Thanksgiving Day, November 25, 2010, at 9:31 p.m., the Rehoboth Fire Department was dispatched to a cooking fire in a single-family home. FF Marshall, while driving the engine that was responding, slumped over the wheel as he pulled out of the station. The other firefighters stopped the truck, pulled FF Marshall out of it and initiated emergency medical procedures in an attempt to revive him. He was transported to Sturdy Memorial Hospital where he was pronounced dead.

Fire Service Injuries

531 Firefighters Injured in 2010
In 2010, 531 firefighters were injured while fighting the 32,680 reported fires in Massachusetts. On average, one firefighter was injured at one of every 54 fires in 2010. Four hundred and ninety-one (491) firefighters were injured at structure fires. Thirteen (13) firefighters were injured at motor vehicle fires. Twenty-seven (27) firefighters were injured at outside and other fires. This is an increase of 67, or 14%, from the 464 fire-related fire service injuries reported in 2009.

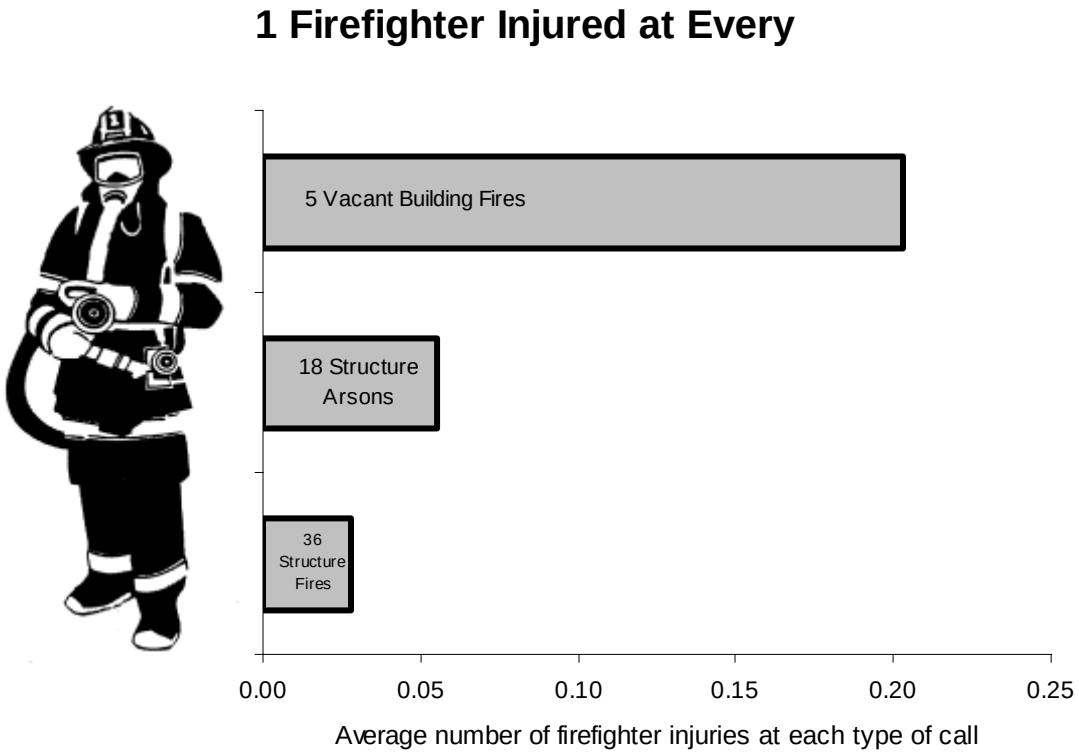
92% of Firefighter Injuries Occurred at Structure Fires
Firefighters were injured more frequently at structure fires than any other fire incident type. Ninety-two percent (92%) of firefighter injuries occurred at structure fires, while structure fires only accounted for 57% of all fires.

Smoking Fires Caused the Most Injuries at Structure Fires
The largest number of firefighter injuries took place at structure fires caused by smoking. Forty (40), or 8%, of structure fire firefighter injuries occurred at smoking fires. Electrical fires and cooking fires each accounted for 35, or 7%, of structure fire

firefighter injuries, even though cooking fires are the leading cause of structure fires and civilian fire injuries. Fires caused by arson accounted for 16, or 3%, 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 2010 were vacant building fires. Vacant building fires accounted for 64, or 12%, of all firefighter injuries in 2010. These 64 injuries also represent 13% of the number of firefighter injuries incurred fighting structure fires in 2010. On average there was one firefighter injury for every five vacant building fires; one firefighter injury for every 18 structure arsons; and one firefighter injury for every 36 structure fires[56].

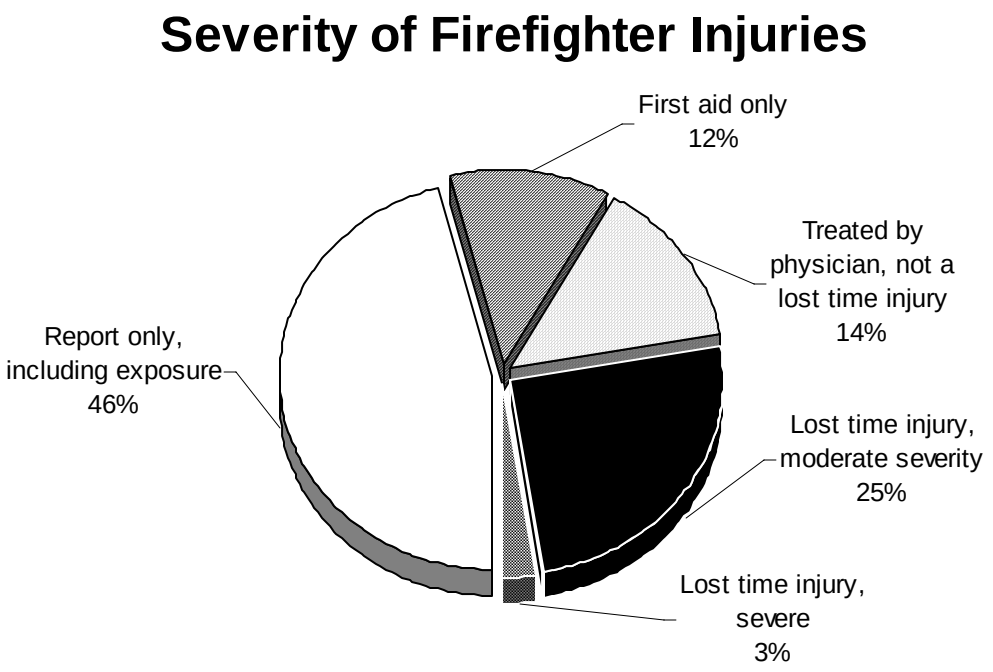
The following graph illustrates this.



Almost 3/4 of Firefighter Injuries Minor
Almost three-quarters of reported firefighter injuries were minor. Forty-six percent (46%) 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 25% of firefighter injuries, meaning that immediate medical attention was needed but there was little danger of death or permanent disability. Twelve percent (12%)

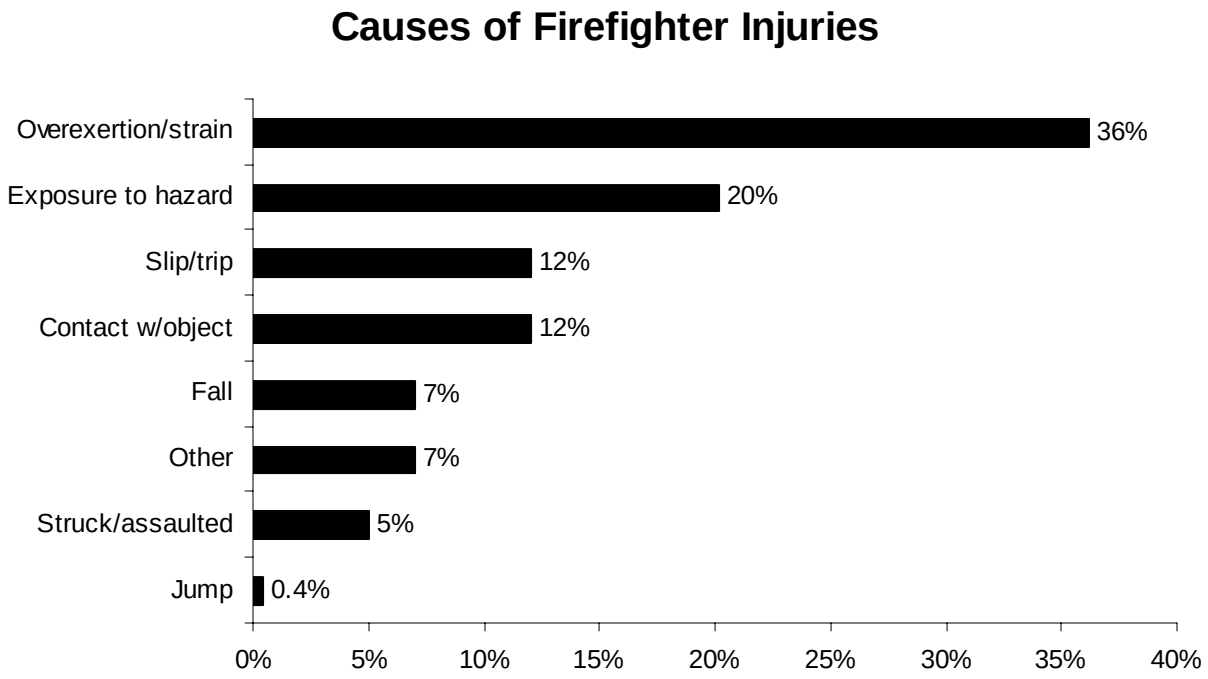
[56] On average there were 0.20 firefighter injuries at every vacant building fire; there were only 0.05 reported firefighter injuries per structure arson in 2010; and there was 0.03 reported firefighter injuries per structure fire in the Commonwealth in 2010.

of these injuries were recorded as only needing first aid. Fourteen percent (14%) reported having been treated by a physician with no time lost. Three percent (3%) of firefighter injuries were coded as severe. This means that the injury was potentially life-threatening if the condition was not controlled. There were no reported life-threatening firefighter injuries where body processes and vital signs were not normal.



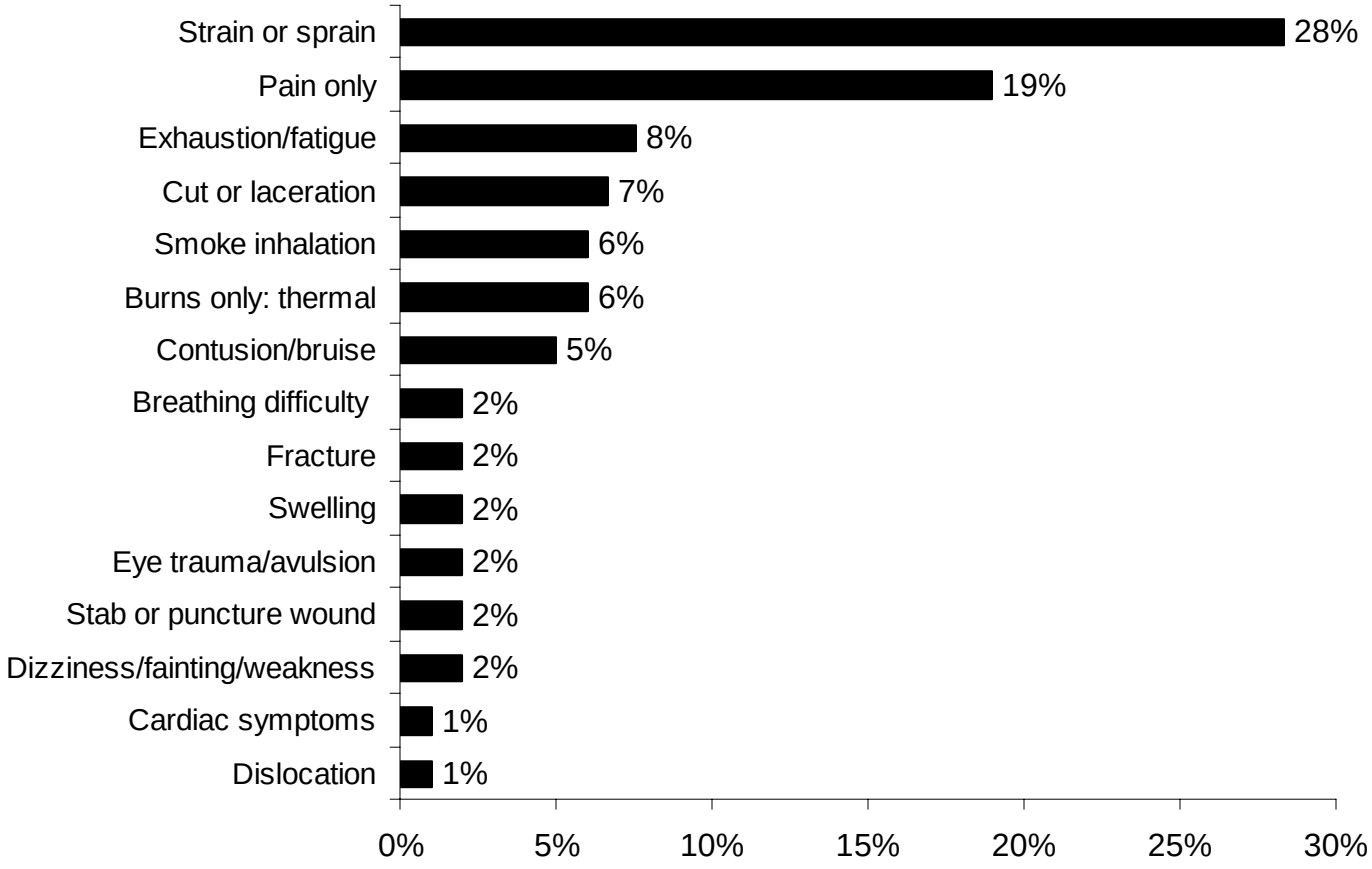
Over 1/3 of Injuries from Overexertion or Strain

Thirty-six percent (36%), or over one-third, of the 461 firefighter injuries, where the cause was known, were due to overexertion or strain; 20% were exposed to some form of hazard including heat, smoke or toxic agents; 12% were injured when they slipped or tripped; another 12% were caused by contact with some object; 7% of firefighters were injured from falls; 5% were injured when they were struck by an object or assaulted by a person or animal; less than 1% were injured when they jumped; and 7% 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 70 firefighter injuries, and these injuries were excluded from the percentage calculations.



Over 1/4 Experienced Sprains or Strains; Almost 1/5 of Firefighters Reported Pain
Of the 448 firefighter injuries where the P*rimary Apparent Symptom* was known, almost one-third, or 28%, of injured firefighters reported sprains or strains as their primary symptom; 19% reported pain only; 8% reported exhaustion and fatigue; 7% reported cuts or lacerations; 6% reported smoke inhalation; and another 6% reported thermal burns. Contusions and bruising were reported by 5% of the firefighters. Breathing difficulty, fractures, swelling, eye trauma or avulsions, stab or puncture wounds and dizziness, and fainting or weakness each caused 2% of these injuries. Cardiac symptoms and dislocations each caused 1% of firefighter injuries in Massachusetts in 2010. *Primary Apparent Symptom* was undetermined or not reported for 83 firefighter injuries. These injuries were excluded from the percentage calculations.

Primary Symptoms of Firefighter Injuries



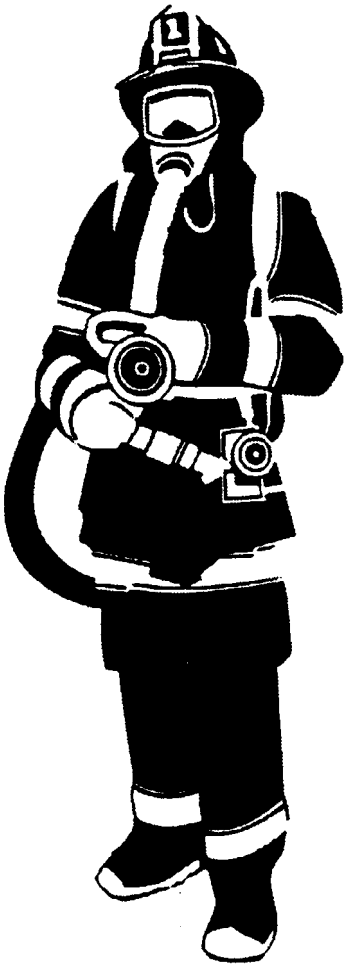
Firefighters Face Other Risks in Addition to Fires
The Massachusetts Fire Incident Reporting System (MFIRS) generally only collects information about injuries at fires. Firefighters face many other dangerous situations in addition to those found at fires. Many are also injured while controlling hazardous materials incidents, performing rescues and extrications, performing emergency medical services, investigations, inspections and performing 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, 39% of eye injuries were caused by avulsions; cuts or lacerations caused 43% of the injuries to the hands and fingers; 46% of the injuries to the back and spine were sprains or strains; and smoke inhalation caused 55% of the internal injuries.

22% of All Firefighter Injuries Were To the Trunk Part of the Body
Firefighting is a very strenuous and potentially dangerous job. It requires a person to lift heavy loads and put large amounts of stress on their body. One hundred (100), or 22%, of all firefighter injuries were to the trunk part of the body that includes the lower back. Thirty-seven (37), or 37%, of these injuries were from strains or sprains and 33, or 33%, 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 (12)	
Avulsion	39%
Pain only	13%
Trunk (100)	
Strain or sprain	37%
Pain only	33%
Thermal burns	6%
Internal (22)	
Smoke inhalation	55%
Breathing difficulty	14%
Exhaustion, fatigue	9%
Nausea	9%
Hand, Fingers (58)	
Cut, laceration	43%
Contusion, bruise	10%
Stab or punct. wound	9%
Thermal burns	7%
Legs (14)	
Strain or sprain	71%
Pain only	7%
Fracture	7%
Contusion, bruise	7%
Cut or laceration	7%



Ears & Face (9)	
Thermal burns	44%
Internal trauma	33%
Contusion, bruise	22%
Back & Spine (41)	
Strain or sprain	46%
Pain only	41%
Arms (29)	
Strain or sprain	34%
Pain only	14%
Contusion, bruise	14%
Wrists (5)	
Strain or sprain	40%
Pain only	40%
Knees (37)	
Strain or sprain	62%
Pain only	27%
Feet & Toes (5)	
Strain or sprain	40%
Stab or punct. wound	40%
Fracture	20%

Fire in Worcester Injures 20 Firefighters – Most Fire Service Injuries

- On March 17, 2010, at 6:40 p.m., the Worcester Fire Department was called to a fire at a 5,000 ft^2 manufacturing building containing chemicals at Walker Magnetics. The cause of the fire was undetermined. Twenty (20) firefighters were injured at this fire. None of the injuries were severe and were reported because of exposure to chemicals

stored onsite. Detectors were present but it was undetermined if they operated; and the fire was too small to activate the sprinkler system. Damages from this fire were estimated to be $1 million.

New Bedford Fire Injures 11 Firefighters – Tied for 2nd Most Fire Service Injuries

- On November 1, 2010, at 6:50 p.m., the New Bedford Fire Department was called to a fire at Keith Middle School inside the chemical laboratory classroom. One (1) civilian and 11 firefighters were injured at this fire. They were all treated by a doctor for exposure to chemicals. Smoke detectors were present and alerted the occupants. Sprinklers were present, but the fire was too small to activate the system. Damages from this fire were estimated to be $34,000.

Chelsea Fire Injures 11 Firefighters – Tied for 2nd Most Fire Service Injuries

- On January 7, 2010, at 1:02 a.m., the Chelsea Fire Department was dispatched to an electrical fire in a three-story apartment building. The fire started in the basement. There were 11 firefighters injured at this fire with their injuries ranging from reports of pain to lost time due to smoke inhalation. Detectors were present and alerted the occupants. The building was not sprinklered and damages were estimated to be $450,000. The fire spread to a nearby building causing another $50,000 in estimated damages.

Worcester and Chelsea each had incidents with eight firefighter injuries in 2010.

Arson Fires

1,169 Arsons - 268 Structures, 115 Vehicles, 786 Other Arsons

One thousand one hundred and sixty-nine (1,169), or 4%, of the 32,680 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 268 structure arsons, 115 motor vehicle arsons, and 786 outside and other arsons caused eight civilian deaths, accounting for 22% of civilian fire deaths, 13 civilian injuries and 17 fire service injuries. The estimated dollar loss from arsons was $7.1 million. The average dollar loss per arson fire was $6,100. Total arson was down by 1% from the 1,185 in 2009.

'Suspicious' Eliminated as a Cause of Ignition in 2001

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

[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.

more accurate description Cause of Ignition = Cause Under Investigation is used. Caution should be used when comparing arson statistics before and after 2001.

1,124 Fires with Cause Still Under Investigation
In 2010, 1,124 Massachusetts fires were still listed as Cause Under Investigation. There were 3,367 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 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 2010, 35% of the 62 reported arsons that had this field completed, occurred in vacant structures; 23% had some other crime involved; 13% were reported to have criminal or civil actions pending; another 13% reported financial problems; 10% occurred in structures that were for sale; 5% had some code violations; and 2% had recent illicit drug activity.

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 36% of the 158 reported arsons that had this field completed, the motive was thought to be from playing with or curiosity of fire. Thrills were suspected in 18% of these arsons and in 16% the motive was personal motivation. Intimidation was the suspected motivation in 8%; and in 4% of these fires suicide, attention or sympathy and auto theft concealment was the suspected motivation factor. Someone committing insurance fraud and vanity or recognition were each the suspected motivation factor in 3%; and arson was part of a domestic violence incident in 2% of these fires. Burglary concealment, labor unrest, institutional hatred, protests, homicide, and homicide concealment were each the suspected motivation factor in 1% of arsons.

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

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

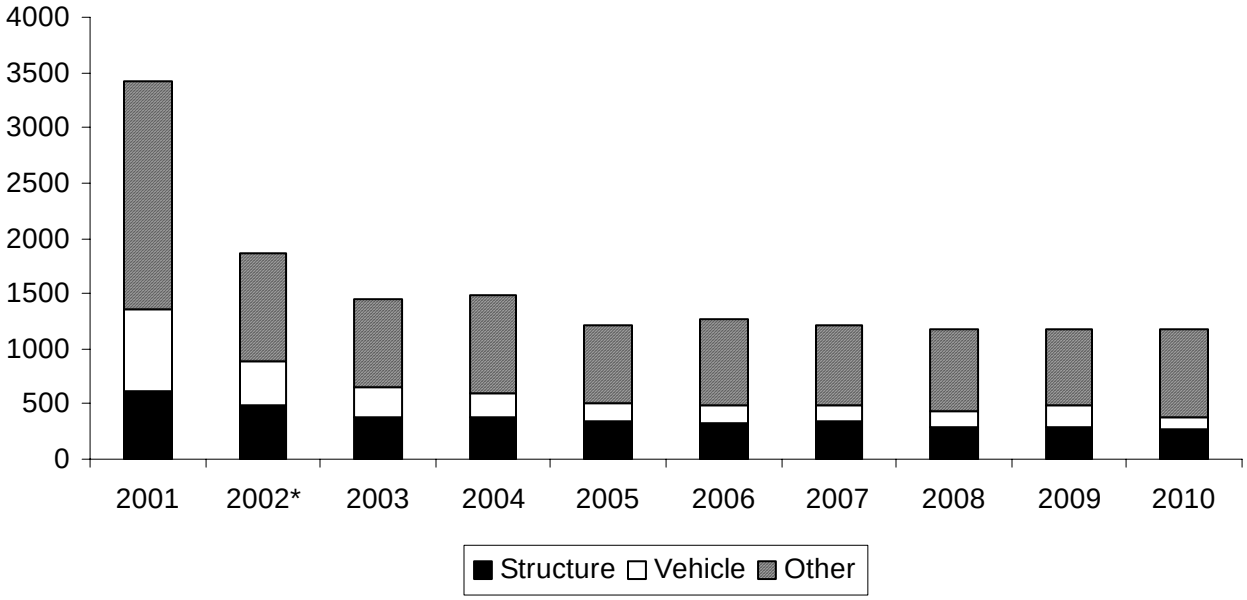
ARSONS BY YEAR

Year	Total Arsons	Structure Arsons	% All Arsons	Vehicle Arsons	% All Arsons	Other Arsons	% All Arsons
2010	1,169	268	23%	115	10%	786	66%
2009	1,185	295	25%	189	16%	701	59%
2008	1,182	283	24%	151	13%	748	64%
2007	1,215	350	28%	131	11%	734	61%
2006	1,265	325	26%	159	13%	781	62%
2005	1,234	343	28%	184	15%	707	57%
2004	1,477	373	26%	227	15%	877	59%
2003	1,491	381	26%	280	19%	830	56%
2002*	1,867	488	26%	395	21%	991	53%
2001	3,426	620	18%	743	22%	2,063	60%

*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 chart on the next page 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 22% of arson fires in 2001 but only 10% of the total reported arson fires in 2010. 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.

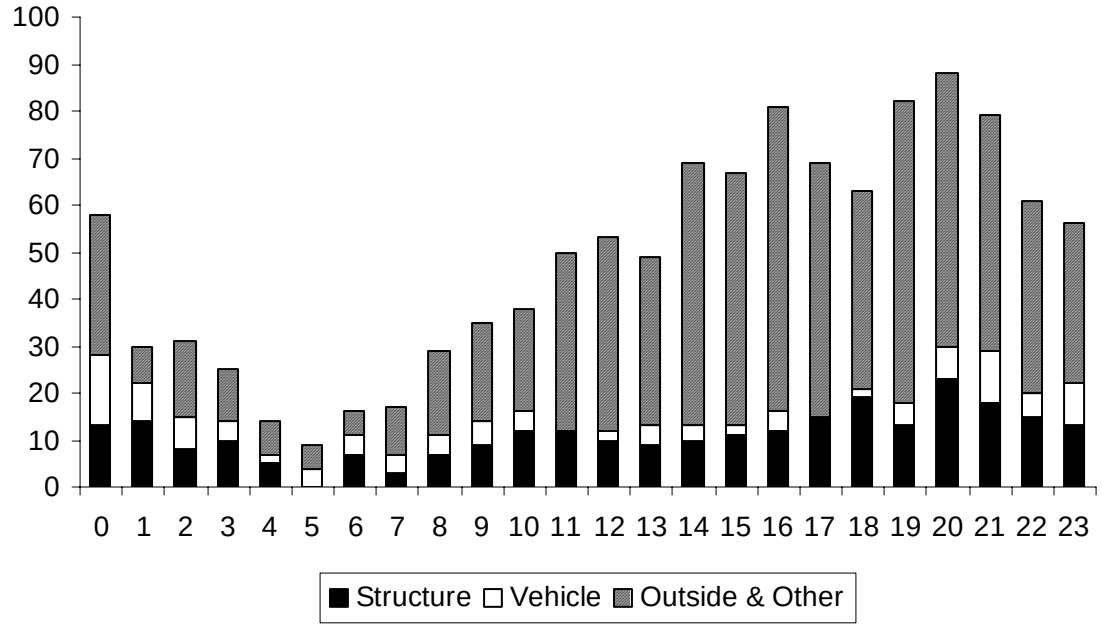
Arson by Incident Type 2001 - 2010



For instance, outside and other arsons numbered 2,063 in 2001 and 786 in 2010. While we have a huge drop in the total numbers of reported outside and other arsons, the ratio or percentage of outside and other arsons to total arsons has remained at or above 50%.

The following chart illustrates the types of arsons by the time of day they occur. Midnight to 1:00 a.m. is represented by 0, 1:00 a.m. to 2:00 a.m. is represented by 1, etc. Arson is most likely to occur between the hours of 2:00 p.m. to 9:00 p.m. The peak times for

Type of Arson by Time of Day



structure arsons were 5:00 p.m. and 1:00 a.m. Motor vehicle arsons were most likely to occur between 9:00 p.m. and 2:00 a.m. Outside and other arsons peaked from 2:00 p.m. to 10:00 p.m.

Structure Arson

268 Arsons, 6 Civilian Deaths, 10 Civilian Injuries, 16 Fire Service Injuries
In 2010, there were 268 reported structure arsons. They caused six civilian deaths, 10 civilian injuries, 16 fire service injuries and an estimated dollar loss of $6.4 million. These 268 incidents accounted for 1% of the 18,560 structure fires in 2010, and were down by 9% from the 295 reported structure arsons in 2009.

The six civilian deaths accounted for 17% of the total civilian death count and 21% of all structure fire deaths. The 10 civilian injuries accounted for 3% of the overall civilian injuries and 3% of all civilian injuries at structure fires. The 16 fire service injuries accounted for 3% of the total fire service injuries and 3% of the injuries firefighters sustained at all structure fires in 2010. The estimated dollar loss for structure arsons was $6,424,112, accounting for 3% of the overall dollar loss and 4% of the estimated dollar loss in all reported structure fires. The average loss per structure arson was $23,971.

In 2010, 546 Massachusetts structure fires were still listed as Cause Under Investigation. There were 562 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 2010 there were 253 building arsons. These 253 arsons accounted for 94% of all the structure arsons in Massachusetts. These 253 building arsons caused six civilian deaths, 10 civilian injuries, 15 fire service injuries and an estimated dollar loss of $6.4 million.

60% of Building Arsons Occurred in Residences
One hundred and fifty-one (151), or 60%, of the 253 building arsons occurred in residential occupancies. Educational occupancies accounted for 25, or 10%, of these arsons. The following table shows the number of structure arsons, civilian deaths, civilian injuries, fire service injuries, dollar loss and the percentage of the total structure arsons for each occupancy type.

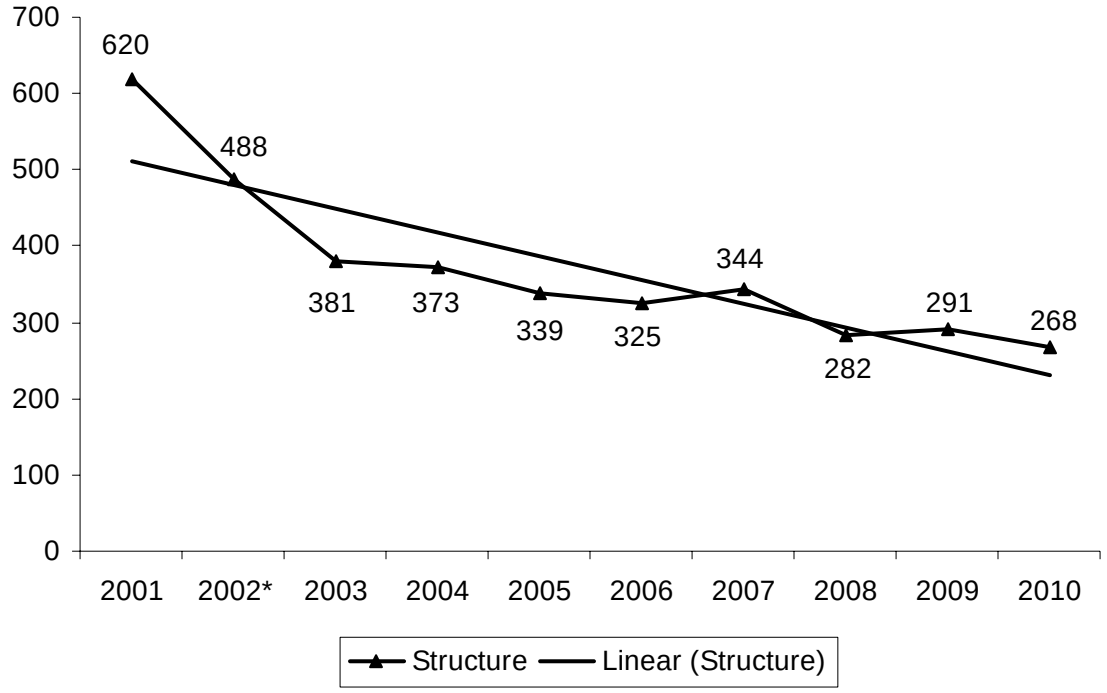
BUILDING ARSON BY OCCUPANCY TYPE

Occupancy	Building Arsons	Percent of Total	Injuries FF	Injuries Civ	Deaths FF	Deaths Civ	Dollar Loss
Assembly	16	6%	0	0	0	0	$280,600
Educational	25	10%	0	0	0	0	113,480
Institutional	10	4%	1	0	0	0	397,950
Residential	**151**	**60%**	**13**	**9**	**0**	**5**	**4,156,320**
1- & 2-Family	*74*	*29%*	*11*	*4*	*0*	*4*	*2,325,350*
Multifamily	*62*	*25%*	*2*	*5*	*0*	*1*	*1,722,470*
All Other Residential	*15*	*6%*	*0*	*0*	*0*	*0*	*108,500*
Mercantile, business	8	3%	1	0	0	0	520,000
Basic Industry	2	1%	0	0	0	0	55,000
Manufacturing	1	0.4%	0	0	0	0	10,000
Storage	20	8%	0	1	0	1	541,110
Special Properties	19	8%	0	0	0	0	2,952
Unclassified	1	0.4%	0	0	0	0	350,000
Total	**253**	**100%**	**15**	**10**	**0**	**6**	**$6,397,412**

Structure Arsons Decrease
Structure arsons decreased in 2010. These 268 arsons were a decrease of 27, or 9%, from the 295 reported in 2009.

Structure Arson Down 57% Since 2001
Structure arson has been on a downward trend since 1991 when 1,974 structure arsons were reported to MFIRS. Structure arsons have decreased by 57% since 620 were reported in 2001. The chart below shows the trend of structure arsons in the past decade.

Structure Arson by Year 2001 - 2010



*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 2010; their 2010 population according to the United States Census; the number of structure arsons reported in 2010; the rate of structure arsons per 1,000 people in 2010; and the same information for 2009. The cities are ranked by the 2010 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 Berlin had a higher structure arson rate. Although Berlin had only three structure arsons and was tied with a rank of 18th, its rate of 1.05 structure arsons per 1,000 population was the highest in the state and was over 25 times the state structure arson rate of .04 per 1,000 population.

MASSACHUSETTS CITIES WITH THE MOST STRUCTURE ARSONS IN 2010

City	Population	2010 Arsons	2010 Rate/ 1,000 Pop.	2009 Arsons	2009 Rate/ 1,000 Pop.
Berlin	2,866	3	10.5	0	0.00
Dartmouth Dist. #3	18,037	5	0.28	2	0.12
Chelsea	35,177	8	0.23	7	0.20
Seekonk	13,722	3	0.22	2	0.15
Fall River	91,938	17	0.19	16	0.17
Tewksbury	28,961	5	0.17	1	0.03
Bridgewater	26,563	4	0.15	2	0.08
New Bedford	95,072	11	0.12	14	0.15
Pittsfield	44,737	5	0.11	14	0.31
Weymouth	53,743	6	0.11	3	0.06
North Andover	28,352	3	0.11	0	0.00
Amherst	37,819	4	0.11	2	0.06
Holyoke	39,880	4	0.10	1	0.03
Leominster	40,759	4	0.10	0	0.00
Everett	41,667	4	0.10	7	0.18
Massachusetts	**6,547,629**	**268**	**0.04**	**291**	**0.05**

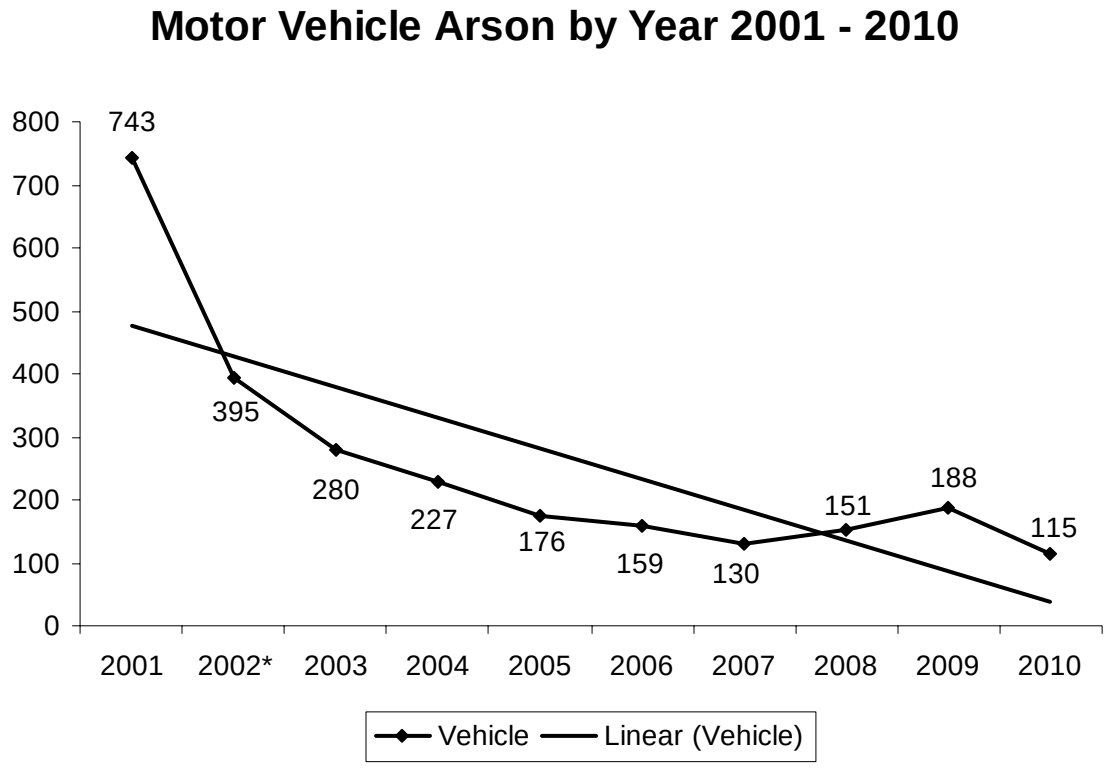
Motor Vehicle Arson

115 Arsons - $487,893 in Damages
One hundred and fifteen (115), or 4%, of the 2,967 vehicle fires were considered intentionally set in 2010. There were no reported civilian or fire service deaths or injuries in motor vehicle arsons in 2010. The estimated dollar loss in motor vehicle arsons was $487,893, accounting for less than 1% of the overall fire dollar loss and 3% of the dollar loss associated with all the 2010 motor vehicle fires. The average loss per vehicle arson was $4,243. Passenger cars and vans accounted for 81% of the 115 motor vehicle arsons.

In 2010, 307 Massachusetts motor vehicle fires were still listed as Cause Under Investigation. There were 697 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.

Motor Vehicle Arsons Decrease
Motor vehicle arsons decreased in 2010. These 115 arsons are a decrease of 74, or 39%, from the 189 reported in 2009. This is a return to the previous trend of decreasing motor vehicle arsons.

The Burned Motor Vehicle Reporting Law
The Massachusetts Fire Incident Reporting System first identified motor vehicle fires and motor vehicle arson as major problems in 1985. The Burned Motor Vehicle Reporting Law took effect in August of 1987. The law requires owners of burned motor vehicles to complete and sign a report that must also be signed by a fire official from the department in the community where the fire occurred. The graph below shows the effectiveness of this law. Since the law took effect in 1987, motor vehicle arsons have decreased by 98% from 5,116 in 1987 to 115 in 2010.



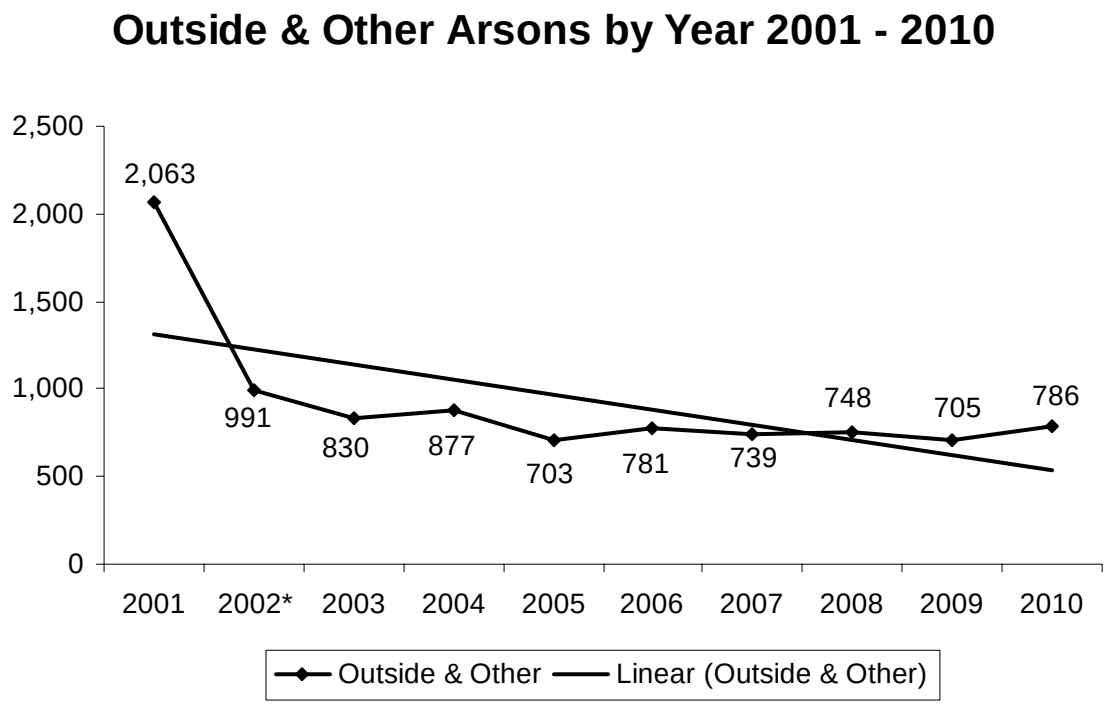
*2002 was the 1st full year of version 5 with a new definition of arson with 'suspicious' eliminated.

Outside and Other Arson

786 Arsons, 2 Civilian Deaths & 3 Civilian Injuries
Seven hundred and eighty-six (786), or 7%, of the total outside and other fires were considered intentionally set in 2010. The two civilian deaths accounted for 6% of the total civilian deaths and accounted for 67% of the civilian deaths in all outside and other fires. The three civilian injuries in outside and other arson fires accounted for 1% of the total civilian injuries and 10% of civilian injuries in all outside and other fires. The one fire service injury accounted for less than 1% of all fires and 4% of all outside and other

fires. The estimated dollar loss for these arsons was $219,120. The average loss per outside and other arson was $279.

In 2010, 271 outside and other fires were still listed as 'Cause Under Investigation.' There were also 2,107 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 10 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 Rise

Outside and other arsons were the only group of arsons to increase in 2010. These 786 arsons are an increase of 85, or 12%, from the 701 reported in 2009. Brush arsons increased by 73, or 20%; outside rubbish arsons decreased by 26, or 21%; special outside arsons increased by 21, or 17%; cultivated vegetation or crop arsons increased by three, or 100%; and unclassified arsons increased by 14, or 18%, from those reported in 2009.

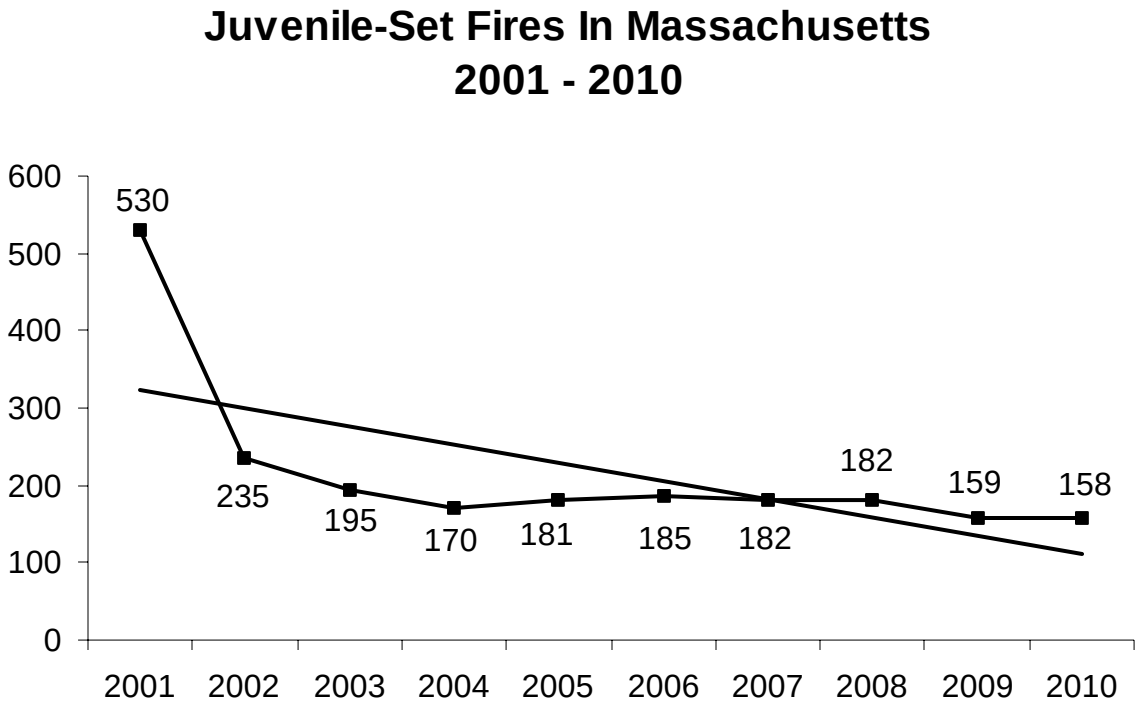
Plymouth & Boston Had Largest Loss Arsons in 2010

- On October 4, 2010, at 8:41 p.m., the Plymouth Fire Department was called to an intentionally set fire at the federal probation office. A Brockton man with an apparent grudge against federal authorities broke a window and poured an ignitable liquid inside the building and ignited it. 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.

Juvenile-set Fires

Children Playing With Fire Caused 158 Fires, 7 Civilian Injuries & $2.7 Million

In 2010, children playing[58] with matches, lighters and other heat sources caused 158 reported fires, seven civilian injuries, two fire service injuries and an estimated dollar loss of $2.7 million. The average dollar loss per fire was $16,834. These fires were down by 1% from 189 incidents in 2009. Over the past decade however, there has been an overall downward trend in juvenile-set fires.



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

3/4 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 2010, five of the juveniles had mild curiosity about fire, six youths had moderate curiosity about fire, and two juveniles had an extreme curiosity about fire. The leading family type was the two-parent family followed by the single-parent family. When age was given, the majority of the subjects were between 12 and 17 years old. When gender was completed, 75% of the children were listed as males.

59 Structure Fires – 2 Motor Vehicle Fires – 97 Outside & Other Fires

The 158 fires set by children and youth included: 59 structure fires, 64 brush, tree or grass fires, 16 special outside fires, seven outside rubbish fires, two motor vehicle fires, one cultivated crop or vegetation fire, and nine fires that could not be classified further.

Juvenile-set Structure Fires Cause 7 Civilian Injuries & $2.7 Million in Damages

Seven (7) civilian injuries and two fire service injuries occurred in the 59 structure fires set by juveniles. Juvenile-set structure fires caused an estimated dollar loss of $2.7 million with an average dollar loss of $45,034 per fire.

Forty-three percent (43%) of the 58 building fires caused by juveniles occurred in multifamily homes; 22% occurred in one- or two-family homes; 7% occurred in high schools, junior high schools or middle schools, with another 5% occurring in elementary schools. Twenty-eight percent (28%) of the juvenile-set fires started in the bedroom; 7% began in the kitchen; and bathrooms, living rooms, interior stairways and unclassified function rooms were the area of origin in 5% of these fires.

61% of Structure Fires Set by Juveniles Using Smoking Materials

Sixty-one percent (61%) of juvenile-set fires were started by smoking materials[60]. Thirty-four percent (34%) of the structure fires set by children were started with lighters. Twenty-six percent (26%) of the structure fires were started using matches. Undetermined smoking materials caused 1% of these fires. Fireworks and unclassified open flames were each the heat source for 9% of juvenile-set fires in 2010. Radiated or conducted heat from operating equipment and unclassified hot or smoldering objects were each the cause in 4% of the juvenile-set fires. Hot embers or ashes and incendiary devices each caused 2% of these fires. This demonstrates a need for education to both parents and children on the danger of matches and lighters, the use of illegal fireworks and safe candle use.

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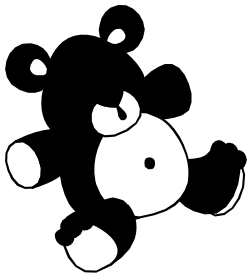
[59] Please note that the USFA determines the codes for the NFIRS. Discussing juvenile firesetting in terms of mild, moderate & extreme curiosity is out of step with today's way of looking at the behavior that looks at a range of motivations from curious, to crisis, to delinquent and in some cases, to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

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

Child with Lighter Sets Home on Fire



- On July 22, 2010, at 2:23 p.m., the Lawrence Fire Department was called to a fire at a four-unit apartment building caused by a child playing with matches. No civilians were injured, but one firefighter was hurt at this fire. Smoke detectors were present and alerted the occupants; but the building was not sprinklered. Damages were estimated to be $300,000. This was one of the largest loss juvenile-set fires in Massachusetts in 2010.

Parents and Caregivers Must Protect Children from Themselves

Parents and caregivers must take steps to protect their children from the dangers of fire.

- Make sure that all matches and lighters are stored out of children's reach.
- If you need a lighter, buy one that is child resistant. Since 1994, all disposable butane lighters and most novelty lighters are required to be able to resist the efforts of 85% of children under five who try to operate them in a specified test. Some are easier to use than others. If one brand is cumbersome, switch to another. *Do not disable the child-resistant feature.*
- Supervise young children at all times. Teach children the safe uses of fire, including birthday candles and barbecuing. When a child is old enough, let him or her light the candles while you watch. It is only safe for children to use fire when adults are present.

- If your child seems overly curious about fire or has set a fire, call your local fire department and ask if they have a juvenile firesetting intervention program. Don't assume the child will 'grow out of it.' Juvenile firesetting is dangerous and must be addressed.
- Parents who smoke should keep their lighters on their person at all times, not on the table or in a purse.
- Fireworks are illegal in Massachusetts. Adults should leave the fireworks to the professionals in order to protect everyone's children.

Tip of the Iceberg

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

Cooking Fires

Cooking Caused 11,612 Fires, 1 Civilian Death & 103 Civilian Injuries
Unattended cooking, other unsafe cooking practices and defective cooking equipment caused 11,612 fires, one civilian death, one fire service death, 103 civilian injuries, 36 firefighter injuries and an estimated dollar loss of $8.2 million. The average dollar loss per fire was $710. Cooking fires accounted for 36% of the total 32,680 fires that occurred in 2010.

Ninety-nine percent (99%) of the fires caused by cooking occurred in structures. The 11,612 fires included: 11,451 structure fires, 73 special outside fires, two brush fires, two outside rubbish fires, one motor vehicle fire, and 83 fires that could not be classified further.

Confined Cooking Fires Accounted for Over 1/3 of Total Fires
There were 10,997 cooking fires confined to a non-combustible container. These 10,997 fires represent 34% of the total 32,680 fires that occurred in Massachusetts in 2010. This is the largest single cause of fires in Massachusetts. Confined cooking fires increased by 2% from the 10,812 reported in 2009.

82% of Cooking Fires in Buildings Were Unintentional
In 921, or 82%, of the 1,121 cooking fires in building fires where the 'Cause of Ignition' was reported, it was reported as unintentional. Six percent (6%) of these fires were the result of a failure of equipment or heat source. Two percent (2%) of the reported cooking fires were classified as intentional. In 9% of cooking fires, the cause of ignition was undetermined. Ten thousand three hundred and eighteen (10,318), or 89%, of all cooking fires were fires contained to non-combustible containers that did not require having a cause reported.[61]

Unattended Cooking Starts 10% – Stand by Your Pan!
Human error was responsible for the majority of cooking fires. Ten percent (10%) of cooking fires, where 'Factors Contributing to Ignition' was completed, were caused by unattended cooking; 4% were caused by the misuse of materials or products; 3% were caused by combustibles left too close to the cooking equipment; another 3% each started when the equipment was accidentally turned on or not turned off and a failure to clean the cooking equipment; abandoned or discarded cooking materials, and unclassified mechanical failures or malfunctions each caused 2% of these fires. Ninety percent (90%) of cooking fires were confined fires where this data is not collected.

[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 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.

Cooking Was the Leading Cause of Injury in Fires in 2010
Cooking was the leading cause of injury in all types of fires in 2010. This is not surprising considering that 68% of residential fires start in the kitchen. Of the 103 cooking fire injuries, 52% of victims were male and 48% were female. Six percent (6%) of victims were under the age of 10; 3% of the victims were between the ages of 10-14; 14% were 15-24; 14% were 25-34; 14% were 35-44; 16% were 45-54; 17% were 55-64; 8% were 65-74; 6% were 75-84; and 5% were over the age of 85. People aged 25 to 54 accounted for 43% of the people injured in cooking fires.

82% of Victims in Room or Area of Fire Origin
Of the 88 cooking fire injuries where location at ignition is known 82% of the victims were injured in the room or area of fire origin. Fifty-three percent (53%) were intimately involved with the ignition; 28% of victims were in the room or space of fire origin but not involved; 5% were not in the area of origin but involved, most likely these are the people who initially left the cooking unattended; and 14% 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 82 cooking fire injuries for which activity at the time of injury was known, 65% of victims were attempting to control the fire; of the 53 victims injured while attempting to control the fire 57% were male. Seven percent (7%) of the victims of cooking fire injuries were escaping; 6% were sleeping at the time of injury; 4% were unable to act; 1% were injured making a rescue attempt; 1% were attempting to return to the vicinity of the fire before the fire was under control; another 3% acted irrationally; and 15% 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 93 cooking fire injuries where nature of injury was known, 33% suffered only from smoke inhalation, breathing difficulty or shortness of breath; 13% suffered from burns and smoke inhalation; 41% of victims suffered only from thermal burns; and 9% received scald burns.

1 Civilian Fire Death in 2010
While cooking is the leading cause of residential building fires, it is not the leading cause of fire deaths. There was only one civilian fire death attributed to cooking fires in 2010.

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.

- **Put a lid** on a grease fire to smother it, and then turn off the heat.
- 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 6% of Fires and 28% of Deaths

During 2010, 1,862, or 6%, of the 32,680 reported fire incidents were caused by the improper use or disposal of smoking materials. These 1,862 fires caused 10, or 28%, of the 36 civilian deaths and 10, or 36%, of the 28 structure fire deaths, 36 civilian injuries, 42 fire service injuries, and an estimated dollar loss of $14.7 million. The average dollar loss per fire was $7,903. The number of smoking fires increased by 671, or 56%, from 1,192 in 2009.

576 Structure Fires - Up From 404 in 2009

The 1,862 fires caused by smoking included: 576 structure fires, up by 172 from 404 in 2009; 25 motor vehicle fires, down by 17 from 42 in 2009; 946 tree, brush or grass fires, up by 407 from 539 in 2009; 78 trash or rubbish fires, up by 16 from 62 in 2009; 114 special outside fires, up by 54 from 60 in 2009; eight cultivated vegetation or crop fires, up by six from two in 2009, and 115 fires that could not be classified further, up 32 from 83 in 2009.

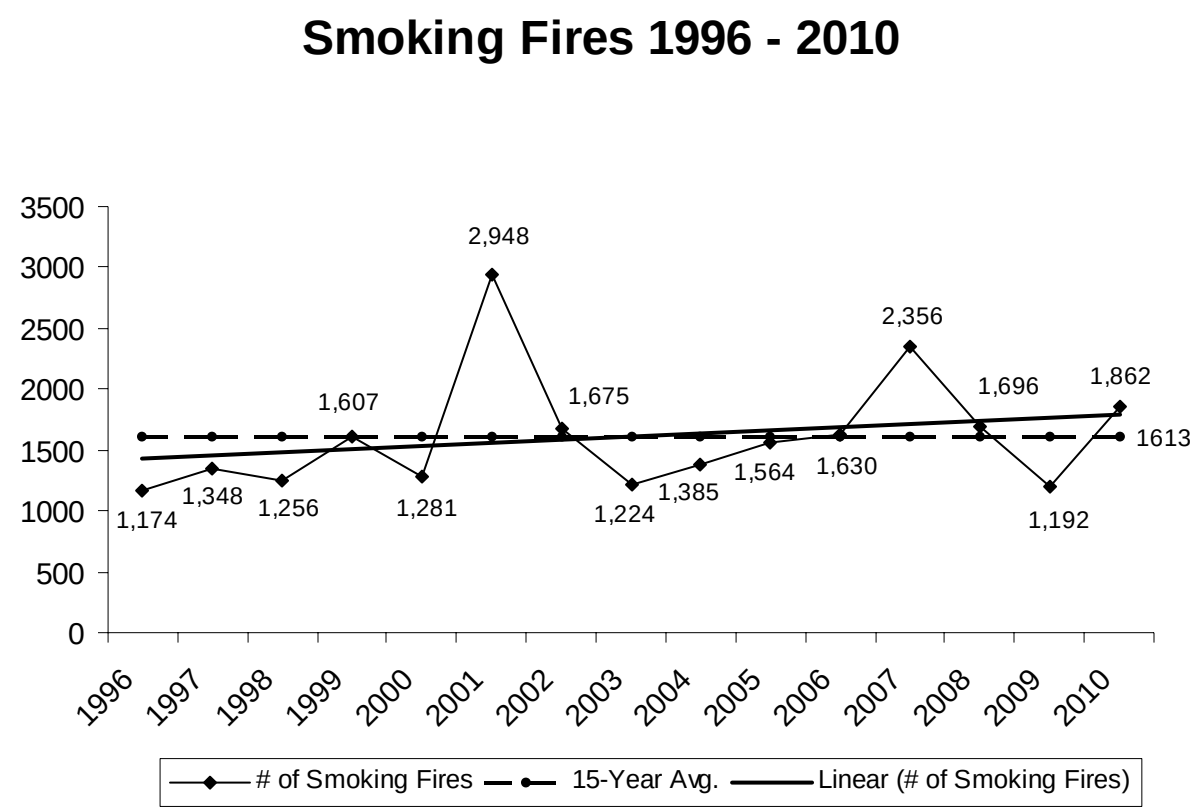
The total number of fires caused by smoking has increased by 670, or 56%, from 2009. The largest increase came in brush fires, with an increase of 407, or 76%, from the 539 reported in 2009. Structure fires also saw a significant increase in fires started by smoking materials. They increased by 172, or 43%, from the 403 reported in 2009.

It is interesting to note that half of all residential smoking fires started outside the home, not inside. Historically the bedroom and living room are where most smoking fires have started.

This rise in smoking-related fires is the first increase since the Fire Standard Compliant (FSC) cigarette legislation went into effect. It is important to look beyond total fires to

which type of fires are driving the increase and whether or not FSC cigarettes can impact these fires.

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 the one-year spike in 2007. The 2009 number is the lowest number of recorded smoking fires on record since 1986 and is far below the 15-year average or 1,605 smoking fires. In 2010, the weather conditions were dry and made it easier for brush type fires to get started as we can see in the 76% increase statewide in brush fires.

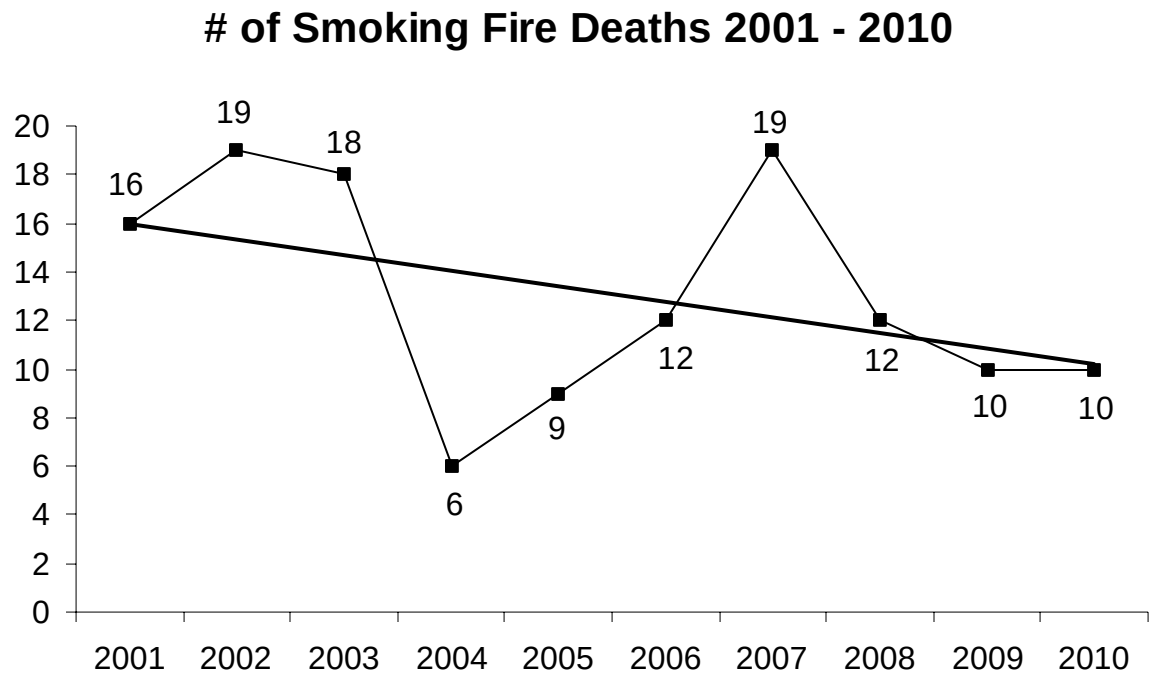


85% of All Smoking Building Fires Occurred in Residences
Eighty-five percent (85%) of all smoking-related building fires occurred in residential occupancies. The occupancies with the next highest percentages of smoking-related structure fires in Massachusetts in 2010 were public assembly facilities at 4% and businesses and special properties each accounting for 3%.

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

Smoking is the Leading Cause of Fire Deaths - Elders at Risk
The 576 smoking-related structure fires caused all 10 of the smoking-related fire deaths, 31 civilian injuries, 40 fire service injuries, an estimated dollar loss of $14.6 million and an average dollar loss of $25,285. Smoking fires accounted for 38% of the fatal structure fires and 36% of structure fire deaths in 2010. The unsafe and improper use of smoking materials caused 40% of residential structure fire deaths and 43% of fatal residential structure fires. Six (6), or 60%, of the 10 home fire deaths to seniors (over 65) were caused by smoking.

2010 Smoking Fire Deaths
In 2010, 10 people died in smoking-related fires of all types. These 10 deaths are 24% below the 10-year average of 13 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 and 2008, 12 people died in smoking-related fires of all types; and in 2009 there were 10.



No Working Detectors in 22% of Fatal Smoking Fires
In two, or 22%, of fatal residential smoking fires, there were no working smoke detectors; one of these incidents occurred where smoke detectors did not operate; and one of these deaths occurred where there were no detectors present at all. Five (5) smoking fatal fires occurred in a structure where smoke detectors were present and operated. However, four of these victims were intimately involved with the ignition. The smoke detectors helped prevent these fires from claiming any additional lives. In the two other

fires, the smoking-related deaths occurred where smoke detector status was undetermined.

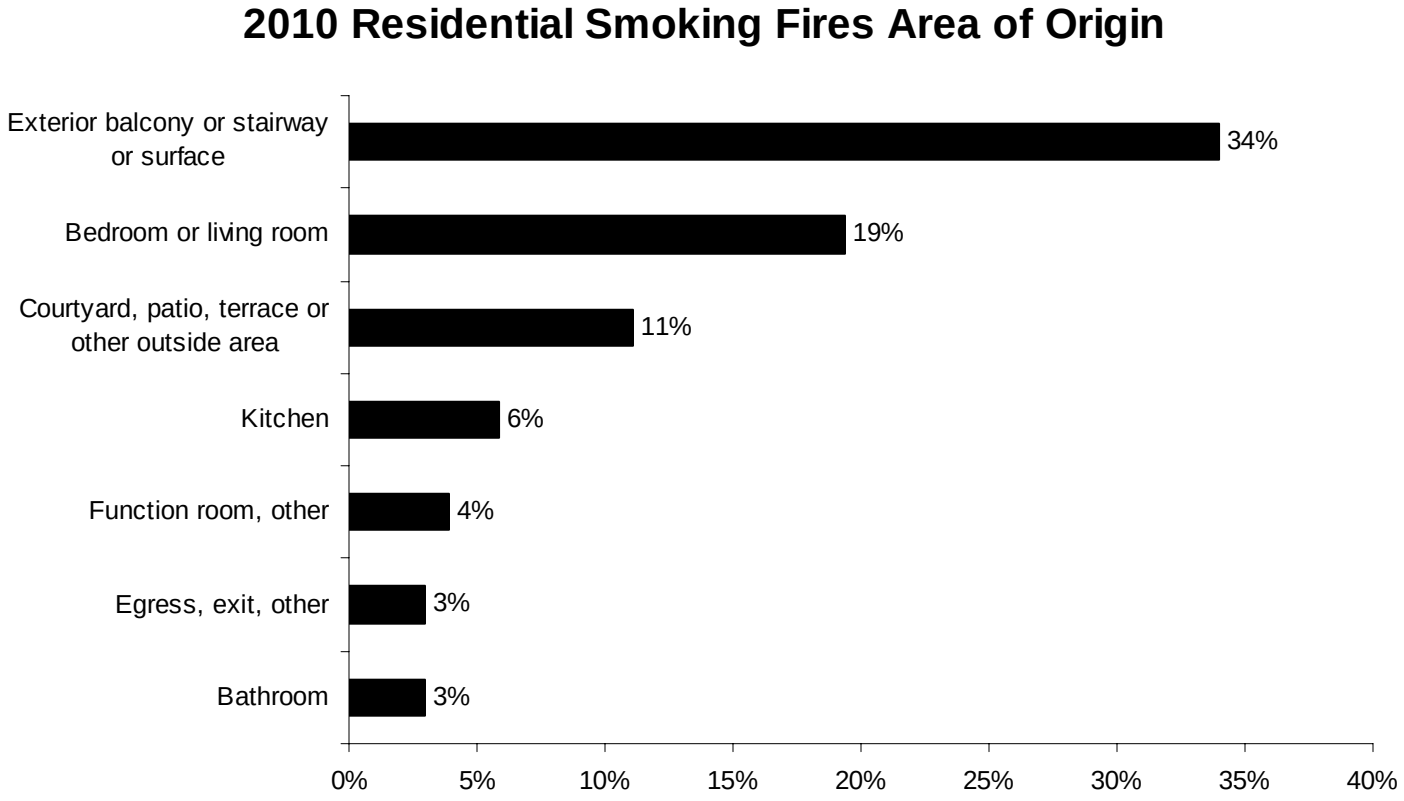
For a listing of all the smoking-related fire deaths in 2010, please refer to the *2010 Massachusetts Fire Deaths* section of this report.

Smoking on Oxygen
The use of oxygen while smoking caused three of the smoking-related structure fire deaths in 2010. These three deaths occurred in three separate fires in Worcester, Lynn and Springfield. Two (2) of these deaths occurred in single-family homes, and the third occurred in an apartment building.

85% of Building Smoking Fires Occurred in Residences
Of the 539 smoking-related building fires, 459, or 85%, occurred in residences. Smoke detectors operated in 41% of the smoking-related residential structure fires. Detectors were present but failed to operate in 6% of these incidents. No smoke detectors were present in 9% of these incidents. In 18%, the fire was too small to activate the smoke detector. It was undetermined if the detectors were present or if they operated in 26% of these fires.

1/2 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 2010. These exterior areas of origin accounted for 229, or 50%, 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 2009, only 44% of residential smoking fires started in these exterior areas.

The leading areas of origin were exterior balconies or porches, where 19% of residential smoking fires occurred; bedrooms, where 12% of the fires occurred; living rooms, where 8% of the fires occurred; exterior wall surfaces and exterior stairways where each accounted for 7%; kitchens and unclassified outside areas, where each accounted for 6%; courtyards, patios or terraces accounted for 5%; unclassified function rooms were the area of origin for 4% of residential smoking fires; and egresses or exits and bathrooms each accounted for 3% of these fires. This is the third year in a row where bedrooms were not the leading area of origin for smoking fires.



Fire Standard Compliant Cigarettes

In January 2010, the Fire Standard Compliant (FSC) Cigarette legislation or 'fire safe cigarette' law, making it mandatory for cigarette manufacturers to start selling only the fire standard compliant type of cigarettes in Massachusetts took effect. There is no federal standard for self-extinguishing cigarettes despite nearly 20 years of proposed legislation. 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]. On January 1, 2011, every state except Wyoming had implemented their own state law banning the sale of ordinary cigarettes with Wyoming's law taking effect on July 1, 2011.

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

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

Smoking Fires Ignite Rubbish, Bedding & Upholstered Furniture
The most common item first ignited by smoking fires in the home was rubbish, trash or waste, accounting for 15% of these smoking fires. Many more of these fires go unreported because of the confined indoor trash fires where the Fire Module does not have to be completed and therefore no causal information is collected. Also the new fire standard cigarettes may have little or no impact on trash fires, as they are not designed to resist igniting these items. Fifteen percent (15%) of smoking fires ignited upholstered furniture and bedding. Fire standard compliant cigarettes cannot prevent every cigarette from causing a fire, and not every smoking fire is caused by a cigarette.

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

Smokers Should Always Use Non-Flammable Ashtrays or Containers
Until they can quit, smokers should use deep ashtrays, store ashes in metal containers and never smoke in bed. Families should consider banning smoking inside the house for health and fire safety reasons. Children of smokers often have easy access to matches and lighters. Adults must keep these tools out of the reach of small children. If smokers are going to smoke on an exterior balcony, deck or porch, they should also be using an appropriate metal or other non-combustible container to collect the ashes and properly extinguish their smoking materials. In 2010, 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.

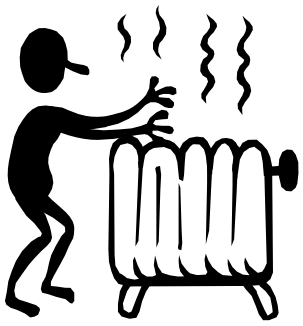
Never Smoke Where Oxygen is in Use
No smoking should ever be permitted in a home where oxygen is in use. The oxygen-enriched environment increases the speed at which the fire will burn once it starts. "Most materials will ignite at considerably lower temperatures in oxygen-enriched environments than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

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

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

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

Heating Equipment Fires



2,619 Fires, 3 Civilian Deaths & 11 Civilian Injuries
Massachusetts fire departments reported that some form of heating equipment was involved in 2,619, or 14%, of the 18,415 building fires in 2010. These heating equipment fires caused three civilian fire deaths, 11 civilian injuries, 13 fire service injuries, and an estimated dollar loss of $5.6 million. The average loss per fire was $2,157. This is a 3% decrease from the 2,699 fires reported in 2009.

94% of All Heating Fires Were Confined Fires
In 2010, 94% of heating fires were confined to the container of origin. One thousand six hundred and thirty (1,630), or 62% of all heating related building fires in Massachusetts, were coded as ‘fuel burner/boiler malfunction, fire contained’. Eight hundred and thirty-nine (839), or 32%, were determined to be chimney or flue fires, confined to the chimney or flue.

The number of contained heating fires fell in 2010. Confined heating equipment fires decreased by 55 incidents, or 2%, from the 2,524 reported in 2009.

Types of Heating Equipment
Only one type of equipment per fire incident may be reported to MFIRS. Consequently, the totals for specific types of equipment, should, in many cases, be considered underestimates. For example, sparks from a wood stove may ignite a fire in the chimney. The recorded equipment involved might be either the chimney or the wood stove, but not both. When a fire results from an extension cord overloaded by the demands of a portable heater, the extension cord might be recorded instead of the heater.

The following table shows the number of fires caused by each of the leading types of heating equipment, the percentage of heating equipment fires for each type of equipment,

the number of civilian and fire service deaths and injuries, and the estimated dollar loss for each type of heating equipment.

HEATING EQUIPMENT FIRES

Equipment	# of Fires	% of Heat Eq.	Injuries FF	Injuries Civ	Deaths FF	Deaths Civ	Dollar Loss
Central heating units	1,645	63%	3	1	0	1	$1,592,945
Confined	*1,630*	*62%*	*2*	*3*	*0*	*0*	*262,545*
Furnace, central heating unit	*8*	*0.3%*	*1*	*1*	*0*	*1*	*1,313,500*
Boiler (power, process, heating)	*7*	*0.3%*	*0*	*0*	*0*	*0*	*52,000*
Chimney, flue	849	32%	4	0	0	0	899,050
Confined	*839*	*32%*	*2*	*0*	*0*	*0*	*135,450*
Chimney, brick, stone, masonry	*3*	*0.1%*	*1*	*0*	*0*	*0*	*350,000*
Chimney, metal, incl. stovepipe	*3*	*0.1%*	*1*	*0*	*0*	*0*	*189,000*
Fireplace, chimney, other	*3*	*0.1%*	*0*	*0*	*0*	*0*	*225,000*
Chimney connector, vent connect.	*1*	*0.04%*	*0*	*0*	*0*	*0*	*11,000*
Fixed, local heating	40	2%	0	2	0	1	1,012,850
Stove, heating	*37*	*1%*	*0*	*2*	*0*	*1*	*984,800*
Furnace, local heat. unit, built-in	*3*	*0.1%*	*0*	*0*	*0*	*0*	*28,050*
Water heater	8	0.3%	0	0	0	0	21,550
Fireplace	20	1%	0	2	0	1	646,000
Fireplace, masonry	*7*	*0.3%*	*0*	*0*	*0*	*0*	*117,000*
Fireplace insert/stove	*13*	*0.5%*	*0*	*2*	*0*	*0*	*529,000*
Space heaters	22	1%	5	3	0	0	981,450
Portable space heaters	*9*	*0.3%*	*5*	*3*	*0*	*0*	*721,400*
Heating, vent. & air cond., other	31	1%	0	0	0	0	368,750
All other reported equipment	4	0.2%	1	3	0	0	494,750
Total	**2,619**	**100%**	**11**	**13**	**0**	**3**	**$5,648,595**

Central Heating Units

1,645 Fires, 1 Civilian Death & 4 Civilian Injuries

Central heating units[64] were involved in 1,645 structure fires in 2010. These fires caused one civilian death, four civilian injuries, three fire service injuries, and an estimated dollar loss of $1.6 million. The average loss per fire was $990. This is a 27% decrease from the 99 fires reported the previous year. One thousand six hundred and thirty (1,630) of these fires involving central heating units were confined fires.

[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.

11% Caused by Mechanical Failures or Malfunctions
Of the 166 central heating unit fires where *Factors Contributing to Ignition* was completed, 11% were caused by mechanical failures or malfunctions; 5% were caused by automatic control failures; 4% were caused by backfires; 3% were caused by a failure to clean the equipment; and 2% each were caused when combustibles were placed too close to the heater, a leak or break, and an installation deficiency.

Twenty-nine (29), or 40%, of the 72 central heating unit fires where the power source was known, were caused by liquid-fueled equipment. These fires caused one civilian death, three civilian injuries and an estimated dollar loss of $473,350. The average loss per fire was $16,322.

Twenty-two (22), or 31%, of these fires were caused by electrically powered equipment[65]. Sixteen (16), or 22%, of the central heating unit fires were caused by gas-fueled equipment; and five, or 7%, 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

849 Fires Caused 4 Fire Service Injuries & $910,450 in Damages
Eight hundred and forty-nine (849) building fires involved chimneys[66], gas vent flues, chimney connectors or vent connectors. These 849 fires caused four fire service injuries and an estimated dollar loss of $910,450. The average dollar loss per fire was $1,072. This is a 54% decrease from the 68 fires reported the previous year.

Eight hundred and thirty-nine (839) of these chimney or flue fires were confined to the chimney or flue. In 794 of these fires the *Equipment Involved in Ignition* wasn't reported or they were reported using only a Basic Module.

Twenty-five percent (25%) of the 145 fires where *Factors Contributing to Ignition* was reported, were caused by a failure to clean the creosote buildup. Two percent (2%) were

[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.

caused when combustibles were too close to the chimney or flue; another 2% were caused by unclassified mechanical failures or malfunctions; and 2% were caused by operational deficiencies.

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 a chimney fire.

Fixed Heater Fires

59 Fires, 1 Civilian Death, 5 Civilian Injuries & $1 Million in Est. Losses
Fifty-nine (59) fixed heater structure fires caused one civilian death, five civilian injuries, and an estimated dollar loss of $1 million. The average dollar loss per fire was $17,503. This is a 23% decrease from the 77 fires reported the previous year.

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

8% Caused by Failure to Clean
Eight percent (8%) of fixed heater fires were caused by a failure to clean the equipment. Combustibles being too close to the heat source, unattended equipment and unclassified mechanical failures each caused 7% of these fires. The equipment being accidentally turned on and not turned off caused 3% of the fixed heater fires in 2010.

Electrical powered fixed heaters caused 22, or 39%, of these fires and were responsible for one civilian injury and a dollar loss of $184,750. Ten (10), or 18%, 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. Twenty (20), or 36% of fixed heater fire incidents in 2010, involved solid fueled fixed heaters, 18 of which were wood fueled. These fires caused one civilian death, one civilian injury and an estimated dollar loss of $605,600. The average dollar loss per fire was $30,280. There were four fires where the power source of the fixed heater was liquid fueled. These four fires caused three civilian injuries and an estimated dollar loss of $6,500.

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

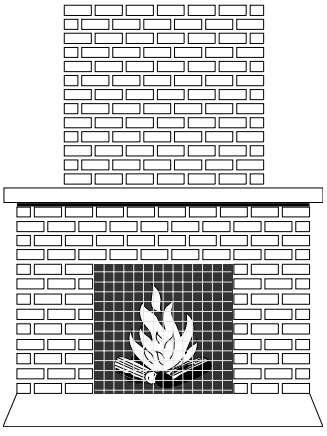
Fires Caused by Hot Water Heaters

12 Fires & $27,050 in Damages
Twelve (12) structure fires were caused by hot water heaters[67] in 2010. These 12 fires caused an estimated dollar loss of $27,050. The average dollar loss per fire was $2,254. The same number of hot water heater fires were reported in both 2010 and 2009. Unattended equipment, the equipment being accidentally turned on and not turned off; a short circuit caused by water, and an unclassified failure or malfunction of the water heater each caused 8% of these fires. Twenty-five percent (25%) were started by arcing. Sparks, embers or flames from operating equipment and radiated or conducted heat from operating equipment each ignited 17% of these fires.

Fifty percent (50%) were identified as gas fueled water heaters, and another 50% were identified as electric powered water heaters.

Fires Caused by Fireplaces

20 Fires, 1 Civilian Death & 2 Civilian Injuries
Twenty (20) fireplaces[68] were involved in Massachusetts structure fires in 2010. These 20 fires caused one civilian death, two civilian injuries, and an estimated dollar loss of $646,000. The average dollar loss per fire was $32,300. This is an 18% increase from the 17 fires reported the previous year.



[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 and construction deficiencies each caused 20% of fireplace fires. Ten percent (10%) were caused when combustibles were placed too close to the fireplace.

Sixteen (16), or 80%, of fireplaces involved in fires were solid-fueled. Four (4), or 20%, of these fireplaces were gas fueled.

Space Heater Fires

22 Fires, 3 Civilian Injuries, 5 Fire Service Injuries & $981,450 in Losses
Space heaters of all kinds accounted for 22 fires and caused three civilian injuries, five fire service injuries, and an estimated dollar loss of $981,450. The average dollar loss per fire was $44,611. This is a 22% increase from the 18 fires reported the previous year.

Portable Space Heater Fires

9 Fires, 3 Civilian Injuries, 5 Fire Service Injuries & $721,400 in Losses
Nine (9) portable space heater[69] fires caused three civilian injuries, five fire service injuries and an estimated dollar loss of $721,400. The average dollar loss per fire was $80,156. This is a 10% decrease from the 10 fires reported the previous year. The heater being too close to combustibles caused 33% of these fires. An arc from a faulty contact caused 11% of the space heater fires in 2010.

Eight (8), or 89%, of the portable heaters involved in fires were electric and it was undetermined what the power source was in one, or 11%, of these fires.

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 (2006– 2010), there have been 59 reported residential fires started by portable space heaters with eight civilian deaths, nine civilian injuries, 18 fire service injuries and $3.5 million in estimated losses resulting from these fires. That is equal to 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.
- 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.

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

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

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

Fires Caused by HVAC, Other

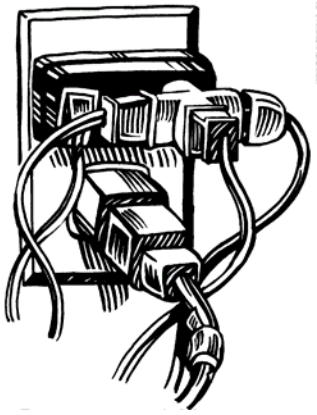
37 Fires & $369,750 in Damages
Thirty-seven (37) structure fires were caused by unclassified heating, ventilation and air conditioning equipment (HVAC, other)[70] in 2010. These 37 fires caused an estimated dollar loss of $369,750. The average dollar loss per fire was $9,993. This is a 12% decrease from the 45 fires reported the previous year.

Combustibles placed too close to the equipment caused 19% of these fires, and unclassified mechanical failures were responsible for 16%. Worn out equipment, collisions, improper startup or shutdown procedures and high water each caused 3% of these fires.

Fifty-seven percent (57%) of the 37 fires involving unclassified heating, ventilating or air conditioning equipment were identified as electric powered. Twenty-seven percent (27%) were identified as gas-fueled equipment; 14% were identified as liquid-fueled equipment; and 3% were powered by solid fuels.

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

Electrical Fires



690 Electrical Fires Caused 4 Civilian Deaths
Local fire departments reported that there were 690 structure fires caused by electrical problems in Massachusetts in 2010. These fires caused four civilian deaths, one fire service death[71], 34 civilian injuries, 89 fire service injuries and an estimated dollar loss of $30.1 million, accounting for 15% of the total dollar loss to fire in 2010. The average loss per fire was $43,583.

Electrical Fires Were 3rd Leading Cause of Fire Deaths
Electrical fires were the third leading cause of structure fire deaths in 2010. Two (2) fatal electrical fires, or 22% of fatal structure fires, caused four, or 14%, of structure fire deaths in 2010[72]. 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 Over 1/4 of Electrical Fires[73]
Over one-quarter of electrical fires were caused by unspecified electrical failure. One hundred and ninety-six (196), or 28% of electrical fires, were caused by an unclassified electrical failure or malfunction. Eighty-eight (88), or 13%, were caused by an unspecified short circuit arc. Eight percent (8%), or 52 of these fires, had a short circuit arc from defective or worn insulation. Thirty-one (31), or 4%, of electrical fires were caused by an arc from a faulty contact or broken conductor. An arc or spark from operating equipment caused 23, or 3%, of these fires. Mechanical failures caused 19, or 3%, of these electrical fires. Eighteen (18), or 3%, of electrical fires were caused by a short circuit arc from mechanical damage. Two percent (2%), or 16 of these fires, were caused by overloaded equipment. The heat source being too close to combustibles caused 15, or 2%, of these fires. Water caused a short circuit arc in another 15, or 2%, of electrical fires in 2010.

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[71] This death was to a member of a mutual aid fire department that died from a cardiac episode hours after the fire at his home.

[72] There was also one outside electrical fire that killed one civilian.

[73] *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

Two hundred and sixty-one (261), or 38%, of the 690 electrical fires reported the type of equipment involved in ignition. These 261 fires caused 17 civilian injuries, 35 fire service injuries and an estimated dollar loss of $9 million. The average dollar loss per fire was $34,407.

84 Electrical Service, Wiring, Meter Boxes & Circuit Breaker Fires
The most common reported equipment involved in the ignition of electrical fires were electrical service, outside utility wires, branch circuits consisting of wiring inside a building, meter boxes, electrical panels and circuit breakers, accounting for 84, or 32%, of the fires. These fires caused five civilian injuries, 19 fire service injuries and an estimated dollar loss of $4.8 million. The average dollar loss per electrical wiring fire was $57,054.

Lamp & Lighting Fixtures Involved in 45 Fires
Lamps and other lighting fixtures were involved in 45, or 17%, of electrical equipment fires where equipment involved in ignition was reported. These fires caused nine fire service injuries and an estimated dollar loss of $1.4 million. The average loss per fire was $32,066.

30 Fires Involving Kitchen & Cooking Equipment
Thirty (30) electrical equipment fires involving kitchen or cooking equipment caused two fire service injuries and an estimated dollar loss of $301,250. These fires accounted for 11% of the structure fires involving electrical equipment when equipment involved in ignition was reported. The average dollar loss per fire was $10,042.

Cords or Plugs Caused 20 Fires
Twenty (20), or 8%, of the structure fires where electrical equipment was involved, were caused by cords or plugs. These fires caused seven civilian injuries and an estimated dollar loss of $757,200. The average dollar loss per fire was $37,860.

Ventilation & Air Conditioners Caused 18 Fires
Eighteen (18), or 7%, of the structure fires involving known electrical equipment were caused by air conditioning or ventilation units. These fires caused one civilian injury, three fire service injuries and an estimated dollar loss of $194,600. The average dollar loss per fire was $10,811.

Heating Equipment Caused 16 Fires[74]
Sixteen (16), or 6%, of the structure fires involving known electrical equipment were caused by various heating equipment. These electrical fires involving heating equipment

[74] Three (3) of these fires are stationary electric space heaters fires, and one was a portable electric space heater fire.

caused one fire service injury and an estimated dollar loss of $60,700. The average dollar loss per fire was $3,794.

Household Appliances (Non-Cooking) Caused 16 Fires
Non-cooking household appliances such as clothes dryers, washing machines and trash compactors, caused 16, or 6%, of the 261 electrical structure fires where equipment involved in ignition was reported. These 16 fires caused three civilian injuries, one fire service injury and an estimated $489,150 in damages. The average dollar loss was $30,572.

12 Fires Involving Electronic & Other Electrical Equipment
Twelve (12) electrical equipment fires involving electronic and other electrical equipment caused an estimated dollar loss of $380,000. These fires accounted for 5% of the structure fires involving reported electrical equipment. The average dollar loss per fire was $31,667.

Transformer, Generator, Battery or Chargers Caused 8 Fires
Transformers, generators, batteries or chargers were involved in eight, or 3%, of the electrical fires where equipment involved in ignition was reported. These fires caused one civilian injury and an estimated dollar loss of $283,600. The average loss per fire was $35,450.

7 Fires Involving Unspecified Electrical Distribution Equipment
Seven (7) electrical equipment fires involving unspecified electrical distribution equipment caused an estimated dollar loss of $124,801. These fires accounted for 3% of the building fires involving reported electrical equipment. The average dollar loss per fire was $17,829.

3 Fires Involving Shop Tools & Industrial Equipment
Three (3) electrical fires involving shop tools or industrial equipment caused an estimated dollar loss of $3,000. These fires accounted for 1% of the structure fires involving electrical equipment. The average dollar loss per fire was $1,000.

1 Fire Involving Commercial or Medical Equipment
One (1) electrical fire involving commercial or medical equipment caused an estimated dollar loss of $150,00. This fire accounted for less than 1% of the building fires involving reported electrical equipment. The average dollar loss per fire was $150,000.

1 Fire Involving Decorative Lighting & Signs
One (1) electrical fire involving decorative or landscaping lights or electric signs caused an estimated dollar loss of $500. This fire accounted for less than 1% of the structure fires involving electrical equipment. The average dollar loss per fire was $500.

429 Unspecified Electrical Equipment Fires Caused 4 Civilian Deaths
There were 429 electrical fires where the piece of equipment involved in ignition was unknown or not reported. These 429 fires caused four civilian deaths, one fire service

death, 17 civilian injuries, 54 fire service injuries and an estimated dollar loss of $21 million. The average dollar loss per fire was $49,165.

Large Loss Electrical Fire
There was one large loss ($1 million+) electrical fire in 2010. This fire caused an estimated $1.1 million in damages, accounting for 3% of the total dollar of electrical structure fires in 2010. There were also 101 fires with estimated damages between $100,000 and $999,999.

- On July 8, 2010, at 10:39 a.m., the Boston Fire Department was called to an electrical fire at DeLuca's Market. The fire was started by an electrical failure in a basement storage area. No one was injured at this fire. Detectors were present but it was unknown if they operated. The building was not sprinklered. This fire spread to two neighboring buildings. Combined damages from this fire were estimated to be $1.15 million.

Electrical Fire with Most Civilian Injuries
- On April 8, 2010, at 3:58 a.m., the Lee Fire Department was called to an electrical fire in a single-family home. The fire was started by arcing in an electrical cord in the kitchen. There were four civilian injuries at this fire. It was undetermined if detectors were present. The building was not sprinklered and damages from this fire were estimated to be $90,000.

Electrical Fire with Most Fire Service Injuries
- On January 7, 2010, at 1:02 a.m., the Chelsea Fire Department was called to an electrical fire in a six-unit apartment building. The fire was caused by an unspecified electrical failure in the basement. Eleven (11) firefighters were injured at this fire. Only one of the 11 injuries was severe enough for transport to a local hospital. Detectors were present and alerted the occupants. Sprinklers were not present. Damages were estimated to be $450,000.

Over 3/4 of Electrical Fires Occurred in Residential Occupancies
Over three-quarters of electrical fires occurred in residential occupancies. Of the 690 electrical fires, 524, or 76%, occurred in residential occupancies. Fifty-seven (57), 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 33, or 5%, of these fires. Storage properties accounted for 24, or 3%, of these fires. Institutional buildings such as hospitals and asylums had 13, or 2%, of the electrical fires occur on their premises. Manufacturing or processing facilities also had 13, or 2%, of these incidents. Educational properties accounted for nine, or 1%, of Massachusetts' electrical fires in 2010. Seven (7), or 1%, of Massachusetts' electrical fires occurred in basic industry properties such as laboratories, communications centers, electrical distribution sites and utility and distribution centers. Another seven, or 1%, of electrical fires occurred in special or outside properties

Over 1/5 of Electrical Fires Began in the Kitchen or Bedroom
Twenty-one percent (21%) of electrical fires began in the kitchen or bedroom. Seventy-four (74), or 11%, originated in the kitchen. Sixty-nine (69), or 10%, of the 690 electrical fires occurred in the bedroom. The ceiling and floor assembly or crawl space between stories accounted for 7%, or 46, of these electrical fires. The bathroom accounted for 6%, or 39, of the electrical fires. Thirty-seven (37), or 5%, of these fires started in the attic. A wall assembly or concealed wall space was the area of origin for 36, or 5%, of these fires. Exterior wall surfaces, accounted for 35, or 5%, of the electrical fires in Massachusetts in 2010.

Electrical Wiring Was the Item First Ignited in Almost 1/3 of Electrical Fires
Electrical wiring or cable insulation was the item first ignited in almost one-third of electrical fires. In 209, or 30%, 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 95, or 14% of these fires, a structural member or framing, was the first item ignited. Appliance housings or casings were involved in 33, or 5%, of these fires. Exterior sidewall coverings were the item first ignited in 32, or 5%, of electrical fires in 2010. Unclassified structural components (26) and thermal or acoustical insulation within a wall, partition or ceiling (25) were each the item first ignited in 4% of electrical fires in 2010.

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.*

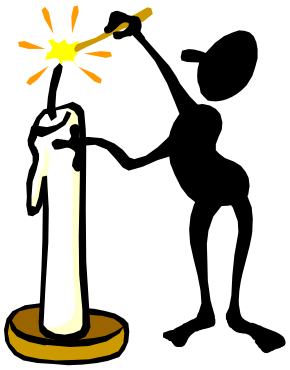
Electrical Systems Pose Unseen Dangers
Just as all systems need maintenance and inspection, so does electrical wiring. As switches, receptacles and connections age, heat is generated and the risk of fires inside walls and at poor connections greatly increases. Because wiring is often hidden behind walls, 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

144 Candle Fires Caused 11 Civilian & 7 Fire Service Injuries
In 2010, candles caused 144 fires of all types. These fires caused 11 civilian injuries, seven firefighter injuries and an estimated dollar loss of $3.9 million in damages. There was an 11% increase from the 130 fires of all types started by candles in Massachusetts in 2009.



86% of Candle Fires are Structure Fires
Of the 144 candles fires in 2010, 124, or 86%, were classified as structure fires. None were reported as motor vehicle fires. Two (2), or 1%, were brush fires; one, or 1%, was a special outside fire; another fire, or 1%, was an outside rubbish fire; and 16, or 11%, were unclassified fires.

Candle Fires Happen Most During the Holidays
Between 2006 and 2010, the day of the year the most candle fires occurred was December 24, Christmas Eve, with 10 candle fires. October 31, Halloween, November 3, December 12 and December 19 each had seven candle fires; and January 9, February 6 and November 28 each had the third most candle fires during any one day of the year during the past five years with six.

Westwood Has Largest Loss Candle Fire
On November 10, 2010, at 5:43 a.m., the Westwood Fire Department was called to a candle fire in a single-family home. The fire started when a candle ignited the blanket in a living room. One (1) firefighter was injured in this fire. Smoke detectors were present and alerted the occupants. The building was not sprinklered. Damages were estimated to be $600,000.

95% of Candle Fires Occurred in Homes
Of the 118 candle fires that occurred in buildings, 95% were residential fires. Candles caused 118 residential building fires, 10 civilian injuries, seven firefighter injuries and an estimated dollar loss of $3.8 million. Mercantile and business properties and storage facilities each had two candle fires, or 2%, in 2010. One (1) candle fire, or 1%, occurred in a public assembly property, and another fire, or 1%, occurred at an institutional facility.

Over 1/3 of Candle Fires in Homes Occurred in the Bedroom
Of the 118 candle fires in residential structures, 35% occurred in the bedroom. Seventeen percent (17%) occurred in the living room; 13% occurred in the kitchen; 9% started in the

bathroom; and 8% happened in unclassified function rooms such as three-season rooms. It is all too easy to fall asleep and leave a candle burning unattended in the bedroom.

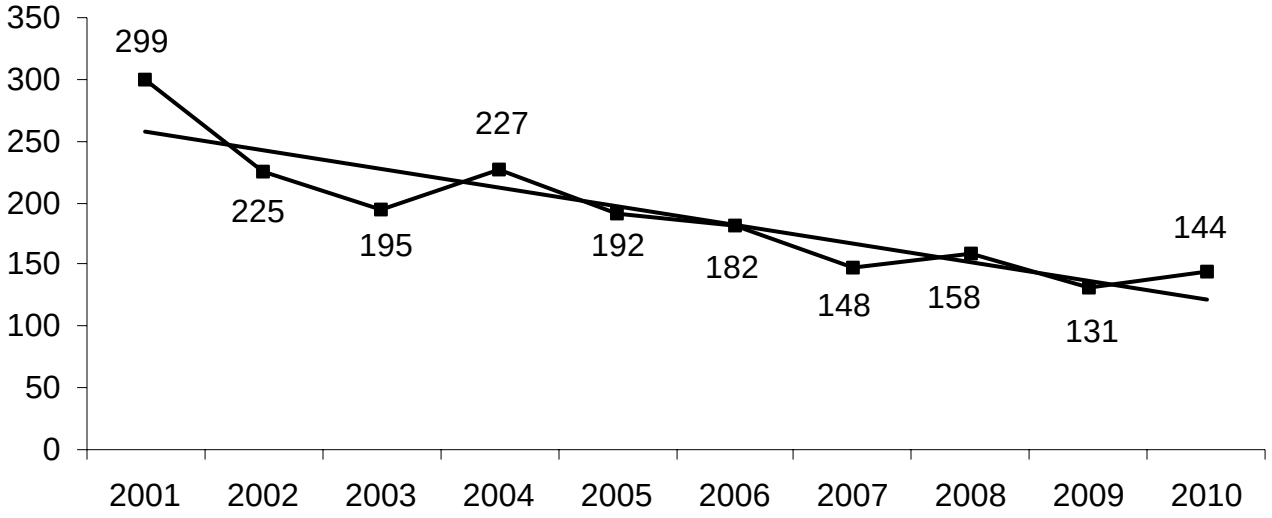
Smoke Detectors Operated in 62% of Candle Fires in Homes
Of the 118 candle fires in homes, smoke alarms operated in 62%. Smoke detectors were present but did not operate in 13% of these incidents. No detectors were present in 7% of candle fires in people's homes. Three percent (3%) of the candle fires were too small to activate the smoke detector. In 17 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 them 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 299 candle fires in 2001 to 144 in 2010. 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.

Candle Fires by Year 2001 - 2010



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 2001 to 2010 there was 52% 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, and 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[75], candles started 4% of fires in homes. In Massachusetts candle fires only represent 1% of total residential building fires.

A recent National Candle Association's (NCA) Safety Committee report[76] suggests that the new fire safety standards that the committee created since 1997 has 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

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

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

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[77], a 33% drop. According to the Mintel International Group, the annual growth rate of the candle market average grew by 5% between 2002 and 2008. So while candle sales are increasing, the number of candle fires was 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 Death & $588,010 in Damages
Eighty-one (81) clothes dryer fires caused one civilian death, two civilian injuries, four firefighter injuries, and an estimated dollar loss of $588,010. The average dollar loss per fire was $7,259. Of these 81 fires, 65, or 80%, occurred in residential occupancies.

Twenty-three percent (23%) of the dryer fires were caused by a failure to clean the machines; 7% were caused by mechanical failures or malfunctions; and 2% were caused by the machines being overloaded.

Almost 2/3 of Dryers Were Electrical
Sixty-six percent (66%) of the 65 dryers involved in fires were identified as having electricity as their power source. Twenty-nine percent (29%) 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.

Thirty-seven percent (37%) of dryer fires identified the heat source as heat coming from the dryer itself but could not be any more specific. Thirty-one percent (31%) of clothes dryer fires identified the heat source as radiated or conducted heat from equipment inside the dryer itself; and 14% identified the heat source as a spark, ember or flame from inside the dryer.

[77] 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.

57% of Clothes Dryer Fires Occurred in 1- & 2-Family Homes
Fifty-seven percent (57%) of the dryer fires occurred in one- and two-family homes; 15% occurred in apartments; 11% occurred in mercantile or business properties such as laundry or dry cleaning businesses; 5% happened in public assembly properties; 2% occurred in institutional properties such as nursing homes, hospitals and jails; 2% occurred in dormitories; 2% happened in unclassified residential properties; 1% occurred in hotels and motels; 1% occurred in rooming houses; 1% happened in residential board and care facilities; and 1% occurred in manufacturing or processing 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.

New Bedford Has Largest Loss Clothes Dryer Fire
- On October 18, 2010, at 8:12 p.m., the New Bedford Fire Department was called to a dryer fire in a three-unit apartment building. The fire began in a gas-powered clothes dryer in a first floor laundry room. No one was injured at this fire. Damages from this fire were estimated to be $200,300. Detectors were present and alerted the occupants of the building. There were no sprinklers in the building.

Fireworks Incidents

101 Incidents Involving Fireworks Caused $1 Million in Damages
There were 101 fire and explosion incidents reported that involved fireworks in 2010. This is an 84% increase from the 55 fire and explosion incidents reported in 2009. Incidents involving fireworks caused an estimated $1 million in property damages. The average dollar loss per fireworks incident was $12,524.

Seventy-two percent (72%) of the fireworks incidents were brush fires, while 9% were structure fires.

A fireworks explosion without fire is coded as an Incident Type 243 – Fireworks explosion (no fires). In 2010, 19 such incidents were reported.

2/3 of Fireworks Fires Occurred the Week of July 4th
Fifty-five (55), or 67%, of the 82 fireworks-caused fires in 2010 took place during the week of the 4th of July. Fifty (50) of the 55 incidents occurred between July 3 and July 5.

Largest Loss Fireworks Fire –Boston Industrial Warehouse Fire

- On August 21, 2010, at 10:27 p.m., the Boston Fire Department was dispatched to a building fire in an abandoned industrial warehouse that was vacant and unsecured. One hundred and sixty (160) firefighters from Boston and 14 neighboring communities fought the nine-alarm fire for 16 hours. Multiple persons were playing with fireworks on the roofs of nearby buildings. No one was injured in this fire and damages were estimated at $1 million. The fire spread to two adjacent buildings, causing another $199,000 in estimated damages.

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 — 2010 Annual Report.* According to Massachusetts General Law (MGL) Chapter 112, Section 12A, the treatment of all burn injuries extending over 5% or more of a person's body surface area must be reported immediately to the State Fire Marshal. All burn reports received by the Division Fire Safety are reviewed for possible suspicious circumstances. Gasoline burns, burns on the hands and arms or other unusual scenarios are referred for further investigation.

There were five fireworks-related burn injuries reported to M-BIRS in 2010. These five victims were between the ages of seven and 52 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

76 Incidents Involving Grills in 2010 Caused $572,791 in Damages
In 2010, there were 76 fires and explosion incidents reported to the Massachusetts Fire Incident Reporting System (MFIRS) involving open fired grills. These incidents caused four civilian injuries, one fire service injury and an estimated dollar loss of $572,791. This is a 20% increase from the 56 grill fires in 2009.

Predictably over two-thirds, or 71%, of these incidents occurred in the months of May to September when people are most likely to use their outdoor grills.

Gas Grill Fires
Of the 76 grill incidents, 67, or 88%, of the grills were gas grills and 8% used solid fuels such as charcoal briquettes. Gas grill fire incidents caused all the injuries and an estimated $567,341 in damages. Seventy percent (70%) 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.

Easthampton Had Largest Loss Grill Fire

- On July 6, 2010, at 5:28 p.m., the Easthampton Fire Department was called to a grill fire at a single-family home. There was a leak in the LP-gas grill, and the leaking gas ignited. The fire spread to the exterior walls of the home. One (1) civilian burned his upper extremities when he attempted to extinguish the fire. Detectors were present and alerted the occupants of the home. The building was not sprinklered. Damages from the blaze were estimated to be $282,000.

- On September 9, 2010, at 9:19 p.m., the Newton Fire Department was called to a grill fire at a single-family home. Flames from the gas grill ignited the siding on an exterior wall adjacent to the porch. No one was injured at this fire. Detectors were present and operated. The building was not sprinklered. Damages from the blaze were estimated to be $250,000.

- On July 4, 2010, at 6:45 p.m., the Marlborough 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. No one was injured at this fire. It was undetermined if detectors were present. The building was not sprinklered. Damages from the blaze were estimated to be $10,600.

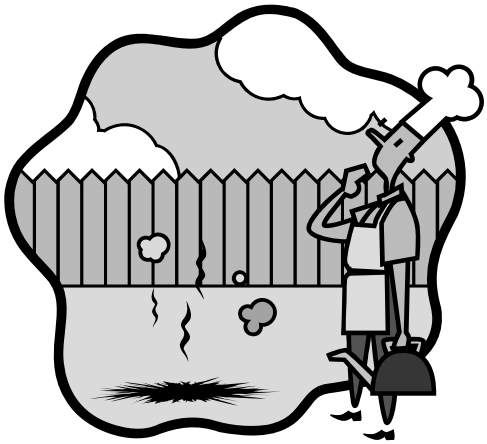
- On June 7, 2010, at 10:04 p.m., the Fairhaven Fire Department was called to a grill fire in the bed of a pickup truck that was parked on a residential street. The owner of the vehicle stated that he had placed a charcoal grill in the pickup's bed approximately four hours earlier. The grill moved in transit and ended up igniting a bag of charcoal. No one was injured at this fire. Damages from the blaze were estimated to be $1,050.

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 — 2010 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. Eleven (11) civilians, including a toddler, were reported to M-

BIRS in 2010 with burn injuries from a grill. Two (2) burns occurred in March, three in June and July, and one burn occurred in the months of August, September and December.

Grill Safety
Follow these safety tips when using a grill:

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



Gas Grill Safety

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

Charcoal Grill Safety

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

Carbon Monoxide Incidents

In 2010, 281 fire departments voluntarily reported 14,575 carbon monoxide (CO) incidents: hazards[78], carbon monoxide detector activation due to malfunction[79] and carbon monoxide detector activation – no CO[80]. A CO hazard is an identifiable carbon monoxide emergency whether or not a CO detector activated, the presence of CO was confirmed, and some corrective action was indicated. Fire departments responded to some 4,573 confirmed CO hazard incidents.

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

8% Decrease from 2009
For the first time since the institution of Nicole's Law in 2006, which made CO detectors mandatory in most residential occupancies throughout the Commonwealth, there was a decrease in the total number of reported carbon monoxide calls in Massachusetts. There was an 8% decrease in reported carbon monoxide incidents between 2009 and 2010. In 2010, the number of reported carbon monoxide incidents decreased by 1,202 calls, or 8%, from the 15,777 calls reported in 2009.

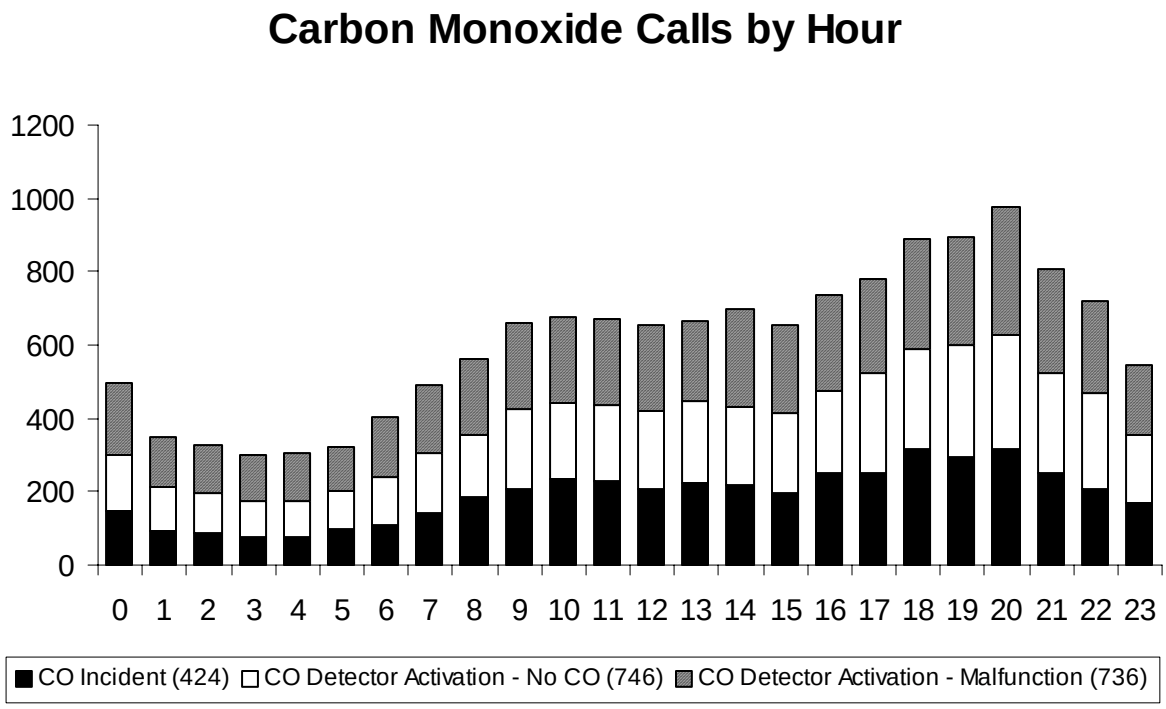
Boston, the largest city in the Commonwealth, reported the most CO incidents where above normal levels of carbon monoxide were found in 2010. Boston reported 451 of these incidents. The City of Lowell reported the second most CO incidents in 2010, 115 CO calls. The next five cities in terms of the number of carbon monoxide calls reported were: Lawrence with 90 calls, Springfield with 79 calls, Billerica with 75 calls, Methuen with 73 calls, and Andover reported 69 carbon monoxide incidents in 2010.

A CO detector activation is when a CO detector activates in response to pollution, an unknown trigger or a non-threatening situation. Fire departments responded to 10,002 CO detector activations. These types of calls are split into two categories: CO detector activation due to malfunction and CO detector activation – no CO found. Two hundred and forty-two (242) fire departments reported 5,243 CO detector activations due to malfunction. Two hundred and thirty-six (236) fire departments reported 4,759 CO detector activations with no CO found after investigation.

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

95% of All CO Incidents Occurred in Residences
Ninety-five percent (95%) of all carbon monoxide calls occurred in residential occupancies. Institutional facilities are the next leading property use for CO calls accounting for 2% of the incidents. Mercantile and business properties, educational facilities and public assembly properties each accounted for 1% of these calls. Special properties, storage facilities, basic industrial facilities, and manufacturing and processing facilities each accounted for less than 1% of the carbon monoxide calls in 2010.

44% of All CO Calls Occurred During the Winter
Forty-four percent (44%) of all the CO calls that occurred in 2010 happened during the colder months of November through February. Most CO calls occurred between the hours of 9:00 a.m. and 1:00 p.m. and between 5:00 p.m. and 9:00 p.m.



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

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

Mapping the Fire Experience

Boston & Worcester Had the Most Reported Fires
Boston reported having the most fires, with 5,812 in 2010. Worcester had the second highest number of reported fires at 1,430. Springfield (1,053), Cambridge (901), Lowell (662), and Quincy (574) 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 would 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, Easton and Windsor all reported one fire in 2010 but their small populations caused them to have a high fires per 10,000 population.

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

The map titled, *2010 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.

Middleton, with 187 total fires, had the highest rate of 208 reported fires per 10,000 population. Tolland was the next highest with eight total fires and 165 fires per 10,000 population; New Salem had 141; Colrain had 137; Gosnold had 133; and Provincetown had 133 fires per 10,000 population.

Boston & Cambridge Had the Most Reported Structure Fires
Boston reported having the most structure fires, with 4,187 in 2010. Cambridge had the second highest number of reported structure fires at 782. Worcester (730), Springfield (613), Brookline (423) and Lowell (392) rounded out the top six communities in the Commonwealth in terms of reported structure fires.

The map titled *2010 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 146 structure fires, had the highest rate of 162 structure fires per 10,000 population. Topsfield was the next highest with 63 structure fires and 104 structure fires per 10,000 population; Clinton had 94; Stoughton had 88; and New Ashford had 88 structure fires per 10,000 population.

Boston & Cambridge Had the Most Reported Residential Building Fires
Boston reported having the most residential building fires, with 3,463 in 2010. Cambridge had the second highest number of reported building fires at 641. Worcester (620), Springfield (536), Brookline (365), and Lowell (331) rounded out the top six communities in the Commonwealth in terms of reported residential building fires.

The map titled *2010 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 125 residential building fires, had the highest rate of 139 residential building fires per 10,000 population. Next highest was Topsfield with 97 residential building fires per 10,000 population; New Ashford had 88; Monroe had 83; Tolland had 82; and Clinton had 77 residential building fires per 10,000 population.

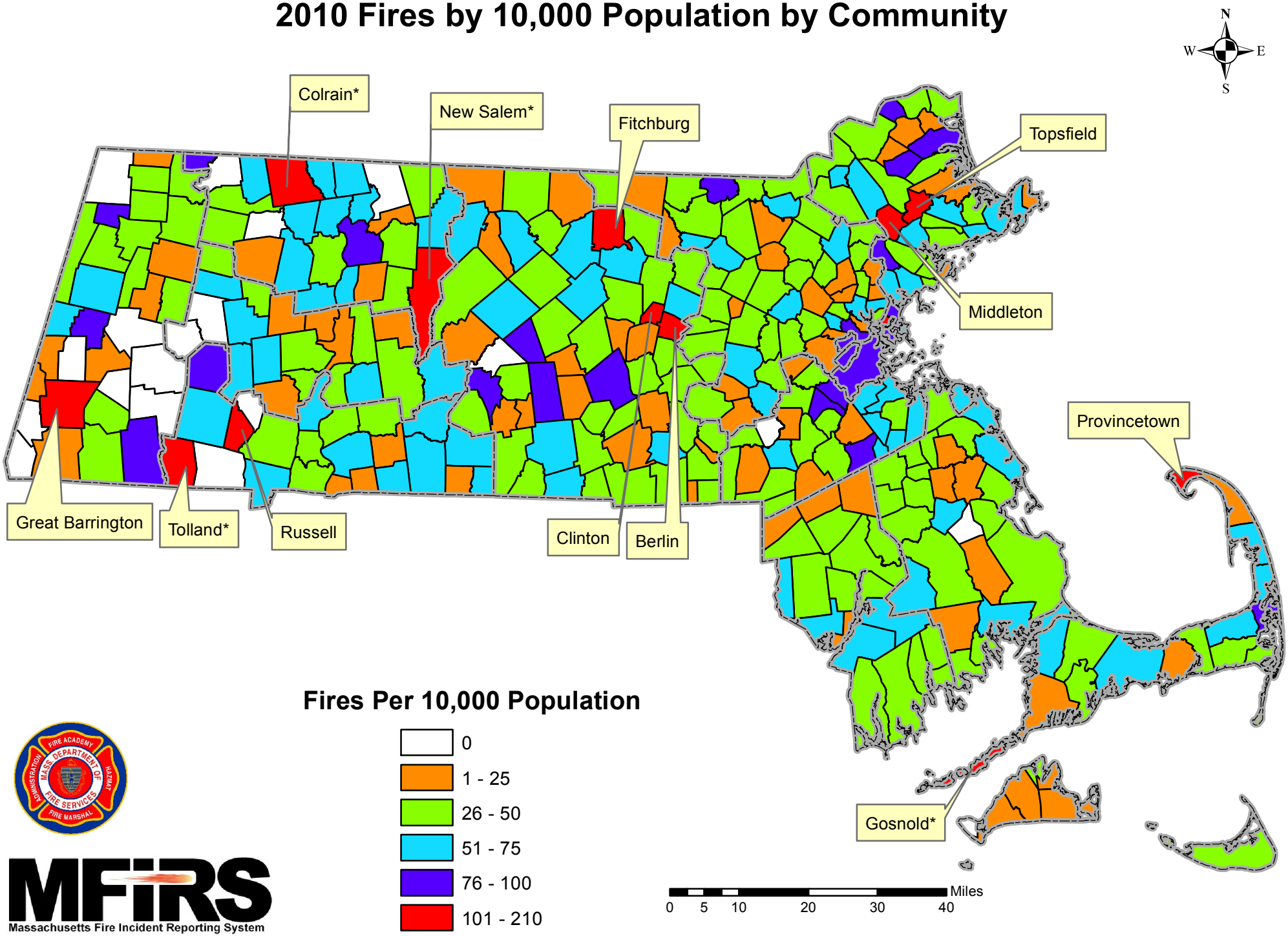
Boston & Worcester Had the Most Reported Arsons

Boston reported having the most arsons, with 123 in 2010. Worcester had the second highest number of reported arsons at 58. Haverhill (36), Fall River (35), New Bedford (27), and Brockton (25) rounded out the top six communities in the Commonwealth in terms of reported arsons.

The map titled *2010 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.

Berlin, with seven arsons, had the highest rate of any department reporting more than five arsons, with 24 reported arsons per 10,000 population. Next highest was Merrimac with 19 arsons per 10,000 population; Mendon had 12, Cohasset had nine; and Bourne had seven arsons per 10,000 population.

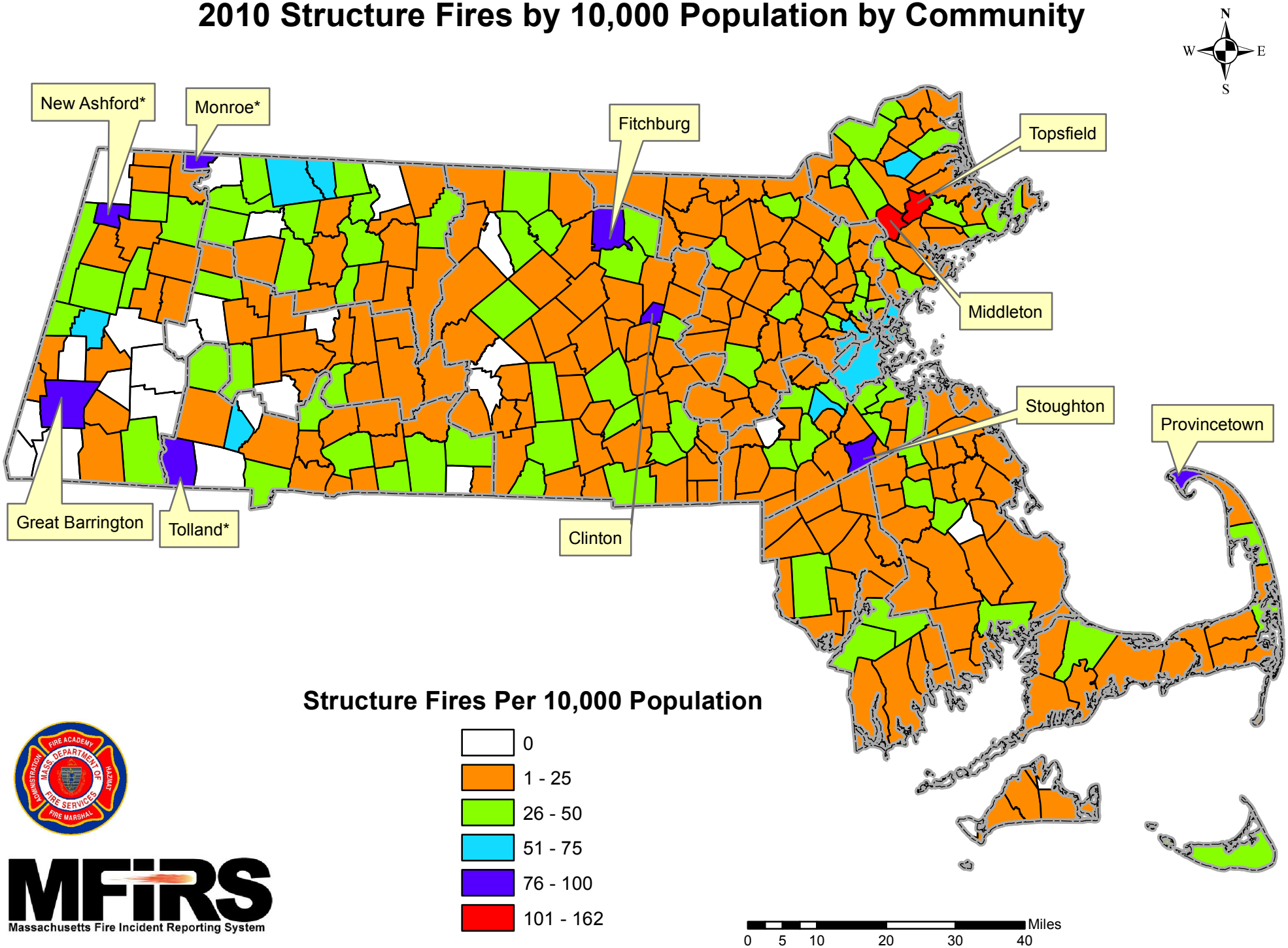
2010 Fires by 10,000 Population by Community



MFIRS
Massachusetts Fire Incident Reporting System

*These departments reported 15 or less fires in 2010

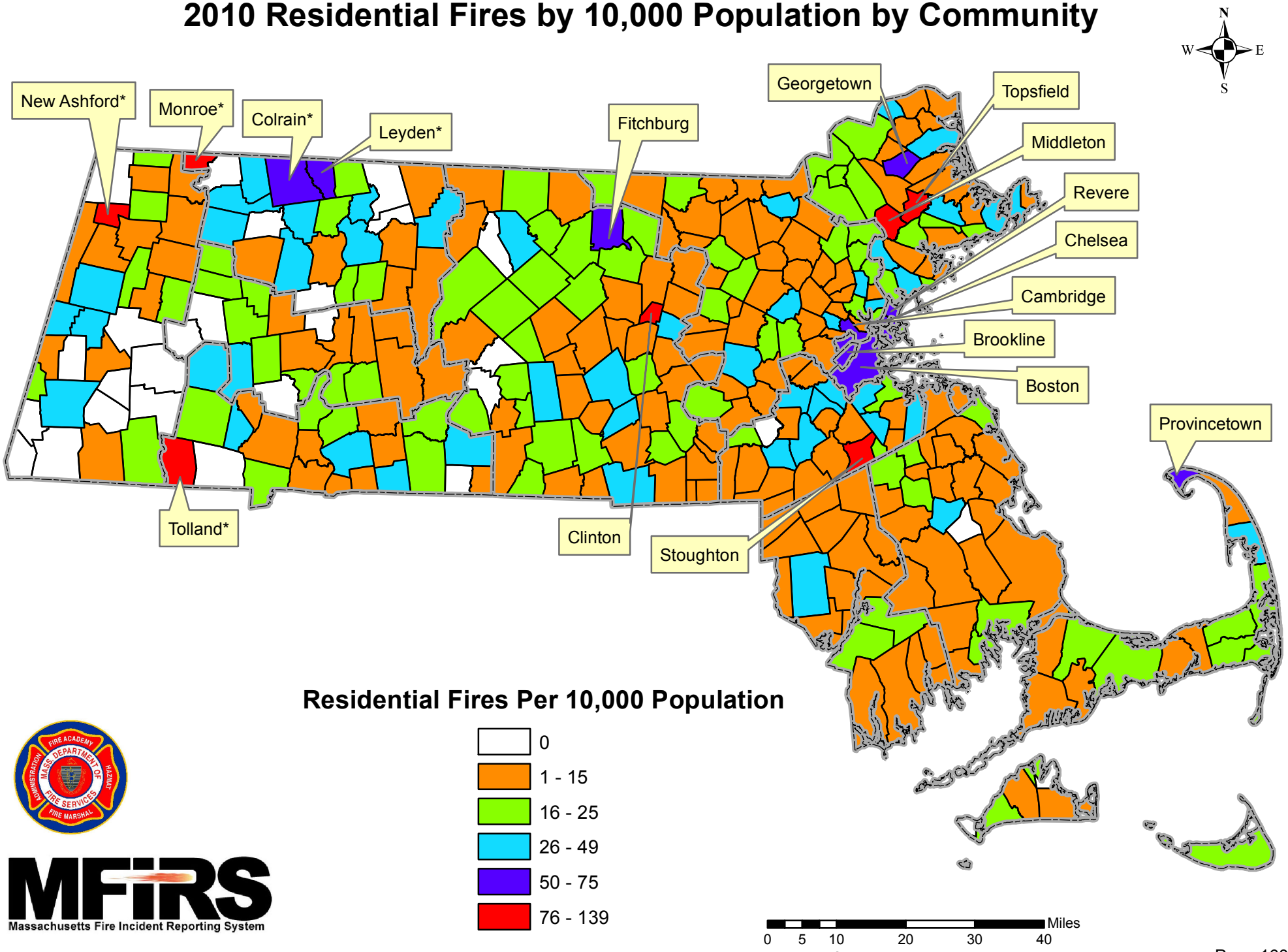
2010 Structure Fires by 10,000 Population by Community



MFIRS
Massachusetts Fire Incident Reporting System

*These departments reported 15 or less fires in 2010

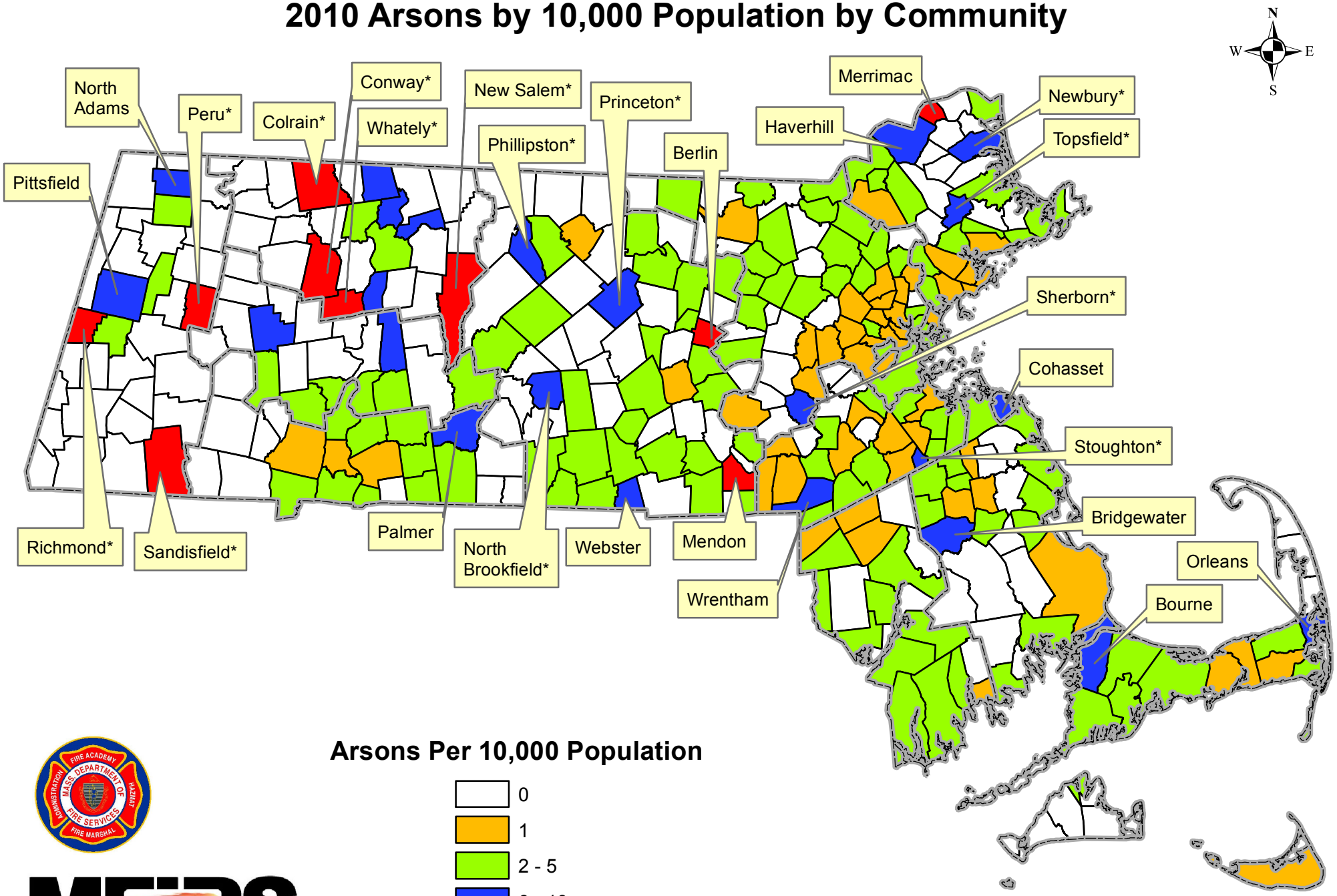
2010 Residential Fires by 10,000 Population by Community



MFIRS
Massachusetts Fire Incident Reporting System

*These departments reported 15 or less fires in 2010

2010 Arsons by 10,000 Population by Community



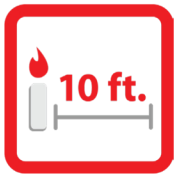
MFIRS
Massachusetts Fire Incident Reporting System

*These departments reported 5 or less arsons in 2010

HOME OXYGEN SAFETY

What EVERYONE should know:

No one should smoke in your home – the fire danger is too great.



Keep at least 10 feet from heat sources: pilot lights, electric appliances, candles.

Avoid use of petroleum-based products: lip balms, lotions, oils, grease.

Ensure your home has **working smoke alarms**.

For information on how to quit smoking, talk to your physician or visit/call:

www.trytostop.org
1-800-879-8678 (English)
1-800-833-5256 (Español)
1-800-833-1477 (TDD)

www.cancer.org
www.lungusa.org

Department of Fire Services
P.O. Box 1025 – State Road Stow, MA 01775
1-877-9NO-FIRE (1-877-966-3473)
www.mass.gov/dfs

Appendix

2010 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	78	47	3	28	0	1	0	2	$580,949
Acton	73	40	1	32	0	0	0	1	$115,000
Acushnet	28	17	5	6	1	2	0	0	$103,400
Adams	36	22	6	8	0	1	0	0	$108,033
Agawam	94	38	13	43	0	4	0	2	$2,357,150
Alford	1	1	0	0	0	0	0	0	$95,000
Amesbury	51	26	4	21	0	0	0	0	$548,397
Amherst	119	46	6	67	0	2	0	0	$120,722
Andover	130	59	24	47	1	0	0	0	$1,078,525
Aquinnah	0	0	0	0	0	0	0	0	$0
Arlington	114	43	8	63	0	1	0	0	$205,930
Ashburnham	12	7	2	3	0	0	0	0	$36,000
Ashby	8	7	1	0	0	0	0	0	$165,400
Ashfield	3	3	0	0	0	0	0	0	$16,500
Ashland	22	10	1	11	0	0	0	1	$105,000
Athol	58	20	7	31	0	4	0	1	$99,011
Attleboro	134	56	27	51	0	2	0	0	$1,390,915
Auburn	67	20	20	27	0	0	0	0	$158,200
Avon	32	8	13	11	0	0	0	0	$62,165
Ayer	39	12	6	21	0	0	0	0	$228,500
Barnstable Fire Districts									
Barnstable	*35*	*12*	*4*	*19*	*0*	*0*	*0*	*0*	*$61,200*
Cotuit	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
C.O.M.M.	*85*	*49*	*12*	*24*	*0*	*2*	*0*	*2*	*$367,135*
Hyannis	*125*	*42*	*14*	*69*	*0*	*6*	*0*	*0*	*$927,050*
West Barnstable	*14*	*10*	*0*	*4*	*0*	*0*	*0*	*0*	*$1,900*
Barre	32	15	2	15	0	0	0	0	$6,500
Becket	0	0	0	0	0	0	0	0	$0
Bedford	34	10	2	22	0	1	0	0	$138,020
Belchertown	50	21	4	25	0	0	0	0	$171,968
Bellingham	59	26	6	27	0	0	0	0	$1,025,885
Belmont	157	123	2	32	0	0	0	3	$301,750
Berkley	21	9	4	8	0	0	0	0	$0
Berlin	29	12	6	11	0	0	0	0	$44,000
Bernardston	15	6	1	8	0	0	0	0	$6,000
Beverly	118	51	13	54	0	3	0	4	$3,459,000

2010 Arson Experience By Community

Community	Total Fires	Structure Fires	Vehicle Fires	Other Fires	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Abington	3	1	0	2	0	0	0	0	$0
Acton	8	0	0	8	0	0	0	0	$0
Acushnet	0	0	0	0	0	0	0	0	$0
Adams	3	0	1	2	0	1	0	0	$5
Agawam	6	2	0	4	0	0	0	0	$5,000
Alford	0	0	0	0	0	0	0	0	$0
Amesbury	0	0	0	0	0	0	0	0	$0
Amherst	21	4	0	17	0	0	0	0	$86,390
Andover	1	1	0	0	1	0	0	0	$350,000
Aquinnah	0	0	0	0	0	0	0	0	$0
Arlington	2	0	0	2	0	0	0	0	$0
Ashburnham	0	0	0	0	0	0	0	0	$0
Ashby	0	0	0	0	0	0	0	0	$0
Ashfield	0	0	0	0	0	0	0	0	$0
Ashland	0	0	0	0	0	0	0	0	$0
Athol	0	0	0	0	0	0	0	0	$0
Attleboro	6	3	0	3	0	0	0	0	$4,000
Auburn	2	1	0	1	0	0	0	0	$0
Avon	4	0	1	3	0	0	0	0	$2,000
Ayer	0	0	0	0	0	0	0	0	$0
Barnstable Fire Districts									
Barnstable	*8*	*2*	*0*	*6*	*0*	*0*	*0*	*0*	*$0*
Cotuit	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
C.O.M.M.	*9*	*2*	*1*	*5*	*0*	*0*	*0*	*0*	*$55,000*
Hyannis	*1*	*0*	*0*	*1*	*0*	*0*	*0*	*0*	*$0*
West Barnstable	*1*	*0*	*0*	*1*	*0*	*0*	*0*	*0*	*$0*
Barre	2	2	0	0	0	0	0	0	$1,500
Becket	0	0	0	0	0	0	0	0	$0
Bedford	2	0	0	2	0	0	0	0	$20
Belchertown	0	0	0	0	0	0	0	0	$0
Bellingham	1	1	0	0	0	0	0	0	$0
Belmont	12	2	0	10	0	0	0	0	$500
Berkley	0	0	0	0	0	0	0	0	$0
Berlin	7	3	1	3	0	0	0	0	$17,700
Bernardston	2	0	0	2	0	0	0	0	$0
Beverly	2	1	0	1	0	0	0	0	$550

2010 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	153	55	14	84	0	3	0	8	$996,407
Blackstone	35	13	2	20	0	0	0	0	$0
Blandford	7	3	3	1	0	0	0	0	$10,500
Bolton	29	7	10	12	0	0	0	1	$519,450
Boston	5,812	4,187	378	1,247	2	11	0	8	$31,528,263
Bourne	104	33	16	55	0	0	0	1	$653,976
Boxborough	17	2	8	7	0	1	0	0	$61,002
Boxford	30	9	9	12	0	0	0	1	$646,100
Boylston	5	1	3	1	0	0	0	0	$40,000
Braintree	114	24	19	71	0	1	0	0	$1,254,515
Brewster	60	23	6	31	0	2	0	2	$557,200
Bridgewater	87	31	14	42	0	1	0	0	$628,488
Brimfield	26	11	4	11	0	0	0	0	$200,000
Brockton	375	181	41	153	0	8	0	11	$3,317,611
Brookfield	5	3	0	2	0	0	0	0	$0
Brookline	464	423	13	28	0	2	0	4	$868,075
Buckland	0	0	0	0	0	0	0	0	$0
Burlington	93	36	12	45	0	0	0	2	$478,600
Cambridge	901	782	16	103	0	7	0	11	$1,042,606
Canton	36	17	13	6	0	1	0	1	$419,550
Carlisle	3	1	1	1	0	0	0	0	$6,600
Carver	12	6	6	0	0	0	0	0	$259,800
Charlemont	6	4	0	2	0	0	0	0	$554,000
Charlton	65	36	8	21	0	0	0	1	$404,355
Chatham	26	12	2	12	0	2	0	1	$115,000
Chelmsford	23	9	7	7	0	0	0	2	$306,810
Chelsea	376	254	17	105	1	8	0	53	$2,340,920
Cheshire	12	5	2	5	0	1	0	0	$48,100
Chester	11	6	0	5	0	0	0	0	$20,000
Chesterfield	8	3	0	5	1	0	0	0	$0
Chicopee	246	121	24	101	0	9	0	3	$540,585
Chilmark	2	2	0	0	0	0	0	0	$10,550
Clarksburg	4	4	0	0	0	0	0	0	$15,000
Clinton	169	128	7	34	0	0	0	1	$13,500
Cohasset	41	15	2	24	0	0	0	0	$0

2010 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	6	3	0	3	0	0	0	0	$21,005
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	123	31	17	75	0	0	0	0	$597,822
Bourne	14	0	0	14	0	0	0	0	$0
Boxborough	1	0	0	1	0	0	0	0	$0
Boxford	0	0	0	0	0	0	0	0	$0
Boylston	0	0	0	0	0	0	0	0	$0
Braintree	5	0	0	5	0	0	0	0	$0
Brewster	4	0	0	4	0	0	0	0	$0
Bridgewater	15	4	2	9	0	0	0	0	$20,452
Brimfield	0	0	0	0	0	0	0	0	$0
Brockton	25	8	3	14	0	0	0	0	$594,258
Brookfield	0	0	0	0	0	0	0	0	$0
Brookline	1	1	0	0	0	0	0	0	$60,000
Buckland	0	0	0	0	0	0	0	0	$0
Burlington	4	0	0	4	0	0	0	0	$0
Cambridge	7	2	1	4	0	0	0	0	$12,055
Canton	2	1	1	0	0	0	0	0	$3,000
Carlisle	0	0	0	0	0	0	0	0	$0
Carver	0	0	0	0	0	0	0	0	$0
Charlemont	0	0	0	0	0	0	0	0	$0
Charlton	2	1	0	1	0	0	0	1	$300,000
Chatham	0	0	0	0	0	0	0	0	$0
Chelmsford	0	0	0	0	0	0	0	0	$0
Chelsea	15	8	0	7	1	2	0	8	$577,065
Cheshire	0	0	0	0	0	0	0	0	$0
Chester	0	0	0	0	0	0	0	0	$0
Chesterfield	1	0	0	1	0	0	0	0	$0
Chicopee	17	5	2	10	0	0	0	0	$36,250
Chilmark	0	0	0	0	0	0	0	0	$0
Clarksburg	0	0	0	0	0	0	0	0	$0
Clinton	3	0	0	3	0	0	0	0	$0
Cohasset	7	1	0	6	0	0	0	0	$0

2010 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	23	12	2	9	0	0	0	0	$22,500
Concord	52	24	8	20	0	3	0	1	$3,397,535
Conway	12	7	0	5	0	0	0	0	$23,000
Cummington	5	4	1	0	0	0	0	0	$546,000
Dalton	20	17	0	3	0	0	0	0	$17,000
Danvers	188	52	13	123	0	0	0	0	$166,500
Dartmouth Fire Districts									
Dartmouth #1	*21*	*13*	*0*	*8*	*0*	*0*	*0*	*1*	*$43,100*
Dartmouth #2	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Dartmouth #3	*104*	*22*	*10*	*72*	*0*	*1*	*0*	*0*	*$153,450*
Dedham	192	119	10	63	0	0	0	1	$352,100
Deerfield Fire Districts									
Deerfield	*5*	*1*	*0*	*4*	*0*	*0*	*0*	*0*	*$0*
South Deerfield	*17*	*7*	*6*	*4*	*0*	*1*	*0*	*0*	*$32,250*
Dennis	62	19	5	38	0	0	0	0	$30,000
Devens	11	2	1	8	0	0	0	0	$5,501
Dighton	20	7	4	9	0	0	0	0	$257,900
Douglas	41	29	1	11	0	0	0	0	$491,750
Dover	27	17	3	7	0	0	0	0	$0
Dracut	95	36	7	52	0	1	0	1	$554,661
Dudley	60	15	5	40	0	0	0	0	$411,500
Dunstable	24	5	2	17	0	0	0	3	$409,535
Duxbury	45	23	5	17	0	0	0	0	$400,500
East Bridgewater	62	37	6	19	0	2	0	0	$855,400
East Brookfield	5	4	0	1	0	0	0	0	$3,000
East Longmeadow	37	12	2	23	0	0	0	0	$221,600
Eastham	25	11	1	13	0	0	0	0	$0
Easthampton	52	29	5	18	0	3	0	1	$316,895
Easton	1	1	0	0	0	1	0	0	$50,000
Edgartown	2	2	0	0	0	0	0	0	$0
Egremont	0	0	0	0	0	0	0	0	$0
Erving	1	1	0	0	0	0	0	0	$150,000
Essex	15	7	2	6	0	0	0	0	$75,000
Everett	173	91	20	62	2	8	0	6	$1,798,785
Fairhaven	46	17	4	25	0	1	0	1	$359,250
Fall River	508	273	59	176	2	18	0	11	$5,504,424

2010 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	3	0	0	3	0	0	0	0	$0
Concord	2	0	0	2	0	0	0	0	$0
Conway	2	1	0	1	0	0	0	0	$1,000
Cummington	0	0	0	0	0	0	0	0	$0
Dalton	1	0	0	1	0	0	0	0	$0
Danvers	9	1	0	8	0	0	0	0	$0
Dartmouth Fire Districts									
Dartmouth #1	*2*	*0*	*0*	*2*	*0*	*0*	*0*	*0*	*$100*
Dartmouth #2	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Dartmouth #3	*13*	*5*	*0*	*8*	*0*	*0*	*0*	*0*	*$5,150*
Dedham	9	0	0	9	0	0	0	0	$0
Deerfield Fire Districts									
Deerfield	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
South Deerfield	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Dennis	1	0	0	1	0	0	0	0	$0
Devens	0	0	0	0	0	0	0	0	$0
Dighton	1	0	0	1	0	0	0	0	$0
Douglas	0	0	0	0	0	0	0	0	$0
Dover	0	0	0	0	0	0	0	0	$0
Dracut	12	1	0	10	0	0	0	0	$1,150
Dudley	5	0	0	5	0	0	0	0	$0
Dunstable	1	0	1	0	0	0	0	0	$29,235
Duxbury	4	2	1	1	0	0	0	0	$0
East Bridgewater	1	1	0	0	0	0	0	0	$300
East Brookfield	0	0	0	0	0	0	0	0	$0
East Longmeadow	0	0	0	0	0	0	0	0	$0
Eastham	0	0	0	0	0	0	0	0	$0
Easthampton	3	2	0	1	0	1	0	0	$1,250
Easton	0	0	0	0	0	0	0	0	$0
Edgartown	0	0	0	0	0	0	0	0	$0
Egremont	0	0	0	0	0	0	0	0	$0
Erving	1	1	0	0	0	0	0	0	$150,000
Essex	0	0	0	0	0	0	0	0	$0
Everett	8	4	0	4	0	0	0	0	$110
Fairhaven	1	0	0	1	0	0	0	0	$0
Fall River	35	17	2	16	0	2	0	0	$1,820,800

2010 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	69	38	8	23	0	8	0	0	$767,065
Fitchburg	412	308	26	78	0	4	0	3	$768,562
Florida	3	1	1	1	0	0	0	0	$6,000
Foxborough	35	14	6	15	0	1	0	0	$33,500
Framingham	440	326	29	85	0	5	0	8	$2,150,910
Franklin	74	24	8	42	0	0	0	1	$690,206
Freetown	56	27	16	13	0	0	0	1	$530,565
Gardner	80	53	8	19	0	1	0	2	$942,035
Georgetown	71	58	2	11	0	0	0	0	$14,600
Gill	10	5	1	4	0	0	0	0	$88,000
Gloucester	164	91	9	64	0	3	0	5	$1,419,600
Goshen	5	2	1	2	0	0	0	0	$7,000
Gosnold	1	0	1	0	0	0	0	0	$14,500
Grafton	28	17	7	4	0	0	0	0	$400,900
Granby	35	14	9	12	0	0	0	0	$10,500
Granville	0	0	0	0	0	0	0	0	$0
Great Barrington	80	62	3	15	0	0	0	0	$16,000
Greenfield	98	43	13	42	0	0	0	0	$340,800
Groton	32	6	3	23	0	0	0	0	$0
Groveland	3	2	1	0	0	0	0	0	$19,000
Hadley	7	7	0	0	0	0	0	1	$586,700
Halifax	48	25	4	19	0	0	0	0	$134,700
Hamilton	56	36	2	18	0	0	0	0	$757,200
Hampden	35	20	5	10	0	0	0	0	$35,000
Hancock	2	2	0	0	0	0	0	0	$162,000
Hanover	33	16	3	14	0	0	0	1	$127,300
Hanson	22	10	3	9	0	0	0	0	$0
Hardwick	6	3	0	3	0	0	0	0	$0
Harvard	32	11	1	20	0	0	0	0	$0
Harwich	58	26	7	25	0	3	0	1	$617,901
Hatfield	8	0	3	5	0	0	0	0	$0
Haverhill	227	158	10	59	0	1	0	0	$1,302,550
Hawley	1	1	0	0	0	0	0	0	$0
Heath	5	3	0	2	1	0	0	0	$0
Hingham	69	35	3	31	0	0	0	0	$513,553

2010 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	7	0	1	6	0	0	0	0	$6,600
Fitchburg	7	2	0	5	0	0	0	1	$30,000
Florida	0	0	0	0	0	0	0	0	$0
Foxborough	4	0	1	3	0	0	0	0	$3,000
Framingham	0	0	0	0	0	0	0	0	$0
Franklin	1	0	0	1	0	0	0	0	$0
Freetown	4	2	1	1	0	0	0	0	$9,600
Gardner	1	1	0	0	0	0	0	0	$1,500
Georgetown	0	0	0	0	0	0	0	0	$0
Gill	1	0	0	1	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	0	0	0	0	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	0	0	0	0	0	0	0	0	$0
Greenfield	9	2	0	7	0	0	0	0	$200
Groton	1	0	0	1	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	4	0	0	4	0	0	0	0	$0
Hamilton	0	0	0	0	0	0	0	0	$0
Hampden	2	0	2	0	0	0	0	0	$25,000
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	1	0	0	1	0	0	0	0	$0
Harvard	2	0	0	2	0	0	0	0	$0
Harwich	1	1	0	0	0	1	0	0	$5,000
Hatfield	0	0	0	0	0	0	0	0	$0
Haverhill	36	2	0	34	0	0	0	0	$8,500
Hawley	0	0	0	0	0	0	0	0	$0
Heath	0	0	0	0	0	0	0	0	$0
Hingham	4	0	1	3	0	0	0	0	$10,000

2010 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	3	2	1	0	0	0	0	0	$51,300
Holbrook	55	21	0	34	0	0	0	0	$29,100
Holden	50	30	6	14	1	2	0	5	$681,350
Holland	17	3	1	13	0	0	0	0	$0
Holliston	4	3	1	0	0	0	0	0	$615,000
Holyoke	262	123	38	101	0	1	0	4	$520,690
Hopedale	9	8	0	1	0	0	0	4	$1,421,200
Hopkinton	60	29	7	24	0	0	0	0	$5,000
Hubbardston	21	9	2	10	0	0	0	0	$142,300
Hudson	60	22	5	33	0	3	0	0	$543,090
Hull	31	20	3	8	0	0	0	0	$209,600
Huntington	14	7	2	5	0	0	0	0	$0
Ipswich	30	9	2	19	0	0	0	0	$2,500
Kingston	52	21	5	26	0	2	0	0	$541,500
Lake Pleasant	0	0	0	0	0	0	0	0	$0
Lakeville	54	8	6	40	0	0	0	1	$211,000
Lancaster	25	5	8	12	0	0	0	0	$535,700
Lanesborough	9	4	0	5	0	1	0	0	$185,000
Lawrence	412	208	45	159	0	2	0	11	$6,086,372
Lee	5	4	1	0	0	4	0	0	$271,400
Leicester	20	6	2	12	0	0	0	0	$258,200
Lenox	44	27	1	16	0	0	0	0	$2,265,600
Leominster	217	108	22	87	0	9	0	2	$17,050
Leverett	4	3	1	0	0	0	0	0	$125,000
Lexington	73	39	12	22	0	1	0	5	$1,232,267
Leyden	4	4	0	0	0	0	0	0	$0
Lincoln	44	28	4	12	0	0	0	0	$87,100
Littleton	48	23	7	18	0	0	0	0	$37,525
Logan Airport FD	65	7	14	44	0	0	0	0	$81,000
Longmeadow	37	12	4	21	0	0	0	0	$45,300
Lowell	662	392	45	225	3	1	0	3	$2,226,205
Ludlow	76	31	13	32	0	1	0	1	$974,620
Lunenburg	48	28	3	17	0	1	0	1	$170,000
Lynn	482	378	20	84	1	1	0	4	$56,500
Lynnfield	94	50	7	37	0	0	0	0	$156,600
MA Mil. Res.	12	3	1	8	0	0	0	0	$0

2010 Arson Experience By Community

Community	Total Fires	Structure Fires	Vehicle Fires	Other Fires	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Hinsdale	0	0	0	0	0	0	0	0	$0
Holbrook	4	0	0	4	0	0	0	0	$500
Holden	0	0	0	0	0	0	0	0	$0
Holland	0	0	0	0	0	0	0	0	$0
Holliston	0	0	0	0	0	0	0	0	$0
Holyoke	10	4	1	5	0	0	0	1	$201,000
Hopedale	0	0	0	0	0	0	0	0	$0
Hopkinton	1	0	0	1	0	0	0	0	$0
Hubbardston	0	0	0	0	0	0	0	0	$0
Hudson	0	0	0	0	0	0	0	0	$0
Hull	0	0	0	0	0	0	0	0	$0
Huntington	1	0	0	1	0	0	0	0	$0
Ipswich	3	0	0	3	0	0	0	0	$0
Kingston	5	0	0	5	0	0	0	0	$0
Lake Pleasant	0	0	0	0	0	0	0	0	$0
Lakeville	0	0	0	0	0	0	0	0	$0
Lancaster	1	1	0	0	0	0	0	0	$10,000
Lanesborough	0	0	0	0	0	0	0	0	$0
Lawrence	25	6	9	10	0	0	0	0	$14,500
Lee	0	0	0	0	0	0	0	0	$0
Leicester	0	0	0	0	0	0	0	0	$0
Lenox	1	1	0	0	0	0	0	0	$0
Leominster	20	4	0	16	0	3	0	0	$1,000
Leverett	0	0	0	0	0	0	0	0	$0
Lexington	1	0	0	1	0	0	0	0	$0
Leyden	0	0	0	0	0	0	0	0	$0
Lincoln	0	0	0	0	0	0	0	0	$0
Littleton	1	0	0	1	0	0	0	0	$0
Logan Airport FD	0	0	0	0	0	0	0	0	$0
Longmeadow	5	0	0	5	0	0	0	0	$0
Lowell	20	7	8	5	0	0	0	0	$215,780
Ludlow	4	1	0	3	0	0	0	0	$0
Lunenburg	0	0	0	0	0	0	0	0	$0
Lynn	5	2	2	1	0	0	0	0	$0
Lynnfield	2	1	0	1	0	0	0	0	$0
MA Mil. Res.	4	0	0	4	0	0	0	0	$0

2010 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	344	248	14	82	0	9	0	18	$0
Manchester	29	14	5	10	0	0	0	1	$150,000
Mansfield	49	14	10	25	0	0	0	1	$706,470
Marblehead	43	20	2	21	0	1	0	0	$27,684
Marion	19	11	1	7	1	0	0	0	$254,700
Marlborough	133	54	14	65	0	2	0	1	$909,102
Marshfield	128	40	8	80	0	0	0	4	$0
Mashpee	68	25	9	34	0	2	0	0	$329,110
Mattapoisett	17	6	1	10	0	0	0	0	$4,000
Maynard	9	5	1	3	0	1	0	0	$6,500
Medfield	26	15	1	10	0	1	0	0	$160,000
Medford	288	148	30	110	1	6	0	6	$3,082,000
Medway	44	28	4	12	2	0	0	0	$0
Melrose	25	23	1	1	0	3	0	2	$1,086,600
Mendon	21	5	1	15	0	0	0	0	$10,100
Merrimac	63	28	10	25	0	0	0	0	$0
Methuen	189	105	25	59	1	1	0	5	$1,661,300
Middleborough	105	20	26	59	0	1	0	1	$425,800
Middlefield	0	0	0	0	0	0	0	0	$0
Middleton	187	146	5	36	0	2	0	0	$108,650
Milford	98	43	13	42	0	10	0	5	$1,055,555
Millbury	66	43	8	15	0	3	0	0	$183,550
Millis	0	0	0	0	0	0	0	0	$0
Millville	7	5	0	2	0	0	0	0	$11,100
Milton	175	102	17	56	0	0	0	9	$122,500
Monroe	1	1	0	0	0	0	0	0	$3,500
Monson	49	23	7	19	0	0	0	0	$90,000
Montague Fire Districts									
Montague Center	*21*	*7*	*0*	*14*	*0*	*0*	*0*	*0*	*$120,125*
Turners Falls	*51*	*26*	*3*	*22*	*0*	*0*	*0*	*0*	*$58,200*
Monterey	0	0	0	0	0	0	0	0	$0
Montgomery	4	1	1	2	0	0	0	0	$6,000
Mount Washington	0	0	0	0	0	0	0	0	$0
Nahant	9	4	0	5	0	0	0	0	$75,500
Nantucket	46	29	3	14	0	0	0	0	$5,000
Natick	131	61	17	53	0	0	0	2	$1,099,771
Needham	84	34	13	37	0	1	0	1	$408,400

2010 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	7	1	0	6	0	0	0	0	$0
Manchester	1	0	0	1	0	0	0	0	$0
Mansfield	1	0	0	1	0	0	0	0	$0
Marblehead	1	1	0	0	0	0	0	0	$0
Marion	0	0	0	0	0	0	0	0	$0
Marlborough	9	2	1	6	0	0	0	0	$14,000
Marshfield	5	0	0	5	0	0	0	0	$0
Mashpee	5	0	2	3	0	0	0	0	$6,800
Mattapoisett	2	0	0	2	0	0	0	0	$0
Maynard	0	0	0	0	0	0	0	0	$0
Medfield	3	1	0	2	0	0	0	0	$0
Medford	4	1	1	2	1	0	0	0	$1,700
Medway	1	1	0	0	1	0	0	0	$0
Melrose	0	0	0	0	0	0	0	0	$0
Mendon	7	0	0	7	0	0	0	0	$0
Merrimac	12	0	1	11	0	0	0	0	$0
Methuen	12	3	2	7	1	0	0	2	$0
Middleborough	0	0	0	0	0	0	0	0	$0
Middlefield	0	0	0	0	0	0	0	0	$0
Middleton	0	0	0	0	0	0	0	0	$0
Milford	3	0	2	1	0	0	0	0	$8,000
Millbury	0	0	0	0	0	0	0	0	$0
Millis	0	0	0	0	0	0	0	0	$0
Millville	0	0	0	0	0	0	0	0	$0
Milton	6	1	0	5	0	0	0	0	$10,000
Monroe	0	0	0	0	0	0	0	0	$0
Monson	2	1	1	0	0	0	0	0	$40,000
Montague Fire Districts									
Montague Center	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Turners Falls	*3*	*2*	*0*	*1*	*0*	*0*	*0*	*0*	*$3,400*
Monterey	0	0	0	0	0	0	0	0	$0
Montgomery	0	0	0	0	0	0	0	0	$0
Mount Washington	0	0	0	0	0	0	0	0	$0
Nahant	0	0	0	0	0	0	0	0	$0
Nantucket	1	0	0	1	0	0	0	0	$0
Natick	3	2	0	1	0	0	0	0	$200
Needham	0	0	0	0	0	0	0	0	$0

2010 Fire Experience By Community

Community	Total Fires	Structure Fires	Vehicle Fires	Other Fires	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
New Ashford	2	2	0	0	0	0	0	0	$1,600
New Bedford	386	156	76	154	0	12	0	17	$3,624,340
New Braintree	0	0	0	0	0	0	0	0	$0
New Marlborough	6	2	0	4	0	0	0	0	$0
New Salem	14	1	3	10	0	0	0	0	$5,250
Newbury	53	30	2	21	0	0	0	0	$3,039
Newburyport	18	13	4	1	0	2	0	1	$697,140
Newton	145	74	22	49	0	1	0	4	$2,789,605
Norfolk	66	47	2	17	1	5	0	2	$865,000
North Adams	48	18	12	18	0	0	0	2	$300,310
North Andover	145	84	12	49	0	0	0	0	$689,700
North Attleboro	56	16	12	28	0	0	0	1	$307,500
North Brookfield	23	9	0	14	0	0	0	0	$152,500
North Reading	50	23	4	23	0	0	0	0	$0
Northampton	93	33	16	44	0	4	0	0	$752,810
Northborough	43	15	7	21	0	1	0	0	$188,040
Northbridge	82	45	6	31	0	0	0	1	$104,000
Northfield	0	0	0	0	0	0	0	0	$0
Norton	53	16	13	24	0	3	0	0	$547,550
Norwell	37	10	5	22	0	0	0	0	$114,600
Norwood	118	43	14	61	0	0	0	0	$394,500
Oak Bluffs	1	0	1	0	1	0	0	0	$0
Oakham	17	4	0	13	0	0	0	0	$10,000
Orange	48	25	3	20	0	0	0	0	$0
Orleans	48	16	1	31	0	0	0	0	$61,000
Otis	0	0	0	0	0	0	0	0	$0
Oxford	60	32	10	18	0	3	0	0	$122,085
Palmer Fire Districts									
Bondsville	*12*	*3*	*0*	*9*	*0*	*0*	*0*	*0*	*$65,500*
Palmer	*40*	*15*	*6*	*19*	*0*	*0*	*0*	*0*	*$389,950*
Three Rivers	*10*	*7*	*1*	*2*	*0*	*0*	*0*	*0*	*$205,000*
Paxton	12	7	2	3	0	0	0	0	$342,700
Peabody	193	79	19	95	0	3	0	3	$2,144,035
Pelham	3	1	2	0	0	0	0	0	$0
Pembroke	22	16	4	2	0	2	0	0	$369,700
Pepperell	37	19	1	17	0	0	0	0	$22,000

2010 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	27	11	9	7	0	0	0	0	$86,100
New Braintree	0	0	0	0	0	0	0	0	$0
New Marlborough	0	0	0	0	0	0	0	0	$0
New Salem	1	0	0	1	0	0	0	0	$0
Newbury	4	0	0	4	0	0	0	0	$0
Newburyport	0	0	0	0	0	0	0	0	$0
Newton	3	0	1	2	0	0	0	0	$54,000
Norfolk	2	0	0	2	0	0	0	0	$0
North Adams	8	2	1	5	0	0	0	0	$10,300
North Andover	12	3	2	7	0	0	0	0	$6,100
North Attleboro	1	0	0	1	0	0	0	0	$0
North Brookfield	3	0	0	3	0	0	0	0	$0
North Reading	0	0	0	0	0	0	0	0	$0
Northampton	0	0	0	0	0	0	0	0	$0
Northborough	2	0	0	2	0	0	0	0	$0
Northbridge	2	1	0	1	0	0	0	0	$0
Northfield	0	0	0	0	0	0	0	0	$0
Norton	1	0	0	1	0	0	0	0	$0
Norwell	0	0	0	0	0	0	0	0	$0
Norwood	0	0	0	0	0	0	0	0	$0
Oak Bluffs	0	0	0	0	0	0	0	0	$0
Oakham	0	0	0	0	0	0	0	0	$0
Orange	0	0	0	0	0	0	0	0	$0
Orleans	4	0	0	4	0	0	0	0	$0
Otis	0	0	0	0	0	0	0	0	$0
Oxford	2	1	0	1	0	0	0	0	$500
Palmer Fire Districts									
Palmer	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Bondsville	*7*	*0*	*0*	*7*	*0*	*0*	*0*	*0*	*$0*
Three Rivers	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Paxton	0	0	0	0	0	0	0	0	$0
Peabody	2	0	0	2	0	0	0	0	$0
Pelham	0	0	0	0	0	0	0	0	$0
Pembroke	0	0	0	0	0	0	0	0	$0
Pepperell	0	0	0	0	0	0	0	0	$0

2010 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	4	2	0	2	0	0	0	0	$0
Petersham	5	2	0	3	0	0	0	0	$85,000
Phillipston	2	0	0	2	0	0	0	0	$0
Pittsfield	307	170	19	118	0	3	0	9	$2,067,376
Plainfield	2	1	1	0	0	0	0	0	$2,700
Plainville	30	11	7	12	0	2	0	0	$5,000
Plymouth	205	73	25	107	0	7	0	3	$1,632,703
Plympton	0	0	0	0	0	0	0	0	$0
Princeton	22	7	2	13	0	0	0	1	$23,450
Provincetown	39	25	2	12	0	0	0	0	$10,000
Quincy	574	268	38	268	0	4	0	9	$427,000
Randolph	218	143	24	51	0	1	0	0	$522,750
Raynham	59	25	8	26	0	1	0	1	$252,000
Reading	89	49	5	35	0	1	0	0	$472,500
Rehoboth	50	37	2	11	0	0	1	0	$31,000
Revere	468	368	9	91	0	0	0	0	$254,200
Richmond	8	4	0	4	0	0	0	0	$34,680
Rochester	2	2	0	0	0	0	0	0	$43,500
Rockland	53	28	2	23	0	1	0	2	$15,500
Rockport	12	9	0	3	0	0	0	0	$0
Rowe	0	0	0	0	0	0	0	0	$0
Rowley	20	7	2	11	0	0	0	0	$11,350
Royalston	2	2	0	0	0	0	0	0	$0
Russell	19	9	3	7	0	0	0	0	$115,000
Rutland	24	10	1	13	0	0	0	0	$205,200
Salem	174	73	9	92	0	0	0	0	$381,500
Salisbury	29	12	7	10	0	0	0	0	$589,700
Sandisfield	9	3	1	5	0	0	0	0	$21,000
Sandwich	100	59	11	30	0	2	0	5	$1,854,140
Saugus	170	57	20	93	0	1	0	6	$315,160
Savoy	2	2	0	0	0	0	0	0	$50,000
Scituate	96	41	4	51	0	5	0	2	$1,428,000
Seekonk	71	27	12	32	0	0	0	0	$290,867
Sharon	53	27	8	18	0	1	0	1	$770,521
Sheffield	2	0	0	2	0	0	0	0	$0

2010 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	1	0	0	1	0	0	0	0	$0
Pittsfield	25	5	2	18	0	0	0	1	$61,700
Plainfield	0	0	0	0	0	0	0	0	$0
Plainville	3	1	0	2	0	0	0	0	$5,000
Plymouth	5	1	0	4	0	1	0	0	$500,000
Plympton	0	0	0	0	0	0	0	0	$0
Princeton	2	1	0	1	0	0	0	0	$8,000
Provincetown	0	0	0	0	0	0	0	0	$0
Quincy	4	0	0	4	0	0	0	0	$0
Randolph	1	0	1	0	0	0	0	0	$0
Raynham	0	0	0	0	0	0	0	0	$0
Reading	5	0	0	5	0	0	0	0	$2,000
Rehoboth	0	0	0	0	0	0	0	0	$0
Revere	1	0	1	0	0	0	0	0	$1,000
Richmond	2	0	0	2	0	0	0	0	$3,600
Rochester	0	0	0	0	0	0	0	0	$0
Rockland	1	1	0	0	0	0	0	0	$0
Rockport	0	0	0	0	0	0	0	0	$0
Rowe	0	0	0	0	0	0	0	0	$0
Rowley	0	0	0	0	0	0	0	0	$0
Royalston	0	0	0	0	0	0	0	0	$0
Russell	0	0	0	0	0	0	0	0	$0
Rutland	0	0	0	0	0	0	0	0	$0
Salem	3	0	2	1	0	0	0	0	$0
Salisbury	1	0	0	1	0	0	0	0	$0
Sandisfield	1	0	0	1	0	0	0	0	$0
Sandwich	5	2	2	1	0	1	0	0	$255,000
Saugus	8	0	0	8	0	0	0	0	$0
Savoy	0	0	0	0	0	0	0	0	$0
Scituate	5	0	0	5	0	0	0	0	$0
Seekonk	5	3	0	2	0	0	0	0	$200
Sharon	2	0	0	2	0	0	0	0	$0
Sheffield	0	0	0	0	0	0	0	0	$0

2010 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 Ctr	*5*	*4*	*0*	*1*	*1*	*0*	*0*	*0*	*$92,400*
Shelburne Falls	*7*	*5*	*1*	*1*	*0*	*0*	*0*	*0*	*$14,000*
Sherborn	21	7	3	11	0	0	0	0	$85,600
Shirley	7	6	1	0	0	0	0	0	$4
Shrewsbury	126	64	13	49	0	0	0	0	$288,165
Shutesbury	8	2	4	2	0	0	0	0	$11,110
Somerset	43	17	4	22	0	1	0	0	$447,000
Somerville	43	29	13	1	0	5	0	21	$2,091,500
South Hadley Fire Districts									
South Hadley #1	*50*	*17*	*2*	*31*	*0*	*0*	*0*	*0*	*$138,350*
South Hadley #2	*44*	*38*	*2*	*4*	*0*	*0*	*0*	*0*	*$65,000*
Southampton	11	0	2	9	0	0	0	0	$0
Southborough	29	10	10	9	0	0	0	0	$42,800
Southbridge	82	48	6	28	0	8	0	1	$735,100
Southwick	50	28	4	18	0	1	0	1	$171,900
Spencer	91	58	5	28	2	0	0	1	$255,500
Springfield	1,053	613	108	332	1	15	0	46	$5,589,062
Sterling	33	10	3	20	0	0	0	0	$29,000
Stockbridge	0	0	0	0	0	0	0	0	$0
Stoneham	78	58	14	6	0	0	0	0	$145,000
Stoughton	266	238	11	17	1	2	0	1	$1,235,000
Stow	26	13	2	11	0	0	0	0	$147,100
Sturbridge	43	15	9	19	0	0	0	0	$7,500
Sudbury	61	21	3	37	0	0	0	0	$4,532,000
Sunderland	22	11	3	8	0	0	0	0	$17,000
Sutton	16	4	3	9	0	0	0	0	$0
Swampscott	63	27	4	32	0	0	0	5	$781,800
Swansea	86	32	11	43	0	1	0	0	$0
Taunton	166	34	15	117	1	0	0	0	$20,000
Templeton	42	32	0	10	0	1	0	1	$330,000
Tewksbury	105	41	11	53	0	0	0	0	$645,495
Tisbury	19	8	3	8	0	0	0	0	$0
Tolland	8	4	1	3	0	0	0	0	$0
Topsfield	80	63	3	14	0	0	0	0	$692,724
Townsend	3	2	1	0	0	0	0	0	$53,150
Truro	3	2	1	0	0	0	0	0	$98,679

2010 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	4	0	0	4	0	0	0	0	$0
Shirley	0	0	0	0	0	0	0	0	$0
Shrewsbury	2	0	1	1	0	0	0	0	$0
Shutesbury	0	0	0	0	0	0	0	0	$0
Somerset	0	0	0	0	0	0	0	0	$0
Somerville	1	1	0	0	0	0	0	0	$20,000
South Hadley Fire Districts									
South Hadley #1	*9*	*2*	*0*	*7*	*0*	*0*	*0*	*0*	*$0*
South Hadley #2	*1*	*0*	*0*	*1*	*0*	*0*	*0*	*0*	*$0*
Southampton	3	0	1	2	0	0	0	0	$0
Southborough	0	0	0	0	0	0	0	0	$0
Southbridge	2	0	0	2	0	0	0	0	$1,000
Southwick	4	0	1	3	0	0	0	0	$10,500
Spencer	3	1	0	2	2	0	0	1	$0
Springfield	10	2	3	5	0	0	0	0	$17,150
Sterling	0	0	0	0	0	0	0	0	$0
Stockbridge	0	0	0	0	0	0	0	0	$0
Stoneham	1	1	0	0	0	0	0	0	$0
Stoughton	1	0	0	1	0	0	0	0	$0
Stow	2	0	0	2	0	0	0	0	$0
Sturbridge	3	0	0	3	0	0	0	0	$0
Sudbury	0	0	0	0	0	0	0	0	$0
Sunderland	3	2	0	1	0	0	0	0	$0
Sutton	1	0	0	1	0	0	0	0	$0
Swampscott	1	0	0	1	0	0	0	0	$0
Swansea	3	1	0	2	0	0	0	0	$0
Taunton	13	1	1	11	0	0	0	0	$0
Templeton	2	1	0	1	0	0	0	0	$0
Tewksbury	7	5	0	2	0	0	0	0	$6,025
Tisbury	1	0	1	0	0	0	0	0	$0
Tolland	0	0	0	0	0	0	0	0	$0
Topsfield	4	0	0	4	0	0	0	0	$0
Townsend	1	1	0	0	0	0	0	0	$0
Truro	0	0	0	0	0	0	0	0	$0

2010 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	43	7	12	24	0	1	0	0	$5,000
Tyringham	0	0	0	0	0	0	0	0	$0
Upton	37	20	5	12	0	0	0	0	$202,500
Uxbridge	45	18	10	17	0	4	0	3	$614,200
Wakefield	59	52	6	1	0	0	0	2	$1,083,000
Wales	1	0	1	0	0	0	0	0	$50,000
Walpole	114	77	6	31	0	1	0	0	$203,800
Waltham	185	76	26	83	1	6	0	4	$2,497,700
Ware	56	14	1	41	0	0	0	0	$399,511
Wareham Fire Districts									
Onset	*35*	*14*	*5*	*16*	*0*	*2*	*0*	*2*	*$4,500*
Wareham	*136*	*52*	*22*	*62*	*0*	*6*	*0*	*0*	*$926,105*
Warren	24	11	3	10	0	0	0	0	$242,600
Warwick	2	1	0	1	0	0	0	0	$0
Washington	0	0	0	0	0	0	0	0	$0
Watertown	63	34	5	24	0	0	0	6	$425,425
Wayland	47	26	5	16	0	0	0	2	$448,970
Webster	69	22	6	41	1	0	0	3	$375,302
Wellesley	48	16	10	22	1	0	0	2	$1,653,165
Wellfleet	20	11	2	7	0	0	0	0	$3,755
Wendell	3	2	0	1	0	0	0	0	$0
Wenham	19	11	2	6	0	0	0	0	$125,045
West Boylston	26	7	7	12	0	0	0	1	$230,000
West Bridgewater	34	8	11	15	0	0	0	0	$4,500
West Brookfield	0	0	0	0	0	0	0	0	$0
West Newbury	7	1	1	5	0	1	0	0	$25,000
West Springfield	74	28	17	29	1	1	0	0	$971,400
West Stockbridge	1	1	0	0	0	0	0	0	$1,000
West Tisbury	3	3	0	0	1	0	0	0	$0
Westborough	64	37	5	22	0	0	0	0	$691,875
Westfield	123	52	23	48	0	1	0	0	$325,980
Westford	74	24	12	38	0	0	0	1	$1,217,725
Westhampton	11	3	2	6	0	0	0	0	$18,000
Westminster	40	15	6	19	0	0	0	0	$261,900
Weston	39	22	8	9	0	1	0	1	$0
Westport	55	21	9	25	0	1	0	2	$1,070,400
Westwood	121	81	11	29	0	2	0	1	$697,785
Weymouth	308	173	21	114	0	2	0	10	$1,664,040

2010 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	0	0	0	0	0	0	0	0	$0
Uxbridge	3	1	0	2	0	0	0	0	$100
Wakefield	1	1	0	0	0	0	0	0	$30,000
Wales	0	0	0	0	0	0	0	0	$0
Walpole	1	0	0	1	0	0	0	0	$0
Waltham	6	3	0	3	0	0	0	0	$20,700
Ware	4	1	0	3	0	0	0	0	$502
Wareham Fire Districts									
Onset	*3*	*0*	*2*	*1*	*0*	*0*	*0*	*0*	*$0*
Wareham	*5*	*0*	*1*	*4*	*0*	*0*	*0*	*0*	*$100*
Warren	0	0	0	0	0	0	0	0	$0
Warwick	0	0	0	0	0	0	0	0	$0
Washington	0	0	0	0	0	0	0	0	$0
Watertown	3	2	0	1	0	0	0	0	$100
Wayland	1	1	0	0	0	0	0	0	$500
Webster	10	2	0	8	0	0	0	0	$110,300
Wellesley	0	0	0	0	0	0	0	0	$0
Wellfleet	0	0	0	0	0	0	0	0	$0
Wendell	0	0	0	0	0	0	0	0	$0
Wenham	1	1	0	0	0	0	0	0	$0
West Boylston	2	0	0	2	0	0	0	0	$0
West Bridgewater	3	0	1	2	0	0	0	0	$1,500
West Brookfield	0	0	0	0	0	0	0	0	$0
West Newbury	0	0	0	0	0	0	0	0	$0
West Springfield	2	1	0	1	1	0	0	0	$0
West Stockbridge	0	0	0	0	0	0	0	0	$0
West Tisbury	0	0	0	0	0	0	0	0	$0
Westborough	3	2	0	1	0	0	0	0	$25
Westfield	4	1	0	3	0	1	0	0	$45,000
Westford	7	2	0	5	0	0	0	0	$725
Westhampton	0	0	0	0	0	0	0	0	$0
Westminster	0	0	0	0	0	0	0	0	$0
Weston	1	1	0	0	0	0	0	0	$0
Westport	3	0	0	3	0	0	0	0	$500
Westwood	1	0	0	1	0	0	0	0	$0
Weymouth	11	6	0	5	0	0	0	2	$340,800

2010 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	10	1	2	7	0	0	0	0	$0
Whitman	46	17	3	26	0	2	0	0	$108,500
Wilbraham	32	10	7	15	0	0	0	0	$35,000
Williamsburg	1	1	0	0	0	0	0	0	$110,000
Williamstown	0	0	0	0	0	0	0	0	$0
Wilmington	118	58	20	40	0	0	0	2	$166,125
Winchendon	49	27	2	20	0	0	0	0	$395,100
Winchester	53	23	7	23	0	1	0	0	$533,000
Windsor	1	1	0	0	0	0	0	0	$40,000
Winthrop	88	45	3	40	0	1	0	2	$229,250
Woburn	71	47	18	6	1	9	0	0	$1,327,811
Worcester	1,430	730	95	605	1	2	0	67	$8,278,703
Worthington	0	0	0	0	0	0	0	0	$0
Wrentham	46	9	4	33	0	0	0	0	$12,127
Yarmouth	3	2	1	0	0	0	0	0	$0

2010 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	2	0	1	1	0	0	0	0	$0
Whitman	2	0	1	1	0	0	0	0	$7,000
Wilbraham	4	0	2	2	0	0	0	0	$3,000
Williamsburg	0	0	0	0	0	0	0	0	$0
Williamstown	0	0	0	0	0	0	0	0	$0
Wilmington	4	1	0	3	0	0	0	0	$5,000
Winchendon	0	0	0	0	0	0	0	0	$0
Winchester	2	0	0	2	0	0	0	0	$0
Windsor	0	0	0	0	0	0	0	0	$0
Winthrop	6	0	0	6	0	0	0	0	$0
Woburn	1	0	0	1	0	0	0	0	$0
Worcester	58	13	6	39	0	0	0	0	$137,151
Worthington	0	0	0	0	0	0	0	0	$0
Wrentham	6	0	0	6	0	0	0	0	$0
Yarmouth	1	0	1	0	0	0	0	0	$0

2010 Fires By Incident Type

Incident Type	Total Fires	% of Total	Civilian Deaths	Civilian Inj.	Fire Service Deaths	Fire Service Inj.	Dollar Loss
Structure Fires	18,560	57%	28	309	2	491	$176,801,842
Vehicle Fires	2,967	9%	5	27	0	13	15,499,953
Brush Fires	5,926	18%	1	3	0	20	1,338,129
Outside Rubbish Fires	3,260	10%	0	5	0	1	103,412
Special Outside Fires	918	3%	2	11	0	1	898,350
Cult. Veg. & Crop Fires	42	0.1%	0	0	0	0	2,620
Other Fires	1,007	3%	0	11	0	5	1,847,270
Total Fires	**32,680**	**100%**	**36**	**366**	**2**	**531**	**$196,491,576**

2010 Arsons* By Incident Type

Incident Type	Total Fires	% of Total	Civilian Deaths	Civilian Inj.	Fire Service Deaths	Fire Service Inj.	Dollar Loss
Structure Arsons	268	23%	6	10	0	16	$6,424,112
Vehicle Arsons	115	10%	0	0	0	0	487,893
Brush Arsons	443	38%	0	1	0	0	1,303
Outside Rubbish Arsons	100	9%	0	0	0	0	2,915
Special Outside Arsons	145	12%	2	2	0	0	5,640
Cult. Veg. & Crop Arsons	6	0.5%	0	0	0	0	0
Other Arsons	92	8%	0	0	0	1	209,262
Total Arsons	**1,169**	**100%**	**8**	**13**	**0**	**17**	**$7,131,125**

*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.

2010 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	957	418	103	436	0	27	0	12	$6,393,211
Berkshire	609	356	47	206	0	10	0	11	5,756,399
Bristol	2,013	837	301	875	4	44	1	36	15,690,131
Dukes	28	15	5	8	2	0	0	0	25,050
Essex	3,574	1,977	295	1,302	3	21	0	46	24,267,771
Franklin	396	186	43	167	2	1	0	0	1,679,635
Hampden	2,323	1,173	286	864	2	33	1	57	12,940,237
Hampshire	560	236	59	265	1	9	0	2	3,185,806
Middlesex	5,760	3,405	506	1,849	8	81	0	127	42,087,422
Nantucket	46	29	3	14	0	0	0	0	5,000
Norfolk	3,420	2,020	284	1,116	5	27	0	43	13,876,684
Plymouth	1,903	798	219	886	1	40	0	29	13,112,509
Suffolk	6,809	4,861	421	1,527	3	20	0	63	34,433,633
Worcester	4,282	2,249	395	1,638	5	53	0	105	23,038,088
Total	**32,680**	**18,560**	**2,967**	**11,153**	**36**	**366**	**2**	**531**	**$196,491,576**

2010 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	7	7	52	0	2	0	0	$328,400
Berkshire	42	8	4	30	0	1	0	1	75,605
Bristol	116	43	13	60	0	2	0	0	1,926,450
Dukes	1	0	1	0	0	0	0	0	0
Essex	152	23	19	110	2	0	0	2	379,650
Franklin	27	8	1	18	0	0	0	0	154,600
Hampden	77	17	12	48	1	1	0	1	382,900
Hampshire	43	9	1	33	0	1	0	0	88,142
Middlesex	161	44	13	104	1	0	0	0	434,805
Nantucket	1	0	0	1	0	0	0	0	0
Norfolk	80	14	4	62	1	0	0	2	424,300
Plymouth	93	18	12	63	0	1	0	0	1,133,610
Suffolk	145	39	18	88	1	2	0	8	1,175,887
Worcester	165	38	10	117	2	3	0	3	626,776
Total	**1,169**	**268**	**115**	**786**	**8**	**13**	**0**	**17**	**$7,131,125**

*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.

2010 Fires, Arsons and Deaths By County and By Population*

County	Population	Total Fires	Fires per 1,000 Pop.	Fire Deaths	Deaths per 1,000 Fires	Deaths per 10,000 Pop.	Total Arsons	Arsons per 1,000 Pop.
Barnstable	215,888	957	4.4	0	0.0	0.00	66	0.3
Berkshire	131,219	609	4.6	0	0.0	0.00	42	0.3
Bristol	548,285	2,013	3.7	4	2.0	0.07	116	0.2
Dukes	16,535	28	1.7	2	71.4	1.21	1	0.1
Essex	743,159	3,574	4.8	3	0.8	0.04	152	0.2
Franklin	71,372	396	5.5	2	5.1	0.28	27	0.4
Hampden	463,490	2,323	5.0	2	0.9	0.04	77	0.2
Hampshire	158,080	560	3.5	1	1.8	0.06	43	0.3
Middlesex	1,503,085	5,760	3.8	8	1.4	0.05	161	0.1
Nantucket	10,172	46	4.5	0	0.0	0.00	1	0.1
Norfolk	670,850	3,420	5.1	5	1.5	0.07	80	0.1
Plymouth	494,919	1,903	3.8	1	0.5	0.02	93	0.2
Suffolk	722,023	6,809	9.4	3	0.4	0.04	145	0.2
Worcester	798,552	4,282	5.4	5	1.2	0.06	165	0.2
Massachusetts	**6,547,629**	**32,680**	**5.0**	**36**	**1.1**	**0.05**	**1,169**	**0.2**

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

2010 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

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

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

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

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

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

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

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

For the purpose of this section, 'lodging house' or 'boarding house' shall mean a house where lodgings are let to six or more persons not within the second degree of kindred to the person conducting it, but shall not include fraternity houses or dormitories, rest homes or group homes licensed to or regulated by the agencies of the Commonwealth.

Any lodging or boarding house subject to the provisions of this section shall be equipped with automatic sprinklers within five years of the acceptance of this act by a city or town…Whoever is aggrieved by the head of the fire department's interpretation…under the provisions of this section, may within forty-five days after the service of notice thereof, appeal from such interpretation, order or requirement to the board of appeals of the fire safety commission in section two hundred and one of chapter six."

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

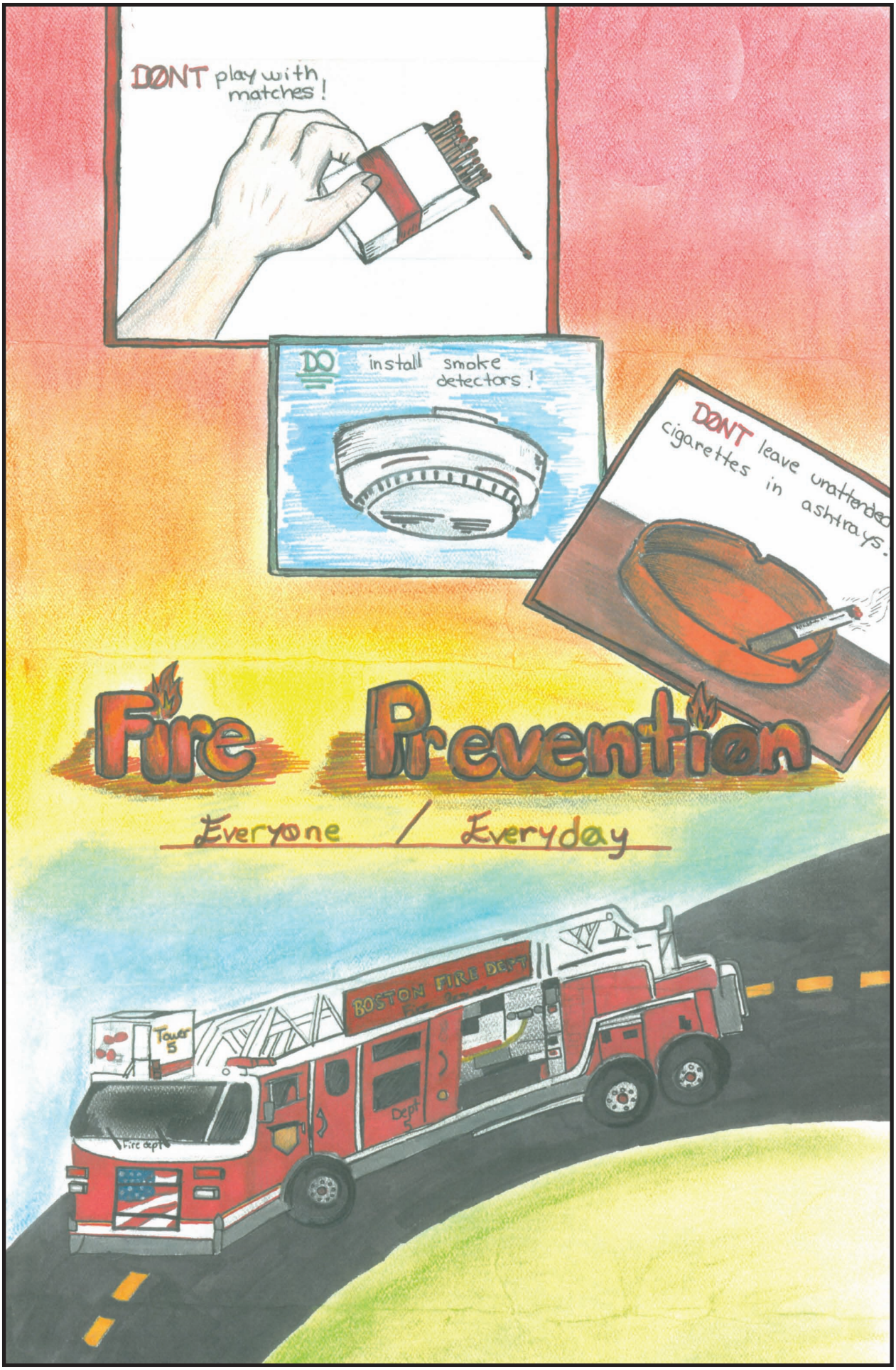
Abington	Fairhaven	Natick	Turners Falls
Acton	Fall River	Needham	Tyngsboro
Acushnet	Fitchburg	Newburyport	Upton
Amesbury	Framingham	Newton	Wakefield
Amherst	Franklin	North Andover	Ware
Arlington	Gardner	North Reading	Warren
Ashland	Georgetown	Northborough	Watertown
Auburn	Grafton	Norton	Wayland
Ayer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

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

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

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

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


DØNT play with matches!
DO install smoke detectors!
DØNT leave unattended cigarettes in ashtrays.
Fire Prevention
Everyone / Everyday
BOSTON FIRE DEPT
Tower 5
Dept 5
Fire dept