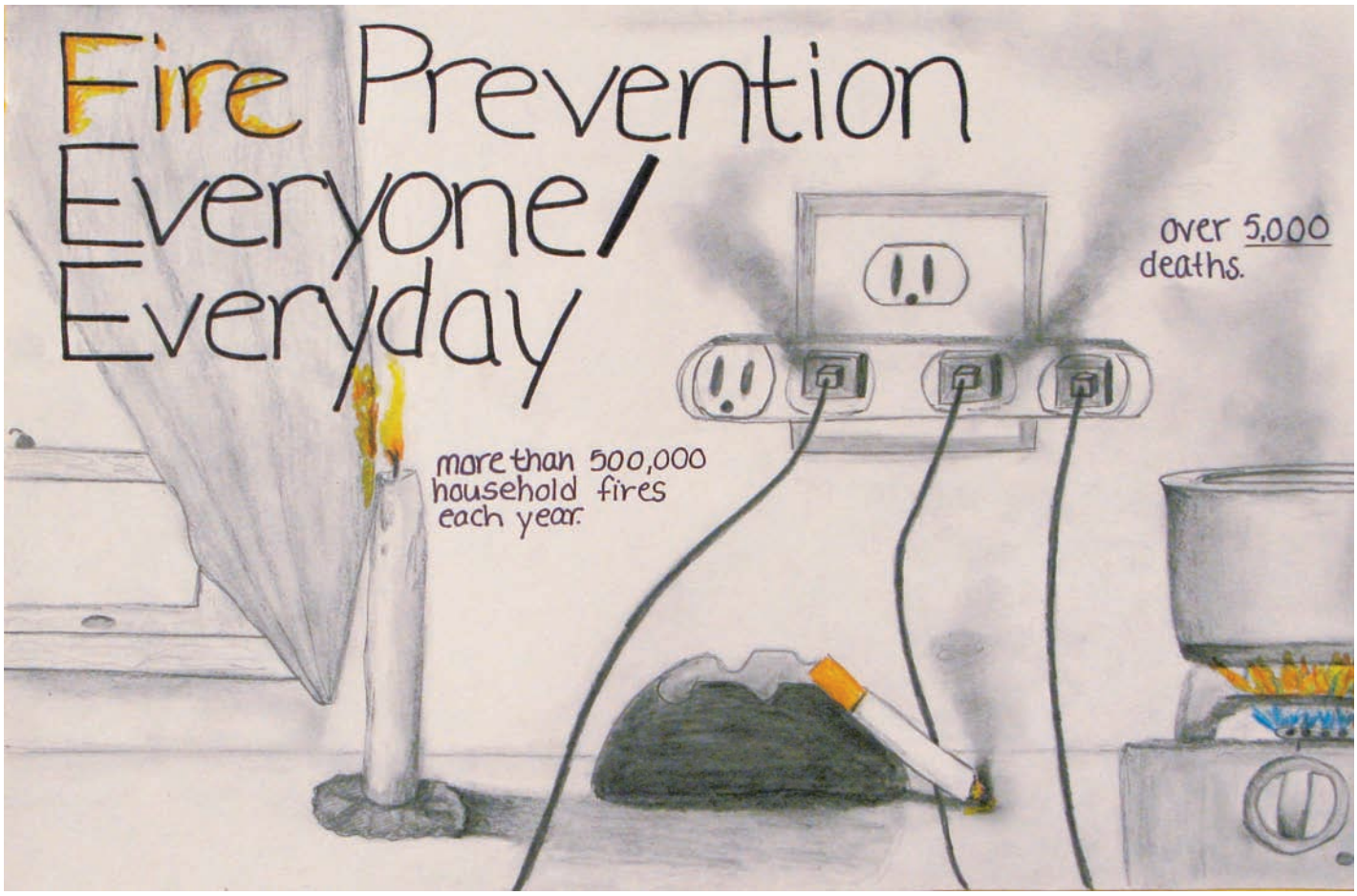
The Massachusetts Fire Problem



Annual Report of the Massachusetts Fire Incident Reporting System

2008

Deval L. Patrick
Governor

Mary Elizabeth Heffernan
Secretary of Public Safety & Security

Stephen D. Coan
State Fire Marshal

Thomas P. Leonard
Deputy State Fire Marshal

ABOUT THE COVERS

The original drawings shown on the front and back covers are the year 2009 First and Second Place winning entries of the 27th Annual Statewide Arson Watch Reward Program Poster Contest, sponsored by the Massachusetts Property Insurance Underwriting Association (FAIR Plan), on behalf of all property and casualty insurance companies of Massachusetts. This year's poster theme was **"FIRE PREVENTION – EVERYONE / EVERY DAY".**

A countywide contest was held for all students in grade 6-8. Coordinators from each county held individual countywide contests where they chose First and Second Place winners. All First Place County Winners had their posters submitted to Massachusetts Property Insurance Underwriting Association for entry into the Massachusetts Statewide contest. First, Second and Third Place State winners were announced at an Award Ceremony held at the Sheraton Framingham Hotel on May 28, 2009.

The front cover shows a drawing submitted by Laura Feeley, a student at the St. Peter Marian Jr./Sr. High School, Worcester, Massachusetts. Laura's poster was chosen as First Place Winner in the Worcester 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 Leah Hewlings, a student at Smith Academy, Hatfield, Massachusetts. Leah's poster was chosen as First Place Winner in the Hampshire 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 2008 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 26 years.

Massachusetts Fire Incident Reporting System

2008 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

Fireman's Prayer

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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 2009

This is the *2008 Annual Report of the Massachusetts Fire Incident Reporting System* (MFIRS) which summarizes the Massachusetts fire experience for 2008. It is based on the 30,136 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 Office of the State Fire Marshal is to provide the fire service and the public with accurate and complete information about the fire experience in Massachusetts

Civilian Fire Deaths Down 20% - 2nd All Time Low

Forty-nine (49) civilians died in 43 Massachusetts fires during 2008. Civilian deaths decreased by 12, or 20%, from the 61 fire deaths in 2007. This is the second lowest number of fire-related deaths on record since World War II[1]; second only to the 44 civilian deaths in 2006. The majority of these victims died at night, while they were sleeping and did not have working smoke detectors or residential sprinklers. It is also important to remember that detectors only provide an early warning of a fire. They do not guarantee an escape. Residential sprinklers provide the best opportunity to safely escape from a fire in your home. It is also important to make and practice an escape plan.

Time for Residential Sprinklers

It is time for the fire service and its partners to move forward towards enacting legislation and regulation on residential sprinklers in the Commonwealth. Sprinklers have a long history of effectively protecting life and property.

1 Fire Related Firefighter Death in 2008

In 2008, there was one fire-related fire service fatality in the Commonwealth of Massachusetts. One (1) Boston firefighter died while fighting a construction vehicle fire in a building undergoing a major renovation.

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. They have also measured the positive impact of smoke alarms in reducing fire deaths and multiple deaths in fires, as well as the impact of smoking laws and tobacco control programs in reducing fires and fire deaths. The Student Awareness of Fire Education Program (S.A.F.E.) has had the planned impact of reducing child fire deaths. Seniors own the fastest growing share of our population, so our prevention efforts must be expanded to include them, not just shift existing resources to them.

Our relentless goal is to reduce the deaths, injuries and damage fires do in the Commonwealth, and to send each and every firefighter home safely at the end of the day.

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

We must continue to fund and strengthen our code compliance efforts, and use enforcement tools when necessary. An important part is educating the public as to why fire codes are in place. It is imperative that we continue to educate the public at every stage of their lives as to what they can do to prevent a fire and to survive the ones that will occur.

Fire Standard Compliant Cigarettes
The Reduced Ignition Propensity (RIP) legislation or 'fire safe cigarette' law making it mandatory for cigarette manufacturers to start selling only the self-extinguishing type of cigarettes in Massachusetts took effect on January 1, 2008. Since August of 2008 all of the states bordering Massachusetts have been selling self-extinguishing cigarettes; and since January 1, 2009 every state in the Northeast and Mid-Atlantic regions have been only selling consumers these types of cigarettes.

The expectation is that when the effect of this law is fully realized, it will help to reduce the number of fatal fires and fire deaths in the Commonwealth. Smoking has been the leading cause of fatal fires in Massachusetts since World War II according to available records. In 2008, 11, or 26%, of residential fire deaths in Massachusetts were due to smoking; in 2007 it caused 17, or 32%, of these deaths. Nationwide, smoking is also the leading cause of fatal fires.

Cooking Leading Cause of Fires & Fire Injuries
Cooking is the leading cause of most fires and civilian fire injuries in the Commonwealth. Fifty-six percent (56%) of all building fires started in the kitchen. Over one quarter of all civilian fire injuries, 27%, 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.

December 11 - 12, 2008 Ice Storm
During the night of December 11, 2008 and morning of December 12, 2008, a severe ice storm crippled most of northern Worcester County. Many trees and power lines were downed. Parts of the county lost power and some roads were not passable for up to two weeks. This storm strained the emergency resources of northern Worcester County, and with their personnel exhausted, task forces from outside the affected areas, under the MA Fire Mobilization Plan, were sent in to relieve these crews and cover their towns.

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 Office of the State Fire Marshal who manage the Massachusetts Fire Incident Reporting System and prepared this report.

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

Stephen D. Coan
State Fire Marshal

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Executive Summary

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

-Massachusetts General Laws, Chapter 148, Section 2.

Civilian Fire Deaths Down 20% - 2nd All Time Low

Forty-nine (49) civilians died in 43 Massachusetts fires during 2008. Civilian deaths decreased by 12, or 20%, from the 61 fire deaths in 2007. This is the second lowest number of fire-related deaths on record since World War II[1]; second only to the 44 civilian deaths in 2006. Twenty-nine (29) men, 19 women, and five children died in Massachusetts' fires. Of the 49 civilian deaths in fires in 2008, 43 occurred in residential structure fires and one occurred in a non-residential structure fire. Over one-third, or 37%, of civilians died at night, while they were sleeping and did not have working smoke detectors or residential sprinklers. It is also important to remember that detectors only provide an early warning of a fire. They do not guarantee an escape. Residential sprinklers provide the best opportunity to safely escape from a fire in your home. It is also important to make and practice an escape plan.

Five (5) deaths occurred in five motor vehicle fires in 2008. No one died in an outside or other fire in 2008.

1 Fire Related Firefighter Death in 2008

In 2008, there was one fire-related fire service fatality in the Commonwealth of Massachusetts. One (1) Boston firefighter died while fighting a construction vehicle fire in a building undergoing a major renovation.

17,198 Structure Fires, 3,076 Vehicle Fires, 9,862 Outside & Other Fires in 2008

There were 30,136 fire and explosion incidents reported by fire departments to the Massachusetts Fire Incident Reporting System (MFIRS) in 2008. The 17,198 structure fires, 3,076 motor vehicle fires, and 9,862 outside and other fires caused 49 civilian deaths, one fire service death, 337 civilian injuries, 622 fire service injuries, and an estimated dollar loss of $254 million in property damages. In 2008 there were 1.6 civilian deaths for every 1,000 fires.

Structure Fires Increase & MV & Outside Fires Down in 2008

The total number of reported fires decreased by 11% from 33,806 in 2007 to 30,136 in 2008. Structure fires increased 7% from 2007 to 2008. From 2007 to 2008, motor vehicle fires decreased by 8%. Outside, brush, and other fires decreased by 28% during the same time period.

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

Although the law states that only fires where a loss is sustained must be reported, many fire departments are wisely reporting all of the fire incidents that they respond to, giving a more accurate picture of the fire problem in Massachusetts. Many departments are also reporting the non-fire calls to which they respond. Emergency medical and rescue calls represent over half, or 57%, of the 680,913 total responses that were reported to MFIRS in 2008.

Cooking Was the Leading Cause of Residential Building Fires
Sixty percent (60%) of all residential building fires were caused by unattended and other unsafe cooking practices in 2008. Fifty-eight percent (58%) of residential fires originated in the kitchen.

Once Again Smoking Fires Are the Leading Cause of Fire Deaths
In 2008, smoking fires were the leading cause of residential building fire deaths. These fires accounted for 11, or 26%, of residential fire deaths. For years, smoking has been far and away the leading cause of fatal fires and fire deaths in Massachusetts. In 1999, cooking and smoking tied as the leading causes of fires that kill. In 2005, electrical fires were the leading cause of residential fire deaths, but smoking remained the leading cause of fatal residential fires. Because a fire can kill more than one person it is important to look at the causes of both fatal fires and fire deaths.

Detectors Operated in 59% of Fires
Smoke or heat detectors operated in 8,099, or 59%, of the residential building fires in 2008. Detectors, in confined fires, did not alert the occupants in 9% of these fires. Detectors were present but did not operate in 2% of these incidents. In 2% of these fires, no detectors were present at all. The fire was too small to trigger the detector in 3% of the residential fires. Based on information reported, smoke detector performance was undetermined in 3,442 incidents, or 25% of Massachusetts' 2008 residential building fires.

Detectors Operated in Over 1/2 of Building Fires that Caused Injuries
Detectors operated in just over half, or 51%, of the structure fires that caused injuries. This may be because when the occupant is alerted to the presence of the fire; they may try to extinguish it themselves and injure themselves during this task or during the escape after the situation has considerably worsened. When alerted to the presence of a fire, occupants should vacate the building and notify the fire department as soon as possible, letting the professionals with the proper training and gear extinguish the fire.

Overall Arson Down 3%
One thousand one hundred and eighty-two (1,182) Massachusetts fires were considered arson in 2008. The 280 structure arsons, 150 vehicle arsons, and 752 outside and other arsons caused five civilian deaths, 10 civilian injuries, 42 fire service injuries, and an estimated dollar loss of $14 million. This is a 3% decrease in arson from the 1,215 reported in 2007.

Structure arsons dropped by 20%, while motor vehicle arsons rose 15% from 2007 to 2008, although motor vehicle arson has fallen 97% since 1987. The steady decline of motor vehicle arsons can be explained by the enactment of the Burned Motor Vehicle Reporting Law, which took effect in 1987, and requires owners of burned motor vehicles to complete and sign a report which must also be signed by a fire official from the department in the community where the fire occurred before they can collect on their fire insurance. Outside and other arsons increased by 2%.

Almost 1/2 of All Vacant Building Arsons Occurred in Unsecured Buildings
Forty percent (40%) of all vacant building arsons in 2008 occurred in unsecured vacant buildings. Thirty-six percent (36%) occurred in secured, vacant buildings; while 13% happened in idle buildings that are not routinely used. Buildings under construction accounted for 7% of vacant building arsons. Buildings under major renovation accounted for 4% of the vacant building arsons in 2008. One of the most dangerous types of fires for firefighters in 2008 was vacant building fires. On average there was one firefighter injury for every four vacant building fires.

Only 7% of School Fires Were Reported as Intentionally Set
Cooking was the leading cause of the 220 fires in schools in 2008, causing 36% of these fires. Indoor rubbish fires, for which no causal information is collected, accounted for 22%, or just over one-fifth of school fires. Seven percent (7%), of school fires, were reported as intentionally set, and an additional 3% were reported as juvenile-set fires. It is unknown, but likely, that many of the intentionally set fires involved people under the age of 18.

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

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

Massachusetts Fire Departments

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

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

Fire Department Enforces M.G.L. Chapter 148 and 527 CMR
The fire department is legally required to enforce the provisions of 527 Code of Massachusetts Regulations (CMR). This contains regulation sections on fireworks, dry cleaning, oil burners, gas stations, liquid propane, plastics, transportation of flammable liquids, above ground and underground 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 and educate people on violations and perform follow-up inspections. Just as firefighters are sent to the Massachusetts Firefighting Academy to learn the principles of suppression, fire prevention personnel must go to classes to learn the ins and outs of the regulations. These functions also produce a corresponding amount of documentation that is critical to be maintained.

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

The S.A.F.E. Program

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

Mansfield Young Hero – Andrew Ducharme

On January 25, 2008 at 5:00 p.m., 9-year old Andrew Ducharmae was at home with his mother and 5-year old brother Kyle when their mom had a seizure and was unconscious on the floor. Andrew called 9-1-1 to get medical help for his mother who has a history of a brain bleed. Andrew received his S.A.F.E. education at the Jordan/Jackson Elementary School from the Mansfield Fire Department in March 2007.

FPO Michael Swain, University of Massachusetts-Amherst

Fire Prevention Officer Michael Swain is in charge of campus fire safety at the University of Massachusetts in Amherst. Mike has recognized that the college-aged student has often been forgotten when it comes to fire safety messages. He has been aggressive in not only providing valuable, pertinent information to the students at UMass but through his work with the non-profit Center for Campus Fire Safety, he has promoted the need for fire safety education to students, parents, leaders of colleges and universities nationwide as well as to legislators in Washington, DC. He has provided fire safety education to Congressional pages and interns as well as training for many of the nation's campus fire safety professionals. Mike works tirelessly to get fire safety messages to every student on the UMass campus. Under his leadership, the Greek Fire Safety Academy has developed a number of programs for the students living in fraternities and sororities, which are off-campus housing. The program includes practicing a fire escape through theatrical smoke, fire extinguisher training, and discussion about their lifestyles, personal behavior and responsibilities to other residents and guests, and a mock dorm room that demonstrates how fast fire spreads. He also utilizes peer-to-peer education through student fire fighters. Mike has built bridges between the University, its students, the fire department, student firefighters, and the local community's emergency response agency.

97 MA Departments Receive $9.5 Million in Federal Grants

In the seventh year of the Federal Assistance to Firefighter Grant program, 97 Massachusetts fire departments received $9.5 million. Eighty-nine (89) departments

received $7.6 million for fire operations and firefighter safety. Eight (8) departments received $1.9 million for the purchase of firefighting vehicles.

Seven (7) fire departments were awarded $2.7 million in SAFER grants that allow for the hiring of more firefighters.

98.9% 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 forty-two (342), or 93.7% of Massachusetts Fire Departments reported at least one fire during 2008. Twenty (20), or 5.5 %, 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 SAFE funding.

More and more departments are automating fire incident reporting and other department functions. In 2008, 292, or 80%, of Massachusetts' fire departments submitted their data electronically.

Expanded Possibilities With Version 5

2008 is the seventh full year that fire incident reports were submitted and analyzed using version 5 reporting format and data codes. This new version of the reporting system allows us a greater opportunity to complete a more in-depth analysis of the fire problem in Massachusetts.

Non-Fire Incidents

Fire Departments Do More Than Just Fight Fires

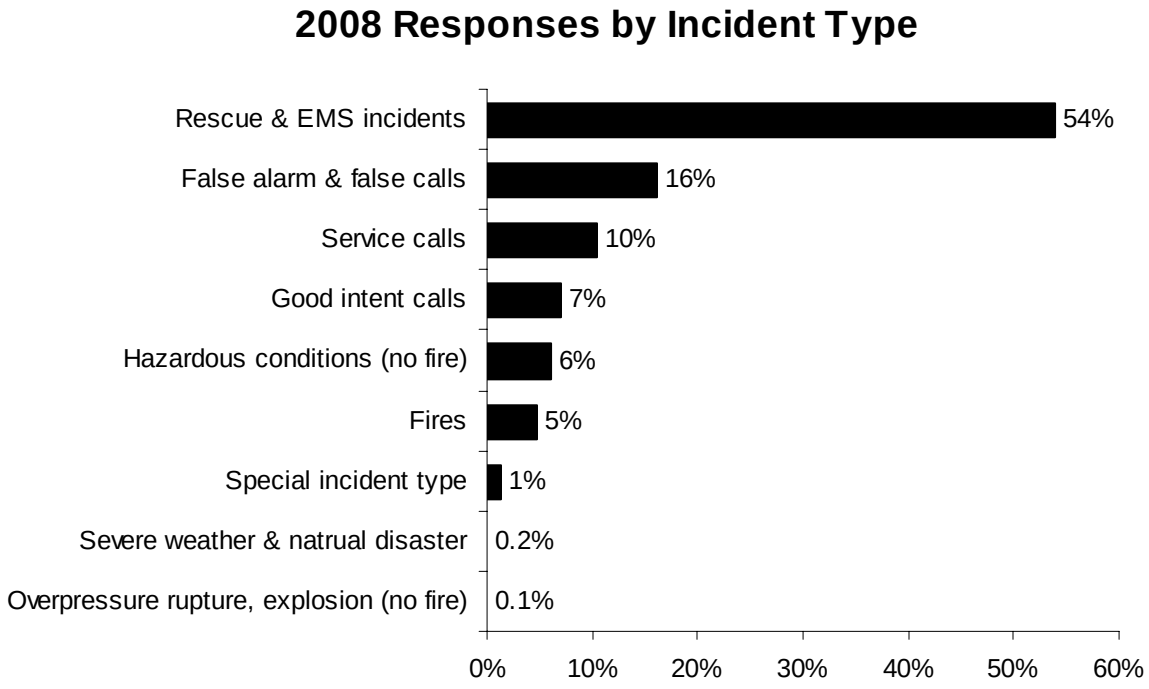
Massachusetts fire departments do much more than just fight fires. Over the past couple of decades they have branched out and taken on the added responsibilities for EMS responses, multiple types of specialized rescues, hazardous materials incidents, responding during and after natural disasters, as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

54% of All Massachusetts Calls Were EMS Incidents

In 2008, 344 fire departments in Massachusetts reported 680,913 responses[2] to MFIRS. Of these 680,913 responses, 649,236 non-fire calls were voluntarily reported.

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

Of these 649,236 non-fire incidents there were 366,917 (54%) reported rescue and emergency medical services (EMS) calls; 110,524 (16%) reported false alarm or false calls; 70,892 (10%) reported service calls such as lock-outs, water or smoke problem, unauthorized burning or public service assistance; 47,797 (7%) reported good intent calls; 41,942 (6%) reported hazardous condition calls with no fire; 8,792 (1%) reported special incident type calls such as citizen complaints; 1,390 (0.2%) reported severe weather and



natural disaster incidents; and 982 (0.1%) reported overpressure rupture, explosion or overheat calls with no fire.

Thirty-one thousand six hundred and seventy-seven (31,677), or 5%, of the total responses submitted by Massachusetts fire departments were fires.

Most Large Cities Voluntarily Reporting All of Their Incidents
Boston, the largest city in the Commonwealth, reported 66,389 non-fire incidents in 2008. The City of Worcester, the second largest city in Massachusetts reported the second most non-fire incidents in 2008, 27,024 incidents. The next five cities in terms of the number of non-fire calls reported were: Cambridge, 12,899 calls; Springfield with 12,429; Lowell, 12,040 calls; New Bedford, 9,834 calls; and Framingham with 8,852 reported non-fire incidents in 2008.

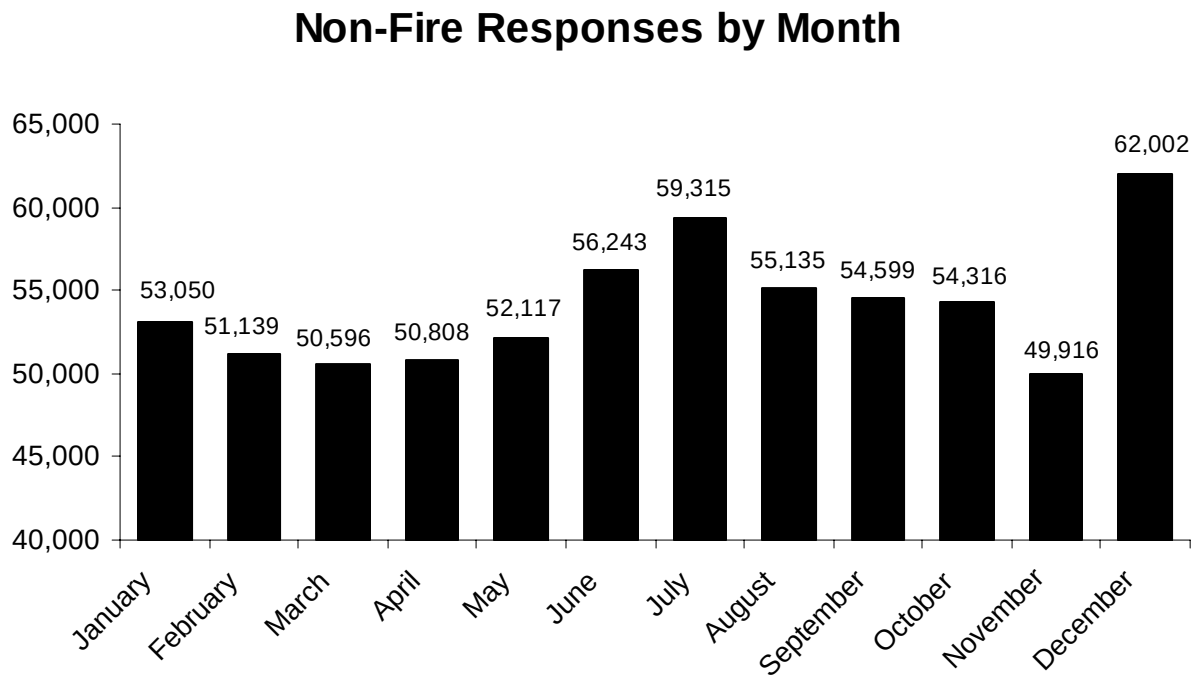
Over Half of All Fire Department Responses Were EMS Calls
Fifty-four percent (54%) of all reported 2008 fire department responses in the Commonwealth were emergency medical service calls. Four of the top five types of all calls were all EMS type incidents. Over one quarter of all reported incidents, or 29%,

were non-vehicle accident with injury - EMS calls. Eleven percent (11%) were calls where firefighters assisted the EMS crews. Seven percent (7%) classified as rescue, EMS call, other. Three percent (3%) of all reported incidents in 2008 were motor vehicle accidents with injuries. The fifth most reported call in 2008 was good intent calls, other, accounting for 3% 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 2008. Middlesex County reported 21% of these types of incidents and Suffolk County reported 14%. Worcester County submitted the third most non-fire calls totaling 13% of all the 2008 non-fire incidents. Nantucket County reported 1,911 (0.3%) non-fire incidents and Dukes County reported 129 non-fire incidents; accounting for 0.02% of all non-fire incidents reported to MFIRS in 2008.

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

Non-Fire Incidents by Month
Because of the December 11 – 12 ice storm, December was the month with the most reported non-fire incidents in 2008 (10%), followed by July (9%) and June (9%). November was the month with the least reported non-fire incidents (8%). Statistically these incidents are spread evenly from month to month. Nine (9) months each accounted for 8% of the incidents, two months each accounted for 9%, and one month accounted for 10% of the incidents. The average number of monthly reported non-fire incidents in 2008 was 54,103 calls.



Aid Given & Received
In 2008, Massachusetts fire departments reported that they received mutual or automatic aid at 11,344, or 2%, of all calls. They also reported that they gave mutual, automatic or other aid to other fire departments 14,683 times, or another 2% of all calls.

Middlesex County Fire Departments Receive the Most Aid
Middlesex County fire departments reported receiving the most aid, accounting for 2,012 incidents, or 18%, of all aid received calls reported by Massachusetts fire departments in 2008. These 2,012 calls represent 1% of their total calls. Norfolk County accounted for 17% of all aid received calls, but these calls only accounted for 3% of their total calls; and Plymouth County also accounted for 17% of all aid received calls, but these calls only accounted for 4% of Plymouth County's total calls.

Norfolk County Give the Most Aid
Norfolk County fire departments reported giving aid, accounting for 3,242 incidents, or 22% of all aid given calls reported by Massachusetts fire departments in 2008. These 3,242 calls represent 4% of all of Norfolk County's reported calls in 2008. Middlesex County accounted for 17% of all aid given calls in 2008, but these calls only accounted for 2% of their total calls; Worcester County accounted for 13% of all aid received calls, but these calls only accounted for 2% of their total calls; and Plymouth County also accounted for 13% of all aid received calls, but these calls only accounted for 4% of their total calls.

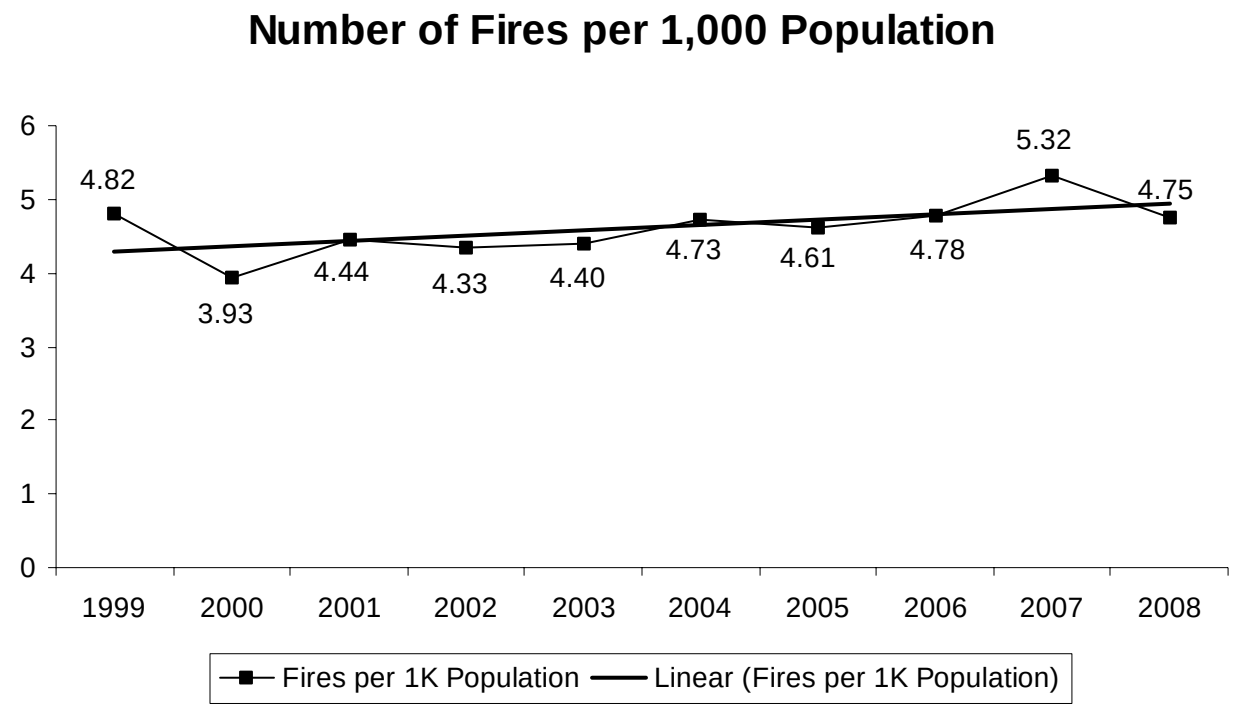
December 11 - 12, 2008 Ice Storm
In 2008, Worcester County Fire Departments responded to an average number of 1,637 calls per week. During the week of the ice storm that began on a Thursday night, Worcester County fire departments responded to 3,897 calls. One thousand six hundred and eighty-four (1,684) of these calls occurred on Friday, December 12. The majority of these calls were rescue and EMS calls, as well as hazardous condition calls with no fire like downed power lines and electrical wiring and equipment problems. One of the two 2008 fire related deaths in Worcester County also occurred in the aftermath of this storm.

Fires by Incident Type

17,198 Structure Fires, 3,076 Vehicle Fires, 9,862 Outside & Other Fires in 2008
There were 30,136 fire and explosion incidents reported by fire departments to the Massachusetts Fire Incident Reporting System (MFIRS) in 2008. The 17,198 structure fires, 3,076 motor vehicle fires, and 9,862 outside and other fires caused 49 civilian deaths, 337 civilian injuries, 622 fire service injuries, and an estimated dollar loss of $254 million in property damages.

The following chart indicates the number of total fires reported per 1,000 citizens in Massachusetts per year from 1999 through 2008. In 2008, there were 4.75 fires for every

1,000 citizens in Massachusetts[3]. A figure like this allows one to compare our fire problem to other states of different sizes. For example in 2008, Washington reported 4.12 fires for every 1,000 of its citizens[4], and Florida reported 3.63 fires for every 1,000 of its citizens[5]. There were 5.16 fires per 1,000 citizens for the entire United States in 2008.[6] Massachusetts is below the national average of fires per 1,000 citizens by 0.41.



The following graph depicts the percentage of the major types of fires as part of the whole Massachusetts fire problem. In 2008, 57% of all reported fires were structure fires. The majority of these fires were in people's homes. Forty-six percent (46%) of all fires in the Commonwealth, and 81% of all structure fires, occurred in someone's home; only 11% of all fires, and 19% of all structure fires, occurred in a type of building other than a residence. Ten percent (10%) were reported motor vehicle fires, while 33% were classified as outside and other fires.

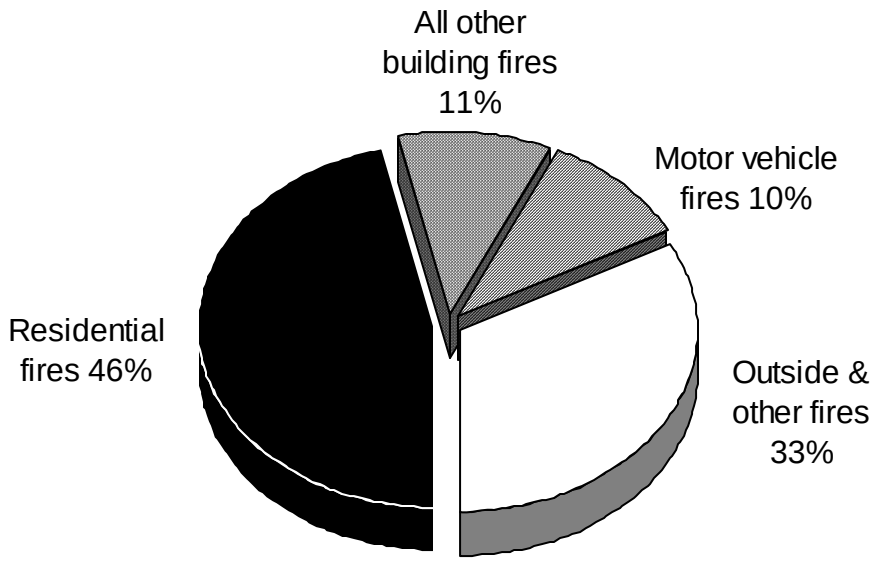
[3] The population figures used were from the 1990 and 2000 U.S. census. For the years 1998 – 1999, the population in MA was said to be 6,016,425 people. For 2000 – 2008, the population figure used was 6,319,097 people.

[4] Washington State Fire Marshal 2008 Fire in Washington Report, page 8.

[5] Florida Fires, State Fire Marshal Annual Report 2008, page 56, Summary Statistics.

[6] 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 1,451,500 was obtained from **Fire Loss in the United States 2008,** page I, Karter, Michael J. Jr., National Fire Protection Agency, September 2009.

2008 Fires by Incident Type



17,198 Structure Fires, 44 Civilian Deaths
Massachusetts fire departments reported 17,198 structure fires to the Massachusetts Fire Incident Reporting System (MFIRS) in 2008. These fires killed 44 civilians, caused 273 civilian injuries, 582 fire service injuries, and an estimated $234.8 million in property damage. Structure fires accounted for 57% of the total incidents and 90% of the civilian deaths in 2008. Structure fires were up 2% from 2007. There were 279 structure arsons in 2008. Structure fires in the Massachusetts Fire Incident Reporting System include any fires that occur inside or on a structure.

3,076 Motor Vehicle Fires Account for 10% of Reported Fires
The 3,076 motor vehicle fires caused five civilian deaths, one fire service death, 23 civilian injuries, 16 fire service injuries, and $14.8 million in property damage. These incidents accounted for 10% of the reported 30,136 fires in 2008. Motor vehicle fires accounted for 10% of civilian fire deaths. Motor vehicle fires were down 8% from 2007. There were 150 motor vehicle arsons in 2008. 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.

9,862 Brush Fires, Trash Fires, and Other Outside Fires
The 9,862 outside and other fires caused 41 civilian injuries, 24 fire service injuries, and an estimated dollar loss of $4.6 million. The 4,834 trees, grass and brush fires, 3,270 outside rubbish fires, 858 special outside fires, 46 cultivated vegetation or crop fires, and 854 other fires accounted for 33% of the total fire incidents in 2008. These fires were down 28% from the 13,623 such outside and other fire incidents reported in 2007. There were 752 outside and other arsons in 2008. Fire departments are required to report any

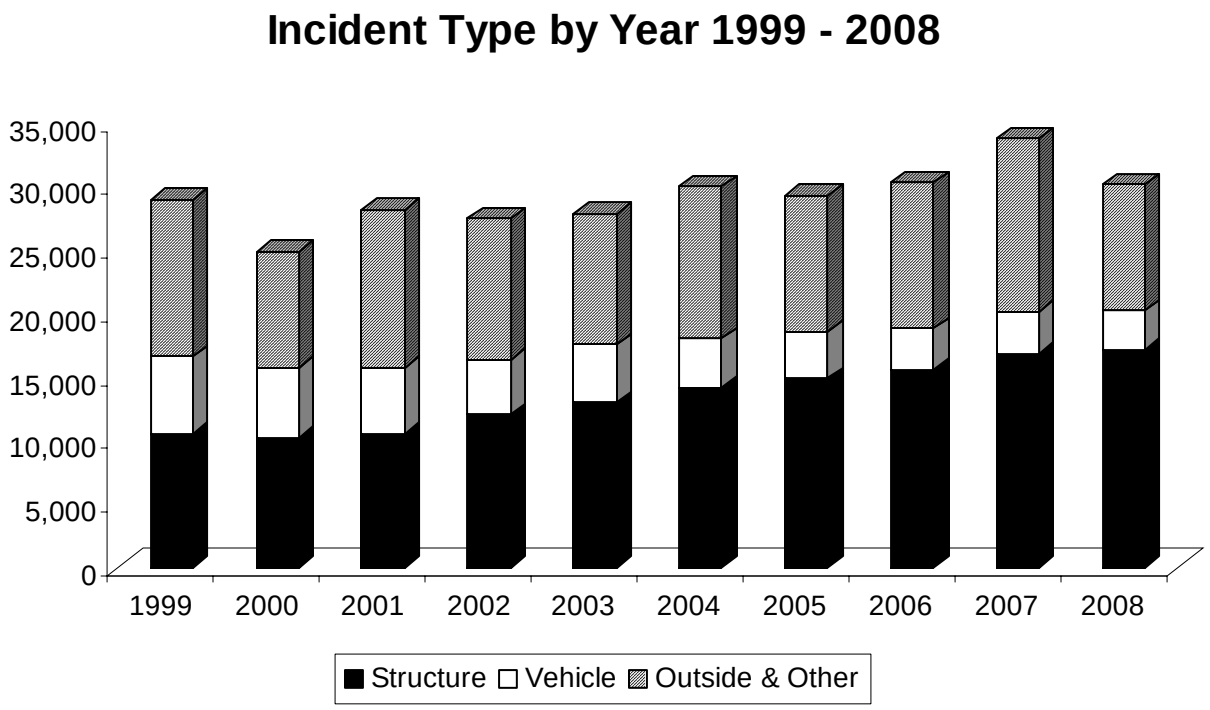
fire or explosion resulting in a dollar loss or human casualty to MFIRS. Fires that do not result in a loss may be reported. Many fire departments, particularly those that submit data electronically, voluntarily report these fires. These figures should be considered an underestimate of the "no loss"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

The 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 1999 through 2008. The total number of fire incidents in 2008 was down 11% from the 33,806 incidents reported in 2007. Fires have been on an overall increasing trend since 2000. This is due to the codes for confined fires inside of structures, Incident Types 113 – 118. In the past many of these confined fires may have been coded as smoke scares or other non-fire types of incidents.

Year	Total Fires	Structure Fires	Vehicle Fires	Other Fires
2008	30,136	17,198	3,076	9,862
2007	33,806	16,837	3,346	13,623
2006	30,324	15,607	3,270	11,447
2005	29,272	14,909	3,717	10,646
2004	30,057	14,226	3,831	12,000
2003	27,992	13,024	4,536	10,362
2002	27,519	12,035	4,356	11,128
2001	28,189	10,576	5,165	12,448
2000	24,931	10,279	5,473	9,179
1999	28,976	10,595	6,011	12,370

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[7], 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.

[7] 2001 was the first year of MFIRS v5.0.



Structure Fires

17,154 Structure Fires Account for 57% of Reported Fires, 90% of Fire Deaths

The 17,154 structure fires caused 44 civilian deaths, 273 civilian injuries, 581 fire service injuries, and an estimated dollar loss of $233.8 million. The average structure fire caused $13,627 in property damage. Structure fires accounted for 57% of reported fires and 90% of the civilian fire deaths in 2008.

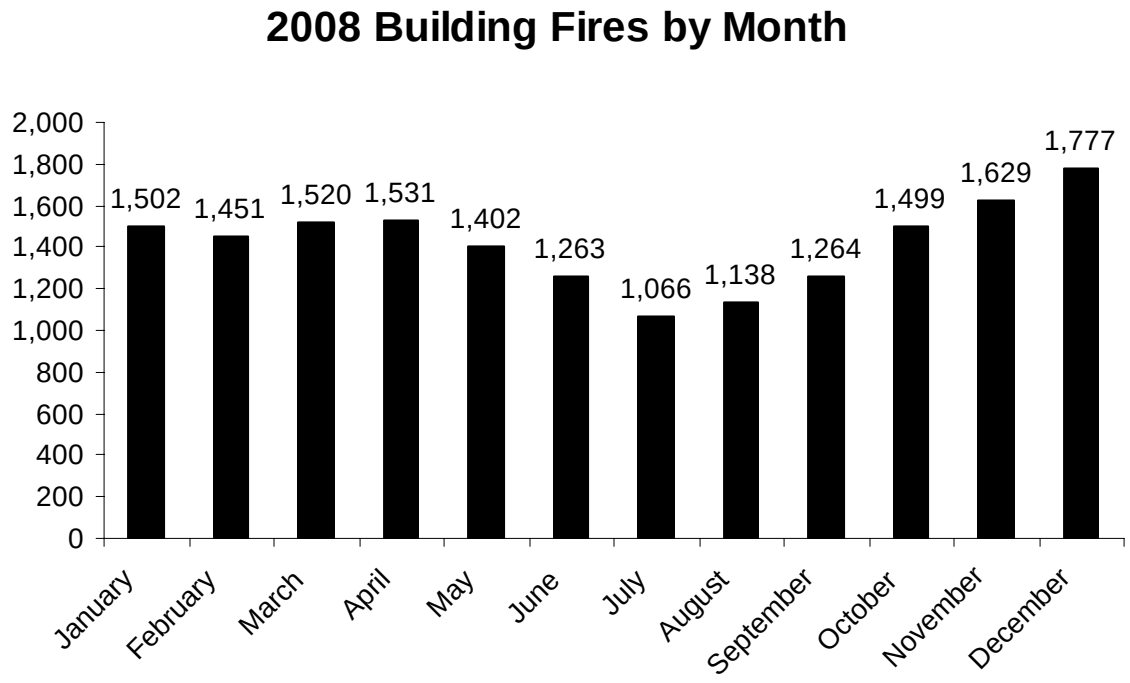
According to the MFIRS definition, any fire occurring inside or on a structure is considered a structure fire. This includes chimney fires, cooking fires, indoor waste basket fires, fires on a back porch, exterior trim fires, and vehicle fires that occur inside a garage that extend beyond the vehicle. The number of structure fires rose by 2% from the 16,837 reported in 2007.

Building Fires

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

There were 17,042 building fires of different types in Massachusetts in 2008. These 17,042 building fires accounted for 99.3% of all structure fires in Massachusetts.

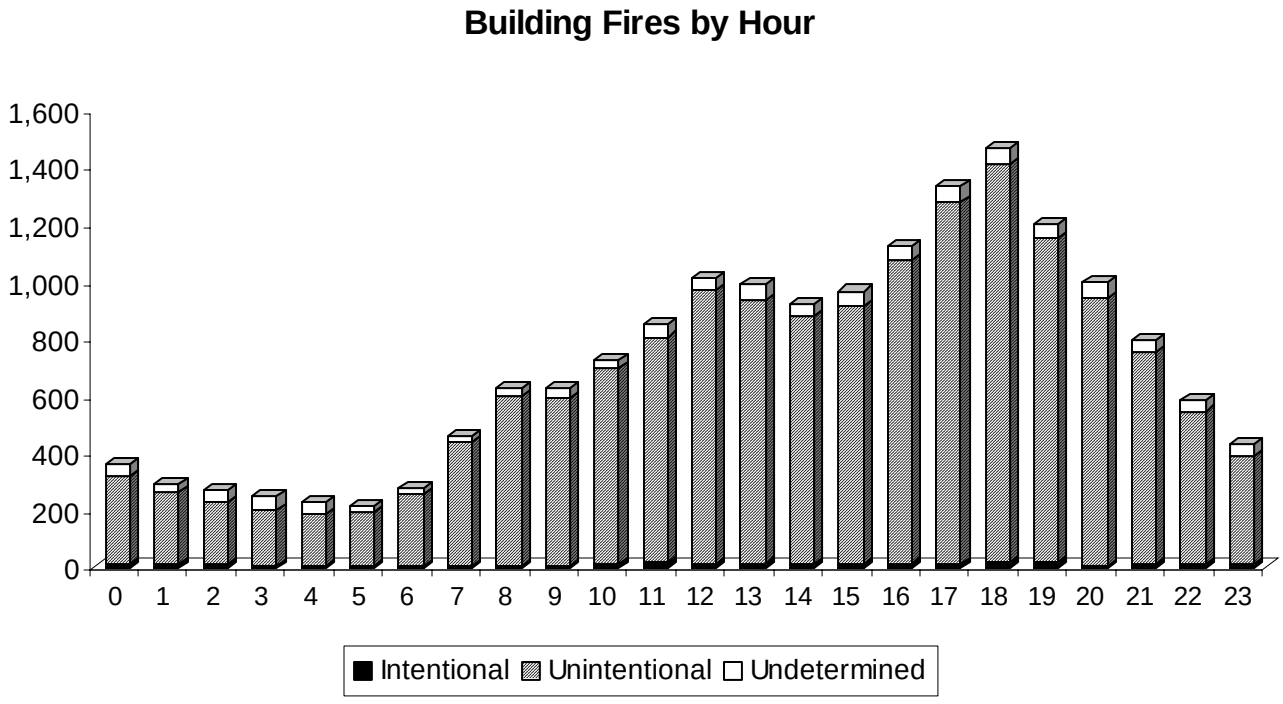
Building Fires Most Common in Colder Months
Heating equipment is the second leading cause of building fires. It is not surprising that December was the peak month for these incidents in 2008. On December 11 – 12, 2008 a destructive ice storm hit various parts of Massachusetts. This storm caused many power outages and there was a rise in building fires from various heating sources and electrical problems. November ranked second and April had the third largest number of building fires. The warmer months had significantly fewer building fires. The fewest fires occurred in July. August had the second lowest frequency of these incidents, and June had the third lowest number of building fires in 2008.



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 6:00 p.m. and 7:00 p.m. and also between 10:00 a.m. and 11:00 a.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 and 6:00 p.m.

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



82% of Building Fires Occurred in Residential Occupancies

Eighty-two percent (82%) of the state's 17,042 building fires and 43 of the 44 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 telephone booths.

Framingham Building Fire Has Most Injuries

- On April 11, 2008, at 12:21 p.m., the Framingham Fire Department was called to a fire at 72-unit apartment complex. A plumber working in a second floor bathroom accidentally ignited the lining of a plumbing chase with his torch. The fire smoldered undetected before erupting into open flames. Two (2) civilians and 13 firefighters

were injured at this fire. Detectors were present and alerted the occupants but the building was not sprinklered. Damages from this fire were estimated to be $3 million.

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	629	4%	18	8	0	0	$10,516,042	$16,719
Educational	370	2%	1	1	0	0	737,106	1,992
Institutional	503	3%	0	3	0	1	665,096	1,322
Residential	**13,939**	**82%**	**493**	**238**	**0**	**43**	**170,315,844**	**12,219**
1- & 2-Family homes	*5,916*	*35%*	*277*	*122*	*0*	*33*	*91,643,987*	*15,491*
Apartments	*6,544*	*38%*	*207*	*101*	*0*	*9*	*64,865,078*	*9,912*
All other residential	*1,479*	*9%*	*9*	*15*	*0*	*1*	*13,806,779*	*9,335*
Mercantile, business	739	4%	40	12	0	0	28,119,523	38,051
Basic industry	59	0.3%	3	1	0	0	1,366,252	23,157
Manufact., processing	136	1%	11	3	0	0	5,656,548	41,592
Storage properties	245	1%	9	5	0	0	13,175,814	53,779
Special properties	364	2%	3	2	0	0	952,406	2,617
Unclassified	43	0.3%	3	0	0	0	1,171,800	20,203
Total	**17,042**	**100%**	**581**	**273**	**0**	**44**	**$232,667,881**	**13,653**

Occupancy Group Definitions

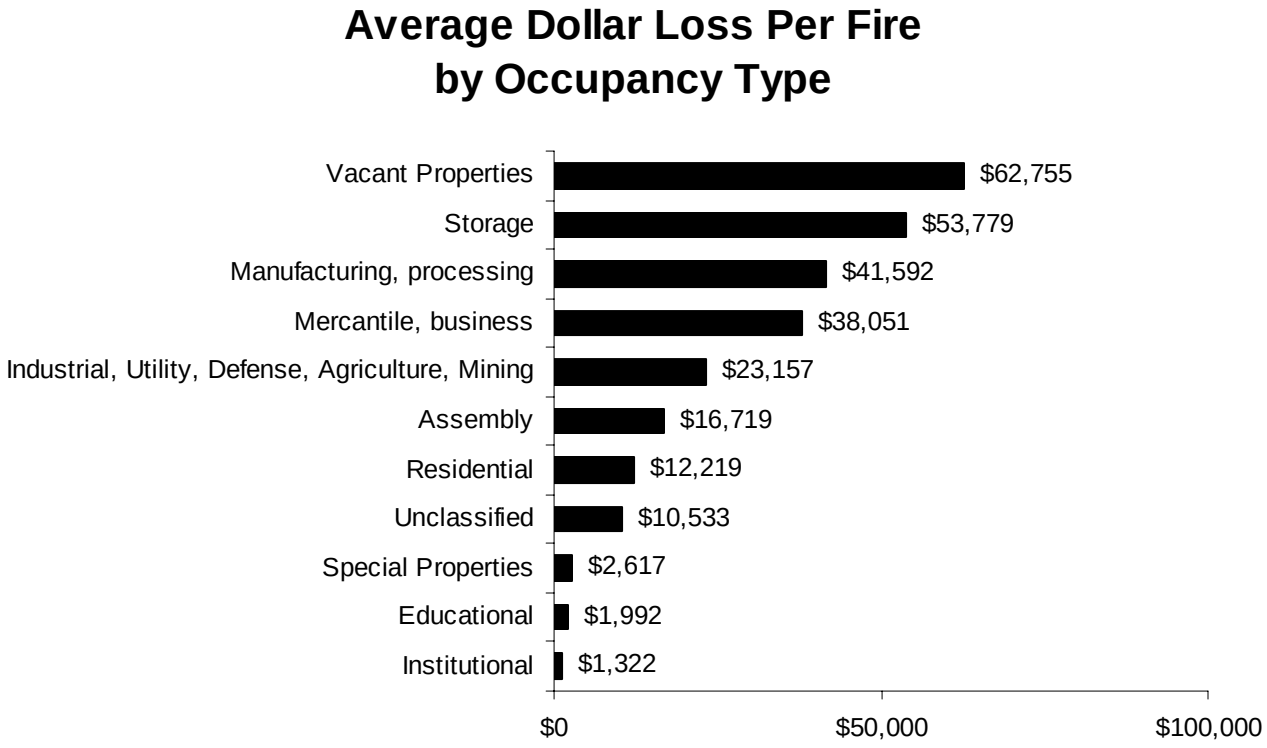
- **Public assembly**: This category includes amusement and recreation places such as bowling alleys, skating rinks, ballrooms, gymnasiums, arenas, stadiums, playgrounds, churches, funeral parlors, clubs, libraries, museums, courtrooms, restaurants, taverns, passenger terminals, theatres and studios.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

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

Vacant Properties Have Highest Average Dollar Loss Per Fire

Vacant properties[8] had the highest dollar loss per fire of any property type. In 2008, the average dollar loss for a building fire in an industrial property was $62,755. Storage properties had the second highest dollar loss per fire for any property type. In 2008, the average dollar loss for a building fire in a storage facility was $53,779. This is a 52% increase over the 2007 average dollar loss per storage building fire at $35,466 per fire.

Manufacturing and processing facilities had the third highest average dollar loss at $41,592. Mercantile and business properties had the next highest average dollar loss per fire at $38,051; basic industrial facilities were fifth at $23,157 per fire. Public assembly properties had an average dollar loss per fire of $16,719; and residential properties were next at $12,219 per fire. Unclassified properties were eighth in average dollar loss at $10,533 per fire; special properties had $2,617 per fire; and educational facilities had an average dollar loss of $1,992 per fire. Institutional properties had the lowest average dollar loss at $1,322 per fire.



[8] 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.

2008 Massachusetts Building Fires by Property Use

MFIRS Code	Property Use	# of Building Fires
	Assembly	**629**
100	Assembly, other	19
110	Fixed use recreation places, other	7
111	Bowling alley	1
114	Ice rink: indoor, outdoor	3
115	Roller rink: indoor or outdoor	1
116	Swimming facility: indoor or outdoor	2
120	Variable use amusement, recreation places	6
121	Ballroom, gymnasium	5
122	Convention center, exhibition hall	4
123	Stadium, arena	4
124	Playground	40
129	Amusement center: indoor/outdoor	1
130	Places of worship, funeral parlors	3
131	Church, mosque, synagogue, temple, chapel	103
134	Funeral parlor	2
140	Clubs, other	15
141	Athletic/health club	17
142	Clubhouse	17
143	Yacht Club	2
150	Public or government, other	14
151	Library	9
152	Museum	6
155	Courthouse	3
160	Eating, drinking places	32
161	Restaurant or cafeteria	246
162	Bar or nightclub	32
170	Passenger terminal, other	1
171	Airport passenger terminal	9
173	Bus station	2
174	Rapid transit station	12
180	Studio/theater, other	3
183	Movie theater	7
185	Radio, television studio	1

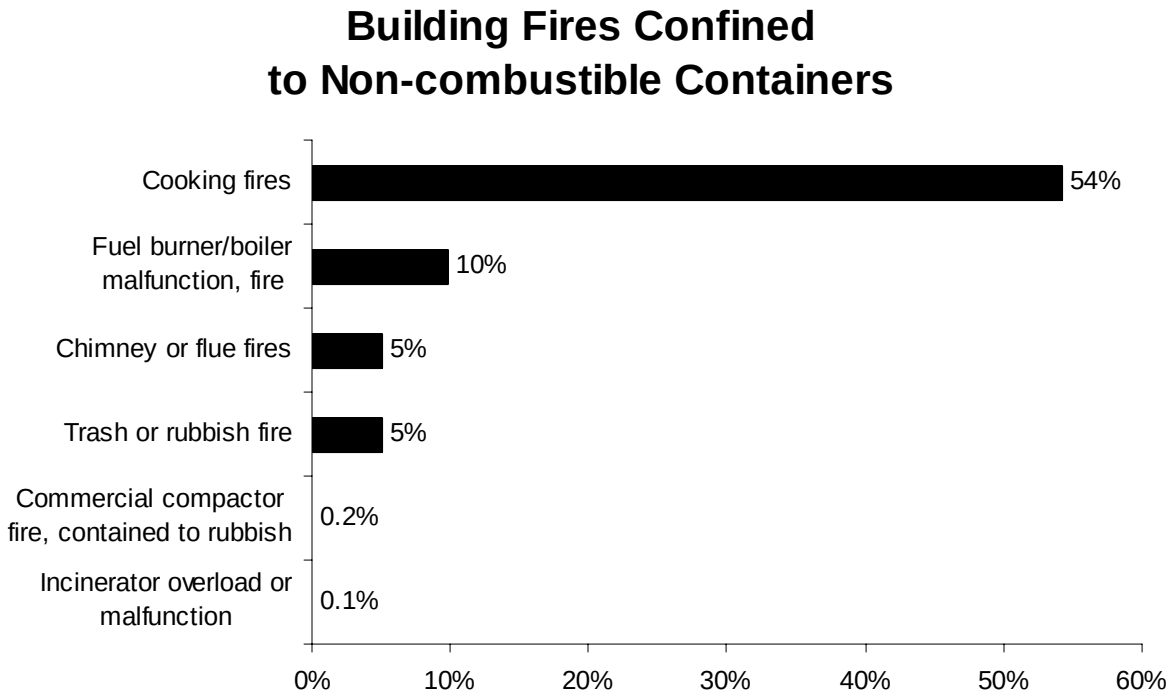
MFIRS Code	Property Use	# of Building Fires
	Educational	**370**
200	Educational, other	37
210	Schools, non-adult	27
211	Preschool	14
213	Elementary school, including kindergarten	69
215	High school/junior high school/middle school	110
241	Adult education center, college classroom	79
254	Day care, in commercial property	28
255	Day care, in residence, licensed	6
	Health care, detention & correction	**503**
300	Health care, detention, & correction, other	35
311	24-hour care nursing homes, 4 or more persons	144
321	Mental retardation/development disability facility	68
322	Alcohol or substance abuse recovery center	49
323	Asylum, mental institution	4
331	Hospital - medical or psychiatric	125
332	Hospices	2
340	Clinics, doctors offices, hemodialysis centers	13
341	Clinic, clinic-type infirmary	10
342	Doctor, dentist or oral surgeon's office	18
361	Jail, prison (not juvenile)	16
363	Reformatory, juvenile detention center	12
365	Police station	7
	Residential	**13,939**
400	Residential, other	441
419	1 or 2 family dwelling	5,916
429	Multifamily dwellings	6,544
439	Boarding/rooming house, residential hotels	323
449	Hotel/motel, commercial	125
459	Residential board and care	169
460	Dormitory type residence, other	332
462	Sorority house, fraternity house	30
464	Barracks, dormitory	59
	Mercantile, Business	**739**
500	Mercantile, business, other	160
511	Convenience store	20
519	Food and beverage sales, grocery store	113

MFIRS Code	Property Use	# of Building Fires
529	Textile, wearing apparel sales	13
539	Household goods, sales, repairs	15
549	Specialty shop	44
557	Personal service, including barber & beauty shops	26
559	Recreational, hobby, home repair sales, pet store	6
564	Laundry, dry cleaning	31
569	Professional supplies, services	11
571	Service station, gas station	24
579	Motor vehicle or boat sales, services, repair	43
580	General retail, other	38
581	Department or discount store	8
592	Bank	18
593	Office: veterinary or research	6
596	Post office or mailing firms	4
599	Business office	159
	Industrial, Utility, Defense, Agriculture, Mining	**59**
600	Utility, defense, agriculture, mining, other	2
610	Energy production plant, other	3
614	Steam or heat generating plant	1
615	Electric generating plant	7
629	Laboratory or science laboratory	15
635	Computer center	2
640	Utility or distribution system, other	2
642	Electrical distribution	2
644	Gas distribution, pipeline, gas distribution	2
647	Water utility	4
648	Sanitation utility	4
655	Crops or orchard	3
659	Livestock production	3
669	Forest, timberland, woodland	7
679	Mine or quarry	2
700	**Manufacturing, processing**	**136**
	Storage	**245**
800	Storage, other	21
807	Outside material storage area	13
808	Outbuilding or shed	76
819	Livestock, poultry storage	12

MFIRS Code	Property Use	# of Building Fires
839	Refrigerated storage	2
880	Vehicle storage, other	11
881	Parking garage, (detached residential garage)	49
882	Parking garage, general vehicle	11
888	Fire station	12
891	Warehouse	34
899	Residential or self storage units	4
	Outside or special property	**364**
900	Outside or special property, other	27
919	Dump, sanitary landfill	9
921	Bridge, trestle	4
926	Outbuilding, protective shelter	17
931	Open land or field	35
935	Campsite with utilities	1
936	Vacant lot	11
937	Beach	4
938	Graded and cared-for plots of land	60
940	Water area, other	2
946	Lake, river, stream	2
951	Railroad right of way	11
952	Railroad yard	3
960	Street, other	32
961	Highway or divided highway	5
962	Residential street, road or residential driveway	73
963	Street or road in commercial area	14
965	Vehicle parking area	40
981	Construction site	13
983	Pipeline, power line or other utility right of way	1
	Other	**58**
000	Property use, other	58
	Total Building Fires	**17,042**

Almost 3/4 of Building Fires Are Confined to Non-Combustible Containers[9]
Twelve thousand six hundred and seventy-one (12,671), or 74% of all building fires, were reported as confined to non-combustible containers in 2008. Nine thousand two hundred and forty-two (9,242) of the reported fires were cooking fires confined to a non-combustible container accounting for 54% of building fires. One thousand six hundred and seventy-one (1,671), or 10%, were fires confined to a fuel burner or boiler malfunction. Eight hundred and eighty-nine (889), or 5%, of these fires were contained rubbish fires. Eight hundred and eighteen (818), or 5%, of all building fires reported in 2008 were fires confined to a chimney or flue. Thirty-five (35), or less than 1%, were commercial compactor fires that were confined to the rubbish. Sixteen (16), or less than 1%, of these fires in the Commonwealth were contained to an incinerator overload or malfunction.

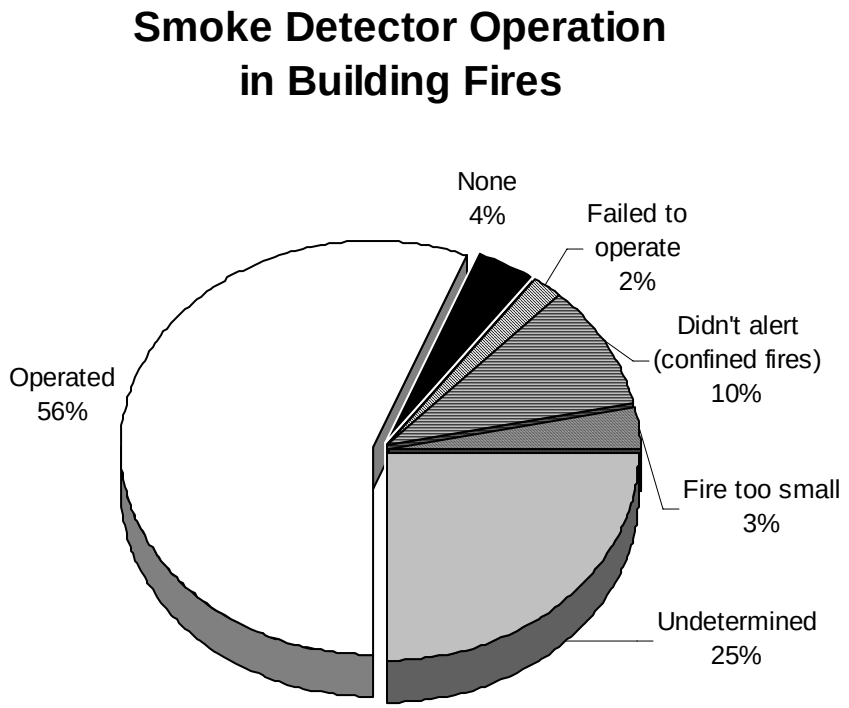
Confined building fires increased by 584 incidents, or 6%, from the 12,011 reported in 2007.



Detectors Operated in Over 1/2 of Building Fires
Smoke or heat detectors operated in 9,555, or 56%, of the building fires in 2008. In 10% of these fires[10], the detectors did not alert the occupants. Detectors were present but did

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

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 3% of the residential fires. Smoke detector performance was undetermined in 4,262 incidents, or 25% of Massachusetts' 2008 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	337	11	67	39	29	146	629
Educational	244	1	39	11	7	68	370
Institutional	389	2	27	19	2	64	503
Residential	8,100	277	1,314	459	338	3,451	13,939
Mercantile, business	346	11	78	41	74	189	739
Basic industry	26	0	4	4	10	15	59
Manufacturing	55	2	13	3	32	31	136
Storage properties	25	1	8	5	155	51	245
Special properties	23	3	87	2	24	225	364
Unclassified	10	0	7	4	14	22	57
Total	**9,555**	**308**	**1,644**	**587**	**685**	**4,262**	**17,041**

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

$7.3 Million Fire in Avon is Largest Loss Building Fire

- On October 13, 2008, at 4:07 p.m., the Avon Fire Department responded to a smoking fire at a refrigerated storage facility. There were no reported injuries at this fire. Smoke detectors were present and alerted the occupants. Sprinklers were present and operated but were not effective because the fire originated on the outside of the building. Damages from this fire were estimated to be $7.3 million.

Peabody Has 2nd Largest Loss Fire in 2008

- On May 29, 2008, at 3:52 p.m., the Peabody Fire Department was called to a smoking fire in 38-unit apartment building. A cigarette improperly discarded in the courtyard bark mulch started this fire. A nearby bank of natural gas meters failed and contributed to the rapid spread of the fire. No one was injured at this fire. Smoke detectors were present but it was undetermined if they operated. Sprinklers were also present, but it was also undetermined if they operated. Damages were estimated to be $6.8 million.

Overall, there were 34 large loss building fires reported to MFIRS in 2008 with a total combined dollar loss of $74.7 million representing 32% of all the estimated dollar loss of Massachusetts' building fires in 2008.

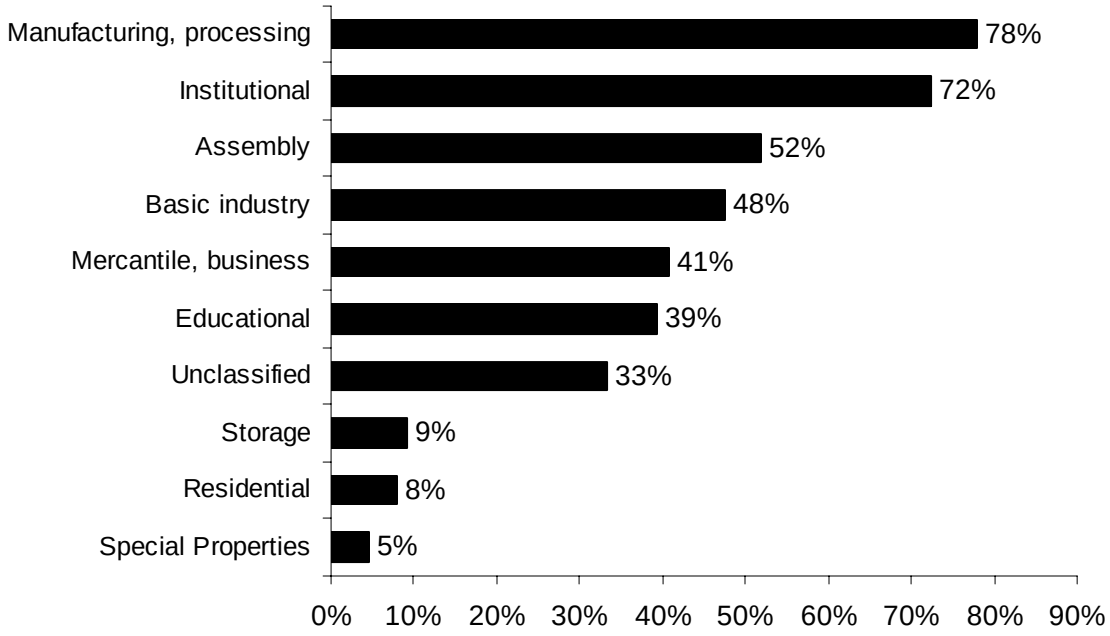
13% of Unconfined Fires Occurred in Buildings with AES

Overall, 640, or 13%, of the 4,590 unconfined[11] building fires in 2008 occurred in buildings that had automatic extinguishing systems (AES), regardless of whether the fire was large enough to activate the system. In MFIRS, an AES can be a wet or dry sprinkler system, a dry chemical system, a foam system, a halogen-type system, a CO^2 system, or some other fire suppression system.

The following chart lists the percentage of unconfined fires in buildings that were at least partially protected by an AES for that specific property use. Manufacturing and processing facilities and institutional properties were the most likely to have an AES. Seventy-eight percent (78%) of the fires in manufacturing or processing facilities and 72% in health care, detention and correctional facilities; 52% of the fires in public assembly facilities, and 48% of the fires in basic industrial facilities occurred in buildings with these systems. Forty-one percent (41%) of the fires in mercantile and business properties, 39% of educational facilities and 9% of storage facilities occurred in buildings with an automatic extinguishing system. Only 8% of the residential fires occurred in buildings protected by an automatic extinguishing system, and 5% of these fires occurred in special properties.

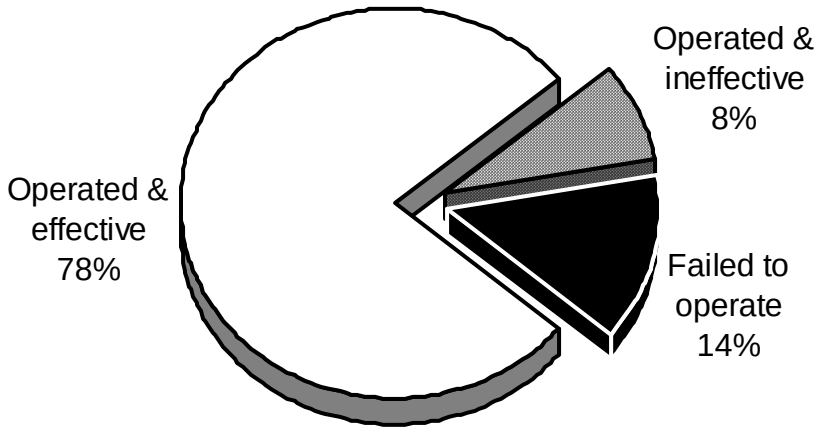
[11] In MFIRS v5 a fire in a building contained to a non-combustible container (Incident Type = 113-118) also does not have to have a Structure Fire Module completed. Therefore the fields concerned with detector and sprinkler presence and performance would not be completed. These incidents are not included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

Fires in AES Protected Buildings by Property Use



AES Work in Over 3/4 of Building Fires When Installed & Maintained
AES were present and operated in 178, or 86%, of the 207 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 2008. Of these 178 fires, the systems were effective in 161, or 74%, and ineffective in 17, or 8%, of these incidents. AES were present but failed to operate in 29, or 14%, of these 207 building fires. Some of the reasons for the automatic extinguishing system failures were reported to be: the fire was

AES Status in AES Protected Buildings



not in an area protected by the system, and the system was shut off; and a lack of maintenance to the system.

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	21	11	32	18	2	84
Educational	6	1	15	4	0	26
Institutional	7	1	35	12	0	55
Residential	77	4	117	49	9	256
Mercantile, business	32	3	48	25	1	109
Basic industry	2	0	7	1	0	10
Manufacturing	29	7	17	8	1	62
Storage properties	4	0	8	3	1	16
Special properties	0	1	1	0	0	2
Unclassified	0	0	1	1	0	2
Total	**178**	**28**	**281**	**121**	**14**	**622**

High Rise Buildings Must be Fully Equipped with Sprinklers

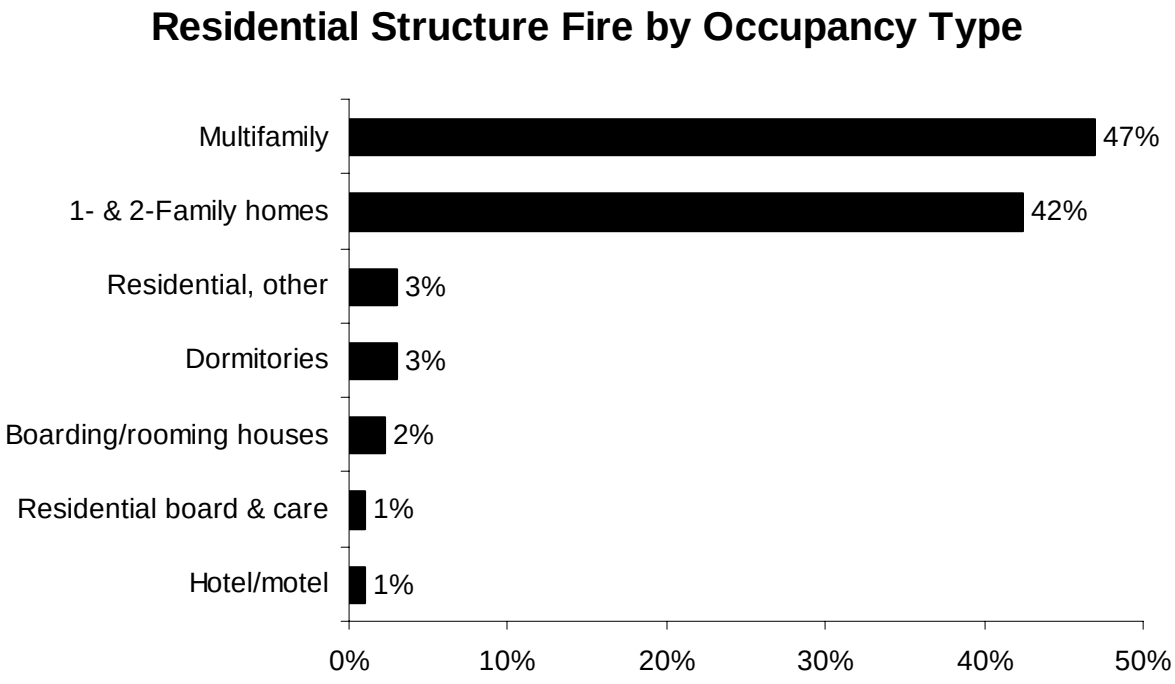
Evacuating a high-rise building while fighting a raging fire is a logistical nightmare for firefighters. Automatic sprinklers make these buildings much safer for residents, office workers, visitors and firefighters. Under the provision of MGL Chapter 148, Section 26A 1/2, all existing buildings of more 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

82% of Building Fires Occurred in Residential Occupancies
Massachusetts fire departments reported that 13,939, or 82% of the 17,042 building fires occurred in residential occupancies. These fires caused 43 civilian deaths, 238 civilian injuries, 493 fire service injuries and an estimated dollar loss of $170.3 million. The average dollar loss per fire was $12,219. The total number of reported residential building fires increased 3% from the 13,547 reported in 2007. The following table shows the statistics for fires, firefighter and civilian casualties and the estimated dollar loss by residential occupancy.



RESIDENTIAL BUILDING FIRES

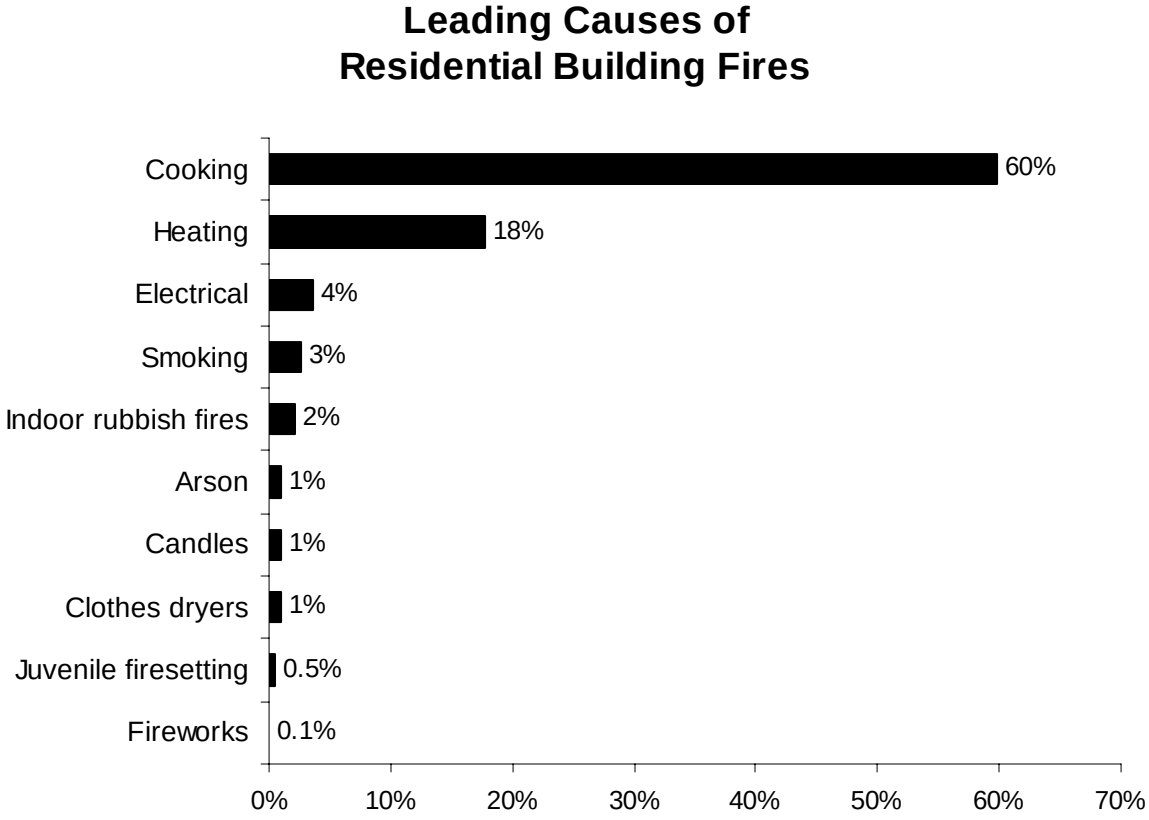
Occupancy	# of Fires	% of Total	Injuries FF	Injuries Civ	Deaths FF	Deaths Civ	Dollar Loss
1- & 2-Family homes	5,916	42%	277	122	0	33	$91,643,987
Multifamily	6,544	47%	207	101	0	9	64,865,078
Rooming houses	323	2%	5	7	0	1	1,084,381
Hotels & motels	125	1%	1	3	0	1	2,925,561
Residential board & care	169	1%	0	0	0	0	271,181
Dormitories	421	3%	0	0	0	0	255,358
Unclassified	441	3%	3	5	0	0	9,270,298
Total	**13,939**	**100%**	**493**	**238**	**0**	**43**	**$170,315,844**

Residential Occupancy Sub-Group Definitions

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

Cooking Causes 60% of Residential Building Fires

The leading causes of residential building fires in 2008 were cooking, heating, electrical, smoking, indoor rubbish fires, arson, candles, clothes dryer fires, juvenile firesetting, and fireworks. Cooking was the leading cause of residential building fires accounting for 8,328, or 60%, of the 13,939 incidents. Heating equipment accounted for 2,470, or 18% of the total fires. Electrical problems caused 493, or 4%, of incidents. The unsafe use and disposal of smoking materials also accounted for 377, or 3%, of these incidents. Indoor rubbish fires were the cause of 292, or 2%, of residential building fires. Arson accounted for 166, or 1%, of residential building fires. One percent (1%), or 132, were caused by candles. Clothes dryer fires were the cause for 76, or 1%, of these incidents. Juvenile firesetting accounted for 69, or less than 1%, of residential building fires. Fireworks caused seven, or less than 1%, of these fires in Massachusetts in 2008.



58% of Residential Fires Started in the Kitchen
Fifty-eight percent (58%), of the residential building fires in 2008 started in the kitchen. Eleven percent (11%) began in a heating room or area; 6% started in the chimney or flue; 3% began in the bedroom; and 2% started in the living room in Massachusetts residential building fires in 2008.

76% of Residential Building Fires Confined to Non-Combustible Containers[12]
Ten thousand five hundred and fifty-six (10,556), or 76% of all residential building fires, were reported as confined to non-combustible containers in 2008. Seven thousand nine hundred and twenty-four (7,924) of the reported fires were cooking fires contained to a non-combustible container accounting for 57% of residential building fires. One thousand four hundred and fifty-four (1,454), or 10%, were fires confined to a fuel burner or boiler malfunction. Eight hundred and fifty (850), or 6%, of all residential building fires reported in 2008 were fires confined to a chimney or flue. Three hundred and thirteen (313), or 2%, of these fires were contained rubbish fires. Eleven (11), or less than 1%, of these fires in the Commonwealth were contained to an incinerator overload or

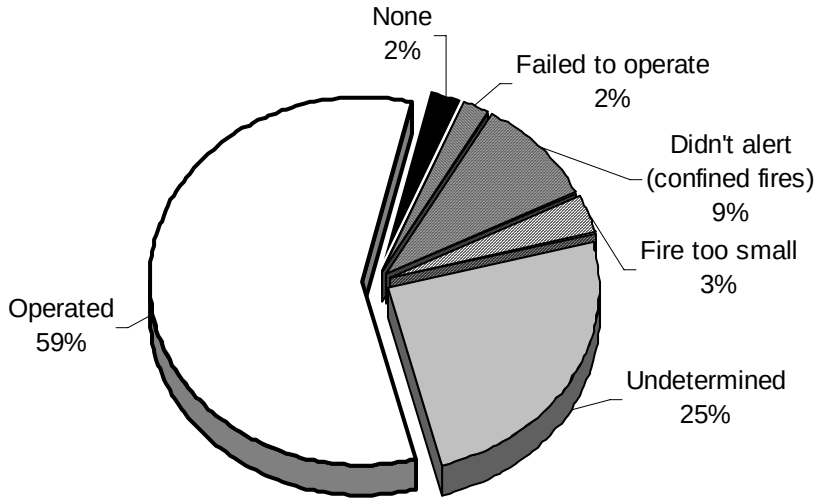
[12] In MFIRS v5 a fire in a building contained to a non-combustible container (Incident Type = 113-118) does not have to have a Fire Module completed. Therefore the following data fields do not need to be completed: Area of Origin, Detector Status, Item First Ignited, Heat Source, Factors Contributing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

malfunction. Four (4), or less than 1%, of the residential building fires in 2008 were commercial compactor fires confined to the rubbish inside the compactor.

The number of contained fires in residential occupancies rose in 2008. Confined fires increased by 584 incidents, or 6%, from the 9,972 reported in 2007.

Detectors Operated in Over 59% of Fires
Smoke or heat detectors operated in 8,099, or 59%, of the residential building fires in 2008. In 9% of these fires[13], the detectors did not alert the occupants. Detectors were present but did not operate in 2% of these incidents. In 2% of these fires, no detectors were present at all. The fire was too small to trigger the detector in 3% of the residential fires. Smoke detector performance was undetermined in 3,442 incidents, or 25% of Massachusetts' 2008 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 by 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.

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

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

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.

New Homes Must Have Detector in Bedroom Area

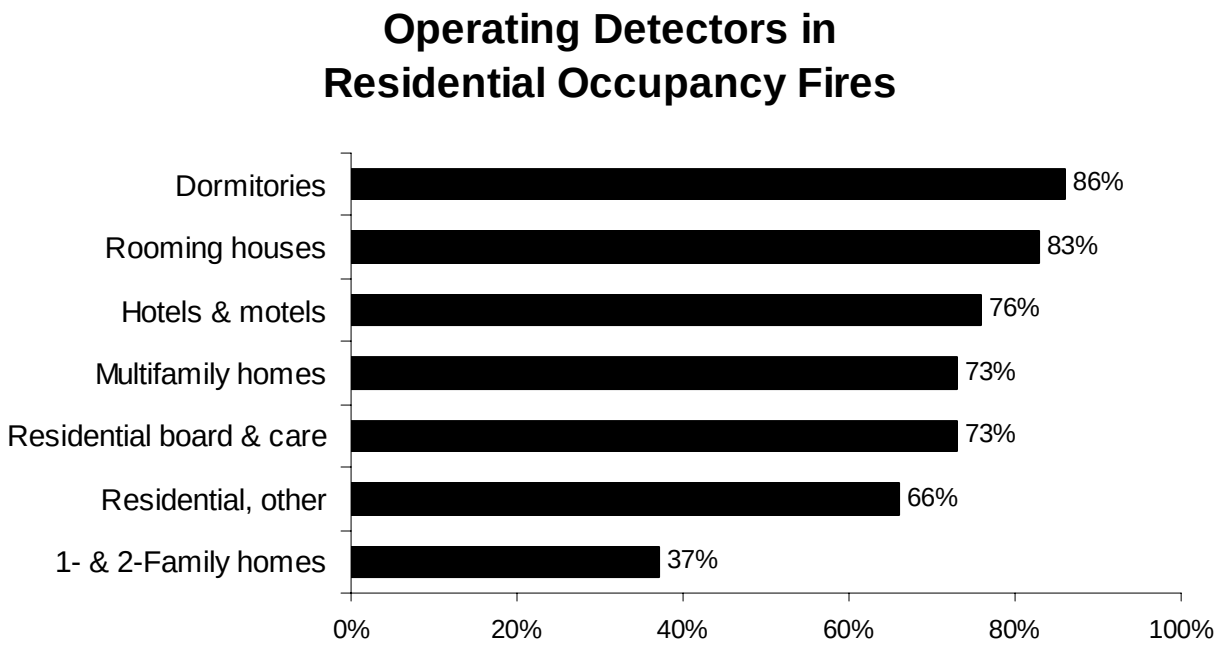
At a minimum, smoke detectors should be installed on every floor of the home and at the bottom of the basement stairwell. The Massachusetts Building Code requires smoke detectors within the bedroom area in all *new* residential occupancies. When a bedroom door is shut, it can help prevent the spread 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.

Almost 1/3 of Failed Detectors Had Missing or Disconnected Batteries

Of the 277 fires where smoke detectors were present but failed to operate, 88, or 32%, failed because the batteries were either missing or disconnected. Thirty-five (35), or 13%, did not operate because of dead batteries. Twenty-two (22), or 8%, failed because of a power failure, shutoff or disconnect. Fifteen (15) 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. Five (5), or 2% failed from improper installation or placement. For 105 cases, or 38%, the reason the detector failed was not determined.

1- & 2-Families Had Lowest Percentage of Operating Detectors

Dormitories were the most likely residential occupancy to have operating smoke detectors in 2008. Rooming houses were the second most likely residence to have working smoke detectors. Hotels and motels were the next most likely residential occupancy to have operating smoke detectors while one- and two-family homes were the least likely. The following chart shows the percentage of operating smoke detectors in fires in residential occupancies.

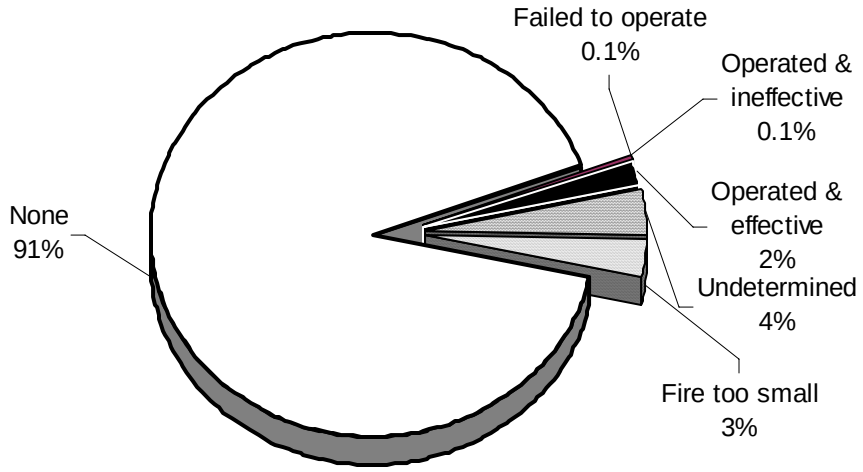


No Working Detectors for over 1/4 of Residential Fire Victims
Of the forty-three (43) people who died in residential building fires in 2008, the smoke detector performance was known for 31 of the victims. Victims were not alerted by smoke detectors in nine fires that killed 11 people, or 26% of the victims. In five of these incidents, no detectors were present at all, killing five, or 12%, of these individuals. Detectors were present, but did not operate in four fires that killed six people, or 14% of fatal residential fire victims. Detector performance was undetermined in 20 residential building fires that killed 24 people accounting for 56% of the residential building fire deaths in 2008.

AES Present in Only 5% of Residential Building Fires
In 2008, only 3,676 residential fires reported if the building had an automatic extinguishing system or not. This was only 5% of all residential building fires.

In fires where system performance was reported, automatic extinguishing systems (AES) were reported present and operated effectively in 73, or 2% of the 3,815 residential building fires. AES were present and operated ineffectively in four, or 0.1%, of these fires. In five, or 0.1%, of the fires in residential occupancies, the system did not operate. In 118, or 3%, the fire was too small to activate the system. In 3,476, or 91%, of the cases, there were no systems present or installed. AES performance was not classified in 139, or 4%, of the incidents involving residential building fires.

AES Status of All Residential Building Fires



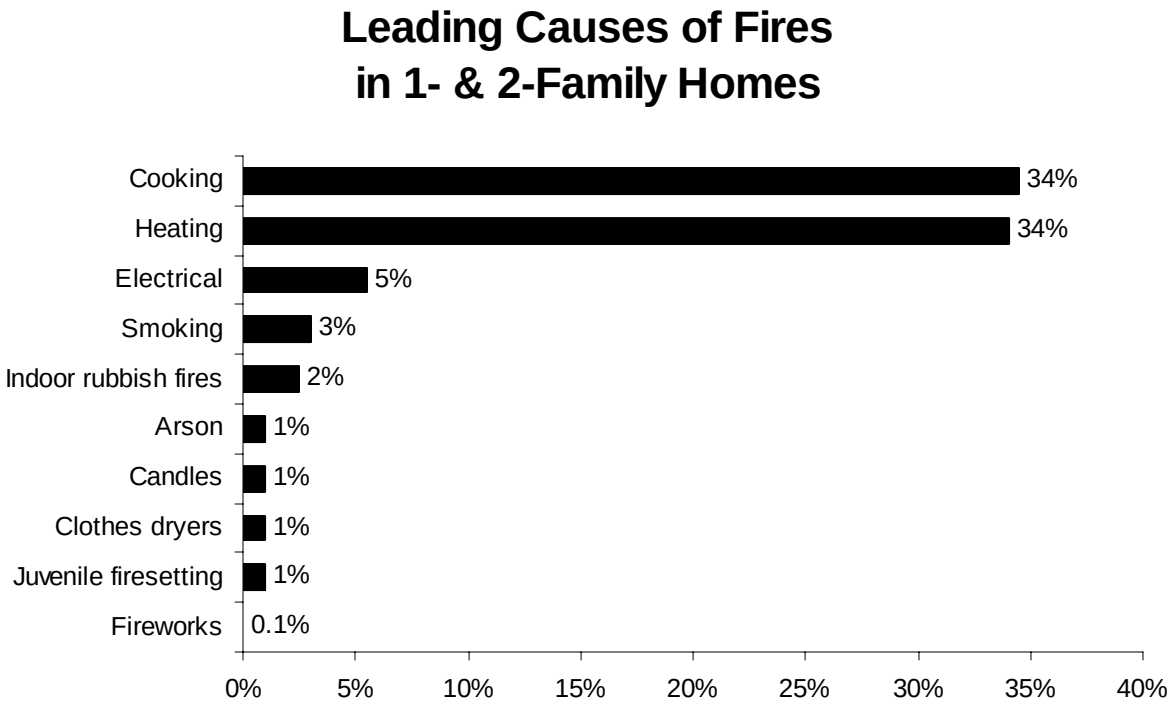
Only You Can Make Your Home Safer for You and Your Family
Eighty-two percent (82%) of building fires and 88% of fire deaths in 2008 took place in residential occupancies. Efforts to reduce the incidence of fire and fire deaths must be focused on home fire safety to have the greatest impact. Increased maintenance of smoke alarms, installation of residential sprinklers, practice of home escape plans coupled with safer products such as self-extinguishing cigarettes, upholstered furniture that meets the California flammability standard, and flame resistant sleepwear for all ages can help make homes and the families who live in them safer from fire.

Fires in One- and Two-Family Homes

5,916 Fires, 33 Civilian Deaths, $91 Million in Damage
Five thousand nine hundred and sixteen (5,916) building fires in one- and two-family homes caused 33 civilian deaths, 122 civilian injuries, 277 fire service injuries, and an estimated $91.6 million in property damage. In 2008, 42% of the Commonwealth's 13,939 residential building fires occurred in one- and two-family homes. The average dollar loss from these types of fires was $15,491. Fires in one- and two-family homes were down 1% from 5,988 in 2007.

Cooking & Heating Were the Leading Causes of Fires in 1- & 2-Family Homes
Cooking and heating equipment each caused 34% of incidents occurring in one- and two-family homes. Five percent (5%) of one- and two-family residential building fires were

caused by electrical problems. The unsafe and improper use of smoking materials caused 3% of these fires. Indoor rubbish fires caused 2% of these fires. Arsons, candles, clothes dryers, and juvenile-set fires each caused 1%, and fireworks accounted for less than 1% of the fires in one- and two-family homes in 2008.



Cooking is the leading cause of fires overall and in every other residential occupancy except one- and two-family homes. However, in one- and two-family homes for the past nine years the leading cause of fires was heating equipment and cooking was the second leading cause except in 2003 and now in 2008 when they were tied. A reason for this difference is that multifamily dwellings tend to be more regulated by building and fire codes than one- and two-family homes. Most apartments are rental properties, that fall under more stringent fire prevention statutes.

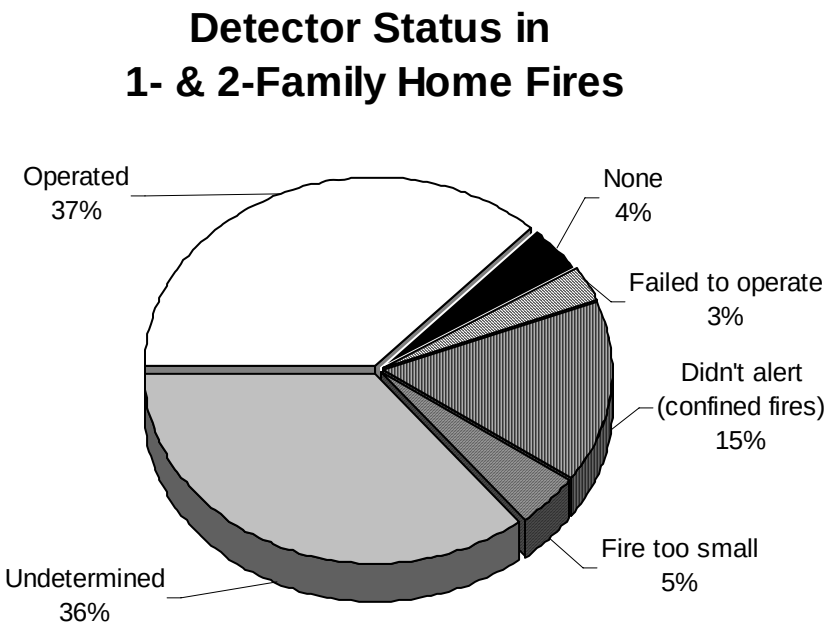
37% of Fires in 1- & 2- Family Homes Started in the Kitchen

For fires in one- and two-family homes where area of origin is known, 37% started in the kitchen. The second leading area of origin was rooms or areas with heating equipment accounting for 19% of these fires. Fourteen percent (14%) started in the chimney or flue; 4% started in the bedroom. The living room, wall assembly, laundry rooms, substructure areas, exterior wall surfaces, and exterior balconies and unenclosed porches each accounted for 2% of these incidents.

66% of 1- & 2-Family Fires Were Confined to Non-Combustible Containers[14]
Three thousand nine hundred and twenty-four (3,924), or 66%, of all residential building fires in one- and two-family homes, were reported as confined to non-combustible containers in 2008. One thousand eight hundred and fifty-four (1,854) were cooking fires confined to a non-combustible container accounting for 31% of all the residential building fires in one- and two-family homes. One thousand one hundred and one (1,101), or 19%, were fires confined to a fuel burner or boiler. Eight hundred and three (803), or 14%, of all one- and two-family fires reported in 2008 were fires confined to a chimney or flue. One hundred and fifty-seven (157), or 3%, of these fires were contained rubbish fires. Nine (9), or less than 1%, of the one- and two-family building fires were contained to an incinerator overload or malfunction in 2008.

The number of contained fires dropped in 2008. Confined fires in one- and two-family homes increased by nine incidents, or less than 1%, from the 3,915 reported in 2007.

Detectors Alerted Occupants in 37% of Fires
Detectors alerted occupants in 37% of one- and two-family residential fires. Smoke or heat detectors operated and alerted the occupants in 2,181, or 37%, of the one- and two-family home fires in 2008. In 15% of these fires[15], the detectors did not alert the



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

occupants. Detectors were present but did not operate in 3% of these incidents. In 4% of these fires, no detectors were present at all. The fire was too small to trigger the detector in 5% of these residential fires. Smoke detector performance was undetermined in 2,114 incidents, or 36% of Massachusetts' 2008 one- and two-family fires.

40% of Failed Detectors Had Missing or Disconnected Batteries
Of the 183 fires where smoke detectors were present but failed to operate, 74, or 40%, failed because the batteries were either missing or disconnected. Twenty-nine (29), or 16%, did not operate because of dead batteries. Fourteen (14), or 8%, failed because of a power failure, shutoff or disconnect. Seven detectors, or 4%, failed from a lack of maintenance. Three (3), or 2%, failed from improper installation or placement. Two (2) units, or 1%, failed because they were defective. For 54 cases, or 30%, the reason the detector failed was not determined.

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

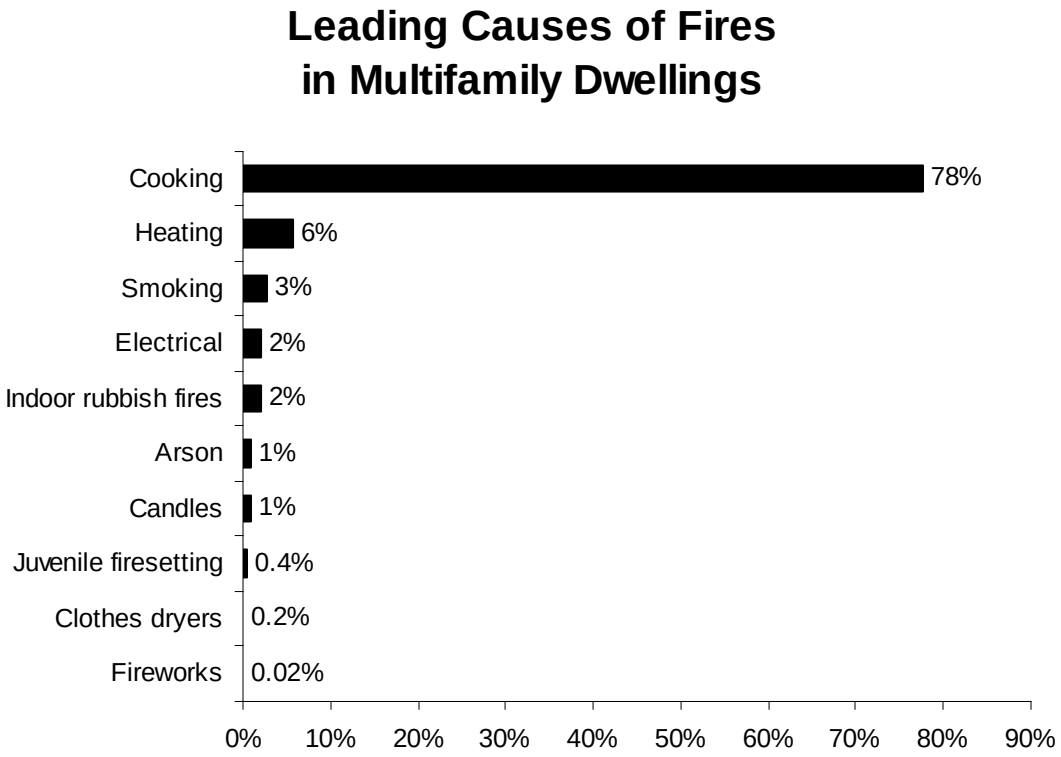
No AES Present in 99% of One- and Two-Family Building Fires
In 2008, in seven, or less than 1%, of these incidents an automatic extinguishing system (AES) was present and operated effectively. In five, or less than 1% of the incidents, the fire was too small to activate the system. In 99% of the cases where AES status was known, there were no systems.

Multifamily Home Fires

6,544 Fires, 9 Civilian Deaths & $64.8 Million in Damage
Six thousand five hundred and forty-four (6,544), or 47%, of the Commonwealth's 13,939 residential building fires occurred in multifamily dwellings in 2008. These 6,544 fires caused nine civilian deaths, 101 civilian injuries, 207 fire service injuries, and an estimated dollar loss of $64.9 million. The average dollar loss per fire was $9,912. Fires in apartments were up 398, or 6%, from 6,146 in 2007.

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

Unsafe Cooking Caused Over 3/4 of Apartment Fires
Seventy-four percent (78%) of the fires in apartments were caused by unsafe cooking in 2008. Heating accounted for 6% of apartment fires. Smoking was responsible for 3% of these fires. Electrical problems and indoor rubbish fires each accounted for 2% of apartment fires. Arsons and candles each caused 1% of the fires in these dwellings. Juvenile-set fires, clothes dryers, and fireworks each caused less than 1% of the fires in multifamily homes in 2008.

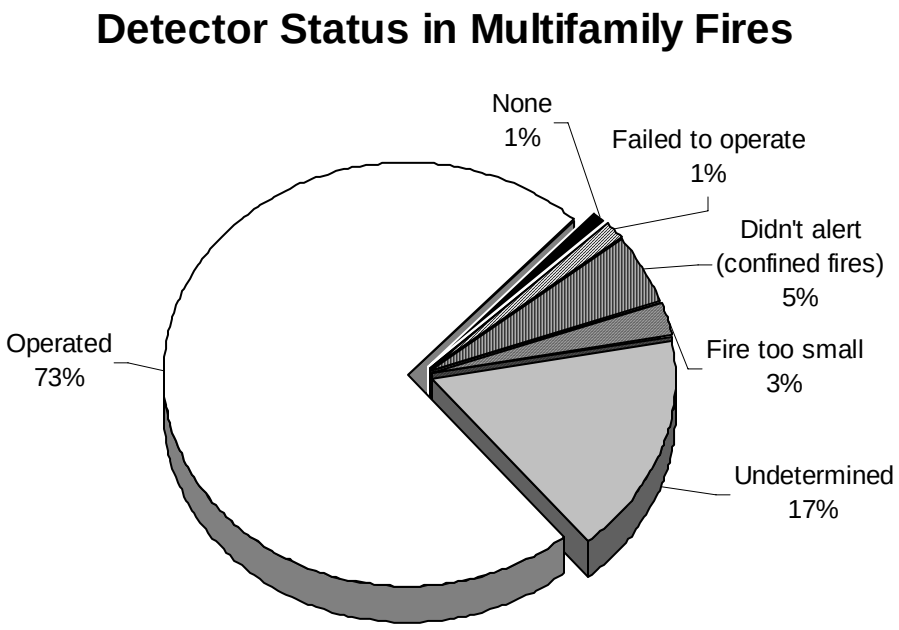


80% of Apartment Fires Started in the Kitchen
For apartment fires where area of origin is known, 80% started in the kitchen. Five percent (5%) began in the heating room or area; 2% started in the bedroom; and 1% each started in living rooms, exterior balconies, bathrooms, and concealed wall spaces.

82% of Multifamily Home Fires Confined to Non-Combustible Containers[16]
Five thousand three hundred and forty-seven (5,347), or 82% of all building fires in multifamily homes, were reported as confined to non-combustible containers in 2008. Four thousand eight hundred and eighty-three (4,883) were cooking fires contained to a non-combustible container accounting for 75% of all the multifamily dwelling fires in 2008. Three hundred and fifteen (315), or 6%, were fires confined to a fuel burner or boiler malfunction. One hundred and twenty-two (122), or 2%, of these fires were contained rubbish fires. Twenty-one (21), or less than 1%, of apartment fires reported in 2008 were fires confined to a chimney or flue. Four (4), or less than 1%, were commercial compactor fires confined to the garbage; and two incinerator overloads or malfunctions contributed less than 1% to the multifamily home fires in 2008.

Confined fires in apartments increased by 494 incidents, or 10%, from the 4,853 reported in 2007.

Detectors Alerted Occupants in Almost 3/4 of Fires
Smoke or heat detectors operated and alerted the occupants in 4,781, or nearly three-quarters (73%), of the multifamily fires in 2008. In 5% of these fires[17], 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



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

trigger the detector in 3% of these residential fires. Smoke detector performance was undetermined in 1,092 incidents, or 17% of Massachusetts' 2008 multifamily fires.

16% of Failed Detectors Failed Due to Missing Batteries
Of the 87 fires where smoke detectors were present but failed to operate, 14, or 16%, failed because the batteries were either missing or disconnected. Eight (8), or 9%, failed because of a power failure, shutoff or disconnect. Seven (7), or 8%, didn't operate because of a lack of maintenance. Five (5), or 6%, did not operate because of dead batteries. Another five units, or 6% failed because they were defective. Two (2), or 2% failed from improper installation or placement. For 46 cases, or 53%, the reason the detector failed was not classified or undetermined.

Apartments with 3+ Units Must Have Smoke Detectors
According to Massachusetts General Law Chapter 148, Section 26C, apartment houses containing six or more units must 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 44, or 3% of the 1,303 multifamily dwelling fires where system status was known in 2008. In two incidents, or less than 1%, the system operated but was ineffective in suppressing the fire. In another two of the fires, or less than 1%, the AES did not operate. In 81, or 6%, of these incidents, the fire was too small to activate the system. In 1,174, or 91%, of the cases, there were no systems present or installed. In 68 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.

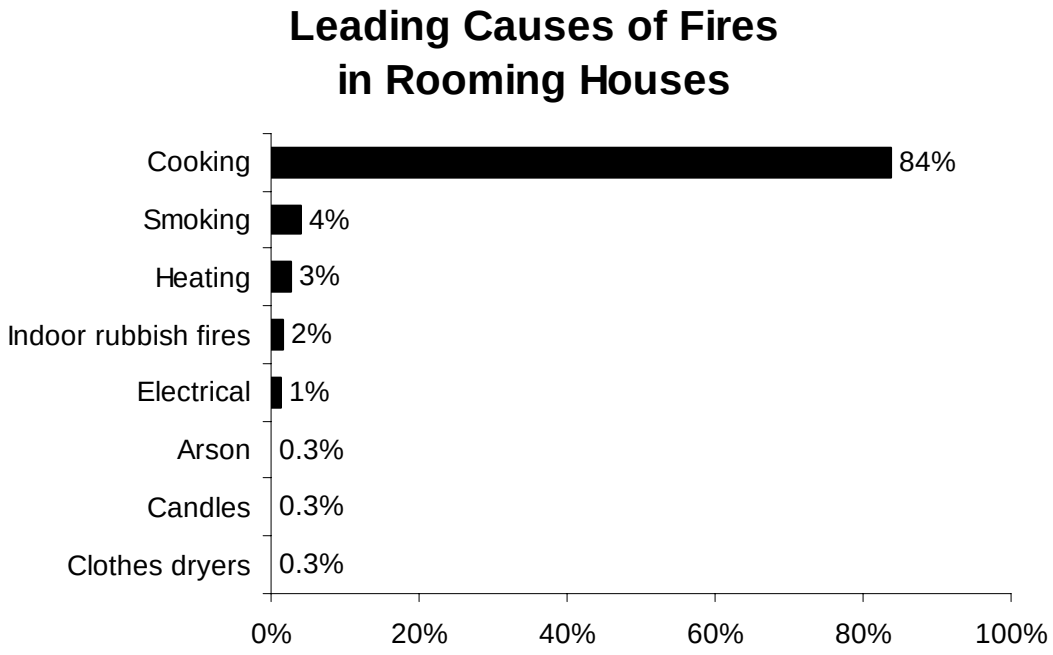
In 1998, the State Building Code required all newly built or substantially renovated buildings with three or more apartments with common egresses to be sprinklered.

Rooming House Fires

323 Fires, 7 Civilian Injuries, 5 Fire Service Injuries & $1 Million in Damages
Three hundred and twenty-three (323) rooming, lodging, and boarding house fires were reported to the Massachusetts Fire Incident Reporting System (MFIRS) in 2008. These 323 fires caused seven civilian injuries, five firefighter injuries and an estimated $1.1

million in damages. The average dollar loss per fire was $3,357. Two percent (2%) of the 13,939 residential building fires in 2008 occurred in rooming, boarding, or lodging houses. Fires in rooming houses were up 7% from 301 in 2007.

Cooking Caused 84% of Rooming House Fires
Of the 323 incidents in rooming houses, cooking caused 84% of these fires. The unsafe use and disposal of smoking materials was the next significant cause, igniting 4%, of the rooming house fires. Heating equipment accounted for 3% of these fires. Indoor rubbish fires caused 2% of these fires, and electrical problems caused 1%. Arsons, candles and clothes dryers each caused less than 1% of the fires in rooming houses in 2008.



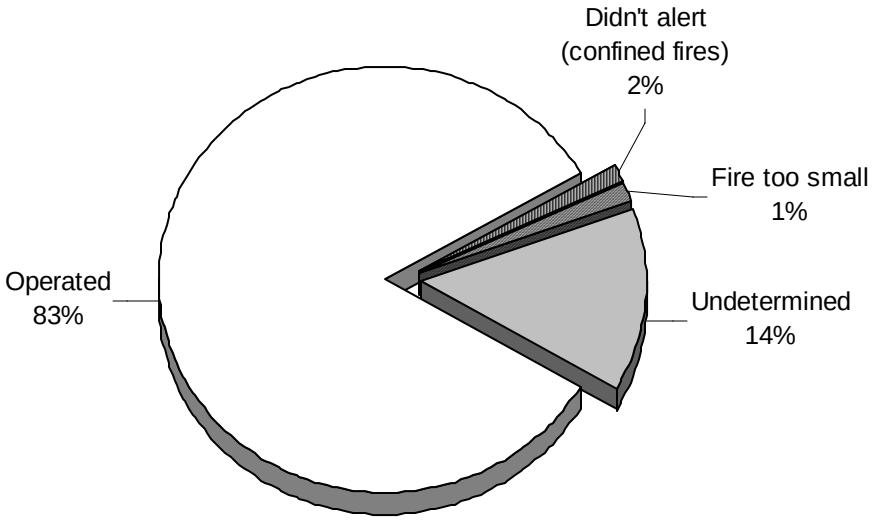
85% of Rooming House Fires Started in the Kitchen
Eighty-five percent (85%) of rooming house fires started in the kitchen. Four percent (4%) started in the bedroom, 2% started in heating equipment rooms, and another 2% began in the laundry room. However, if we assume that all of the confined cooking fires occurred in the occupants bedrooms because most rooming house residents cook in their own bedrooms, 87% of the fires would have occurred in the bedroom, and only 2% would have occurred in the kitchen area.

87% of Rooming House Fires Were Confined to Non-Combustible Containers[18]
Two hundred and eighty-one (281), or 87% of all building fires in rooming houses, were reported as confined to non-combustible containers in 2008. Two hundred and sixty-eight (268) were cooking fires contained to a non-combustible container accounting for 83% of all the fires in rooming or boarding houses in 2008. Six (6), or 2%, were fires confined to a fuel burner or boiler malfunction. Another six fires, accounting for 2% of rooming house fires were confined indoor rubbish fires. There was one fire accounting for less than 1% of these fires that was confined to a chimney or flue.

Confined fires in rooming houses increased by 11 incidents, or 4%, from the 270 reported in 2007.

Detectors Alerted Occupants in 83% of Fires
Smoke or heat detectors operated and alerted the occupants in 269, or 83%, of the rooming house fires in 2008. In 2% of these fires[19], the detectors did not alert the occupants. There were no reported fires where detectors were present but did not operate. There were also no fires where detectors weren't present at all. The fire was too small to trigger the detector in 1% of these residential fires. Smoke detector performance was undetermined in 45 incidents, or 14% of Massachusetts' 2008 rooming house fires.

Detector Status in Rooming House Fires



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

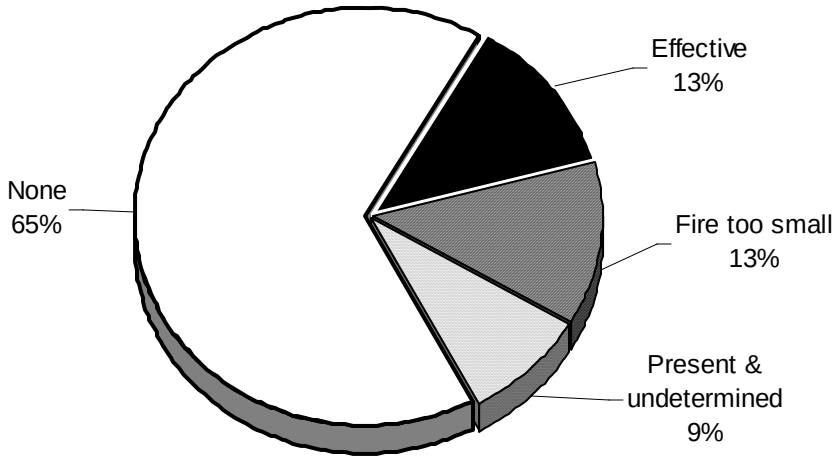
Smoke detectors are required in rooming houses. Local communities may elect to adopt the provisions of Massachusetts General Law Chapter 148, Section 26H. This law mandates an adequate system of automatic sprinklers in every lodging or boarding house in the community. Sprinklers must be installed within 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 Over 34% of Rooming House Residential Building Fires
AES were reported present in 19, or 34%, of the 56 rooming house fires where AES presence was known. In the other 37 incidents, or 66% there were no systems present.

AES Effective in 13% of Rooming House Building Fires
In 13% of these rooming house building fires in 2008 where AES status was known, the AES operated effectively. The fire was too small to activate the automatic extinguishing system (AES) in 13% of these fires. In 9% of rooming house fires systems were present but it was undetermined if they operated. In 65% of the cases, a system had not been installed.

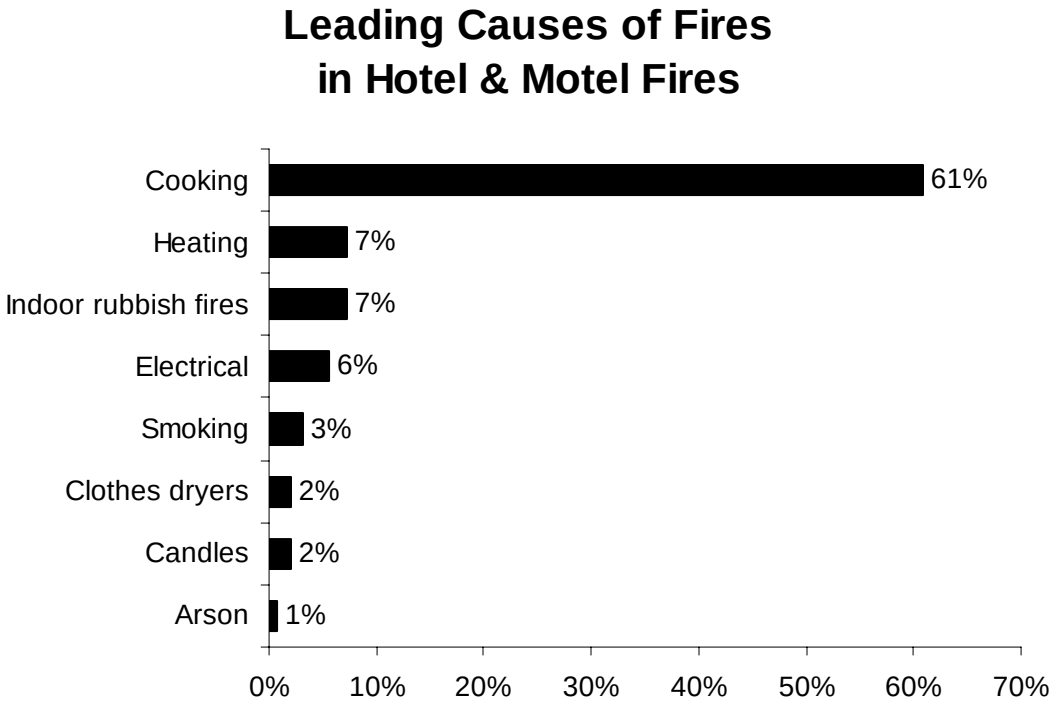
AES Operation in Rooming House Fires



Hotel and Motel Fires

125 Fires, 1 Civilian Death, 3 Civilian Injuries & $2.9 Million in Damages
One hundred and twenty-five (125) building fires in hotels, motels and home hotels caused one civilian death, three civilian injuries, one fire service injury and $2.9 million in estimated property damage. The average dollar loss per fire was $23,404. In 2008, 1% of the 13,939 residential building fires occurred in hotels, motels, or home hotels. Fires in hotels and motels were down 7% from 135 in 2007.

Cooking Caused Over 61% of Hotel & Motel Fires
Of the 125 fires in hotels and motels in 2008, cooking was the leading cause, accounting for 61%, or more than half, of the fires in this occupancy. Heating equipment and indoor rubbish fires were each responsible for 7% of these fires. Electrical problems caused 6% of the hotel and motel fires. Smoking caused 3% of these fires. Clothes dryers and candles each caused 2% of these fires. Arson caused 1% of the fires in Massachusetts hotels and motels in 2008.

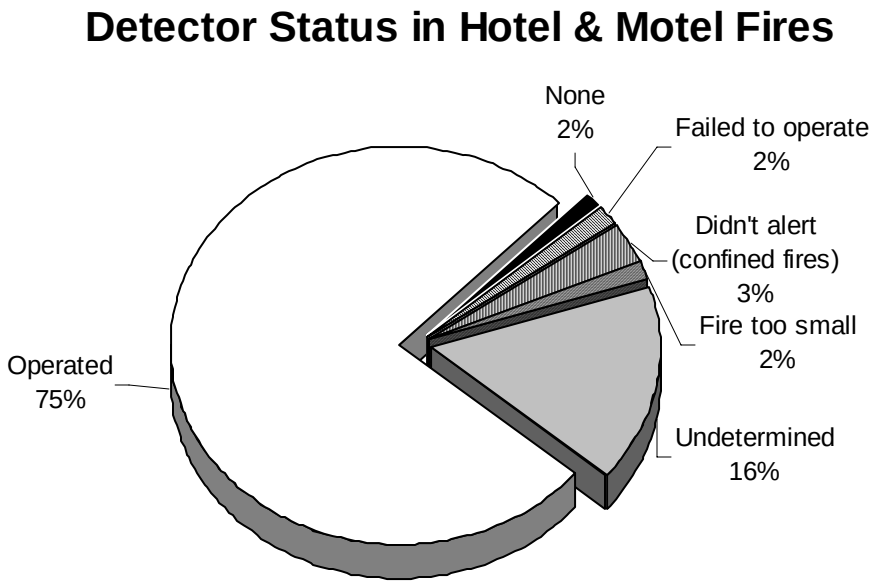


61% of Hotel and Motel Fires Started in the Kitchen
For hotel and motel fires 61% of the fires started in the kitchen. Five percent (5%) of these fires each began in bedrooms and laundry rooms. Four percent (4%) of these fires started in chimneys or flues; and 2% each stated in bathrooms, heating rooms, wall assembly areas, and switchgear areas.

72% of Hotel or Motel Fires Confined to Non-Combustible Containers[20]
Ninety (90), or 72% of all building fires in hotels and motels, were reported as confined to non-combustible containers in 2008. Seventy-four (74) were cooking fires contained to a non-combustible container accounting for 59% of these fires. Indoor rubbish fires caused nine, or 7%, of the hotel and motel fires in 2008. Five (5), or 4%, of hotel or motel fires in 2008 were confined to a chimney or flue. Two (2), or 2%, of the fires in hotels or motels were confined to a fuel burner or boiler malfunction.

The number of contained fires rose in 2008. Confined fires in hotels and motels decreased by nine incidents, or 9%, from the 99 reported in 2007.

Detectors Operated in 3/4 of Fires
Smoke or heat detectors operated in 95, or 75%, of the hotel or motel fires in 2008. In 3% of these fires[21], the detectors did not alert the occupants. Detectors were present but did not operate in 2% of these incidents. In another 2% of these fires there were no detectors present at all. The fire was too small to trigger the detector in 2% of these residential fires. Smoke detector performance was undetermined in 20 incidents, or 16% of Massachusetts' 2008 hotel or motel fires.



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

Undetermined Why 2 Detector Failed
It was undetermined why both of the smoke detectors were failed to operate.

AES Absent in 62% of Hotel and Motel Residential Building Fires
Automatic extinguishing systems (AES) were present and operated effectively in five, or 16%, of the 31 hotel and motel building fires in 2008 where AES status was known. In one, or 3% of these fires, the system operated but was ineffective in suppressing the fire. In five, or 16%, of these incidents, the fire was too small to activate the system. In one, or 3%, the system failed to operate. In 19, or 62%, of the cases, there was no AES system.

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

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

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

Despite the federal goal of attempting to improve life safety in hotels and motels, the sprinkler provision only applies to buildings over three stories. In the 19 hotel fires that reported having no AES, 18, or 95%, were three stories or less.

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

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

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

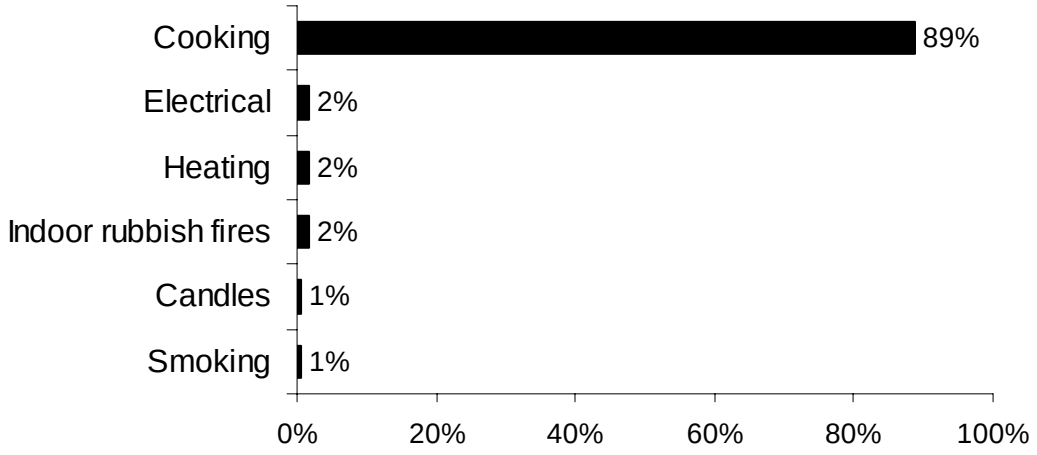
Residential Board & Care Fires

169 Fires Caused $271,181 in Damages
One hundred and sixty-nine (169) residential board and care building fires caused an estimated dollar loss of $271,181 in damages. The average dollar loss per fire was $1,605. In 2008, 1% of the 13,939 residential building fires occurred in residential board and care buildings. Fires in residential board and care facilities were up 20% from 141 in 2007.

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

Cooking Accounted for 89% Residential Board & Care Fires
In the 169 incidents of residential board and care building fires, the leading cause was cooking, accounting for 150 incidents, or 89%, of the fire incidents. Electrical problems, heating equipment and indoor rubbish fires each caused 2% of these fires. Candles and smoking each caused 1% of the fires in residential board and care facilities in 2008.

Leading Causes of Fires in Residential Board & Care Facility Fires



92% of Residential Board & Care Fires Started in the Kitchen
Of the 169 residential board and care building fires, 152, or 90%, started in the kitchen. Four (4), or 2%, of the fires in residential board and care facilities began in a heating room or area.

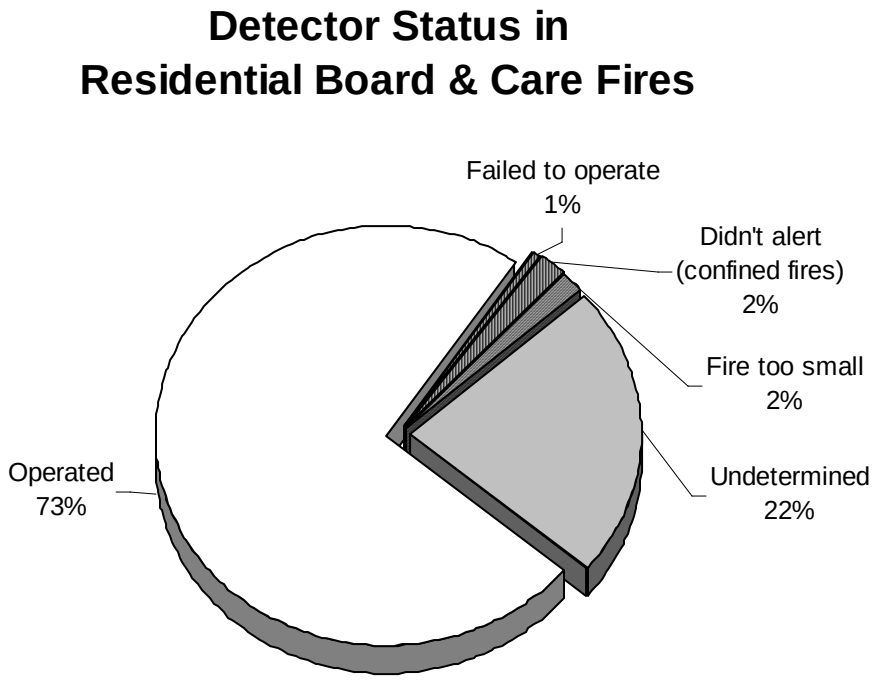
92% of Board & Care Fires Confined to Non-Combustible Containers[22]
One hundred and fifty-six (156), or 92% of all building fires in residential board and care facilities, were reported as confined to non-combustible containers in 2008. One hundred and fifty (150) were cooking fires contained to a non-combustible container accounting for 89% of these fires. Three (3), or 2%, of these fires were contained rubbish fires. Three (3), or 2%, of the fires in residential board and care facilities was confined to a fuel burner or boiler malfunction.

The number of contained fires rose in 2008. Confined fires in residential board and care facilities increased by 32 incidents, or 26%, from the 124 reported in 2007.

Detectors Operated in Almost 3/4 of Fires
Smoke or heat detectors operated in 124, or 73%, of the residential board and care facility fires in 2008. In 2% of these fires[23], the detectors did not alert the occupants. There were

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

no working detectors in 1% of these fires. The fire was too small to trigger the detector in 2% of these residential fires. Smoke detector performance was undetermined in 38 incidents, or 22% of Massachusetts' 2008 residential board and care facility fires.



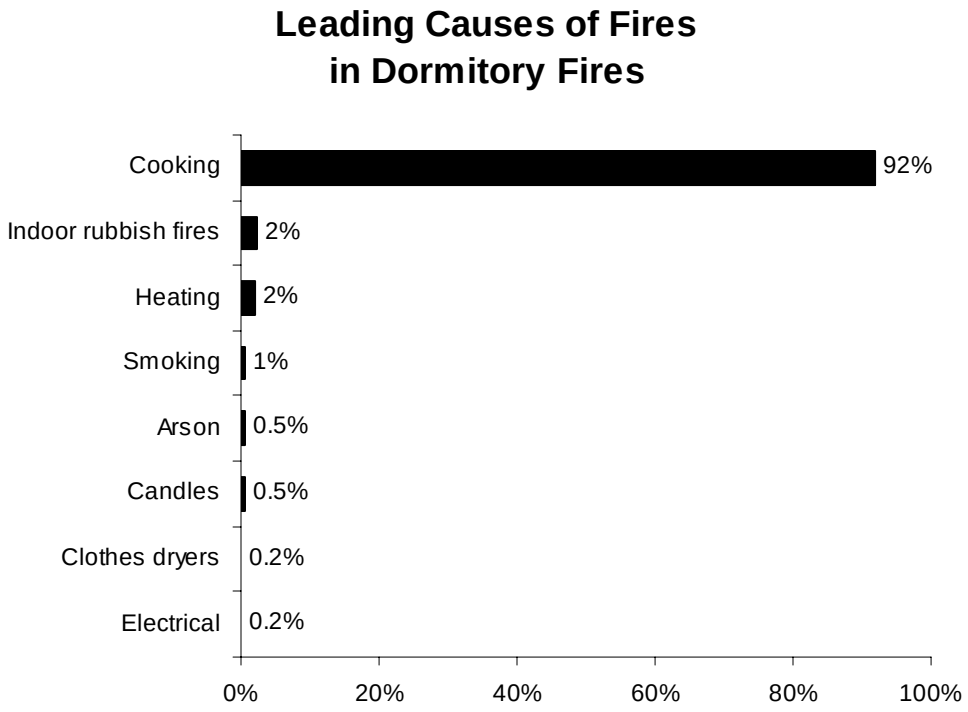
No AES in Almost 2/3 of Residential Board & Care Building Fires
Automatic extinguishing systems (AES) were present in six, or 33%, of the 20 residential board and care building fires where AES presence was known. In one of these incidents, or 6%, the system operated effectively. In five, or 28%, of these incidents, the fire was too small to activate the system. In 12, or 66%, of these incidents there were no systems present.

Dormitory Fires

421 Fires & $255,358 in Damages
Four hundred and twenty-one (421) dormitory building fires caused estimated dollar loss of $255,358 in damages. The average dollar loss per fire was $607. In 2008, 3% of the 13,939 residential building fires occurred in dormitories. Fires in dormitories were up 3% from 410 in 2007.

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

Cooking Accounted for 92% of Dormitory Fires
In the 421 incidents of dormitory fires, the leading cause was cooking, accounting for 387, or 86%, of these fires. Indoor rubbish fires and heating equipment were each responsible for 2% of these incidents. Smoking caused 1% of these fires. Arson, candles, clothes dryers and electrical problems each accounted for less than 1% of Massachusetts dormitory fires in 2008.



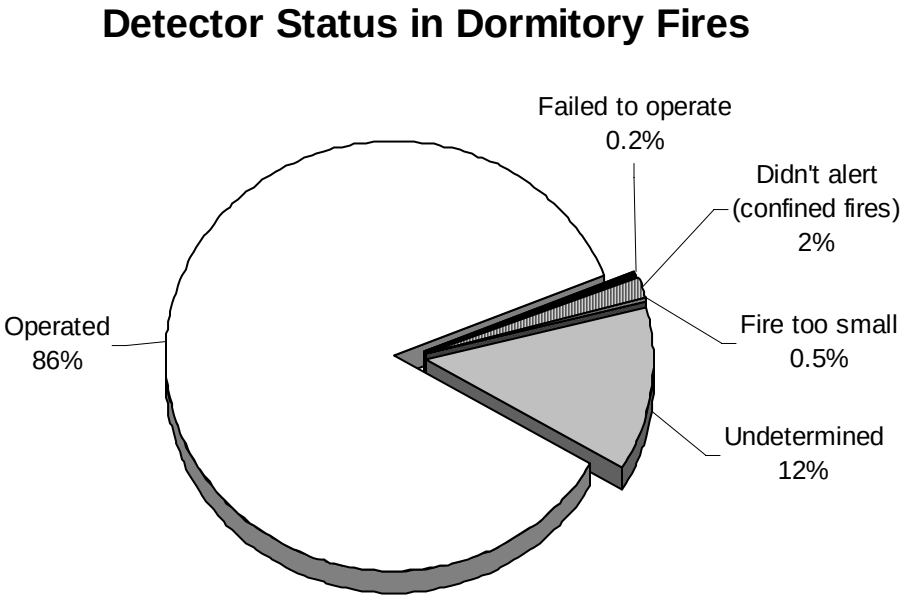
93% Dormitory Fires Started in the Kitchen
For dormitory fires, 93% of the fires started in the kitchen[24]. One percent (1%) each began in bedrooms, heating rooms and chimneys or flues. However, if we assume that all of the confined cooking fires occurred in the occupants bedrooms because most dormitory residents cook in their own bedrooms, 92% of the fires would have occurred in the bedroom, and only 1% would have occurred in the kitchen area.

[24] The high number of fires that are reported to have originated in the kitchen may be misleading in dormitory fires. Ninety-one percent (91%) of the cooking fires in dormitories were confined cooking fires. In most cases we assign the area of origin of a confined cooking fire to the kitchen. However in the case of dormitories many of these fires probably occur in the students' bedrooms when they are using hot plates, coffee makers or microwave ovens.

95% of Dormitory Fires Confined to Non-Combustible Containers[25]
Four hundred (400), or 95% of all building fires in dormitories, were reported as confined to non-combustible containers in 2008. Three hundred and eighty-four (384) were cooking fires contained to a non-combustible container accounting for 91% of all dormitory fires. It may be surmised that many if not all of these occurred in a kitchen and but the majority may have been in the students' bedrooms. Indoor rubbish fires accounted for nine, or 2% of the fires in dormitories in 2008. Four (4), or 1%, of fires in Massachusetts' dormitories in 2008 were confined to a fuel burner or boiler malfunction; and three, or another 1%, were confined to a chimneys or flues.

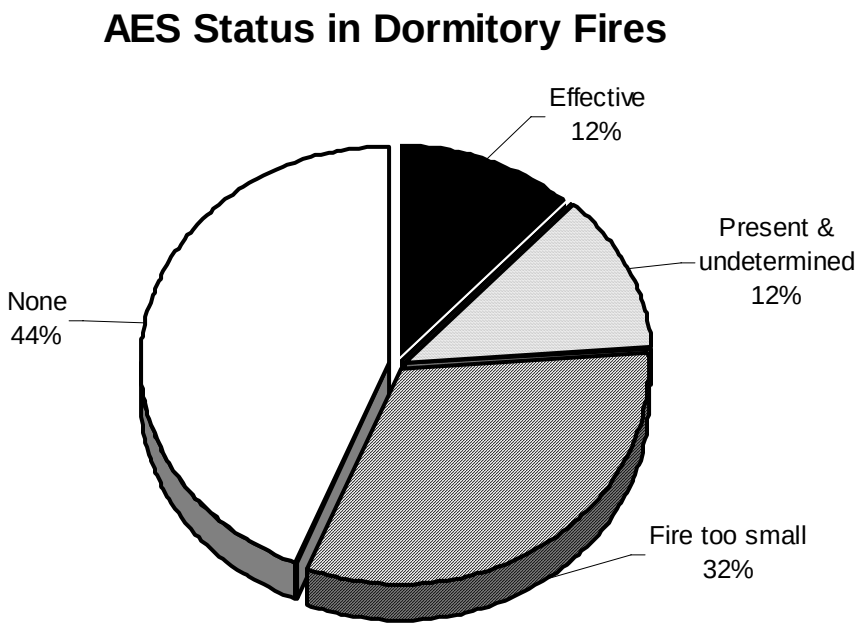
The number of contained fires rose in 2008. Confined fires in dormitories increased by 30 incidents, or 8%, from the 370 reported in 2007.

Detectors Operated in 86% of Fires
Smoke or heat detectors operated and alerted the occupants in 360, or 86%, of the dormitory fires in 2008. In 2% of these fires[26], the detectors did not alert the occupants. Detectors were present but did not operate in less than 1% of these fires. There were no reported fires were detectors not present. The fire was too small to trigger the detector in less than 1% of these fires. Smoke detector performance was undetermined in 51 incidents, or 12% of Massachusetts' 2008 dormitory fires.



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

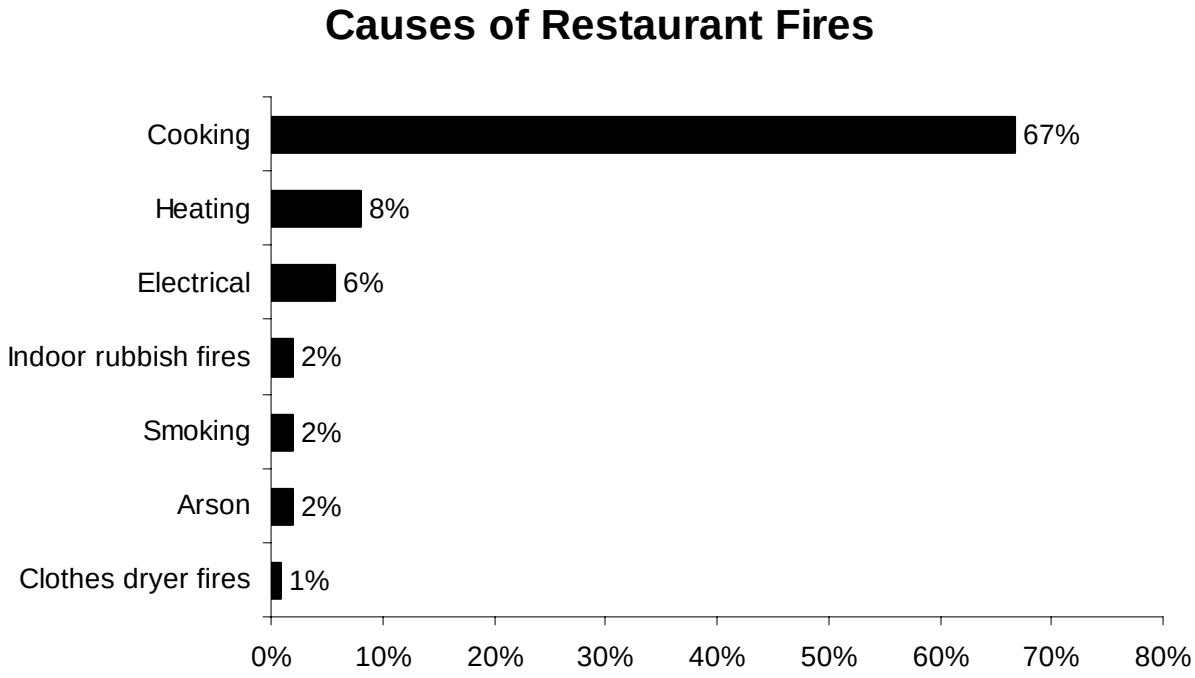
AES Present in 56% of Dormitory Fires
Automatic extinguishing systems (AES) were present and operated effectively in three, or 12% of the 25 building fires in dormitories where AES status was known. In 32% of these incidents, the fire was too small to activate the system. In 12% of these incidents, a system was present but it undetermined if it operated. In 11, or 44%, of these incidents there were no systems present.



Restaurant Fires

310 Fires, 5 Civilian Injuries & $5.8 Million in Damages
Three hundred and ten (310) building fires in 2008 occurred in restaurants and other eating and drinking establishments, causing five civilian injuries, six firefighter injuries, and an estimated dollar loss of $5.8 million. The average dollar loss per fire was $18,726. In 2008, 2% of the 17,042 building fires in Massachusetts occurred in restaurants. Fires in restaurants were down 1% from 313 in 2007.

2/3 of Restaurant Fires Caused by Cooking
Cooking caused 67% of the restaurant fires; heating equipment caused 8%; electrical problems accounted for 6% of these fires; indoor rubbish fires, smoking and arson each caused 2%; and 1% of the fires in restaurants in 2008 were caused by clothes dryers.



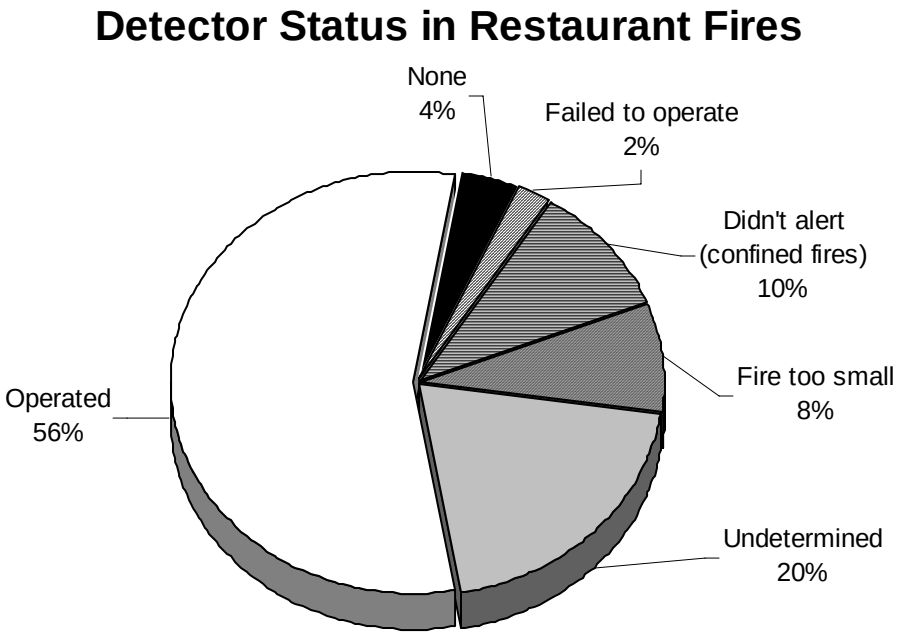
Almost 3/4 of Restaurant Fires Started in the Kitchen
Almost three quarters, or 73%, of the 310 fires in restaurants, started in the kitchen. Four percent (4%) each began in heating rooms or areas or chimneys or flues, and 2% of these fires began in bathrooms or exterior wall surfaces.

69% of Restaurant Building Fires Confined to Non-Combustible Containers[27]
Two hundred and fifteen (215), or 69% of all restaurant building fires, were reported as confined to non-combustible containers in 2008. One hundred and eighty-six (186) were cooking fires contained to a non-combustible container accounting for 60% of restaurant building fires. Eleven (11), or 4%, were fires confined to a fuel burner or boiler malfunction. Another 11, or 4%, of all restaurant building fires reported in 2008 were fires confined to a chimney. Seven (7), or 2%, of restaurant fires were contained rubbish fires.

The number of contained fires rose in 2008. Confined fires in restaurants increased by 14 incidents, or 7%, from the 201 reported in 2007.

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

Detectors Operated in 56% of Fires
Smoke or heat detectors operated in 172, or 56%, of the restaurant fires in 2008. In 10% of these fires[28], 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 8% of the restaurant fires. Smoke detector performance was undetermined in 62 incidents, or 20% of Massachusetts' 2008 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 2008 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 10% of the 88 restaurant fires where AES status was known. In 6% of these fires, systems were present but operated ineffectively. In 13% of these fires, an AES was present but did not operate. In 24% of these fires, the fire was too small to activate the system. No AES

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

equipment was present in 47% of the restaurant fires in 2008. AES status was unknown in 23 incidents. These incidents were excluded from the percentage calculations.

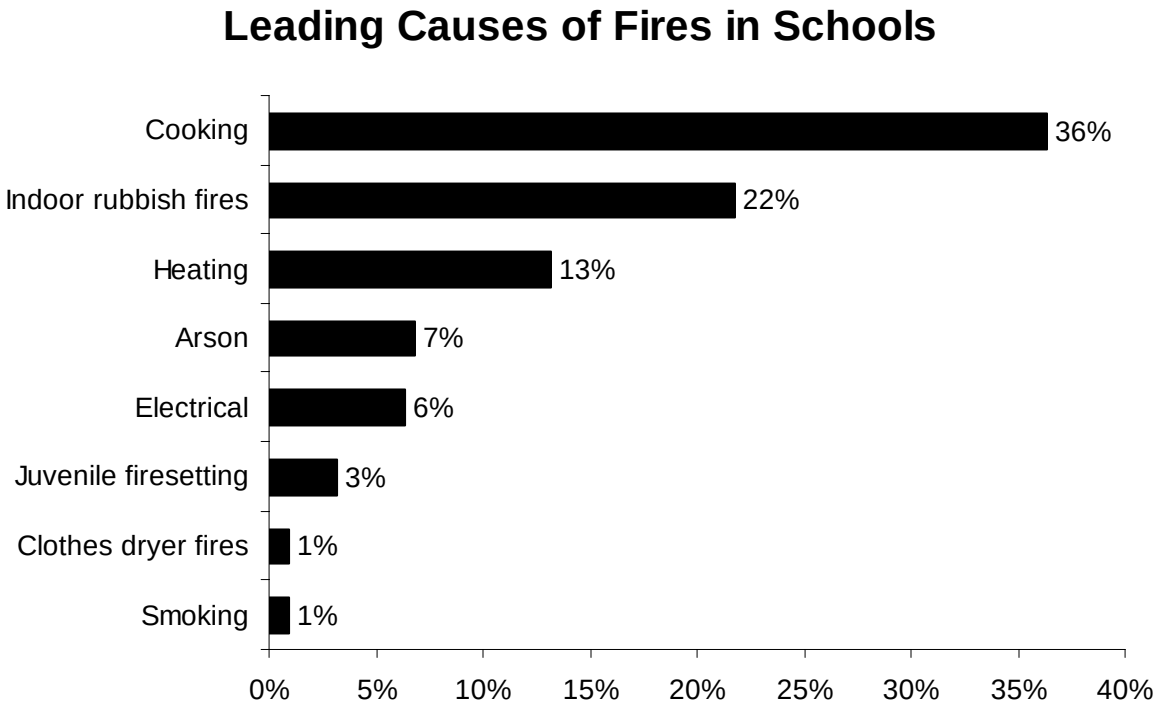
Boston Has Largest Loss Restaurant Fire

- On June 10, 2008 at 5:02 p.m., the Boston Fire Department was called to an electrical fire at a restaurant, the Grecian Yearning. The fire began in a first floor service area. This blaze was the largest loss fire in this category of building fires, with an estimated $2.5 million worth of damage done. No one was injured at this fire. It was undetermined if the building had smoke detectors. It was also undetermined if the building was sprinklered.

School Fires

220 Fires Caused 1 Civilian Injury & 1 Fire Service Injury
Two hundred and twenty (220) building fires in schools[29] caused one civilian injury, one fire service injury and $607,680 in property damages. The average dollar loss per fire was $2,762. In 2008, 1% of the building fires occurred in schools. Fires in schools remained the same with 220 in both 2007 and 2008.

Over 1/3 of School Fires Were Cooking Fires
Over one-third (36%) of the 220 fires reported to have occurred in Massachusetts schools were caused by cooking. Twenty-two percent (22%) of the school fires were confined indoor rubbish fires for which no causal information was reported[30]. Problems with heating equipment accounted for 13% of these fires. Arson accounted for



7% of these fires. Electrical problems caused 6%. Identified juvenile-set fires accounted for 3% of the fires in schools. Clothes dryer fires and smoking each caused 1% of the reported fires in schools in 2008. Smoking by students and faculty is generally prohibited in schools.

[29] 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.
[30] Confined fires, like indoor rubbish fires, do not require causal information to be completed. However some reports do include this information and we are able to classify these fires as other types of fires like arsons or juvenile-set fires.

Over 1/3 of School Fires Started in the Kitchen
Over one third, or 38%, of the fires in schools started in kitchens; 12% started in a heating room or area; 4% began in a bathroom; 2% started in switchgear areas or transformer vaults; and another 2% started in a hallway or corridor. 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.

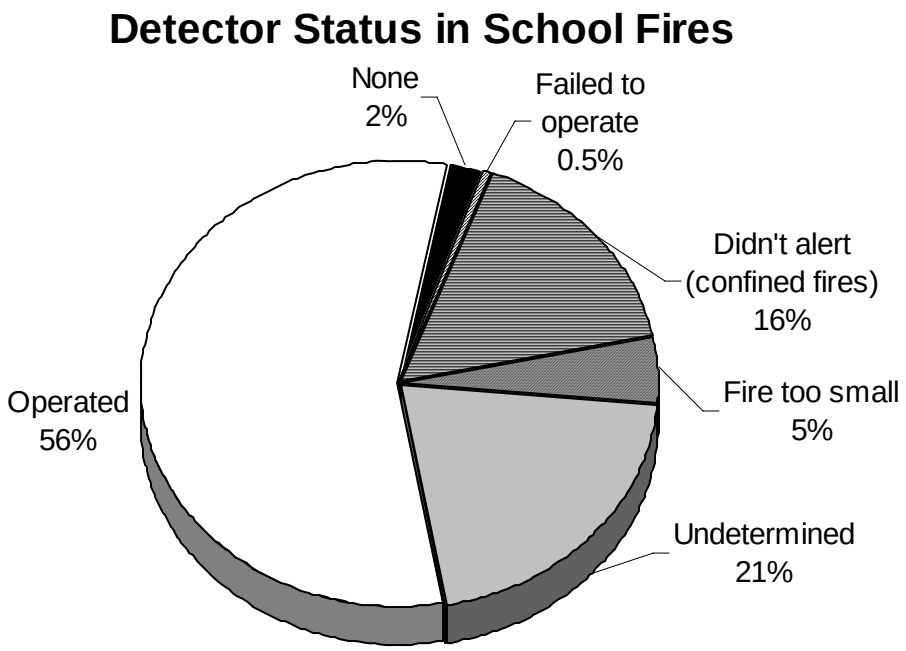
Schools Required to Report Fires by Law
Beginning in September of 2006 with Chapter 80 of the Acts of 2006, An Act Relative to the Reporting of Fires in School, "…any school that provides instruction to pupils in any of grades 1 to 12, shall immediately report any incident involving the unauthorized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

77% of School Building Fires Confined to Non-Combustible Containers[31]
One hundred and sixty-nine (169), or 77% of all school building fires, were reported as confined to non-combustible containers in 2008. Seventy-nine (79) were cooking fires contained to a non-combustible container accounting for 36% of school fires. Sixty-one (61), or 28%, of all school fires were contained rubbish fires. Of these 61 confined rubbish fires, 12 were considered intentionally set or arson, and three were determined to be set by juveniles. Twenty-six (26), or 12%, were fires confined to a fuel burner or boiler malfunction. Two (2) fires, or 1%, were confined to incinerators. One (1) fire, or less than 1%, was confined to a chimney or flue.

Confined fires in schools increased by 14 incidents, or 9%, from the 155 reported in 2007.

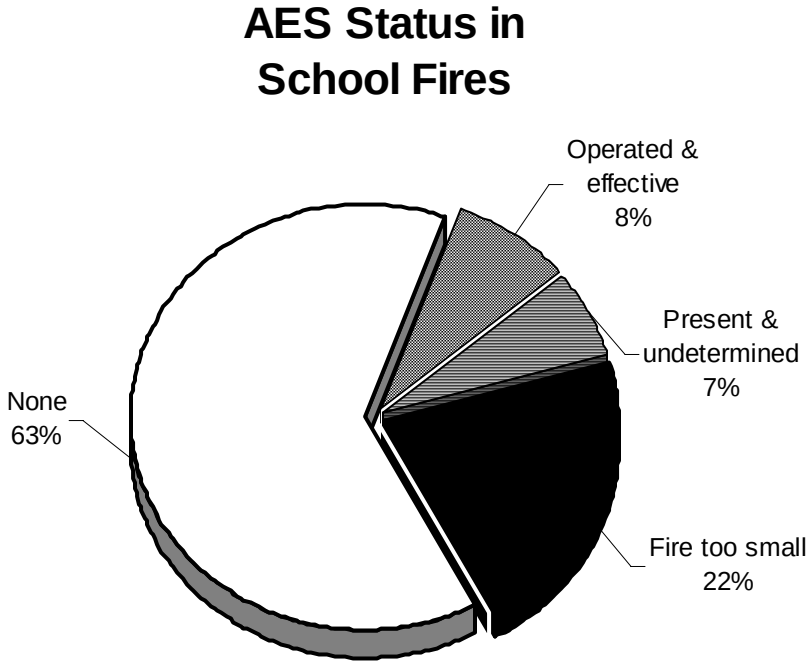
Detectors Operated in Over 56% of Fires
Smoke or heat detectors operated in 123, or 56%, of the school fires in 2008. In 16% of these fires[32], the detectors did not alert the occupants. Detectors were present but did not operate in less than 1% of these fires. In 2% of these fires, no detectors were present at all. The fire was too small to trigger the detector in 5% of school fires. Smoke detector performance was undetermined in 46 incidents, or 21% of Massachusetts' 2008 school fires.

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

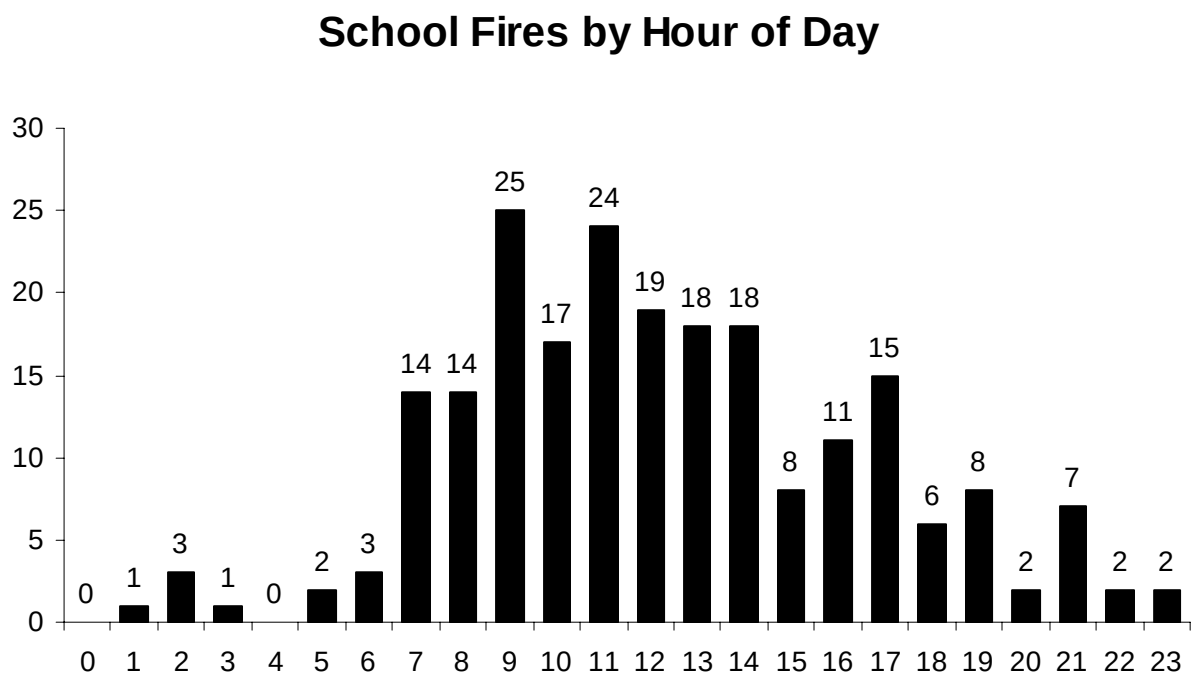


No AES in Almost 2/3 of Fires in Schools

There were five school fires, or 8%, where automatic extinguishing systems (AES) were reported to have been present and operated effectively. In 22% of school fires, the fires were too small to trigger the system. In 63% of the fires in schools, there were no systems. AES performance was unknown in four, or 7% of fires in Massachusetts' schools in 2008.



Most School Fires Occur When School is in Session During Lunch
School fires generally occur during the school day. Sixty-five percent (65%) 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. Ninety percent (90%) of these fires occurred between Monday and Friday.

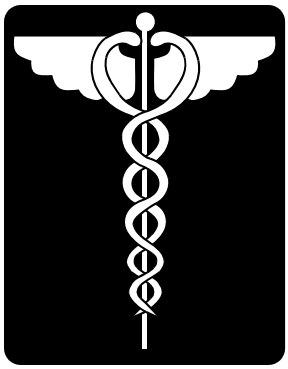


Schools Must Hold Fire Drills Four Times a Year
Effective fire prevention has undoubtedly contributed to the low injury rate at school fires. According to 527 CMR 10.09, fire drills must be conducted four times a year. The fire department must approve an evacuation plan developed by someone from the 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.

Lincoln Had Largest Loss School Fire

- On February 27, 2008, at 11:59 p.m., the Lincoln Fire Department was called to a fire at the Brooks School. Combustible materials placed too close to the heat source caused the fire in an egress to a ‘science room’. No one was injured at this fire. Detectors were present and operated. The building had no sprinklers. Damages from this fire were estimated to be $210,000.

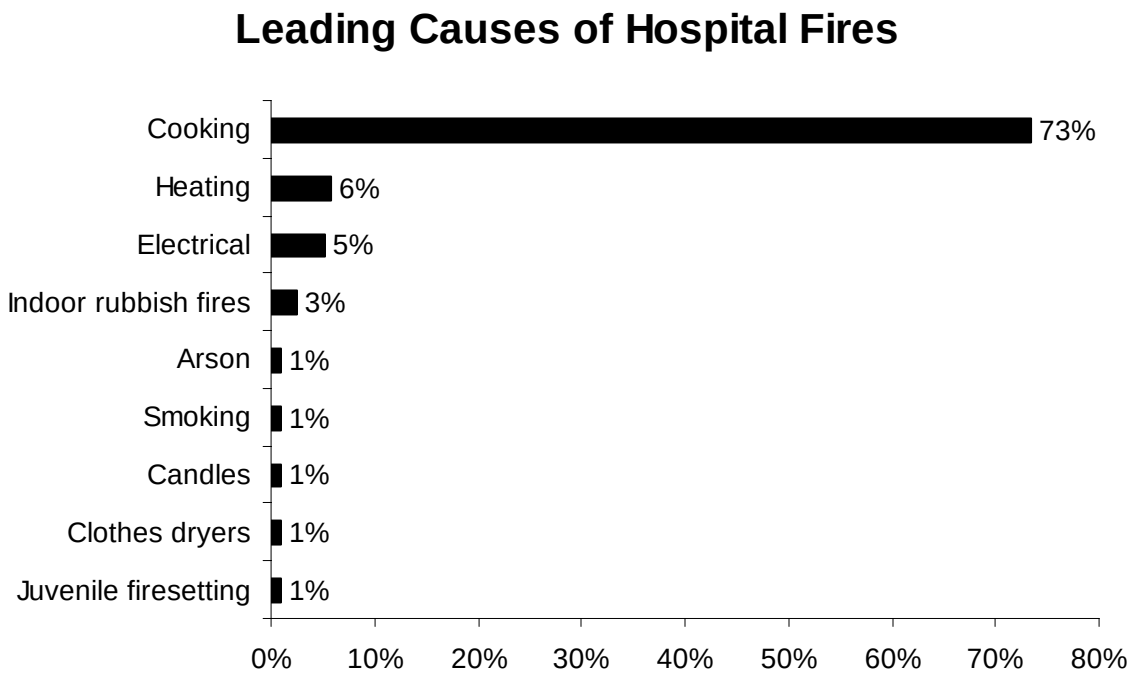
Fires in Hospitals



154 Fires Caused $151,167 in Damages
One hundred and fifty-four (154) building fires in hospitals caused an estimated dollar loss of $151,167. The average loss per fire was $982. In 2008, 1% of the 17,042 building fires occurred in hospitals. Fires in hospitals were down 11% from 174 in 2007.

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 mental retardation/development disability facilities.

Cooking Caused Almost 3/4 of Hospital Fires
Unattended cooking and other unsafe cooking practices caused 73%, or almost three-fourths of the fires in hospitals in 2008. Heating equipment caused 6% of these fires; and electrical problems accounted for 5% of these fires. Indoor rubbish fires caused 3% of these fires. Arson, smoking, candles, clothes dryers and juvenile-set fires were each responsible for 1% of the fires in hospitals in 2008.

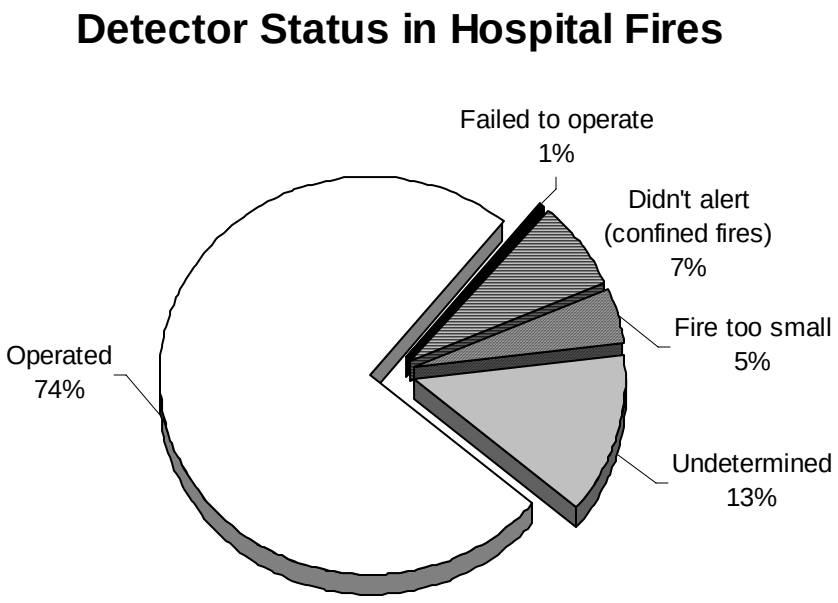


Almost 3/4 of Hospital Fires Began in the Kitchen
Seventy-three percent (73%), of the fires in hospitals in 2008, started in the kitchen; 6% occurred in heating rooms or areas; 3% occurred in bedrooms; and 2% each in bathrooms machinery rooms.

81% of Hospital Building Fires Confined to Non-Combustible Containers[33]
One hundred and twenty-four (124), or 81% of all hospital building fires, were reported as confined to non-combustible containers in 2008. One hundred and eleven (111), or 72%, of these fires were contained cooking fires. Six (6), or 4%, were fires confined to a fuel burner or boiler malfunction. Another six were confined indoor rubbish fires accounting for 4% of hospital fires. One (1), or 1% of the hospital fires in 2008, was confined to a commercial compactor.

The number of contained fires fell in 2008. Confined fires decreased by 12 incidents, or 9%, from the 136 reported in 2007.

Detectors Operated in Almost 3/4 of Fires
Smoke or heat detectors operated in 115, or 74%, of the hospital fires in 2008. In 7% of these fires[34], the detectors did not alert the occupants. The detectors failed to operate in 1% of these fires. There were no reported fires where there were no detectors present at all. The fire was too small to trigger the detector in 5% of the hospital fires. Smoke

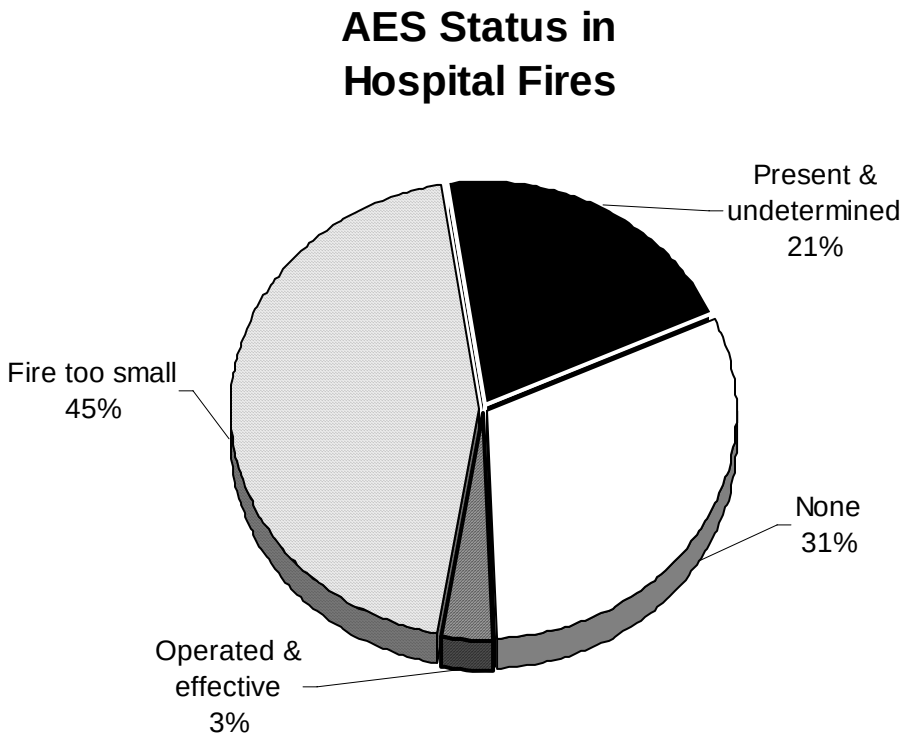


[33] In MFIRS v5 a fire in a building contained to a non-combustible container (Incident Type = 113-118) does not have to have a Fire Module completed. Therefore the following data fields do not need to be completed: Area of Origin, Detector Status, Item First Ignited, Heat Source, Factors Contributing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

detector performance was undetermined in 20 incidents, or 13% of Massachusetts' 2008 hospital fires.

Fire Too Small to Activate AES Systems in 45% of Fires

Of the 29 hospital fires where automatic extinguishing system (AES) performance was known, the fire was too small to activate the AES in 13, or 45%, of these fires. The system operated effectively in one, or 3% of hospital fires. Thirty-one percent (31%), or nine, of the hospital fires had no systems. An AES was present but its performance was unknown in six, or 21% of the fires in hospital facilities.



Plympton Had Largest Loss Hospital Fire in 2008

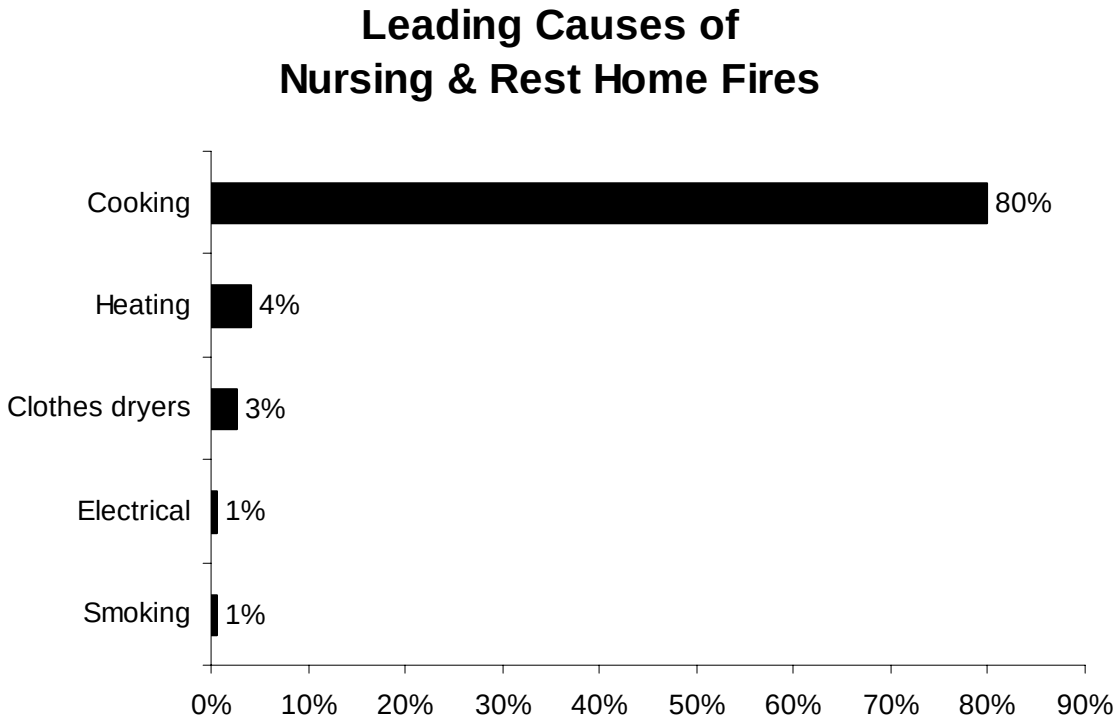
- On July 23, 2008 at 5:20 p.m. the Plympton Fire Department was called to an electrical fire at a hospital. Arcing in the electrical wires in the heating room caused the fire. The fire did not cause any injuries but did cause an estimated $50,000 in damages. Detectors were present and operated, and alerted the occupants. The building was not equipped with sprinklers.

Nursing Home and Rest Home Fires

144 Fires Caused 1 Civilian Death & 3 Civilian Injuries
One hundred and forty-four (144) building fires occurred in nursing homes and rest homes[35] during 2008. These fires caused one civilian death, three civilian injuries and an estimated dollar loss of $84,207. The average loss per fire was $585. In 2008, 1% of the 17,042 building fires occurred in nursing homes and rest homes. Fires in nursing homes and rest homes decreased by 20% from 181 in 2007.

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 80% of Nursing Home Fires
Unattended cooking and other unsafe cooking practices caused 80% of the fires in nursing and rest homes. Heating equipment caused 4% of these fires. Clothes dryers caused 3% of nursing home fires. Electrical problems and smoking each caused 1% of the fires in Massachusetts' nursing homes in 2008.



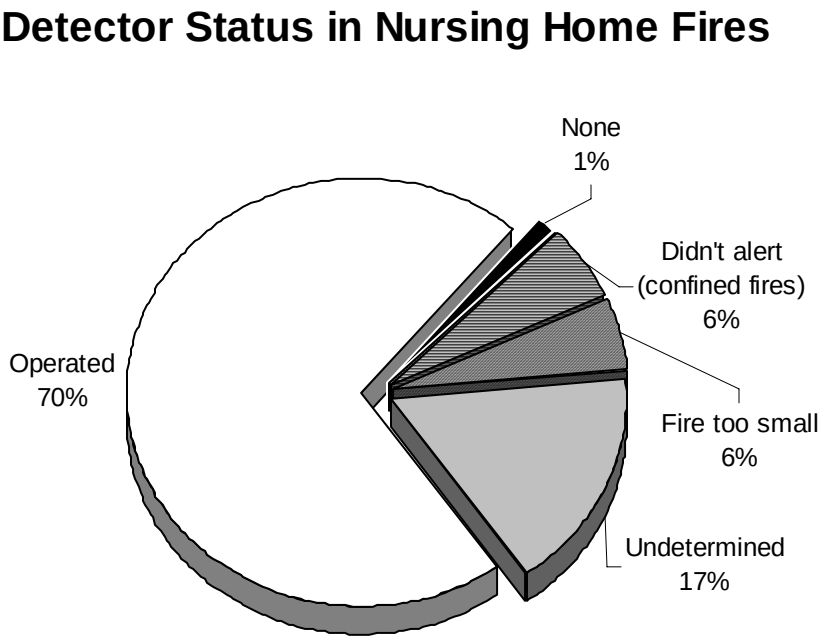
[35] In version 4 buildings with a Fixed Property Use code 312 – Care of the aged without nursing staff - was included in this count. However, with the conversion to version 5 codes, all v4 FPU = 312 have been converted to Property Use code 459 – Residential board and care.

82% of Fires Began in the Kitchen
Eighty-two percent (82%) of the nursing and rest home fires began in the kitchen. Five percent (5%) started in the laundry room. Three percent (2%) began in a duct. Two percent (2%) of these fires began in a patient's room.

81% of Nursing Home Fires Were Confined to Non-Combustible Containers[36]
One hundred and sixteen (116), or 81%, of all nursing home building fires were reported as confined to non-combustible containers in 2008. One hundred and thirteen (113) of the reported fires were cooking fires contained to a non-combustible container accounting for 78% of nursing home building fires. Two (2), or 1%, were fires confined to a fuel burner or boiler malfunction. There was one confined chimney fire in Massachusetts' nursing homes in 2008, accounting for 1% of these fires.

The number of contained fires in nursing homes dropped in 2008. Confined fires decreased by 28 incidents, or 19%, from the 144 reported in 2007.

Detectors Operated in 70% of Fires
Smoke or heat detectors operated in 102, or 70%, of the nursing home fires in 2008. In 6% of these fires[37], the detectors did not alert the occupants. There were no reported fires where the detectors failed to operate. In 1% of the fires no detectors were present at all.

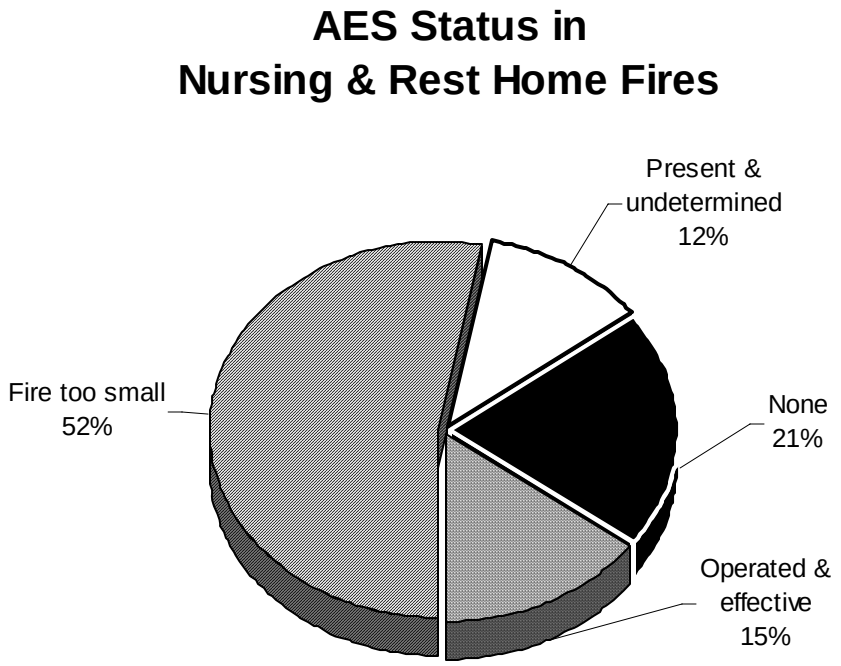


[36] In MFIRS v5 a fire in a building contained to a non-combustible container (Incident Type = 113-118) does not have to have a Fire Module completed. Therefore the following data fields do not need to be completed: Area of Origin, Detector Status, Item First Ignited, Heat Source, Factors Contributing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

The fire was too small to trigger the detector in 6% of the nursing home fires. Smoke detector performance was undetermined in 24 incidents, or 17% of Massachusetts' 2008 nursing and rest home fires.

AES Operated in 15% of Nursing Home Fires

Of the 34 nursing home fires where automatic extinguishing system (AES) performance was known or reported, systems were present and operated effectively in five, or 15% of these fires. In 18 incidents, or 52% of the fires where AES presence was known, the fire was too small to activate the system. No systems were present in seven, or 21% of these fires. In four of these incidents, AES were present but their operation was undetermined.



$26,000 Dollar Loss in Dedham Nursing Home Fire

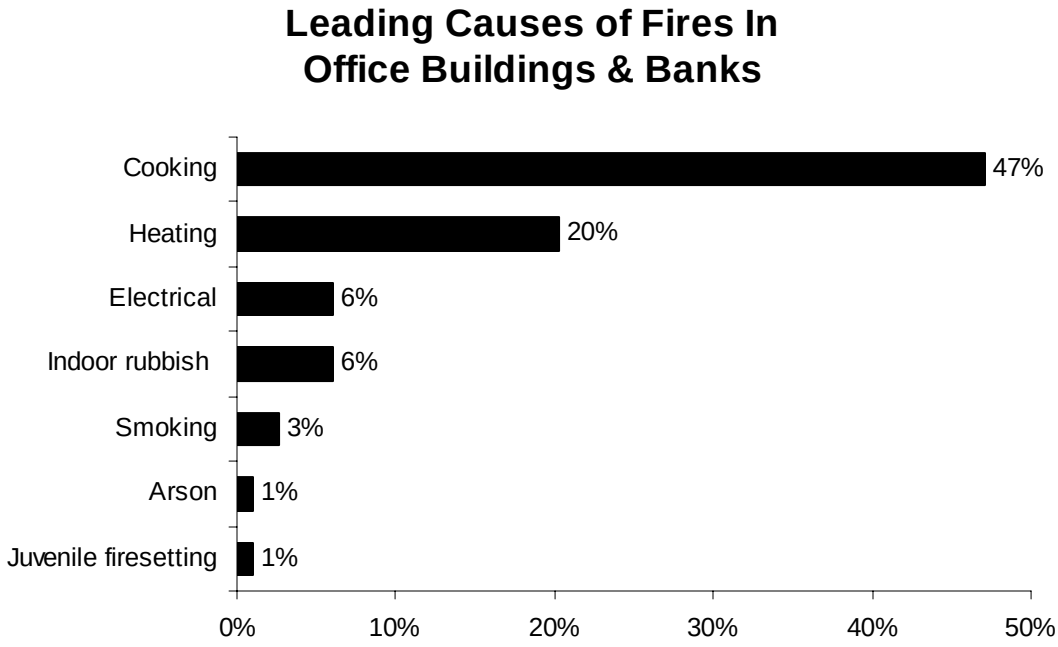
- On June 9, 2008 at 11:11 a.m., the Dedham Fire Department was called to a cooking fire in a nursing home. Someone had accidentally turned the stove on and did not turn it off. Because sprinklers were present and effectively suppressed the fire until firefighters arrived to completely extinguish the fire, it only caused $26,000 in damages and no one was injured. Smoke detectors were present and alerted the staff and occupants.

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

Office Building and Bank Fires

187 Fires, 2 Civilian Deaths & 4 Civilian Injuries
One hundred and eighty-seven (187) building fires occurred in offices and banks during 2008. These fires caused three civilian injuries, 12 fire service injuries and an estimated dollar loss of $5.3 million. The average dollar loss per fire was $28,331. In 2008, 1% of the 17,042 building fires occurred in offices and banks. Fires in office buildings and banks were down 14% from 201 in 2007.

Cooking Caused Almost 1/2 of Office & Bank Fires
Unattended cooking and other unsafe cooking practices caused 47% of the 187 fires in office buildings and banks in 2008. Heating equipment accounted for 20% of these fires. Electrical problems and indoor rubbish fires each caused 6% of the office building fires. Smoking caused 3% of these fires. Arson and juvenile-set fires were each the cause of 1% of the fires in Massachusetts' office buildings and banks in 2008.

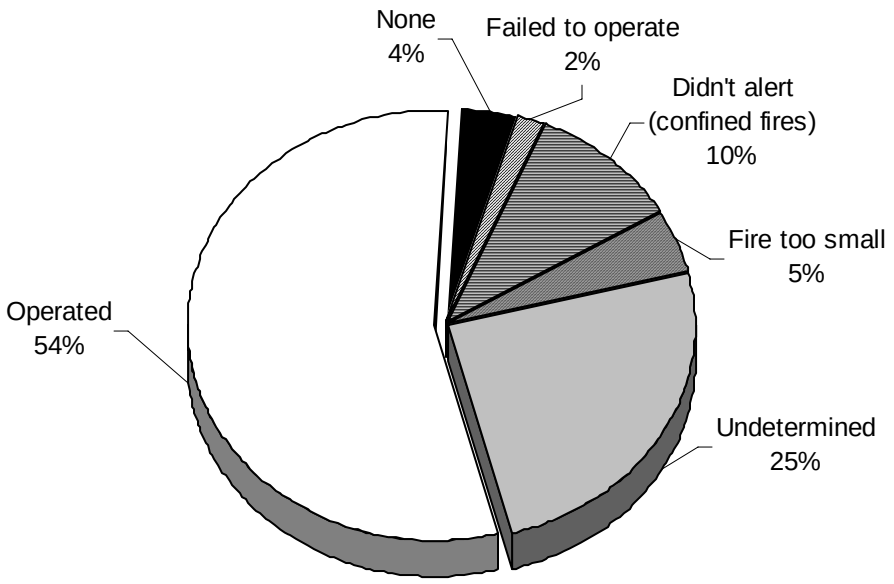


Almost 1/2 Office Building and Bank Fires Started in Kitchen
Forty-seven percent (47%) of the fires in office buildings or banks started in the kitchen. Twenty percent (20%) of these fires began in a heating room or area. Four percent (4%) originated in an office. Two percent (2%) each started on an exposed exterior surface or in the ducts.

72% of Office Building Fires Are Confined to Non-Combustible Containers[38]
One hundred and thirty-four (134), or 72%, of all office building and bank building fires were reported as confined to non-combustible containers in 2008. Eighty-six (86) of the reported fires were cooking fires contained to a non-combustible container accounting for 46% of office building fires. Thirty-four (34), or 18%, were fires confined to a fuel burner or boiler malfunction. Thirteen (13), or 7%, of these fires were contained indoor rubbish fires[39]. One (1) of these fires was confined to the commercial compactor, accounting for 1% of the fires in office buildings and banks. Confined fires in offices decreased by seven incidents, or 5%, from the 141 reported in 2007.

Detectors Operated in Over 1/2 of Fires
Smoke or heat detectors operated and alerted the occupants in 103, or 54%, of the office building fires in 2008. In 10% of these fires[40], the detectors did not alert the occupants. In 4% of these fires, no detectors were present at all. In 2% of these fires the detectors failed to operate. The fire was too small to trigger the detector in 5% of the office building fires. Smoke detector performance was undetermined in 46 incidents, or 25% of the fires in Massachusetts' office buildings.

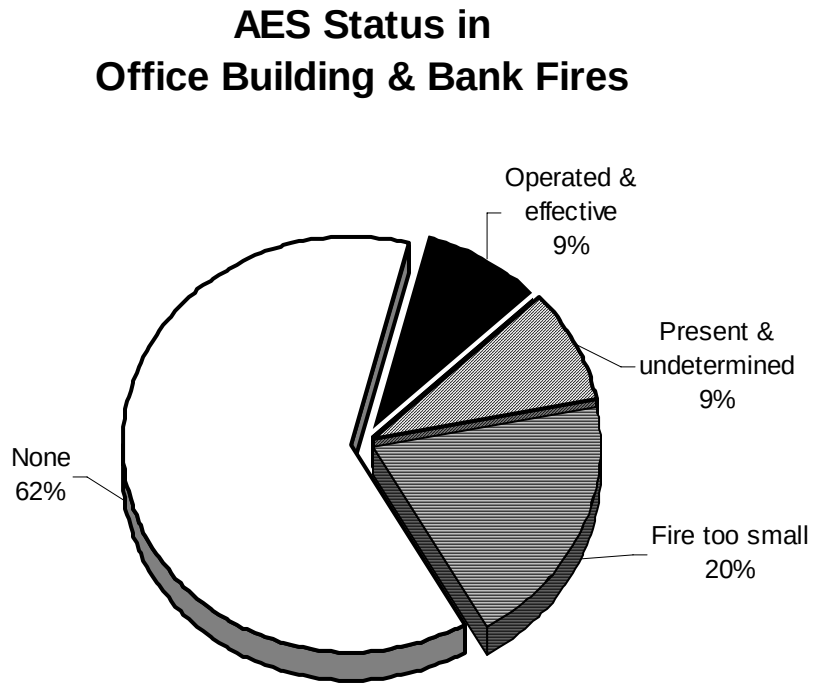
Detector Status in Office Building Fires



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

62% of Office Building and Banks Had No AES

No automatic extinguishing systems (AES) were installed in 35, or 62%, of the 56 fires occurring in office buildings and banks where AES performance was known. Systems were present and operated effectively in five, or 9%, of these incidents. The fire was too small to activate the system in 11, or 20%, of these incidents. AES were present but it was undetermined if they operated in five, or 9%, of the total number of office building and bank fires.



Electrical Fire Caused Largest Loss Office Building Fire

- On April 8, 2008, at 6:27 a.m., the Brockton Fire Department responded to an electrical fire in a business office. The fire was started by the malfunction of an old electrical meter. Seven firefighters were injured battling this fire. Detectors were not present; and the building was not sprinklered. Damages from this fire were estimated to be $1.8 million.

Vacant Building Fires

380 Fires Caused 1 Civilian Death & 88 Fire Service Injuries
Three hundred and eighty (380) building fires occurred in buildings that were vacant, under construction or demolition[41]. These 380 fires caused one civilian death, five civilian injuries, 88 firefighter injuries and an estimated $23.8 million in damages. The average dollar loss per vacant building fire was $62,755. Fires in vacant buildings were up 3% from 393 in 2007.

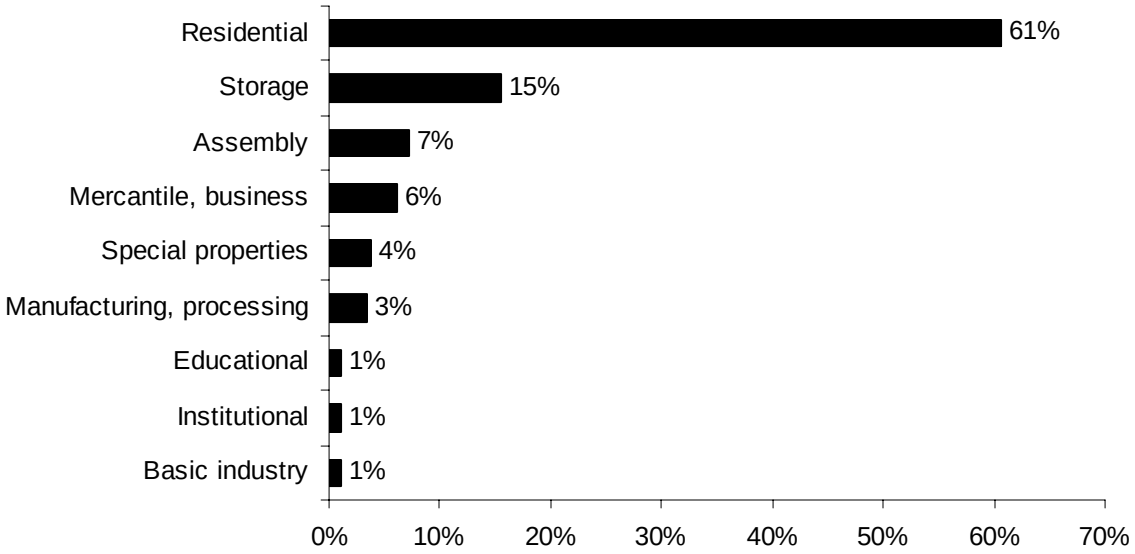
14% of Vacant Building Fires Considered Arson
Fifty-five (55), or 14%, of the fires in vacant buildings were considered arson. These 55 fires caused two civilian injuries, 14 firefighter injuries and $3 million in damages. In 2008, 20% of the total 279 Massachusetts building arson fires occurred in vacant buildings.

39% of Vacant Building Fires Undetermined
Thirty-nine percent (39%) of vacant building fires were undetermined. Fifty-five (55), or 14%, of the 380 vacant building fires were undetermined after investigation. Ninety (90), or 24%, were coded as still under investigation; and two, or 1%, were classified as 'Other'.

61% of All Vacant Building Fires Were Residential
Out of the 380 vacant building fires, 227, or 61%, occurred in residential occupancies. This is a decrease of six, or 3%, over the 233 that were reported in 2007. Fifty-eight (58), or 15%, happened in storage facilities; 27, or 7%, were in public assembly properties; 23, or 6%, happened at mercantile or business locations; 14, or 4% occurred in special properties; 13, or 3%, happened at manufacturing or processing locations; five, or 1%, were at educational facilities; another five, or 1%, occurred at institutional facilities basic; and three, or 1% of vacant building fires, occurred at industrial sites.

[41] 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



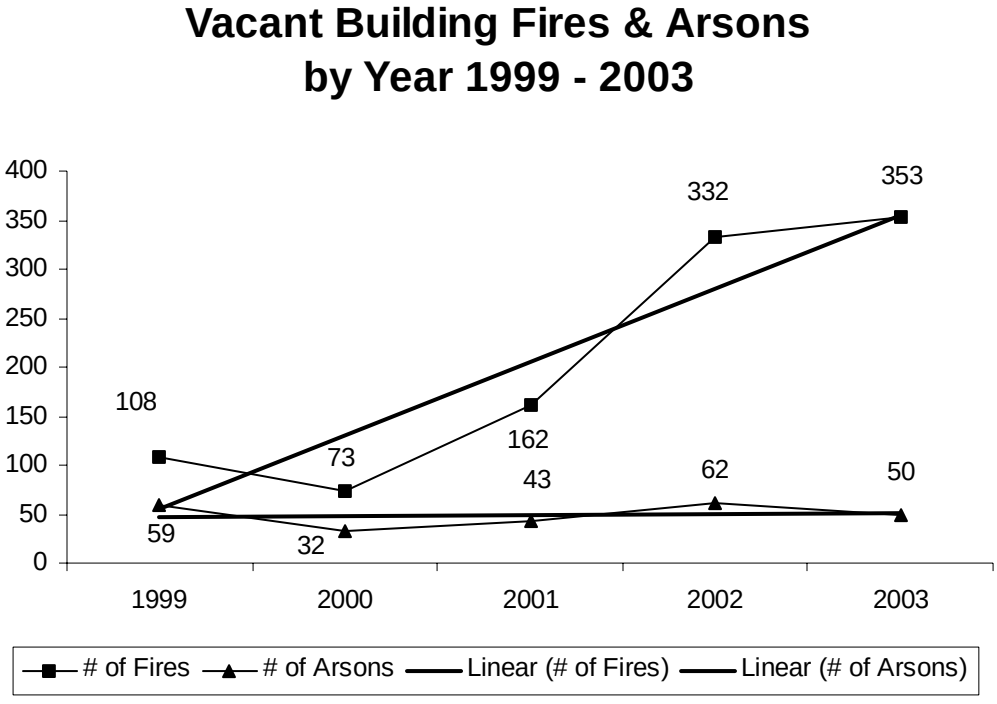
55% of All Vacant Building Arsons Occurred in Residential Buildings
Over one-half, or 55%, of the 55 vacant building arsons in 2008 occurred in residential occupancies. Eighteen percent (18%) took place in storage facilities; 13% happened in public assembly properties; 5% happened in manufacturing or processing facilities; 4% happened at educational facilities; another 4% happened at special properties; and 2% occurred in mercantile or business properties.

The following table and chart illustrate the trend in vacant building fires and arsons over the past decade. These fires steadily declined from 108 in 1999 to 73 in 2000. 2001 was the transition year to version 5, and its increased ability to track these fires and was also the year when the cause 'suspicious' was eliminated from our definition of arson. It should be noted that prior to 2004, these statistics did not include data from the Boston Fire Department. Data from the BFIRS system lost the capability to identify vacant buildings during conversion to MFIRS. This problem was eliminated when Boston completed its conversion to MFIRS version 5 in 2004. Therefore, the numbers in the table prior to 2004 should be considered to be underestimated.

FIRES AND ARSONS IN VACANT BUILDINGS

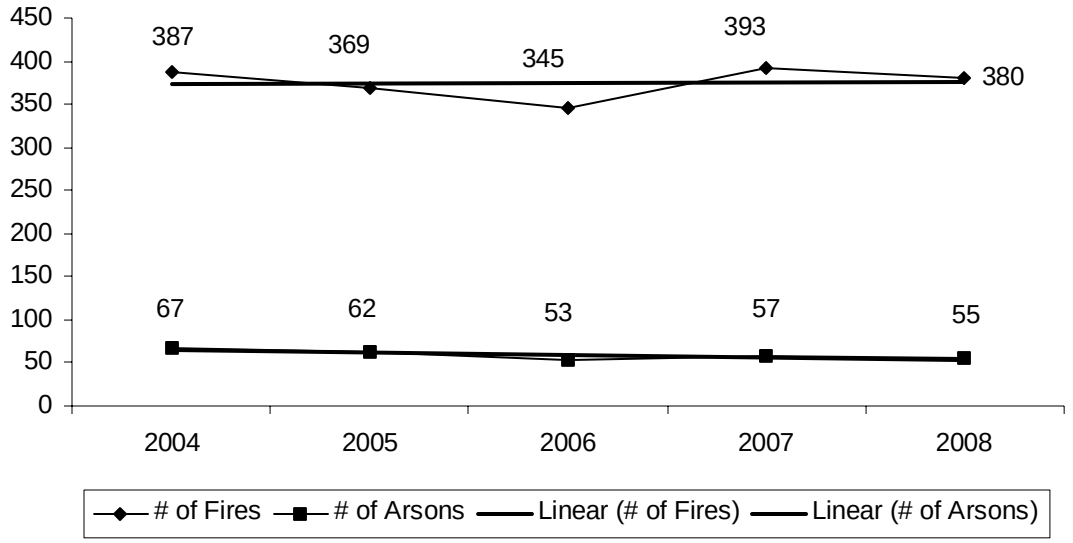
Year	# of Fires	# of Arsons	% Arsons
2008	380	55	14%
2007	393	57	15%
2006	345	53	15%
2005	369	62	17%
2004	387	67	17%
2003	353	50	14%
2002[42]	332	62	17%
2001	162	43	27%
2000	73	32	44%
1999	108	59	55%

The following graphs clearly show an upward trend in vacant building fires and a level trend in vacant building arsons between 1999 and 2003. 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 2004 through 2008 the number of vacant building fires and arsons seems to be holding steady in an even trend.



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

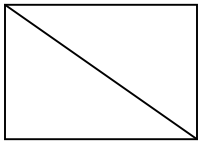
Vacant Building Fires & Arsons by Year 2004 - 2008



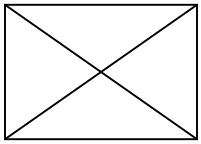
Communities Have Gone on the Offensive Against Vacant Buildings
Some communities have gone on the offensive against vacant buildings. The 32% drop in reported vacant building fires from 1999 to 2000 was likely due to the aftermath of the December 3, 1999 Worcester Cold Storage Warehouse Fire where six firefighters lost their lives. A homeless squatter couple that had been living in the abandoned Worcester Cold Storage Warehouse started the fire when a candle they were using was knocked over and ignited some of their clothes. This tragedy led to increased awareness of the dangers of abandoned and vacant buildings. This heightened awareness led to pre-incident planning including increased inspections, stricter adherence to building and fire codes along with tighter security around these buildings, more frequent patrols of areas where these buildings are located, tougher fines for owners who fail to keep vacant buildings secured, and the taking of these properties by the municipality through a variety of means. It also led to many changes in firefighting practices in these types of fires such as deciding whether to use an offensive attack strategy placing firefighters inside the building, or a defensive strategy by setting up master stream devices and fighting the fire from the outside.

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

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



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



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

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

Vacant Buildings Also Threaten Community

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

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

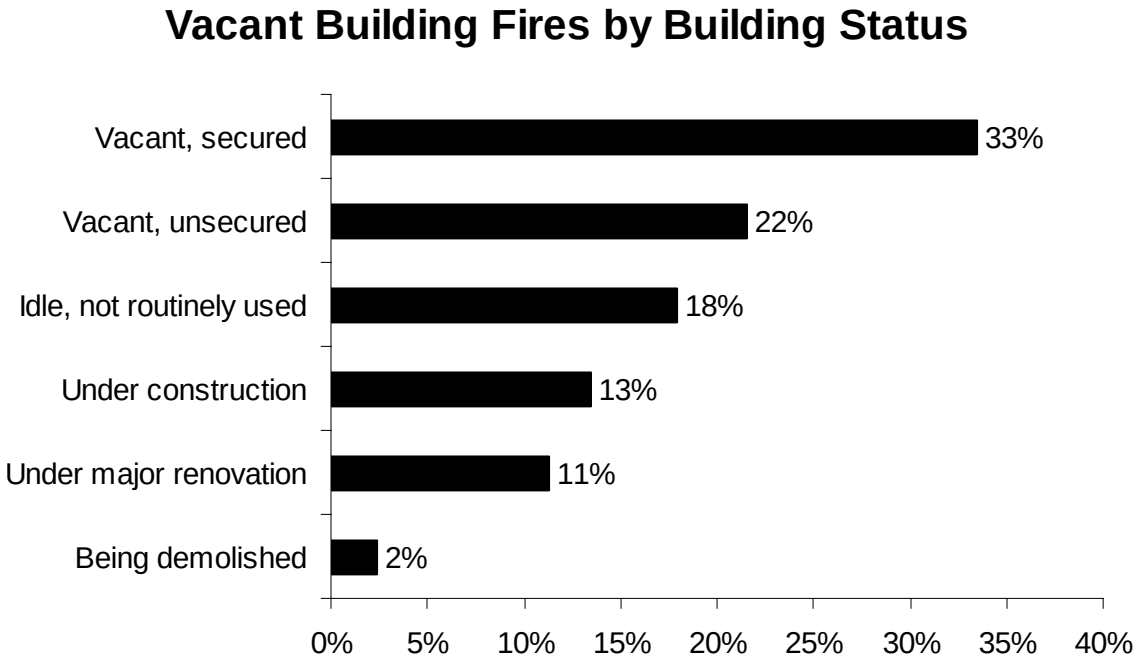
Effective Boarding Up Is Key To Protection

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 a vacant building fire. Local officials and building owners must ensure that these buildings are adequately secured to prevent entry into these buildings. This is a community’s first line of defense in the battle to prevent arson and to maintain housing stock.

1/3 Were Vacant and Secured Buildings

Of the 380 fires in vacant buildings in 2008, 127, or 33% were in vacant buildings that were secured. Eighty-two (82), or 22% of these fires occurred in vacant buildings that were unsecured; 68, or 18% of these fires took place in buildings that were idle or not routinely used; 51, or 13% were under construction; 43, or 11%, happened in buildings

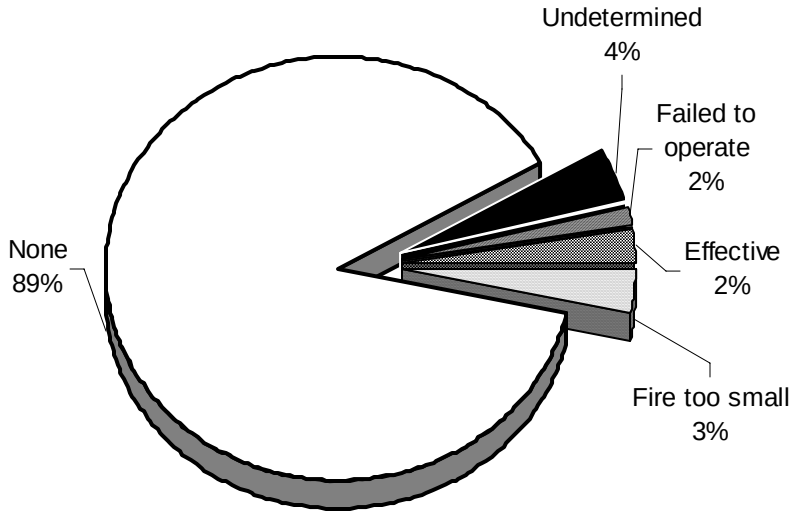
undergoing major renovations; and nine, or 2%, of the fires in these buildings occurred in buildings that were in the process of being demolished.



40% of All Vacant Building Arsons Occurred in Unsecured Buildings
Twenty-two (22), or 40% of all vacant building arsons in 2008, occurred in unsecured vacant buildings. Twenty (20), or 36% of these arsons occurred to vacant and secured buildings. Eleven (11), or 55% of the arsons involving vacant and secured buildings reported having the fire start on the exterior of the building. Seven (7), or 13%, occurred in idle buildings that are not routinely used. Buildings under construction accounted for 5% of vacant building arsons, or three of these incidents. Buildings under major renovation accounted for two, or 4% of these fires. One (1) vacant building arson occurred in a building that was being demolished, causing 2% of the vacant building arsons in 2008.

89% Vacant Buildings Had No AES
No automatic extinguishing systems (AES) were installed in 89% of the 378 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 2% 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 2008.

AES Status in Vacant Buildings



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 4 Vacant Building Fires
One of the most dangerous types of fires for firefighters in 2008 was vacant building fires. Vacant building fires accounted for 88, or 14%, of all firefighter injuries in 2008. These 88 injuries also represent 15% of the number of firefighter injuries at all building fires. On average there was one firefighter injury for every four vacant building fires.

Large Loss Vacant Building Fires
In 2008, there were four vacant building fires that had an estimated dollar loss greater than $1 million. These four fires accounted for $7.3 million in estimated damages, or 31% of all vacant building dollar loss estimates in 2008.

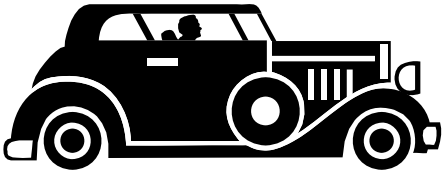
- On March 10, 2008, at 7:45 a.m., the Boston Fire Department was called to a fire in a four-story hotel of undetermined cause. The hotel was under construction. No one was injured at this fire. Smoke detectors had not been installed yet in the building. A partial sprinkler system was present, but it was undetermined if it operated. Damages from this fire were estimated to be $2 million.

- On November 5, 2008, at 3:11 a.m., the Springfield Fire Department responded to an intentionally set fire at a church under construction that was 90% complete at the time of the fire. The church had a predominantly black congregation. Started just hours after the presidential election, the fire is believed to have been set in reaction to the election of President Obama, the first black U.S. President. Five (5) firefighters were injured battling this fire. Detectors were not present and the building was not sprinklered. Damages were estimated to be $2 million.

Motor Vehicle Fires

3,076 Motor Vehicle Fires Account for 10% of All Reported Fires

Motor vehicle fires accounted for 10% of total reported fire incidents. The 3,076 motor vehicle fires in 2008 are an 8% decrease from the 3,346 motor vehicle fires in 2007. They caused five, or 10%, of civilian fire deaths, one fire service death, 23 civilian injuries, 16 fire service injuries, and an estimated property damage of $14.8 million.



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

20 Years of the Burned Motor Vehicle Reporting Law

The Massachusetts Fire Incident Reporting System identified motor vehicle fires and motor vehicle arson as a major problem in 1985. The Burned Motor Vehicle Reporting Law took effect in August of 1987. The law requires owners of burned motor vehicles to complete and sign a report that must also be signed by a fire official from the department in the community where the fire occurred. This law has been effective in reducing motor vehicle fires overall and vehicle arsons in particular. Since it took effect in 1987, motor vehicle arsons have decreased 97% from a high of 5,116 in 1987 to a low of 131 in 2007. The percentage of motor vehicle fires that are arsons has also dropped 64% in the past decade from 13.6% in 1999 to 4.9% in 2008.

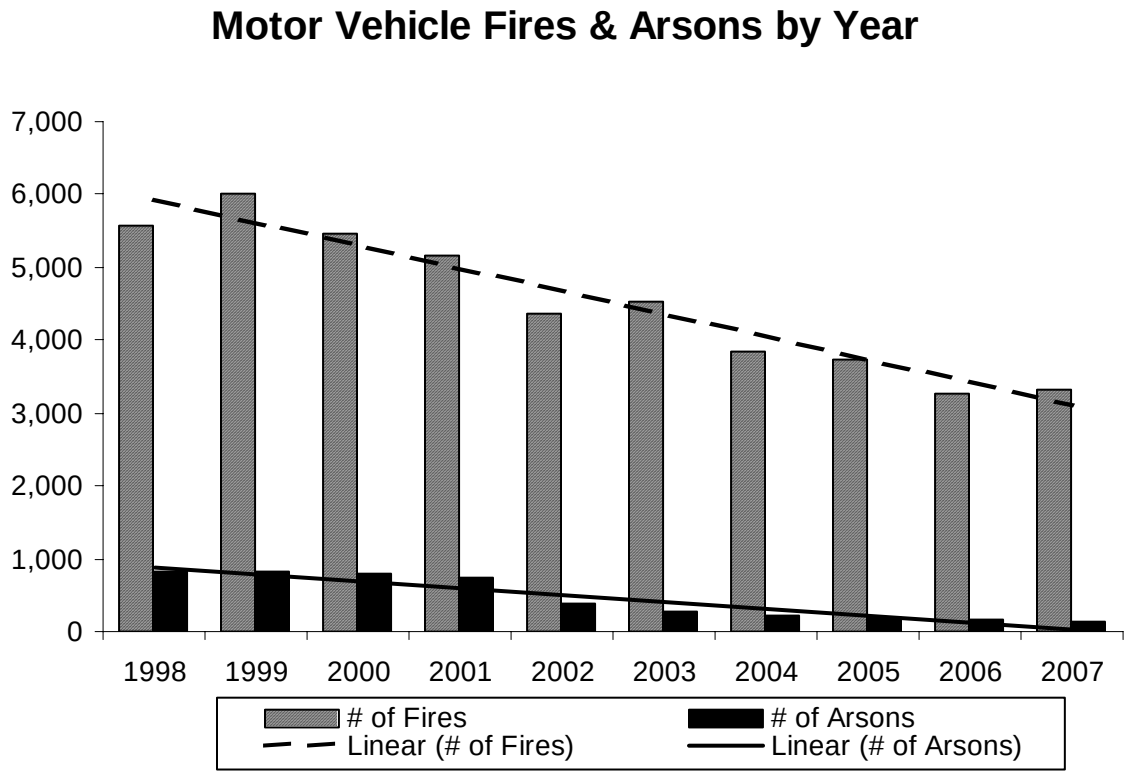
The table below shows the number of vehicle fires and vehicle arsons and the percentage of vehicle fires caused by arson for the past decade.

VEHICLE FIRES AND VEHICLE ARSONS BY YEAR

Year	Vehicle Fires	Vehicle Arsons	% Arsons
2008	3,076	150	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[43]	4,331	395	9.1%
2001	5,127	743	14.5%
2000	5,473	798	14.6%
1999	6,011	818	13.6%

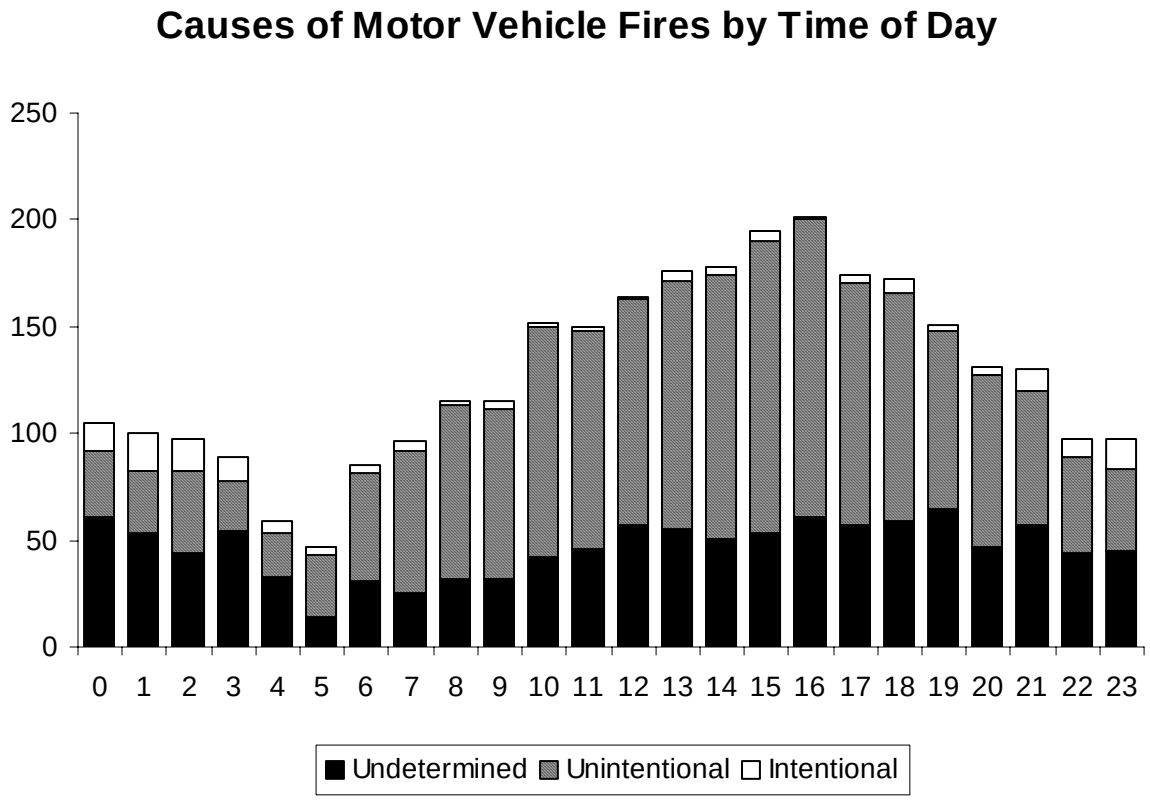
[43] 2002 was the first full year of using only V5 data. As a result, 'Suspicious' was eliminated as a cause and only 'Intentional' fires were counted as arson, thus the significant drop in MV arsons from 2001-2002.

The following graph illustrates the data in the previous table.



Mechanical Failures Caused 26% of Massachusetts Motor Vehicle Fires
Of the 3,076 motor vehicle fires in 2008, 26% were caused by some type of mechanical failure or malfunction; 5% were considered intentionally set and 33% resulted from other accidental causes. The cause was undetermined or not reported in 36% of the motor vehicle fires.

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



58% of Massachusetts Motor Vehicle Fires Involved Automobiles
Automobiles and vans accounted for 58% of the 3,076 motor vehicle fires, 1% were trucks weighing less than one ton and 4% were trucks weighing more than one ton.

Largest Loss Motor Vehicle Fire

- On August 14, 2008, at 3:22 a.m., the Westport Fire Department responded to a boat fire on the Westport River. During suppression operations, the catamaran began to sink extinguishing most of the fire. Investigators were unable to determine the cause of the fire. No one was injured by this fire. Damages were estimated to be $1 million.

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

What Should You Do if You Have a Car Fire?

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

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

Gasoline Deserves Respect

There were 28 motor vehicle fires at gas and service stations in 2008. There were 37 motor vehicle fires at facilities used for motor vehicle or boat sales, service or repairs. Many of these fires were started by gasoline or the gasoline fumes. Gasoline is so much a part of our lives that we don't think about it. However, it is a very dangerous substance and certain measures should be taken to minimize the chances of an incident.

Gas Station Safety

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

Outside and Other Fires

9,862 Brush, Trash, & Other Outside Fires Down 28%
The 9,862 outside and other fires and explosions caused 41 civilian injuries, 24 fire service injuries, and an estimated dollar loss of $4.6 million. The 4,834 trees, grass and brush fires, 3,270 outside trash fires, 858 special outside fires, 46 cultivated vegetation or crop fires, and 854 other fires accounted for 33% of the total fire incidents in 2008. These fires were down 28% from the 13,263 incidents reported in 2007.

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 2008, the reported number of brush fires decreased by 1,823 or 27% from the 3,884 reported in 2007.

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 9,862 reported outside and other fires include:

- 4,834 natural vegetation fires (tree, grass, and brush fires) that caused seven civilian injuries, 15 firefighter injuries, and an estimated dollar loss of $340,679; this is a 27% decrease from the 6,657 incidents reported in 2007.

- 3,270 trash fires that caused two civilian injuries, three fire service injuries and an estimated dollar loss of $137,285; this is a 16% decrease from the 3,884 incidents reported in 2007.

- 858 special outside fires (including outside, storage, equipment, mailbox fires and outside gas or vapor explosions) that caused 11 civilian injuries, three fire service injuries and an estimated dollar loss of $1.1 million; this is a 20% decrease from the 1,068 incidents reported in 2007.

- 46 cultivated vegetation or crop fires which caused an estimated dollar loss of $8,200; this is a 49% decrease from the 91 incidents reported in 2007.

- 854 other fires that could not be classified further which caused 21 civilian injuries, three fire service injuries, and an estimated dollar loss of $3 million; this is a 56% decrease from the 1,923 incidents reported in 2007.

752 Brush, Trash, & Other Outside Arsons
There were 752 reported brush, trash and other outside arsons in 2008. There were 445 natural vegetation arsons; 99 outside rubbish arsons, 115 special outside arsons, three, cultivated vegetation or crop arsons, and 90 arsons that could not be classified any further. These 752 arsons caused three civilian injuries, one fire service injury and $177,644 in estimated damages.

2,033 Fires with Cause Still Under Investigation or Undetermined
In 2008, 275 outside and other fires were still listed as Cause Under Investigation. There were 1,758 fires where the Cause of Ignition was listed as Undetermined.

Largest Loss Outside and Other Fires

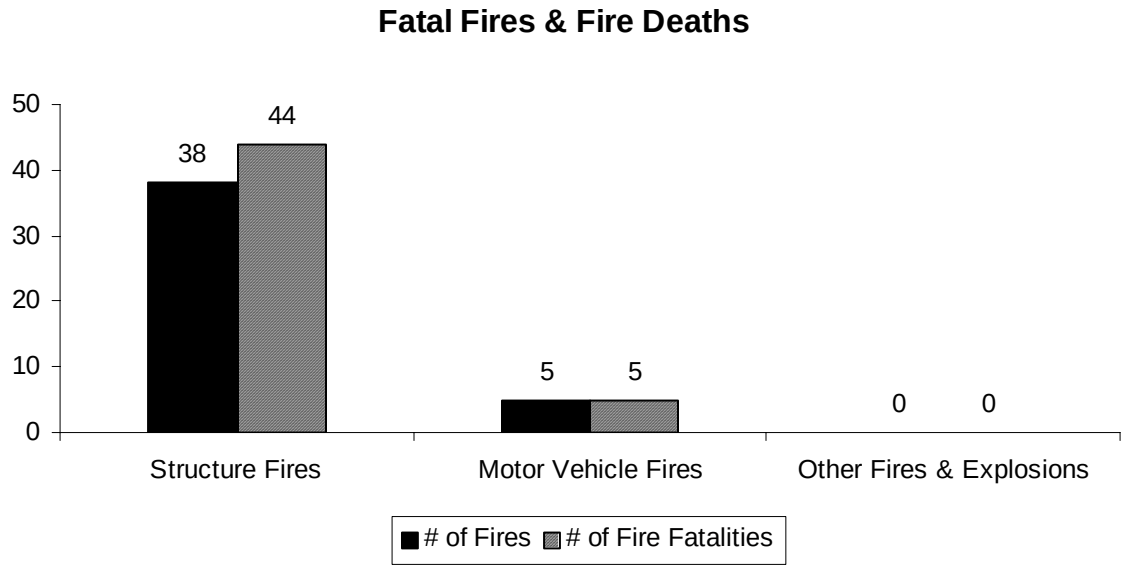
- On May 25, 2008 at 8:11 p.m. the Dracut Fire Department was called to an outside equipment fire at an industrial plant yard. The conveyor in the sand pit was on fire. A nearby trailer was also on fire. A gasoline can was found on scene but the fire is still listed as under investigation. No one was injured at this fire. Damages from this fire were estimated to be $500,000.

2008 Massachusetts Fire Deaths

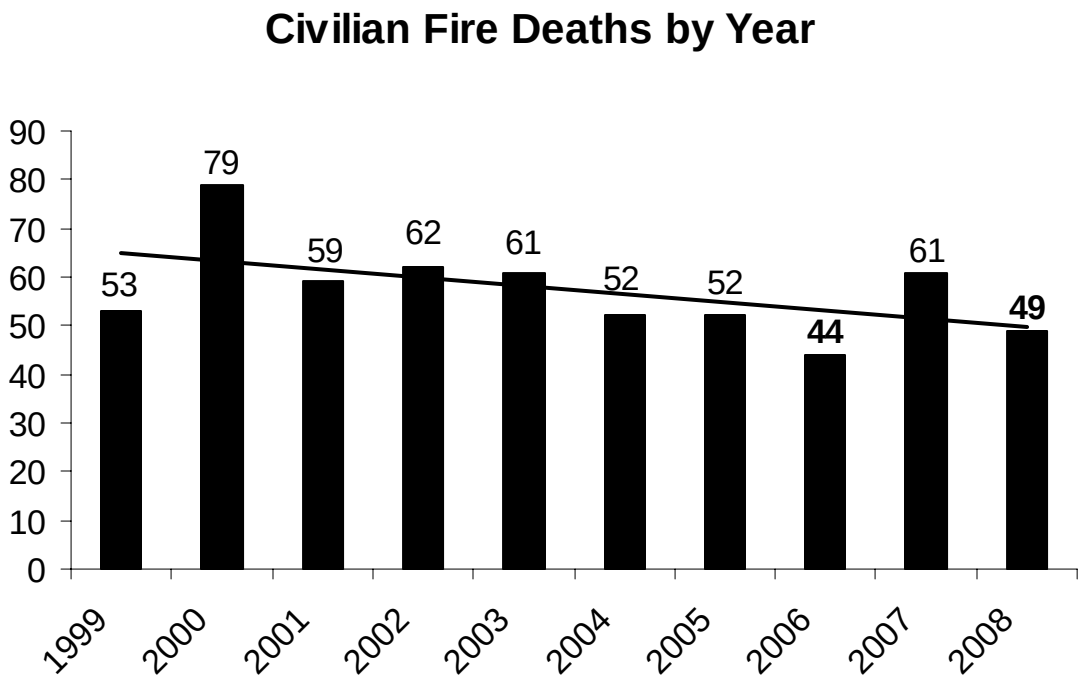
Civilian Fire Deaths

49 Civilians Died in Massachusetts Fires – Second All-Time Record Low
Forty-nine (49) civilians died in 43 Massachusetts fires during 2008. This is a 20% decrease from the 61 civilian fire deaths recorded in 2007. Forty-four (44) civilians died in 38 structure fires. Five (5) people died in five motor vehicle fires. No one died in an outside fire in Massachusetts in 2008. In 2008, there were 7.7 fire deaths per one million population in Massachusetts down from 9.6 fire deaths per one million population in 2007.

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



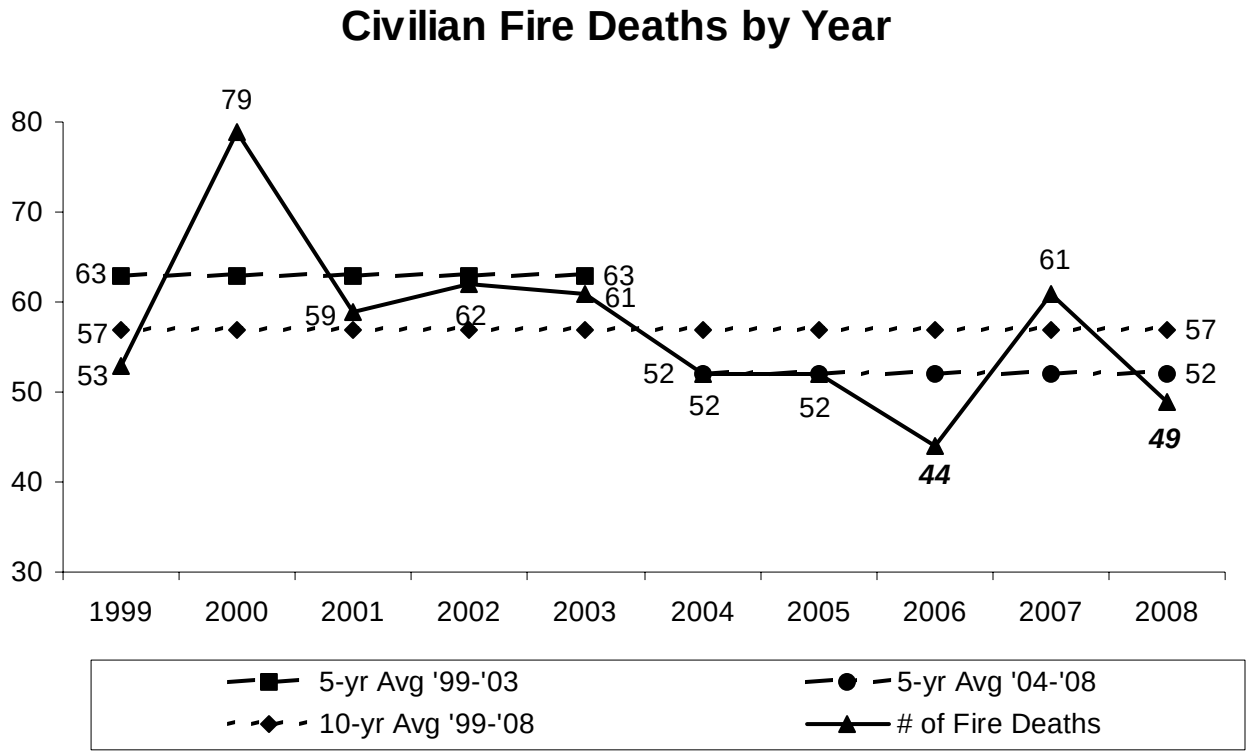
Fire Deaths Decrease 20% from 2007
The 49 civilian fire deaths reported in 2008, is a decrease of 12, or 20%, from the 61 reported in 2007. The following chart shows the trend of civilian fire deaths for the past decade on a general decline. Civilian fire deaths have decreased by 53% from the high of 105 in 1990.



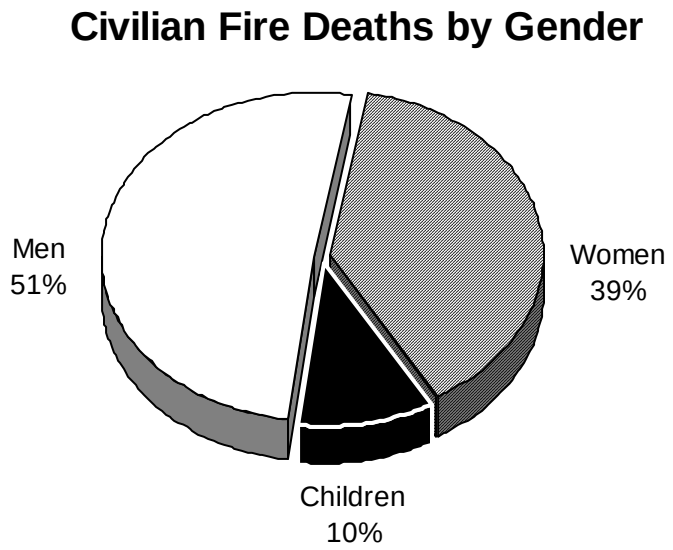
2008 Is Below Both the 10- & 5-Year Averages

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 1999 through 2003 and from 2004 through 2008. The average number of fire deaths per year from 1999 through 2003 was 63 deaths. The average number of fire deaths per year from 2004 through 2008 was 52 deaths. This was mainly due to four years of record low fire deaths from 2004 through 2006, and now in 2008. The graph also depicts the relationship of the number of fire deaths in relation to the 10-year average of 57 deaths for the same time period. Four (4) of the last five years have been below both the 10-year and the five-year averages.

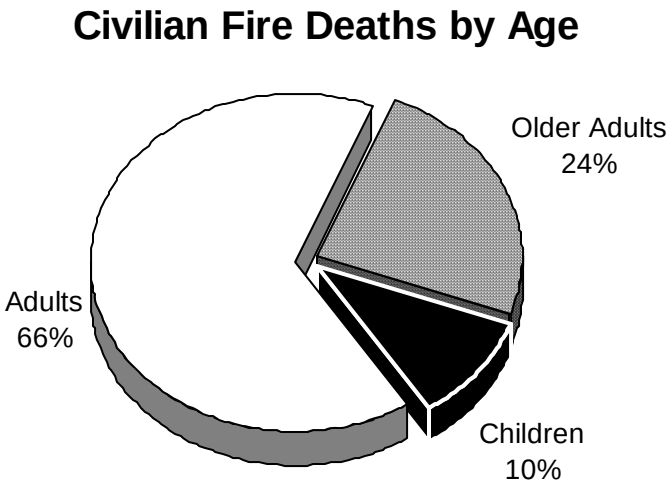
Note that the following chart starts at 30 rather than the traditional zero value. This is so the reader can concentrate on the sometimes subtle changes in the figures. The 49 fire deaths in 2008 are 6% below the five-year average and 14% below the 10-year average.



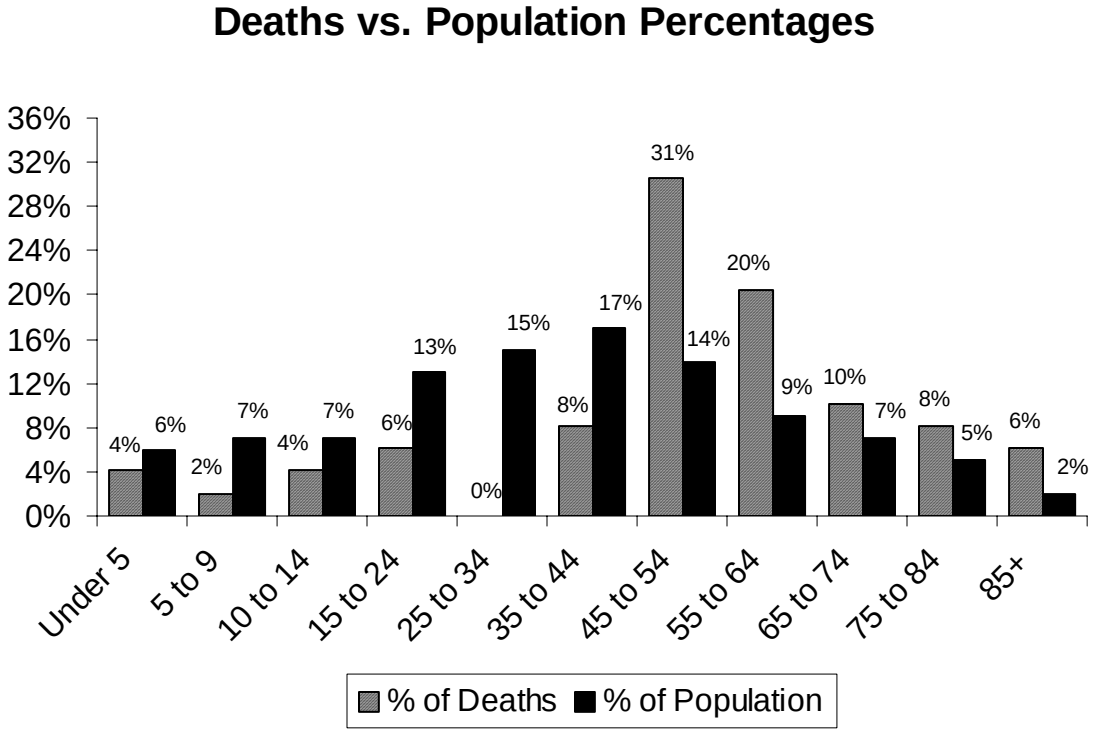
29 Men, 19 Women and 5 Children under 18 Died from Fires in 2008
Of the 49 fire deaths, 29 or 51%, were men, 19, or 39%, were women and five, or 10%, were children under 18. The following pie chart illustrates the above figures.



Almost 1/4 of Fire Deaths were Over 65
Twelve (12), or 24%, of the civilian fatal fire victims were over 65 years of age. This included seven elderly men and five elderly women. Five (5), or 10%, of the civilian fatal fire victims were under 18-years old. Thirty-two (32), or 66%, were adults between 18 and 65 years of age. The following pie chart illustrates the above figures.



Middle Aged Adults at Great Risk for Fire Death
Middle aged adults, especially those between the ages of 45 and 64 had the greatest risk of dying in a fire. Adults, between the ages of 55 and 64, account for 9% of the population but 20% of the fire deaths. The risk of fire death for these adults is 2.3. This means that these adults were twice as likely to be fire-related fatalities. The following graph shows the percentage of fire deaths versus population percentage by age groups in 2008. Adults, between the ages of 45 and 54, account for 14% of the population but 31% of the fire deaths. Their risk of fire death at 2.2, is just below that of the group above them 55 to 64 year olds.



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

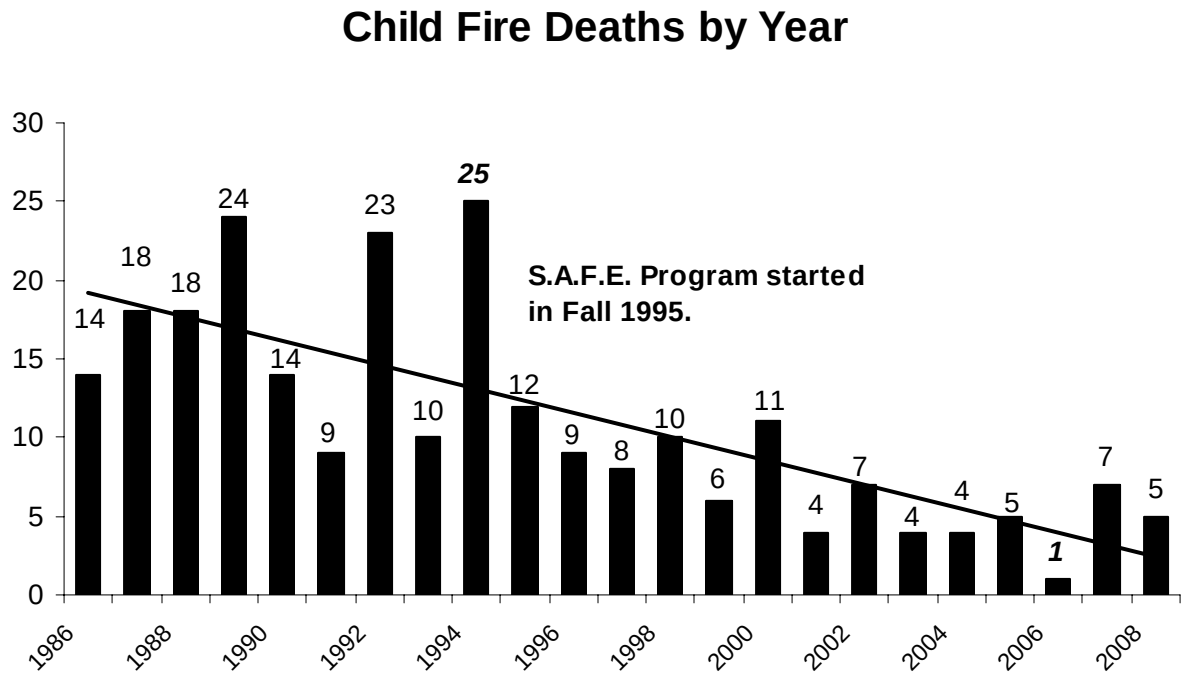
The percentages of the population in each age group were calculated using data from the 2000 Census from the U.S. Census Bureau.

Adults 25 to 34 Had the Lowest Risk of Fire Deaths
Children under the age of five had a low risk of dying in a fire. Children under five years old accounted for 6% of the population and 4% of fire deaths in 2008. Children between the ages of five and nine accounted for 7% of the population and 2% of the civilian fire deaths; children between the ages of 10 and 14 accounted for 4% of the deaths and 7% of the population; young adults ages 15 to 24 accounted for 6% of the fire deaths and 13% of the population; no one between the ages 25 to 34 died in a fire in Massachusetts in 2008; adults between the ages of 35 and 44 were 8% of the fire fatalities and account for 17% of the population; people ages 45 to 54 accounted for 31% fatal fire victims and 14% of the Massachusetts population; victims between the ages of 55 to 64 accounted for 20% of the fatal fire deaths and 9% of the population; and older adults over the age of 65 accounted for 24% of the fire fatalities in Massachusetts in 2008, but only 14% of the population. Older adults over the age of 85 had the greatest risk of dying in a fire; they

accounted for 6% of the fire deaths in 2008, and only 2% of the population, making them 3 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 2008. You can see a definite downward trend in the number of fire related deaths to children from a high of 25 in 1994 to a low of one in 2006. According to United States Fire Administration statistics, children under 10 accounted for an estimated 14% of all fire-related deaths nationally in 2002.[44] In 2008, children under 10 accounted for 10% of all Massachusetts fire-related deaths.

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



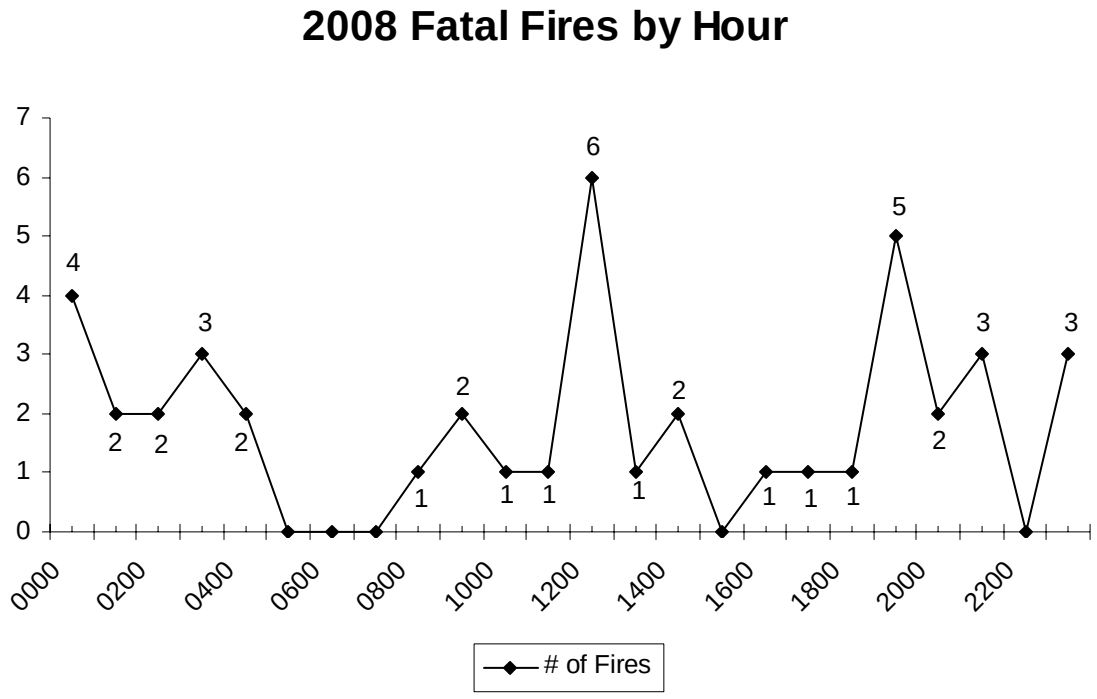
Average Annual Child Deaths Down 62%
Since fire death numbers fluctuate quite a bit from year to year, it is helpful to look both at the trendline in the graph above and at averages over several years. During the 13 full years where the S.A.F.E. Program has been in effect, from 1996 to 2008, the average number of child fire deaths per year has been 6.3. In the 12 years prior to the S.A.F.E. Program, 1983-1994, the average number of child fire deaths per year was 18.7. This

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

62% drop in the average number of child fire deaths is significant when compared to the 32% drop in the average number of all fire deaths during the same time period.

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

37% of People Died in Fires While They Slept
Thirty-seven percent (37%) of the people who died in fires that occurred at night, when people are usually asleep. Eighteen (18), or 37%, 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 2008, 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.

Unusual Mid-Day Fatal Fires
2008 is an anomaly with spikes of six fatal fires between noon and 1 p.m. and five fatal fires between 7 p.m. and 8 p.m. There doesn't seem to be any common link for these abnormal increases. During these two hours, the causes of these fatal fires varied widely.

Structure Fire Deaths

In 2008, there were 44 structure fire deaths in 38 fatal fires. Not all of the structure fire deaths occurred in residential occupancies. One fatal fire occurred at a nursing home.

Employee Dies in Nursing Home Clothes Dryer Fire

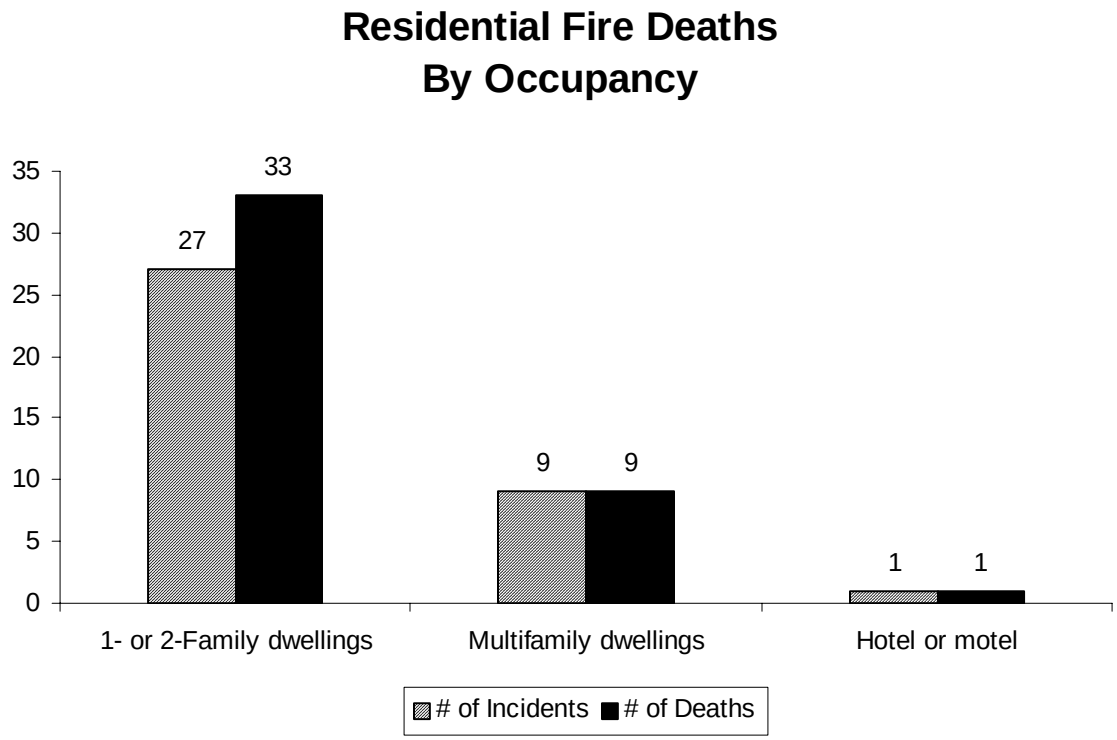
- On February 21, 2008, at 12:33 a.m., the Lowell Fire Department was called to a fatal clothes dryer fire at a nursing home. The fire started in the laundry room and three sprinkler heads suppressed it. The 51-year old victim, was a female employee who collapsed after she helped evacuate some of the nursing home's residents. She was transported to a local hospital where she died from cardiac arrest. Detectors were present and alerted the occupants. No one else was injured in this fire, and 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 2008, there were 43 fire deaths in 37 fatal residential building fires. This represents 98% of the structure fire deaths and 88% of all fire deaths. Thirty-three (33) fire deaths occurred in 27 fires in one- and two-family dwellings; nine fire deaths occurred in nine apartment fires; and one fire death occurred in a motel. Typically more fatal fires and associated deaths occur in and one- and two-family homes than occur in apartment fires. The graph below shows the number of fatal fire incidents and the number of civilian fatalities associated with various types of residential occupancies in 2008.



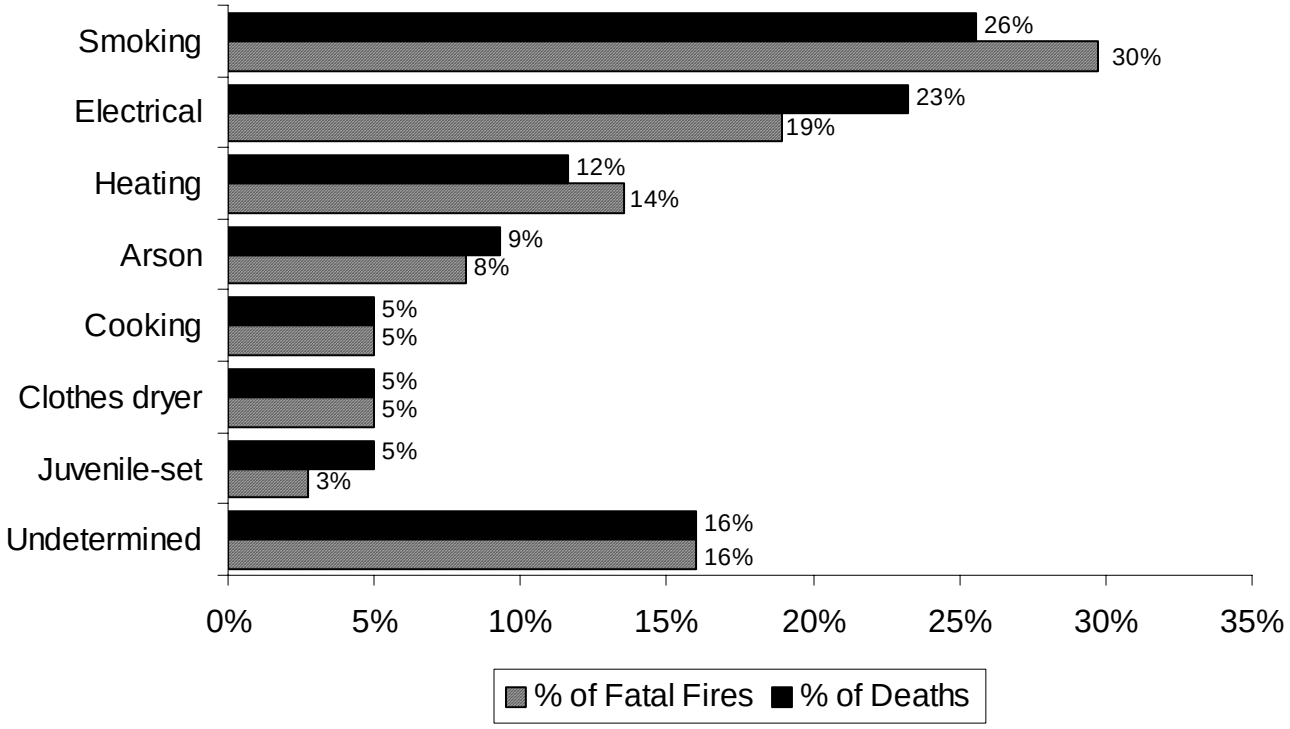
Once Again Smoking Fires Are Leading Cause of Fire Deaths
Smoking was once again the leading cause of residential fire deaths and fatal residential building fires. These fires accounted for 11, or 26%, of residential fire deaths. Electrical fires were the second leading cause of fire deaths accounting for 10, or 23%, of residential fire deaths. Heating fires were the third leading cause of fire deaths in 2008 accounting for five, or 12%, 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 2008 cooking was the leading cause of residential fires in Massachusetts but only tied for the fifth leading cause of fatal residential fires. Residential fires caused by the improper or use or disposal of smoking materials was only the fourth 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



11 Fatal Smoking Fires Cause 11 Deaths in Homes
In 2008, the improper use and disposal of smoking materials caused 11, or 26%, of residential building fire deaths and 11, or 30%, of fatal residential building fires.

4 Elderly Fire Deaths Caused by Smoking
In 2008, four, or 33%, of all the older adult fire deaths were caused by the improper disposal of smoking materials while at home. In 2007, nine older adults died in a smoking-related fire. In 2006, only one older adult died in a smoking related fire. In 2005 there were two of these deaths and in 2004 there were no fire deaths to older adults caused by smoking at home.

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

- On January 20, 2008, at 11:05 p.m. the Eastham Fire Department was dispatched to a fatal smoking fire in a 2-family home. The fire began in the living room in an upholstered sofa. The victim, a 49-year old man, fell asleep while smoking but did

wake up and attempted to escape. He was overcome by the heat and smoke during his escape. No one else was injured at this fire. It was undetermined if smoke detectors were present. Sprinklers were not present.

- On January 25, 2008, at 4:18 a.m. the Newton Fire Department was called to a fatal smoking fire in a 2-family home. The fire began in a first floor closet. One of the residents left his pipe in his coat in the closet. The 83-year old victim, a woman, was sleeping at the time of the fire. Rescuers found her in her second floor bedroom and brought her outside. She was transported to a local hospital where she succumbed to her injuries. There was one other civilian injury and five firefighter injuries at this fire. Smoke detectors were present but failed to operate because of improper installation. Sprinklers were not present. Damages from this fire were estimated to be $600,000.

- On February 14, 2008 at 7:24 p.m., the Lawrence Fire Department was called to a fatal smoking fire in a three-unit apartment building. The victim, a 55-year old man, fell asleep while smoking. There were no other injuries associated with this fire. Smoke detectors were present and operated. Sprinklers were not present. Damages from this fire were estimated to be $350,000.

- On March 20, 2008, at 12:38 p.m., the New Bedford Fire Department was called to a fatal smoking fire in a single-family home. The victim, an 85-year old man, fell asleep while smoking in a living room chair. The victim did awaken and attempted to escape. He died from smoke inhalation and the burns sustained in the fire. Detectors were present but it was undetermined if they operated. No one else was injured in this fire. Damages from this fire were estimated to be $70,000.

- On April 8, 2008, at 12:38 a.m., the Yarmouth Fire Department was called to a fatal smoking fire in a single-family home. A cigarette ignited some trash in the kitchen. The victim, a 47-year old woman, was trapped in a rear bedroom by the fire. One firefighter was injured fighting this fire. Smoke detectors were present but failed to operate because of a missing battery. There were no sprinklers. Damages from this fire were estimated to be $300,000.

- On April 27, 2008, at 12:15 p.m., the Pittsfield Fire Department was called to a fatal smoking fire in a two-family home. A cigarette ignited the upholstered chair that the victim was sitting on. The victim was a 45-year old man. His clothes also ignited. He was possibly impaired by alcohol. No one else was injured at this fire. Smoke detectors were present but failed to operate because of a missing battery. There were no sprinklers. Damages from this fire were estimated to be $75,000.

- On May 23, 2008 at 8:53 p.m., the Harwich Fire Department was called to investigate an extinguished fire. The police had been called earlier to do a welfare check at a single-family home. Upon arrival they found the remnants of a smoking fire and the victim. The fire started in a first floor living room when a cigarette that fell on an upholstered sofa. The fire occurred approximately six days before it was discovered

and was limited to the victim and the sofa. The victim, a 71-year old woman, was possibly impaired by alcohol and drugs. She died from burns and smoke inhalation. No one else was injured at this fire. Detectors were present but it was undetermined if they operated. Sprinklers were not present. Damages from the fire were estimated to be $85,000.

- On December 16, 2008, at 9:46 a.m., the New Bedford Fire Department was called to a fatal smoking fire in a single-family home. The fire began in a first floor bedroom. The victim, a 68-year old man fell asleep while smoking. He was on prescription medication that decreased his level of consciousness and ability to respond to the fire. The victim was the only thing that burned. There were no other injuries associated with this fire. Smoke detectors and sprinklers were not present. No estimation of the damages was made for this fire.

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 2008, the use of oxygen while smoking contributed to three of the 11 smoking-related fire deaths in three of the 11 smoking-related fatal fires.

- On April 10, 2008, at 12:48 a.m., the West Springfield Fire Department was called to a fatal smoking fire in a 60-unit apartment building. The fire was started in a first floor bedroom by a cigarette. The victim, a 58-year old man was using home oxygen. He was discovered by firefighters and taken out of the building and died from burns and smoke inhalation. No other injuries were associated with this fire. Smoke detectors were present but it was undetermined if they operated. There were no sprinklers. Damages from the fire were estimated to be $10,000.

- On May 10, 2008, at 5:31 p.m., the Lunenburg Fire Department was called to a fatal smoking fire in an eight-unit apartment building. The victim, a 53-year old man was smoking near his home oxygen equipment in a second floor living room. The cigarette ignited the victim's clothes and the furniture he was sitting on. The victim was able to escape to an outside porch where his girlfriend who was in the back yard, dragged him down the stairs. He was transported to a local hospital where he later succumbed to his injuries. His girlfriend was also burned when she tried to rescue him. Detectors were present and operated. The building was not sprinklered. Damages from the fire were estimated to be $165,000.

- On November 23, 2008, at 10:59 a.m., the Hadley Fire Department was called to a fatal smoking fire in a 15-room hotel. The victim, a 56-year old physically disabled woman was smoking while on home oxygen. The fire started while the victim was trying to light a cigarette. No one else was injured at this fire. Detectors were present and alerted the other occupants of the building. Sprinklers were not present. Damages from the fire were estimated to be $80,000.

7 Fatal Electrical Fires Cause 10 Deaths
Ten (10) people died in seven residential electrical fires in 2008. Electrical fires accounted for 23% of residential fire deaths and 19% of fatal residential fires.

- On January 14, 2008, at 11:48 a.m., the Ware Fire Department was called to a fatal electrical fire in a four-unit apartment building that took the life of a 59-year old woman. The fire was caused by an arcing electrical wire in the space between the ceiling and the floor above it. The fire started right under the victim's bedroom. One firefighter was injured at this fire. Detectors were present and operated. Sprinklers were not present. Damages from the blaze were estimated to be $75,000.

- On January 16, 2008 at 2:37 p.m., the Danvers Fire Department was called to a fatal electrical fire in a two-family home. Electrical arcing inside a wall started the fire. The victims, a 52-year old woman and her 53-year old husband, were overcome by heat and smoke. One firefighter was injured at this fire. Detectors were present but failed to operate because of a lack of cleaning. Sprinklers were not present. Damages from this fire were estimated to be $75,000.

- On February 3, 2008 at 12:47 p.m., the Mattapoisett Fire Department was called to a fatal electrical fire in a single-family home. The fire was caused by an electrical failure in the wiring. The victim, a 71-year old man, was trapped by the fire. One firefighter was injured at this fire. It was undetermined if smoke detectors were present. Sprinklers were not present. Damages from this fire were estimated to be $500,000.

- On February 3, 2008, at 7:37 p.m., the Milton Fire Department was called to a fatal electrical fire in a single-family home. A lamp was too close to an upholstered chair and the heat from the light bulb ignited the chair. The victim, a 59-year old man, was trapped on the second floor and overcome by the heat and smoke. Twelve (12) firefighters were injured at this fire. Smoke detectors and sprinklers were not present. No estimation of the damages was made for this fire.

- On May 13, 2008, at 8:05 p.m., the Palmer Fire Department was called to a fatal electrical fire in a four-unit apartment building. The fire was caused by a pinched electrical cord in the living room. The victim, a 79-year old man, was overcome by the heat and smoke. There were no other injuries at this fire. Smoke detectors were present but it was undetermined if they operated. The building was not sprinklered, and damages were estimated to be $75,000.

- On November 3, 2008 at 11:51 p.m., the Lawrence Fire Department was called to a fatal electrical fire in a single-family home. The fire was caused by an unspecified short-circuit in the kitchen, either a baseboard heater or a nearby power strip malfunctioned. One of the victims, a 51-year old woman, initially escaped with her husband but reentered the building to rescue her 19-year old son. Both were overcome by heat and smoke. No one else was injured at this fire. It was

undetermined if detectors were present. Sprinklers were not present. Damages from this fire were estimated to be $175,000.

- On Christmas Eve, December 24, 2008, at 9:34 p.m., the Bourne Fire Department was called to a fatal electrical fire in a single-family home. The fire was caused by an electrical malfunction in a portable fan used to help distribute the heat from a nearby woodstove throughout the room. The victims, a 77-year old man and his 73-year old wife, were transported to a local hospital; but both succumbed to their injuries. There were no other injuries at this fire. Smoke detectors were present but failed to operate because of a missing battery. The building was not sprinklered, and damages were estimated to be $215,000.

5 Fatal Heating Fires Cause 5 Deaths

Five (5) fatal heating fires, or 14% of fatal residential building fires, caused five, or 12%, of residential building fire deaths in 2008. Four heaters and a woodstove caused these fires.

- On January 25, 2008 at 7:41 p.m., the Wellesley Fire Department was called to a fatal electric space heater fire in a single-family home. The space heater was too close to some bedding in the living room, igniting it. The victim, a 55-year old physically disabled woman was unable to act. She was overcome by the heat and smoke. One other civilian and a firefighter were injured at this fire. Detectors were present but it was undetermined if they operated. Sprinklers were not present. Damages were estimated to be $100,000.

- On November 2, 2008 at 9:12 p.m., the Hopkinton Fire Department was called to a fatal heating fire in a single-family home. The 53-year old male victim could be characterized as a hoarder. He placed combustibles too close to the coal burning stove. Radiated heat from the coal stove ignited the rubbish nearby starting the fire in the first floor living room. He was overcome by the heat and smoke as he was attempting to escape. No one else was injured at this fire. Detectors and sprinklers were not present. Damages were estimated to be $257,700.

- On November 13, 2008 at 1:16 a.m., the Palmer Fire Department was called to a heating fire in a four-unit apartment building. The fire was started when the victim's blanket came into contact with the electric baseboard heater. The victim, a 44-year old man, was overcome by the heat and smoke. There was one other civilian injury associated with this fire. It was undetermined if detectors were present, but sprinklers were not. Damages were estimated to be $195,900.

- On December 12, 2008 at 11:12 p.m., the Franklin Fire Department was called to a fatal heating fire in a single-family home. The fire began in the kitchen when a space heater was on and too close to combustibles. The 61-year old male victim was overcome by the heat and smoke. No one else was injured at this fire. It was undetermined if detectors were present, but sprinklers were not. Damages were estimated to be $296,000.

- On December 13, 2008 at 8:10 a.m., the Worcester Fire Department was dispatched to an EMS call. The victim, a 91-year old male, was using a portable propane fueled space heater in the kitchen to keep warm in the aftermath of the severe ice storm that affected north central Massachusetts, knocked out power, and subsequently his heating system. The victim got too close to the space heater and his clothing ignited. He was transported to a local hospital where he succumbed to his injuries 10 days later. There were no other injuries associated with this fire. It was undetermined if detectors were present, but sprinklers were not.

3 Fatal Arson Fires Cause 4 Deaths – 2 Suicides

Four (4) people died in three (3) residential arson fires in 2008. Arson accounted for 9% of fire deaths and 8% of the fatal fires in residential buildings. Two (2) of these victims committed self-immolation. Self-immolation is considered arson because the fire is intentionally set.

- On January 23, 2008, at 4:22 p.m. the Rockland Fire Department was called to a fatal arson fire in a single-family home. The 42-year old woman successfully committed self-immolation. The victim placed a 20 pound LP-gas tank in the kitchen and started the fire. She then went upstairs to her bedroom. Three firefighters were injured at this fire. Smoke detectors were present and operated. Sprinklers were not present. Damages from this fire were estimated to be $50,000.

- On April 6, 2008, at 3:20 a.m. the Boston Fire Department was called to a fatal arson fire in a two-family home. The fire was set on the exterior of the building by a friend of the victims' mother. The victims, a two-year old girl and her 14-year old sister, were sleeping at the time of the fire, were unable to escape from the third floor and sought shelter in a closet. They were overcome by the heat and smoke. The victims' mother and brother were also injured at this fire. It was undetermined if detectors were present. There were no sprinklers. Damages from this fire were estimated at $350,000.

- On December 17, 2008 at 2:26 p.m., the Scituate Fire Department was called to a successful attempt at self-immolation in a single-family home. The victim, a 45-year old man, removed the 'drip cap' on the natural gas line, and poured gasoline throughout the basement of his girlfriend's house and ignited it. He died in the resulting explosion that leveled the house and damaged seven neighboring homes. It was undetermined if detectors were present. One firefighter was injured at this fire. Damages from this fire were estimated to be $450,000.

2 Cooking Fires Caused 2 Deaths

Two (2) people died in two residential cooking fires in 2008. Cooking fires accounted for 5% of residential fire deaths and 5% of fatal fires in residential buildings.

- On March 14, 2008, at 7:42 p.m., the Arlington Fire Department was called to a fatal cooking fire at a 100-unit apartment building. The victim, a 92-year old woman, was

trying to make a cup of tea. She got too close to the burner and her clothing ignited. When firefighters arrived, they discovered the victim on the floor of her kitchen. She was the only thing that burned. No one else was injured at this fire. Detectors and sprinklers were both present but the fire was too small to activate them. Damages from the blaze were estimated to be $10,000.

- On May 29, 2008, at 12:35 p.m., the Fall River Fire Department was called to a fatal cooking fire at a three-unit apartment building. The victim, a 56-year old man, was cooking when heat from the hotplate started the fire. The victim was overcome by heat and smoke. He was transported to a Rhode Island hospital where he later succumbed to his injuries. No one else was injured at this fire. Detectors were present and alerted the other tenants. There were no sprinklers. Damages from the blaze were estimated to be $6,000.

2 Clothes Dryer Fires Caused 2 Deaths
Two (2) people died in two residential fires started by clothes dryers in 2008. Clothes dryer fires accounted for 5% of residential fire deaths and 5% of fatal residential fires.

- On April 14, 2008, at 12:03 p.m., the Milton Fire Department was called to a fatal clothes dryer fire in a two-family home. Heat from the clothes dryer ignited the lint that had accumulated in the long vent pipe. This in turn ignited a structural member in the wall. The victim, a 43-year old man, was asleep at the time of the fire and was overcome by the smoke. He was transported to a local hospital where he later died from smoke inhalation. It was undetermined if smoke detectors were present. There were no sprinklers. No estimation of the damages was made for this fire.

- On September 13, 2008, at 4:50 a.m., the Lexington Fire Department was called to a fatal clothes dryer fire in a single-family home. The heat from the dryer ignited the lint in the vent pipe. It smoldered in the pipe until it broke into an open fire, came out the vent pipe and traveled up the exterior of the house and into the first floor. The victim, a 48-year old woman was overcome by the heat and smoke as she attempted to escape. Her two daughters were able to escape out a window and onto the garage. Detectors were present but it was undetermined if they operated. There were no sprinklers. Damages were estimated to be $400,000.

1 Juvenile-set Fire Caused 2 Deaths
Two (2) people died in one juvenile-set residential fire. Juvenile-set fires accounted for 5% of residential fire deaths and 3% of the fatal fires in residential buildings[45].

- On April 10, 2008, at 7:25 p.m., the Holyoke Fire Department was called to a fatal juvenile-set fire in a single-family home. The victims, a 1-year old girl and her 4-year old brother, were both in the room where their older brother was playing with a cigarette lighter. He accidentally lit something on fire. A 20-year old man was burned

[45] One of the Undetermined fires that claimed the lives of 2 victims, most probable cause is a juvenile-set fire.

when he went into the burning home and brought all three of the children out. They were all transported to a local hospital where the two victims later succumbed to their injuries. Detectors were present but it was undetermined if they operated. There were no smoke detectors. No estimation of the damages was made for this fire.

6 Fatal Fires of Undetermined Cause

Six (6) fatal residential building fires that took the lives of seven Massachusetts residents in 2008 remain undetermined. These represent 16% of the fatal residential fires, and 16% of the residential fire deaths in 2008. The cause of less than one-fifth of all residential fire deaths could not be definitely determined after investigation. According to the National Fire Protection Association (NFPA) standard 921, Chapter 16.2.4, whenever the cause of a fire cannot be proven, the proper classification is "undetermined." NFPA 921, Chapter 16.2.5 advises that, "Undetermined is also acceptable when multiple fire causes or ignition factors cannot be eliminated, leaving the investigator with most probable causes."

- On May 15, 2008, at 12:53 p.m., the Swampscott Fire Department was called to a fatal fire in a single-family home of undetermined cause. The fire started in the basement. It is believed that the victim, a 61-year old man, was refinishing furniture in the basement. The vapors from the refinishing liquids were ignited by one of the multiple heat sources nearby. While attempting to escape the fire he became incapacitated by the heat and smoke and fell, hitting his head, and knocking over a can of gasoline intensifying the fire around him. Three firefighters were injured fighting this fire. There were no smoke detectors or sprinklers in the home. Damages from this fire were estimated to be $350,000.

- On May 17, 2008, at 1:38 p.m., the Falmouth Fire Department was called to a fatal fire of undetermined cause in a single-family home undergoing renovations. The fire started in the attic. The victim, a 48-year old male worker, was spraying a foam insulation in the attic. It is believed that when the fire started he was overcome by the smoke and heat of the fire. His body was found towards the back of the building. Two possible scenarios of the cause of the fire are that the victim was a known smoker and could have tried to smoke a cigarette in the attic somehow igniting fumes from the insulation; or that the foam insulation could have self-combusted. Two firefighters were injured at this fire. Smoke detectors and sprinklers were not present. Damages from this fire were estimated to be $430,000.

- On May 26, 2008 at 6:58 p.m. the Norwood Fire Department was called to a fatal fire in a single-family home of undetermined cause. The fire began in a first floor hallway. The victim, a 34-year old physically disabled woman, was in her bedroom and unable to act at the time of the fire and died from burns and smoke inhalation. No one else was injured at this fire. Detectors were present and operated. The building had no sprinklers. Damages from this fire were estimated to be $430,000.

- On November 7, 2008 at 9:08 p.m., the Haverhill Fire District was called to a fatal fire in a single-family home of undetermined cause. The fire started in a third floor

bedroom. The victims, a 6-year old boy and his 50-year old physically disabled aunt, were trapped by the fire and overcome by the heat and smoke. There were no other injuries associated with this fire. It was undetermined if detectors were present. There were no sprinklers. Damages from this fire were estimated to be $60,000.

- On November 25, 2008 at 3:31 a.m., the Cambridge Fire Department was called to a fatal fire of undetermined cause in a six-unit apartment building. The five-alarm fire was fought by 99 firefighters. The victim, an 84-year old woman, was asleep at the time of the fire. She was rescued by firefighters and transported to a local hospital. She died days later succumbing to her injuries. The victim's 80-year old husband and three firefighters were also injured at this fire. It was undetermined if smoke detectors were present. The building had no sprinklers and damages from this fire were estimated to be $2,260,000.

- On December 19, 2008 at 2:34 a.m., the Boston Fire Department was called to a fatal fire of undetermined cause in a single-family home. The victim, a 65-year old man, was overcome by the heat and smoke and was found by firefighters in the kitchen. No one else was injured at this fire. It was undetermined if smoke detectors were present. The building had no sprinklers. Damages from this fire were estimated to be $150,000.

Bedroom or Living Room Is the Area of Origin for Almost 1/2 of All Victims
Given the time most fatal fires occur, and that many people fall asleep in their living rooms, it is not surprising that almost half were killed in fires that started in the bedroom or living room. Eighteen (18), or 46% of residential fire victims died in a fire originating in the bedroom or living room. Nine (9), or 23%, succumbed to fires that originated in the bedroom, and another nine victims, or 23%, died in fires that began in the living room. Nine (9), victims, or 23%, also perished in fires that began in the kitchen. Four (4) victims, or 11%, died when the area of origin was the concealed spaces in wall assemblies. Laundry and other rooms were each the area of origin for two, or 5%, of the deaths. An attic, a ceiling and floor assembly, a closet, an exit, an exterior balcony, and a hallway were each the area of origin for one, or 3% of the residential fire deaths in 2008. The area of origin was undetermined for two, or 5% of these fire fatalities.

Over 1/4 of Deaths Involved Smoking Materials as a Heat Source
Over one-third of deaths involved smoking materials as a heat source. Of the 43 residential building fire deaths, 26% involved smoking materials: 21% were from cigarettes, 2% was from a pipe, and another 2% was from unspecified smoking materials. Twenty-three percent (23%) involved heat from operating equipment; 16% was from radiated or conducted heat from operating equipment, and 7% involved heat from unclassified operating equipment. A lighter[46] and heat from an other open flame or smoking material, each caused 5% of these deaths. An unidentified smoldering object was involved in 2% of residential fire deaths in 2008. Heat source was undetermined or unclassified in 12 deaths, or 28%, of the residential building fire deaths in 2008.

[46] The fire ignited by a lighter was used by a child playing starting a juvenile-set fire.

Upholstered Sofa or Chair Is Ignited First in 14% of Deaths
Of the 43 residential building fire deaths, 14% were from fires where an upholstered sofa or chair was the item first ignited. Clothing on a person and a structural member or framing each accounted for 7% of these fire deaths. Bedding, dust, fiber or lint, rubbish, and unclassified soft goods or clothing were each the item first ignited in 5% of the fire deaths in 2008. Natural gas and a rug were each the item first ignited in 2% of these deaths. Item first ignited was undetermined or unclassified in 19, or 44%, of the residential building fire deaths in 2008.

The National Association of State Fire Marshals (NASFM) has supported mandatory national fire safety standards for mattresses and upholstered furniture for the past decade. NASFM and the CPSC has recommended the national adoption of the most recently revised California standard (California Technical Bulletins 116 & 117) for upholstered furniture that addresses both small open flame (match, lighter, candle) and cigarette ignitions and the California standard (California Technical Bulletin 603) for resistance of a mattress/box spring set to a large open flame. These standards make the average piece of furniture less likely to ignite rapidly, and if ignited, less likely to burn quickly or sustain burning[47].

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 in Almost 1/3 of Residential Fire Victims
Of the 43 people who died in residential building fires in 2008, the smoke detector performance was known for 19 of the victims. Victims were not alerted by smoke detectors in nine fires that killed 11 people, or 26% of the victims. No detectors were present at all, in five, or 12% of the deaths. In six of these deaths, or 14%, there were detectors present but they failed to operate.

Seven (7) people died in seven separate residential fires with detectors that did operate, accounting for 16% 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 was one fire with one fatality where the fire was too small to activate the detector. This fire accounted for 3% of residential fire deaths in 2008.

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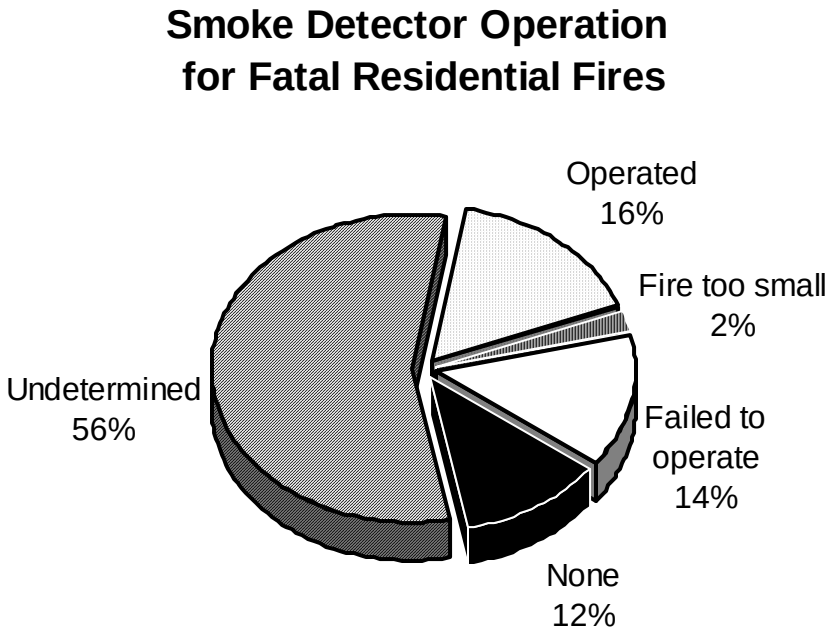
[47] There has been some debate about the use of certain types of flame retardant used to make products conform to these standards. The issue is about using polybrominated diphenyl ethers (PBDEs) that have caused health concerns in animals in lab tests. According to the U.S. Environmental Protection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

In 2008, five of the seven fatal residential fire victims that had their smoke detector operate were in the area of origin. Four (4) of the victims were intimately involved with ignition while the other victim was in the same room and possibly impaired by alcohol, died while he slept. One (1) fire began in the ceiling and floor assembly area directly underneath where the victim slept; another victim was physically disabled and was smoking on home oxygen when the fire began; the third victim was cooking while possibly impaired by alcohol or drugs when he was badly burned; and the fourth person to be in the area of origin when their detector operated was also smoking while on home oxygen while physically disabled.

One (1) other victim was not in the area of origin but was somehow involved in the ignition of the fire. Another victim was not in the area of origin but was involved in the ignition of the fire that killed her. And one other victim was not in the area of origin and not involved in the ignition of the fire. While smoke detectors cannot by themselves save a person who is directly involved in the ignition, they can alert other occupants to the danger and give them precious time to escape to safety.

Detector performance was undetermined in 20 residential building fires that killed 24 people accounting for 56% of the residential building fire deaths in 2008. The pie chart shows the smoke detector status as a percentage of the civilian residential building fire deaths in 2008.



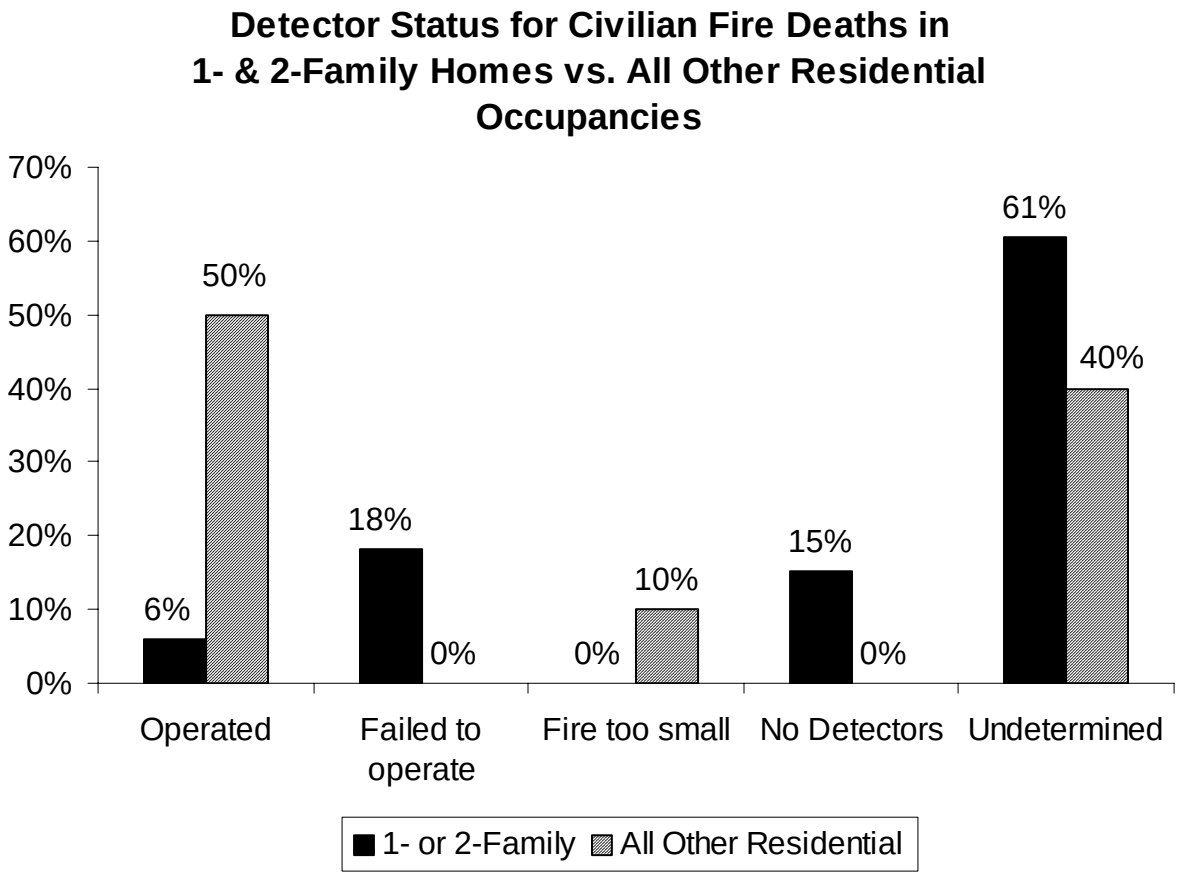
No Working Smoke Detectors in 33% of Fire Deaths in 1 & 2-Family Homes
In 2008, you were more likely to die in a fire in a one- or two-family home than in any other residence. There were 230% more fire deaths in 1- & 2-family homes than all other residential occupancies combined. Thirty-three (33) people died in 27 one- and two-family dwelling fires in 2008. Eleven (11), 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 11 deaths, six occurred in homes where smoke detectors failed to work while the other five deaths were in homes where there were no smoke detectors present. Two (2) deaths, or 6%, occurred in a home where the smoke detector operated[48]. Twenty (20) deaths, or 60%, occurred in four fires where smoke detector performance was undetermined.

1/2 of Detectors Failed from Missing or Disconnected Batteries
Of the six residential fire deaths where smoke detectors were present but failed to operate; in three cases, or 50%, they failed to operate because the batteries were either missing or disconnected. Two (2) deaths, or 33%, occurred where a detector failed because of a lack of maintenance; and one death, or 17%, occurred where a detector did not operate because of improper installation or placement.

Other Residential Occupancies More Likely to be Protected by Smoke Detectors
Nine (9) people died in nine apartment fires, and one person died in a motel fire in 2008. The detector performance was known for six of the 10 victims. No one died in these fires where there were no working smoke detectors. Five (5) people died in five fires where smoke detectors were present and working. One person died in a fire where the fire was too small to activate the detector. Detector performance was unknown or not reported in four apartment fires where four people lost their lives.

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

[48] One of these was a suicide where the victim caused the house to explode.



Possibly Impaired by Alcohol Led Human Factors Contributing to Injury[49]
Of the 43 fatal residential building fire victims, 23 had some human factor contributing to their injury reported to MFIRS. Twenty-one percent (21%) of the victims were possibly impaired by alcohol before they died; 16% were asleep; 14% were bedridden or had another physical handicap; 12% were unattended or unsupervised persons; 9% were possibly impaired by a drug or chemical; 7% were possibly mentally disabled and 5% were unconscious at the time of the fire. Twenty (20), or 47%, of the 43 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 26% of fatalities were asleep shortly before becoming a casualty. It also shows that 21% 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 31% of the fire deaths indicates that victims did not have enough time to get to safety.

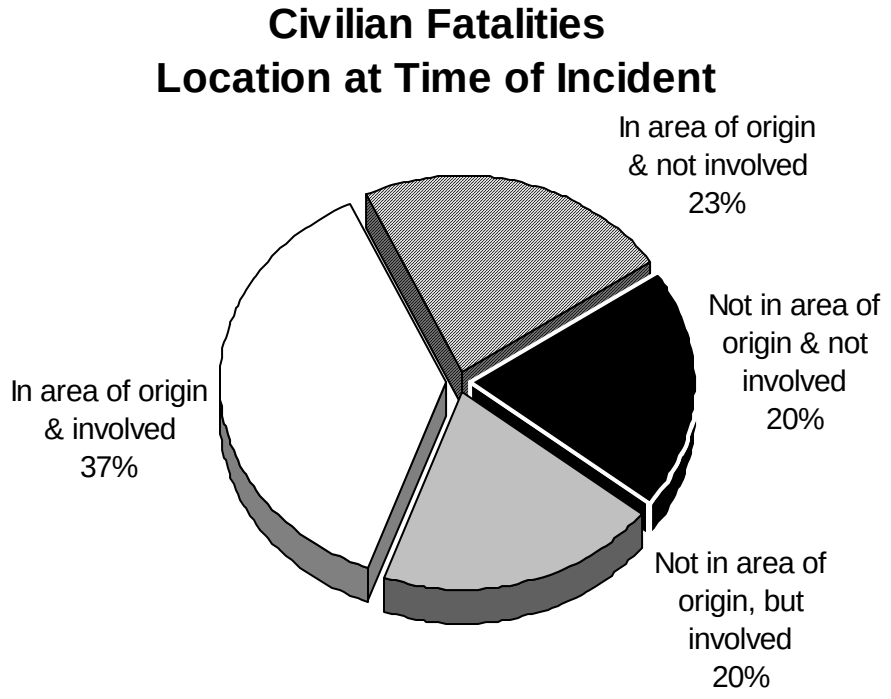
[49] Some fields in version 5 allow for multiple entries. Therefore the number of entries may be greater than the actual number of incidents being analyzed.

Most Victims Were Either Sleeping or Escaping When They Were Overcome
Nine (9), or 23%, of the 43 fatal fire victims were trying to escape when they incurred their fatal injuries. Twenty percent (20%) were sleeping when they were fatally injured. The victim was unable to act in 13% of these deaths. Fire control, an irrational act and a return to vicinity of fire before it was under control each was the activity at the time of death for another 3% of the victims. Activity at time of death was undetermined for 15, or 38%, victims of fatal residential fires in 2008. Working smoke detectors combined with a home escape plan are essential to escape a fire.

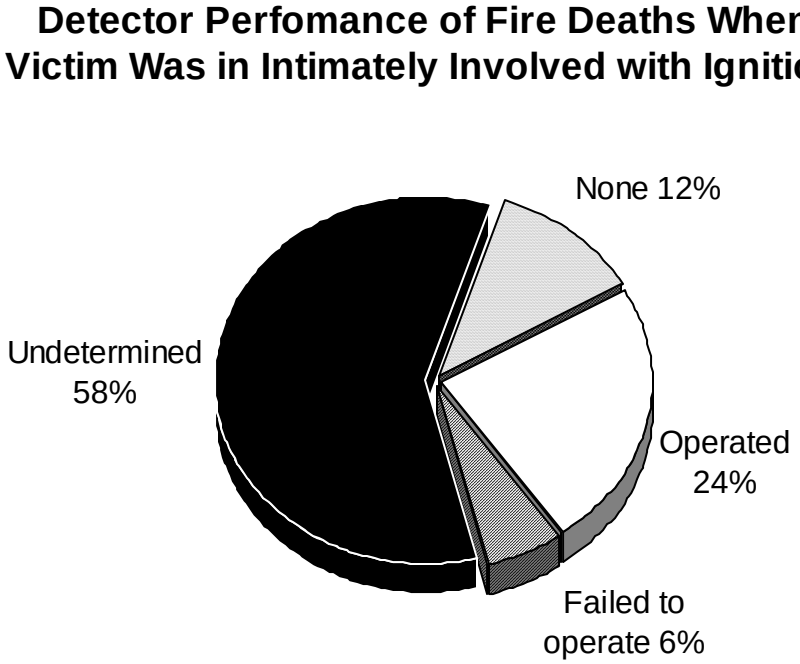
84% of Victims Suffered Burns, Smoke Inhalation or Both
Burns or smoke inhalation was the primary apparent symptom for 39, or 84%, of the victims where the primary apparent symptom of their injury was known; 20, or 47%, suffered burns and smoke inhalation; 12, or 28%, suffered from smoke inhalation only, and four victims, or 9% died from only the burns incurred in the fire. Cardiac arrest was the primary apparent symptom for two, or 5%, of these victims; and respiratory arrest was the primary apparent symptom for one, or 2%, of the 39 residential fire deaths. The primary apparent symptom was undetermined in four, or 9% of the 2008 residential fire deaths.

60% 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.

Twenty-four (24), or 60%, of the residential fatal fire victims were in the area of origin of the fire. Fifteen (15), or 37%, of these victims were intimately involved with the ignition of the fire that killed them. These 15 were in the area of origin and somehow involved with the fire's ignition. Nine (9), or 23%, were in the area of origin but not involved with the ignition, such as the contractor who was working in the attic and became trapped by the fire. Eight (8), or 20%, of these victims were not in the area of origin but were somehow involved in starting these fires; such as the person who is smoking and exits the room to go to bed, leaving the cigarette behind unattended. Another eight, or 20%, of the victims were not in the area of origin and not involved with the ignition of the fire that claimed their lives. The *Location at Time of Incident* was unknown for three of the residential fatal fire victims. These three were excluded from the calculations.



24% of Detectors Operated When the Victim Was Intimately Involved in Ignition
There were 17 victims that were reportedly in the area of origin and involved with the ignition of the fire that killed them. Four (4), or 24%, of these 15 victims, actually had a working smoke detector in their home at the time of the fire. One (1) victim, or 6%, had a detector that failed to operate. Two (2) victims, or 12%, did not have any smoke detectors



in their home. It was undetermined for 10, or 59% of the victims that were intimately involved with ignition, whether their homes had operating smoke detectors.

In the case of one of the four victims where the detectors operated and they were involved with the ignition, two of the victims started the fire with the improper disposal of smoking materials before they fell asleep. Another victim was cooking when he got the fire started. An electrical fire killed the last victim that was in the area of origin and involved in the ignition of the fire.

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 2008, 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. Three (3) of the fires and three of the deaths involved automobile collisions; a suicide caused one of these deaths and smoking caused one of these deaths.

3 Motor Vehicle Collisions 3 Deaths
Three (3) Massachusetts residents were killed in three separate motor vehicle collisions resulting in three motor vehicle fires. These three incidents accounted for 7% of the fatal fires and 6% of the fire fatalities in 2008.

- On March 15, 2008, at 3:34 a.m., the Hanover Fire Department was called to a fatal car fire. The vehicle was first involved in a single car motor vehicle accident with the collision starting the fire. The 24-year old male driver was trapped in the vehicle and died from smoke inhalation and burns. No one else was injured in this fire.

- On March 28, 2008 at 9:37 a.m., the Chicopee Fire Department was called to a fatal gasoline tanker fire on Interstate 91 North. The tanker had been cut off and the driver swerved to avoid the other vehicle. The truck rolled off the highway onto several other vehicles below. Other motorists pulled the driver out of his burning cab. The 43-year old driver was transported to a local hospital. He was then transferred to a Boston hospital where he later succumbed to his injuries. One firefighter was injured in this fire, and damages were estimated at $60,000.

- On November 18, 2008, at 1:47 a.m., the Plymouth Fire Department was called to a fatal single-car accident and ensuing fire. The 49-year old female driver was trapped in her car after the accident on Route 3. Her body was not found until the fire was out

and firefighters were performing overhaul of the vehicle. She died from burns and smoke inhalation. No one else was injured in this fire.

1 Suicide Car Fire Kills Only Occupant
One successful attempt of self-immolation caused one motor vehicle fire death. This incident accounted for 2% of the fatal fires and 2% of the fire fatalities in the Commonwealth in 2008.

- On January 16, 2008, at 2:09 a.m., the Wakefield Fire Department was called to a fatal arson car fire that was a successful attempt at self-immolation. The victim, a 49-year old man, poured gasoline inside of the car and ignited it. He died from smoke inhalation and burns. No one else was injured in this fire, and damages were not estimated.

Smoking Causes 1 Motor Vehicle Fire Killing 1 Man
One (1) Massachusetts resident was killed in a boat fire that was caused by smoking. This incident accounted for 2% of the fatal fires and 2% of the fire fatalities in the Commonwealth in 2008.

- On October 23, 2008, at 12:42 a.m., the Boston Fire Department was called to a fatal boat fire that was docked at a local yacht club. The 64-year old victim sometimes slept on his boat overnight. He fell asleep while smoking and the cigarette ignited the mattress he was sleeping on. He died from burns and smoke inhalation. No one else was injured at this fire, and damages were estimated at $20,000.

Other Fatal Fires

In 2008 in Massachusetts no civilian died in an outside and other fire incident.

Multiple Fire Deaths

For statistical purposes, a fire is considered a multiple death fire if it kills three or more people. In 2008, there were no multiple death fires in Massachusetts.

Civilian Fire Deaths - Conclusion

In 2008, there were 43 fatal fires in Massachusetts with 49 accompanying fatalities. This is a 20% decrease from the 61 deaths reported in 2007. Of these 49 deaths, 43 occurred in residential fires. This is the second lowest number of fire deaths on record since World War II[50].

Drop in Smoking and Arson Fatal Fires Caused Decline in Fire Deaths
There were 12 fewer civilian fire deaths in 2008 than in 2007. The main reason for this was the decrease in smoking and arson related fire deaths. Six (6) fewer people died in fires caused by smoking in 2008. Four (4) fewer people died in intentionally set fires in 2008, with no murder-suicides in 2008.

Majority of Fire Deaths Occur in Residential Occupancies
We focus our analysis on residential fire deaths because it is where prevention can have the most impact. Ninety-eight percent (98%) of all fatal structure fire victims, died in residential building fires. Thirty-three (33) of these deaths occurred in one- or two-family homes, accounting for two-thirds, or 67%, of all fire deaths, which is typical.

Smoking the Leading Causes of Fire Deaths
In 2008, smoking fires were once again the leading cause of residential structure fire deaths. These fires accounted for 11, or 26%, 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 2008, electrical fires were the second leading cause of fire deaths, accounting for 10, or 23%, of residential fire deaths. Heating equipment fires were the third leading cause of fire deaths in 2008 accounting for five, or 12%, of the residential fire deaths.

Middle Aged Adults at Significant Risk for Fire Death
Middle aged adults, especially those between the ages of 45 and 64 had a significant risk of dying in a fire. The risk of fire death for adults between the ages of 55 and 64 is 2.3. The risk of fire death for adults between the ages of 45 and 54 is just below that at 2.2.

Older Adults (85+) at Greater Risk for Fire Death
Older adults, especially those over the age of 85, had the greatest risk of dying in a fire. The risk of fire death for older adults is 3.1 up from 1.6 in 2007, 2.5 in 2006 and 2.0 in 2005. This means that oldest members of our communities were three times as likely to be fire-related fatalities.

[50] Based upon available records.

Almost 1/4 of All Fire Deaths are Older Adults
Twelve (12) older adults died in fires, accounting for 24% of all fire deaths in Massachusetts in 2008. Four (4), or 33%, of these victims died smoking fires. The lack of working smoke detectors was a significant factor in senior fire deaths. In 33% of senior fire deaths there were no working smoke alarms.

37% of People Died in Fires While They Slept
Thirty-seven percent (37%) of the people who died in fires died while they slept. Eighteen (18), or 37%, 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 2008, 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.

Thirty-one percent (31%) 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. Almost half, 46%, of the victims died in fires that began in either the bedroom or living room. Upholstered sofas or chairs were the leading item first ignited in residential structure fire deaths; clothing on a person and bedding were the second and third leading items first ignited, respectively. Also, 82% of these victims suffered burns, smoke inhalation or both.

Twenty-four (24), or 62%, of all the civilians that died in residential fires were reported to be in the area of fire origin. Of these 24 victims, 15, or 38%, were intimately involved in the ignition of the fire that killed them. It is most probable that no amount of early warning would have saved any of these victims. This is where fire prevention and education become key components in saving lives.

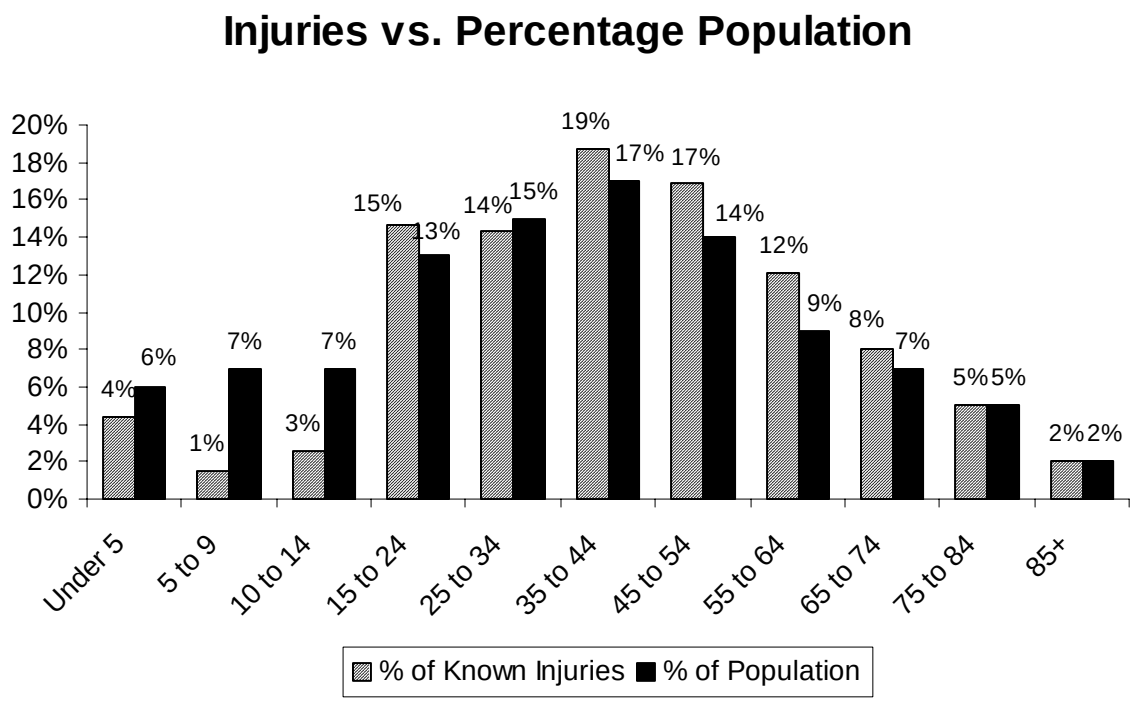
Civilian Injuries

337 Civilians Injured in Fires in 2008 – Mostly at Home

Massachusetts' fires injured 337 civilians in 2008. Two hundred and seventy-three (273), or 81%, of civilian injuries occurred in structure fires. Two hundred and thirty-eight (238) injuries occurred in residential building fires, accounting for 71% of all injuries and 87% of all structure fire injuries. Twenty-three (23), or 7%, occurred in motor vehicle fires. Forty-one (41), or 12%, of civilian injuries occurred in outside and other fires. Special outside fires accounted for 11, or 3%, of civilian all civilian injuries. Brush fires accounted for seven, or 2%, of civilian fire injuries; and outside rubbish fires accounted for two, or 1%, of all civilian injuries. Twenty-one (21), or 6%, of civilian injuries were caused by unclassified fires.

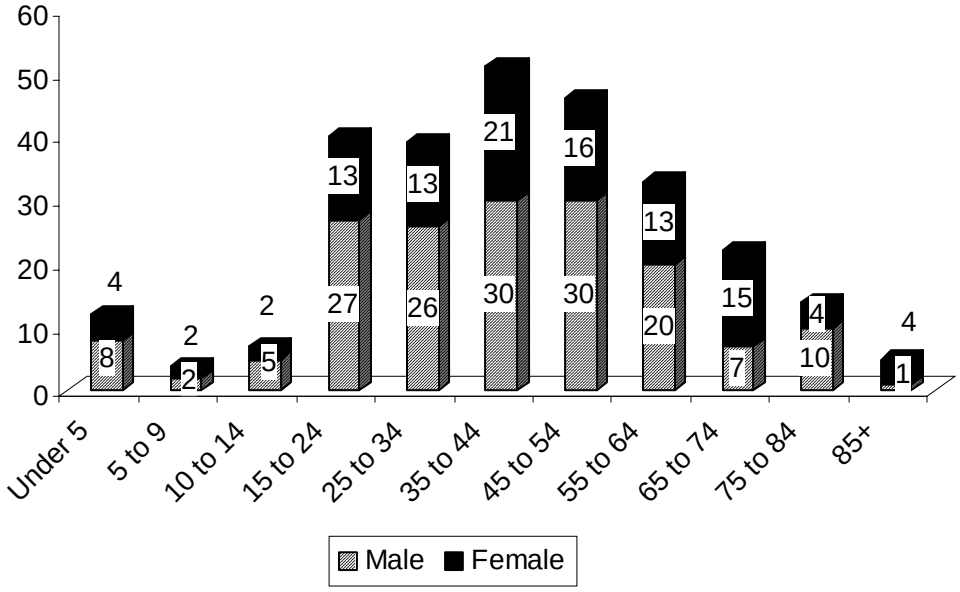
Structure Fire Injuries

Of the 273 civilian injuries resulting from structure fires where gender was reported, 166, or 61%, were men and 107, or 39%, were women. Overall, 30 children under 18 years of age, 201 adults, aged 18 to 64 years old, and 41 older adults over the age of 65, were injured by structure fires in 2008. The following chart illustrates the structure fire injuries by age and gender in 2008. Men and women ages 35-44 and 45-54 were injured the most and youths between five and nine and older adults over the age of 85 were injured the least in 2008. Twelve (12) children ages 0-4 were injured; four children ages 5-9; seven children ages 10-14; 40 people ages 15-24; 39 people ages 25-34; 51 people ages 35-44; 46 people ages 45-54; 33 people ages 55-64; 22 people ages 65-74; 14 people ages 75-84; and five people were injured that were over 85 years of age, of which one was a man and four 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.

Structure Fire Injuries by Age & Gender



Adults 45 to 64 at High Risk for Fire Injury
Adults between the ages of 45 and 54 represent 14% of the Massachusetts population, yet the accounted for 17% of the injuries at structure fires in 2008. Adults between the ages of 55 and 64 represent 9% of the population and yet they accounted for 12% of the injuries in 2008. The disparity in the percentage of injuries to the percentage of population is most likely caused by the tendency to try and control the fire. In these age groupings, 40%, of the fire-related injuries were incurred while trying to control the fire.

81% of Injuries Were Directly Related to Exposure to Fire Products
Of the 233 civilian injuries in structure fires where the Cause of Injury was known, 81% were directly linked to exposure to fire products; 4% of the casualties were exposed to hazardous materials or toxic fumes; and 2% each were caused by the victim falling, slipping or tripping or the victim jumping in an escape attempt; and 1% each were caused by the victim being caught or trapped, overexertion, or by being struck by or coming in contact with an object. Seven percent (7%) of the civilian fire injuries were caused by 'Other' causes; and 1% were reported to have multiple causes. The Cause of Injury was undetermined or not reported for 40 victims. These figures were not included in this analysis.

78% of Injuries Were Due to Smoke Inhalation or Burns or Both
Of the 228 civilian injuries in structure fires where the Primary Apparent Symptom was known, 38%, were caused by smoke inhalation only. Twenty-four percent (24%) were caused by thermal burns only. Burns and smoke inhalation together caused 16% of the injuries. Breathing difficulty or shortness of breath, cuts or lacerations, and scald burns were each responsible for 4% of these injuries. Two percent (2%) each were caused by

cardiac symptoms and hazardous fume inhalation. Disorientation, electrical burns, shock and strains or sprains each caused 1% of these injuries. Alcohol impairment, abrasions, dizziness, fainting or weakness, only pain and unconsciousness each accounted for less than 1% of the structure fire-related injuries in 2008. 'None' was reported as the Primary Apparent Symptom for four of these victims. The nature of injury was undetermined or not reported in 41 civilian fire injuries. These were excluded from the percentage calculations.

43% Injured While Trying to Control the Fire

Of the 199 victims for whom activity at time of injury was known, 43% were attempting to control the fire. Twenty-six percent (26%) were escaping. Six percent (6%) returned to the vicinity of the fire before it was under control; 5% were attempting a rescue; 4% were sleeping; 3% were acting irrationally; 3% were unable to act; and 1% tried to return to the vicinity of the fire after it was under control. Twelve percent (12%) were injured in 'Other' activities. There were 74 injuries where the activity at time of injury was unknown; these were excluded from the percentage calculations.

Women More Likely to Be Injured Trying to Control the Fire

In 2008, 42% of male victims sustained their injuries while attempting to control the fire as compared to 44% of female victims. This returns us to the recent trend since 2003 of women being more likely to be hurt while attempting to control the fire. A higher percentage of men (6%) sustained their injuries while making a rescue attempt than did women (3%), and 31% of women were attempting to escape compared to 23% of men. Six percent (6%) of men and no women were injured while sleeping; 3% of men and 1% of the women were unable to act; and 4% of men and no women were injured in an irrational act. There is a 1% or less difference between men and women in every other activity.

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

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

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

28% of Victims Were Asleep Just Before the Injury
Of the 47 victims for which the human factor contributing to the injury was known, 28% were asleep; 26% were physically disabled; 23% were possibly impaired by alcohol; 11% were possibly impaired by drugs; 6% were unattended or unsupervised persons; 4% were possibly mentally disabled; and 2% were unconscious.

The following table is a cross tabulation which allows us to know what the person was doing when injured and what was either their physical or mental state shortly before becoming a victim. The overall majority of civilian fire injuries came about through trying to control the fire. In version 4 being awake was a valid entry for *Condition Before Injury*. However in version 5 there is no equivalent code in the field *Human Factors Contributing to Injury*.

CIVILIAN INJURIES BY ACTIVITY AND PRIOR CONDITION

Human Factors Contributing to Injury

Activity At Injury	Asleep	Uncon-scious	Possibly Impaired		Mentally Disabled	Physically		Unsuper-vised
			Alcohol	Drugs		Disabled	Restrained	
Escaping	**6**	0	0	1	0	0	0	0
Rescue attempt	0	0	2	0	0	0	0	0
Fire control	3	0	1	2	1	0	0	0
Return before fire control	0	0	1	0	0	1	0	0
Return after fire control	0	0	0	0	0	0	0	0
Sleeping	**3**	1	2	0	0	0	0	0
Unable to act	0	0	0	1	0	0	0	1
Irrational action	0	0	1	0	0	0	0	0
Other	0	0	2	0	1	2	0	0
Unknown	0	0	2	0	0	0	0	1
Total	12	1	11	4	2	3	0	2

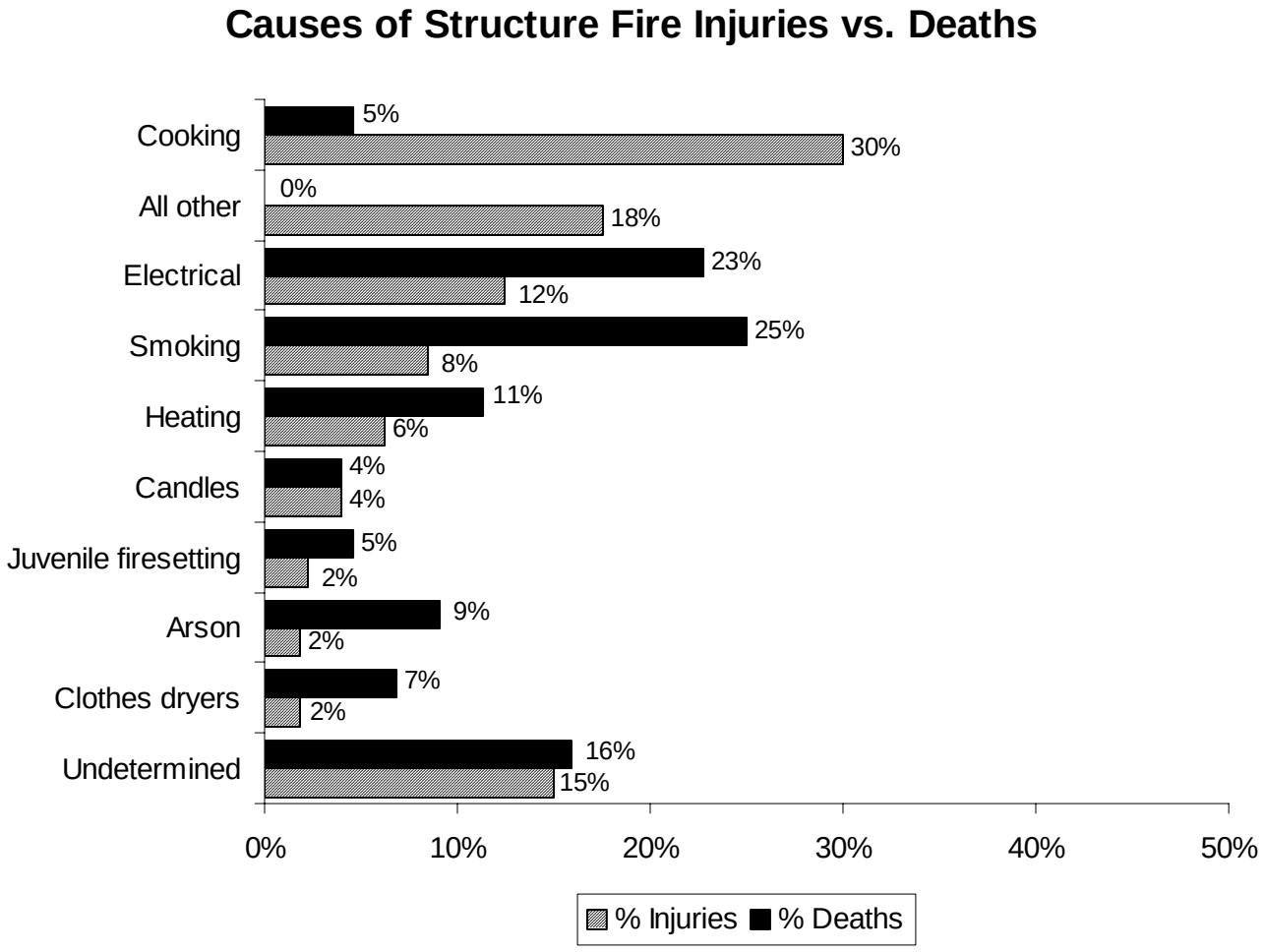
Most Injured People Usually Asleep When Fire Started & Then Slept Through Fire
Historically when both of the fields, *Activity When Injured* and *Human Factors Contributing to Injury,* were completed, the majority of civilian fire injuries occurred when people were asleep at the time of injury and were still asleep at the time of the fire. The next leading result was when someone was asleep, awoke and attempted to escape.

However in 2008 the two were reversed with more people waking up and being injured during their escape than failing to awaken at all. This is most likely due to the educational and regulatory efforts of having working smoke detectors in buildings especially homes.

Over 1/2 of All Victims Were Involved With the Ignition of the Fire
Fifty-six percent (56%) of all victims were involved with the ignition of the fire that injured them. One hundred and one (101), or 49%, of the 208 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. Sixteen (16), or 8%, were not in the area of origin but were involved with the start of the fire. An example of this is when someone is

involved with the start of the fire (e.g. cooking, smoking, arson), leaves the area but becomes trapped by the heat or smoke of the fire and is injured in their attempt to escape. Sixty-one (61), or 29%, of the 208 victims were in the area of origin but not involved with the ignition of the fire. An example of this is when someone leaves food unattended on the stove in the kitchen and leaves the room. After the fire starts and the individual is alerted to its presence they are injured trying to put out the fire. Thirty (30), or 14%, of these victims were not in the area of fire origin and were also not involved with its ignition. The *Location at Time of Incident* was undetermined or not reported in 65 civilian fire injuries. These were excluded from the percentage calculations.

Cooking Fires Were the Leading Cause of Injuries in Structure Fires
Cooking fires were the leading cause of injuries in structure fires. Cooking fires caused 30% of structure fire injuries and 5% of structure fire deaths. Electrical fires caused 12% of structure fire injuries and 23% of structure fire deaths. Fires started by smoking caused 8% of structure fire injuries and 25% of structure fire deaths. Heating equipment fires caused 2% of injuries and 9% of deaths. Candles caused 4% of injuries and 4% of the deaths. Arson caused 6% of structure fire injuries and 15% of structure fire deaths. Juvenile-set fires caused 2% of structure fire injuries and 5% of the structure fire deaths in 2008. Clothes dryer fires caused 2% of the structure fire injuries and 7% of the structure fire deaths. All the other known causes of structure fires combined caused 18%



of the structure fire injuries and none of the structure fire deaths. In 2008, undetermined fires caused 15% of structure fire injuries and 16% of structure fire deaths in Massachusetts.

Leading Cause of Injuries Not the Leading Cause Of Deaths
The leading cause of fire-related injuries is most often not the leading cause of fire-related deaths. In 2008, 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 273 injuries, 52% occurred where smoke detectors were present and operated. In 5% of these fires[51], the detectors did not alert the occupants. Ten percent (10%) of the injuries occurred in structure fires where detectors were present but did not operate. Seven percent (7%) of the injuries occurred where there were no detectors present in the structure at all. Four percent (4%) of civilian structure fire injuries occurred where the fire was too small to activate the smoke detector. Smoke detector performance was undetermined in 62 injuries, or 23% 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 23 motor vehicle fire injuries in 2008. Sixty-five percent (65%) were men and 35% were women. Eighty-three percent (83%) of the injuries were caused by exposure to fire products, when cause was known. Eight percent (8%) were exposed to hazardous materials. When the primary apparent symptom was reported, 37% of these were reported as burns only and 26% were reported as smoke inhalation only; 21% were reported as burns and smoke inhalation. Where activity at time of injury was known, 62% of the victims were trying to control the fire when injured; 15% were trying to rescue someone, and 23% returned to the vicinity of the fire before it was under control. The causes of motor vehicle fires that injured civilians in 2008 included fuel spills, collisions, arson, and mechanical malfunctions. See the Motor Vehicle Fire section for safety tips in the event of a car fire.

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

Outside and Other Fire Injuries

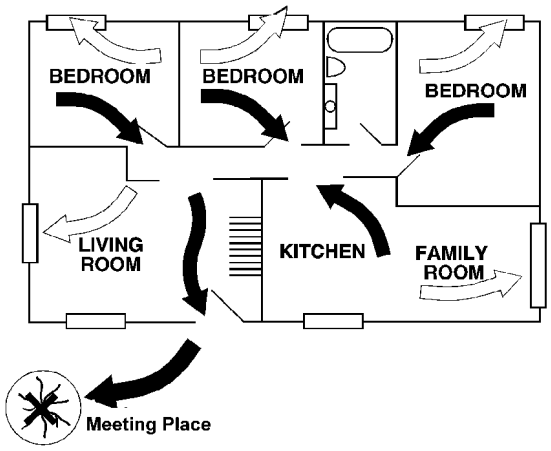
Forty-one (41), or 12%, of civilian fire injuries occurred in outside and other fire incidents in 2008. Eleven (11), or 3% of civilian injuries were caused by special outside fires. Seven (7), or 2%, of civilian injuries occurred in brush fires; and two, or 1%, occurred during outside rubbish fires. Twenty-one (21), or 6%, 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 79%, of the injuries to this group, when the primary apparent symptom was known. The victim was intimately involved with the ignition in two-thirds, or 61%, of these injuries where location at ignition was known.

Safety Practices Are the Best Prevention Methods

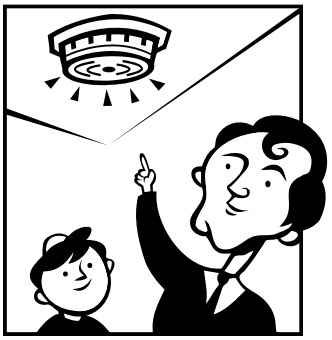
In a typical nighttime fire, there is a window of 2-4 minutes in the average home after the smoke alarm sounds for the family to get out safely. In a few minutes, heat and toxic gases make escape impossible. To survive a fire, one must install and maintain smoke detectors as well as make and practice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

Home Escape Plan



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

Smoke Detectors

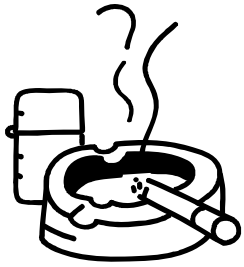


- Install smoke detectors on every level and outside each sleeping area.
- Test smoke detectors monthly.
- Replace the batteries twice a year.
- Never disable your detector.
- Replace detectors every 10 years.

Cooking Safety

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

Safe Smoking



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

Dryer Safety

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

2008 Firefighter Deaths

In 2008, there was one fire-related fire service fatality in one fire in the Commonwealth of Massachusetts. Lieutenant Vincent P. Russell of the Boston Fire Department succumbed to injuries sustained while battling a motor vehicle fire in a building undergoing major renovation.

1 Construction Vehicle Fire in a Building Under Renovation Killed 1 Firefighter
On January 3, 2008, at 12:14 p.m., the Boston Fire Department was dispatched to a fire at a multiple use building undergoing major renovations. A Bobcat-type mini-loader on one of the floors under renovation, was on fire. Lieutenant Vincent P. Russell, 54-years old, was assisting a crew with a handline while he was still in a stairwell. During suppression efforts he was knocked to the floor where he received multiple injuries. Six days later he died from complications resulting from his injuries. There were no other injuries associated with this fire. Damages were estimated to be $30,000.

Fire Service Injuries

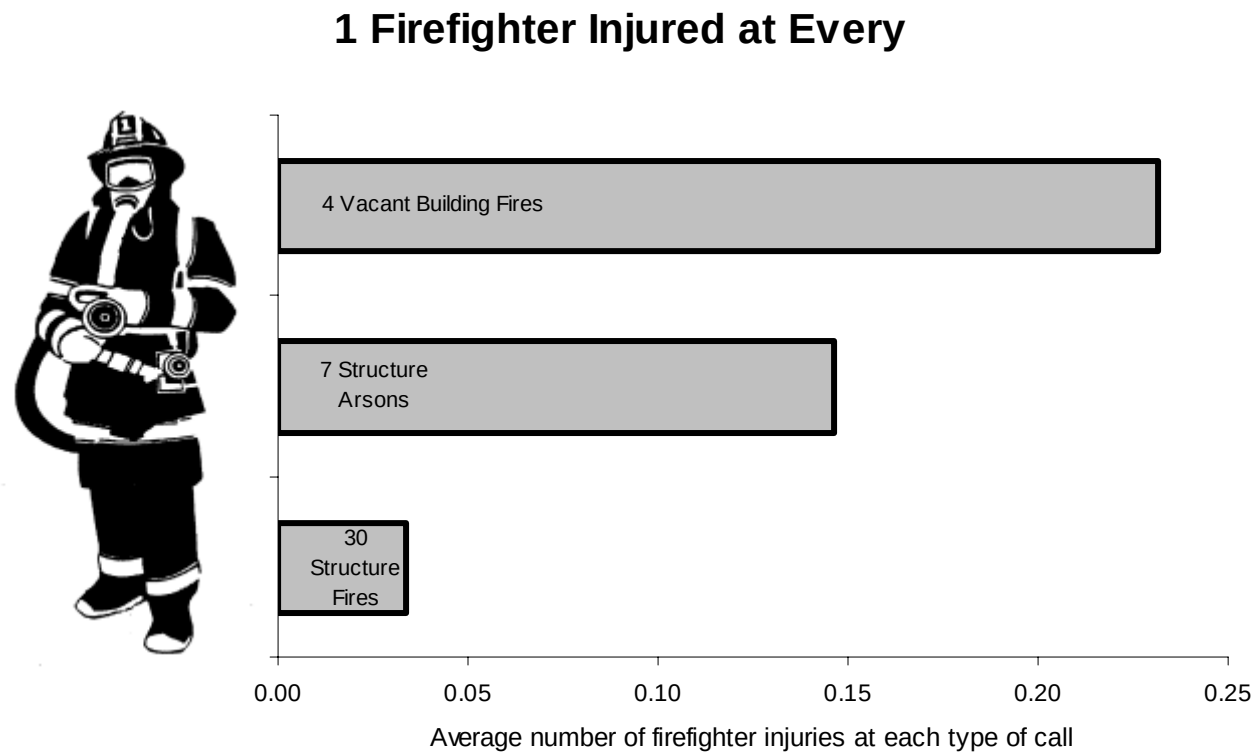
622 Firefighters Injured in 2008
In 2008, 622 firefighters were injured while fighting the 30,136 reported fires in Massachusetts. On average, one firefighter was injured at one of every 49 fires in 2008. Five hundred and eighty-two (582) firefighters were injured at structure fires. Sixteen (16) firefighters were injured at motor vehicle fires. Twenty-four (24) firefighters were injured at outside and other fires. This is a decrease of 56, or 8%, from the 678 fire-related fire service injuries reported in 2007

93% of Firefighter Injuries Occurred at Structure Fires
Firefighters were injured more frequently at structure fires than any other fire incident type. Ninety-three percent (93%) of firefighter injuries occurred at structure fires, while structure fires only accounted for 57% of all fires.

Electrical Fires Caused the Most Injuries at Structure Fires
The largest number of firefighter injuries took place at electrical-caused fires. Seventy-nine (79), or 14% of structure fire firefighter injuries occurred at electrical fires. Smoking fires accounted for 45, or 8%, of structure fire firefighter injuries. Forty-one (41) fire service injuries, or 7%, occurred at arsons. Cooking fires caused 31, or 5%, of all fire service structure fire injuries, even though cooking fires are the leading cause of structure fires. Fires caused by heating equipment accounted for 25, or 4%, of fire service injuries at structure fires.

Firefighters Injured at 1 of Every 4 Vacant Building Fires
One of the most dangerous types of fires for firefighters in 2008 was vacant building fires. Vacant building fires accounted for 88, or 14%, of all firefighter injuries in 2008. These 88 injuries also represent 15% of the number of firefighter injuries incurred fighting structure fires in 2008. On average there was one firefighter injury for every four vacant building fires; one firefighter injury for every seven structure arsons; and one firefighter injury for every 30 structure fires[52].

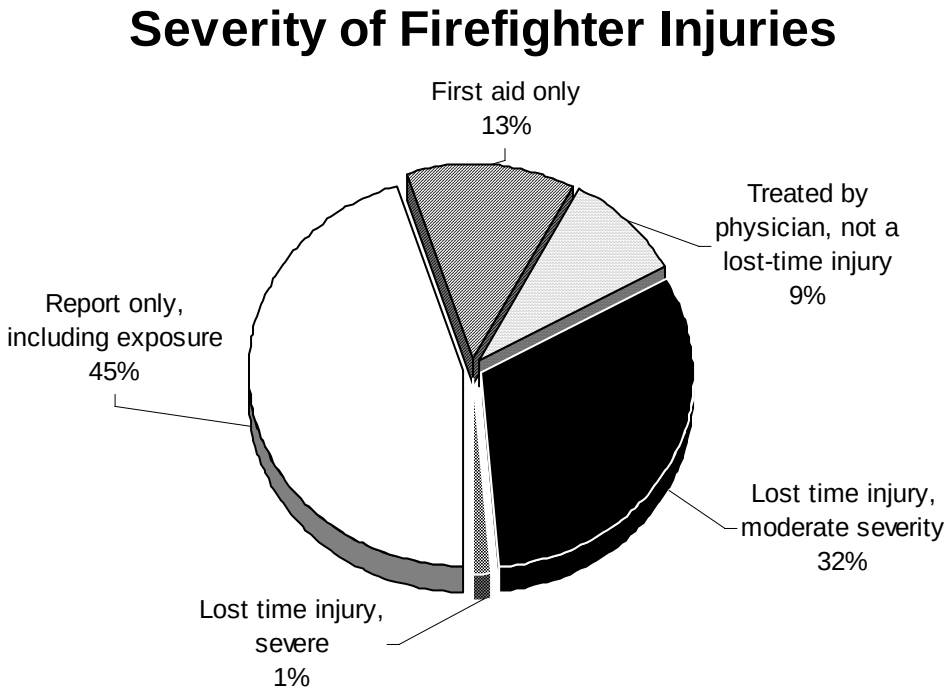
The following graph illustrates this.



3/4 of Firefighter Injuries Minor
Three-quarters of reported firefighter injuries were minor. Forty-five percent (45%) of the injuries were reports only, including exposures to toxic substances or harmful physical agents through any route of entry into the body. Injuries reported as moderate accounted for 32% of firefighter injuries, meaning that immediate medical attention was needed but there is little danger of death or permanent disability. Nine percent (9%) reported having been treated by a physician with no time lost. Thirteen percent (13%) of these injuries were recorded as only needing first aid. One percent (1%) of firefighter injuries were coded as severe. This means that the injury was potentially life threatening if the

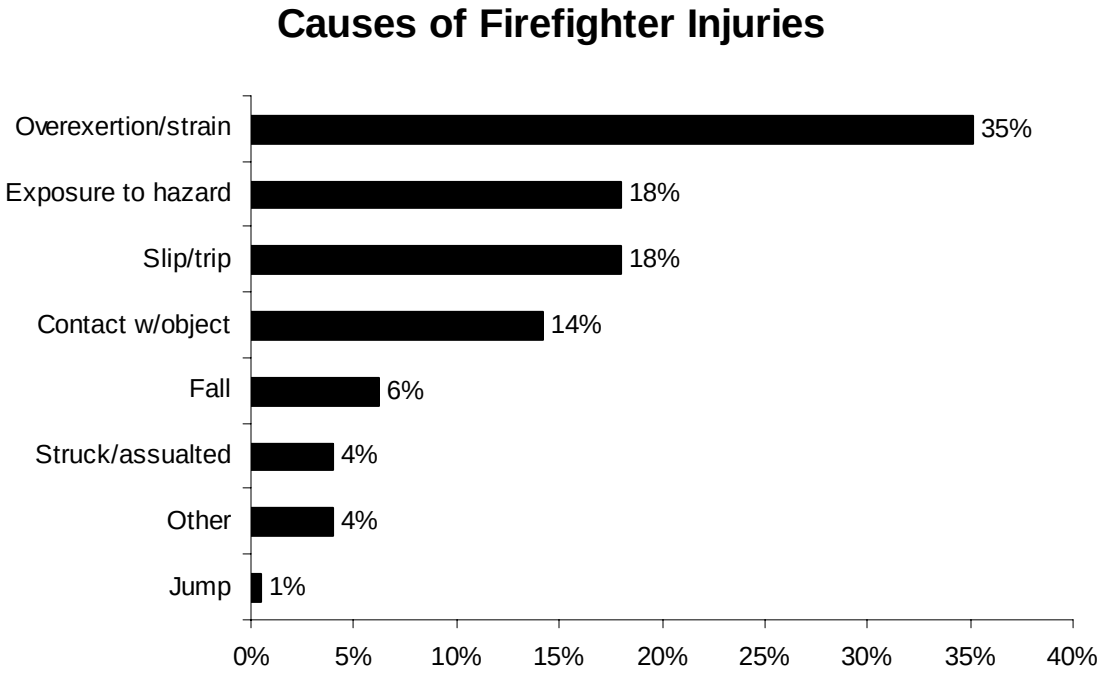
[52] On average there were 0.23 firefighter injuries at every vacant building fire; there were only 0.15 reported firefighter injuries per structure arson in 2008; and there was 0.03 reported firefighter injuries per structure fire in the Commonwealth in 2008.

condition was not controlled. There were no reported life-threatening firefighter injuries where body processes and vital signs were not normal.



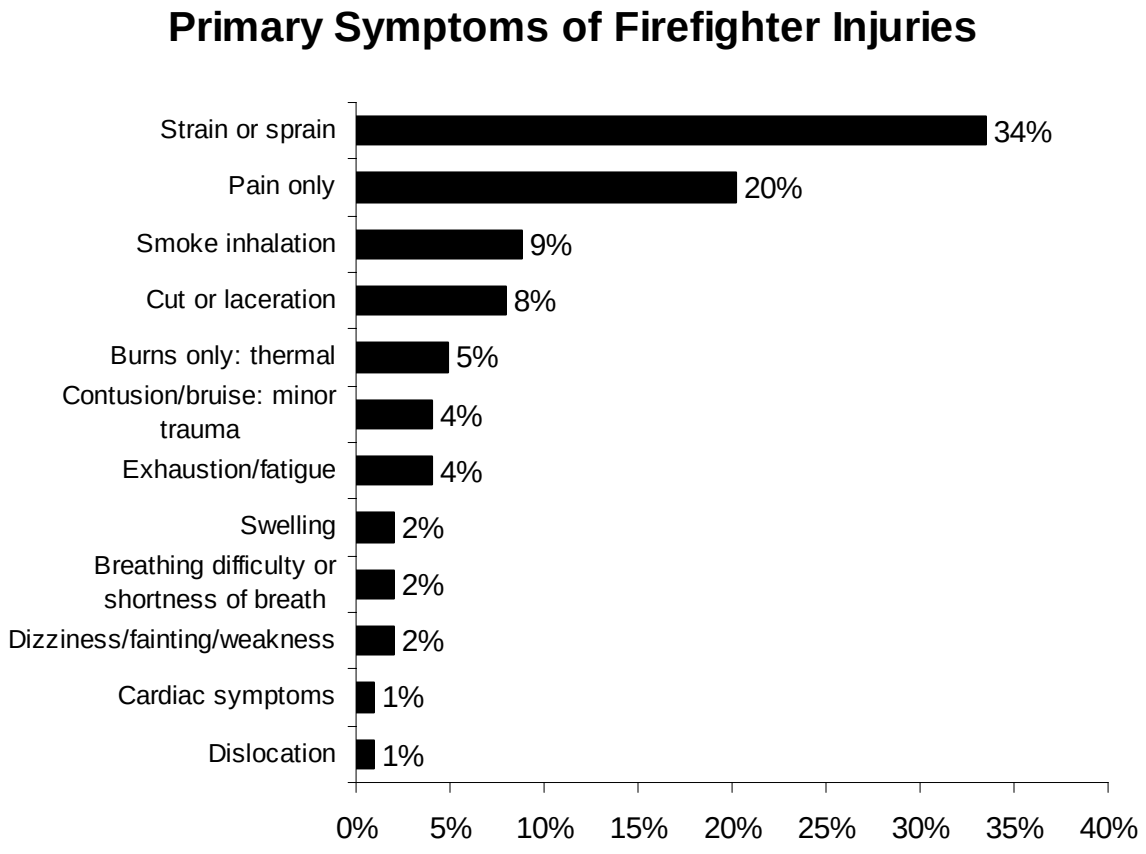
Over 1/3 of Injuries from Overexertion or Strain

Thirty-five percent (35%), or over one-third, of the 564 firefighter injuries where cause is known were due to overexertion or strain; 18% were exposed to some form of hazard including heat, smoke or toxic agents; another 18% were injured when they slipped or



tripped; 14% were caused by contact with some object; 6% of firefighters were injured from falls; 4% were injured when they were struck by an object or assaulted by a person or animal; 1% were injured when they jumped; and 4% 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 58 firefighter injuries, and these injuries were excluded from the percentage calculations.

Over 1/3 Experienced Sprains or Strains; 1/5 of Firefighters Reported Pain
Of the 588 firefighter injuries where primary symptom was known, more than one-third, 34%, of injured firefighters reported sprains or strains as their primary symptom; 20% reported pain only; 9% reported smoke inhalation; 8% reported cuts or lacerations; 5% reported thermal burns; 4% reported minor trauma, contusions or bruises; and another 4% reported exhaustion and fatigue. Swelling, breathing difficulty and dizziness, fainting or weakness each caused 2% of these injuries. Cardiac symptoms and dislocation each caused 1% of firefighter injuries in Massachusetts in 2008. Primary apparent symptom was undetermined or not reported for 34 firefighter injuries. These injuries were excluded from the percentage calculations.



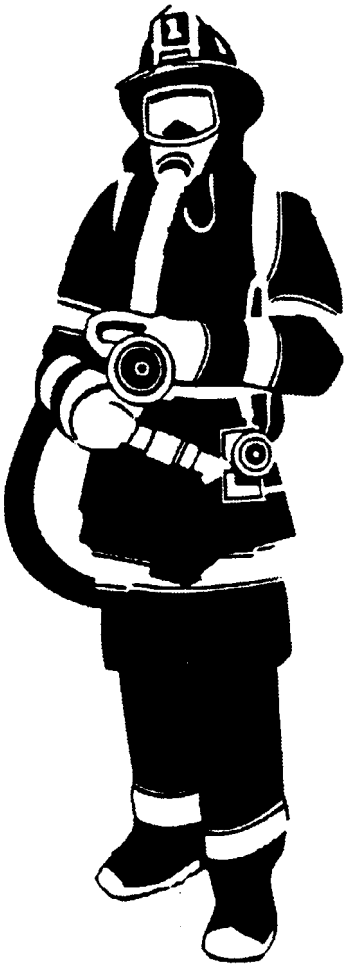
Firefighters Face Other Risks in Addition to Fires
The Massachusetts Fire Incident Reporting System (MFIRS) generally only collects information about injuries at fires. Firefighters face many other dangerous situations in addition to those found at fires. Many are also injured while controlling hazardous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

Look at Symptoms Incurred by Different Parts of Body to Prevent Injuries
Different parts of the body suffer different types of injuries. The following chart shows the types of injuries suffered by different parts of the body. For example, 45% of eye injuries were caused by avulsions; cuts or lacerations caused 45% of the injuries to the hands and fingers; 59% of the injuries to the back and spine were sprains or strains; and smoke inhalation caused 78% of the internal injuries.

23% 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. Almost one-quarter of all firefighter injuries were to the trunk part of the body that includes the lower back. One hundred and thirty-three (133), or 23%, of all known firefighter injuries occurred to firefighters' trunks. Fifty-three (53), or 40% of these injuries were from strains or sprains and 47, or 35%, were only reports of pain. 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 (11)	
Avulsion	45%
Foreign body obstr.	18%
Trunk (133)	
Strain or sprain	40%
Pain only	35%
Thermal burns	5%
Internal (51)	
Smoke inhalation	78%
Cardiac symptoms	8%
Exhaustion/fatigue	6%
Breathing difficulty	6%
Hand, Fingers (58)	
Cut, laceration	45%
Swelling	12%
Strain or sprain	10%
Thermal burns	10%
Legs (17)	
Strain or sprain	53%
Pain, only	12%
Contusion, bruise	12%



Ears & Face (14)	
Cut or laceration	36%
Thermal burns	21%
Scald burns	14%
Back & Spine (73)	
Strain or sprain	59%
Pain only	32%
Arms (31)	
Strain or sprain	45%
Pain only	26%
Contusion, bruise	16%
Wrists (11)	
Strain or sprain	27%
Pain, only	18%
Knees (61)	
Strain or sprain	54%
Pain only	25%
Feet & Toes (9)	
Strain or sprain	33%
Cut or laceration	11%

Apartment Fire in Framingham Injures 13 Firefighters – Most Fire Service Injuries

- On April 11, 2008, at 12:21 p.m., the Framingham Fire Department was called to a fire at a 72-unit apartment complex. A plumber working in a second floor bathroom accidentally ignited the lining of a plumbing chase with his torch. The fire smoldered undetected before erupting into open flames. Two (2) civilians and 13 firefighters were injured at this fire. Detectors were present and alerted the occupants. The building was not sprinklered and damages from this fire were estimated to be $3 million.

2 Alarm Fire in Milton Injures 12 Firefighters – 2nd Most Fire Service Injuries

- On February 3, 2008, at 7:37 p.m., the Milton Fire Department was called to a fatal electrical fire in a single-family home. A lamp was too close to an upholstered chair and the heat from the light bulb ignited the chair. The victim, a 59-year old man, was trapped on the second floor and overcome by the heat and smoke. Twelve (12)

firefighters were injured at this fire. Smoke detectors and sprinklers were not present. No estimation of the damages was made for this fire.

Cambridge and Chelsea had incidents with nine firefighter injuries; and Brookline and Chelsea each had incidents with eight firefighter injuries in 2008.

Arson Fires

1,182 Arsons - 280 Structures, 150 Vehicles, 752 Other Arsons
One thousand one hundred and eighty-two (1,182), or 4%, of the 30,136 fire incidents reported to the Massachusetts Fire Incident Reporting System, were considered to be intentionally set, or for the purpose of analysis, arson[53]. The 280 structure arsons, 150 motor vehicle arsons, and 752 outside and other arsons caused five civilian deaths, accounting for 10% of civilian fire deaths, 10 civilian injuries and 42 fire service injuries. The estimated dollar loss from arsons was $14 million. The average dollar loss per arson fire was $11,814. Total arson was down 3% from 1,215 in 2007.

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

1,095 Fires with Cause Still Under Investigation
In 2008, 1,095 Massachusetts fires were still listed as Cause Under Investigation. There were 2,984 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 eight 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.

[53] 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.

Arson Module Will Bring 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 2008, 30%, of the 97 reported arsons which had this field completed, occurred in vacant structures; 23% had some other crime involved; 16% were reported to have criminal or civil actions pending; 8% had some code violations; 7% occurred in structures that were for sale; another 7% reported financial problems; 6% were involved with some illicit drug activity; and 2% had a recent change in insurance.

Suspected Motives
Another field is 'Suspected Motivation Factors.' It indicates the suspected stimulus that caused the subject to burn any real or personal property. In 49% of the 133 reported arsons that had this field completed, the motive was thought to be from playing with or curiosity of fire. Thrills was suspected in 20% of these arsons; in 19% the motive was personal motivation; insurance fraud, intimidation, and attention or sympathy each were the suspected motivation factor in 6% of these fires; in 5% the arson was part of a domestic violence incident; in 4% someone was committing a burglary; hate crimes and vanity or recognition were involved in 3% of these arsons; the arsonist was believed to be committing suicide and an attempt at auto theft concealment each in 2% of these arsons. Homicide, homicide concealment, societal grudges, institutional grudges, an attempt to conceal a burglary, labor unrest, voiding a contract or lease, and extortion were each the suspected motivation factor in 1% of arsons.

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

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

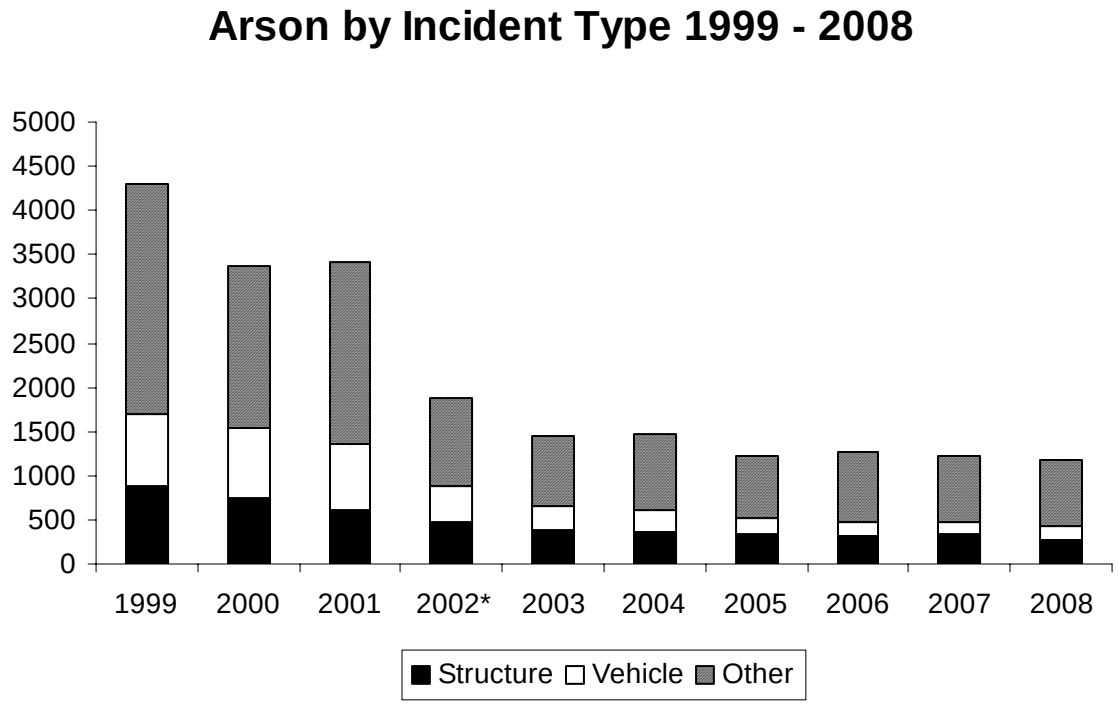
ARSONS BY YEAR

Year	Total Arsons	Structure Arsons	% All Arsons	Vehicle Arsons	%All Arsons	Other Arsons	% All Arsons
2008	1,182	280	24%	150	13%	752	64%
2007	1,215	350	28%	131	11%	734	61%
2006	1,265	325	26%	159	13%	781	62%
2005	1,234	343	28%	184	15%	707	57%
2004	1,477	373	26%	227	15%	877	59%
2003	1,491	381	26%	280	19%	830	56%
2002*	1,867	488	26%	395	21%	991	53%
2001	3,426	620	18%	743	22%	2,063	60%
2000	3,360	747	22%	798	24%	1,815	54%
1999	4,307	886	21%	818	19%	2,603	60%

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

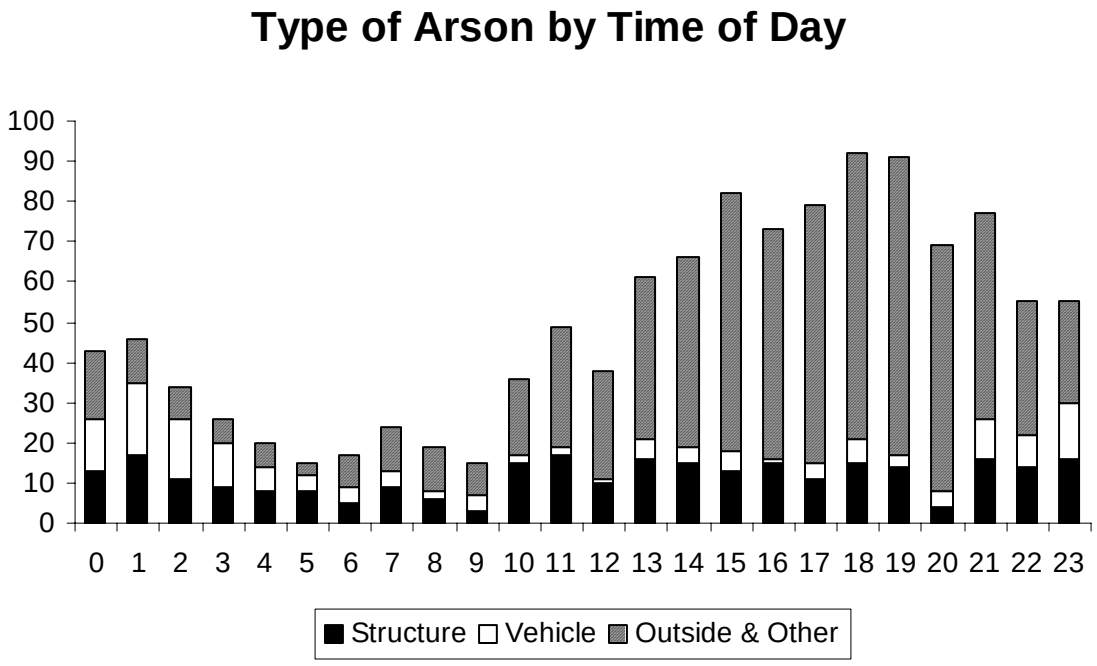
Largest Reduction in Motor Vehicle Arsons

The following chart illustrates arson by incident type over the past decade. This type of chart can be used as a visual representation of the ratios between the three types of arson, structure, motor vehicle and outside and other arsons. The trend has been for motor vehicle arsons to comprise a smaller percentage of total arsons, while the percentage of outside and other arsons of total arsons has risen during the same time span. For example, motor vehicle arsons accounted for 24% of arson fires in 2000 but only 12% of the total reported arson fires in 2008. Looking at these ratios allows one to more clearly identify specific fire problems, such as increases in structure or motor vehicle arsons. Trends may be masked if you were to look just at total numbers.



For instance, outside and other arsons numbered 2,603 in 1999 and 752 in 2008. 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 1:00 p.m. to 10 p.m. The peak times for structure arson were from 1:00 p.m. and 6:00 p.m. Motor vehicle arsons were most likely to occur between 10:00 p.m. and 3:00 a.m. Outside and other arsons peaked from 2:00 p.m. to 8:00 p.m.



Structure Arson

280 Arsons, 4 Civilian Deaths, 5 Civilian Injuries, 41 Fire Service Injuries
In 2008, there were 280 reported structure arsons. They caused four civilian deaths, five civilian injuries, 41 fire service injuries and an estimated dollar loss of $12.9 million. These 280 incidents accounted for 2% of the 17,198 structure fires in 2008, and were down 20% from the 350 reported structure arsons in 2007.

The four civilian deaths accounted for 8% of the total civilian death count and 9% of all structure fire deaths. The five civilian injuries accounted for 1% of the overall civilian

injuries and 2% of all civilian injuries at structure fires. Forty-one (41) fire service injuries accounted for 7% of the total fire service injuries and 7% of the injuries fire fighters sustained at all structure fires in 2008. The estimated dollar loss for structure arsons was $12,916,623, accounting for 5% of the overall dollar loss and 6% of the estimated dollar loss in all reported structure fires. The average loss per structure arson was $46,131.

In 2008, 506 Massachusetts structure fires were still listed as Cause Under Investigation. There were 520 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 2008 there were 233 building arsons. These 233 arsons accounted for 83% of all the structure arsons in Massachusetts. These 233 building arsons caused four civilian deaths, five civilian injuries, 41 fire service injuries and an estimated dollar loss of $12.9 million.

2/3 of Building Arsons Occurred in Residences

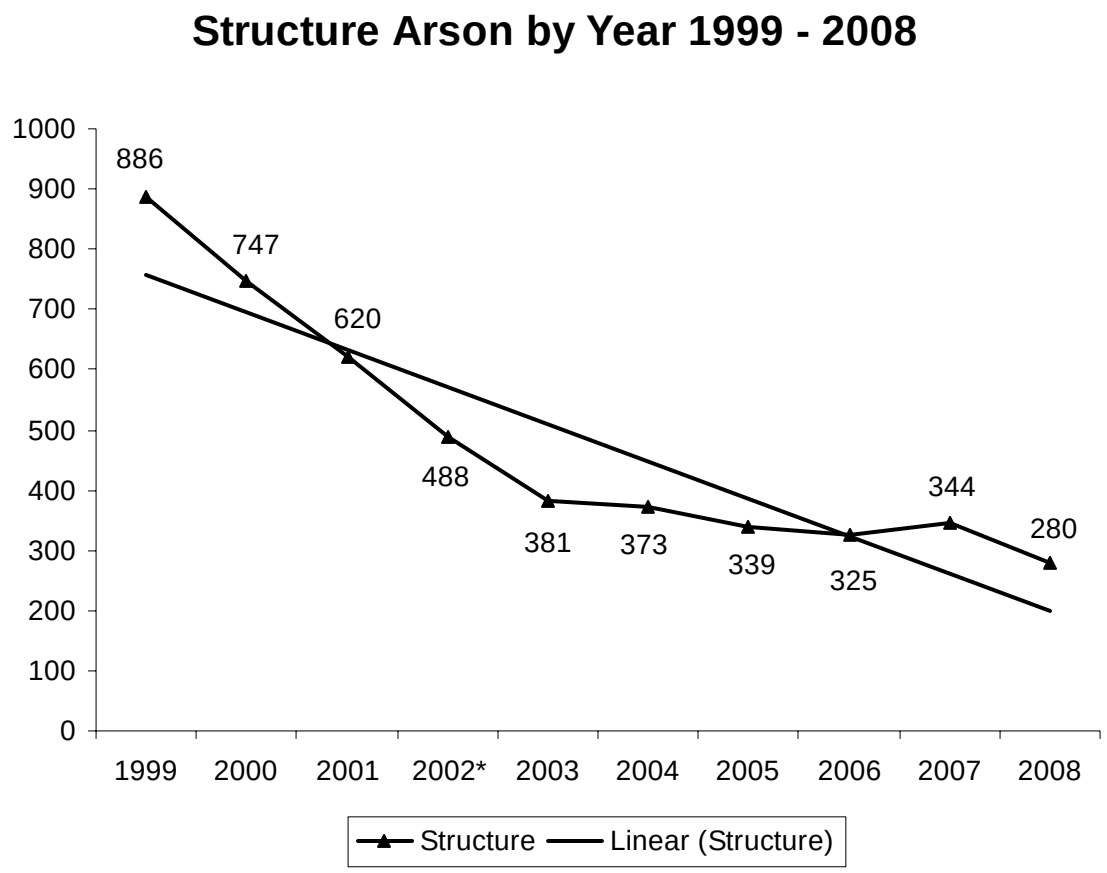
One hundred and fifty-seven (157), or 67%, of the 233 building arsons occurred in residential occupancies. Educational occupancies accounted for 18, or 8%, of these arsons. The following table shows the number of structure arsons, civilian deaths, civilian injuries, fire service injuries, dollar loss 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	15	6%	8	0	0	0	$2,628,700
Educational	18	8%	0	0	0	0	10,982
Institutional	9	4%	0	0	0	0	52,400
Residential	**157**	**67%**	**32**	**5**	**0**	**4**	**7,200,539**
1- & 2-Family	*74*	*32%*	*9*	*3*	*0*	*4*	*2,912,752*
Multifamily	*85*	*36%*	*23*	*1*	*0*	*0*	*4,288,437*
All Other Residential	*7*	*3%*	*0*	*1*	*0*	*0*	*2,150*
Mercantile, business	12	5%	0	0	0	0	2,829,000
Basic Industry	0	0%	0	0	0	0	0
Manufacturing	3	1%	0	0	0	0	0
Storage	16	1%	1	0	0	0	118,400
Special Properties	3	1%	0	0	0	0	16,500
Unclassified	0	0%	0	0	0	0	0
Total	**233**	**100%**	**41**	**5**	**0**	**4**	**$12,856,521**

Structure Arson Down 63% Since 1997

Structure arson has been on a downward trend since 1991 when 1,974 structure arsons were reported to MFIRS[54]. Structure arsons have decreased 68% since 886 were reported in 1999. The chart below shows the trend of structure arsons in the past decade.



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

The following table shows the cities that reported the most structure arsons in 2008, their 2000 population according to the United States Census, the number of structure arsons reported in 2008, the rate of structure arsons per 1,000 people in 2008, and the same information for 2007. The cities are ranked by the 2008 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 Wareham had a higher structure arson rate. Although the Town of Wareham ranked 9th in total structure arsons, its rate of 0.30

[54] The highest number of reported structure arsons in the past 25 years, occurred in 1984 when 2,133 structure fires were considered to be intentionally set.

structure arsons per 1,000 population was the highest in the state and was over seven times the state structure arson rate of .04 per 1,000 population.

MASSACHUSETTS CITIES WITH THE MOST STRUCTURE ARSONS IN 2008

City	Population	2008 Arsons	2008 Rate/ 1,000 Pop.	2007 Arsons	2007 Rate/ 1,000 Pop.
Wareham	20,335	6	0.30	9	0.44
Norfolk	10,460	3	0.29	0	0.00
Falmouth	32,660	8	0.24	3	0.09
Chicopee	54,653	10	0.18	5	0.09
Walpole[55]	22,824	4	0.18	9	0.39
New Bedford	93,768	16	0.17	11	0.12
Scituate	17,863	3	0.17	0	0.00
Pittsfield	45,793	5	0.11	8	0.17
Everett	38,037	4	0.11	8	0.21
Worcester	172,648	18	0.10	13	0.08
Fitchburg	39,102	4	0.10	5	0.13
Plymouth	51,701	5	0.10	2	0.04
Brockton	94,304	9	0.10	13	0.14
Springfield	152,082	13	0.09	3	0.02
Massachusetts	**6,349,097**	**280**	**0.04**	**350**	**0.06**

Motor Vehicle Arson

150 Arsons, 1 Civilian Death & $870,397 in Damages

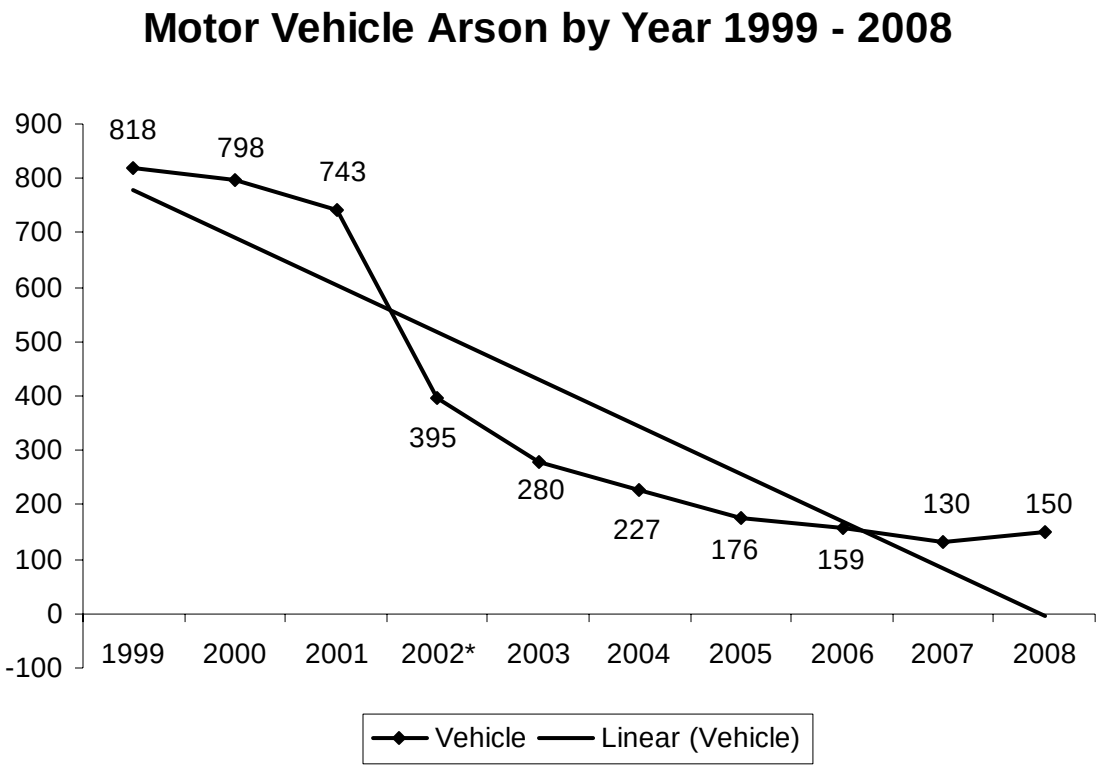
One hundred and fifty (150), or 5%, of the 3,076 vehicle fires were considered intentionally set in 2008. The one civilian death accounted for 2% of the total civilian deaths and 20% of the civilian deaths associated with motor vehicle fires. The two civilian injuries accounted for 1% of all civilian injuries and 9% of all civilian injuries associated with motor vehicle fires. There were no firefighter injuries or firefighter deaths associated with motor vehicle arsons in 2008. The estimated dollar loss in motor vehicle arsons was $870,397, accounting for less than 1% of the overall fire dollar loss and 6% of the dollar loss associated with all the 2008 motor vehicle fires. The average loss per vehicle arson was $5,803. Passenger cars and vans accounted for 81% of the 150 motor vehicle arsons.

In 2008, 314 Massachusetts motor vehicle fires were still listed as Cause Under Investigation. There were 706 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

[55] 7 of these structure arsons in Walpole occurred at MCI - Cedar Junction.

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.

The Burned Motor Vehicle Reporting Law
The Massachusetts Fire Incident Reporting System first identified motor vehicle fires and motor vehicle arson as a major problem in 1985 and the Burned Motor Vehicle Reporting Law took effect in August of 1987. The law requires owners of burned motor vehicles to complete and sign a report that must also be signed by a fire official from the department in the community where the fire occurred. The graph below shows the effectiveness of this law. Since the law took effect in 1987, motor vehicle arsons have decreased 97% from 5,116 in 1987 to 150 in 2008.



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

Outside and Other Arson

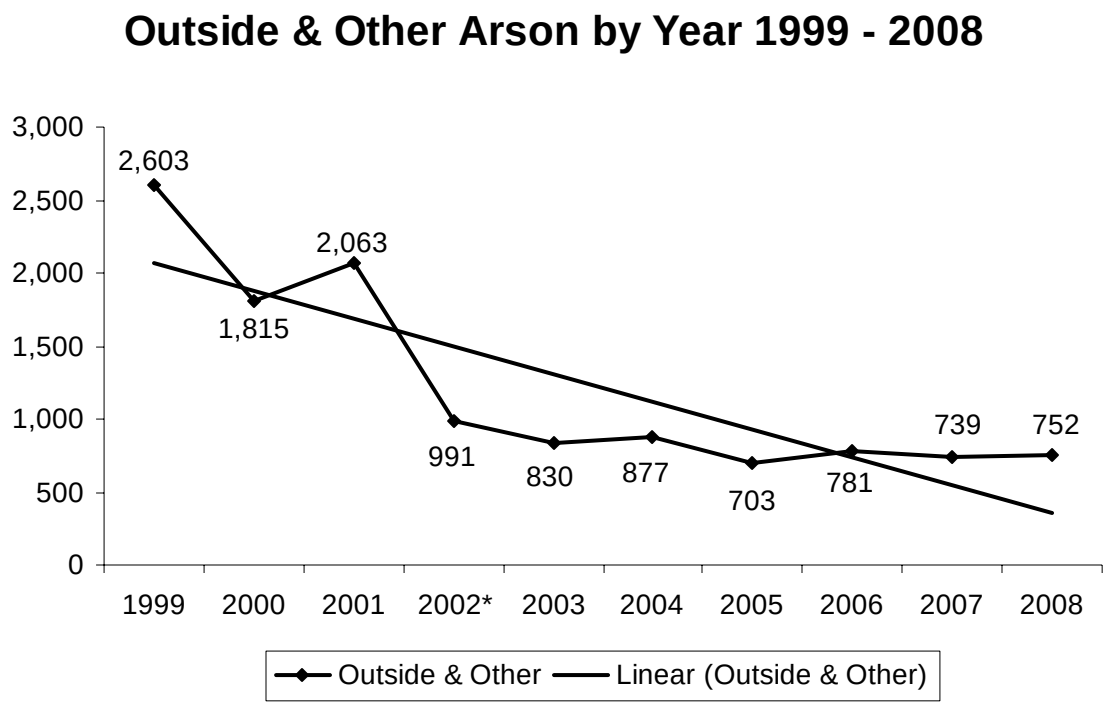
752 Arsons, 3 Civilian Injuries & 1 Fire Service Injury
Seven hundred and fifty-two (752), or 8%, of the total outside and other fires were considered intentionally set in 2008. The three civilian injuries in outside and other arson fires accounted for 1% of the total civilian injuries and 7% of civilian injuries in all

outside and other fires. The one fire service injury accounted for less than 1% of the total fire service injuries and 4% of firefighter injuries associated with outside and other fires. The estimated dollar loss for these arsons was $177,644. The average loss per outside and other arson was $236.

In 2008, 275 outside and other fires were still listed as 'Cause Under Investigation.' There were also 1,758 outside and other fires where the "Cause of Ignition" was listed as 'Undetermined.' In the past (in version 4) many of these fires would have been coded as 'Suspicious' and would have been counted as arsons. The change in coding requirements did create a large drop in reported outside and other arsons but the declining trend has continued during the past five years using the new coding format.

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.



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

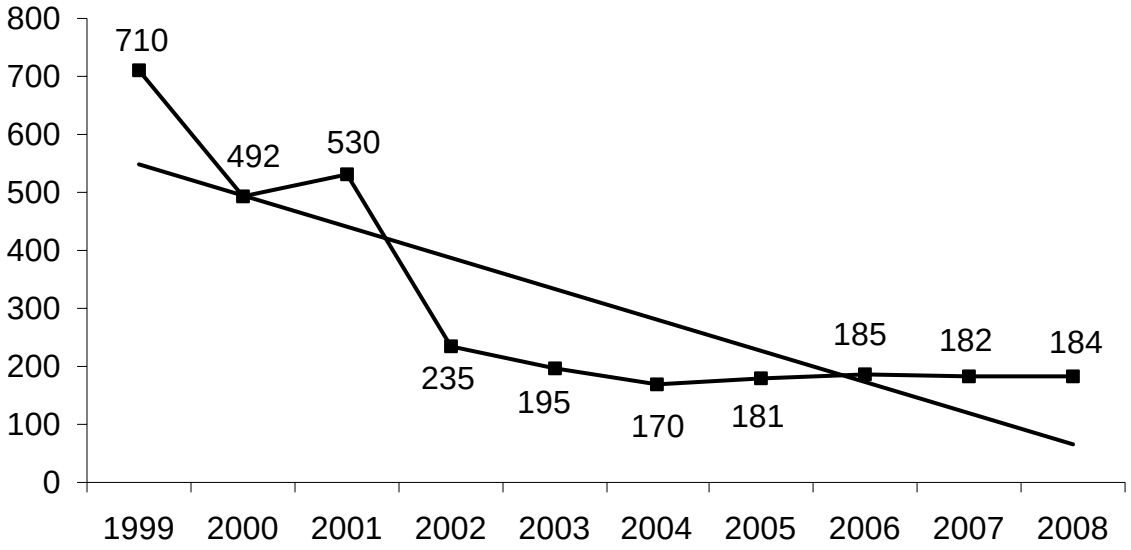
It is important to keep in mind that no-loss fires are voluntarily reported and these numbers represent only a fraction of the problem.

Juvenile-set Fires

Children Playing With Fire Caused 184 Fires, 2 Civilian Deaths & $1.6 Million

In 2008, children playing with matches, lighters and other heat sources caused 184 reported fires, two civilian deaths, nine civilian injuries, four fire service injuries and an estimated dollar loss of $1.6 million. The average dollar loss per fire was $8,789. These fires were up 1% from 182 incidents in 2007. This continues the steady trend over the past five years. Over the past decade however, there has been a continuing downward trend in juvenile-set fires.

Juvenile-Set Fires In Massachusetts 1999 - 2008



Almost 3/4 of Juvenile Firesetters Were Male

The field Motivation Risk Factors is an attempt to identify the possible motivation for the subject to burn, or attempt to burn, any real or personal property. In 2008, all three Motivation Risk Factors[56], mild, moderate and extreme curiosity about fire, had an equal number of children reported to MFIRS. The leading family type was a two-parent family followed by single-parent family. When age was given, the majority of

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

the subjects were between 12 and 17 years old. When gender was completed 72% of the children were listed as males.

93 Structure Fires – 3 Motor Vehicle Fire – 88 Outside & Other Fires
The 182 fires set by children included: 93 structure fires; 56 brush, tree or grass fires; 14 special outside fires; six outside rubbish fires; three motor vehicle fires; and 12 fires that could not be classified further.

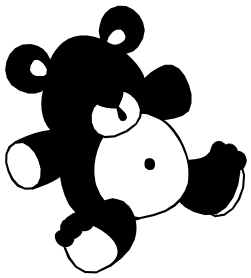
Juvenile-set Structure Fires Cause 2 Civilian Deaths & $1.6 Million in Damages
Two (2) civilian deaths, six civilian injuries and four fire service injuries occurred in the 93 structure fires set by children. Child-set structure fires caused an estimated dollar loss of $1.6 million with an average dollar loss of $16,910 per fire.

Forty-seven percent (47%) of the 93 building fires caused by children occurred in one- or two-family homes; 29% occurred in multifamily homes; and 3% occurred in high schools, junior high schools or middle schools with another 3% occurring in elementary schools. Twenty-six percent (26%) of the juvenile-set fires started in the bedroom; 12% started in the bathroom; and 11% began in the kitchen.

65% of Structure Fires Set by Children Using Smoking Materials
Sixty-five percent (65%), of juvenile-set fires were started by smoking materials[57]. Thirty-five percent (35%) of the structure fires set by children were started with lighters. Twenty-nine percent (29%) of the structure fires were started using matches. Two percent (2%) were caused by cigarettes. Unclassified open flames were the heat source for 8% of juvenile-set fires in 2008. Six percent (6%) of the juvenile-set structure fires were started by fireworks. Radiated heat from operating equipment caused 4% of these fires, and candles started 4%. This demonstrates a need for education to both parents and children on the danger of matches and lighters, the use of illegal fireworks and safer candle use.

Child with Candle Sets Abandoned Church Ablaze

- On January 13, 2008 at 6:05 p.m., the Lawrence Fire Department was called to a fire at an abandoned church caused by a 12-year old boy misusing a candle. No one was injured at this fire. Detectors were not present and the building was not sprinklered. Damages were estimated to be $300,000. This was the largest loss juvenile-set fire in Massachusetts in 2008.



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

- Make sure that all matches and lighters are stored out of children's reach.
- If you need a lighter, buy one that is child resistant. Since, 1994, all disposable butane lighters and most novelty-lighters must be able to resist the efforts of 85% of children

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

under five who tried to operate them in a specified test. Some are easier to use than others. If one brand is cumbersome, switch to another. *Do not disable the child-resistant feature.*

- Supervise young children at all times. Teach children the safe uses of fire, such as birthday candles and barbecuing. When a child is old enough, let him or her light the candles while you watch. It is only safe for children to use fire when adults are present.
- If your child seems overly curious about fire or has set a fire, call your local fire department and ask if they have a juvenile firesetting intervention program. Don't assume the child will 'grow out of it.' Juvenile firesetting is dangerous and must be addressed.
- Smoking parents should keep their lighter on their person at all times, not on the table or in a purse.
- Fireworks are illegal in Massachusetts. Adults should leave the fireworks to the professionals in order to protect everyone's children

Child with Lighter Causes 2 Civilian Deaths

- On April 10, 2008, at 7:25 p.m., the Holyoke Fire Department was called to a fatal juvenile-set fire in a single-family home. The victims, a 1-year old girl and her 4-year old brother, were both in the room where their older brother had a cigarette lighter. He accidentally lit something on fire. A 20-year old man was burned when he went into the burning home and brought all three of the children out. They were all transported to a local hospital where the two victims later succumbed to their injuries. Detectors were present but it was undetermined if they operated. There were no smoke detectors. No estimation of the damages was made for this fire.

Tip of the Iceberg

These fires should be considered just the tip of the iceberg. Juvenile firesetting programs have found that only one in 10 juvenile-set fires are actually reported to the fire department. In addition, state police fire investigators assigned to the Office of the State Fire Marshal have determined that another fatal fire in 2008 was started by juveniles, and have forwarded their findings to the district attorney who has their own ongoing investigation and have not made their findings public yet.

Cooking Fires

Cooking Caused 9,840 Fires & 2 Civilian Deaths & 92 Civilian Injuries
Unattended cooking, other unsafe cooking practices and defective cooking equipment caused 9,840 fires, two civilian deaths, 92 civilian injuries, 31 firefighter injuries and an estimated dollar loss of $9.5 million. The average dollar loss per fire was $970. Cooking fires accounted for 33% of the total 30,136 fires that occurred in 2008.

Ninety-nine percent (99%) of the fires caused by cooking occurred in structures. The 9,840 fires included: 9,708 structure fires; 53 special outside fires; four motor vehicle fires; one brush fire; and another 74 fires that could not be classified further.

Confined Cooking Fires Account for Almost 1/3 of Total Fires
There were 9,242 cooking fires confined to a non-combustible container. These 9,242 fires represent 31% of the total 30,136 fires that occurred in Massachusetts in 2008. This is the largest single cause of fires in Massachusetts. These fires are also a 12% increase over the 8,247 confined cooking fires that were reported in 2007.

83% of Cooking Fires Were Unintentional
In 976, or 83% of the 1,172 cooking fires where the 'Cause of Ignition' was reported, it was reported as unintentional. Seven percent (7%) of these fires were the result of a failure of equipment or heat source. Only 1% of the reported cooking fires were classified as intentional. In 7% of cooking fires, the cause of ignition was undetermined. Eight thousand six hundred and sixty-one (8,661), or 88%, of all cooking fires, were fires contained to non-combustible containers that did not require having a cause reported.[58]

Unattended Cooking Starts 13% – Stand by Your Pan!
Human error was responsible for the majority of cooking fires. Thirteen percent (13%) of cooking fires where 'Factors Contributing to Ignition' was completed were caused by unattended cooking; 5% were caused by the misuse of materials or product; 5% of the fires started because the cooking equipment had not been cleaned; 4% were caused by combustibles left too close to the cooking equipment; 3% started when the equipment was accidentally turned on or not turned off; and another 3% were caused by abandoned or discarded cooking materials. Eighty-eight percent (88%) of cooking fires were confined fires where this data is not collected.

[58] 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 2008
Cooking was the leading cause of injury in fires in 2008. This is not surprising considering that 60%, of residential fires start in the kitchen. Of the 92 cooking fire injuries, 53% of victims were male and 47% were female. Three percent (3%) of victims were under age 10; 3% of the victims were between the ages of 10-14; 15% were 15-24; 14% were 25-34; 27% were 35-44; 13% were 45-54; 10% were 55-64; 9% were 65-74; 1% were 75-84 and 3% were over the age of 85. People aged 25 to 54 accounted for 55% of the people injured in cooking fires.

92% of Victims in Room or Area of Fire Origin
Of the 74 cooking fire injuries where location at ignition is known 92% of the victims were injured in the room or area of fire origin. Fifty-six percent (56%) were intimately involved with the ignition; 36% of victims were in the room or space of fire origin but not involved; 1% were not in the area of origin but involved, most likely these are the people who initially left the cooking unattended; and 7% were not in the area of origin and not involved.

Almost 2/3 of Cooking Injuries Occurred When Trying to Control Fire
Almost two-thirds of cooking injuries occurred when trying to control the fire. Of the 65 cooking fire injuries for which activity at time of injury was known, 65% of victims were attempting to control the fire; of the 42 victims injured while attempting to control the fire 55% were male. Twelve percent (12%) were escaping; 5% were unable to act; 3% were attempting to return to the vicinity of the fire before the fire was under control; 3% acted irrationally; 2% were attempting a rescue; and 11% 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 78 cooking fire injuries where nature of injury was known, 31% suffered only from smoke inhalation, hazardous fumes inhalation or breathing difficulty; 33% of victims suffered only from thermal burns; 17% suffered from burns and asphyxia; 9% received scald burns; and 3% of cooking fire injuries were attributed each to cuts or lacerations.

2 Civilian Fire Deaths in 2008
While cooking is the leading cause of residential building fires, there were two civilian fire deaths attributed to cooking fires in 2008.

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 the highest risk of being injured in a cooking fire. They must be persuaded that they can indeed safely lower themselves to the ground and roll to smother the flames. They should also wear tight fitting clothes to keep from having their sleeves ignite while they are cooking.

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

Fires Caused by Smoking

Smoking Caused 5% of Fires and 24% of Deaths

During 2008, 1,558, or 5%, of the 30,136 reported incidents were caused by the improper use or disposal of smoking materials. These 1,558 fires caused 12, or 24% of the 49 civilian deaths and 11, or 25%, of the 44 structure fire deaths, 31 civilian injuries, 45 fire service injuries, and an estimated dollar loss of $29.6 million. The average dollar loss per fire was $18,989. The number of smoking fires decreased by 26% from 2,119 in 2007 to 1,558 in 2008.

489 Structure Fires - Down From 665 In 2007

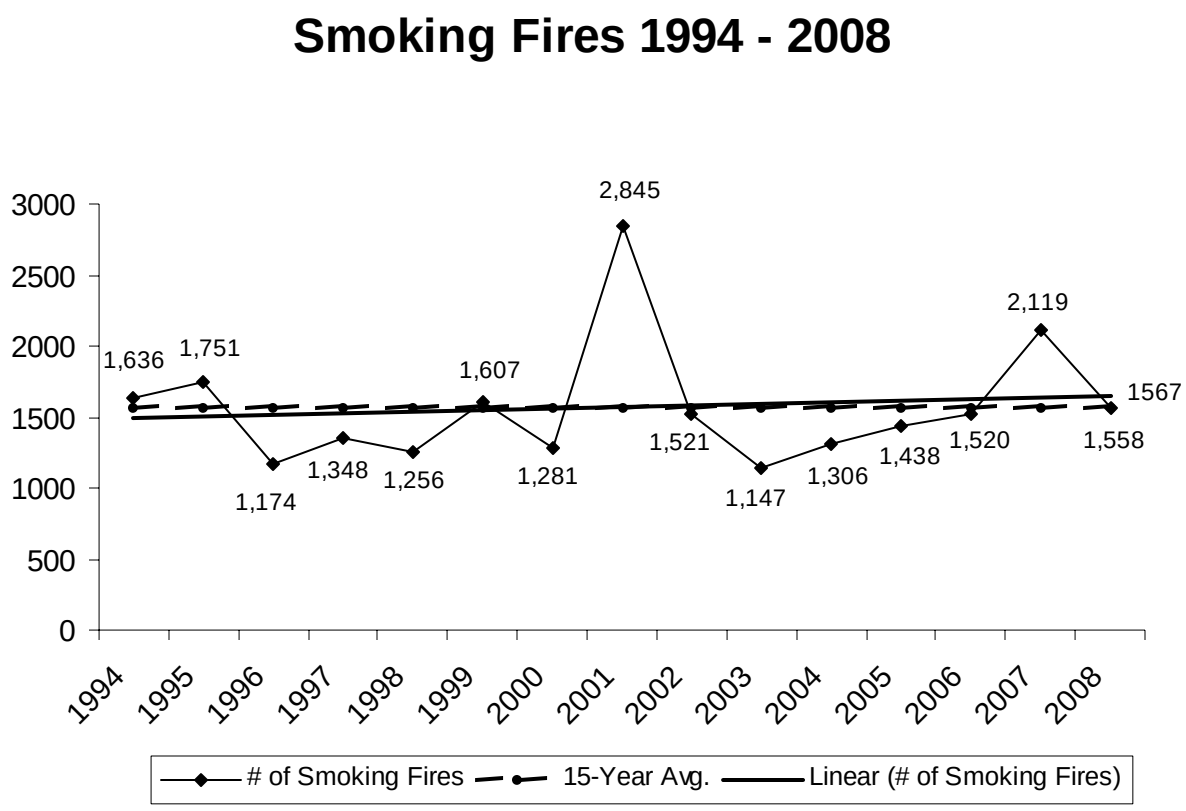
The 1,558 fires caused by smoking included: 489 structure fires, down from 665 in 2007; 43 motor vehicle fires, down from 44 in 2007; 794 tree, brush or grass fires, down from 1,125 in 2007; 81 trash or rubbish fires, down from 93 in 2007; 90 special outside fires, down from 139 in 2007; 10 cultivated vegetation or crop fires, down from 23 in 2007, and 51 fires that could not be classified further, up from 30 in 2007.

The total number of fires caused by smoking has decreased by 561, or 26%, from 2007. The largest decrease came in brush fires, with a decrease of 331, or 29%, from the 1,125 reported in 2007. Structure fires also saw a significant decrease in fires started by smoking materials. They decreased by 170, or 26%, for the 657 reported in 2007.

This drop in smoking related fires goes against the previous increasing trend.

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 one year drop from 2007 to 2008 should be viewed cautiously and interpreted as a return to an average year's worth of these types of

fires after a one year spike. The 2008 number has returned to a slight increase over the 2006 figure and one that is near the 15 year average.

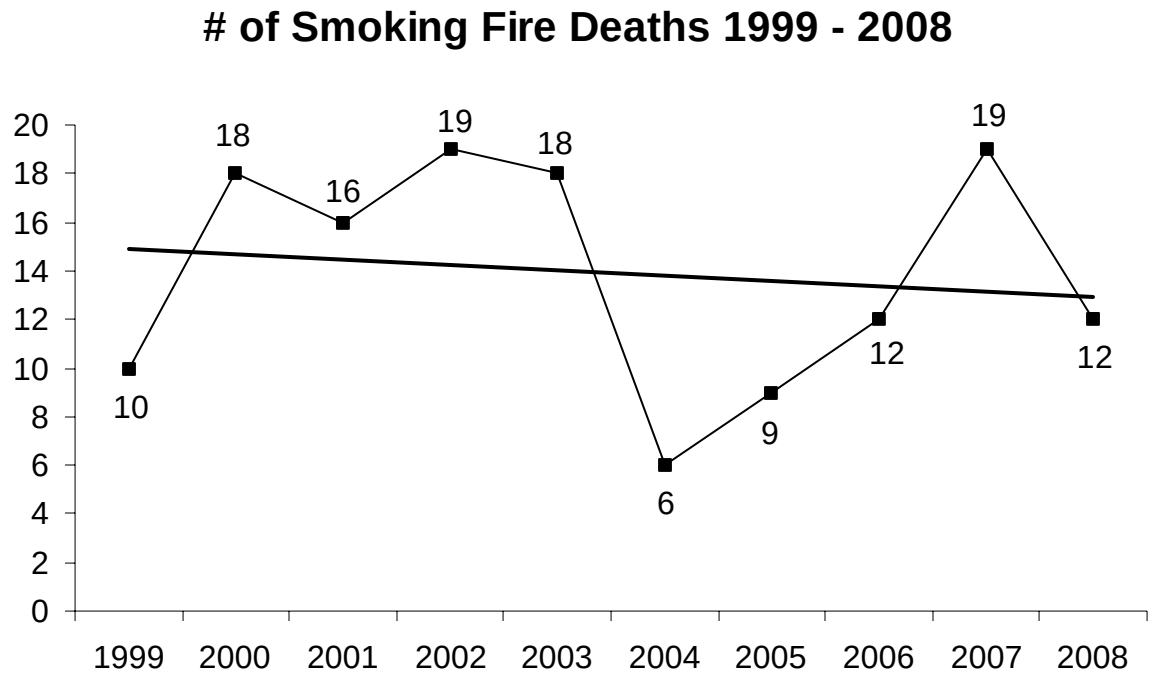


83% of All Smoking Building Fires Occurred in Residences
Eighty-three percent (83%) of all smoking-related building fires occurred in residential occupancies. The occupancies with the next highest percentages of smoking-related structure fires in Massachusetts in 2008 were mercantile and business properties accounting for 5% and storage facilities accounting for 3%.

A reason for this is all of the new statutes that prohibit smoking in public places. These new laws have forced smokers to smoke outside where they may not be as careful disposing of their cigarettes or cigars. People are now more likely to smoke more heavily at home because it is one of the few 'sanctuaries' where they can partake in smoking.

Smoking is the Leading Cause of Fire Deaths
The 489 smoking-related structure fires caused 11 of the 12 smoking-related fire deaths, 25 civilian injuries, 45 fire service injuries, an estimated dollar loss of $29.4 million and an average dollar loss of $60,052. Smoking fires accounted for 39% of the fatal structure fires and 25% of structure fire deaths in 2008. The unsafe and improper use of smoking materials caused 24% of residential structure fire deaths and 35% of fatal residential structure fires. Four (4), or 33%, of the 11 home fire deaths to seniors (over 65) were caused by smoking.

2008 is 14% Below the 10-Year Average of Smoking Fire Deaths
In 2008, 12 people died in smoking-related fires of all types. These 12 deaths are 14% below the 10-year average of 14 smoking-related fire deaths per year since 1999. After high-water marks of 19 deaths in 2002 and 18 deaths in 2003, smoking-related fire deaths dropped drastically. In 2004, six people died in smoking fires. In 2005, nine people died; and in 2006, 12 people died in smoking-related fires of all types, with 2007 topping out again with 19 deaths.



No Working Detectors in 27% of Fatal Smoking Fires
In three, or 27%, of fatal residential smoking fires, there were no working smoke detectors; two of these incidents occurred where smoke detectors did not operate. One (1) of these deaths occurred where there was no detector present at all. Three (3) smoking fatal fires occurred in a structure where smoke detectors were present and operated, however many of these victims were intimately involved with the ignition when they fell asleep while smoking. The smoke detectors helped prevent these fires from claiming any additional lives. In the five other fires, the smoking-related death occurred where smoke detector status was undetermined.

For a listing of all the smoking-related fire deaths in 2008, please refer to the *2008 Massachusetts Fire Deaths* section of this report.

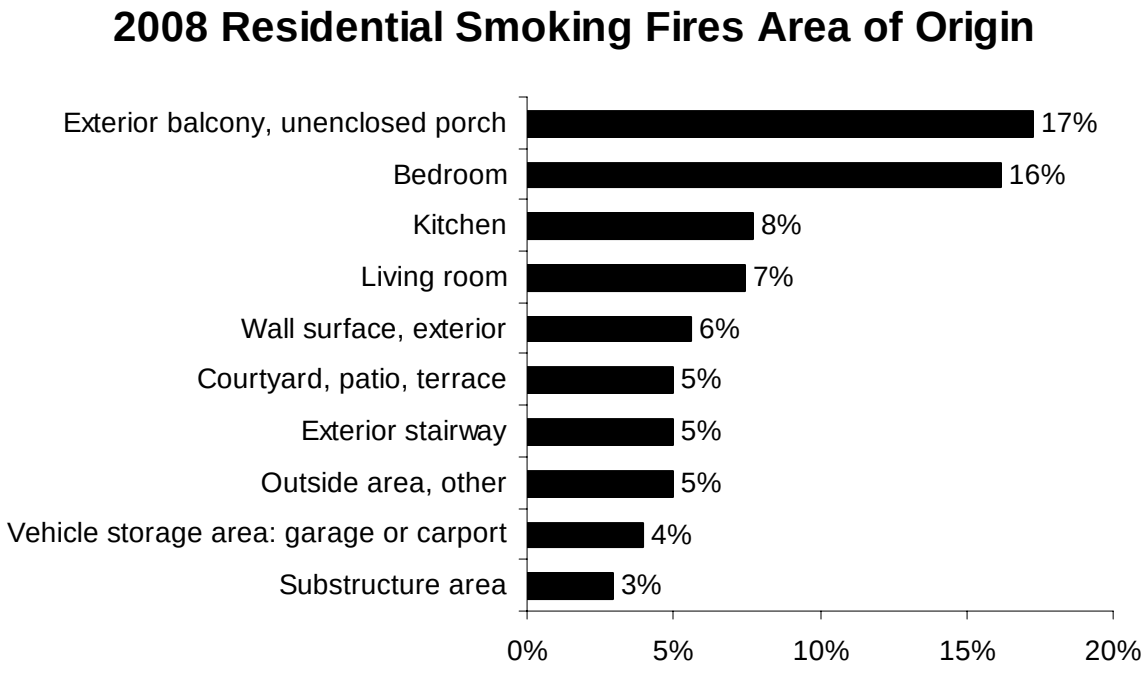
Smoking on Oxygen
The use of oxygen while smoking caused three of the smoking-related structure fire deaths in 2008. These three deaths occurred in three separate fires in West Springfield,

Lunenburg and Hadley. Two (2) of these deaths occurred in a apartment buildings and one occurred in a hotel.

83% of Building Smoking Fires Occurred in Residences
Of the 455 smoking-related building fires, 377, or 83%, occurred in residences. Smoke detectors operated in 42% of the smoking-related residential structure fires. Detectors were present but failed to operate in 7% of these incidents. No smoke detectors were present in 12% of these incidents. In 20%, the fire was too small to activate the smoke detector. It was undetermined if the detectors were present or if they operated in 19% of these fires.

1/3 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 2008. These exterior area of origins accounted for 156, or one-third, 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 fire starting in these areas.

The leading areas of origin were exterior balconies or porches, where 17% of residential smoking fires occurred; bedrooms, where 16% of the fires occurred; kitchens, where 8% of the fires occurred; living rooms, where 7% of the fires occurred; exterior wall surfaces, where 6% started; exterior stairways, where 5% started; courtyards, patios and terraces and unclassified outside areas where another 5% each started; unclassified outside areas, were 5% started; garages or carports where 4% began, and substructure areas where 3% of smoking fires started in homes. This is the first year where bedrooms were not the leading area of origin for smoking fires.



Fire Standard Compliant Cigarettes
In January of 2008, the Resistant Ignition Propensity (RIP) legislation or 'fire safe cigarette' law making it mandatory for cigarette manufacturers to start selling only the fire standard compliant type of cigarettes in Massachusetts took effect. There is no federal standard for self-extinguishing cigarettes despite nearly 20 years of proposed legislation. However by the end of 2008 all Northeast and Mid-Atlantic states had enacted legislation that made the sale of fire standard cigarettes mandatory[59]. By the end of 2009 only Wyoming[60] will not have enacted a version of this legislation. On January 1, 2011, every state except Wyoming will have implemented their own state law banning the sale of ordinary cigarettes.

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

Smoking Fires Ignite Rubbish, Bedding & Upholstered Furniture
The most common items first ignited by smoking fires in the home was rubbish, trash or waste, accounting for 17% of these smoking fires. Many more of these fires go unreported because of the confined indoor trash fires where the Fire Module does not have to be completed and therefore no causal information is collected. Also the new fire standard cigarettes may have little or no impact on trash fires, as they are not designed to resist igniting these items. Another 17% of smoking fires ignited upholstered furniture and bedding. If smokers were using fire standard compliant cigarettes, many of these fires could have been avoided.

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.

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 2008, 4% of these fires ignited light vegetation, mostly potted plants on balconies or porches

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.

[59] From the Coalition for Fire-Safe Cigarettes.
[60] Wyoming has filed this legislation (HB #305) in 2009.

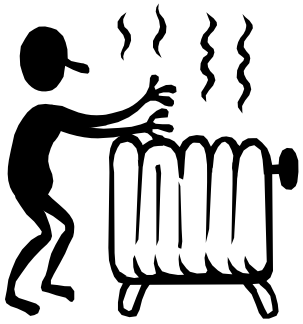
While everyone needs at least one working smoke detector on every level of their home, this is even more important to smokers because of the high risk of fire death. Placing a detector inside every bedroom increases the probability that if a fire occurs, residents will wake up in time to escape. A cigarette 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.

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.”[61]

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

Heating Equipment Fires



2,767 Fires, 5 Civilian Deaths, 25 Fire Service Injuries
Massachusetts fire departments reported that some form of heating equipment was involved in 2,767, or 16%, of the 17,042 building fires in 2008. These heating equipment fires caused five civilian fire deaths, 17 civilian injuries, 25 fire service injuries, and an estimated dollar loss of $9.3 million. The average loss per fire was $8,818.

93% of All Heating Fires Were Confined Fires
In 2008, 93% of heating fires were confined to the container of origin. One thousand six hundred and seventy-one (1,671), or 60% of all heating related building fires in Massachusetts, were coded as fuel burner/boiler malfunction, fire contained.

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

Eight hundred and eighty-nine (889), or 32%, were determined to be chimney or flue fires, confined to the chimney or flue.

The number of contained heating fires rose in 2008. Confined heating equipment fires increased by 493 incidents, or 24%, from the 2,067 reported in 2007.

Types of Heating Equipment

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

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

HEATING EQUIPMENT FIRES

Equipment	# of Fires	% of Heat Eq.	Injuries FF	Injuries Civ	Deaths FF	Deaths Civ	Dollar Loss
Central heating units	1,698	61%	9	8	0	0	$1,302,158
Confined	*1,635*	*59%*	*3*	*4*	*0*	*0*	*$279,358*
Furnace, central heating unit	*38*	*1%*	*6*	*1*	*0*	*0*	*829,900*
Boiler (power, process, heating)	*25*	*1%*	*0*	*3*	*0*	*0*	*192,900*
Chimney, flue	910	33%	4	1	0	0	1,092,151
Confined (no equip. reported)	*874*	*32%*	*4*	*1*	*0*	*0*	*192,900*
Fireplace, chimney, other	*10*	*0.4%*	*0*	*0*	*0*	*0*	*131,000*
Chimney, brick, stone, masonry	*9*	*0.3%*	*0*	*0*	*0*	*0*	*205,000*
Chimney connector, vent connect.	*1*	*0.04%*	*0*	*0*	*0*	*0*	*45,000*
Chimney, metal, incl. stovepipe	*16*	*1%*	*0*	*0*	*0*	*0*	*517,751*
Fixed, local heating	65	2%	5	3	0	1	1,974,555
Stove, heating	*45*	*2%*	*3*	*2*	*0*	*1*	*974,755*
Furnace, local heat. unit, built-in	*20*	*1%*	*2*	*0*	*0*	*0*	*999,800*
Water heater	17	1%	0	1	0	0	100,300
Fireplace	25	1%	3	2	0	0	2,076,758
Fireplace, masonry	*14*	*0.5%*	*2*	*2*	*0*	*0*	*761,500*
Fireplace, factory built	*2*	*0.1%*	*1*	*0*	*0*	*0*	*1,157,958*
Fireplace insert/stove	*9*	*0.3%*	*0*	*0*	*0*	*0*	*157,300*
Space heaters	31	1%	1	2	0	4	1,568,500
Portable space heaters	*11*	*0.4%*	*1*	*1*	*0*	*3*	*649,000*
Heating, vent. & air cond., other	38	1%	2	1	0	0	524,400
Total	**2,767**	**100%**	**25**	**17**	**0**	**5**	**$9,327,422**

Central Heating Units

1,698 Fires, 8 Civilian Injuries & 9 Fire Service Injuries
Central heating units[62] were involved in 1,698 structure fires in 2008. These fires caused eight civilian injuries, nine fire service injuries, and an estimated dollar loss of $1.3 million. The average loss per fire was $767. One thousand six hundred and seventy-one (1,671) of these fires involving central heating units were confined fires.

10% Caused by Mechanical Failures or Malfunctions
Of the 175 central heating unit fires where Factors Contributing to Ignition was completed, 10% were caused by mechanical failures or malfunctions; 7% were caused by backfires; 4% were caused because combustibles were placed too close to the heater; automatic control failures caused 4%; and a failure to clean the equipment caused 2% of these fires in 2008.

Forty-two (42), or 49%, of the 86 central heating unit fires where the power source was known were caused by liquid-fueled equipment. These fires caused four civilian service injuries and an estimated dollar loss of $459,500. The average loss per fire was $10,940.

Twenty-three (23), or 27%, were caused by electrically powered equipment[63]. Seventeen (17), or 20%, of the central heating unit fires were caused by gas-fueled equipment; two, or 2%, were caused by wood-fueled equipment; and two, or 2% were caused steam powered 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.

[62] 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.
[63] Version 5 has a data field called Equipment Power Source that describes the power source of the equipment involved in ignition.

Chimney Fires

910 Fires Caused 4 Fire Service Injuries & $1 Million in Damages
Nine hundred and ten (910) building fires involved chimneys[64], gas vent flues, chimney connectors or vent connectors. These 910 fires caused one civilian injury, four fire service injuries and an estimated dollar loss of $1 million. The average dollar loss per fire was $1,200.

Eight hundred and seventy-four (874) of these chimney or flue fires were confined to the chimney or flue. Eight hundred and forty-three (843) of these did not report any equipment involved or they were reported using only a Basic Module.

Eighteen percent (18%) of the 183 fires where Factors Contributing to Ignition was reported, were caused by a failure to clean the creosote buildup; 3% were when combustibles were too close to the chimney or flue; another 3% were caused by a leak or break; and 2% were caused by installation 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 chimney fire.

Fixed Heater Fires

65 Fires, 1 Civilian Death, 5 Fire Service Injuries & $2 Million
Sixty-five (65) fixed heater structure fires caused one civilian death, three civilian injuries, five fire service injuries and an estimated dollar loss of nearly $2 million. The average dollar loss per fire was $30,378.

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.

18% Caused by Combustibles Being Too Close to the Heat Source
Eighteen percent (18%) of fixed heater fires were caused by combustibles being too close to the heat source. Eight percent (8%) were caused from the heater being left unattended. Unclassified mechanical failures and a failure to clean the equipment each caused 6% of

[64] 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.

these fires. Abandoned materials and unclassified misuse of materials each caused 5% of the fixed heater fires in 2008.

Electrical powered fixed heaters caused 21, or 36%, of these fires and were responsible for two civilian injuries and a dollar loss of $387,380. Fifteen (15), or 25%, were caused by gas-fueled fixed heaters and they were responsible for one civilian injury, three fire service injuries and a dollar loss of $928,875. The average loss per fire was $61,925. Seventeen (17), or 29% of fixed heater fire incidents in 2008, involved solid fueled fixed heaters, 15 of which were wood fueled. These fires caused one civilian death and an estimated dollar loss of $326,800 and the average dollar loss was $19,224. Six (6), or 8%, of these heater fires were caused by liquid-fueled heaters, and they were responsible for one civilian injury and $155,000 in losses. There were six fires where the power source of the fixed heater was undetermined. These were excluded from the calculations.

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

- Keep the temperature within the manufacturer's suggested range. Wood and coal stoves should be operated at moderate heat. If the fire is too low, creosote, a black tarry fire by-product, may accumulate in the chimney and eventually cause a fire. If the fire is too hot, nearby combustibles or creosote in the chimney could ignite.

- Only burn fuels intended for use in these stoves. Other items may cause overheating and the release of toxic gases. Never use gasoline or flammable liquids to stoke the fire — doing so could cause a flash fire or explosion.

- Install and regularly test smoke and carbon monoxide detectors.

- Have your chimney cleaned and inspected for creosote build-up before each heating season, and check it at least once a month during the season.

- Place ashes in a covered metal container until they are completely cool. Store outdoors, away from the house, porch or other outside buildings. Hot ashes may stay "live" for 24 hours.

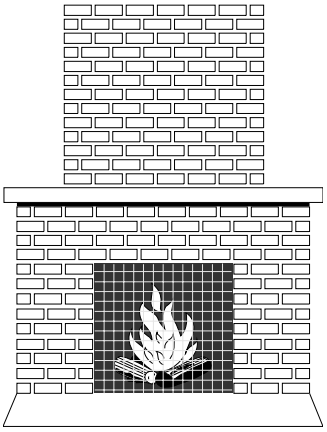
Fires Caused by Hot Water Heaters

17 Fires, 1 Civilian Injury & $100,300 in Damages
Seventeen (17) structure fires were caused by hot water heaters[65] in 2008. These 17 fires caused one civilian injury and an estimated dollar loss of $100,300. The average dollar loss per fire was $5,900. Leaks or breaks caused 12% of these fires. Forty-one percent (41%) of these fires were started by arcing, and 24% were ignited from a spark, ember or flame from operating equipment and.

Sixty-five percent (65%) were identified as electric powered water heaters. Thirty-five percent (35%) of the 17 fires involving hot water heaters were identified as gas-fueled water heaters.

Fires Caused by Fireplaces

25 Fires, 3 Fire Service Injuries & $2.1 Million in Damages
Twenty-five (25) fireplaces[66] were involved in Massachusetts structure fires in 2008. These 25 fires caused two civilian injuries, three fire service injuries and an estimated dollar loss of $2.1 million. The average dollar loss per fire was $83,070.



Installation deficiencies caused 24% of fireplace fires; and construction deficiencies caused 16%. Eight percent (8%) each were caused when combustibles were placed too close to the fireplace and from unclassified mechanical failures.

Twenty (20), or 87%, of fireplaces involved in fires were solid-fueled. Two (2), or 9%, of these fireplaces were gas fueled. One (1) incident, or 4% was electric. There were two incidents were the power source was unknown, these incidents were not included in the above calculations.

Space Heater Fires

31 Fires, 4 Civilian Deaths, 2 Civilian Injuries & 1.6 Million in Losses
Space heaters of all kinds accounted for 31 fires and caused four civilian deaths, two civilian injuries, one fire service injury, and an estimated dollar loss of nearly $1.6 million. The average dollar loss per fire was $50,597.

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

Portable Space Heater Fires

11 Fires, 3 Civilian Deaths 1 Civilian Injury & 649,000
Eleven (11) portable space heater[67] fires caused three civilian deaths, one civilian injury, one fire service injury and an estimated dollar loss of $649,000. The average dollar loss per fire was $59,000. The heater being too close to combustibles caused 55% of these fires. Unclassified electrical failures caused 9% of the space heater fires in 2008.

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

History has taught us that the larger heating fire problem is from portable space heater fires. Though not many in number, they usually result in a high number of deaths. During the past five years (2004– 2008), there have been 57 reported residential fires started by portable space heaters with nine civilian deaths and eight civilian injuries resulting from these fires. That is one fire death for every six 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.
- If you must use an extension cord, make sure it is a heavy-duty cord marked with a power rating as least as high as that on the label of the heater itself.
- Never leave a space heater unattended or running while you sleep.
- Keep electric heaters away from water. Never use them near a sink or in the bathroom.
- Do not use space heaters to thaw pipes. They were not designed for this task. Space heaters must be kept at least 3 feet away from any combustibles including walls and wall coverings.

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

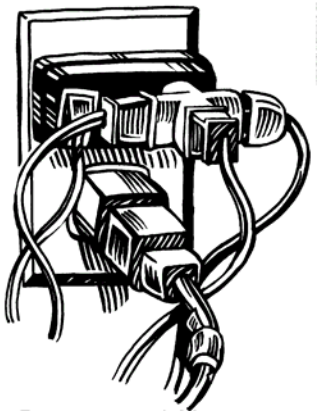
[67] These include all structure fires with Equipment Involved = Between 141 and 143; and Equipment Portability = 1: Portable

Fires Caused by HVAC, Other

38 Fires, 2 Fire Service Injuries and $524,000 in Damages
Thirty-eight (38) structure fires were caused by unclassified heating, ventilation and air conditioning equipment (HVAC, other)[68] in 2008. These 38 fires caused one civilian injury, two fire service injuries and an estimated dollar loss of $524,400. The average dollar loss per fire was $13,800. Unclassified electrical failures or malfunctions caused 13% of these fires; unclassified mechanical failures caused 11%; and combustibles placed too close to the equipment caused 8% of these fires.

Sixty-five percent (65%) of the 34 fires involving unclassified heating, ventilating or air conditioning equipment were identified as electric powered. Twenty-one percent (21%) were identified as gas-fueled equipment, and 15% were identified as liquid-fueled equipment. The power source was unknown for four of these incidents. These four were not included in the above calculations.

Electrical Fires



825 Electrical Fires Caused 10 Civilian Deaths
Local fire departments reported that there were 825 structure fires caused by electrical problems in Massachusetts in 2008. These fires caused 10 civilian deaths, 39 civilian injuries, 102 fire service injuries and an estimated dollar loss of $43.6 million, 17% of the total dollar loss to fire in 2008. The average loss per fire was $52,856.

Electrical Fires Were the 2nd Leading Cause of Fire Deaths
Electrical fires were the second leading cause of structure fire deaths in 2008. Seven (7) fatal electrical fires, or 18% of fatal structure fires, caused 10, or 16%, of structure fire deaths in 2008. 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. The new criteria 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.

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

Unspecified Electrical Failure Responsible for Almost 1/3 of Electrical Fires[69]
Almost one-third of electrical fires caused by unspecified electrical failure. Two hundred and forty-eight (248), or 30% of electrical fires, were caused by an unclassified electrical failure or malfunction. One hundred and forty-four (144), or 17%, were caused by an unspecified short circuit arc. Seven percent (7%), or 56 of these fires, had a short circuit arc from defective or worn insulation. An arc or spark from operating equipment caused 33, or 4% of these fires. Thirty (30), or 4%, of electrical fires were caused by a short circuit arc from mechanical damage. Mechanical failures caused 23, or 3% of these electrical fires. Twenty (20), or 2%, of electrical fires were caused by an arc from a faulty contact or broken conductor. Two percent (2%), or 16 of the fires, were caused by overloaded equipment. The heat source being too close to combustibles also caused 14, or 2%, of these fires. Water caused a short circuit arc in 13, or 2%, of electrical fires in 2008.

Electrical Equipment Fires

Three hundred and thirty (337), or 41%, of the 825 electrical fires reported the type of equipment involved in ignition. These 337 fires caused five civilian deaths, six civilian injuries, 52 fire service injuries and an estimated dollar loss of $13.2 million. The average dollar loss per fire was $42,681.

114 Electrical Service, Wiring, Meter Boxes & Circuit Breaker Fires
The most common reported equipment involved in ignition in electrical fires was electrical service, wiring, meter boxes and circuit breakers accounting for 114, or 34%, of the fires. These fires caused one civilian injury, 23 fire service injuries and an estimated dollar loss of $6.6 million. The average dollar loss per electrical wiring fire was $57,975.

Lamp, Lighting Fixtures Involved in 57 Fires
Lamps and other lighting fixtures were involved in 57, or 17%, of electrical equipment fires where equipment involved in ignition was reported. These fires caused one civilian death, 15 fire service injuries and an estimated dollar loss of $1.7 million. The average loss per fire was $30,263.

37 Fires Involving Kitchen & Cooking Equipment
Thirty-seven (37) electrical equipment fires involving kitchen or cooking equipment caused three civilian injuries, two fire service injuries and an estimated dollar loss of $747,652. These fires accounted for 11% of the structure fires involving electrical

[69] *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%.

equipment when equipment involved in ignition was reported. The average dollar loss per fire was $20,207.

Ventilation & Air Conditioners Caused 33 Fires
Thirty-three (33), or 10%, of the structure fires involving known electrical equipment were caused by air conditioning or ventilation units. These fires caused two civilian deaths, four fire service injuries and an estimated dollar loss of $1.4 million. The average dollar loss per fire was $42,300.

Heating Equipment Caused 18 Fires[70]
Eighteen (18), or 5%, of the structure fires involving known electrical equipment were caused by various heating equipment. These electrical fires involving heating equipment caused an estimated dollar loss of $139,900. The average dollar loss per fire was $7,772.

Household Appliances (Non-Cooking) Caused 17 Fires
Non-cooking household appliances such as clothes dryers, washing machines and trash compactors, caused 17, or 5%, of the 337 electrical structure fires where equipment involved in ignition was reported. These 17 fires caused an estimated $279,950 in damages. The average dollar loss was $116,468.

Transformer, Generator, Battery or Chargers Caused 17 Fires
Transformers, generators, batteries and chargers were involved in 17, or 5%, of the electrical fires where equipment involved in ignition was reported. These fires caused one fire service injury and an estimated dollar loss of $269,500. The average loss per fire was $15,853.

15 Fires Involving Electronic & Other Electrical Equipment
Fifteen (15) electrical equipment fires involving electronic and other electrical equipment caused three fire service injuries and an estimated dollar loss of $347,500. These fires accounted for 4% of the structure fires involving reported electrical equipment. The average dollar loss per fire was $23,167.

Cords or Plugs Caused 14 Fires
Fourteen (14), or 4%, of the structure fires where electrical equipment involved was reported were caused by cords or plugs. These fires caused one civilian death, one civilian injury, two fire service injuries and an estimated dollar loss of $867,110. The average dollar loss per fire was $61,936.

7 Fires Involving Unspecified Electrical Distribution Equipment
Seven (7) electrical equipment fires involving unspecified electrical distribution equipment caused one civilian death, two fire service injuries and an estimated dollar loss of $661,000. These fires accounted for 2% of the building fires involving reported electrical equipment. The average dollar loss per fire was $94,429.

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

4 Fires Involving Shop Tools & Industrial Equipment
Four (4) electrical fires involving shop tools or industrial equipment caused an estimated dollar loss of $152,000. These fires accounted for 1% of the structure fires involving electrical equipment. The average dollar loss per fire was $25,500.

3 Fires Involving Decorative Lighting & Signs
Three (3) electrical fires involving decorative or landscaping lights or electric signs caused one civilian injury and an estimated dollar loss of $16,711. These fires accounted for 1% of the structure fires involving electrical equipment. The average dollar loss per fire was $5,570.

1 Fire Involving Commercial or Medical Equipment
One (1) electrical fire involving unclassified dental equipment caused an estimated dollar loss of $3,500. This fire accounted for less than 1% of the structure fires involving electrical equipment. The average dollar loss per fire was $3,500.

488 Unspecified Electrical Equipment Fires Caused $30 Million in Damages
There were 488 electrical fires where the piece of equipment involved in ignition was unknown or not reported. These 488 fires caused five civilian deaths, 33 civilian injuries, 50 fire service injuries and an estimated dollar loss of $30.4 million. The average dollar loss per fire was $62,379.

Large Loss Electrical Fire
There were six large loss ($1 million+) electrical fires in 2008. These six fires caused an estimated $9.8 million in damages, accounting for 22% of the total dollar of electrical structure fires in 2008. There were also 114 fires with estimated damages between $100,000 and $999,999.

- On June 10, 2008 at 5:02 p.m., the Boston Fire Department was called to an electrical fire in a restaurant. The fire began with unspecified arcing in an equipment room. No one was injured at this fire. It was undetermined if sprinklers or smoke detectors were present. Damages from this fire were estimated to be $2.5 million.

Electrical Fire with Most Civilian Injuries
- On December 7, 2008 at 6:51 a.m. the Boston Fire Department was called to an electrical fire in a 154-unit apartment building. The fire started when mechanical damage caused a short circuit. There were seven civilian injuries at this fire. Detectors were present and alerted the occupants. The building was not sprinklered and damages from this fire were estimated to be $500,000.

Electrical Fire with Most Fire Service Injuries
- On February 3, 2008, at 7:37 p.m., the Milton Fire Department was called to a fatal electrical fire in a single-family home. A lamp was too close to an upholstered chair and the heat from the light bulb ignited the chair. The victim, a 59-year old man, was trapped on the second floor and overcome by the heat and smoke. Twelve (12)

firefighters were injured at this fire. Smoke detectors and sprinklers were not present. No estimation of the damages was made for this fire.

3/4 of Electrical Fires Occurred in Residential Occupancies

Three-quarters of electrical fires occurred in residential occupancies. Of the 821 electrical fires, 614, or 75% occurred in residential occupancies. Seventy-nine (79), or 10%, occurred in mercantile or business properties, such as offices, banks, retail stores or markets. Public assembly buildings like restaurants, libraries and courthouses accounted for 41, or 5%, of these fires. Storage properties accounted for 27, or 3%, of these fires. Institutional buildings such as hospitals and asylums had 22, or 3%, of the electrical fires occur on their premises. Educational properties accounted for 16, or 2%, of Massachusetts' electrical fires in 2008. Manufacturing or processing facilities had 12, or 1%, of these incidents. Six (6), or 1%, of Massachusetts' electrical fires occurred in basic industry properties such as laboratories, communications centers, electrical distribution sites and utility and distribution centers. Four (4), or less than 1%, of electrical fires occurred in special or outside properties

Almost 1/4 of Electrical Fires Began in the Kitchen or Bedroom

Twenty-three percent (23%) of electrical fires began in the kitchen or bedroom. Ninety-four (94), or 12%, originated in the bedroom. Ninety-two (92), or 11%, of the 825 electrical fires occurred in the kitchen. A wall assembly or concealed wall space was the area of origin for 55, or 7%, of these fires. Living rooms, accounted for 54, or 7%, of the electrical fires. The ceiling and floor assembly or crawl space between stories accounted for 6%, or 49, of these electrical fires. The bathroom accounted for 5%, or 43, of the electrical in Massachusetts in 2008.

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

Electrical wiring was the item first ignited in over one-third of electrical fires. In 292, or 35%, of electrical fires, electrical wiring or cable insulation was the item first ignited. This includes fixed wiring and appliance cords. In 115, or 14% of these fires, a structural member or framing, was the first item ignited. Appliance housings or casings were the item first ignited in 4% of electrical structure fires. Four percent (4%) of electrical fires first ignited interior wall coverings. Thermal or acoustical insulation within a wall was the item first ignited in another 4% of electrical fires in 2008. Structural components or finishes and exterior sidewall coverings were each the item first ignited in 3% of electrical fires in 2008.

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.

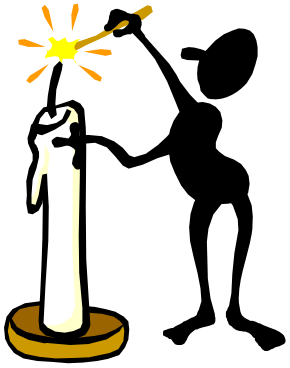
Fuses and circuit breakers are safety devices. They blow or trip when the amount of current cannot safely travel through the wires. *Trying to bypass the fuse or circuit breaker protection is an invitation to danger*.

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

155 Candle Fires Caused 14 Civilian Injuries
In 2008, candles caused 155 fires of all types. These fires caused 14 civilian injuries, 10 firefighter injuries and an estimated dollar loss of $6.3 million in damages. There was a 5% decrease from the 148 fires of all types started by candles in Massachusetts in 2007.



89% of Candle Fires are Structure Fires
Of the 155 candles fires in 2008, 138, or 89%, were classified as structure fires. None were reported as motor vehicle fires. Three, or 2%; were brush fires; two, or 1%, were special outside fires; and 12, or 8%, were unclassified fires.

Candle Fires Happen Most During the Holidays
Between 2004 and 2008, the day of the year the most candle fires occurred was December 24, Christmas Eve, and October 31, Halloween, each with 10 reported candle fires. November 28, December 12 and December 19 each had the third most candle fires during any one day of the year during the past five years with eight.

Newton Has Largest Loss Candle Fire
On October 7, 2008, at 9:00 p.m., the Newton Fire Department was called to a candle fire in a 34-unit apartment building. The fire started when an unattended candle tipped over into a wastebasket in the living room of fourth floor apartment. No one was injured in

this fire. Fortunately fire sprinklers quickly put out the fire. Smoke detectors were also present and operated. Damages were estimated to be $847,000.

96% of Candle Fires Occurred in Homes
Of the 138 candle fires that occurred in buildings, 96% were residential fires. Candles caused 132 residential building fires, 12 civilian injuries, 10 firefighter injuries and an estimated dollar loss of $6 million. Two (2) candle fires, or 1%, occurred at mercantile or business properties; another two candle fires, or 1%, occurred in public assembly properties, and one fire, or 1%, occurred at an institutional facility.

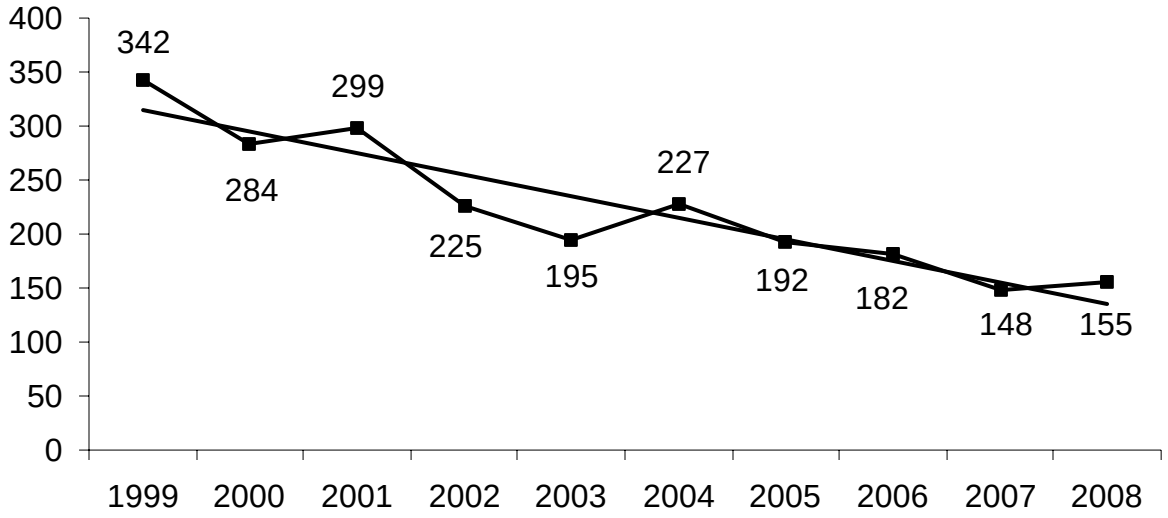
37% of Candle Fires in Homes Occurred in the Bedroom
Of the 132 candle fires in residential structures, 37% occurred in the bedroom. Eighteen percent (18%) occurred in the living room; 17% occurred in the kitchen; 11% started in the bathroom; and 3% occurred in some other type of function room such as 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 132 candle fires in homes, smoke alarms operated in 62%. Smoke detectors were present but did not operate in 11% of these incidents. No detectors were present in 5% of candle fires in people's homes. Three percent (3%) of the candle fires were too small to activate the smoke detector. In 24 incidents, or 19%, the smoke detector status was undetermined.

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

Candle fires had become a serious problem in Massachusetts during the decade of the 1990's, nearly tripling from 93 incidents in 1990 to an all time high of 342 in 1999. The following chart shows candle fires over the past decade decreasing from the peak of 342 candle fires in 1999 to 148 in 2007, before slightly increasing to 155 in 2008. 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 1999 - 2008



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 1999 to 2008 there was 57% decrease in candle fires. In 2000, State Fire Marshal Coan began reaching out to candle manufacturers and retailers in Massachusetts to ask for their help in educating consumers on candle fire safety and to highlight and separate fire safety information from other fire safe use tips. He also asked them to adopt the candle **Circle of Safety** logo, to use it in their printed materials and on their webpages.

The initial downward trend was contrary to the national trend of increasing candle fires, especially in residences in the late 1990's and early 2000's. Since 2002 this downward trend has taken on nationally. According to the NFPA's most recent statistics[71], 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[72] 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 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 14,200 fires in 2006[73], a 25% drop. According to the Mintel International Group, the annual growth rate of the candle market average grew 5% between 2002 and 2007. So while candle sales are increasing the number of candle fires were decreasing.

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

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

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

[73] Ahrens, Marty, "Home Candle Fires," NFPA, Quincy, MA (September, 2007); pg. 1. 2006 is the most recent annual data that the NFPA has analyzed and published as of the writing of this report.

Clothes Dryer Fires

Dryer Fires Cause 3 Civilian Deaths & $1.4 Million in Damages

Ninety-nine (99) clothes dryer fires caused three civilian deaths, five civilian injuries, three firefighter injuries, and an estimated dollar loss of $1.4 million. The average dollar loss per fire was $14,342. Of these 99 fires, 76, or 77%, occurred in residential occupancies.

Twenty-three percent (23%) of the dryer fires were caused by a failure to clean the machines; 10% were caused by mechanical failures or malfunctions; 5% were caused by electrical failures or malfunctions; another 5% were unattended; and 3% were too close to combustibles.

62% of Dryers Were Electrical

Sixty-five percent (65%), of the 99 dryers involved in fires were identified as having electricity as their power source. Thirty percent (30%) 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.

Fifty-three percent (53%) of dryer fires identified the heat source as heat coming from the dryer itself but could not be any more specific. Twenty-eight percent (28%) of clothes dryer fires identified the heat source as radiated or conducted heat from equipment inside the dryer itself; and 5% identified the heat source as a spark, ember or flame from inside the dryer.

58% of Clothes Dryer Fires Occurred In 1- & 2-Family Homes

Fifty-eight percent (58%) of the dryer fires occurred in one- and two-family homes; 14% occurred in apartments; 11% occurred in mercantile or business properties such as laundry or dry cleaning businesses; 5% occurred in institutional properties such as nursing homes hospitals and jails; 4% happened in public assembly properties; 3% occurred in hotel and motels; 2% occurred at educational facilities; 1% occurred in rooming houses; 1% occurred in dormitories; 1% happened in rooming houses; and 1% occurred in unclassified properties.

Clean the Lint Filter After Every Load

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

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

Lexington Has Largest Loss Clothes Dryer Fire & Fatality

- On September 13, 2008 at 04:50 a.m., the Lexington Fire Department was called to a fatal dryer fire in a single-family home. The fire began in an electrically powered clothes dryer in the basement laundry room. The heat from the fire ignited the lint that clogged the 20 foot dryer vent pipe. A 48-year old mother was killed in this fire while escaping after making sure her children got out safely. Damages from this fire were estimated to be $400,000. Detectors were present but it was undetermined if they operated, and there were no sprinklers in the building.

Fireworks Incidents

68 Incidents Involving Fireworks Caused $79,560 In Damages

There were 68 fire and explosion incidents reported that involved fireworks in 2008. This is a 51% increase from the 116 fire and explosion incidents reported in 2007. Incidents involving fireworks caused an estimated $79,560 in property damages. The average dollar loss per fireworks incident was $2,411.

Over 1/4 of Fireworks Fires Occurred the Week of July 4th

Nine (9), or 27%, of the 33 fireworks-caused fires in 2008 took place during the week of the 4th of July. Seven (7) of the nine incidents, occurred between July 3 and July 5. Sixty-four percent (64%) of the fireworks incidents were brush fires, while 24%, were structure fires.

A fireworks explosion without fire is coded as an Incident Type 243 – Fireworks explosion (no fires). In 2008, 35 such incidents were reported.

Largest Loss Fireworks Fire –Dracut 1-Family Fire

- On September 4, 2008, at 5:01 p.m., the Dracut Fire Department was called to a fire in a single-family home. Two teenage boys were playing with smoke bombs and fireworks in the basement of the home. A small fire ignited in the cellar. Believing that they had extinguished the fire, the boys went to another house. One of the boys then went back to his house and found the basement filled with smoke. He exited and called 911 with a cordless phone. No one was injured during this incident. Smoke detectors were present and operated. Damages from this fire were estimated to be $58,000. Dracut Police confiscated all of the unused fireworks.

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 — 2008 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 Office of the State Fire Marshal 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 seven fireworks-related burn injuries reported to M-BIRS in 2008. These seven victims were between the ages of nine and 40 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

57 Incidents Involving Grills in 2008 Caused $830,225 in Damages
In 2008, there were 57 fires and explosion incidents reported to the Massachusetts Fire Incident Reporting System (MFIRS) involving open fired grills. These incidents caused seven civilian injuries, and an estimated dollar loss of $830,225. This is a 24% increase from the 46 grill fires in 2007.

Predictably almost three-quarters, or 72%, 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 57 grill incidents, 53, or 93%, of the grills were gas grills. Five percent (5%) used solid fuels such as charcoal briquettes. Two percent (2%) of the grills involved in these incidents were powered by liquid fuels. Gas grill fire incidents caused six civilian injuries and an estimated $770,225 in damages. Seventy-four percent (74%) 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.

Belchertown Had Largest Loss Grill Fire

- On April 8, 2008, at 4:30 p.m., the Belchertown Fire Department was called to a grill fire at a single-family home. Radiated heat from the LP-gas grill ignited the wall of the unenclosed porch. No one was injured at this fire. It was undetermined if detectors were present. Sprinklers were not present. Damages from the blaze were estimated to be $250,000. The building fire also had an exposure fire to a vehicle that was parked nearby causing $1,000 in damages.

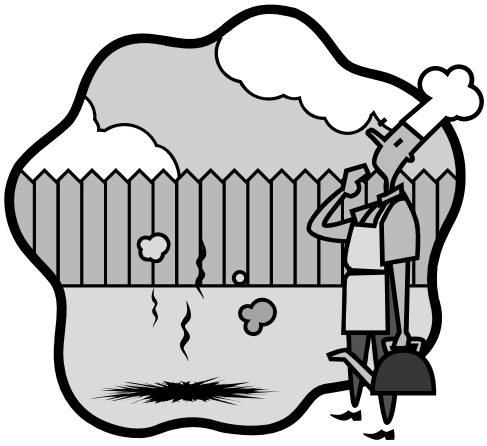
Refer to MBIRS Annual Report for More Information about Grill Injuries

For more information about the causes of burn injuries, please refer to the *Massachusetts Burn Injury Reporting System — 2008 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. Ten (10) civilians were reported to M-BIRS in 2008 with burn injuries from a grill including three pre-schoolers. One burn occurred in February and April, two burns occurred in May, one burn also occurred in June and July, three people were burned in August, and one happened in September.

Grill Safety

Follow these safety tips when using a grill:

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



Gas Grill Safety

- Keep all LP-gas outside, 10 feet away from building openings such as doors, windows, 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 2008, 279 fire departments voluntarily reported 15,281 carbon monoxide (CO) incidents; hazards[74], carbon monoxide detector activation due to malfunction[75] and carbon monoxide detector activation – no CO[76]. 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 3,867 confirmed CO hazard incidents.

24% Increase from 2007

There was a 24% increase in reported carbon monoxide incidents between 2007 and 2008. In 2008, the number or reported carbon monoxide incidents increased by 2,943 calls, or 24%, from the 12,338 calls reported in 2007. Many reasons can explain this increase including but not limited to: an increase in fire departments voluntarily reporting these types of calls to MFIRS; a better educated public that may have purchased CO detectors for the first time after the tragedies of the Winter of 2004 – 2005; and the installation of CO detectors because of Nicole's Law, which made them mandatory in most residential occupancies throughout the Commonwealth.

Boston, the largest city in the Commonwealth, reported 481 carbon monoxide incidents, the most CO incidents of any one community where above normal levels of carbon monoxide were found in 2008. The City of Lowell reported the second most CO incidents in 2008, 156 CO calls. The next five cities in terms of the number of carbon monoxide calls reported were: Springfield, 134 calls, Methuen, 98 calls, Fall River, 96 calls, Malden, 91 calls, and Andover reported 88 carbon monoxide incidents in 2008.

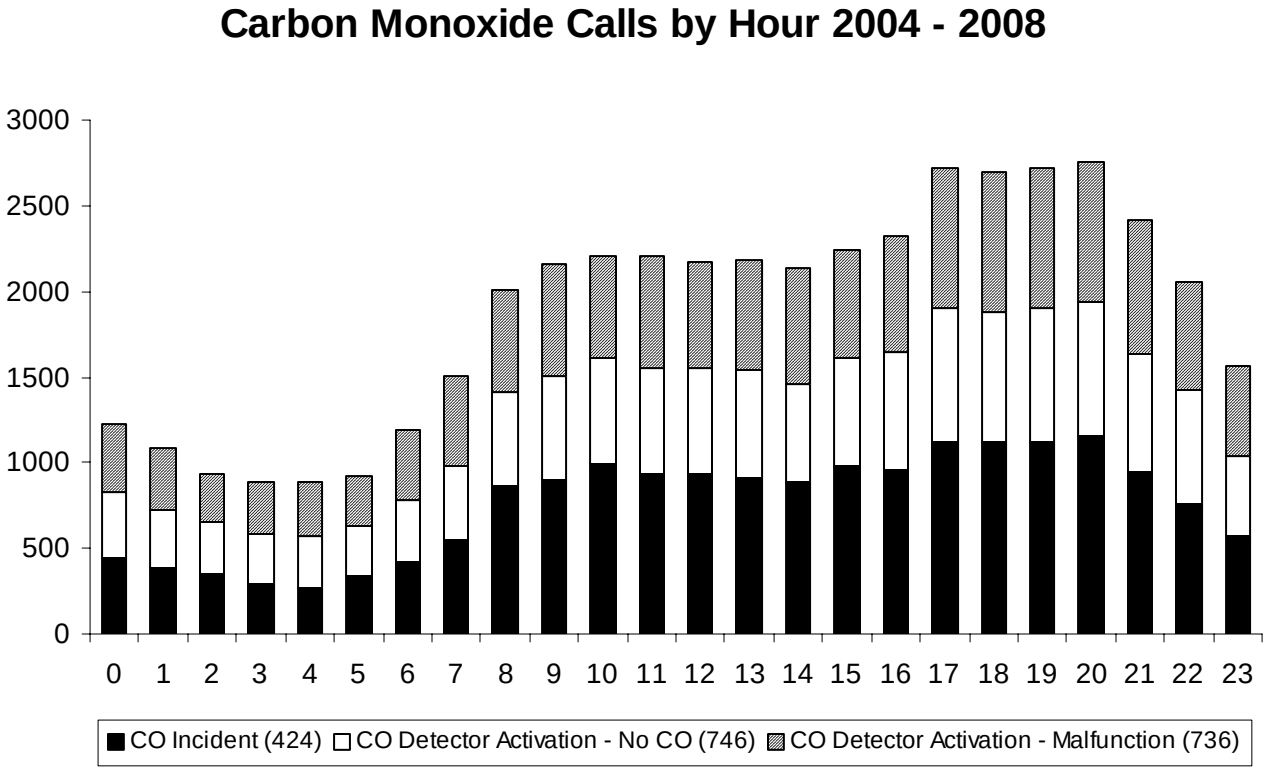
A CO detector activation is when a CO detector activated in response to pollution, an unknown trigger or a non-threatening situation. Fire departments responded to 9,874 CO detector activations. These types of calls are split into two categories: CO detector activation due to malfunction and CO detector activation – no CO found. Two hundred and thirty-seven (237) fire departments reported 5,030 CO detector activations due to malfunction. While 235 fire departments reported 4,844 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.

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

95% of All CO Incidents Occur in Residences
Ninety-five percent (95%) of all carbon monoxide calls occurred in residential occupancies. Institutional facilities are the next leading property use for CO calls accounting for 2% of the incidents. Mercantile and business properties and special properties each accounted for 1% of these calls. Public assembly properties, educational facilities, storage facilities, basic industrial, manufacturing and processing facilities and special properties each accounted for less than 1% of the carbon monoxide calls in 2008.

44% of All CO Calls Occur During the Winter
Forty-four percent (44%) of all the CO calls that occurred in 2008 happened during the colder months of December, January and February. Most CO calls occurred between the hours of 9:00 a.m. and 1:00 p.m. and between 4:00 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.

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

Mapping the Fire Experience

Boston & Worcester Had the Most Reported Fires
Boston reported having the most fires, with 4,678 in 2008. Worcester had the second highest number of reported fires at 1,449. Springfield (1,138), Cambridge (860), Lowell (573), and Quincy (532), rounded out the top six communities in the Commonwealth in terms of reported fires.

However if we look at the number of reported fires compared to the total population of the individual community we get a different picture. One would expect that the bigger cities and towns to have more fires because of their populations. When we calculate the rate of reported fires for every 10,000 people in a given municipality, the ranking changes. Usually the top communities in terms of number of reported fires fall towards the bottom of the rankings. Communities with one, two or three reported fires take over the top spots. These communities may have a rate that far exceeds that actual number of fires that they reported. For example towns like Ashfield, Cummington and Sunderland all reported one fire in 2008 but their small populations cause them to have a high fires per 10,000 population.

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

2008 Fires per 10,000 Population by Community, on page 167, 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.

Tyringham had the highest rate of 714 reported fires per 10,000 population. Next highest was Oakham with 233 fires per 10,000 population; Middleton had 218; Sandisfield had 157; Berlin had 143; and Avon had 123 fires per 10,000 population.

Boston & Worcester Had the Most Reported Structure Fires
Boston reported having the most structure fires, with 3,194 in 2008. Worcester had the second highest number of reported structure fires at 811. Cambridge (748), Springfield

(687), Lowell (403) and Revere (399) rounded out the top six communities in the Commonwealth in terms of reported structure fires.

2008 Structure Fires per 10,000 Population by Community, on page 168, 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 137 structure fires, had the highest rate of 177 structure fires per 10,000 population. Topsfield was the next highest with 64 structure fires and 104 structure fires per 10,000 population; Great Barrington had 97; Revere had 87; and Stoughton had 81 structure fires per 10,000 population.

Boston & Worcester Had the Most Reported Residential Building Fires
Boston reported having the most residential building fires, with 2,676 in 2008. Worcester had the second highest number of reported building fires at 698. Worcester (603), Springfield (594), Cambridge (574), and Lowell (322) rounded out the top six communities in the Commonwealth in terms of reported residential building fires.

2008 Residential Building Fires per 10,000 Population by Community, on page 169, 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.

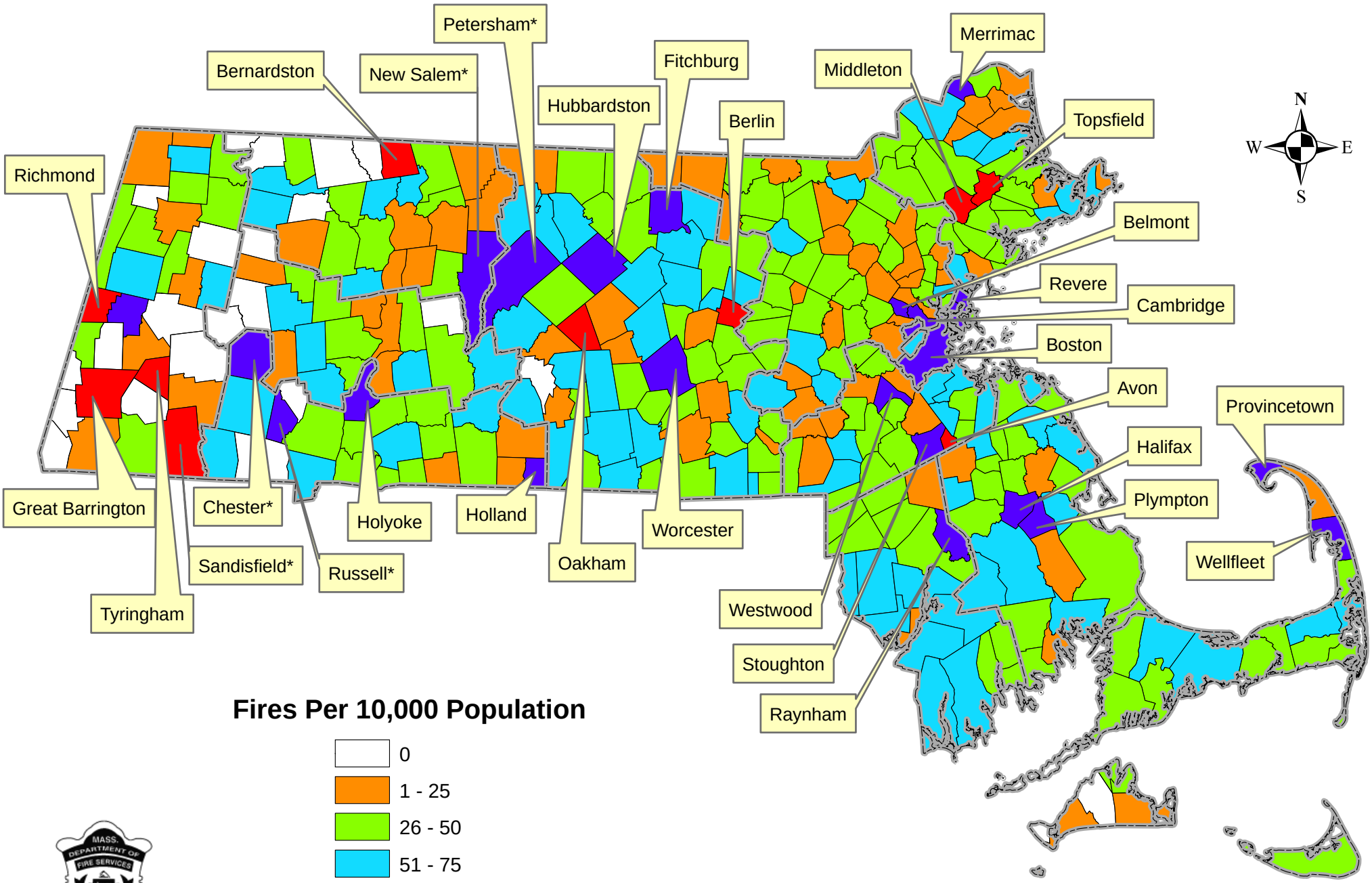
Middleton, with 119 residential building fires, had the highest rate of 154 residential building fires per 10,000 population. Next highest was Topsfield with 80 residential building fires per 10,000 population; Sandisfield had 73; Revere had 68; Great Barrington had 50; and Stoughton had 64 residential building fires per 10,000 population.

Boston & Worcester Had the Most Reported Arsons
Boston reported having the most arsons, with 109 in 2008. Worcester had the second highest number of reported arsons at 53. Haverhill (52), Falmouth (48), New Bedford (47), and Pittsfield (26) rounded out the top six communities in the Commonwealth in terms of reported arsons.

2008 Arsons per 10,000 Population by Community, on page 170, 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.

Southampton, with 33 arsons, had the highest rate of any department reporting more than five arsons, with 24 reported arsons per 10,000 population. Next highest was Sherborn with 17 arsons per 10,000 population; Falmouth also had 15; Ware had 11; Medfield had 11, and Granby had 10 arsons per 10,000 population.

2008 Fires by 10,000 Population by Community

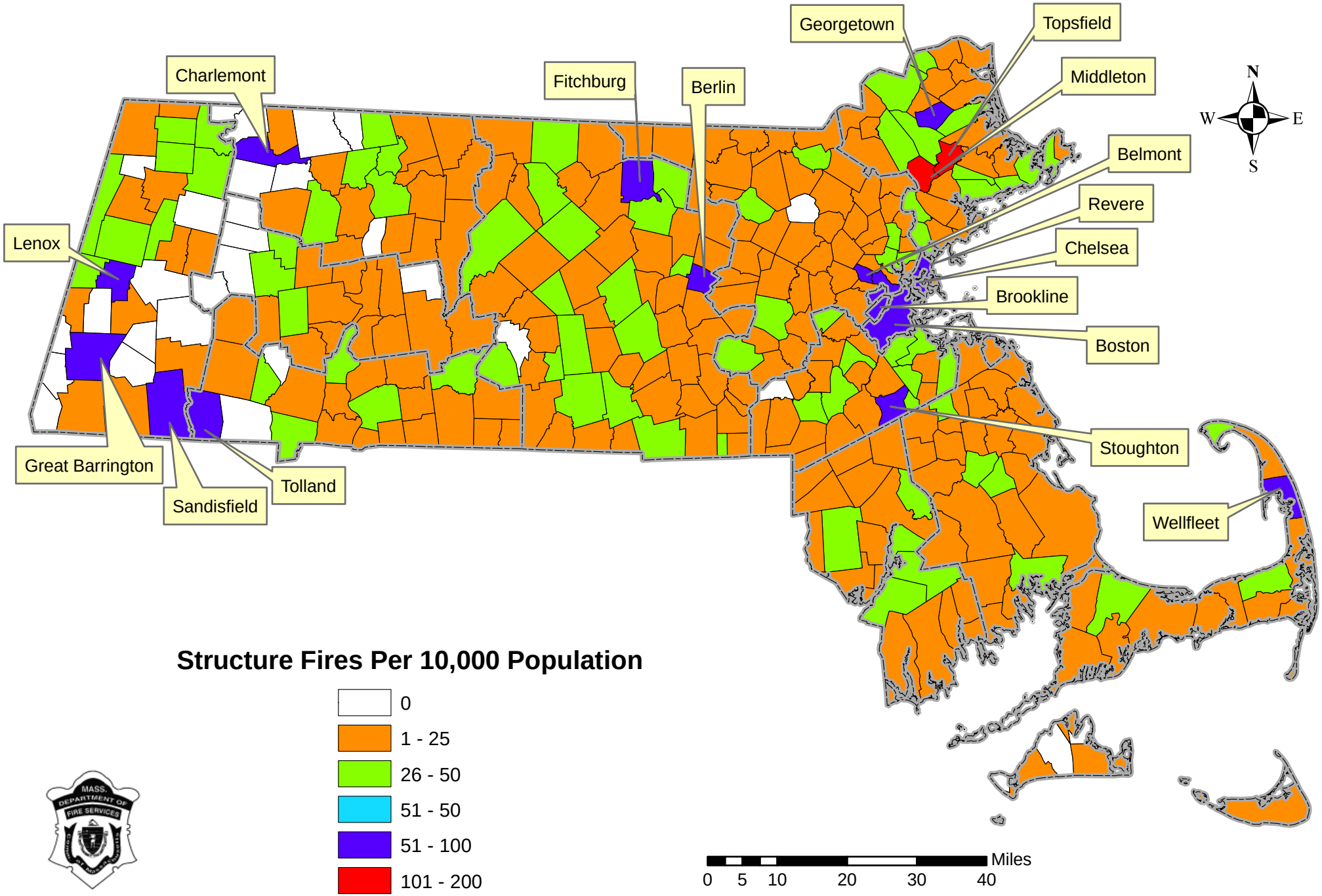


Fires Per 10,000 Population

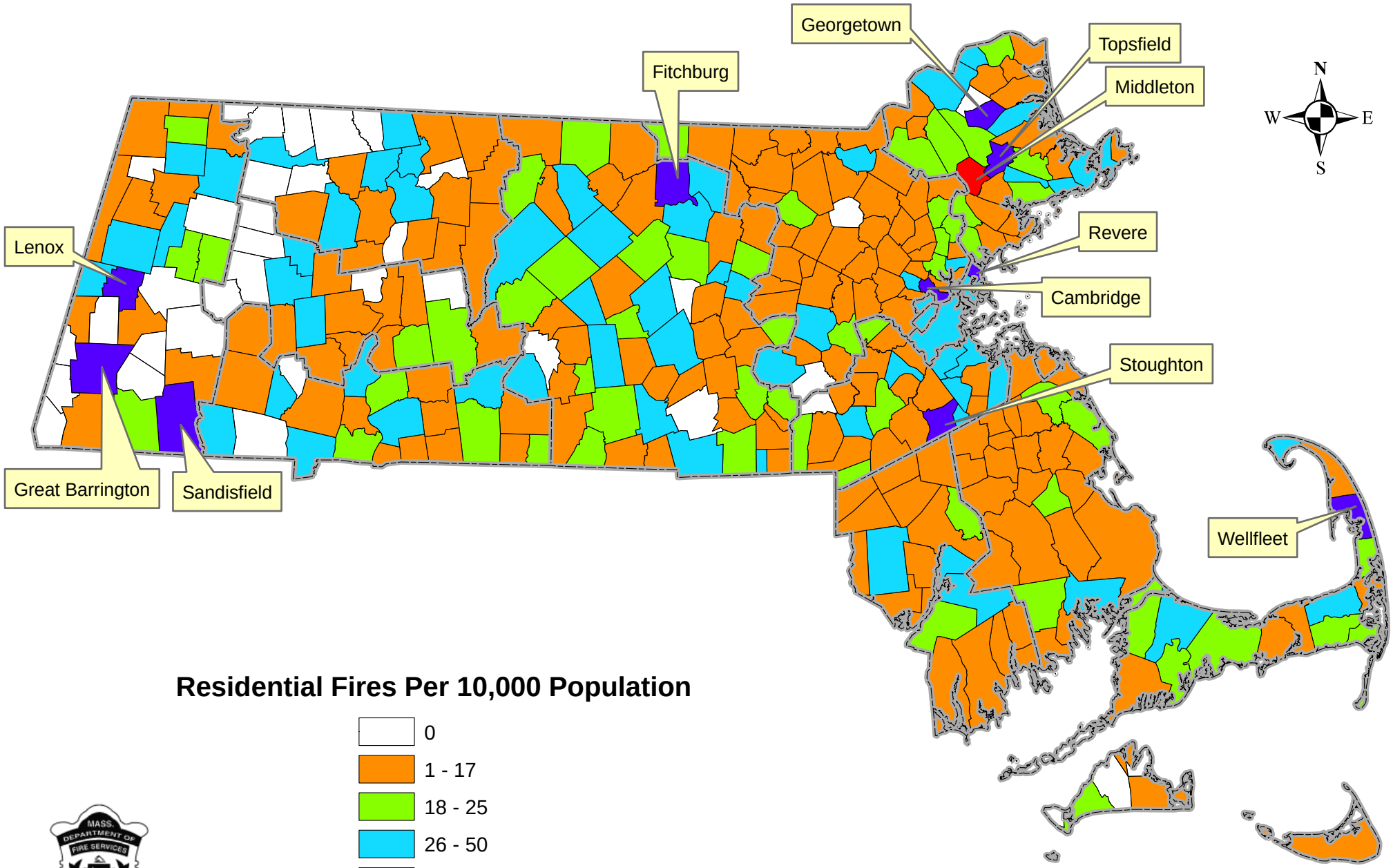
- 0
- 1 - 25
- 26 - 50
- 51 - 75
- 76 - 100
- 101 - 750

*These communities reported less than 15 fires.

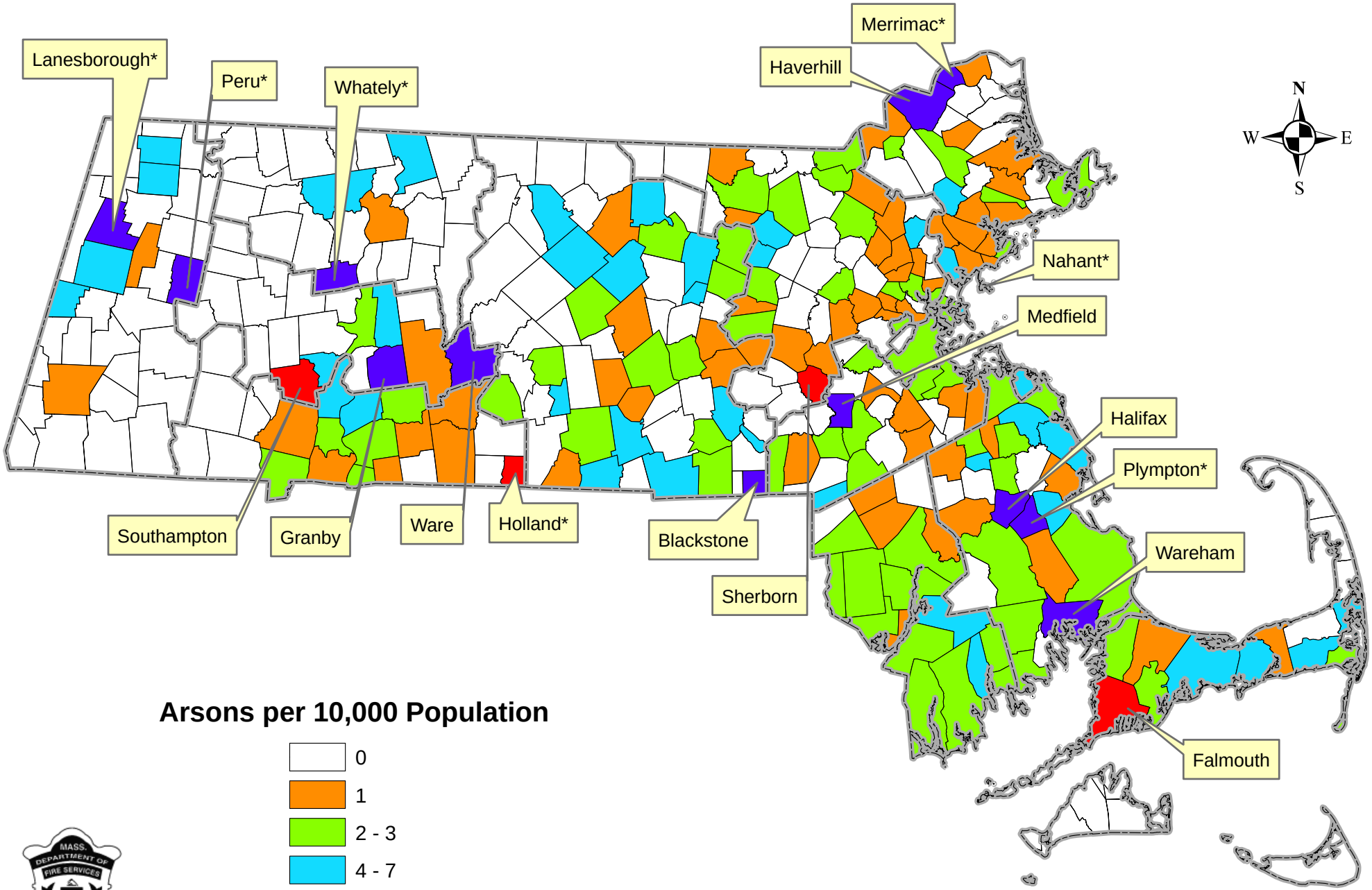
2008 Structure Fires by 10,000 Population by Community



2008 Residential Fires by 10,000 Population by Community



2008 Arsons by 10,000 Population by Community



*These communities reported 5 or less arsons in 2008

Overview of DFS construction project continuing construction in 2008

Appendix

2008 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	82	42	6	34	0	0	0	1	$83,665
Acton	66	49	0	17	0	1	0	0	$20,000
Acushnet	37	17	5	15	0	1	0	0	$547,450
Adams	40	31	3	6	0	0	0	0	$488,025
Agawam	100	56	13	31	0	1	0	1	$1,452,400
Alford	0	0	0	0	0	0	0	0	$0
Amesbury	64	33	12	19	0	0	0	0	$666,625
Amherst	102	55	6	41	0	3	0	0	$311,635
Andover	146	78	32	36	0	0	0	0	$337,975
Aquinnah	0	0	0	0	0	0	0	0	$0
Arlington	92	51	11	30	1	1	0	0	$258,500
Ashburnham	16	5	4	7	0	0	0	0	$0
Ashby	7	6	1	0	0	0	0	0	$13,500
Ashfield	1	1	0	0	0	0	0	0	$1,200
Ashland	35	18	2	15	0	0	0	1	$197,000
Athol	63	24	8	31	0	0	0	0	$51,000
Attleboro	168	66	26	76	0	1	0	0	$578,650
Auburn	47	18	11	18	0	0	0	0	$694,373
Avon	55	17	14	24	0	3	0	0	$7,650,645
Ayer	24	10	3	11	0	0	0	0	$1,266,052
Barnstable Fire Districts									
Barnstable	*16*	*7*	*3*	*6*	*0*	*0*	*0*	*0*	*$10,340*
Cotuit	*3*	*1*	*2*	*0*	*0*	*0*	*0*	*0*	*$17,015*
C.O.M.M.	*80*	*30*	*12*	*38*	*0*	*4*	*0*	*0*	*$482,195*
Hyannis	*158*	*57*	*18*	*83*	*0*	*14*	*0*	*2*	*$1,223,925*
West Barnstable	*18*	*8*	*2*	*8*	*0*	*0*	*0*	*0*	*$151,000*
Barre	21	12	1	8	0	0	0	0	$113,400
Becket	0	0	0	0	0	0	0	0	$0
Bedford	26	15	3	8	0	1	0	1	$7,510
Belchertown	52	24	3	25	0	0	0	0	$250,000
Bellingham	55	33	7	15	0	0	0	0	$1,028,920
Belmont	186	164	5	17	0	1	0	3	$579,550
Berkley	29	16	3	10	0	1	0	2	$105,000
Berlin	34	14	6	14	0	0	0	0	$238,149
Bernardston	22	7	1	14	0	0	0	0	$215,500
Beverly	159	100	18	41	0	0	0	3	$2,381,950

2008 Arson Experience by Community

Community	Total Arson	Structure Arson	Vehicle Arson	Other Arson	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Abington	4	0	0	4	0	0	0	0	$0
Acton	0	0	0	0	0	0	0	0	$0
Acushnet	2	1	0	1	0	0	0	0	$10,350
Adams	3	0	0	3	0	0	0	0	$0
Agawam	4	0	1	3	0	0	0	0	$7,000
Alford	0	0	0	0	0	0	0	0	$0
Amesbury	1	1	0	0	0	0	0	0	$3,500
Amherst	12	1	0	11	0	0	0	0	$900
Andover	0	0	0	0	0	0	0	0	$0
Aquinnah	0	0	0	0	0	0	0	0	$0
Arlington	7	3	0	4	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	13	2	0	11	0	0	0	0	$200
Auburn	1	0	0	1	0	0	0	0	$0
Avon	0	0	0	0	0	0	0	0	$0
Ayer	1	1	0	0	0	0	0	0	$1,250,000
Barnstable Fire Districts									
Barnstable	*1*	*0*	*0*	*1*	*0*	*0*	*0*	*0*	*$0*
Cotuit	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
C.O.M.M.	*7*	*0*	*0*	*7*	*0*	*0*	*0*	*0*	*$0*
Hyannis	*8*	*2*	*1*	*5*	*0*	*0*	*0*	*0*	*$101,125*
West Barnstable	*1*	*0*	*0*	*1*	*0*	*0*	*0*	*0*	*$0*
Barre	0	0	0	0	0	0	0	0	$0
Becket	0	0	0	0	0	0	0	0	$0
Bedford	0	0	0	0	0	0	0	0	$0
Belchertown	1	0	0	1	0	0	0	0	$0
Bellingham	3	2	0	1	0	0	0	0	$450,000
Belmont	2	1	0	1	0	0	0	0	$1,000
Berkley	1	0	0	1	0	0	0	0	$0
Berlin	0	0	0	0	0	0	0	0	$0
Bernardston	0	0	0	0	0	0	0	0	$0
Beverly	5	3	1	1	0	0	0	0	$73,500

2008 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	129	58	21	50	0	2	0	2	$541,676
Blackstone	37	13	2	22	0	0	0	2	$0
Blandford	7	3	1	3	0	0	0	0	$15,050
Bolton	21	8	8	5	0	0	0	0	$863,500
Boston	4,678	3,194	387	1,097	4	29	1	14	$48,198,966
Bourne	88	40	14	34	2	2	0	3	$1,664,950
Boxborough	13	3	3	7	0	0	0	0	$3,250
Boxford	34	20	0	14	0	0	0	0	$0
Boylston	7	5	2	0	0	0	0	0	$29,700
Braintree	100	18	21	61	0	1	0	0	$1,572,700
Brewster	51	32	7	12	0	1	0	1	$101,825
Bridgewater	95	26	22	47	0	3	0	2	$1,365,804
Brimfield	1	1	0	0	0	0	0	0	$50,000
Brockton	197	142	36	19	0	6	0	15	$4,564,000
Brookfield	4	3	0	1	0	0	0	0	$0
Brookline	372	322	11	39	0	2	0	14	$4,212,550
Buckland	0	0	0	0	0	0	0	0	$0
Burlington	69	26	12	31	0	0	0	0	$145,000
Cambridge	860	748	14	98	1	3	0	25	$6,470,304
Canton	45	21	15	9	0	5	0	1	$1,080,980
Carlisle	1	0	0	1	0	0	0	0	$20,000
Carver	9	2	7	0	0	0	0	0	$469,000
Charlemont	9	7	0	2	0	0	0	0	$45,600
Charlton	67	36	15	16	0	1	0	0	$1,029,825
Chatham	31	13	8	10	0	1	0	1	$1,224,308
Chelmsford	43	21	16	6	0	0	0	1	$543,710
Chelsea	267	191	13	63	0	5	0	53	$2,739,290
Cheshire	8	3	2	3	0	0	0	0	$194,500
Chester	12	1	1	10	0	0	0	0	$6,500
Chesterfield	8	4	1	3	0	0	0	0	$0
Chicopee	245	135	33	77	1	8	0	2	$689,565
Chilmark	2	2	0	0	0	0	0	0	$2,500
Clarksburg	3	1	1	1	0	0	0	0	$7,500
Clinton	95	49	6	40	0	1	0	1	$245,000
Cohasset	37	12	3	22	0	0	0	0	$0

2008 Arson Experience by Community

Community	Total Arson	Structure Arson	Vehicle Arson	Other Arson	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Billerica	9	1	2	6	0	0	0	0	$6,000
Blackstone	8	1	1	6	0	0	0	0	$0
Blandford	0	0	0	0	0	0	0	0	$0
Bolton	1	1	0	0	0	0	0	0	$45,000
Boston	109	45	20	44	2	2	0	0	$1,467,454
Bourne	5	0	1	4	0	0	0	0	$5,500
Boxborough	2	0	0	2	0	0	0	0	$0
Boxford	2	0	0	2	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	0	0	0	0	0	0	0	0	$0
Bridgewater	2	1	1	0	0	0	0	0	$60,000
Brimfield	0	0	0	0	0	0	0	0	$0
Brockton	13	9	1	3	0	0	0	1	$583,700
Brookfield	0	0	0	0	0	0	0	0	$0
Brookline	1	0	1	0	0	0	0	0	$0
Buckland	0	0	0	0	0	0	0	0	$0
Burlington	3	1	0	2	0	0	0	0	$60,000
Cambridge	9	2	0	7	0	0	0	0	$10,100
Canton	1	0	0	1	0	0	0	0	$25
Carlisle	0	0	0	0	0	0	0	0	$0
Carver	1	0	1	0	0	0	0	0	$4,000
Charlemont	0	0	0	0	0	0	0	0	$0
Charlton	2	0	0	2	0	0	0	0	$200
Chatham	1	0	1	0	0	1	0	0	$16,000
Chelmsford	0	0	0	0	0	0	0	0	$0
Chelsea	7	2	0	5	0	0	0	7	$406,000
Cheshire	0	0	0	0	0	0	0	0	$0
Chester	0	0	0	0	0	0	0	0	$0
Chesterfield	0	0	0	0	0	0	0	0	$0
Chicopee	21	11	0	10	0	1	0	0	$19,806
Chilmark	0	0	0	0	0	0	0	0	$0
Clarksburg	0	0	0	0	0	0	0	0	$0
Clinton	5	0	0	5	0	0	0	0	$0
Cohasset	4	0	0	4	0	0	0	0	$0

2008 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	0	0	0	0	0	0	0	0	$0
Concord	43	23	7	13	0	1	0	3	$717,746
Conway	9	5	0	4	0	0	0	0	$0
Cummington	1	0	1	0	0	0	0	0	$15,000
Dalton	26	19	1	6	0	1	0	0	$367,300
Danvers	118	44	10	64	2	0	0	1	$590,519
Dartmouth Fire Districts									
Dartmouth #1	*37*	*11*	*3*	*23*	*0*	*0*	*0*	*0*	*$448,100*
Dartmouth #2	*3*	*0*	*1*	*2*	*0*	*0*	*0*	*0*	*$0*
Dartmouth #3	*118*	*7*	*13*	*98*	*0*	*0*	*0*	*0*	*$611,850*
Dedham	17	14	3	0	0	1	0	2	$870,500
Deerfield Fire Districts									
Deerfield	*7*	*2*	*0*	*5*	*0*	*0*	*0*	*0*	*$0*
South Deerfield	*17*	*10*	*4*	*3*	*0*	*0*	*0*	*0*	*$229,000*
Dennis	66	28	2	36	0	0	0	0	$114,000
Devens	9	5	3	1	0	0	0	0	$161,412
Dighton	32	4	8	20	0	0	0	0	$68,700
Douglas	33	24	1	8	0	0	0	0	$34,500
Dover	2	2	0	0	0	0	0	0	$57,400
Dracut	61	25	11	25	0	2	0	0	$1,339,650
Dudley	54	18	7	29	0	0	0	1	$219,240
Dunstable	1	1	0	0	0	0	0	0	$0
Duxbury	38	14	4	20	0	0	0	0	$8,100
East Bridgewater	44	25	4	15	0	1	0	0	$744,380
East Brookfield	9	6	0	3	0	0	0	0	$36,000
East Longmeadow	43	18	1	24	0	0	0	1	$145,500
Eastham	23	13	0	10	1	0	0	2	$620,000
Easthampton	56	26	5	25	0	0	0	0	$203,235
Easton	15	10	3	2	0	5	0	0	$919,725
Edgartown	4	3	0	1	0	0	0	0	$435,000
Egremont	0	0	0	0	0	0	0	0	$0
Erving	6	1	1	4	0	0	0	0	$100
Essex	7	4	3	0	0	0	0	0	$257,500
Everett	139	86	13	40	0	3	0	0	$1,465,145
Fairhaven	70	15	16	39	0	1	0	1	$238,625
Fall River	472	232	65	175	1	11	0	4	$1,268,121

2008 Arson Experience by Community

Community	Total Arson	Structure Arson	Vehicle Arson	Other Arson	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Colrain	0	0	0	0	0	0	0	0	$0
Concord	0	0	0	0	0	0	0	0	$0
Conway	0	0	0	0	0	0	0	0	$0
Cummington	0	0	0	0	0	0	0	0	$0
Dalton	1	1	0	0	0	0	0	0	$0
Danvers	3	1	1	1	0	0	0	0	$52,000
Dartmouth Fire Districts									
Dartmouth #1	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Dartmouth #2	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Dartmouth #3	*8*	*0*	*0*	*8*	*0*	*0*	*0*	*0*	*$1,000*
Dedham	0	0	0	0	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	2	1	0	1	0	0	0	0	$50,000
Devens	0	0	0	0	0	0	0	0	$0
Dighton	1	0	0	1	0	0	0	0	$0
Douglas	3	0	0	3	0	0	0	0	$0
Dover	0	0	0	0	0	0	0	0	$0
Dracut	6	1	3	2	0	1	0	0	$122,200
Dudley	3	1	0	2	0	0	0	0	$0
Dunstable	0	0	0	0	0	0	0	0	$0
Duxbury	1	0	0	1	0	0	0	0	$0
East Bridgewater	0	0	0	0	0	0	0	0	$0
East Brookfield	1	0	0	1	0	0	0	0	$0
East Longmeadow	1	1	0	0	0	0	0	1	$1,500
Eastham	0	0	0	0	0	0	0	0	$0
Easthampton	7	0	1	6	0	0	0	0	$12,000
Easton	0	0	0	0	0	0	0	0	$0
Edgartown	0	0	0	0	0	0	0	0	$0
Egremont	0	0	0	0	0	0	0	0	$0
Erving	0	0	0	0	0	0	0	0	$0
Essex	0	0	0	0	0	0	0	0	$0
Everett	10	4	4	2	0	0	0	0	$36,050
Fairhaven	4	0	0	4	0	0	0	0	$0
Fall River	20	7	3	10	0	0	0	0	$15,000

2008 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	163	44	15	104	1	8	0	4	$1,839,280
Fitchburg	334	242	26	66	0	3	0	7	$1,937,822
Florida	2	2	0	0	0	0	0	0	$3,000
Foxborough	50	16	13	21	0	0	0	0	$587,000
Framingham	420	305	39	76	0	5	0	20	$4,929,668
Franklin	64	22	9	33	1	0	0	0	$1,796,000
Freetown	52	26	9	17	0	1	0	0	$396,775
Gardner	91	40	12	39	0	2	0	1	$362,735
Georgetown	55	49	1	5	0	0	0	0	$1,500
Gill	8	5	0	3	0	0	0	0	$70,000
Gloucester	164	100	17	47	0	1	0	0	$3,000
Goshen	4	3	1	0	0	0	0	2	$460,400
Gosnold	0	0	0	0	0	0	0	0	$0
Grafton	7	4	2	1	0	0	0	0	$375,000
Granby	36	13	2	21	0	0	0	0	$10,000
Granville	0	0	0	0	0	0	0	0	$0
Great Barrington	92	73	3	16	0	0	0	0	$316,550
Greenfield	116	65	9	42	0	1	0	3	$411,560
Groton	31	15	1	15	0	0	0	0	$147,900
Groveland	2	1	1	0	0	0	0	0	$7,900
Hadley	5	1	3	1	1	0	0	0	$110,000
Halifax	65	29	3	33	0	2	0	2	$828,600
Hamilton	31	17	4	10	0	0	0	1	$293,000
Hampden	1	1	0	0	0	2	0	0	$175,000
Hancock	2	2	0	0	0	0	0	0	$15,000
Hanover	59	15	4	40	1	0	0	1	$56,600
Hanson	38	12	1	25	0	0	0	0	$0
Hardwick	16	6	0	10	0	0	0	1	$0
Harvard	26	9	4	13	0	0	0	0	$0
Harwich	42	25	3	14	1	3	0	1	$309,000
Hatfield	6	2	2	2	0	0	0	0	$317,434
Haverhill	311	209	8	94	2	0	0	2	$1,508,550
Hawley	2	0	0	2	0	0	0	0	$0
Heath	4	1	1	2	0	0	0	0	$75,000
Hingham	75	35	11	29	0	0	0	1	$400,700

2008 Arson Experience by Community

Community	Total Arson	Structure Arson	Vehicle Arson	Other Arson	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Falmouth	48	8	1	39	0	0	0	0	$14,900
Fitchburg	16	4	3	9	0	0	0	0	$4,600
Florida	0	0	0	0	0	0	0	0	$0
Foxborough	3	1	1	1	0	0	0	0	$300,000
Framingham	8	3	2	3	0	0	0	1	$292,001
Franklin	2	2	0	0	0	0	0	0	$0
Freetown	3	0	1	2	0	0	0	0	$10,000
Gardner	0	0	0	0	0	0	0	0	$0
Georgetown	1	0	0	1	0	0	0	0	$0
Gill	0	0	0	0	0	0	0	0	$0
Gloucester	7	0	1	6	0	1	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	6	0	0	6	0	0	0	0	$0
Granville	0	0	0	0	0	0	0	0	$0
Great Barrington	1	1	0	0	0	0	0	0	$50
Greenfield	9	1	0	8	0	0	0	1	$2,600
Groton	2	0	0	2	0	0	0	0	$0
Groveland	0	0	0	0	0	0	0	0	$0
Hadley	1	0	1	0	0	0	0	0	$2,000
Halifax	6	2	0	4	0	0	0	0	$0
Hamilton	1	0	0	1	0	0	0	0	$0
Hampden	0	0	0	0	0	0	0	0	$0
Hancock	0	0	0	0	0	0	0	0	$0
Hanover	4	0	0	4	0	0	0	0	$0
Hanson	2	1	0	1	0	0	0	0	$0
Hardwick	0	0	0	0	0	0	0	0	$0
Harvard	1	0	0	1	0	0	0	0	$0
Harwich	4	0	0	4	0	0	0	0	$0
Hatfield	0	0	0	0	0	0	0	0	$0
Haverhill	52	2	0	50	0	0	0	0	$0
Hawley	0	0	0	0	0	0	0	0	$0
Heath	0	0	0	0	0	0	0	0	$0
Hingham	3	1	1	1	0	0	0	0	$25,500

2008 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	4	4	0	0	0	0	0	0	$16,000
Holbrook	46	23	3	20	0	0	0	0	$136,451
Holden	79	45	14	20	0	1	0	1	$2,205,065
Holland	23	6	1	16	0	0	0	0	$0
Holliston	1	1	0	0	0	0	0	0	$1,000
Holyoke	331	197	29	105	2	3	0	1	$1,371,071
Hopedale	13	9	2	2	0	1	0	0	$73,700
Hopkinton	81	54	6	21	1	1	0	0	$518,700
Hubbardston	39	14	2	23	0	5	0	1	$280,580
Hudson	75	37	10	28	0	3	0	1	$502,615
Hull	26	19	2	5	0	0	0	1	$267,000
Huntington	8	7	1	0	0	0	0	0	$500
Ipswich	41	19	7	15	0	2	0	1	$141,500
Kingston	62	23	10	29	0	2	0	2	$72,000
Lake Pleasant	0	0	0	0	0	0	0	0	$0
Lakeville	52	6	6	40	0	0	0	0	$0
Lancaster	27	10	4	13	0	1	0	0	$231,300
Lanesborough	14	5	0	9	0	0	0	0	$465,000
Lawrence	260	136	40	84	3	1	0	6	$4,923,485
Lee	8	5	3	0	0	0	0	0	$366,350
Leicester	37	12	4	21	0	0	0	0	$221,000
Lenox	49	38	0	11	0	1	0	0	$356,750
Leominster	259	160	18	81	0	3	0	0	$21,612
Leverett	3	1	1	1	0	0	0	0	$86,000
Lexington	57	36	12	9	1	0	0	11	$605,145
Leyden	0	0	0	0	0	0	0	0	$0
Lincoln	25	12	4	9	0	0	0	0	$3,067,500
Littleton	51	31	8	12	0	0	0	0	$813,420
Logan Airport FD	80	14	14	52	0	1	0	0	$1,000
Longmeadow	42	18	0	24	0	0	0	0	$252,500
Lowell	573	403	43	127	1	2	0	1	$17,600
Ludlow	64	38	12	14	0	2	0	0	$540,758
Lunenburg	60	34	6	20	1	2	0	0	$347,900
Lynn	126	83	42	1	0	2	0	14	$189,650
Lynnfield	57	31	4	22	0	1	0	1	$174,500
MA Mil. Res.[1]	0	0	0	0	0	0	0	0	$0

[1] The MMR FD became a state fire department in October 2008. In 2008, MMR reported 179 total incidents (0 fires) to MFIRS from October through December.

2008 Arson Experience by Community

Community	Total Arson	Structure Arson	Vehicle Arson	Other Arson	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Hinsdale	0	0	0	0	0	0	0	0	$0
Holbrook	0	0	0	0	0	0	0	0	$0
Holden	1	0	0	1	0	0	0	0	$0
Holland	5	0	0	5	0	0	0	0	$0
Holliston	0	0	0	0	0	0	0	0	$0
Holyoke	17	3	3	11	0	0	0	0	$7,050
Hopedale	2	1	0	1	0	0	0	0	$0
Hopkinton	0	0	0	0	0	0	0	0	$0
Hubbardston	2	0	1	1	0	0	0	0	$2,400
Hudson	1	1	0	0	0	0	0	0	$0
Hull	1	1	0	0	0	0	0	0	$35,000
Huntington	0	0	0	0	0	0	0	0	$0
Ipswich	1	0	0	1	0	0	0	0	$0
Kingston	4	1	2	1	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	3	2	0	1	0	0	0	0	$190,000
Lanesborough	3	0	0	3	0	0	0	0	$0
Lawrence	11	5	5	1	0	0	0	3	$476,500
Lee	0	0	0	0	0	0	0	0	$0
Leicester	1	0	1	0	0	0	0	0	$25,000
Lenox	0	0	0	0	0	0	0	0	$0
Leominster	7	2	0	5	0	0	0	0	$10
Leverett	0	0	0	0	0	0	0	0	$0
Lexington	1	0	0	1	0	0	0	0	$100
Leyden	0	0	0	0	0	0	0	0	$0
Lincoln	2	0	0	2	0	0	0	0	$0
Littleton	4	2	0	2	0	0	0	0	$120
Logan Airport FD	0	0	0	0	0	0	0	0	$0
Longmeadow	4	0	0	4	0	0	0	0	$0
Lowell	24	5	12	7	0	0	0	0	$0
Ludlow	4	0	2	2	0	1	0	0	$19,000
Lunenburg	0	0	0	0	0	0	0	0	$0
Lynn	8	2	6	0	0	0	0	0	$5,500
Lynnfield	1	0	0	1	0	0	0	0	$0
MA Mil. Res.	0	0	0	0	0	0	0	0	$0

2008 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	307	212	18	77	0	0	0	9	$464,500
Manchester	27	18	1	8	0	0	0	0	$25,000
Mansfield	73	24	12	37	0	1	0	4	$328,852
Marblehead	52	26	7	19	0	0	0	0	$120,457
Marion	1	1	0	0	0	0	0	0	$250
Marlborough	131	63	21	47	0	1	0	3	$1,354,237
Marshfield	129	59	5	65	0	0	0	0	$0
Mashpee	64	27	7	30	0	5	0	0	$380,347
Mattapoisett	25	14	2	9	1	0	0	1	$505,050
Maynard	4	3	1	0	0	0	0	0	$878,800
Medfield	31	13	3	15	0	0	0	0	$1,000
Medford	298	176	25	97	0	2	0	1	$458,250
Medway	1	0	0	1	0	1	0	0	$0
Melrose	20	13	4	3	0	2	0	1	$969,500
Mendon	24	7	3	14	0	0	0	0	$31,875
Merrimac	49	27	2	20	0	0	0	0	$0
Methuen	118	55	29	34	0	0	0	0	$1,052,050
Middleborough	101	35	15	51	0	2	0	5	$433,235
Middlefield	0	0	0	0	0	0	0	0	$0
Middleton	169	137	1	31	0	1	0	0	$70,000
Milford	112	54	25	33	0	4	0	4	$1,345,945
Millbury	33	22	6	5	0	0	0	1	$227,050
Millis	1	1	0	0	0	0	0	0	$10,000
Millville	14	10	0	4	0	0	0	0	$655,000
Milton	187	129	15	43	2	0	0	28	$164,800
Monroe	0	0	0	0	0	0	0	0	$0
Monson	31	18	3	10	0	0	0	0	$1,250,000
Montague Fire Districts									
Montague Center	*14*	*8*	*1*	*5*	*0*	*0*	*0*	*0*	*$4,000*
Turners Falls	*32*	*21*	*4*	*7*	*0*	*1*	*0*	*0*	*$489,100*
Monterey	0	0	0	0	0	0	0	0	$0
Montgomery	0	0	0	0	0	0	0	0	$0
Nahant	11	2	0	9	0	0	0	0	$0
Nantucket	24	13	5	6	0	0	0	0	$3,320
Natick	128	71	12	45	0	1	0	4	$3,386,700
Needham	78	35	14	29	0	0	0	1	$887,100

2008 Arson Experience by Community

Community	Total Arson	Structure Arson	Vehicle Arson	Other Arson	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Malden	4	3	0	1	0	0	0	0	$1,000
Manchester	0	0	0	0	0	0	0	0	$0
Mansfield	2	0	0	2	0	0	0	0	$135,000
Marblehead	5	1	0	4	0	0	0	0	$2,000
Marion	0	0	0	0	0	0	0	0	$0
Marlborough	8	3	1	4	0	0	0	0	$15,010
Marshfield	8	0	0	8	0	0	0	0	$0
Mashpee	3	0	1	2	0	0	0	0	$29,797
Mattapoisett	1	0	0	1	0	0	0	0	$0
Maynard	0	0	0	0	0	0	0	0	$0
Medfield	13	0	2	11	0	0	0	0	$0
Medford	10	2	1	7	0	0	0	0	$0
Medway	0	0	0	0	0	0	0	0	$0
Melrose	0	0	0	0	0	0	0	0	$0
Mendon	0	0	0	0	0	0	0	0	$0
Merrimac	5	0	0	5	0	0	0	0	$0
Methuen	2	0	1	1	0	0	0	0	$0
Middleborough	3	0	0	3	0	0	0	0	$0
Middlefield	0	0	0	0	0	0	0	0	$0
Middleton	3	1	0	2	0	0	0	0	$0
Milford	0	0	0	0	0	0	0	0	$0
Millbury	0	0	0	0	0	0	0	0	$0
Millis	0	0	0	0	0	0	0	0	$0
Millville	0	0	0	0	0	0	0	0	$0
Milton	5	0	0	5	0	0	0	0	$0
Monroe	0	0	0	0	0	0	0	0	$0
Monson	1	0	0	1	0	0	0	0	$0
Montague Fire Districts									
Montague Center	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Turners Falls	*1*	*0*	*1*	*0*	*0*	*0*	*0*	*0*	*$100*
Monterey	0	0	0	0	0	0	0	0	$0
Montgomery	0	0	0	0	0	0	0	0	$0
Nahant	3	0	0	3	0	0	0	0	$0
Nantucket	0	0	0	0	0	0	0	0	$0
Natick	4	0	0	4	0	0	0	0	$200
Needham	6	0	0	6	0	0	0	0	$0

2008 Fire Experience By Community

Community	Total Fires	Structure Fires	Vehicle Fires	Other Fires	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
New Ashford	0	0	0	0	0	0	0	0	$0
New Bedford	453	165	65	223	2	4	0	6	$3,965,685
New Braintree	1	1	0	0	0	0	0	0	$0
New Marlborough	6	3	2	1	0	0	0	0	$0
New Salem	7	1	1	5	0	0	0	0	$0
Newbury	6	3	3	0	0	0	0	0	$0
Newburyport	8	5	2	1	0	0	0	0	$57,400
Newton	190	126	19	45	1	3	0	9	$6,336,280
Norfolk	57	43	3	11	0	0	0	0	$101,500
North Adams	84	47	8	29	0	1	0	2	$805,564
North Andover	121	76	12	33	0	0	0	0	$298,550
North Attleboro	70	28	7	35	0	0	0	0	$351,500
North Brookfield	27	9	2	16	0	0	0	0	$336,500
North Reading	43	25	3	15	0	2	0	0	$233,603
Northampton	114	54	12	48	0	6	0	2	$2,422,680
Northborough	39	12	8	19	0	0	0	0	$2,816,800
Northbridge	43	18	3	22	0	0	0	1	$243,900
Northfield	10	3	2	5	0	0	0	0	$0
Norton	73	20	10	43	0	0	0	0	$91,510
Norwell	54	20	8	26	0	0	0	0	$0
Norwood	91	34	9	48	1	1	0	2	$672,550
Oak Bluffs	1	1	0	0	0	0	0	0	$214,000
Oakham	12	6	0	6	0	0	0	0	$0
Orange	5	4	0	1	0	0	0	0	$0
Orleans	32	15	4	13	0	0	0	1	$235,000
Otis	1	1	0	0	0	0	0	0	$0
Oxford	70	38	12	20	0	5	0	0	$304,105
Palmer Fire Districts									
Palmer	*61*	*41*	*9*	*11*	*2*	*2*	*0*	*0*	*$490,300*
Bondsville	*12*	*1*	*2*	*9*	*0*	*0*	*0*	*0*	*$8,500*
Three Rivers	*12*	*7*	*0*	*5*	*0*	*0*	*0*	*0*	*$0*
Paxton	9	8	1	0	0	0	0	0	$155,000
Peabody	180	74	22	84	0	1	0	2	$9,218,624
Pelham	0	0	0	0	0	0	0	0	$0
Pembroke	22	15	5	2	0	1	0	4	$2,600,510
Pepperell	49	27	7	15	0	2	0	3	$825,050

2008 Arson Experience by Community

Community	Total Arson	Structure Arson	Vehicle Arson	Other Arson	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	47	16	14	17	0	0	0	4	$1,344,010
New Braintree	0	0	0	0	0	0	0	0	$0
New Marlborough	0	0	0	0	0	0	0	0	$0
New Salem	0	0	0	0	0	0	0	0	$0
Newbury	0	0	0	0	0	0	0	0	$0
Newburyport	0	0	0	0	0	0	0	0	$0
Newton	2	0	0	2	0	0	0	0	$0
Norfolk	3	3	0	0	0	0	0	0	$1,000
North Adams	6	1	0	5	0	0	0	0	$1,601
North Andover	0	0	0	0	0	0	0	0	$0
North Attleboro	1	0	0	1	0	0	0	0	$0
North Brookfield	1	0	0	1	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	1	1	0	0	0	0	0	0	$2,500,000
Northbridge	2	1	0	1	0	0	0	0	$1,000
Northfield	1	0	0	1	0	0	0	0	$0
Norton	1	0	1	0	0	0	0	0	$0
Norwell	4	1	0	3	0	0	0	0	$0
Norwood	0	0	0	0	0	0	0	0	$0
Oak Bluffs	0	0	0	0	0	0	0	0	$0
Oakham	0	0	0	0	0	0	0	0	$0
Orange	0	0	0	0	0	0	0	0	$0
Orleans	2	0	0	2	0	0	0	0	$0
Otis	0	0	0	0	0	0	0	0	$0
Oxford	5	2	3	0	0	0	0	0	$15,700
Palmer Fire Districts									
Bondsville	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Palmer	*1*	*1*	*0*	*0*	*0*	*0*	*0*	*0*	*$3,000*
Three Rivers	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Paxton	0	0	0	0	0	0	0	0	$0
Peabody	4	1	1	2	0	0	0	0	$4,000
Pelham	0	0	0	0	0	0	0	0	$0
Pembroke	0	0	0	0	0	0	0	0	$0
Pepperell	1	0	0	1	0	0	0	0	$0

2008 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	6	2	1	3	0	0	0	0	$171,900
Petersham	8	5	0	3	0	0	0	0	$0
Phillipston	10	1	1	8	0	0	0	0	$0
Pittsfield	312	166	19	127	1	2	0	4	$2,051,550
Plainfield	0	0	0	0	0	0	0	0	$0
Plainville	36	17	4	15	0	1	0	2	$390,000
Plymouth	200	68	29	103	1	3	0	8	$1,621,310
Plympton	21	8	0	13	0	0	0	0	$759,350
Princeton	17	7	1	9	0	0	0	0	$0
Provincetown	26	16	0	10	0	0	0	0	$0
Quincy	532	282	45	205	0	3	0	22	$525,000
Randolph	214	141	17	56	0	4	0	2	$1,360,310
Raynham	97	30	11	56	0	0	0	1	$188,100
Reading	96	56	4	36	0	0	0	0	$19,105
Rehoboth	73	36	8	29	0	3	0	1	$492,500
Revere	443	399	10	34	0	1	0	1	$389,050
Richmond	17	7	0	10	0	0	0	0	$3,000
Rochester	12	9	3	0	0	0	0	0	$424,000
Rockland	59	25	3	31	1	1	0	3	$178,000
Rockport	13	5	2	6	0	0	0	0	$0
Rowe	0	0	0	0	0	0	0	0	$0
Rowley	28	14	5	9	0	0	0	0	$15,970
Royalston	1	1	0	0	0	0	0	0	$0
Russell	14	8	3	3	0	1	0	0	$272,000
Rutland	21	6	1	14	0	0	0	0	$32,454
Salem	189	78	14	97	0	0	0	3	$311,000
Salisbury	19	6	6	7	0	0	0	0	$423,100
Sandisfield	13	6	1	6	0	0	0	0	$1,063,749
Sandwich	104	71	10	23	0	1	0	2	$977,052
Saugus	165	69	12	84	0	4	0	8	$1,653,175
Savoy	2	2	0	0	0	0	0	0	$0
Scituate	72	36	8	28	1	1	0	1	$771,000
Seekonk	80	25	6	49	0	1	0	0	$541,425
Sharon	51	22	11	18	0	0	0	0	$189,995
Sheffield	3	1	0	2	0	0	0	0	$100,000

2008 Arson Experience by Community

Community	Total Arson	Structure Arson	Vehicle Arson	Other Arson	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Peru	1	0	0	1	0	0	0	0	$0
Petersham	0	0	0	0	0	0	0	0	$0
Phillipston	0	0	0	0	0	0	0	0	$0
Pittsfield	26	5	1	20	0	0	0	0	$1,295
Plainfield	0	0	0	0	0	0	0	0	$0
Plainville	5	1	0	4	0	0	0	0	$0
Plymouth	12	5	0	7	0	0	0	0	$1,100
Plympton	2	0	0	2	0	0	0	0	$0
Princeton	2	1	0	1	0	0	0	0	$0
Provincetown	0	0	0	0	0	0	0	0	$0
Quincy	15	2	0	13	0	0	0	0	$0
Randolph	0	0	0	0	0	0	0	0	$0
Raynham	1	0	0	1	0	0	0	0	$0
Reading	15	1	0	14	0	0	0	0	$0
Rehoboth	2	0	1	1	0	0	0	0	$5,000
Revere	1	1	0	0	0	0	0	0	$0
Richmond	1	0	0	1	0	0	0	0	$0
Rochester	1	0	1	0	0	0	0	0	$1,000
Rockland	2	2	0	0	1	0	0	3	$50,000
Rockport	0	0	0	0	0	0	0	0	$0
Rowe	0	0	0	0	0	0	0	0	$0
Rowley	0	0	0	0	0	0	0	0	$0
Royalston	0	0	0	0	0	0	0	0	$0
Russell	0	0	0	0	0	0	0	0	$0
Rutland	1	0	0	1	0	0	0	0	$2
Salem	2	0	1	1	0	0	0	0	$0
Salisbury	0	0	0	0	0	0	0	0	$0
Sandisfield	0	0	0	0	0	0	0	0	$0
Sandwich	1	0	1	0	0	0	0	0	$5,000
Saugus	14	2	0	12	0	0	0	0	$6,205
Savoy	0	0	0	0	0	0	0	0	$0
Scituate	4	3	0	1	1	0	0	1	$483,000
Seekonk	4	0	0	4	0	0	0	0	$0
Sharon	1	0	0	0	0	0	0	0	$0
Sheffield	0	0	0	0	0	0	0	0	$0

2008 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	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Shelburne Falls	*6*	*4*	*0*	*2*	*0*	*0*	*0*	*0*	*$0*
Sherborn	27	4	2	21	0	0	0	0	$0
Shirley	3	3	0	0	0	0	0	0	$0
Shrewsbury	126	63	19	44	0	0	0	0	$515,000
Shutesbury	7	4	2	1	0	0	0	0	$97,000
Somerset	38	18	6	14	0	2	0	1	$314,250
Somerville	60	34	25	1	0	1	0	28	$3,197,750
South Hadley Fire Districts									
South Hadley #1	*16*	*9*	*1*	*6*	*0*	*1*	*0*	*0*	*$631,900*
South Hadley #2	*13*	*11*	*1*	*1*	*0*	*0*	*0*	*0*	*$0*
Southampton	33	1	3	29	0	1	0	0	$2,000
Southborough	33	20	3	10	0	1	0	2	$186,380
Southbridge	74	43	10	21	0	1	0	0	$479,900
Southwick	51	29	4	18	0	0	0	1	$679,700
Spencer	82	46	6	30	0	1	0	0	$0
Springfield	1,138	687	104	347	0	21	0	61	$9,011,886
Sterling	45	17	5	23	0	0	0	0	$60,500
Stockbridge	1	1	0	0	0	0	0	0	$750,000
Stoneham	67	57	7	3	0	0	0	0	$446,200
Stoughton	266	219	24	23	0	0	0	5	$997,000
Stow	16	9	1	6	0	0	0	0	$34,900
Sturbridge	44	6	18	20	0	0	0	0	$28,500
Sudbury	58	28	5	25	0	0	0	0	$15,000
Sunderland	1	0	1	0	0	0	0	0	$11,875
Sutton	10	2	3	5	0	0	0	0	$0
Swampscott	56	30	5	21	1	0	0	3	$633,257
Swansea	85	35	5	45	0	0	0	0	$0
Taunton	161	28	21	112	0	0	0	0	$9,000
Templeton	37	18	4	15	0	0	0	0	$0
Tewksbury	82	27	11	44	0	0	0	0	$412,500
Tisbury	12	6	3	3	0	0	0	0	$0
Tolland	3	3	0	0	0	0	0	0	$0
Topsfield	73	64	1	8	0	0	0	0	$0
Townsend	2	2	0	0	0	0	0	0	$320,000
Truro	1	1	0	0	0	0	0	0	$400,000

2008 Arson Experience by Community

Community	Total Arson	Structure Arson	Vehicle Arson	Other Arson	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Shelburne Fire Districts									
Shelburne	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Shelburne Falls	*1*	*0*	*0*	*1*	*0*	*0*	*0*	*0*	*$0*
Sherborn	7	0	0	7	0	0	0	0	$0
Shirley	0	0	0	0	0	0	0	0	$0
Shrewsbury	5	0	1	4	0	0	0	0	$5,100
Shutesbury	0	0	0	0	0	0	0	0	$0
Somerset	1	1	0	0	0	0	0	0	$7,000
Somerville	3	3	0	0	0	0	0	1	$35,900
South Hadley Fire Districts									
South Hadley #1	*3*	*0*	*0*	*3*	*0*	*0*	*0*	*0*	*$0*
South Hadley #2	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Southampton	13	0	0	13	0	0	0	0	$0
Southborough	1	0	0	1	0	0	0	0	$0
Southbridge	1	0	1	0	0	0	0	0	$0
Southwick	2	1	1	0	0	0	0	0	$29,100
Spencer	0	0	0	0	0	0	0	0	$0
Springfield	26	15	6	5	0	0	0	8	$2,414,155
Sterling	0	0	0	0	0	0	0	0	$0
Stockbridge	0	0	0	0	0	0	0	0	$0
Stoneham	1	0	0	1	0	0	0	0	$0
Stoughton	4	0	2	2	0	0	0	0	$12,000
Stow	1	0	0	1	0	0	0	0	$700
Sturbridge	0	0	0	0	0	0	0	0	$0
Sudbury	0	0	0	0	0	0	0	0	$0
Sunderland	0	0	0	0	0	0	0	0	$0
Sutton	0	0	0	0	0	0	0	0	$0
Swampscott	1	1	0	0	0	0	0	0	$2
Swansea	4	2	0	2	0	0	0	0	$0
Taunton	11	2	2	7	0	0	0	0	$0
Templeton	3	0	0	3	0	0	0	0	$0
Tewksbury	3	0	0	3	0	0	0	0	$0
Tisbury	0	0	0	0	0	0	0	0	$0
Tolland	0	0	0	0	0	0	0	0	$0
Topsfield	0	0	0	0	0	0	0	0	$0
Townsend	0	0	0	0	0	0	0	0	$0
Truro	0	0	0	0	0	0	0	0	$0

2008 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	27	8	8	11	0	3	0	1	$512,600
Tyringham	0	0	0	0	0	0	0	0	$0
Upton	36	12	1	23	0	0	0	0	$143,000
Uxbridge	57	27	9	21	0	0	0	1	$265,015
Wakefield	59	54	5	0	1	1	0	0	$95,000
Wales	2	2	0	0	0	0	0	0	$22,700
Walpole	105	69	8	28	0	1	0	0	$172,700
Waltham	173	76	22	75	0	6	0	1	$625,240
Ware	67	15	2	50	1	2	0	2	$1,172,249
Wareham Fire Districts									
Onset	*39*	*15*	*6*	*18*	*0*	*0*	*0*	*0*	*$0*
Wareham	*118*	*52*	*21*	*45*	*0*	*4*	*0*	*0*	*$852,696*
Warren	26	13	2	11	0	0	0	0	$30,001
Warwick	1	1	0	0	0	0	0	0	$0
Washington	0	0	0	0	0	0	0	0	$0
Watertown	58	26	7	25	0	4	0	3	$700,375
Wayland	27	19	4	4	0	0	0	0	$223,200
Webster	69	31	9	29	0	0	0	1	$414,911
Wellesley	94	75	6	13	1	2	0	4	$541,740
Wellfleet	27	16	2	9	0	0	0	0	$49,900
Wendell	1	1	0	0	0	0	0	0	$9,000
Wenham	21	15	2	4	0	0	0	0	$213,000
West Boylston	28	4	6	18	0	1	0	0	$225,000
West Bridgewater	38	14	8	16	0	0	0	1	$112,100
West Brookfield	0	0	0	0	0	0	0	0	$0
West Newbury	6	1	1	4	0	0	0	0	$16,100
West Springfield	120	46	27	47	1	4	0	3	$2,535,950
West Stockbridge	5	1	0	4	0	0	0	0	$3,500
West Tisbury	0	0	0	0	0	0	0	0	$0
Westborough	60	26	10	24	0	0	0	0	$400,432
Westfield	134	60	19	55	0	3	0	3	$1,646,091
Westford	77	27	9	41	0	1	0	0	$452,706
Westhampton	8	4	0	4	0	0	0	0	$0
Westminster	32	16	10	6	0	0	0	0	$424,870
Weston	41	20	7	14	0	0	0	0	$0
Westport	75	9	8	58	0	0	0	0	$1,546,301
Westwood	110	56	9	45	0	1	0	0	$154,785
Weymouth	308	188	17	103	0	0	0	16	$1,330,060

2008 Arson Experience by Community

Community	Total Arson	Structure Arson	Vehicle Arson	Other Arson	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	3	0	0	3	0	0	0	0	$0
Uxbridge	3	0	1	2	0	0	0	0	$1,000
Wakefield	1	0	1	0	1	0	0	0	$0
Wales	0	0	0	0	0	0	0	0	$0
Walpole	7	4	0	3	0	0	0	0	$85,600
Waltham	1	0	1	0	0	0	0	0	$1,500
Ware	11	0	0	11	0	0	0	0	$9
Wareham Fire Districts									
Onset	*5*	*3*	*1*	*1*	*0*	*0*	*0*	*0*	*$0*
Wareham	*11*	*3*	*1*	*7*	*0*	*1*	*0*	*0*	*$7,630*
Warren	1	0	0	1	0	0	0	0	$0
Warwick	0	0	0	0	0	0	0	0	$0
Washington	0	0	0	0	0	0	0	0	$0
Watertown	4	1	0	3	0	1	0	0	$4,000
Wayland	0	0	0	0	0	0	0	0	$0
Webster	0	0	0	0	0	0	0	0	$0
Wellesley	1	1	0	0	0	0	0	0	$1,500
Wellfleet	0	0	0	0	0	0	0	0	$0
Wendell	0	0	0	0	0	0	0	0	$0
Wenham	1	0	0	1	0	0	0	0	$0
West Boylston	0	0	0	0	0	0	0	0	$0
West Bridgewater	0	0	0	0	0	0	0	0	$0
West Brookfield	0	0	0	0	0	0	0	0	$0
West Newbury	0	0	0	0	0	0	0	0	$0
West Springfield	7	0	0	7	0	0	0	0	$0
West Stockbridge	0	0	0	0	0	0	0	0	$0
West Tisbury	0	0	0	0	0	0	0	0	$0
Westborough	2	0	0	2	0	0	0	0	$0
Westfield	2	1	1	0	0	0	0	0	$12,900
Westford	6	0	0	6	0	0	0	0	$4,025
Westhampton	0	0	0	0	0	0	0	0	$0
Westminster	1	1	0	0	0	0	0	0	$0
Weston	1	0	0	1	0	0	0	0	$0
Westport	3	0	0	3	0	0	0	0	$1,000
Westwood	2	1	0	1	0	0	0	0	$5,200
Weymouth	6	0	0	6	0	0	0	0	$0

2008 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	11	3	3	5	0	0	0	0	$30,000
Whitman	40	13	3	24	0	2	0	0	$234,300
Wilbraham	39	21	8	10	0	1	0	0	$28,880
Williamsburg	8	4	1	3	0	0	0	0	$6,500
Williamstown	16	11	2	3	0	2	0	1	$202,735
Wilmington	47	13	13	21	0	2	0	1	$265,700
Winchendon	40	26	1	13	0	1	0	0	$9,300
Winchester	43	25	6	12	0	0	0	4	$1,504,600
Windsor	0	0	0	0	0	0	0	0	$0
Winthrop	68	36	4	28	0	1	0	2	$898,440
Woburn	72	40	18	14	0	0	0	0	$560,960
Worcester	1,445	807	117	521	1	1	0	72	$6,119,002
Worthington	0	0	0	0	0	0	0	0	$0
Wrentham	63	6	6	51	0	0	0	0	$13,410
Yarmouth	89	37	15	37	1	1	0	1	$537,958

2008 Arson Experience by Community

Community	Total Arson	Structure Arson	Vehicle Arson	Other Arson	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Whately	2	0	0	2	0	0	0	0	$0
Whitman	5	1	0	4	0	0	0	0	$25,000
Wilbraham	1	0	0	1	0	0	0	0	$0
Williamsburg	0	0	0	0	0	0	0	0	$0
Williamstown	0	0	0	0	0	0	0	0	$0
Wilmington	1	0	0	1	0	0	0	0	$0
Winchendon	1	0	0	0	0	0	0	0	$0
Winchester	2	0	0	2	0	0	0	0	$100
Windsor	0	0	0	0	0	0	0	0	$0
Winthrop	7	1	0	6	0	1	0	0	$0
Woburn	2	2	0	0	0	0	0	0	$4,510
Worcester	53	18	12	23	0	0	0	11	$511,882
Worthington	0	0	0	0	0	0	0	0	$0
Wrentham	0	0	0	0	0	0	0	0	$0
Yarmouth	10	1	1	8	0	0	0	0	$35,010

2008 Fires By Incident Type

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

2008 Arsons* By Incident Type

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

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

2008 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	1,081	481	124	476	6	40	0	18	$10,337,845
Berkshire	713	430	46	237	1	7	0	7	6,997,973
Bristol	2,311	822	311	1,178	3	32	0	20	13,011,869
Dukes	18	11	3	4	0	0	0	0	437,500
Essex	2,887	1,628	326	933	8	13	0	45	25,585,337
Franklin	298	154	31	113	0	2	0	3	1,774,935
Hampden	2,485	1,395	271	819	6	48	0	73	20,446,331
Hampshire	518	223	42	253	2	13	0	6	5,902,133
Middlesex	5,260	3,402	506	1,352	7	56	0	136	48,545,309
Nantucket	24	13	5	6	0	0	0	0	3,320
Norfolk	3,067	1,830	290	947	5	26	0	99	26,505,096
Plymouth	1,773	774	232	767	5	28	0	48	17,351,650
Suffolk	5,535	3,833	428	1,274	4	37	1	70	52,226,746
Worcester	4,166	2,202	461	1,503	2	35	0	97	25,067,689
Total	**30,136**	**17,198**	**3,076**	**9,862**	**49**	**337**	**1**	**622**	**$254,193,733**

2008 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	93	12	7	74	0	2	0	0	$260,332
Berkshire	42	8	1	33	0	0	0	0	3,946
Bristol	129	31	22	76	0	0	0	4	1,528,560
Dukes	0	0	0	0	0	0	0	0	0
Essex	134	21	17	96	0	1	0	3	623,707
Franklin	14	1	1	12	0	0	0	1	2,700
Hampden	92	29	14	49	0	2	0	4	383,401
Hampshire	51	1	2	48	0	0	0	0	21,409
Middlesex	174	40	27	107	1	2	0	2	1,844,516
Nantucket	0	0	0	0	0	0	0	0	0
Norfolk	86	17	6	63	0	0	0	0	855,325
Plymouth	99	34	9	56	2	1	0	5	1,275,930
Suffolk	124	49	20	55	2	3	0	7	1,878,454
Worcester	143	36	24	83	0	0	0	11	3,301,894
Total	**1,181**	**279**	**150**	**752**	**5**	**11**	**0**	**37**	**$11,980,174**

*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.

2008 Fires, Arsons and Deaths By County and By Population*

County	Population	Total Fires	Fires per 1,000 Pop.	Fire Deaths	Deaths per 1,000 Fires	Deaths per 10,000 Pop.	Total Arsons	Arsons per 1,000 Pop.
Barnstable	222,230	1,081	4.9	65.6	0.27	930.4		
Berkshire	134,953	713	5.3	1	1.4	0.07	42	0.3
Bristol	534,678	2,311	4.3	3	1.3	0.06	129	0.2
Dukes	14,987	18	1.2	0	0.0	0.00	0	0.0
Essex	723,419	2,887	4.0	82.8	0.11	1340.2		
Franklin	71,535	298	4.2	0	0.0	0.00	14	0.2
Hampden	456,228	2,485	5.4	62.4	0.13	920.2		
Hampshire	152,251	518	3.4	2	3.9	0.13	51	0.3
Middlesex	1,465,396	5,260	3.6	7	1.3	0.05	174	0.1
Nantucket	9,520	24	2.5	0	0.0	0.00	0	0.0
Norfolk	650,308	3,067	4.7	5	1.6	0.08	86	0.1
Plymouth	472,822	1,773	3.7	5	2.8	0.11	99	0.2
Suffolk	689,807	5,535	8.0	4	0.7	0.06	124	0.2
Worcester	750,963	4,166	5.5	2	0.5	0.03	143	0.2
Massachusetts	6,349,097	30,136	4.7	49	1.6	0.08	1,181	0.2

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

2008 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[2] & Natural Disaster	Special Incident Type
Barnstable	37,270	53	26,838	1,747	2,562	1,506	4,354	56	154
Berkshire	11,921	23	6,453	945	1,824	557	2,006	59	54
Bristol	43,959	64	25,424	2,722	3,479	3,315	8,599	62	294
Dukes	129	1	4	10	3	1	109	0	1
Essex	68,431	131	37,489	3,922	8,865	5,000	12,468	119	437
Franklin	4,506	11	1,916	461	747	550	716	39	66
Hampden	40,334	91	23,099	2,090	3,977	3,277	7,547	70	183
Hampshire	10,060	34	5,359	805	685	596	2,425	45	111
Middlesex	139,279	189	74,464	10,080	14,857	7,993	26,138	281	5,277
Nantucket	1,911	1	798	115	414	21	560	1	1
Norfolk	77,473	93	46,214	5,189	8,671	4,542	11,928	57	779
Plymouth	45,174	94	27,643	3,635	4,886	2,869	5,601	145	301
Suffolk	86,517	81	40,436	4,436	12,465	13,036	15,767	25	355
Worcester	82,272	116	50,864	5,785	7,457	4,534	12,306	431	779
Massachusetts	649,236	982	366,917	41,942	70,892	47,797	110,524	1,390	8,792

[2] WX is the abbreviation for Weather.

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

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

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

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

Whoever is aggrieved by the head of the fire department's interpretation, order, requirement, direction or failure to act under the provisions of this section, may, within forty-five days after the service of notice thereof, appeal from such interpretation, order, requirement, direction or failure to act to the automatic sprinkler board as provided in section two hundred and one of chapter six."

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

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

Total : 182

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

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

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

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

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

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

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

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

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

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


FIRE PREVENTION
everyone
everyday
Put out campfires safely and efficiently
Don't forget to turn off the oven
Change your smoke detector batteries
FIRE SAFETY
COOK SAFE