The Massachusetts Fire Problem

Annual Report of the Massachusetts Fire Incident Reporting System

2003

Mitt Romney
Governor

Edward A. Flynn
Secretary of Public Safety

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 2004 winning entries of the 22nd 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 **"HELP SMOKEY BEAR CELEBRATE HIS 60TH BIRTHDAY BY BECOMING MORE AWARE OF FIRE SAFETY IN AND OUT OF OUR HOMES."**

The Poster Contest is held on two levels; Level I is for 7th and 8th grade students and Level II is for 5th and 6th grade students. All public, private and parochial schools in each state are invited to participate. This year's poster theme is a reminder to everyone to practice fire prevention in their homes, workplace and in their every day activities and to make sure smoke alarms have working batteries at all times.

First, second and third place winners, as well as several honorable mentions, were chosen in each level by an impartial panel of judges selected from the fire services. Official presentations were made at a luncheon reception for the teachers, students and their families, held in Framingham, Massachusetts on Thursday, June 3, 2004. Mr. John Golembeski, President of the FAIR Plan, presented the awards to all winning students.

The front cover shows a drawing submitted by Kelly Culhane, a student at the Central Tree Middle School, Rutland, Massachusetts. Kelly's poster was chosen as First Place Winner from over 300 entries in the Level I division. Her teacher, Deborah Backstrom, coordinated class participation.

The back cover shows a drawing submitted by Salvatore Landingham, a student at the Lincoln Thomson Elementary School, Lynn, Massachusetts. Salvatore's poster was chosen as First Place Winner from over 500 entries in the Level II division. His teacher, Barbara Siaki, coordinated class participation.

The Massachusetts FAIR Plan has generously sponsored the printing of the 2003 Annual Report of the Massachusetts Fire Incident Reporting System (MFIRS), as well as the use of the first place posters for the covers, for the last 21 years.

Massachusetts Fire Incident Reporting System

2003 Annual Report

Publication Number: CR1095 – 195 – 800 – 4/05 – DFS
Approved by Philmore Anderson III, State Purchasing Agent

Stephen D. Coan, State Fire Marshal
Commonwealth of Massachusetts • Department of Fire Services
Post Office Box 1025 State Road • Stow, Massachusetts 01775
Telephone (978) 567-3300 • Facsimile (978) 567-3199

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/osfm/firedata/mfirs/index.htm

Fireman's Prayer

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

-Unknown

Foreword from the State Fire Marshal

Our Mission: *To preserve life and property from fire, explosion, electrical and related hazards through prevention, life safety education, investigation, regulation, law enforcement and technical assistance to fire departments, the public, and regulated trades and industries.*

April 2005

This is the *2003 Annual Report of the Massachusetts Fire Incident Reporting System* (MFIRS) which summarizes the Massachusetts fire experience for 2003. It is based on the 27,715 individual fire reports submitted by members of 342 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.

February 20, 2003, the horrible fire at the Station nightclub in neighboring Rhode Island hit, killing and maiming many Massachusetts citizens and ripping apart hundreds of families. Here in Massachusetts, our Governor and Secretary of Public Safety established a task force to see what needed to happen to prevent such a tragedy in our state. The result was passage of Chapter 304 of the Acts of 2004. Working toward this statute and now implementing it has changed the focus of our fire prevention efforts for some time to come. The most important aspect of this legislation is completing the unfinished business of the Cocoanut Grove fire in 1942 – the last major nightclub fire in the region – the requirements for fire sprinklers in nightclubs, bars, dance halls and discotheques.

While we do not have a high number of fires in nightclubs, nursing homes, schools or restaurants, these are places that when tragedy strikes, the potential to lose many lives at once looms large. Efforts to make these places safer through sprinklers, fire alarms, redefining adequate means of egress and code enforcement that has stronger teeth is what we can do to guard against a tragedy such as the Station nightclub fire happening “on our watch.”

This should in no way divert our attention from the fact that the thousands of fire deaths that occur in this country, occur in ones and twos in the “privacy” of people’s homes. Massachusetts is no different. If all of our fire deaths occurred in a single 9/11 type of event, the outcry for change would be loud. Unfortunately, we’ve become indifferent after hearing the same sad story day after day – “she fell asleep smoking in bed and the smoke alarms had no batteries.”

However, our relentless goal is to reduce the deaths, injuries and damage fires do in the Commonwealth and to send each and every firefighter home safely at the end of the day. We must continue to strengthen our code compliance efforts using enforcement tools when necessary. We must continue to educate the public at every stage of their lives what they can do to prevent a fire and to survive the ones that will occur.

In the past decade, our annual reports have measured the steady decline in fire deaths. We are making progress.

- We have measured the positive impact of smoke alarms in reducing fire deaths and the multiple deaths in fires. We may not be able to save the person who fell asleep smoking, but we can save their family and neighbors by giving them an early warning of the danger.
- We have measured the impact of smoking laws and tobacco control programs on reducing fires and fire deaths. While the total number of fire deaths from smoking continues to decline, it remains the leading cause.
- We have measured the impact of the Student Awareness of Fire Education Program (S.A.F.E.) on child fire deaths. As a result of consistent statewide fire education, children are no longer a high-risk group for dying in fires in our state. Seniors still are so we must expand our prevention efforts to them, not lose ground by shifting to them.
- We have measured how rooming houses went from being the "fire death-traps" of yesteryear to being a non-issue for today's young fire data analysts.
- We have measured the 80% drop in motor vehicle fires and motor vehicle arsons as result of the Burned-Recovered Motor Vehicle Reporting Law passed in 1987.

We look forward to seeing flammability standards for upholstered furniture, passage of state and national standards for self-extinguishing cigarettes, and more buildings - especially homes - with sprinklers. We look forward to expanding our resources to prevent fires and to educate the public. These are the next steps we know must be taken to continue the progress we have made.

We wish to thank the members and chiefs of fire departments for providing this office with the valuable statistical data that forms the backbone of the annual report. In 2003, 359 of the 365 fire departments in Massachusetts either submitted incident reports to MFIRS or certified that they had no reportable fires. This is a 98.4% compliance rate.

MFIRS is a partnership. By law, fire departments are required to report any fire resulting in a dollar loss or a human casualty. Fire departments may report other fires and other types of incidents that they respond to. We encourage them to do so, because it gives us a more accurate representation of the fire problem in their community as well as a better understanding of the other types of situations that Massachusetts fire departments handle, such as EMS, rescue and hazmat calls. We forward MFIRS data to the U.S. Fire Administration where it is merged with data from the rest of the country to form a picture of the national fire problem. The data is also shared with other government agencies, industry and the media.

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 Mitt Romney, and Public Safety Secretary Edward A. Flynn for their commitment and support to the Massachusetts fire service through the Department of Fire Services.

Stephen D. Coan
State Fire Marshal

Table of Contents

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.

12,997 Structure Fires, 4,522 Vehicle Fires, 10,196 Outside & Other Fires in 2003
There were 27,715 fire and explosion incidents reported by fire departments to the Massachusetts Fire Incident Reporting System (MFIRS) in 2003. The 12,997 structure fires, 4,522 motor vehicle fires, and 10,196 outside and other fires caused 61 civilian deaths, 418 civilian injuries, one fire service death, 514 fire service injuries, and an estimated dollar loss of $181 million in property damages. In 2003 there were 2.2 civilian deaths for every 1,000 fires.

Structure Fires Up in 2003
The total number of reported fires increased by 1% from 27,478 in 2002 to 27,715 in 2003. Structure fires rose 8% from 2002 to 2003. From 2002 to 2003, motor vehicle fires increased by 4%. Outside, brush, and other fires decreased by 8% during the same time period.

Although the law states that only fires where a loss is sustained must be reported, many fire departments are wisely reporting all of the fire incidents that they respond to, giving a more accurate picture of the fire problem in Massachusetts. Many departments are also reporting the non-fire calls that they respond to. Emergency medical and rescue calls represent over half, or 52%, of the 502,226 total runs that were reported MFIRS in 2003.

Cooking Was the Leading Cause of Residential Structure Fires
Almost half (49%) of all residential structure fires were caused by unattended and other unsafe cooking practices in 2003. Fifty-three percent (53%) of residential structure fires originated in the kitchen.

One Fire Related Firefighter Death in 2003
In 2003, there was one fire-related fire service fatality in the Commonwealth of Massachusetts. Firefighter Martin H. McNamara V of the Lancaster Fire Department succumbed to injuries sustained while fighting an apartment building fire. There were two other firefighter deaths in 2003. Lt. Barry M. Bennett of the Cambridge Fire Department succumbed to Hepatitis-C 16 years after suffering an exposure to the infectious disease while on an EMS call on October 15, 1987. State Firefighter Wayne Mickle, a member of the Massachusetts Wildfire Crew of the Bureau of Forest Fire Control, died from a heart attack after battling the Bole Meadow fire near Missoula, Montana on August 15, 2003.

Firefighter injuries declined 17% from the 620 reported in 2002 to 514 in 2003.

Civilian Fire Deaths Down 2% in 2003
Civilian deaths dropped by 2% from 62 in 2002 to 61 in 2003. Thirty-six (36) men, 21 women, and four children died in Massachusetts' fires. Of the 61 civilian deaths in fires in 2003, 47 occurred in residential structure fires and five occurred in non-residential structure fires. Over three-quarters (77%) of civilians died in the "safety" of their own homes. The majority of these victims died at night, while they were sleeping and did not have working smoke detectors. It is also important to remember that detectors only provide an early warning of a fire. They do not guarantee an escape. It is important to make and practice an escape plan.

Five (5) deaths occurred in motor vehicle fires in 2003. Four (4) people died in four outside and other fires in 2003.

Smoking Was the Leading Cause 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. In 2003, the improper use and disposal of smoking materials caused 17 fire deaths, 11 men and six women, in 17 fatal fires. The unsafe and improper disposal of smoking materials caused 36% of residential structure fire deaths and 39%, or over one-third, of fatal residential structure fires.

Over 1/4 of Residential Fires Occurred in Homes With No Working Detectors
Unfortunately, in 26% of the residential structure fires, there were no working smoke detectors. No detectors were present at all in 15% of the residential structure fires. Detectors were present but failed to operate in 11%. The fire was too small to activate the detector in 16% of residential fires. Detectors operated in 58% of residential structure fires. These percentages were calculated for 2,872 fires where the detector performance was known.

Detectors Operated in 62% of Structure Fires that Caused Injuries
Of the 273 civilian injuries where detector performance was known, 62% occurred where smoke detectors were present and operated. 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.

All Arson Down 22%
One thousand four hundred and fifty-six (1,456) Massachusetts fires were considered arson in 2003. The 382 structure arsons, 276 vehicle arsons, and 798 outside and other arsons caused 10 civilian deaths, 22 civilian injuries, 20 fire service injuries, and an estimated dollar loss of $9.6 million. This is a 22% drop in arson from the 1,874 reported in 2002.

Structure arson fell by 22%. Motor vehicle arsons fell 30% from 2002 to 2003, although since 1987, motor vehicle arson has fallen 95%. The steady decline of motor vehicle arsons can be explained by the enactment of the Burned Motor Vehicle Reporting Law, which took effect in 1987, and requires owners of burned motor vehicles to complete and sign a report which must also be signed by a fire official from the department in the community where the fire occurred before they can collect on their fire insurance. Outside and other arsons decreased 19%.

36% of All Vacant Building Arsons Occurred in Secured Buildings
Thirty-six percent (36%) of all vacant building arsons in 2003 occurred in secured vacant buildings. Thirty percent (30%) occurred in unsecured, vacant buildings; while 16% happened in idle buildings that are not routinely used. Buildings under construction accounted for 10% of vacant building arsons. Buildings under major renovation accounted for 4% of the vacant building arsons in 2003. Another 4% of these arsons occurred in buildings being demolished.

1/4 of School Fires Were Intentionally Set
Twenty-four percent (24%) of the 248 school fires were considered intentionally set. Indoor rubbish fires accounted for 31% of these fires. Cooking started 20% of fires in Massachusetts' schools in 2003. Only 4% of the fires in non-residential schools were attributed to juvenile-set fires.

Conclusion
Most people die in fires at night in the so-called safety of their own home. While deaths continue to decline, smoking is still the leading cause of fatal fires and the lack of working smoke alarms or automatic extinguishing systems are contributing factors to these tragedies. It is important to remember that detectors only provide an early warning of a fire. They do not guarantee an escape. It is important to make and practice an escape plan.

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 address this.

All arson fires were down 22% from the 1,874 arson fire reported in 2002.

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. 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 fire department aims 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, manholes, 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, and welding and storage. 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 or 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 go to classes to learn the ins and outs of the regulations. These functions also produce a corresponding amount of documentation that must be maintained.

Firefighters Teach the Community Fire and Burn Prevention
Firefighters go out in the community to teach children, the elderly 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.

The S.A.F.E. Program

The Student Awareness of Fire Education or S.A.F.E. program was implemented in fiscal year 1996. Because smoking materials continue to be the leading cause of fire deaths in the state and nationwide, the Legislature approved $1,078,666 from the cigarette tax revenue 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 2003, 185 fire departments kept their S.A.F.E. programs going by sharing a $300,000 federal grant, which was about one-third of the funding received in previous years, and through the support of their local communities.

Fitchburg Young Hero Frederick Reynolds IV

On January 8, 2003, 7-year old Frederick Reynolds IV, awoke to the sound of smoke detectors in alarm. A fire had started in the home and smoke and heat were filling the building. Family members met in the second floor hallway as they exited their bedrooms. Frederick remained calm and instructed his family to get down low and crawl beneath the heat and smoke as they made their way out of the house to safety. Frederick's mother believes her son's calm manner and accurate instructions prevented panic among the other family members and greatly aided their safe exit from the home. Frederick learned how to evacuate quickly when smoke detectors sound and to crawl low beneath smoke at the South Street School Complex, from the Fitchburg Fire Department's S.A.F.E. Program.

Capt. Barbara Stone Named Public Fire & Life Safety Educator of the Year

Captain Barbara Stone of the Hanover Fire Department was awarded the 2003 Public Fire and Life Safety Educator of the Year. She has built a public fire education program since 1995 that reaches 14,000 students each year in Kindergarten, grades 1-3, 5 and 6. Open houses and targeted programming for seniors and the business community reach another 2,500 residents. She is able to get other agencies involved in her programs by actively participating in theirs, such as sleeping over and helping out at a local summer camp, she has persuaded them to include fire safety lessons. She has also spearheaded the creation of a countywide Juvenile Firesetter Intervention Program, which involved fostering collaboration of professionals from police departments, the courts, the schools, fire departments, and social service agencies. She has served as a mentor and resource to other public fire educators. She is also a regular contributor to the State Wide Coalition of Juvenile Firesetter Intervention Programs and the Massachusetts Public Fire and Life Safety Education Task Force.

140 MA Departments Receive $15.7 million in Federal Grants

In the second year of the Federal Assistance to Firefighter Grant program, 140 Massachusetts fire departments received $15.7 million. Four (4) departments received $499,773 for EMS services. One hundred and ten (110) departments received $10.6 million for fire operations and firefighter safety. Five (5) departments received $396,184 for fire prevention programs. And 21 departments received $4.2 million for the purchase of firefighting vehicles.

98.4% of Massachusetts Fire Departments Participated in MFIRS

Massachusetts Fire Incident Reporting System

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) Massachusetts Fire Departments reported at least one fire during 2003. Seventeen (17) reported that they had no fires that met the criteria. Six (6) departments failed to report at all. Ninety-eight point four percent (98.4%) of the Massachusetts Fire Departments complied with fire incident reporting requirements this year. As an added incentive to comply with the law, a community had to be participating in MFIRS to be eligible for the S.A.F.E. program and for the federal FIRE Act grants.

More and more departments are automating fire incident reporting and other department functions. In 2003, 259, or 71%, of Massachusetts' fire departments submitted their data electronically. This is up 3% from the 248, or 68%, of departments that reported electronically in 2002.

Expanded Possibilities With Version 5

2003 is the second full year that fire incident reports were submitted and analyzed using version 5 reporting format and data codes. We hope 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. With MFIRS version 5 comes an expanded database set with new fields to help us answer the key question of what is causing our fires and how do we take the necessary steps to mitigate the problems. Some of the questions that MFIRS can now answer are: What types of vacant buildings are burned? What was the vacant building's status? Was it secured, unsecured, seasonal or under renovation? Why did the smoke or heat detectors or automatic extinguishing systems such as sprinklers fail to perform? We can also now tell the severity of a person's injury and where they were in relation to where the fire started and see what factors helped or hampered their escape.

Version 5 also includes an entirely new module, the Arson/Juvenile Firesetter Module. This module should give us the ability to identify where and when the crime takes place, what form it takes, and the characteristics of its targets and perpetrators. Armed with such information, we can develop and implement prevention initiatives and counseling programs and track trends to identify, track and catch arsonists and juvenile firesetters.

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. We expect these numbers to rise as more fire departments automate their reporting and begin voluntarily reporting all of their incidents to MFIRS. Only then will we have a more complete understanding of the amount of work the Massachusestts fire service does on a day-to-day basis.

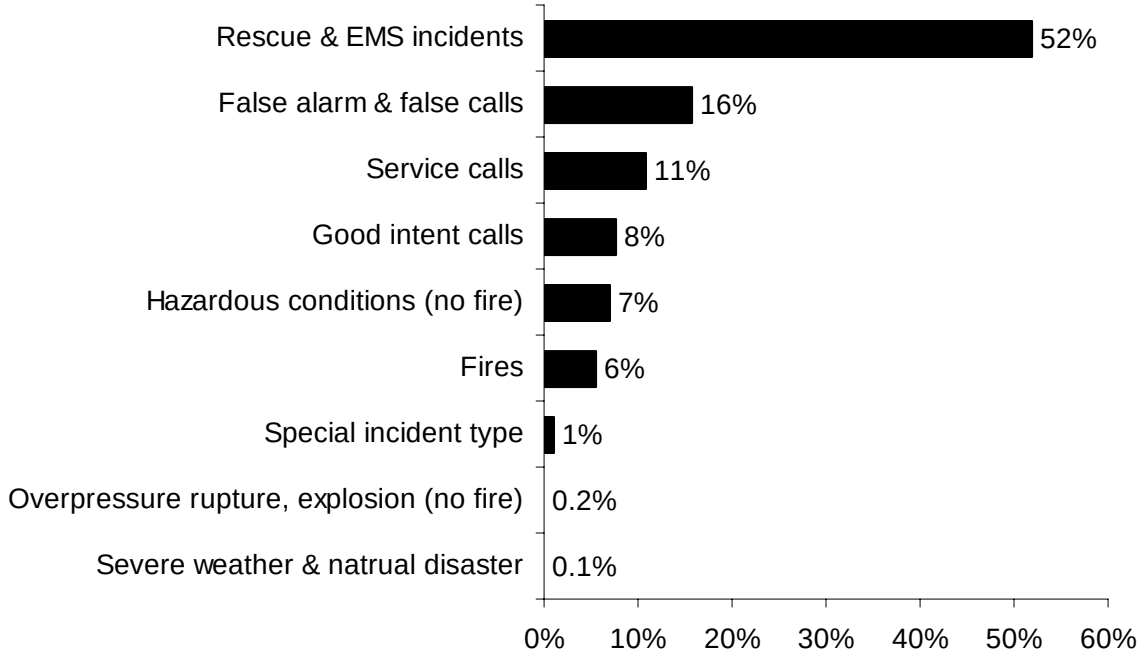
52% of All Massachusetts Calls Were EMS Incidents
In 2003, 240 fire departments in Massachusetts reported 502,226 responses[1] to MFIRS. Of these 502,226 responses, 474,511 non-fire calls were voluntarily reported.

Of these 474,511 non-fire incidents there were 260,669 (52%) reported rescue and emergency medical services (EMS) calls; 79,559 (16%) reported false alarm or false calls; 54,173 (11%) reported service calls such as lock-outs, water or smoke problem, unauthorized burning or public service assistance; 38,470 (8%) reported good intent calls; 35,011 (7%) reported hazardous condition calls with no fire; 4,896 (1%) reported special incident type calls such as citizen complaints; 1,137 (0.2%) reported overpressure rupture, explosion or overheat calls with no fire; and 596 (0.1%) reported severe weather and natural disaster incidents.

Twenty-seven thousand seven hundred and fifteen (27,715), or 6%, of the total responses submitted by Massachusetts fire departments were fires.

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

2003 Responses by Incident Type



Most Large Cities Voluntarily Reporting All of Their Incidents
Boston, the largest city in the Commonwealth, reported 70,923 non-fire incidents in 2003. The City of Worcester, the second largest city in Massachusetts reported the second most non-fire incidents in 2003, 16,804 incidents. The next five cities in terms of the number of non-fire calls reported were: Cambridge, 11,776 calls; Quincy, 9,645 calls; Springfield, 8,186 calls; Framingham, 7,925 calls, and Medford with 7,797 reported non-fire incidents in 2003.

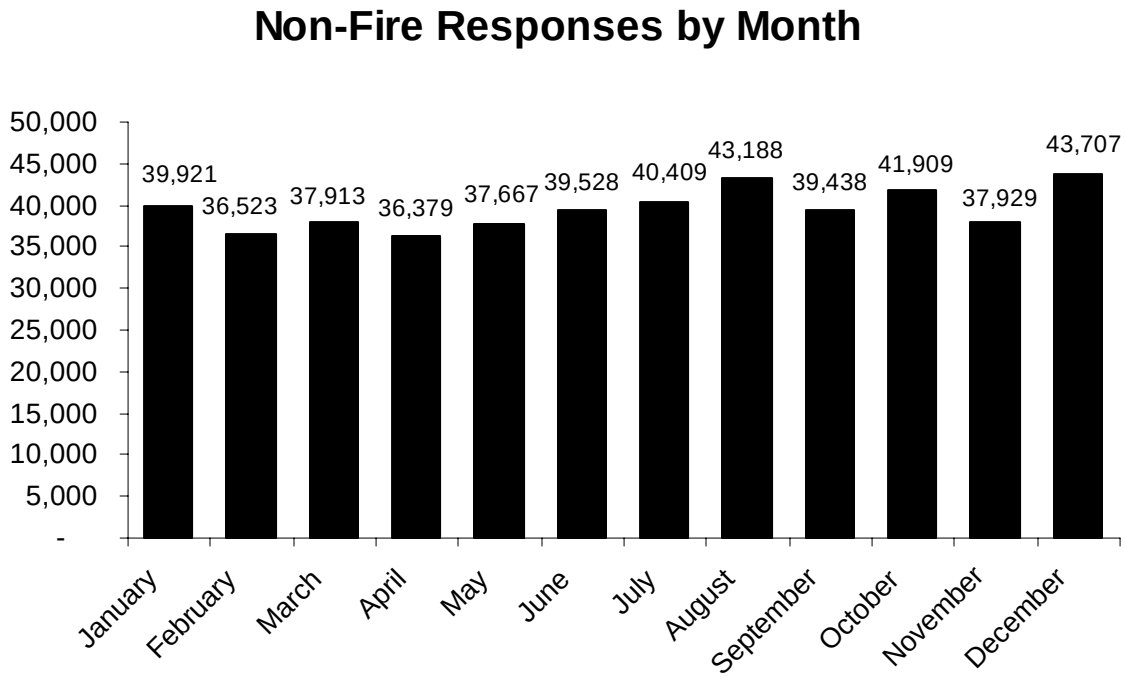
Over Half of All Fire Department Responses Were EMS Calls
Fifty-two percent (52%) of all reported 2003 fire department responses in the Commonwealth were emergency medical service calls. Four of the top five types of all calls were all EMS type incidents. Twenty-three percent (23%) of all reported incidents were non-vehicle accident with injury - EMS calls. Eleven percent (11%) were calls where firefighters assisted the EMS crews. Ten percent (10%) classified as rescue, EMS call, other. Four percent (4%) of all reported incidents in 2003 were motor vehicle accidents with injuries. The fifth most reported call in 2003 were good intent calls, other accounting for 3% of all reported incidents.

Suffolk & Middlesex Counties Reported Over 1/3 of All Non-Fire Incidents
Suffolk and Middlesex Counties reported a combined 36% of all non-fire incidents to MFIRS in 2003. They both reported 18% of these types of incidents. Norfolk County submitted the third most non-fire calls totaling 13%, and Worcester County reported 12% of all the 2003 non-fire incidents. Nantucket County reported two non-fire incidents and

Dukes County reported one non-fire incident; both accounted for less than 1% of all non-fire incidents reported to MFIRS in 2003.

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

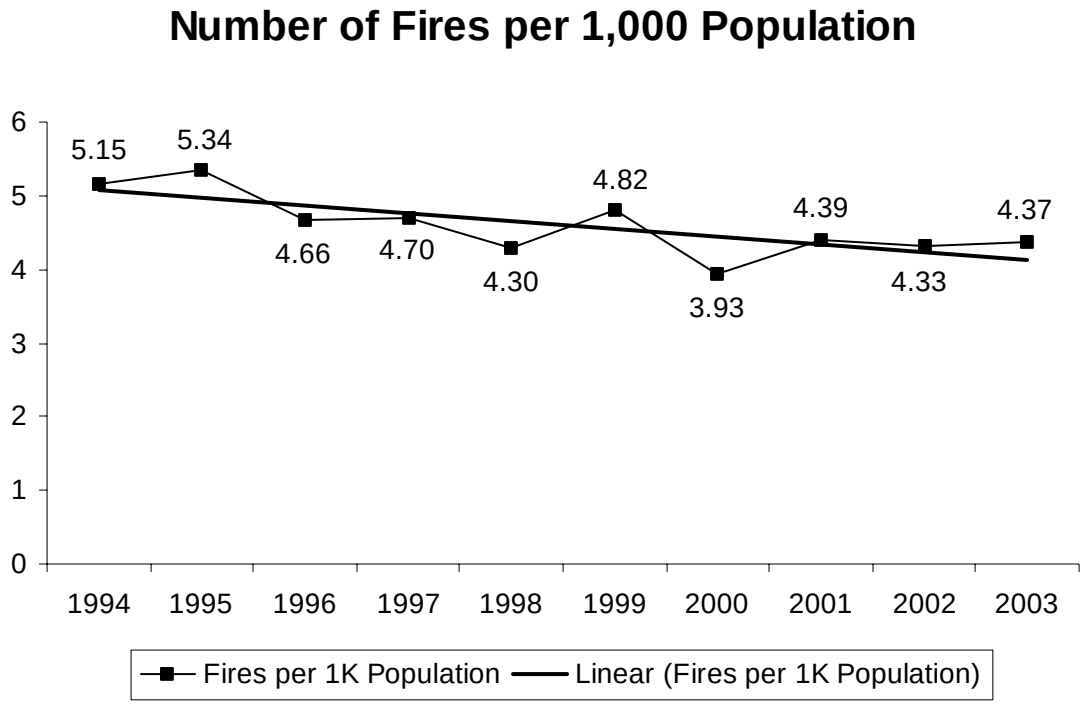
Non-Fire Incidents by Month
December was the month with the most reported non-fire incidents in 2003 (9%), followed by August (9%) and October (9%). February was the month with the least reported non-fire incidents (8%). Statistically these incidents are spread evenly from month to month. Four (4) months each accounted for 9% of the incidents, and the remaining eight months each accounted for 8% of the incidents. The average number of monthly reported non-fire incidents in 2003 was 39,164 calls.



Fires by Incident Type

12,997 Structure Fires, 4,522 Vehicle Fires, 10,196 Outside & Other Fires in 2003
There were 27,715 fire and explosion incidents reported by fire departments to the Massachusetts Fire Incident Reporting System (MFIRS) in 2003. The 12,997 structure fires, 4,522 motor vehicle fires, and 10,196 outside and other fires caused 61 civilian deaths, 418 civilian injuries, one fire service death, 514 fire service injuries, and an estimated dollar loss of $175 million in property damages.

The following chart indicates the number of total fires reported per 1,000 citizens in Massachusetts per year from 1994 through 2003. In 2003, there were 4.37 fires for every 1,000 citizens in Massachusetts[2]. A figure like this allows one to compare our fire problem to other states of different sizes. For example in 2003, Oregon reported 4.29 fires for every 1,000 of its citizens[3]. There were 5.63 fires per 1,000 citizens for the entire United States in 2003.[4] Massachusetts is below the national average of by 1.27 fires per 1,000 citizens.



The following graph depicts the percentage of the major types of fires as part of the whole Massachusetts fire problem. In 2003, 47% of all reported fires were structure fires. The majority of these fires were in people's homes. Thirty-eight percent (38%) of all fires in the Commonwealth, and 81% of all structure fires, occurred in someone's home; only 9% of all fires, and 19% of all structure fires, occurred in a type of building other than a residence. Sixteen percent (16%) were reported motor vehicle fires, while 37% were classified as outside and other fires.

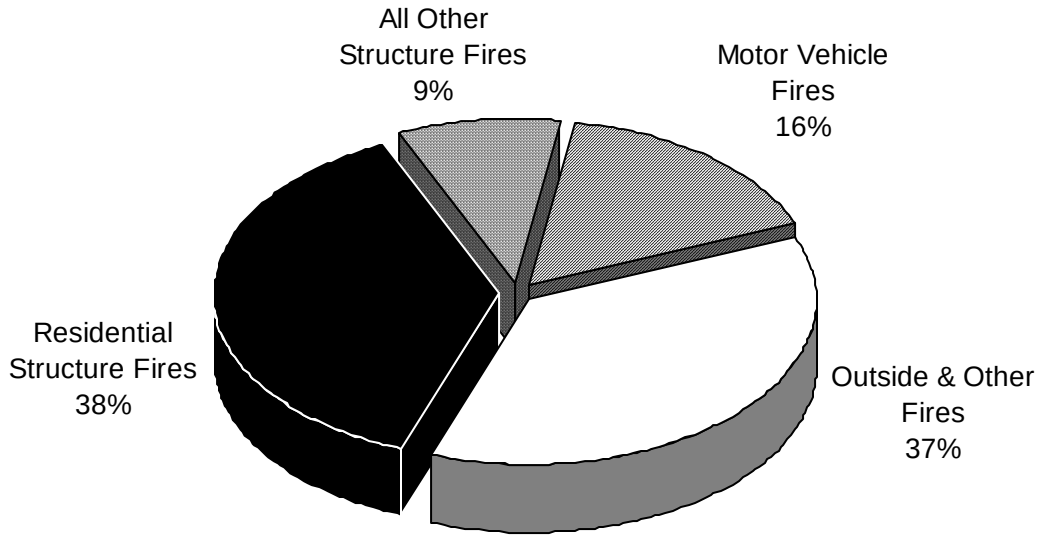
---

[2] The population figures used were from the 1990 and 2000 U.S. census. For the years 1994 – 1999, the population in MA was said to be 6,016,425 people. For 2000 – 2003, the population figure used was 6,319,097 people.

[3] Oregon State Fire Marshal 2003 Annual Report, 2003 In Review, page 6.

[4] 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 1,584,500 was obtained from **Fire Loss in the United States During 2003,** page I, Karter, Michael J. Jr., National Fire Protection Agency, October 2004.

2003 Fires by Incident Type



12,997 Structure Fires, 52 Civilian Deaths
Massachusetts fire departments reported 12,997 structure fires to the Massachusetts Fire Incident Reporting System (MFIRS) in 2003. These fires killed 52 civilians and one firefighter, caused 418 civilian injuries, 514 fire service injuries, and an estimated $150 million in property damage. Structure fires accounted for 47% of the total incidents and 85% of the civilian deaths in 2003. Structure fires were up 8% from 2002. There were 382 structure arsons in 2003. Structure fires in the Massachusetts Fire Incident Reporting System include any fires that occur inside or on a structure.

4,522 Motor Vehicle Fires Account for 16% of Reported Fires
The 4,522 motor vehicle fires caused five civilian deaths, 25 civilian injuries, 29 fire service injuries, and $22.1 million in property damage. These incidents accounted for 16% of the reported 27,715 fires in 2003. There were 276 motor vehicle arsons in 2003. Motor vehicle fires accounted for 8% of civilian fire deaths. Motor vehicle fires were up 4% from 2002. 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.

10,196 Brush Fires, Trash Fires, and Other Outside Fires, Reported in 2003
The 10,196 outside and other fires caused four civilian deaths, 34 civilian injuries, 27 fire service injuries, and an estimated dollar loss of $3.1 million. The 2,981 trees, grass and brush fires, 2,867 outside rubbish fires, 702 special outside fires, 26 cultivated vegetation or crop fires, and 3,620 other fires accounted for 37% of the total fire incidents in 2003. These fires were down 8% from the 11,110 such outside and other fire incidents reported

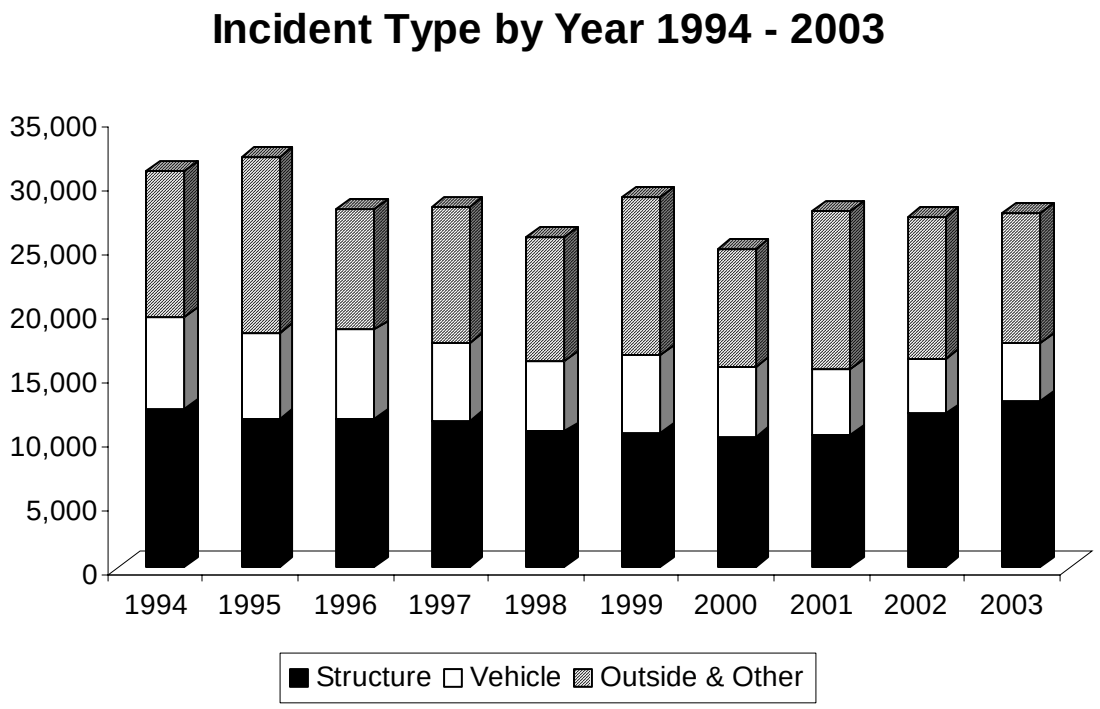
in 2002. There were 798 outside and other arsons in 2003. Fire departments are required to report any fire resulting in a dollar loss or human casualty to MFIRS. Fires that do not result in a loss may be reported. Many fire departments, particularly those that submit data electronically, voluntarily 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 1994 through 2003. The total number of fire incidents in 2003 was up 1% from the 27,478 incidents reported in 2002. Fires have been on an overall downward trend since 1994.

Year	Total Fires	Structure Fires	Vehicle Fires	Other Fires
2003	27,715	12,997	4,522	10,196
2002	27,478	12,021	4,347	11,110
2001	27,885	10,384	5,127	12,374
2000	24,931	10,279	5,473	9,179
1999	28,976	10,595	6,011	12,370
1998	25,873	10,613	5,565	9,695
1997	28,249	11,452	6,096	10,701
1996	28,064	11,611	6,980	9,473
1995	32,151	11,689	6,612	13,850
1994	30,989	12,362	7,267	11,360

The following graph depicts the same numbers in a different manner that shows what proportion of the fire problem each incident type represents. During the first five years of this period (1994-1998) the total number of structure fires decreased. However from 1999 through 2003 the number of structure fires steadily increased, especially in 2002 and 2003[5]. 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 whereas the number of these types of fires rises or 'crests' every four years.

[5] This is due to the new 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.



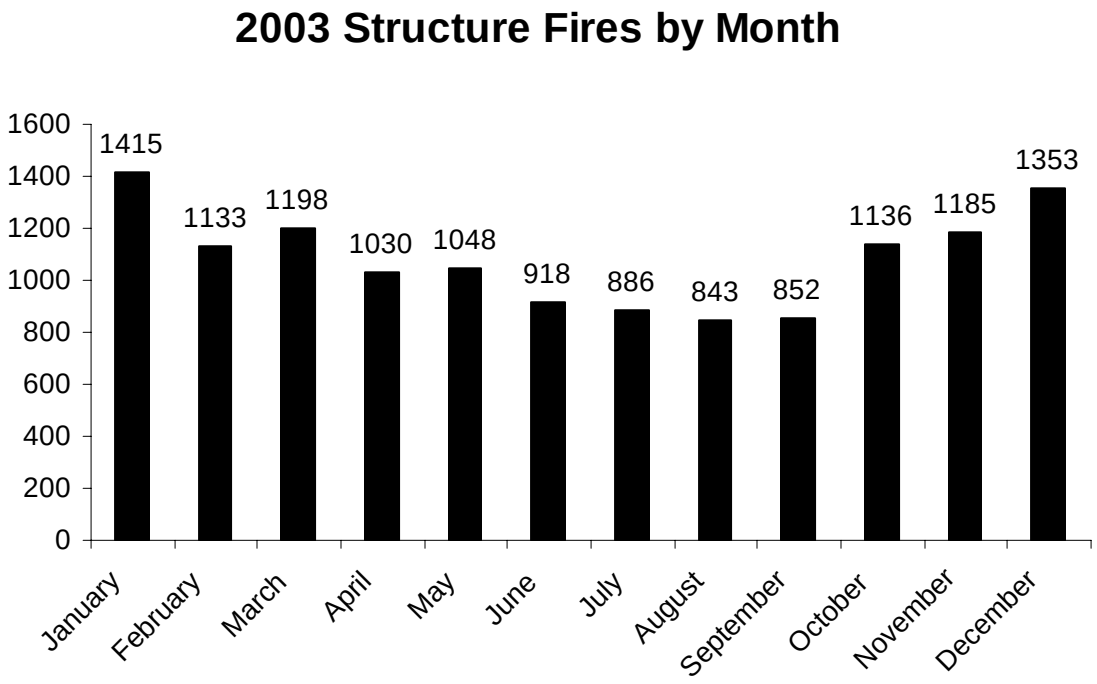
Structure Fires

12,997 Structure Fires Account for 47% of Reported Fires, 85% of Fire Deaths
The 12,997 structure fires caused 52 civilian deaths, one fire service death, 359 civilian injuries, 458 fire service injuries, and an estimated dollar loss of $150 million. The average structure fire caused $11,546 in property damage. Structure fires accounted for 47% of reported fires and 85% of the civilian fire deaths in 2003.

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. The number of structure fires rose by 22% from the 12,021 reported in 2002.

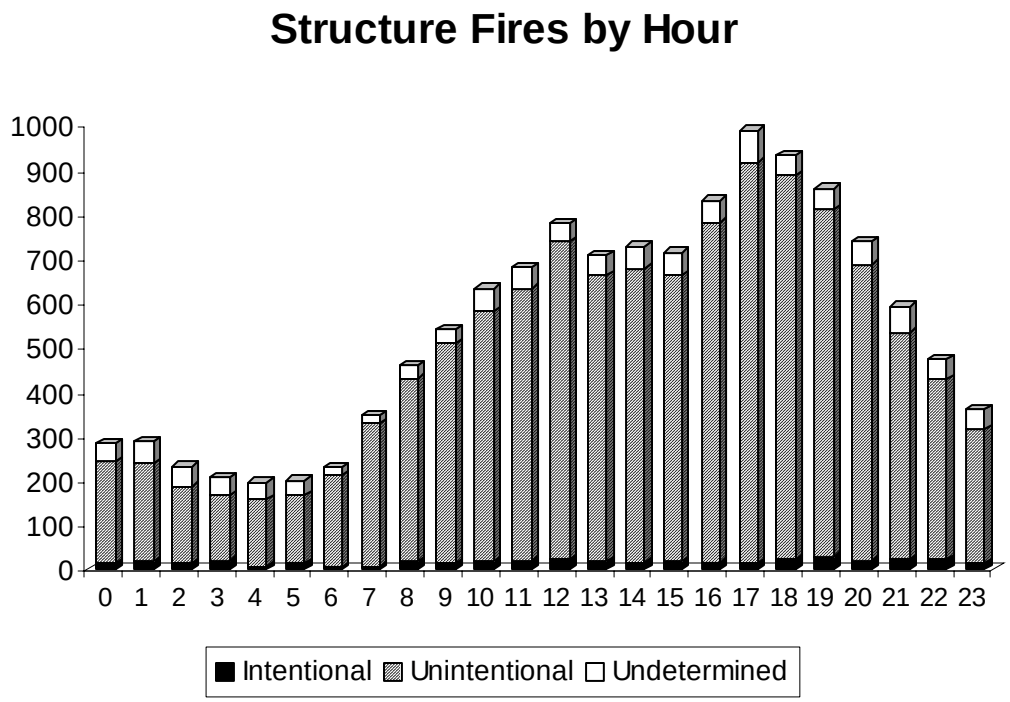
Structure Fires Most Common in Colder Months
Heating equipment plays a frequent role in structure fires. It is not surprising that January was the peak month for these incidents in 2003. December ranked second and November had the third largest number of structure fires. The warmer months had significantly fewer structure fires. The fewest fires occurred in August. September had the second

lowest frequency of these incidents, and July had the third lowest number of structure fires in 2003.



Structure Fires Most Common Around Dinner Time
Cooking is the leading cause of structure fires. Predictably, structure fires occurred most often around dinnertime. Intentionally set structure fires were most common between 6:00 p.m. and 10:00 p.m. Accidental structure fires reached their lowest point between 2:00 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 structure arsons, unintentional structure fires and structure 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.



Over 80% of Structure Fires Occurred in Residential Occupancies

Over four-fifths (81%) of the state's 12,997 structure fires and 47 of the 52 structure fire deaths occurred in residential occupancies. The following table shows the number of structure fires, civilian deaths, civilian injuries, fire service injuries, estimated dollar loss and the percentage of total structure 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 structures such as outbuildings, bus stop shelters and telephone booths.

STRUCTURE FIRES BY OCCUPANCY TYPE

Occupancy	# of Fires	% of Total	Injuries FF	Injuries Civ	Deaths FF	Deaths Civ	Dollar Loss	Avg. Dollar Loss
Public assembly	448	3%	16	6	0	0	$6,159,916	$13,750
Educational	316	2%	7	2	0	0	1,265,018	4,003
Institutional	399	3%	4	7	0	0	409,200	1,023
Residential	**10,465**	**81%**	**346**	**310**	**1**	**47**	**106,081,926**	**10,137**
1- & 2-Family homes	*5,090*	*39%*	*201*	*148*	*0*	*24*	*68,380,436*	*13,434*
Apartments	*4,376*	*34%*	*122*	*153*	*1*	*20*	*32,201,553*	*7,349*
All other residential	*999*	*8%*	*23*	*15*	*0*	*3*	*5,499,937*	*5,505*
Mercantile, business	616	5%	45	13	0	0	17,187,517	27,902
Basic industry	67	1%	6	1	0	0	1,477,560	22,053
Manufact., processing	155	1%	23	5	0	0	5,938,795	38,315
Storage properties	254	2%	9	10	0	5	9,996,920	39,358
Special properties	240	2%	1	1	0	0	1,394,394	5,810
Unclassified	37	0.3%	1	0	0	0	152,150	4,226
Total	12,997	100%	459	359	1	52	$150,063,396	11,546

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.

2003 Massachusetts Structure Fires by Property Use

Property Use	# of Fires	MFIRS Code
Assembly	**448**	
Assembly, other	14	100
Fixed use recreation places, other	10	110
Bowling alley	1	111
Electronic amusement center	1	113
Swimming facility: indoor or outdoor	2	116
Variable use amusement, recreation places	6	120
Ballroom, gymnasium	2	121
Convention center, exhibition hall	1	122
Stadium, arena	3	123
Playground	18	124
Amusement center: indoor/outdoor	1	129
Places of worship, funeral parlors	2	130
Church, mosque, synagogue, temple, chapel	67	131
Funeral parlor	1	134
Clubs, other	9	140
Athletic/health club	11	141
Clubhouse	10	142
Yacht Club	2	143
Casino, gambling clubs	1	144
Public or government, other	12	150
Library	8	151
Museum	8	152
Courthouse	2	155
Eating, drinking places	37	160
Restaurant or cafeteria	174	161
Bar or nightclub	18	162
Passenger terminal, other	2	170
Airport passenger terminal	2	171
Bus station	1	173
Rapid transit station	13	174
Studio/theater, other	2	180
Live performance theater	1	181
Auditorium or concert hall	1	182
Movie theater	5	183
Educational	**316**	
Educational, other	23	200
Schools, non-adult	11	210
Preschool	12	211
Elementary school, including kindergarten	80	213
High school/junior high school/middle school	146	215

Adult education center, college classroom	28	241
Day care, in commercial property	13	254
Day care, in residence, licensed	3	255
Health care, detention & correction	**399**	
Health care, detention, & correction, other	31	300
24-hour care Nursing homes, 4 or more persons	91	311
Mental retardation/development disability facility	63	321
Alcohol or substance abuse recovery center	27	322
Asylum, mental institution	10	323
Hospital - medical or psychiatric	94	331
Hospices	2	332
Clinics, Doctors offices, hemodialysis centers	20	340
Clinic, clinic-type infirmary	11	341
Doctor, dentist or oral surgeon's office	12	342
Hemodialysis unit	1	343
Jail, prison (not juvenile)	21	361
Reformatory, juvenile detention center	8	363
Police station	8	365
Residential	**10,465**	
Residential, other	347	400
1 or 2 family dwelling	5,090	419
Multifamily dwellings	4,376	429
Boarding/rooming house, residential hotels	190	439
Hotel/motel, commercial	113	449
Residential board and care	89	459
Dormitory type residence, other	154	460
Sorority house, fraternity house	4	462
Barracks, dormitory	102	464
Mercantile, Business	**616**	
Mercantile, business, other	101	500
Convenience store	16	511
Food and beverage sales, grocery store	100	519
Textile, wearing apparel sales	4	529
Household goods, sales, repairs	13	539
Specialty shop	42	549
Personal service, including barber & beauty shops	18	557
Recreational, hobby, home repair sales, pet store	4	559
Laundry, dry cleaning	32	564
Professional supplies, services	13	569
Service station, gas station	10	571
Motor vehicle or boat sales, services, repair	46	579
General retail, other	30	580
Department or discount store	9	581

Bank	20	592
Office: veterinary or research	9	593
Post office or mailing firms	4	596
Business office	145	599
Industrial, Utility, Defense, Agriculture, Mining	**67**	
Utility, defense, agriculture, mining, other	5	600
Energy production plant, other	4	610
Steam or heat generating plant	5	614
Electric generating plant	7	615
Laboratory or science laboratory	15	629
Communications center	4	639
Utility or Distribution system, other	1	640
Electrical distribution	8	642
Gas distribution, pipeline, gas distribution	1	644
Water utility	1	647
Sanitation utility	7	648
Crops or orchard	3	655
Livestock production	2	659
Forest, timberland, woodland	4	669
Manufacturing, processing	**155**	700
Storage	**254**	
Storage, other	17	800
Outside material storage area	23	807
Outbuilding or shed	69	808
Grain elevator, silo	2	816
Livestock, poultry storage	4	819
Refrigerated storage	3	839
Outside storage tank	4	849
Vehicle storage, other	16	880
Parking garage, (detached residential garage)	55	881
Parking garage, general vehicle	14	882
Fire station	3	888
Warehouse	38	891
Dock, marina, pier, wharf	3	898
Residential or self storage units	3	899
Outside or special property	**240**	
Outside or special property, other	30	900
Dump, sanitary landfill	6	919
Bridge, trestle	6	921
Tunnel	2	922
Outbuilding, protective shelter	23	926
Open land or field	33	931

Campsite with utilities	1	935
Vacant lot	14	936
Beach	5	937
Graded and cared-for plots of land	21	938
Water area, other	1	940
Lake, river, stream	1	946
Railroad right of way	3	951
Street, other	11	960
Highway or divided highway	4	961
Residential street, road or residential driveway	32	962
Street or road in commercial area	6	963
Vehicle parking area	30	965
Construction site	7	981
Industrial plant yard - area	4	984
Other	**37**	
None	8	NNN
Property Use, other	29	000
Total Structure Fires	**12,997**	

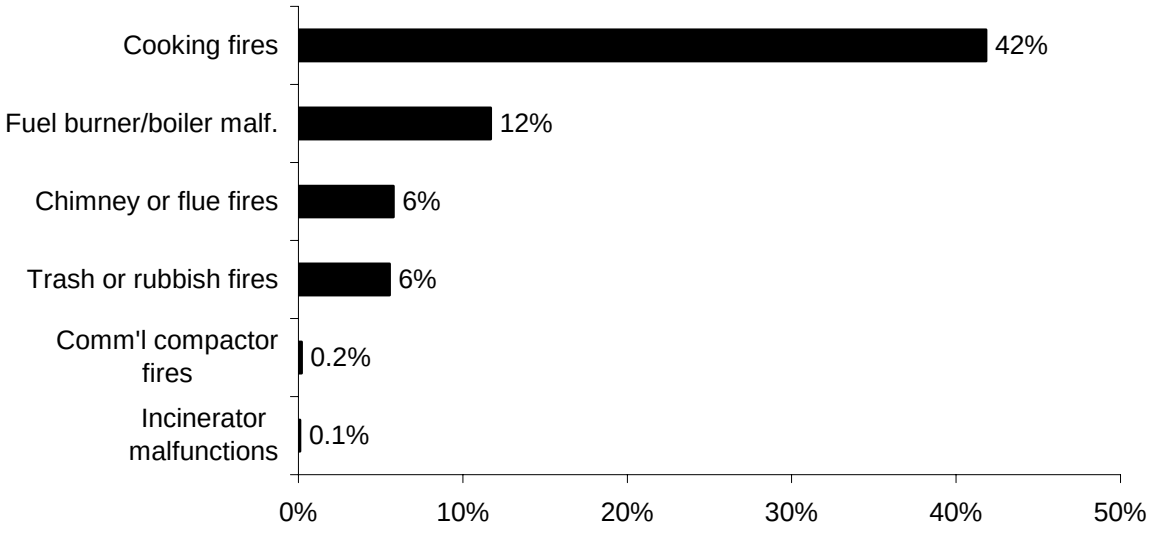
65% of Structure Fires Are Confined to Non-Combustible Containers[6]

Eight thousand four hundred and sixty-three (8,463), or 65% of all structure fires, were reported as confined to non-combustible containers in 2003. Five thousand four hundred and thirty-two (5,432) of the reported fires were cooking fires confined to a non-combustible container accounting for 42% of structure fires. One thousand five hundred and nineteen (1,519), or 12%, were fires confined to a fuel burner or boiler malfunction. Seven hundred and fifty-one (751), or 6%, of all structure fires reported in 2003 were fires confined to a chimney or flue. Seven hundred and seventeen (717), or 6%, of these fires were contained rubbish fires. Thirty-two (32), or less than 1%, was a commercial compactor fire that was confined to the rubbish. Twelve (12), or less than 1%, of these fires in the Commonwealth were contained to an incinerator overload or malfunction.

Confined structure fires increased by 1,909 incidents, or 29%, from the 6,554 reported in 2002.

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

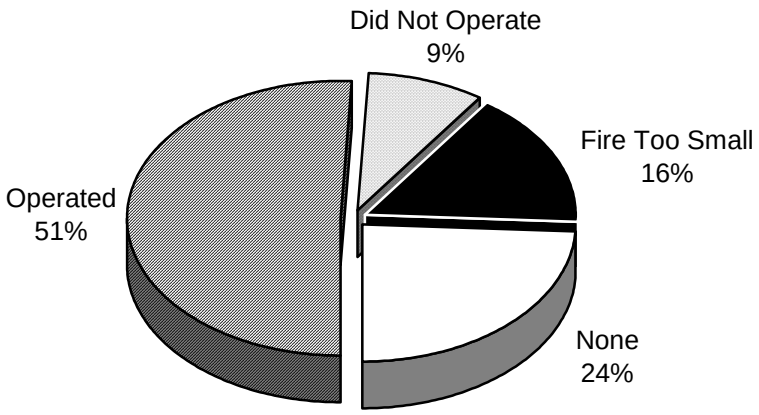
Structure Fires Confined to Non-combustible Containers



Detectors Alerted Occupants in Over 1/2 of Confined Fires
Smoke or heat detectors alerted the occupants in 4,041, or 57%, of the structure fires that were confined to non-combustible containers. In 17% of these fires, the detectors did not alert the occupants. In 26% of these fires, it was undetermined if the detectors alerted the occupants of the residence.

Detectors Sounded the Alarm in Just Over Half of Structure Fires
Smoke or heat detectors sounded the alarm in 51% of the 3,851 structure fires for which detector status was known. Smoke detectors failed to alert occupants in 33% of the structure fires in 2003; of these incidents, smoke detectors were present but did not operate in 9% of these fires and no detectors were present in 24% of the structure fires. In 16%, the fire was too small to activate the detector. Detector status for structure fires was undetermined or not reported in 890 incidents. These incidents were excluded from the percentage calculations.

Smoke Detector Status in Structure Fires



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

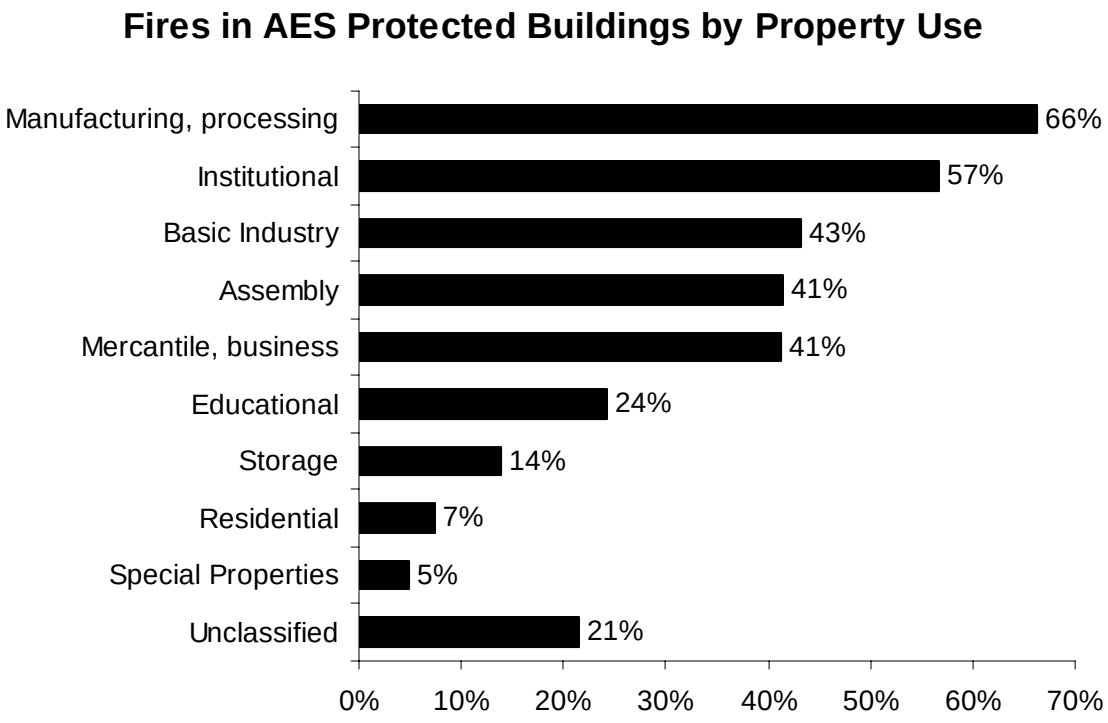
DETECTOR PERFORMANCE

	Operated	Did Not Operate	Fire Too Small	None	Unknown	Total
Public assembly	53	7	29	60	28	177
Educational	50	6	29	21	4	110
Institutional	51	5	24	11	15	106
Residential	1,658	312	471	431	735	3,607
Mercantile, business	91	8	47	124	51	321
Basic industry	8	3	5	21	6	43
Manufacturing	28	2	7	47	21	105
Storage properties	10	1	6	166	20	203
Special properties	4	0	0	38	8	50
Unclassified	3	1	1	12	2	19
Total	**1,956**	**345**	**619**	**931**	**890**	**4,741**

$6.3 Million Fire At Centerville-Osterville-Marston Mills Marina

- On December 10, 2003, at 9:31 p.m. the C.O.M.M. Fire Department was called to a large loss fire of undetermined cause at a marina. The fire began in one of the storage warehouses and had 24 exposures. There were no civilian injuries but one firefighter was injured battling this blaze. There were no smoke detectors present. An automatic extinguishing system was present but it was undetermined if it operated. This was the largest loss fire in 2003 as it destroyed five structures and over 100 boats of different sizes. It went to five alarms. The fire department was on scene for approximately 11 hours. Damages from this fire and all of its exposures were estimated at $6,340,665.

15% of Unconfined Fires Occurred in Buildings with AES
Overall, 15% of the unconfined[7] structure fires in 2003 occurred in buildings that had automatic extinguishing systems, regardless of whether the fire was large enough to activate the system. Manufacturing and institutional properties were the most likely to have an AES. Two-thirds (66%) of the fires in manufacturing or processing facilities, 57% of the fires in health care, detention and correction facilities, and 43% of the fires in basic industrial facilities occurred in buildings with these systems. Only 7% of the residential fires occurred in buildings protected by an automatic extinguishing system.



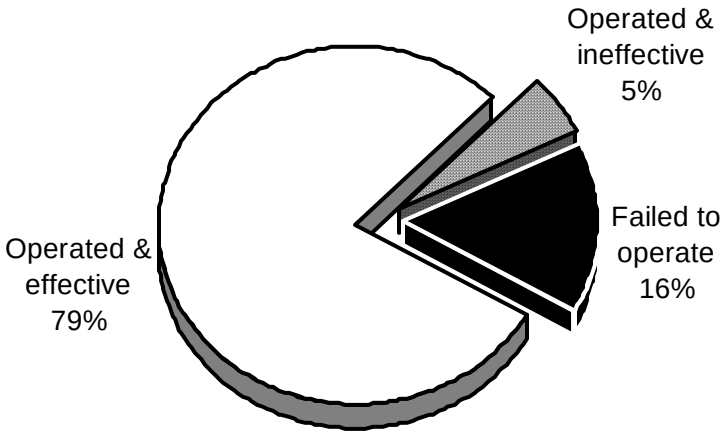
Unfortunately over 80% of total structure fires occurred in residential buildings but only 2% of all of these residential occupancies were protected by an AES system.

AES Work in Almost 4/5 of Building Fires When Installed
AES were present and operated in 189, or 84%, of the 219 structure fires in buildings protected by an automatic extinguishing system, which had a reported fire large enough for the AES to activate in Massachusetts in 2003. Of these 219 fires, the systems were effective in 173, or 79%, and ineffective in 12, or 5%, of these incidents. AES were present but failed to operate in 34, or 16%, of these 219 structure fires. Some of the reasons for the automatic extinguishing system failures were reported to be: the fire was

[7] 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.

not in an area protected by the system; there was some form of manual intervention; the system was shut off; and lack of maintenance to the system.

AES Status in AES Protected Buildings



The table below shows sprinkler performance by occupancy group for those incidents where AES were reported to have been present.

AUTOMATIC EXTINGUISHING SYSTEM PERFORMANCE

	Operated	Did Not Operate	Fire Too Small	None	Unknown	Total
Assembly	25	5	26	10	1	67
Educational	2	0	15	7	0	24
Institutional	8	1	33	12	1	55
Residential	71	11	101	54	10	247
Mercantile, business	38	6	45	30	6	125
Basic industry	4	1	8	2	1	16
Manufacturing	27	7	22	10	1	67
Storage properties	7	3	10	3	1	24
Special properties	1	0	1	0	0	2
Unclassified	2	0	1	0	0	3
Total	**185**	**34**	**262**	**128**	**21**	**630**

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. 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.

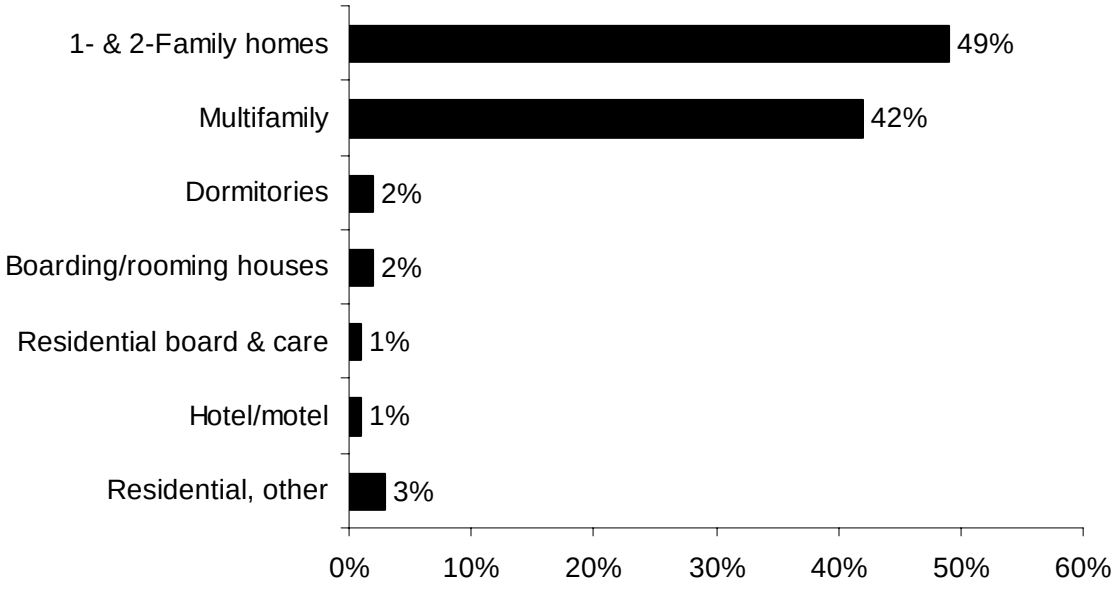
Residential Structure Fires

81% of Structure Fires Occurred in Residential Occupancies
Massachusetts fire departments reported that 10,465, or 81% of the 12,997 structure fires occurred in residential occupancies. These fires caused 47 civilian deaths, one fire service death, 310 civilian injuries, 346 fire service injuries and an estimated dollar loss of $106 million. The average dollar loss per fire was $10,137. The total number of reported residential structure fires went up 12% from the 9,342 reported in 2002. The following table shows the statistics for fires, firefighter and civilian casualties and the estimated dollar loss by residential occupancy.

RESIDENTIAL STRUCTURE FIRES

Occupancy	# of Fires	% of Total	Injuries FF	Injuries Civ	Deaths FF	Deaths Civ	Dollar Loss
1- & 2-Family homes	5,090	49%	201	142	0	24	$68,380,436
Multifamily	4,376	42%	122	153	1	20	32,201,553
Rooming houses	190	2%	4	2	0	1	960,986
Hotels & motels	113	1%	1	2	0	0	450,035
Residential board & care	89	1%	0	0	0	0	36,276
Dormitories	260	2%	1	4	0	0	374,774
Unclassified	347	3%	17	7	0	2	3,677,866
Total	**10,465**	**100%**	**346**	**310**	**1**	**47**	**$106,081,926**

Residential Structure Fire by Occupancy Type



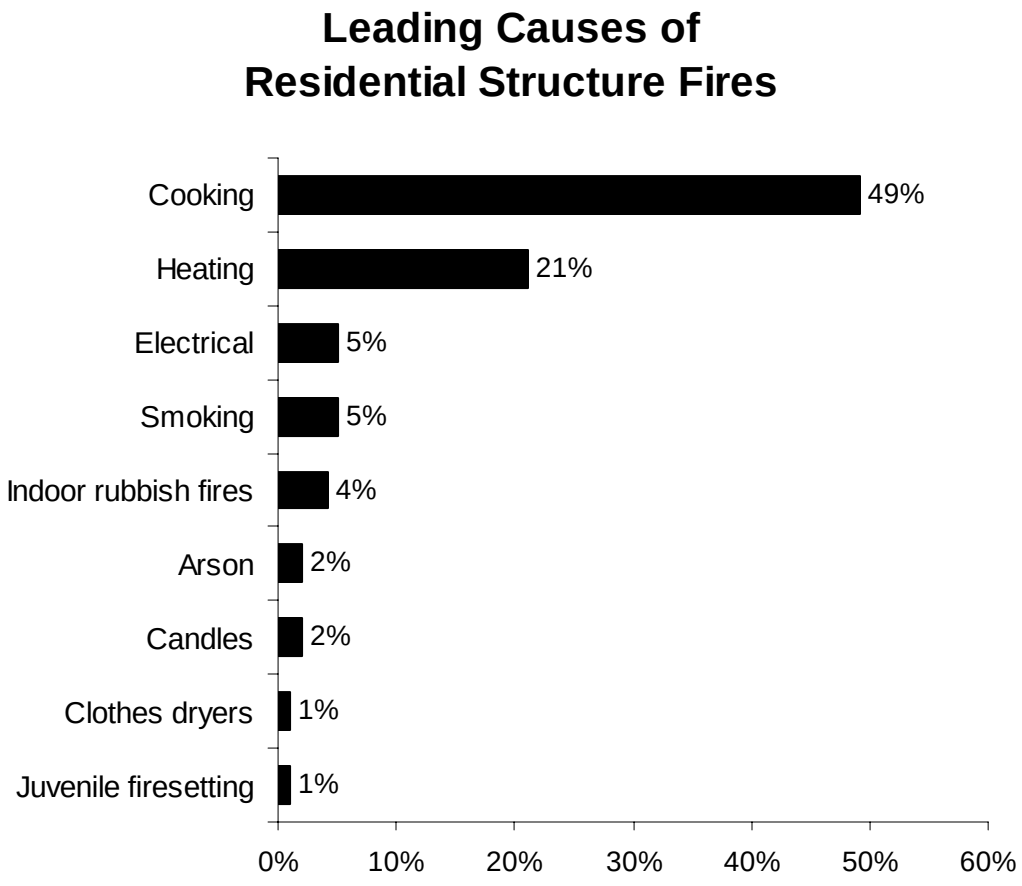
Residential Occupancy Sub-Group Definitions

- **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/convent, dormitories, bunk houses and workers' barracks.
- **Residential, other**: Any type of residential occupancy that is not defined above.

Cooking Causes Almost 1/2 of Residential Structure Fires

The leading causes of residential structure fires in 2003 were cooking, heating, electrical, smoking, indoor rubbish fires, arson, candles, clothes dryer fires, and juvenile firesetting. Cooking was the leading cause of residential structure fires accounting for 5,143, or 49% of the 10,465 incidents. Heating accounted for 2,218, or 21% of the total fires. Electrical problems caused 504, or 5%, of incidents. The unsafe use and disposal of smoking materials accounted for 475, or 5%, of these incidents. Indoor rubbish fires were the cause of 434, or 4%, of residential structure fires. Arson accounted for 221, or 2%, of residential structure fires. Two percent (2%), or 173, were caused by candles. Clothes dryer fires were the cause for 85, or 1%, of these incidents. Juvenile firesetting accounted for 82, or another 1%, of residential structure fires in Massachusetts in 2003.



Over 1/2 of Residential Fires Started in the Kitchen
Fifty-three percent (53%) of the residential structure fires in 2003 started in the kitchen. Thirteen percent (13%) began in a heating room or area; 7% started in the chimney or flue; 4% began in the bedroom; and 2% started in the living room in Massachusetts residential structure fires in 2003.

68% of Residential Structure Fires Confined to Non-Combustible Containers[8]
Seven thousand seventy-nine (7,079), or 68% of all residential structure fires, were reported as confined to non-combustible containers in 2003. Four thousand seven hundred and thirteen (4,713) of the reported fires were cooking fires contained to a non-combustible container accounting for 45% of residential structure fires. One thousand three hundred and twenty-three (1,323), or 13%, were fires confined to a fuel burner or boiler malfunction. Seven hundred and eighteen (718), or 7%, of all residential structure fires reported in 2003 were fires confined to a chimney or flue. Three hundred and nine (309), or 3%, of these fires were contained rubbish fires. Eight (8), or less than 1%, of these fires in the Commonwealth were contained to an incinerator overload or malfunction. Another eight, or less than 1%, of the residential structure fires in 2003 were commercial compactor fires confined to the rubbish inside the compactor.

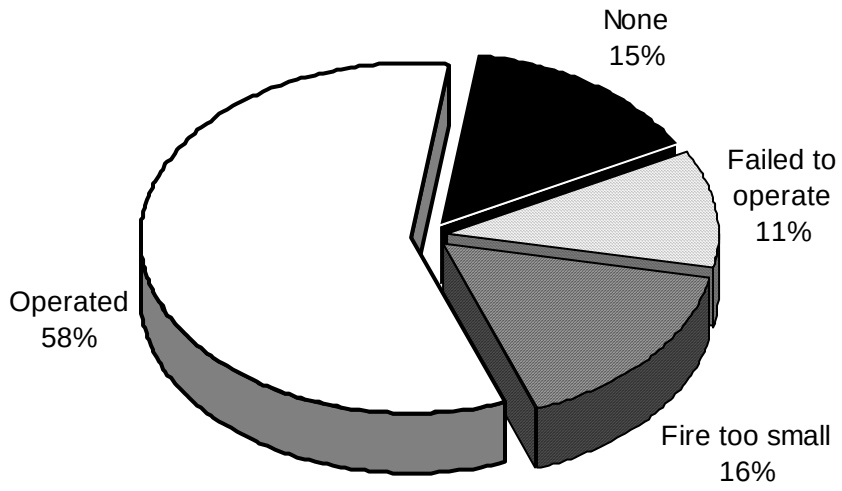
The number of contained fires in residential occupancies rose in 2003. Confined fires increased by 1,771 incidents, or 33%, from the 5,308 reported in 2002.

Detectors Alerted Occupants in 57% of Confined Fires
Smoke or heat detectors alerted the occupants in 4,041, or 57%, of the residential structure fires that were confined to non-combustible containers. In 17% of these fires, the detectors did not alert the occupants. In 26% of these fires, it was undetermined if the detectors alerted the occupants of the residence.

Detectors Sounded in 58% of Residential Fires
Smoke or heat detectors were present and operated in 58% of the 2,872 residential structure fires for which detector performance was known. Detectors were present but did not operate in 11%, of these incidents. No detectors were present in 15% of the residential fires. In 16%, the fire department reported that the fire was too small to trigger the detector. Smoke detector performance was not reported or not classified in 735 incidents. These fires were excluded from the percentage calculations.

[8] 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.

Smoke Detector Status in Residential Fires



Houses Must Have Detectors at Time of Sale
Under the provisions of Massachusetts General Law Chapter 148, Section 26F, all buildings containing one to five dwelling units built prior to 1975, must be equipped by the seller with approved smoke detectors upon the sale or transfer of the building as provided in Section 26E. This statute took effect on January 1, 1982. Many homes changed hands during the real estate boom of the 1980's. While many owners had not installed detectors to protect themselves, they did install these devices to sell their home. The new owners were then protected by an early warning system but it is our concern that many have not been fully maintained since then. The new owners should maintain the detectors by testing the detectors monthly and replacing the batteries twice a year. Detectors should be kept free of dust and never painted over.

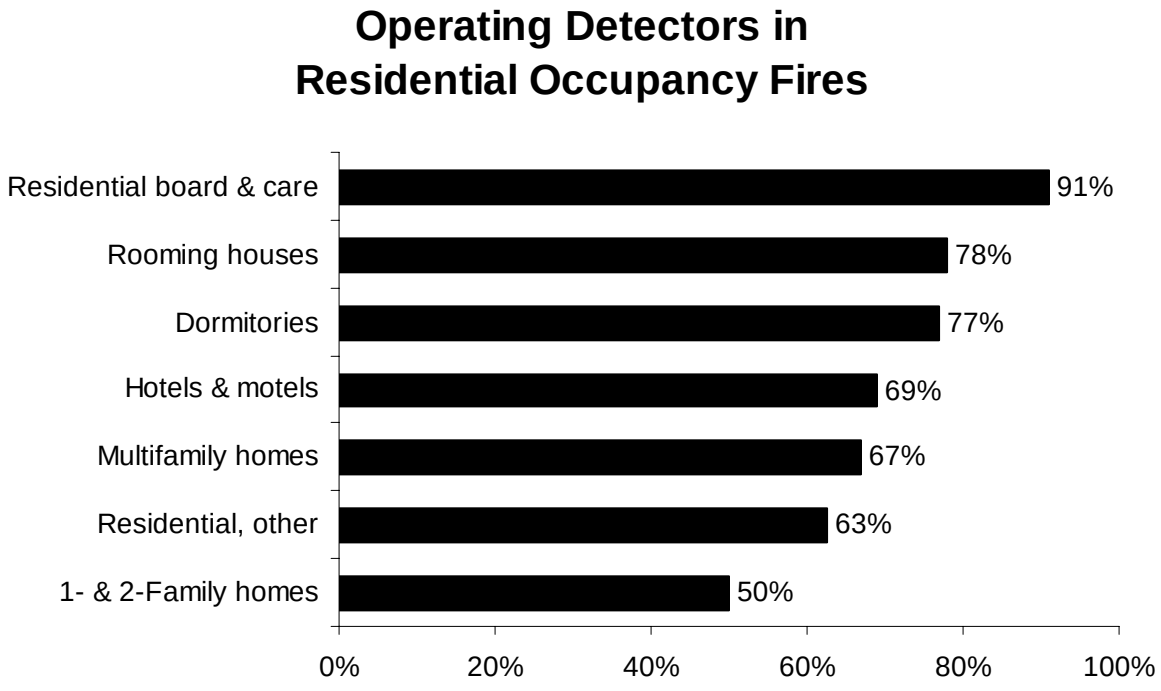
Smoke Alarms That Are 10 Years Old Or Older Should Be Replaced
Studies have indicated that not unlike any other appliance in your household, smoke detectors do not last forever. The life span for a typical smoke detector whether it is battery-powered or hard-wired is 10 years. Smoke alarms that are 10 years old or older should be replaced. The manufacture date is stamped on the back of the detector.

Automatic smoke detectors are required at all times in buildings containing three or more residential units. If adopted as a local ordinance, Massachusetts General Law Chapter 148, Section 26E (a) requires owners of one- and two-family homes built before 1974 to install smoke detectors outside each separate sleeping area and on the ceiling of each stairway leading to a floor above. All homes built after 1975 are required to have smoke alarms. At this date, there is hardly a home left in Massachusetts that is not required to have smoke alarms.

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.

Over 1/3 of Failed Detectors Had Missing or Disconnected Batteries
Of the 312 fires where smoke detectors were present but failed to operate, 109, or 35%, failed because the batteries were either missing or disconnected. Thirty (30), or 10%, did not operate because of dead batteries. Twenty-eight (28), or 9%, failed because of a power failure, shutoff or disconnect. Fourteen (14) units (4%) failed because they were defective. Eleven (11) detectors, or 4%, failed from a lack of maintenance such as not cleaning dust from the detector or painting over the detector. Seven (7), or 2% failed from improper installation or placement. For 113 cases, or 36%, the reason the detector failed was not determined.

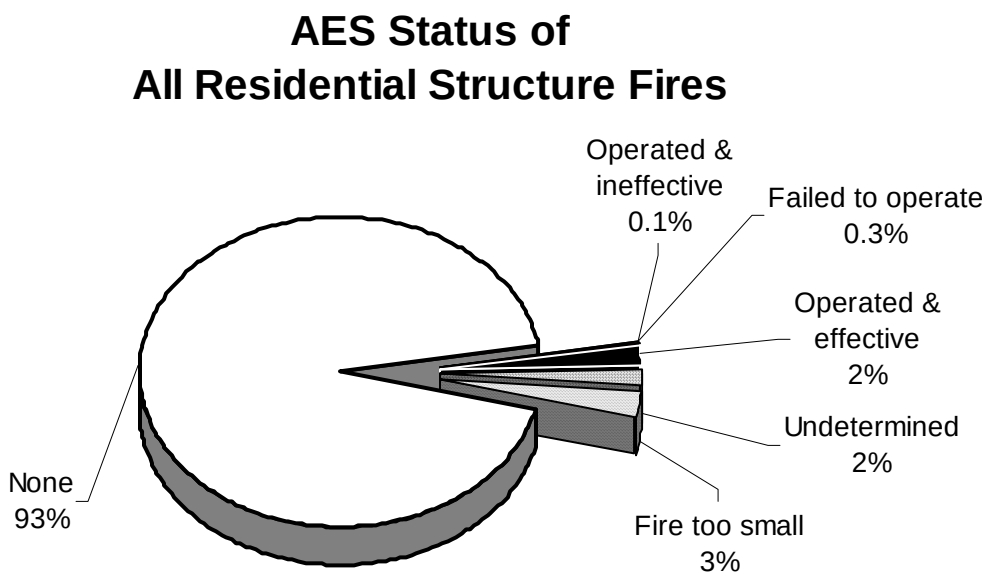
Residential Board & Care Facilities Had Highest Percentage of Operating Detectors
Residential board and care residences such as long-term care and halfway houses, were the most likely residential occupancy to have operating smoke detectors in 2003. Rooming or boarding houses were the second most likely residence to have working smoke detectors. Dormitories 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.

Over 1/4 of Residential Fire Deaths Occurred with No Working Detectors
Seventy-seven percent (77%) of all 2003 fire deaths took place in residential occupancies, or the so -called "safety" of people's homes. Overall, 28% of the 47 residential structure fire deaths occurred in buildings with no working detectors; 15% took place in homes where detectors did not operate and 13% of deaths occurred where there were no detectors present at all. Thirty-six percent (36%) of residential structure fire deaths occurred where smoke detectors were present and operated. Smoke detector status was unknown for 32% of the 2003 residential fire deaths.

AES Present in Only 3% of Residential Structure Fires
Automatic extinguishing systems (AES) were reported present and operated effectively in 69, or 2% of the 3,547 residential structure fires where system performance was known in 2003. AES were present but operated ineffectively in two, or 0.1%, of these fires. In 11, or 0.3%, of the fires in residential occupancies, the system did not operate. In 101, or 3%, the fire was too small to activate the system. In 3,360, or 95%, of the cases, there were no systems present or installed. AES performance was not classified for 62 incidents involving residential structure fires.



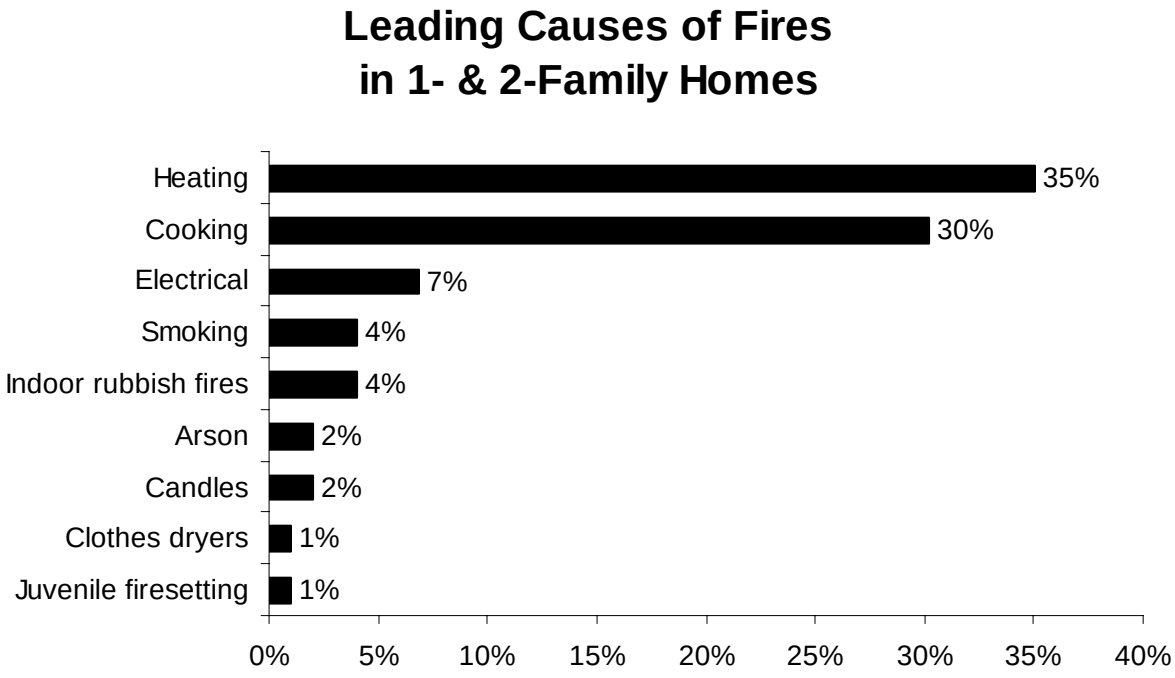
Only You Can Make Your Home Safer for You and Your Family
Over four-fifths (81%) of structure fires and 77% of fire deaths take place in residential occupancies. Efforts to reduce the incidence of fire and fire deaths must be focused on home fire safety to have the greatest impact. Increased maintenance 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

5,090 Fires, 24 Civilian Deaths, $68.3 Million in Damage
Five thousand and ninety (5,090) structure fires in one- and two-family homes caused 24 civilian deaths, 142 civilian injuries, 201 fire service injuries, and an estimated $68.3 million in property damage. In 2003, 49% of the Commonwealth's 10,465 residential structure fires occurred in one- and two-family homes. The average dollar loss from these types of fires was $13,434. Fires in one- and two-family homes were up 13% from 4,485 in 2002.

Heating Was the Leading Cause of Fires in 1- & 2-Family Homes
Heating caused 35% of incidents occurring in one- and two-family homes. The next leading cause of fires in one- and two-family homes was cooking, accounting for 30%. Seven percent (7%) of one- and two-family residential structure fires were caused by electrical problems. The unsafe and improper use of smoking materials and indoor rubbish fires each caused 4% of these fires. Arsons and candle fires were each the cause of 2% of the one- and two-family structure fires. Clothes dryers and juvenile-set fires each accounted for 1% of the fires in one- and two-family homes in 2003.



Cooking is the leading cause of fires in all other residential occupancies. However, the roles have been reversed in one- and two-family homes for the past four years. In every year except 2002 when cooking tied heating as the leading cause, fires started by heating equipment have been the leading cause of fires in one- and two-family homes. 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.

34% 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, 34% started in the kitchen. The second leading area of origin was rooms or areas with heating equipment accounting for 20% of these fires. Thirteen percent (13%) started in the chimney or flue; 4% started in the bedroom; 3% started in the living room. The laundry room, crawl or substructure spaces and wall assemblies each accounted for another 2% of these incidents.

61% of 1- & 2-Family Fires Were Confined to Non-Combustible Containers[9]
Three thousand ninety-eight (3,098), or 61%, of all residential structure fires in one- and two-family homes, were reported as confined to non-combustible containers in 2003. One thousand three hundred and thirty-two (1,322) were cooking fires confined to a non-combustible container accounting for 26% of all the residential structure fires in one- and two-family homes. Nine hundred and eighty-six (986), or 19%, were fires confined to a fuel burner or boiler. Six hundred and sixty-five (665), or 13%, of all one- and two-family fires reported in 2003 were fires confined to a chimney or flue. One hundred and seventeen (117), or 2%, of these fires were contained rubbish fires. Six (6), or less than 1%, of these fires were contained to an incinerator overload or malfunction. Two (2), or less than 1%, of the residential structure fires in 2003 was a commercial compactor fire confined to the rubbish inside the compactor.

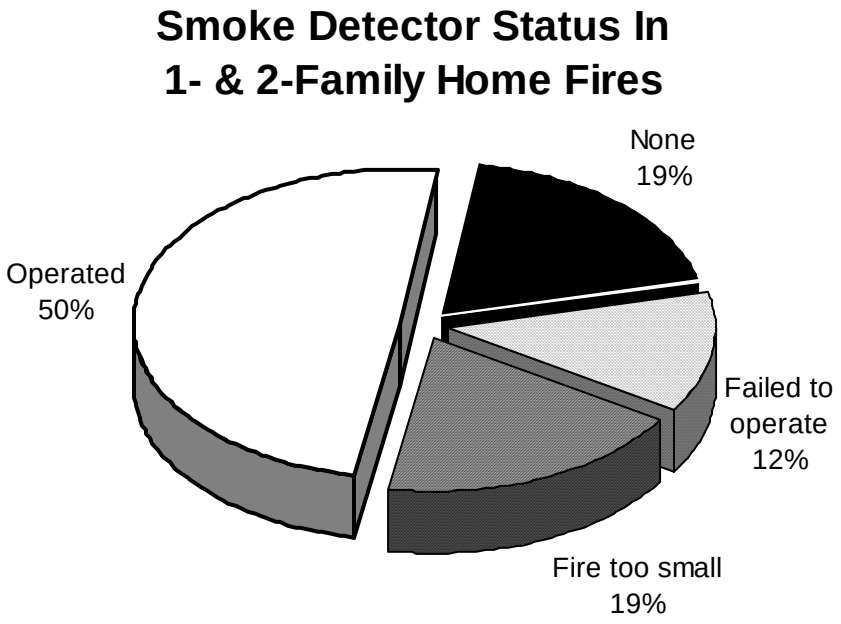
The number of contained fires rose in 2003. Confined fires in one- and two-family homes increased by 574 incidents, or 23%, from the 2,524 reported in 2002.

Detectors Alerted Occupants in 35% of Confined Fires
Smoke or heat detectors alerted the occupants in 1,075, or 35%, of the one- and two-family fires that were confined to non-combustible containers. In 27% of these fires, the detectors did not alert the occupants. In 39% of these fires, it was undetermined if the detectors alerted the occupants of the residence.

Detectors Operated in 1/2 of 1- and 2-Family Fires
Smoke or heat detectors were present and operated in 50% of the 1,591 one- and two-family residential structure fires for which detector performance was known. Detectors

[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.

were present but did not operate in 12% of these incidents. No detectors were present in 19% of the residential fires, which took place in a one- or two-family home. In 19%, the fire department reported that the fire was too small to trigger the detector. Smoke detector performance was not reported or not classified in 532 incidents. These fires were excluded from the percentage calculations.



Over 1/3 of Failed Detectors Had Missing or Disconnected Batteries
Of the 198 fires where smoke detectors were present but failed to operate, 78, or 39%, failed because the batteries were either missing or disconnected. Twenty-five (25), or 13%, did not operate because of dead batteries. Nine (9), or 5%, failed because of a power failure, shutoff or disconnect. Eight (8) units (4%) failed because they were defective. Five (5) detectors, or 3%, failed from a lack of maintenance. Another five, or 3%, failed from improper installation or placement. For 68 cases, or 34%, the reason the detector failed was not determined.

Detectors Required in All One- and Two-Family Homes
If adopted as a local ordinance, 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 structure with approved smoke detectors as provided in section 26E. All one- and two-family homes constructed after 1975 are required to have hardwired, interconnected smoke detectors outside each separate sleeping area and on the ceiling of each stairway leading to a floor above per the Commonwealth's Building Code - 780 CMR 3603.16.10.

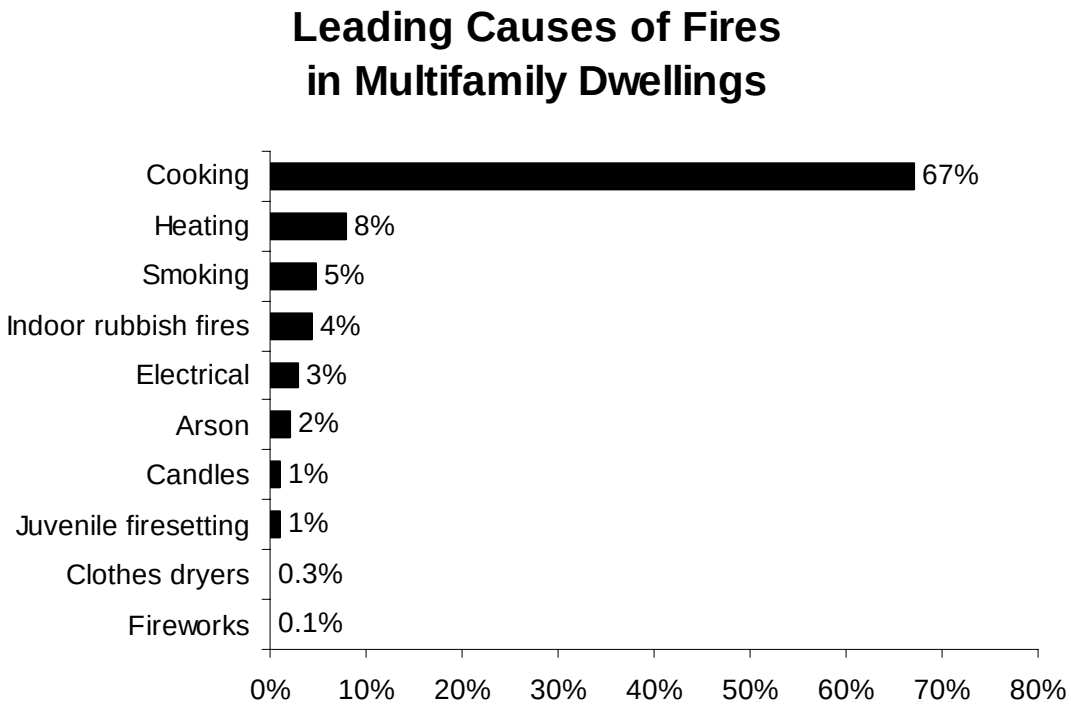
No AES Present in 99% of One- and Two-Family Structure Fires
In 2003, in two (2), or less than 1%, of these incidents an automatic extinguishing system (AES) was present and operated effectively. In three, or less than 1% of the incidents, the fire was too small to activate the system. In 15 incidents an AES was present but it was undetermined if it operated. In 99% of the cases where AES status was known, there were no systems.

Multifamily Home Fires

4,376 Fires, 20 Civilian Deaths, 1 Fire Service Death & $32.2 Million in Damage
Four thousand three hundred and seventy-six (4,376), or 42%, of the Commonwealth's 10,465 residential structure fires occurred in multifamily dwellings in 2003. These 4,376 fires caused 20 civilian deaths, one fire service death, 153 civilian injuries, 122 fire service injuries, and an estimated dollar loss of $32.2 million. The average dollar loss per fire was $7,359. Fires in apartments were up 10% from 3,981 in 2002.

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

Unsafe Cooking Caused Over 2/3 of Apartment Fires
Sixty-seven percent (67%) of the fires in apartments were caused by unsafe cooking in 2003. Heating accounted for 8% of apartment fires. The improper and unsafe use of smoking materials caused 5% of fires in multifamily dwellings. Indoor rubbish fires caused 4% of these incidents. Electrical problems were responsible for 3% of these fires.



Arson caused 2% of the fires in these dwellings. Candles and juvenile-set fires each accounted for 1% of apartment fires. Clothes dryer fires and fireworks each caused less than 1% of the fires in multifamily homes.

71% of Apartment Fires Started in the Kitchen
For apartment fires where area of origin is known, 71% started in the kitchen. Seven percent (7%) began in the heating room or area; 4% started in the bedroom; 2% started in the living room, and 1% each started on an exterior balcony or unenclosed porch, and in the bathroom.

74% of Multifamily Home Fires Confined to Non-Combustible Containers[10]
Three thousand and ninety-two (3,092), or 74% of all structure fires in multifamily homes, were reported as confined to non-combustible containers in 2003. Two thousand seven hundred and forty-three (2,743) were cooking fires contained to a non-combustible container accounting for 63% of all the multifamily dwelling fires in 2003. Two hundred and ninety-two (292), or 7%, were fires confined to a fuel burner or boiler malfunction. One hundred and fifty-three (153), or 3%, of these fires were contained rubbish fires. Twenty-six (26), or 1%, of apartment fires reported in 2003 were fires confined to a chimney or flue. Six (6), or less than 1%, were commercial compactor fires confined to the garbage; and one incinerator overload or malfunction contributed less than 1% to the multifamily home fires in 2003.

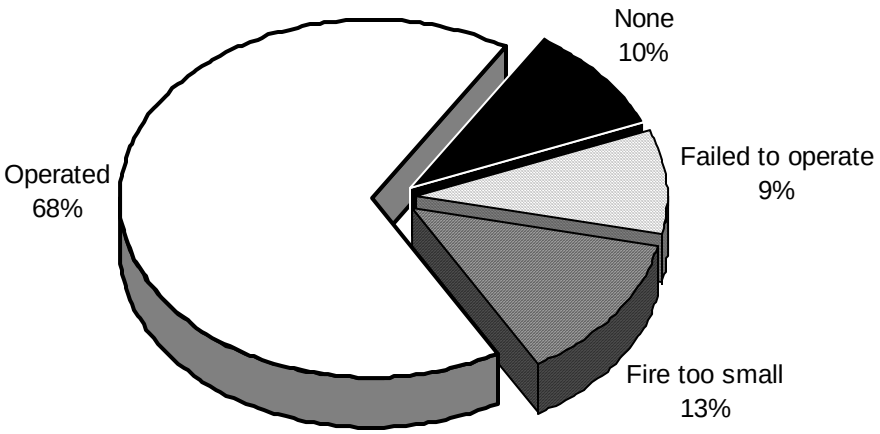
Confined fires in apartments increased by 1,030 incidents, or 47%, from the 2,191 reported in 2002.

Detectors Alerted Occupants in 74% of Confined Fires
Smoke or heat detectors alerted the occupants in 2,388, or 74%, of the multifamily dwelling fires that were confined to non-combustible containers. In 11% of these fires, the detectors did not alert the occupants. In 15% of these fires, it was undetermined if the detectors alerted the occupants of the residence.

Detectors Sounded in Over 2/3 of Apartment Fires
Smoke or heat detectors were present and operated in 68%, of the 1,066 apartment building fires for which detector performance was known. Detectors were present but did not operate in 9% of these incidents. In 13%, the fire department reported that the fire was too small to trigger the detector. No detectors were present in 10% of the fires that took place in an apartment. Smoke detector performance was not reported or not classified in 170 incidents. These fires were excluded from the percentage calculations.

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

Smoke Detector Status In Multifamily Fires



29% of Failed Detectors Failed Due to Missing Batteries
Of the 100 fires where smoke detectors were present but failed to operate, 29, or 29%, failed because the batteries were either missing or disconnected. Sixteen (16), or 16%, failed because of a power failure, shutoff or disconnect. Six (6), or 6%, didn't operate because of a lack of maintenance. Five (5), or 5%, did not operate because of dead batteries. Another five units (5%) failed because they were defective. Two (2), or 2%, failed from improper installation or placement. For 37 cases, or 37%, the reason the detector failed was not determined.

Apartments with Six or More Units Must Have Hard-Wired 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 in the units themselves. Detectors in common hallways and basements must be hard-wired.

AES Present in Only 8% of Multifamily Dwelling Fires
Automatic extinguishing systems (AES) were present and operated effectively in 40, or 3% of the 1,206 multifamily dwelling fires where system status was known in 2003. In one, or less than 1% of these incidents an AES was present but did not operate effectively. In only five of the fires, less than 1% (0.4%), the AES did not operate. In 52, or 4%, of these incidents, the fire was too small to activate the system. In 1,109, or 93%, of the cases, there were no systems present or installed. In 29 incidents, AES status was unknown. These fires were excluded from the percentage calculations.

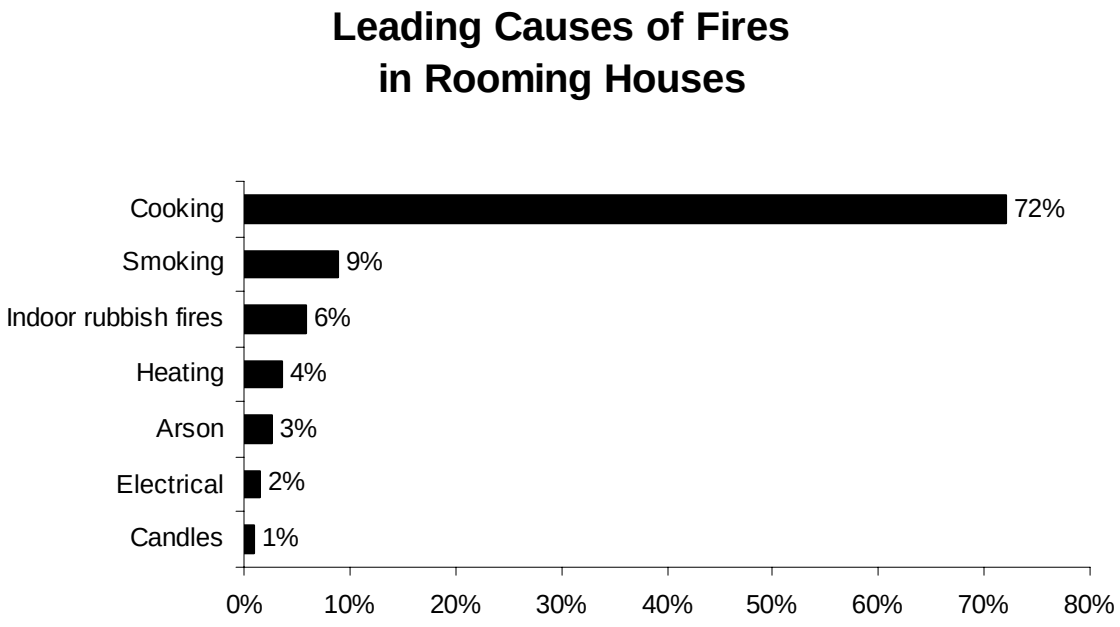
Apartments More Likely to Have Sprinklers Installed
Apartments are more likely than single-family dwellings to have sprinklers installed. Newly constructed apartments with three or more units are required by building codes to have them installed. Also, apartments are likely to be found in high-rise buildings that were required to be retrofitted with sprinklers by March, 1998. Sprinklers were present in 8% of multifamily fires, but in less than 1% of fires in one- and two-family dwellings.

In 1998, the State Building Code required all apartments with common egresses to be sprinklered.

Rooming House Fires

190 Fires, 1 Civilian Death and $960,986 in Damages
One hundred and ninety (190) rooming, lodging, and boarding house fires were reported to the Massachusetts Fire Incident Reporting System (MFIRS) in 2003. These 190 fires caused one civilian death, two civilian injuries, four firefighter injuries and an estimated $960,986 in damages. The average dollar loss per fire was $5,058. Two percent (2%) of the 10,465 residential structure fires in 2003 occurred in rooming, boarding, or lodging houses. Fires in rooming houses were down 1% from 192 in 2002.

Cooking Caused Almost 3/4 of Rooming House Fires
Of the 190 incidents in rooming houses, cooking caused 72%. The unsafe use and disposal of smoking materials was the next significant cause, igniting 9%, of the rooming house fires. Indoor rubbish fires accounted for 6% of these fires. Heating caused 4% of the fires in rooming houses. Arson caused 3% of these incidents. Electrical fires accounted for 2% of these fires. Candles accounted for 1% of the fires in rooming houses in 2003.



74% of Rooming House Fires Started in the Kitchen
Seventy-four percent (74%) of the fires started in the kitchen. Eight percent (8%) started in the bedroom and 4% started in heating equipment room.

3/4 of Rooming House Fires Are Confined to Non-Combustible Containers[11]
One hundred and forty-three (143), or 75% of all structure fires in rooming houses, were reported as confined to non-combustible containers in 2003. One hundred and twenty-nine (129) were cooking fires contained to a non-combustible container accounting for 68% of all the fires in rooming or boarding houses in 2003. Seven (7) fires, accounting for 4% of rooming house fires were confined indoor rubbish fires. Six (6), or 3%, were fires confined to a fuel burner or boiler malfunction. One (1), or 1%, of these rooming house fires was confined to a chimney or flue.

Confined fires in rooming houses decreased by one incident, or 1%, from the 144 reported in 2002.

Detectors Alerted Occupants in 85% of Confined Fires
Smoke or heat detectors alerted the occupants in 122, or 85%, of the rooming house fires that were confined to non-combustible containers. In 5% of these fires, the detectors did not alert the occupants. In 10% of these fires, it was undetermined if the detectors alerted the occupants.

Detectors Sounded in Over 3/4 of Rooming House Fires
Smoke or heat detectors were present and operated in 77% of the 46 rooming house fires for which detector performance was known. Detectors were present but did not operate in 7% of these incidents. In another 7% of the incidents, the fire department reported that the fire was too small to trigger the detector. In 9% of rooming house fires, there were no detectors present. Smoke detector performance was not reported or not classified in six incidents. These fires were excluded from the percentage calculations.

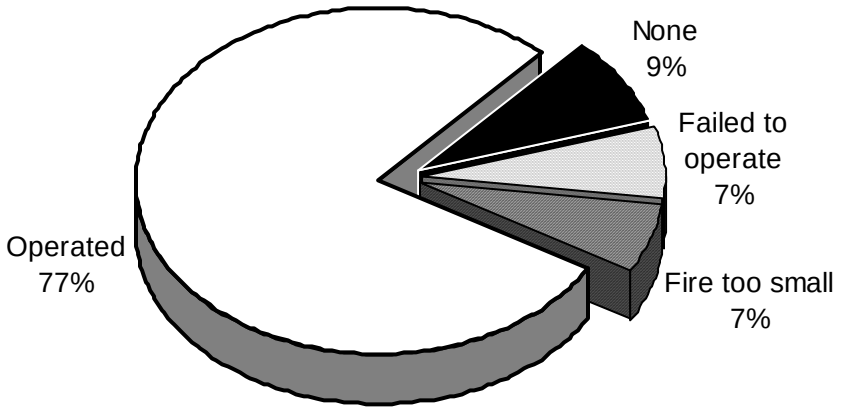
Smoke detectors are required in rooming houses. Local communities may elect to adopt the provisions of Massachusetts General Law Chapter 148, Section 26H. This law mandates an adequate system of automatic sprinklers in every lodging or boarding house in the community. Sprinklers must be installed within 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

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

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.

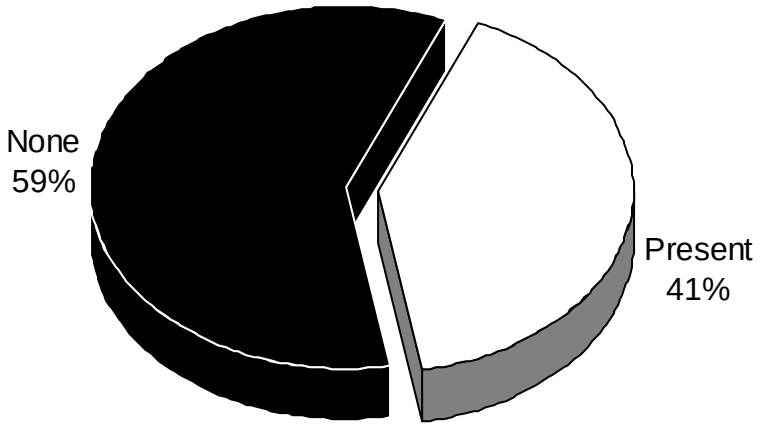
Smoke Detector Status In Rooming House Fires



1of 2 Failed Detectors Failed Due to Power Shutoff
Of the two fires where smoke detectors were present but failed to operate, one, or 50%, did not operate because of a power failure, shutoff or disconnect. It was undetermined for the other case, or 50%, the reason why the detector failed.

AES Present in 41% of Rooming House Residential Structure Fires
AES were reported present in 20, or 41%, of the 49 rooming house fires where AES

AES Presence in Rooming House Fires



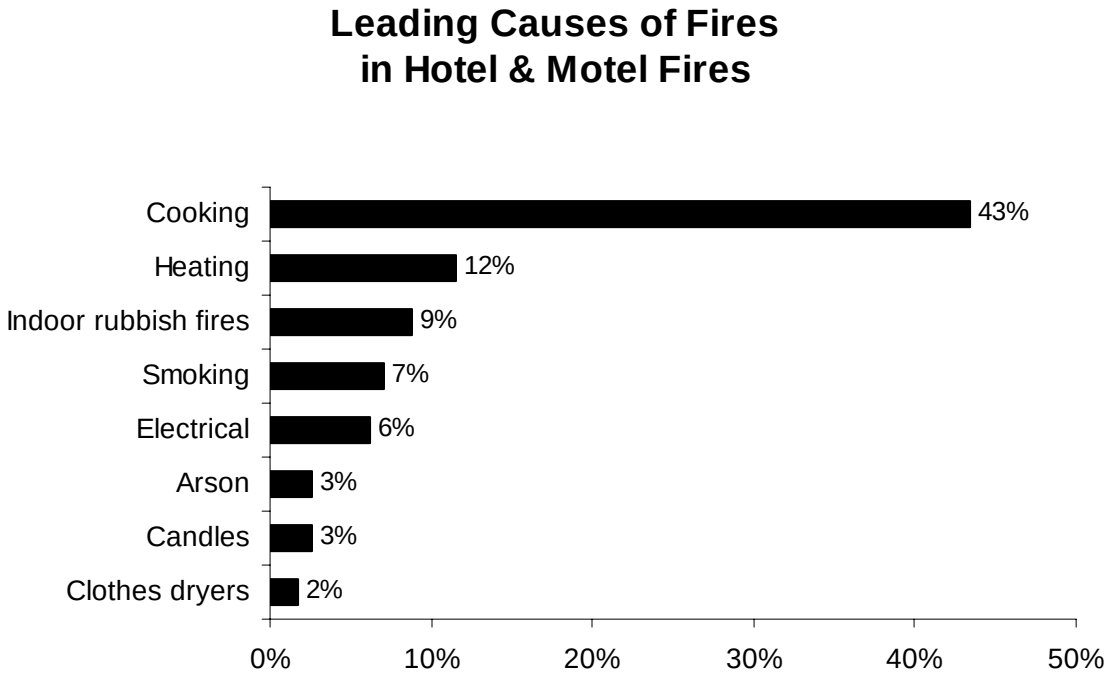
presence was known. In the other 29 incidents there were no systems present.

AES Effective in 16% of Rooming House Structure Fires
The fire was too small to activate the automatic extinguishing system (AES) in 20% of the 49 rooming house structure fires in 2003 where AES status was known. In 16% of rooming house fires systems were present and operated effectively. In 4% of these incidents the AES failed to operate. In 60% of the cases, a system had not been installed. AES status was unknown in three incidents.

Hotel and Motel Fires

113 Fires, 2 Civilian Injuries and $450,035 in Damages
One hundred and thirteen (113) structure fires in hotels, motels and home hotels caused two civilian injuries, one fire service injury, and $450,035 in estimated property damage. The average dollar loss per fire was $3,983. In 2003, 1% of the 10,465 residential structure fires occurred in hotels, motels, or home hotels. Fires in hotels and motels were up 16% from 97 in 2002.

Cooking Caused 43% of Hotel & Motel Fires
Of the 113 fires in hotels and motels in 2003, cooking was the leading cause, accounting for 43% of the fires in this occupancy. Heating was responsible for 12% of these fires. Indoor rubbish fires accounted for 9% of these fires. Smoking materials caused 7%. Electrical problems caused 6% of the hotel and motel fires. Arson and candles each accounted for 3% of hotel and motel fires in 2003. Clothes dryer fires accounted for 2% of the fires in hotels and motels in 2003.



42% Hotel and Motel Fires Started in the Kitchen
For hotel and motel fires where area of origin is known, 42% of the fires started in the kitchen. Bedrooms were where 8% of these fires began. Six percent (6%) of these fires began in the bathroom. Five percent (5%) began in chimneys or flues. Four percent (4%) began in a heating room or area. Three percent (3%) of these fires started in a laundry room.

58% of Hotel or Motel Fires Confined to Non-Combustible Containers[12]
Sixty-six (66), or 58% of all structure fires in hotels and motels, were reported as confined to non-combustible containers in 2003. Forty-eight (48) were cooking fires contained to a non-combustible container accounting for 42% of these fires. Six (6), or 5%, of hotel or motel fires in 2003 were confined to a chimney or flue. Indoor rubbish fires also caused six, or 5%, of the hotel and motel fires in 2003. Five (5), or 4%, of the fires in hotels or motels were confined to a fuel burner or boiler malfunction. Another incident (1%) was due to an incinerator overload or malfunction.

The number of contained fires rose in 2003. Confined fires in hotels and motels increased by 24 incidents, or 57%, from the 42 reported in 2002.

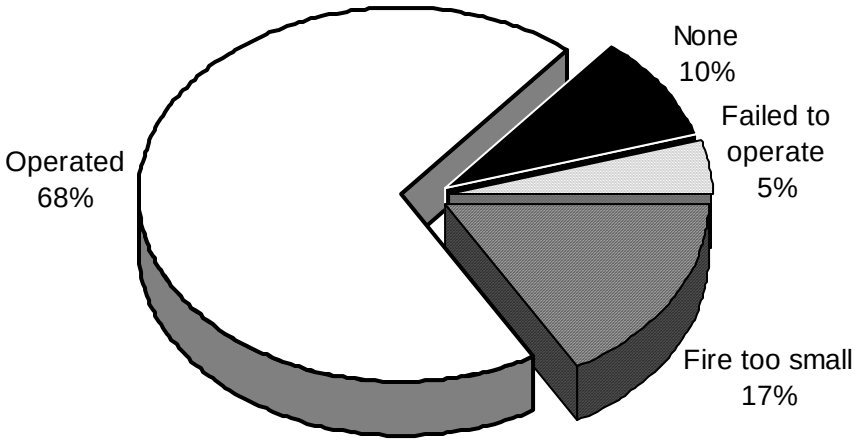
Detectors Alerted Occupants in 70% of Confined Fires
Smoke or heat detectors alerted the occupants in 46, or 70%, of the hotel and motel fires that were confined to non-combustible containers. In 9% of these fires, the detectors did not alert the occupants. In 21% of these fires, it was undetermined if the detectors alerted the occupants of the residence.

Detectors Sounded in Over 2/3 of Hotel and Motel Fires
Smoke or heat detectors were present and operated in 68% of the 42 hotel and motel residential structure fires for which detector performance was known. Detectors were present but did not operate in 5% of these incidents. No detectors were present in 10% of the residential fires, which occurred in a hotel or motel. In 17%, the fire department reported that the fire was too small to trigger the detector. Smoke detector performance was not reported or not classified in eight incidents. These fires were excluded from the percentage calculations.

Undetermined Why Both Detectors Failed
It was undetermined why the two inoperable smoke detectors that were reported failed to operate did not work properly.

[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.

Smoke Detector Status In Hotel & Motel Fires



AES Absent in 62% of Hotel and Motel Residential Structure Fires
Automatic extinguishing systems (AES) were present and operated effectively in five, or 11%, of the 44 hotel and motel structure fires in 2003 where AES status was known. In 12, or 27%, of these incidents, the fire was too small to activate the system. In 27, or 62%, of the cases, there was no AES system. AES performance was not classified for six incidents.

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 27 hotel fires that reported having no AES, 19, or 70%, 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.

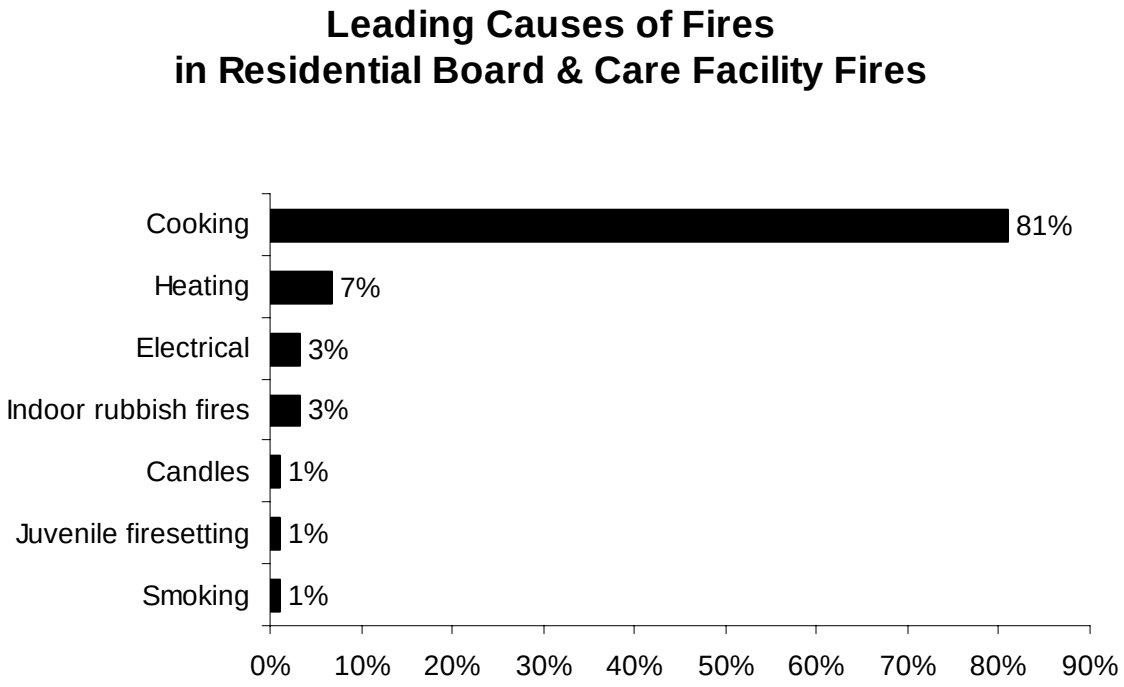
- Choose lodging equipped with sprinklers and smoke detectors in each room.
- If you are hearing impaired, you may request a room with an appropriate smoke detector with a flashing strobe light.
- Think about fire safety when checking into a hotel or motel. Count the number of doors down the hall to 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.

Residential Board & Care Fires

89 Fires Caused $36,276 in Damages
Eighty-nine (89) residential board and care structure fires caused an estimated dollar loss of $36,276 in damages. The average dollar loss per fire was $408. In 2003, 1% of the 10,465 residential structure fires occurred in residential board and care buildings.

This is a new residential Property Use code MFIRS. Residential Board & Care includes long term health care facilities, halfway houses and assisted care housing facilities. It excludes nursing homes.

Cooking Accounted for Over 4/5 of Residential Board & Care Fires
In the 89 incidents of residential board and care structure fires, the leading cause was cooking, accounting for 72 incidents, or 81%, of the fire incidents. Heating accounted for six, or 7%, of these fires. Electrical problems and indoor rubbish fires each accounted for three incidents, or 3% of these fires. Candles, juvenile-set fires, and smoking each accounted for one, or 1%, of fires in residential board and care facilities in 2003.



82% of Residential Board & Care Fires Started in the Kitchen
Of the 89 residential board and care building fires, 73, or 82%, started in the kitchen. Five (5), or 6% began in the heating room or area; and two, or 2% each, began in a bedroom and a wall assembly.

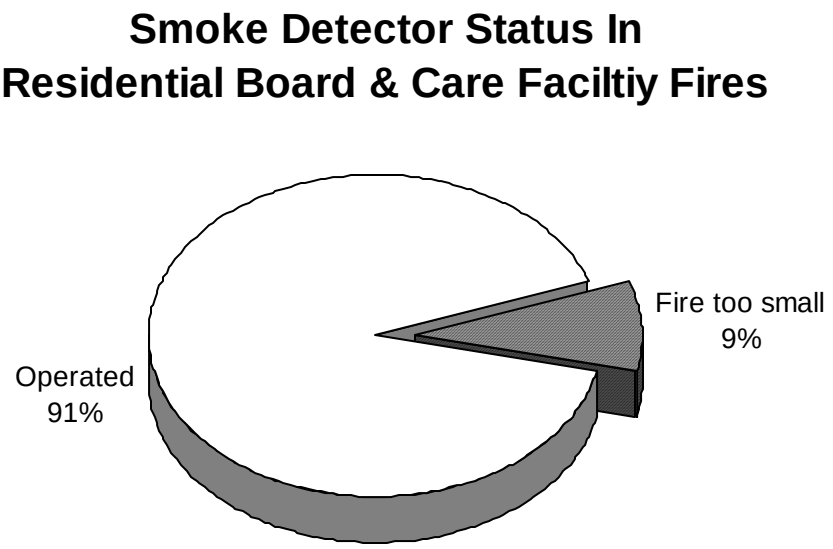
88% of Board & Care Fires Confined to Non-Combustible Containers[13]
Seventy-eight (78), or 88% of all structure fires in residential board and care facilities, were reported as confined to non-combustible containers in 2003. Seventy-three (73) were cooking fires contained to a non-combustible container accounting for 82% of these fires. Five (5), or 6%, of the fires in residential board and care facilities were confined to a fuel burner or boiler malfunction. Three (3), or 3%, of these fires were contained rubbish fires.

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

The number of contained fires rose in 2003. Confined fires in residential board and care facilities increased by eight incidents, or 11%, from the 70 reported in 2002.

Detectors Alerted Occupants in 85% of Confined Fires
Smoke or heat detectors alerted the occupants in 66, or 85%, of the 78 fires in residential board and care lodgings that were confined to non-combustible containers. In the other 15% of these fires, it was undetermined if the detectors alerted the occupants of the residence.

Detectors Sounded in 91% of Board & Care Fires
Smoke or heat detectors were present and operated in 91% of the 11 residential board and care structure fires for which detector performance was known. In the other 9% of incidents the fire department reported that the fire was too small to trigger the detector.



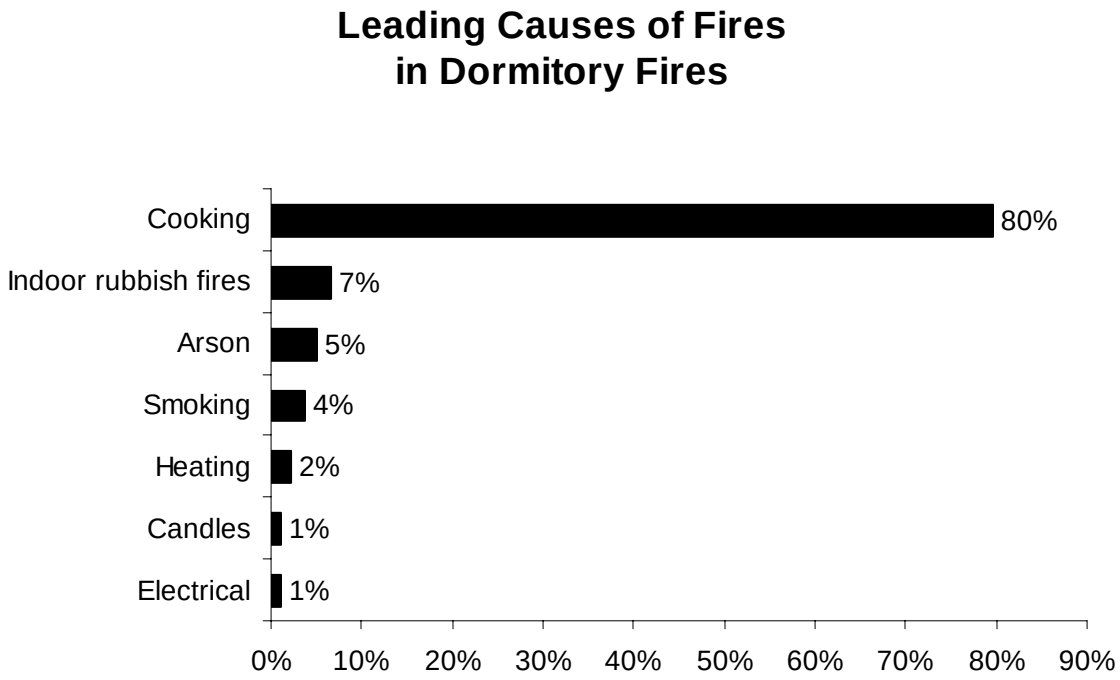
No Failed Detectors
There were no reported fires where smoke detectors were present and failed to operate in a residential board and care facility.

AES Present in 60% of Residential Board & Care Structure Fires
Automatic extinguishing systems (AES) were present in six, or 60%, of the 10 residential board and care structure fires where AES presence was known. Systems were present and operated ineffectively in one, or 10%, of the 10 fires where AES status was known. In another incident, or 10%, the system was present but operated ineffectively. In four, or 40%, of these incidents, the fire was too small to activate the system. In another four, or 40%, there were no systems present. One (1) incident was not classified. These percentages were calculated without this incident.

Dormitory Fires

260 Fires, 4 Civilian Injuries, $374,774 in Damages
Two hundred and sixty (260) dormitory structure fires caused four civilian injuries, one fire service injury and an estimated dollar loss of $374,774 in damages. The average dollar loss per fire was $1,441. In 2003, 2% of the 10,465 residential structure fires occurred in dormitories. Fires in dormitories were up 21% from 214 in 2002.

Cooking Accounted for 80% of Dormitory Fires
In the 260 incidents of dormitory fires, the leading cause was cooking, accounting for 80%. Indoor rubbish fires were responsible for 7% of these incidents. Arson accounted for 5% of the fires in dormitories. Smoking accounted for 4% of these fires. Heating fires caused 2% of these fires. Electrical problems and candles each caused 1% of the fires in Massachusetts dormitories in 2003.



4 Out of Every 5 Dormitory Fires Started in the Kitchen
For dormitory fires, 80% of the fires started in the kitchen. Five percent (5%) began in the bathroom; 2% started in the lounge area; and 1% each originated in a corridor, exit and bedroom. Less than 1% began in a chimney or flue.

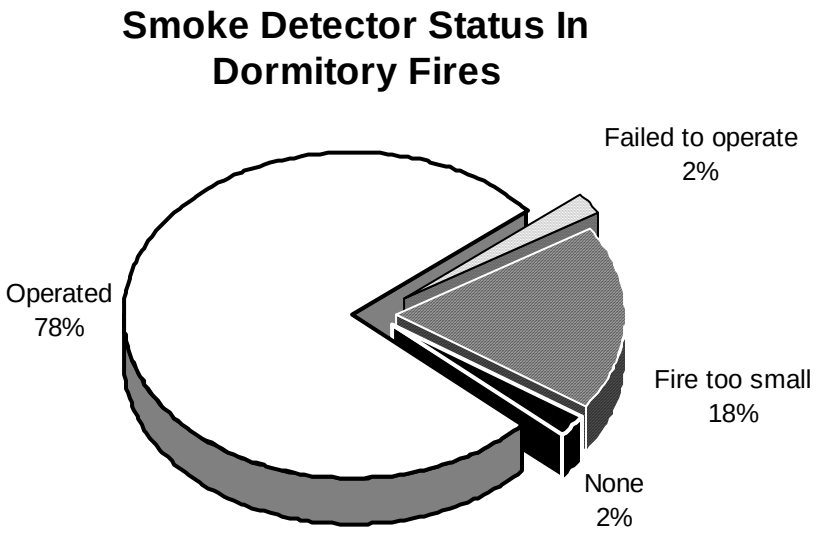
There were 12 confined trash reported in dormitories in 2003. It may be surmised that many if not all of these occurred in a bedroom.

85% of Dormitory Fires Confined to Non-Combustible Containers[14]
Two hundred and twenty-two (222), or 85% of all structure fires in dormitories, were reported as confined to non-combustible containers in 2003. Two hundred and six (206) were cooking fires contained to a non-combustible container accounting for 79% of these fires. Indoor rubbish fires accounted for 12, or 5% of the fires in dormitories in 2003. Three (3), or 1%, of the reported fires were confined to a fuel burner or boiler malfunction. One (1), or less than 1%, of fires in Massachusetts' dormitories in 2003 were confined to chimneys.

The number of contained fires rose in 2003. Confined fires in dormitories increased by 84 incidents, or 61%, from the 138 reported in 2002.

Detectors Alerted Occupants in 3/4 of Confined Fires
Smoke or heat detectors alerted the occupants in 167, or 75%, of the dormitory fires that were confined to non-combustible containers. In 2% of these fires, the detectors did not alert the occupants. In 23% of these fires, it was undetermined if the detectors alerted the occupants of the residence.

Detectors Sounded in Over 3/4 of Dormitory Fires
Smoke or heat detectors were present and operated in 78% of the 44 dormitory structure fires for which detector performance was known. Detectors were present but did not



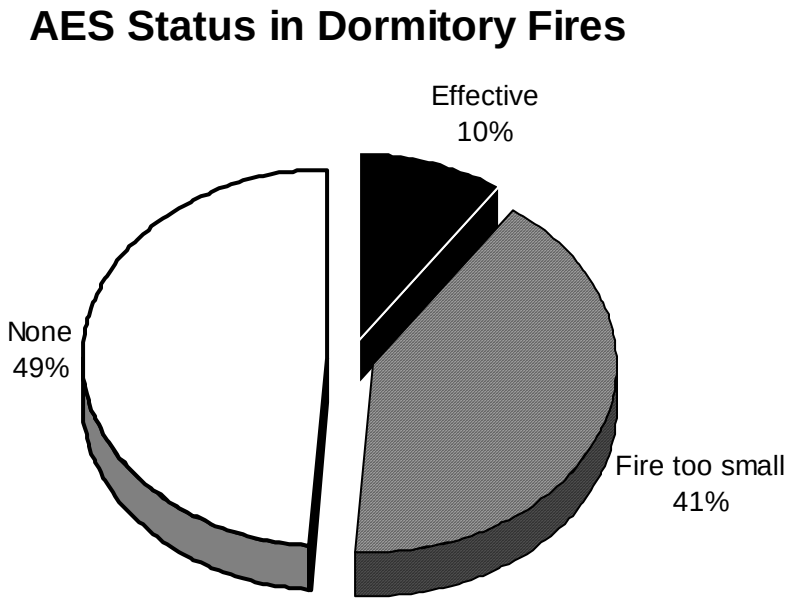
operate in 2% of these incidents. No detectors were present in 2% of the residential fires that occurred in a dormitory. In 18% of incidents the fire department reported that the fire

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

was too small to trigger the detector. Smoke detector performance was not reported or not classified in one incident. This fire was excluded from the percentage calculations.

1 Detector Was Missing a Battery
The one detector that failed to operate in a dormitory fire did not work because it was missing its battery.

AES Present in Over 1/2 of Dormitory Fires
Automatic extinguishing systems (AES) were present and operated effectively in 10% of the 41 structure fires in dormitories where AES status was known. In 41% of these incidents, the fire was too small to activate the system. In just under half of these fires, 49%, there were no systems present. Four (4) incidents were not classified. These percentages were calculated without these incidents.

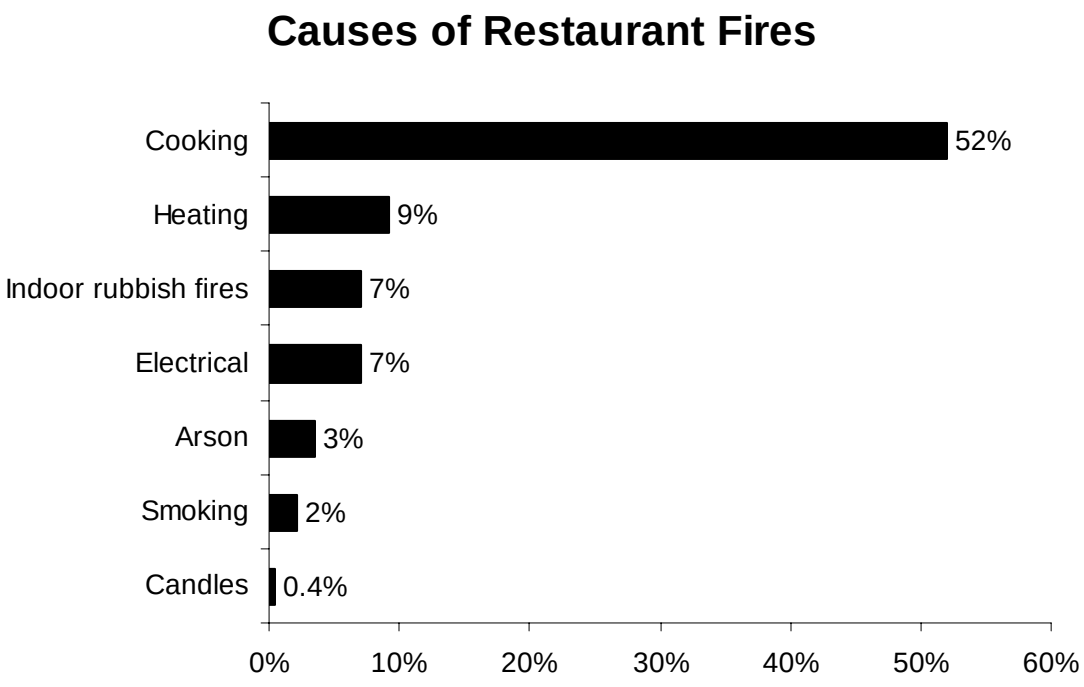


Restaurant Fires

229 Fires, 5 Civilian Injuries, 14 Firefighter Injuries, $3.1 Million in Damages
Two hundred and twenty-nine (229) structure fires in 2003 occurred in restaurants and other eating and drinking establishments, causing five civilian injuries, 14 firefighter injuries, and an estimated dollar loss of $3.1 million. The average dollar loss

per fire was $13,693. In 2003, 2% of the 12,997 structure fires in Massachusetts occurred in restaurants. Fires in restaurants were down 1% from 232 in 2002.

Over 1/2 of Restaurant Fires Caused by Cooking
Unattended cooking and unsafe cooking practices caused 52% of the restaurant fires; heating equipment caused 9%; electrical problems and indoor rubbish fires were each responsible for 7% of these fires; 3% were considered intentionally set; 2% of the fires were caused by unsafe use of smoking materials; and candles were the cause of less than 1% of the fires in restaurants in 2003.



58% of Restaurant Fires Started in the Kitchen
Fifty-eight percent (58%) of the 229 fires in restaurants, started in the kitchen. Six percent (6%) started in a heating room; 3% of the fires began on an exterior roof surface; another 3% of the fires started in a bathroom; and 2% of the fires in restaurants originated on an exterior wall surface.

55% of Restaurant Structure Fires Confined to Non-Combustible Containers[15]
One hundred and twenty-six (126), or 55% of all restaurant structure fires, were reported as confined to non-combustible containers in 2003. Ninety-six (96) were cooking fires contained to a non-combustible container accounting for 42% of restaurant structure fires. Fifteen (15), or 7%, of these fires were contained rubbish fires. Ten (10), or 4%, were fires confined to a fuel burner or boiler malfunction. Four (4), or 2%, of all restaurant structure fires reported in 2003 were fires confined to a chimney. In 2003 there was one fire confined to an incinerator overload or malfunction accounting for less than 1% of restaurant fires.

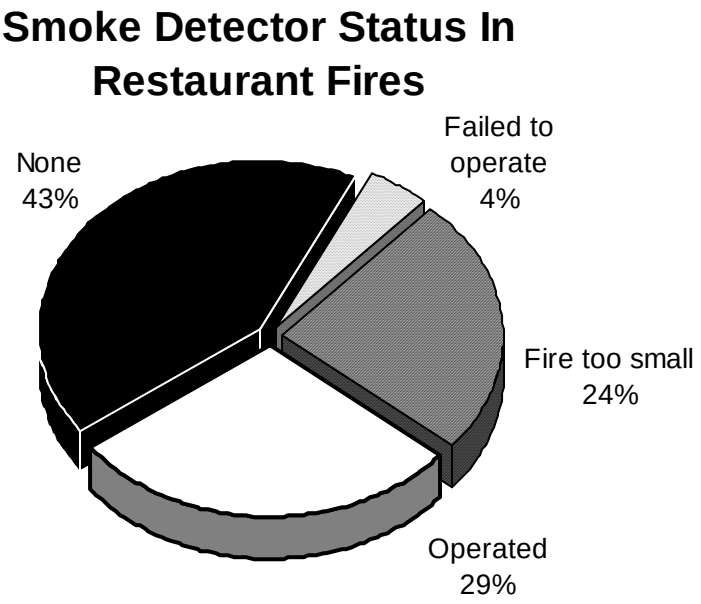
The number of contained fires rose in 2003. Confined fires in restaurants increased by 21 incidents, or 20%, from the 105 reported in 2002.

Detectors Alerted Occupants in Over 1/2 of Confined Fires
Smoke or heat detectors alerted the occupants in 66, or 52%, of the structure fires in restaurants that were confined to non-combustible containers. In 24% of these fires, the detectors did not alert the occupants. In another 24% of these fires, it was undetermined if the detectors alerted the occupants of the building.

Detectors Operated in 29% of Restaurant Fires; None Present in 43%
Smoke or heat detectors were present and operated in 29% of the 90 restaurant fires where detector performance was known. Detectors were present, but did not operate in 4% of these fires. In 24% of the incidents the fire was too small to activate the detector. No smoke detectors were present in 43% of the restaurant fires. Detector performance was unknown or not classified in 14 fires in eating and drinking establishments. These fires were excluded from the analysis. Restaurants are not required by law to have smoke and/or heat detectors present. However, many if not all have some form of fire alarm system.

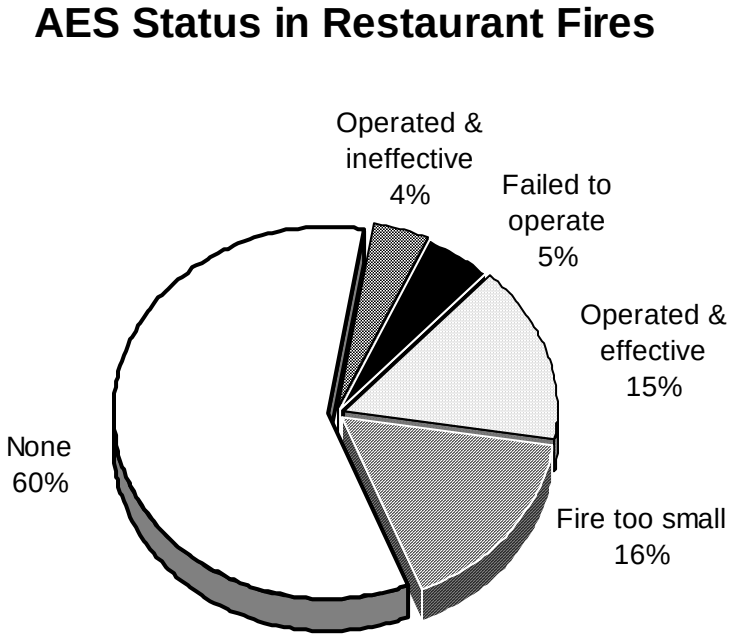
Restaurants Must Have Kitchen Exhaust & Fire Extinguishing Systems
According to Massachusetts 527 CMR 10.03 (8), restaurants must have commercial kitchen exhaust systems and fire extinguishing systems installed and maintained in accordance with NFPA 96 for any cooking equipment that produces grease-laden vapors. An automatic fire extinguishing system would be the primary protection and portable fire extinguishers would be used as a secondary backup.

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



No AES in Almost 2/3 of Restaurant Fires

Automatic extinguishing systems (AES) were present and operated effectively in 15% of the 97 restaurant fires where AES status was known. In 4% of these fires, systems were present but operated ineffectively. In 5% of these fires, an AES was present but did not operate. In 16% of these fires, the fire was too small to activate the system. No AES equipment was present in 60% of the restaurant fires in 2003. AES status was unknown in six incidents. These incidents were excluded from the percentage calculations.



Boston Restaurant Had Largest Loss Restaurant Fire

- On January 29, 2003 at 6:02 a.m., the Boston Fire Department was called to a fire of undetermined cause at a restaurant. The fire began in the bar area. This blaze was the largest loss fire in this category of structure fires, with an estimated $600,000 worth of damage done. Luckily, no one was injured. It was undetermined if smoke detectors were present. Sprinklers were present but it was not reported if the system operated.

School Fires

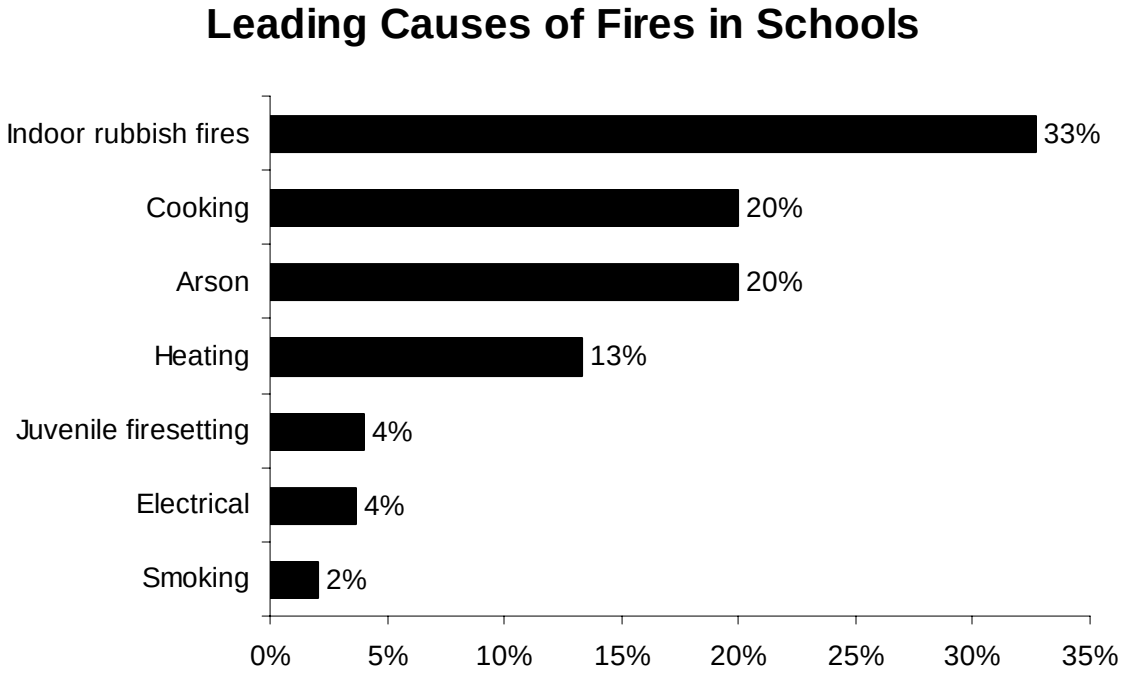
248 Fires Caused 2 Civilian Injuries, 7 Fire Service Injuries $1 Million in Damages

Two hundred and forty-eight (248) structure fires in schools[16] caused two civilian injuries, seven fire service injuries and $1 million in property damages. The average dollar loss per fire was $4,255. In 2003, 2% of the structure fires occurred in non-residential schools. Fires in non-residential schools were up 8% from 229 in 2002.

1/3 of School Fires Were Indoor Rubbish Fires

Thirty-three percent (33%) of the 248 school fires were indoor rubbish fires. Cooking and arson each started 20% of the fires in schools in 2003. Problems with heating equipment accounted for 13% of these fires. Juvenile-set fires and electrical problems each caused 4% of these fires. The unsafe use and improper disposal of smoking materials accounted for 2% of the fires in schools. Smoking by students and faculty is generally prohibited in schools.

[16] 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.



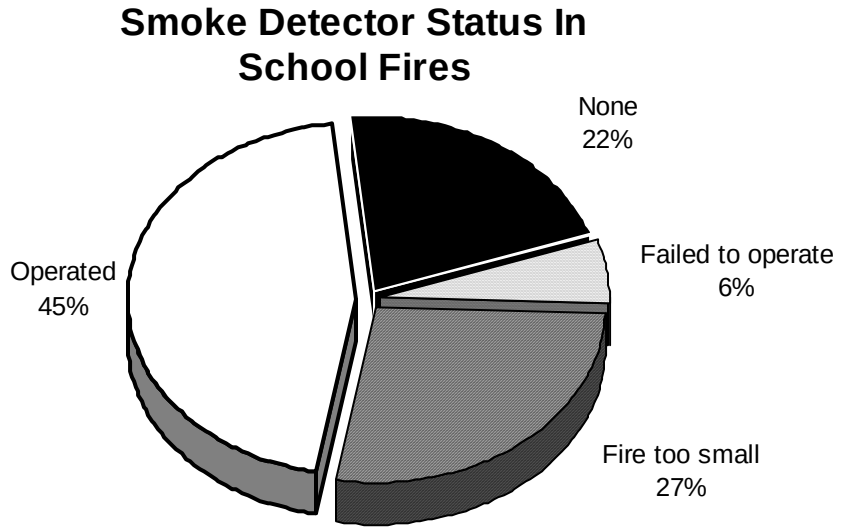
21% of School Fires Started in the Kitchen
Twenty-one percent (21%) of the fires in schools started in kitchens; 11% started in a heating room or area; 8% began in a bathroom; 3% started in corridors or malls; 2% started in small assembly areas, and 1% each started in an egress or exit, a construction or renovation area, and a chimney or flue.

2/3 of School Structure Fires Confined to Non-Combustible Containers[17]
One hundred and sixty-five (165), or 67% of all school structure fires, were reported as confined to non-combustible containers in 2003. Eighty-nine (89), or 36%, of all school fires were contained rubbish fires. Of these 89 confined rubbish fires, five were considered intentionally set or arson, three were caused by smoking materials and one was determined to be set by a juvenile. Forty-seven (47) were cooking fires contained to a non-combustible container accounting for 19% of school fires. Twenty-seven (27), or 11%, were fires confined to a fuel burner or boiler malfunction. Two (2) chimney fires accounted for 1% of 2003 school fires. Confined fires in schools increased by 63 incidents, or 62%, from the 102 reported in 2002.

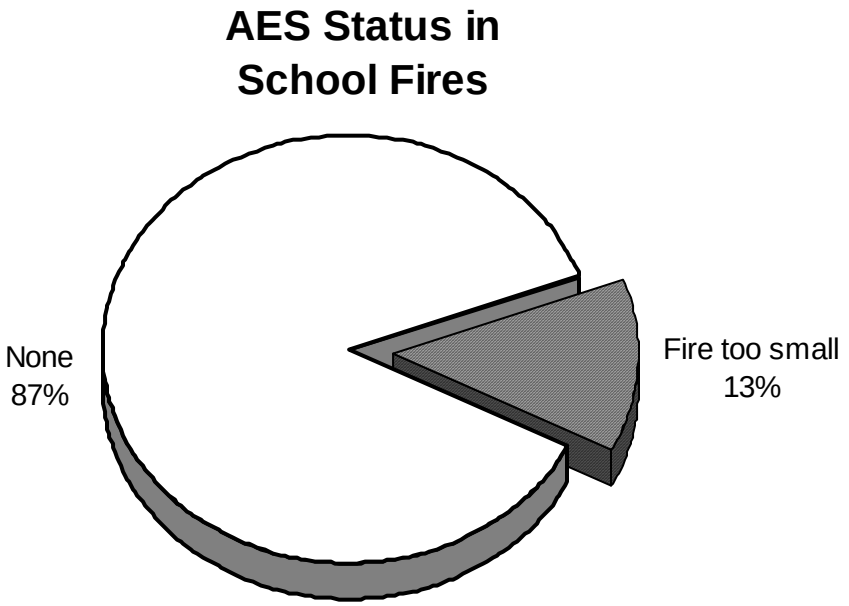
[17] In MFIRS v5 a fire in a building contained to a non-combustible container (Incident Type = 113-118) does not have to have a Fire Module completed. Therefore the following data fields do not need to be completed: Area of Origin, Detector Status, Item First Ignited, Heat Source, Factors Contributing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

Detectors Alerted Occupants in 1/2 of Confined Fires
Smoke or heat detectors alerted the occupants in 83, or 50%, of the school structure fires that were confined to non-combustible containers. In 29% of these fires, the detectors did not alert the occupants. In 21% of these fires, it was undetermined if the detectors alerted the occupants of the building.

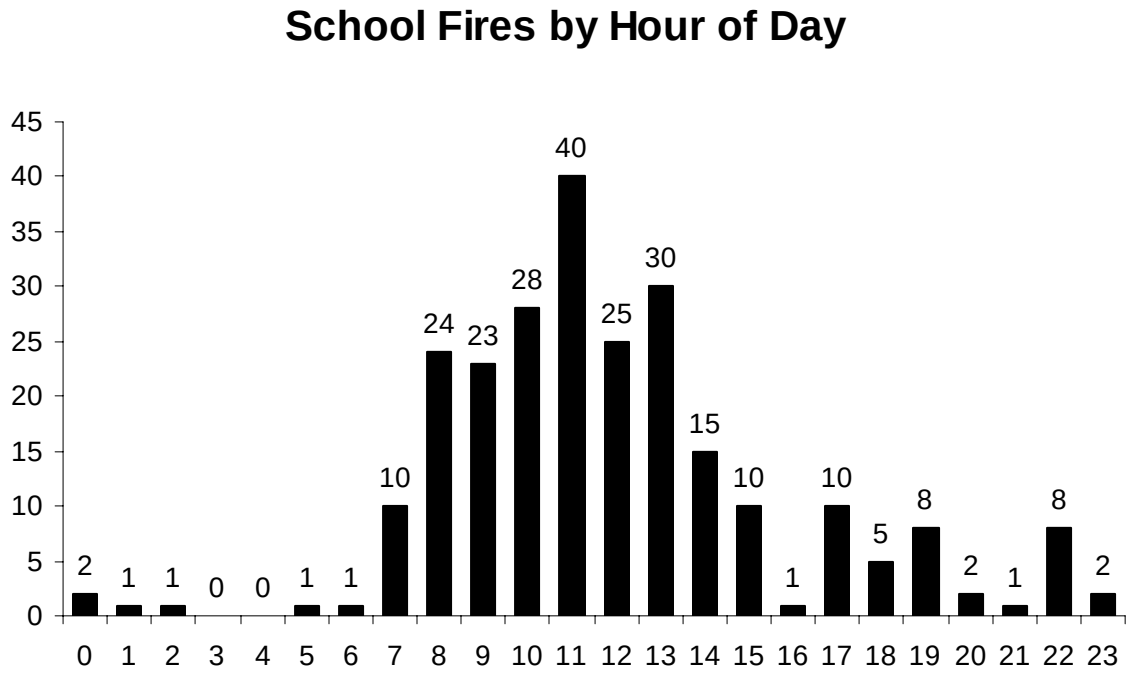
Detectors Operated in 45% of School Fires
Smoke detectors were present and operated in 45% of the 89 school fires where detector performance was known. Detectors were present but did not operate in 6% of these fires. The fire was too small to activate the detector in 27% of the fires in non-residential schools. No detectors were present in 22% of these fires. Detector performance was unknown in one of the school fires. This fire was excluded from the analysis. Older schools are not required by law to have smoke or heat detectors. However, many if not all have some form of fire alarm system.



No AES in 87% of Fires in Schools
There were no school fires where automatic extinguishing systems (AES) were reported to have been present and operated or been reported to be present but failed to operate. In 13% of school fires, the fires were too small to trigger the system. In 87% of the fires in schools, there were no systems. AES performance was unknown in five fires in Massachusetts' schools in 2003. These incidents were excluded from the percentage calculations.



Most School Fires Occur When School is in Session During Lunch
School fires generally occur during the school day. Seventy-nine percent (79%) of the school structure fires occurred during the hours between 8:00 a.m. and 1:00 p.m. with a sharp increase between 11:00 a.m. and 1:00 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-two percent (92%) of these fires occurred between Monday and Friday. It seems likely that many of the intentionally set and indoor rubbish fires were set by the students themselves.

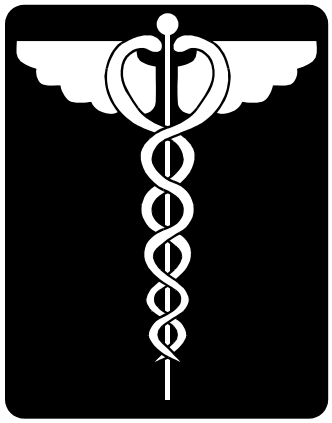
Schools Must Hold Fire Drills Four Times a Year
Effective fire prevention has undoubtedly contributed to the low injury rate at school fires. According to 527 CMR 10.09, fire drills must be conducted four times a year. The fire department must approve an evacuation plan developed by someone from the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

Somerville Elementary School Had Largest Loss School Fire

- On September 14, 2003 at 3:58 p.m., the Somerville Fire Department was called to a fire at a local elementary school. It was undetermined what caused this fire. This blaze was the largest loss fire in a school, with an estimated $350,000 worth of damage. Luckily, no one was injured. There were no smoke detectors or sprinklers in the building. It was reported that the fire doors were either blocked or did not close properly.

Fires in Hospitals

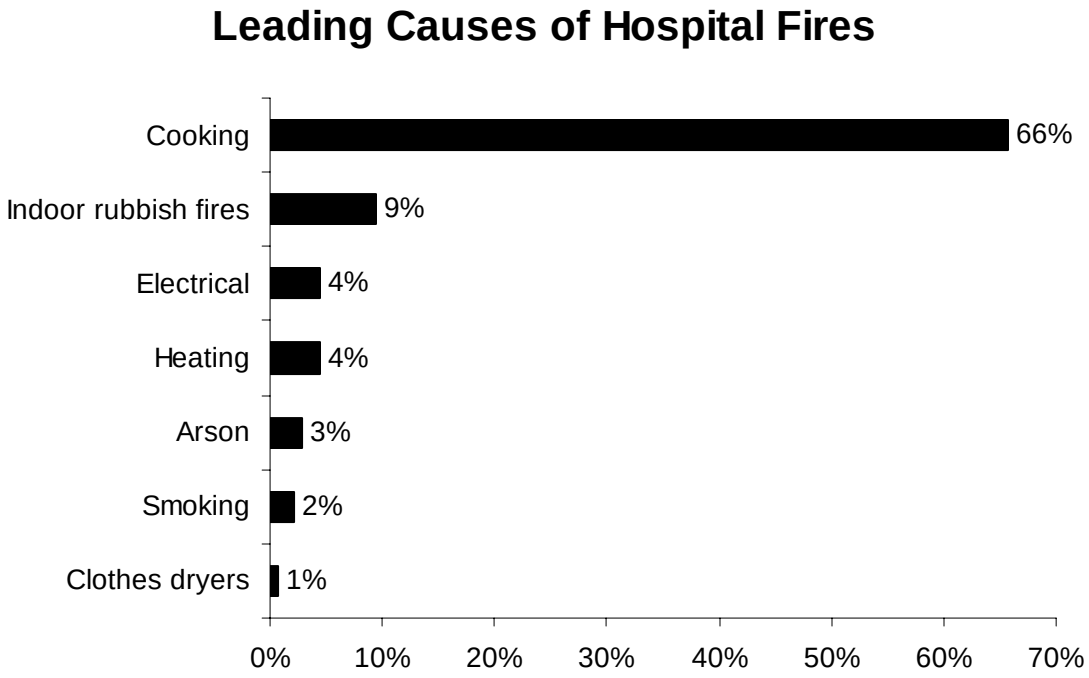
137 Fires Caused 2 Civilian & 3 Firefighter Injuries
One hundred and thirty-seven (137) structure fires in hospitals[18] caused two civilian injuries, three firefighter injuries and an estimated dollar loss of $129,295. The average loss per fire was $944. In 2003, 1% of the 12,997 structure fires occurred in hospitals. Fires in hospitals were up 15% from 119 in 2002.



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.

[18] In v4 Property Use Codes for the Hospital Section included: 330 – Care of the sick, injured; insufficient information available to classify further, 331 – Hospital, hospital-type infirmary, 332 – Sanatorium, sanitarium, 334 – Clinic, clinic-type infirmary, and 339 – Care of the sick, injured not classified.

Cooking Caused 2/3 of Hospital Fires
Unattended cooking and other unsafe cooking practices caused 66% of the fires in hospitals in 2003. Indoor rubbish fires caused 9% of these fires; electrical problems and heating equipment each accounted for 4% of these fires; arson caused 3%; the unsafe use of smoking materials accounted for 2% of these fires; and clothes dryer fires accounted for 1% of the fires in hospitals in 2003.



While we do not collect data on the causes of indoor rubbish fires, one could speculate that many are caused by the improper disposal of smoking materials in an environment where smoking is prohibited. But without data, it only remains speculation.

68% of Hospital Fires Began in the Kitchen
Sixty-eight percent, (68%) of the fires in hospitals in 2003, started in the kitchen; 4% began in heating rooms or areas; another 4% occurred in patient's rooms; 2% happened in laundry areas; and 1% occurred each in ducts or on the exterior roof surface.

77% of Hospital Structure Fires Confined to Non-Combustible Containers[19]
One hundred and six (106), or 77% of all hospital structure fires, were reported as confined to non-combustible containers in 2003. Eighty-nine (89), or 65%, of these fires were contained cooking fires. Twelve (12) were confined indoor rubbish fires accounting

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

for 9% of hospital fires. Five (5), or 4%, were fires confined to a fuel burner or boiler malfunction.

The number of contained fires rose in 2003. Confined fires increased by 43 incidents, or 68%, from the 63 reported in 2002.

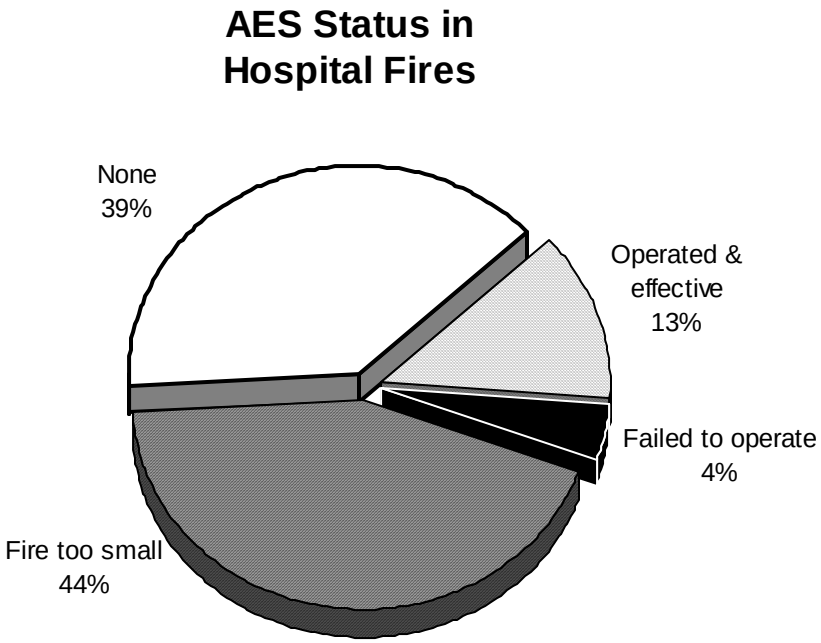
Detectors Alerted Occupants in Over 86% of Confined Fires
Smoke or heat detectors alerted the occupants in 91, or 86%, of the hospital fires that were confined to non-combustible containers. In 7% of these fires, the detectors did not alert the occupants. In 7% of these fires, it was undetermined if the detectors alerted the occupants of the building.

Detectors Operated in Almost 2/3 of Hospital Fires
Smoke detectors were present and operated in 65% of the 26 fires in hospitals where detector performance was known. In 4% of incidents, the detectors were present but did not operate. The fire was too small in 23% of these incidents. In 8% of the fires in hospitals, there were no detectors present at all.

Smoke detector status was unknown in four of the fires in hospitals. These incidents were excluded from the analysis.

No AES in Over 1/3 of Hospital Fires
Of the 23 hospital fires where automatic extinguishing system (AES) performance was known, systems were present and operated effectively in three, or 13% of these fires. The system failed to activate in one, or 4%, of these fires. The fire was too small to activate

the AES in 10, or 44%, of these fires. Thirty-nine percent (39%), or nine, of the hospital fires had no systems. AES performance was unknown in seven of the fires in hospital facilities. These incidents were excluded from this analysis.



Boston Had Largest Loss Hospital Fire in 2003

- On September 3, 2003 at 2:12 p.m. the Boston Fire Department was called to a fire at the Shapiro Clinic. An electrical malfunction in a treatment room started the fire. The fire did not cause any injuries but did cause an estimated $20,000 in damages. Smoke alarms were present and alerted the occupants. A sprinkler system was present but the fire was too small to activate it.

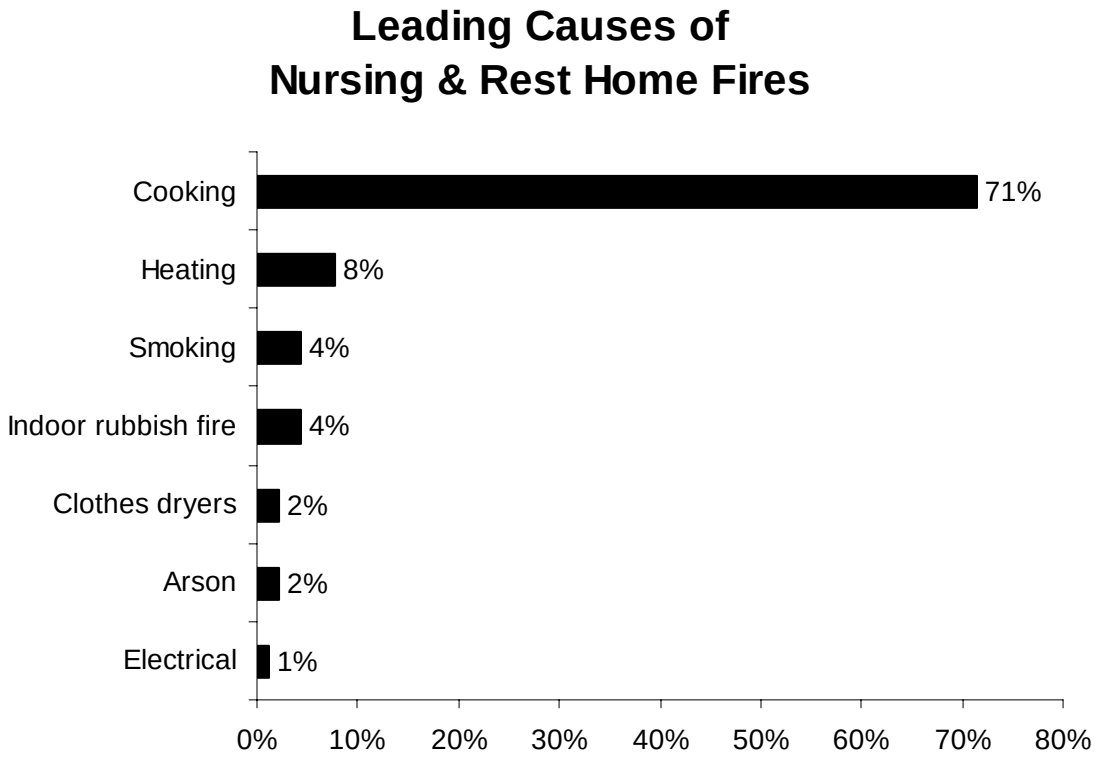
Nursing Home and Rest Home Fires

91 Fires Caused 2 Civilian Injuries, 1 Fire Service Injury and $35,000 in Damages
Ninety-one (91) structure fires occurred in nursing homes and rest homes[20] during 2003. These fires caused two civilian injuries, one fire service injury and an estimated dollar loss of $35,000. The average loss per fire was $385. In 2003, 1% of the 12,997 structure fires occurred in nursing homes and rest homes. Fires in nursing homes and rest homes decreased by 9% from 100 in 2002.

[20] In version 4 structures 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.

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

Cooking and Heating Equipment Were the Leading Causes of Nursing Home Fires
Unattended cooking and other unsafe cooking practices caused 71% of the fires in nursing and rest homes. Heating equipment was involved in 8% of these fires. Improper use or disposal of smoking materials and indoor rubbish fires each caused 4% of nursing home fires. Clothes dryers and arson were each involved in 2% of nursing home fires. Electrical problems caused 1% of the fires in Massachusetts' nursing homes in 2003.



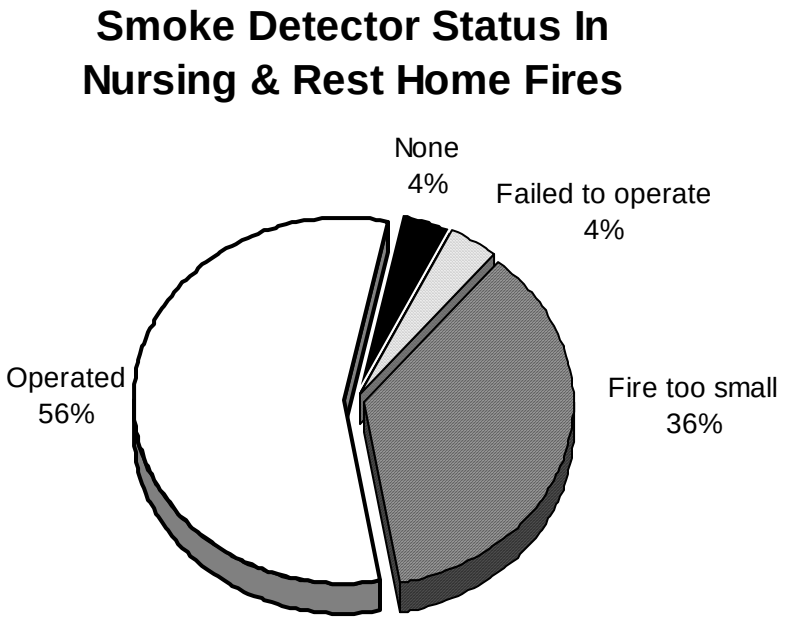
Almost 3/4 of Fires Began in the Kitchen
Seventy-three percent (73%) of the nursing and rest home fires began in the kitchen. Five percent (5%) of these fires began in a heating room or area. Three percent (3%) each began in the patient rooms and bathrooms. Two percent (2%) occurred in corridors or malls. Two percent (2%) of the fires in nursing homes started each in laundry rooms and equipment or service areas.

3/4 of Nursing Home Fires Are Confined to Non-Combustible Containers[21]
Sixty-eight (68), or 75%, of all nursing home structure fires were reported as confined to non-combustible containers in 2003. Sixty-one (61) of the reported fires were cooking fires contained to a non-combustible container accounting for 67% of nursing home structure fires. Five (5), or 5%, were fires confined to a fuel burner or boiler malfunction. Two (2), or 2%, of these fires were contained indoor rubbish fires.

The number of contained fires in nursing homes dropped in 2003. Confined fires decreased by four incidents, or 6%, from the 72 reported in 2002.

Detectors Alerted Occupants in Over 3/4 of Confined Fires
Smoke or heat detectors alerted the occupants in 52, or 76%, of the structure fires in nursing and rest homes that were confined to non-combustible containers. In 2% of these fires, the detectors did not alert the occupants. In 22% of these fires, it was undetermined if the detectors alerted the nursing home occupants.

Detectors Operated in 56% of Nursing Home Fires
Smoke detectors were present and operated in 56% of the 25 fires in nursing and rest homes where detector performance was known or reported. Detectors were present but did not operate in 4% of these fires. Thirty-six percent (36%) of these fires were too

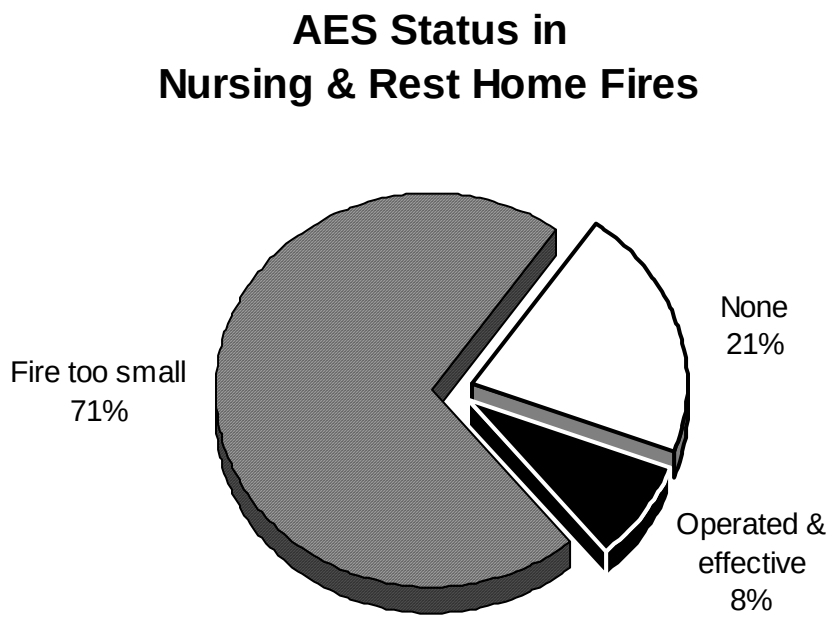


[21] In MFIRS v5 a fire in a building contained to a non-combustible container (Incident Type = 113-118) does not have to have a Fire Module completed. Therefore the following data fields do not need to be completed: Area of Origin, Detector Status, Item First Ignited, Heat Source, Factors Contributing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

small to activate the detector. In 4% of these fires there were no smoke detectors. Smoke detector status was undetermined for one incident. This incident was excluded from the percentage calculations.

No AES in 21% of Nursing Home Fires

Of the 24 nursing home fires where automatic extinguishing system (AES) performance was known or reported, systems were present and operated effectively in two, or 8% of these fires. In 71% of the fires in nursing and rest homes where AES performance was known, the fire was too small to activate the system. No systems were present in 21% of these fires. In two of these incidents, AES performance was undetermined. These fires were excluded from the analysis.



Smoking Caused Largest Nursing Home Loss Fire

- On June 9, 2003 at 11:02 a.m., the North Adams Fire Department was called to a fire in a nursing home caused by the careless disposal of a cigarette in a resident's room. This fire caused $10,000 in damages. There were no injuries reported at this fire. Smoke detectors were present and alerted the staff and occupants. Sprinklers were present but the fire was too small to activate the system.

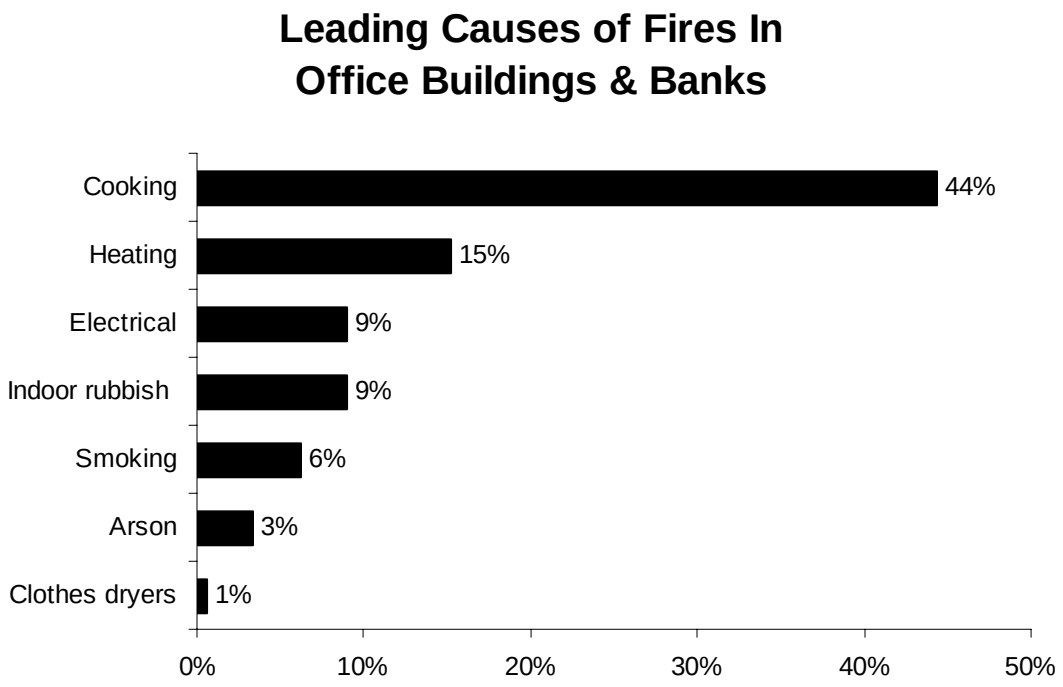
Office Building and Bank Fires

178 Fires, 9 Firefighter Injuries, $4.5 Million in Damages

One hundred and seventy-eight (178) structure fires occurred in offices and banks during 2003. These fires caused nine firefighter injuries, and an estimated dollar loss of $4.5 million. The average dollar loss per fire was $25,265. In 2003, 1% of the 12,997 structure fires occurred in offices and banks. Fires in office buildings and banks were up 18% from 151 in 2002.

Cooking Caused 44% of Office & Bank Fires

Unattended cooking and other unsafe cooking practices caused 44% of the 178 fires in office buildings and banks in 2003. Heating equipment accounted for 15% of these fires. Electrical problems and indoor rubbish fires each caused 9%; smoking materials ignited 6%; 3% of the fires in offices and banks were considered arson. Clothes dryers were responsible for 1% of the fires in office buildings and banks in 2003.



46% Office Building and Bank Fires Started in Kitchen
Forty-six percent (46%) of the fires in office buildings or banks started in the kitchen. Eleven percent (11%) of these fires began in a heating room or area. Two percent (2%) of these fires each began in an office, entrance way or lobby, or a switchgear area or transformer vault.

63% of Office Building Fires Are Confined to Non-Combustible Containers[22]
One hundred and thirteen (113), or 63%, of all office building and bank structure fires were reported as confined to non-combustible containers in 2003. Seventy-eight (78) of the reported fires were cooking fires contained to a non-combustible container accounting for 44% of office building structure fires. Nineteen (19), or 11%, were fires confined to a fuel burner or boiler malfunction. Thirteen (13), or 7%, of these fires were contained indoor rubbish fires. Three of these fires were confined chimney fires accounting for 2% of the office building and bank fires in 2003.

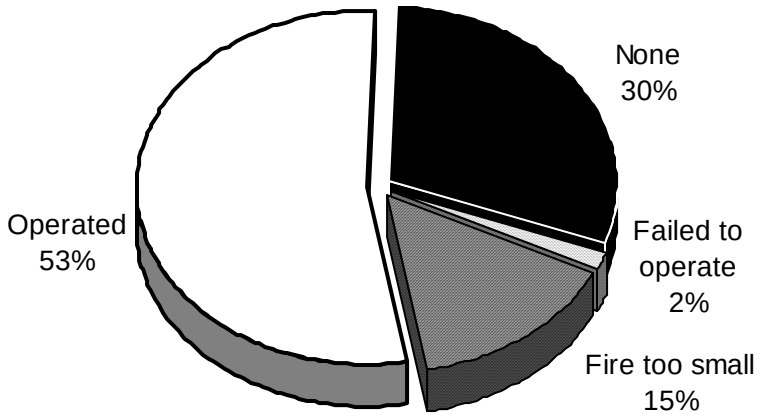
The number of contained fires rose in 2003. Confined fires in offices increased by 57 incidents, or 102%, from the 56 reported in 2002.

Detectors Alerted Occupants in Over 2/3 of Confined Fires
Smoke or heat detectors alerted the occupants in 77, or 68%, of the structure fires in office buildings and banks that were confined to non-combustible containers. In 12% of these fires, the detectors did not alert the occupants. In 20% of these fires, it was undetermined if the detectors alerted the office building occupants.

No Detectors in 30% of Office Building and Bank Fires
Smoke detectors were present and operated in 53% of the 60 fires in office buildings and banks where smoke detector performance was known. Detectors were present but did not operate in 2% of these fires. In 15%, the fire was too small to activate the detector. Thirty percent (30%) of fires in office buildings or banks did not have any smoke detectors. Detector performance was undetermined in four office building and bank fires. These incidents were excluded from the analysis.

[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.

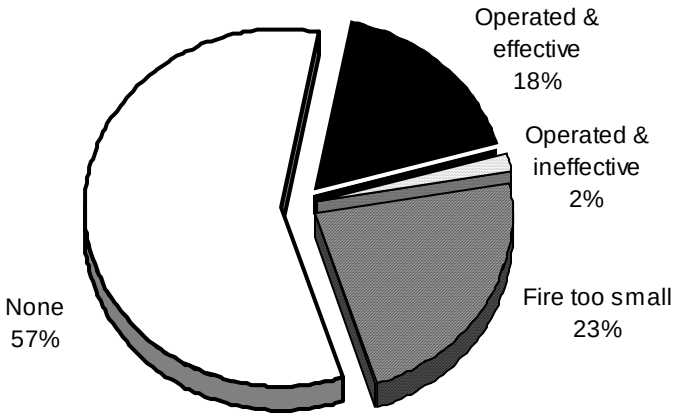
Smoke Detector Status In Office Building & Bank Fires



57% of Office Building and Banks Had No AES

No automatic extinguishing systems (AES) were installed in 57% of the 57 fires occurring in office buildings and banks where AES performance was known. In 23% of these incidents, the fire was too small to activate the system. Systems were present and operated effectively in 18% of these incidents. Systems were present and operated ineffectively in 2% of these incidents. AES performance was not known in seven of the total number of office building and bank fires. These incidents were excluded from the analysis.

AES Status in Office Building & Bank Fires



Short-circuit Arc Caused Largest Loss Office Building Fire

- On May 4, 2003 at 12:20 a.m., the Chelmsford Fire Department was called to a fire in a one-story UPS, mail and packaging facility that was caused by an unspecified short-circuit arc in a freight truck that was parked inside the loading area. This fire caused $500,000 in damages to the building and $1 million in damages to the building's contents. There were no injuries associated with this fire. There were no smoke detectors present at this fire. However sprinklers were present and were reported to effectively suppress the fire until the fire department arrived to extinguish the fire.

Vacant Building Fires

352 Fires in Vacant Buildings

Three hundred fifty-two (352) structure fires occurred in buildings that were vacant, under construction or demolition[23]. These 352 fires caused one civilian death, six civilian injuries, 47 firefighter injuries and an estimated $22.1 million in damages. The average dollar loss per vacant building fire was $63,011. Fires in vacant buildings were up 6% from 332[24] in 2002.

14% of Vacant Building Fires Considered Arson

Fifty (50), or 14%, of the fires in vacant buildings were considered arson. These 50 fires caused one civilian injury, four firefighter injuries and $1.3 million in damages. In 2003, 13% of the 382 Massachusetts structure arson fires occurred in vacant buildings.

39% of Vacant Structure Fires Undetermined.

Thirty-nine percent (39%) of vacant building fires were undetermined. Forty-five (45), or 13%, of the 352 vacant building fires were undetermined after investigation. Ninety-three (93), or 26%, were coded as still being under investigation.

In this new format, you are able to make a distinction between the property's use and the building's status. For example in version 4 if you had a vacant apartment building, one might code the 'Fixed Property Use' as Apartments, 3-6 units or Vacant property, but not both. If the report used the former code then it would not have been counted as a vacant

[23] 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.

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

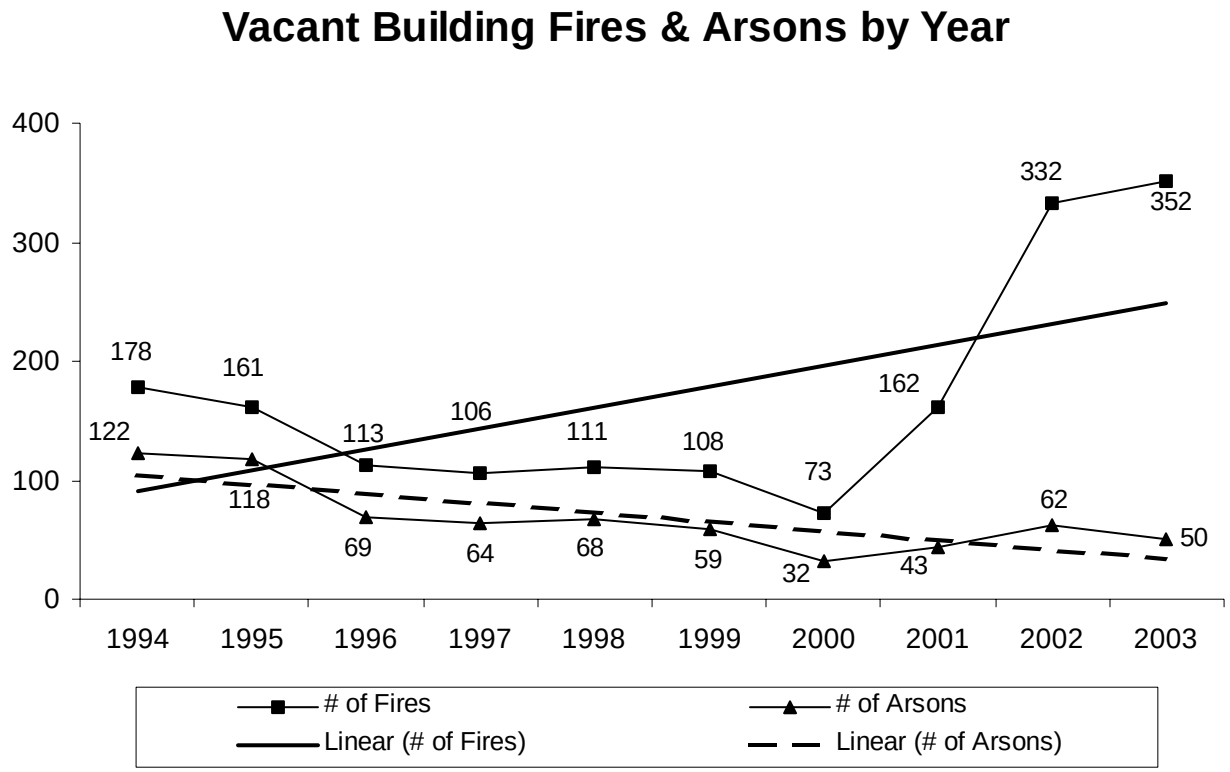
property fire. However in the new system, this same incident would now be coded with a 'Property Use' of Multi-family dwelling and a 'Building Status' of vacant, secured or unsecured. The addition of this new field is most likely the primary reason for the dramatic increase in vacant property fires in 2001. One of the improvements that came with version 5, is that we believe we now have a more accurate picture of the vacant building fire problem.

The following table and chart illustrate the trend in vacant building fires and arsons: they steadily declined from 1994 to 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 2003, these statistics did not include 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 2003. Therefore, the numbers in the table prior to 2003 should be considered to be underestimated.

FIRES AND ARSONS IN VACANT BUILDINGS

Year	# of Fires	# of Arsons	% Arsons
2003	352	50	14%
2002	332	62	17%
2001	162	43	27%
2000	73	32	44%
1999	108	59	55%
1998	111	68	61%
1997	106	64	60%
1996	113	69	61%
1995	161	118	73%
1994	178	122	69%

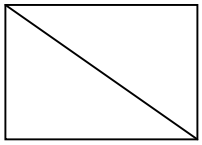
The following graph clearly shows this downward trend in both vacant building fires and vacant building arsons. From 2002 on, numbers are from the new version 5 format. The increase in both the number of vacant building fires and arsons in 2002 was expected because of version 5's new ability to distinguish between a structure's property use and its building status. 2003 is the second full year that the data is able to delineate between a building's property use and its building status. The change in coding requirements did create a substantial increase in reported vacant building fires and a moderate increase in vacant building arsons; only after we have five or more years of version 5 data will we be able to tell how substantial this increase really is.



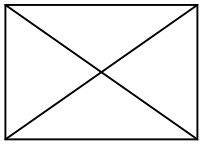
Communities Have Gone on the Offensive Against Vacant Buildings
Some communities have gone on the offensive against vacant buildings. The 32% drop in reported vacant building fires from 1999 to 2000 was likely due to the aftermath of the December 3, 1999 Worcester Cold Storage Warehouse Fire where six 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 structures, more frequent patrols of areas where these structures are located, tougher fines for owners who fail to keep vacant structures 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)), owners of vacant buildings must secure and mark them 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.

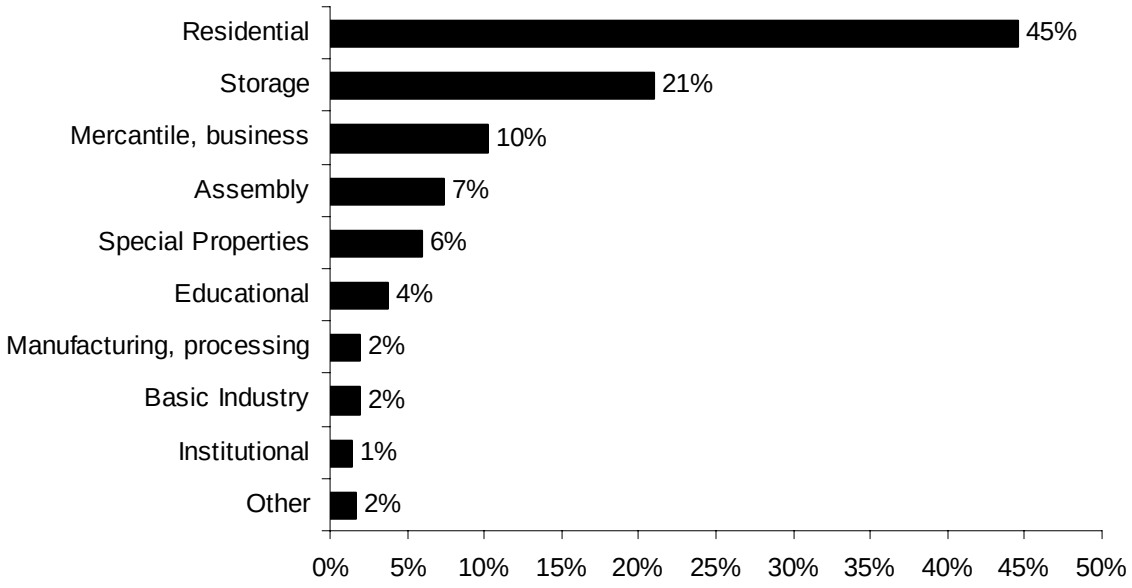
Effective Boarding Up Is Key To Protection

Removing furniture, contents and debris from the interior of the building, local 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.

Almost 1/2 of All Vacant Building Fires Were Residential

Out of the 352 vacant building fires 157, or 45%, of these fires occurred in residential occupancies. Seventy-four (74), or 21%, happened in storage facilities; 36, or 10%, happened at a mercantile or business location; 26, or 7%, were in public assembly properties; 21, or 6% occurred in special properties; 13, or 4%, were at educational facilities; seven, or 2%, happened at manufacturing or processing locations; another seven, or 2%, occurred at basic industrial sites; and five, or 1% of vacant building fires, occurred at institutional facilities. Six (6) vacant building fires, or 2%, occurred in "other" types of buildings.

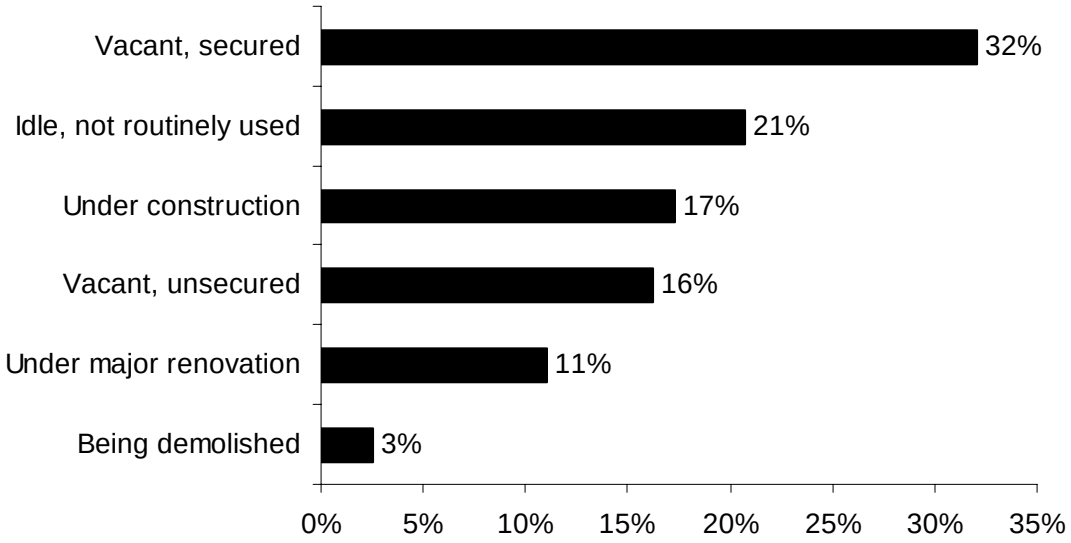
Vacant Building Fires by Property Use



42% of All Vacant Building Arsons Occurred in Residential Buildings
Forty-two percent (42%) of the vacant building arsons in 2003 occurred in residential occupancies. Twenty-four percent (24%) took place in storage facilities; 12% happened in special properties; 10% occurred in public assembly properties; 6% took place in mercantile or business properties; 4% took place in institutional facilities; and 2% happened in educational properties.

Almost 1/3 Were Vacant and Secured Buildings
Of the 352 fires in vacant buildings in 2003, 113, or 32% were in vacant buildings that were secured. Seventy-one (71), or 21%, of these fires took place in buildings that were idle or not routinely used; 61, or 17% were under construction; 57, or 16% of these fires occurred in vacant buildings that were unsecured; 39, or 11%, happened in buildings undergoing major renovations; and nine, or 3%, of the fires in these buildings occurred in buildings that were in the process of being demolished.

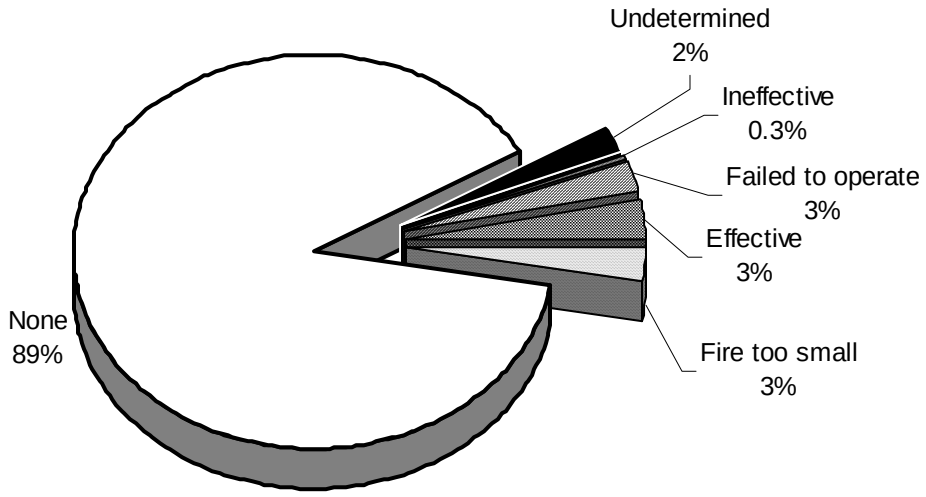
Vacant Building Fires by Building Status



36% of All Vacant Building Arsons Occurred in Secured Buildings
Thirty-six percent (36%) of all vacant building arsons in 2003 occurred in secured vacant buildings. Ten (10), or 55% of the arsons involving vacant and secured buildings reported having the fire start on the exterior of the building. Thirty percent (30%) occurred in unsecured, vacant buildings; while 16% happened in idle buildings that are not routinely used. Buildings under construction accounted for 10% of vacant building arsons. Buildings under major renovation accounted for 4% of the vacant building arsons in 2003. Another 4% of these arsons occurred in buildings being demolished.

89% of Vacant Buildings Had No AES
No automatic extinguishing systems (AES) were installed in 89% of the 337 fires occurring in vacant buildings where AES presence was completed. In 3% of these incidents, the fire was too small to activate the system. Systems were present and operated effectively 3%, of these incidents. The AES failed to operate in 3% of these incidents. Systems were present and operated ineffectively in less than 1%, of these incidents. AES performance was not known in 2% of the structure fires in vacant buildings in 2003.

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 27 to disconnect the system, extra precautions should be taken.

Large Loss Vacant Building Fires

- On June 27, 2003, at 12:48 a.m., the Bedford Fire Department was called to a fire in a single-family home undergoing major renovations. The fire began in the kitchen. The cause of the fire was undetermined. There were no injuries associated with this fire. Smoke detectors were present and operated. Sprinklers were not present. Damages from this blaze were estimated to be $2,600,000.

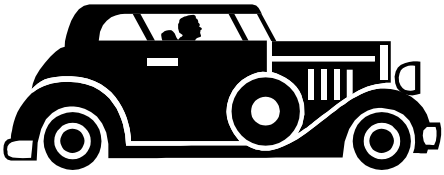
- On August 23, 2003, at 2:44 a.m., the Lexington Fire Department was called to a fire in a single-family home undergoing major renovation. It was undetermined what caused the fire. There were three fire service injuries associated with this fire. It was undetermined if detectors were present. There were no sprinklers present in the building. Damages from this fire were estimated to be $1,250,000. There were five exposure fires associated with this incident. All five were structure fires and their combined estimated dollar loss was $63,000.

- On December 13, 2003, at 4:44 a.m., the Boston Fire Department was called to a fire in a vacant and secured office building. The fire was started by a mechanical malfunction of a gas powered local heating unit in the ceiling and floor assembly. There were no injuries associated with this fire. There were no detectors or sprinklers in the building. Damages from this fire were estimated to be $1,000,000.

Motor Vehicle Fires

4,522 Motor Vehicle Fires Account for 16% of All Reported Fires

The 4,522 motor vehicle fires accounted for five, or 8%, of civilian fire deaths, 25 civilian injuries, 29 fire service injuries, and an estimated property damage of $22.1 million. Motor vehicle fires accounted for 16% of total reported fire incidents. The 4,522 fires in 2003 are a 4% increase from the 4,331 motor vehicle fires in 2002.



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.

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 for overall and vehicle arsons in particular. Since it took effect in 1987, motor vehicle arsons have decreased 95% from a high of 5,116 in 1987 to 276 in 2003. The percentage of motor vehicle fires that are arsons has also dropped 80% in the past decade from 19.2% in 1993 to 6.1% in 2003.

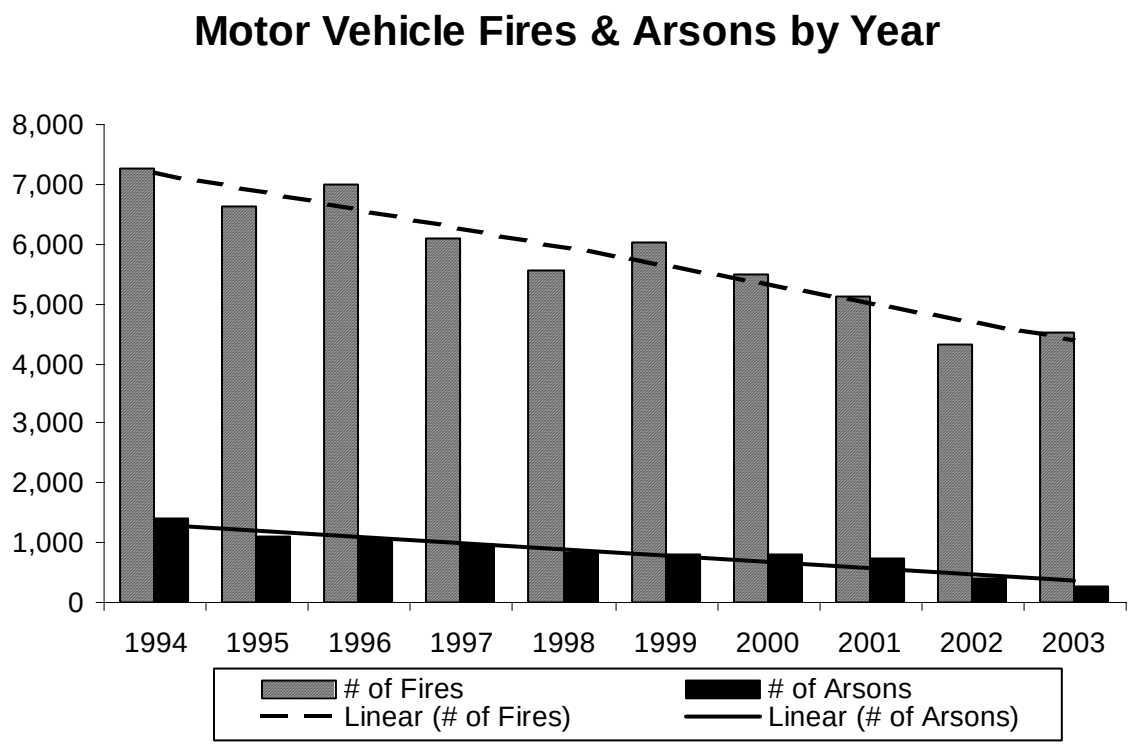
The table below shows the number of vehicle fires and vehicle arsons and the percentage of vehicle fires caused by arson for the past decade.

VEHICLE FIRES AND VEHICLE ARSONS BY YEAR

Year	Vehicle Fires	Vehicle Arsons	% Arsons
2003	4,522	276	6.1%
2002[25]	4,331	395	9.1%
2001	5,127	743	14.5%
2000	5,473	798	14.6%
1999	6,011	818	13.6%
1998	5,565	836	15.0%
1997	6,096	979	16.1%
1996	6,980	1,082	15.5%
1995	6,612	1,093	16.5%
1994	7,267	1,395	19.2%

[25] 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.

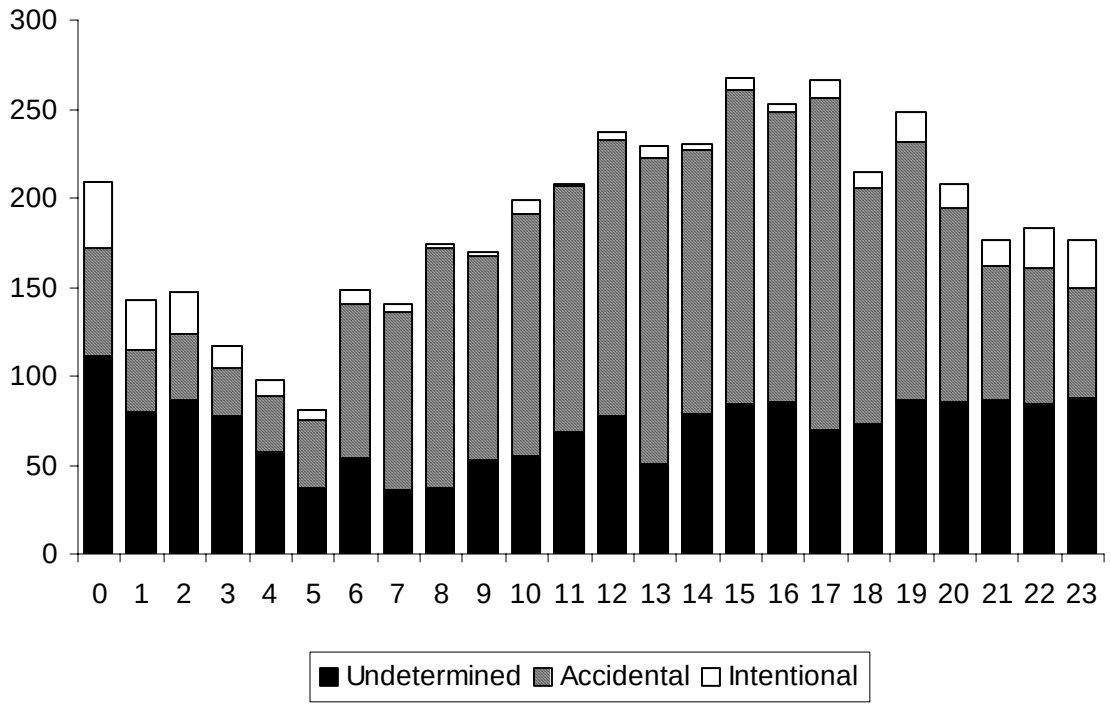
The following graph illustrates the data in the table.



Mechanical Failures Caused 29% of Massachusetts Motor Vehicle Fires
Of the 4,522 motor vehicle fires in 2003, 29% were caused by some type of mechanical failure or malfunction; 6% were considered intentionally set and 28% resulted from other accidental causes. The cause was undetermined or not reported in 38% of the motor vehicle fires.

Accidental Fires Occur During Day and Early Evening, Vehicle Arson in Darkness
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 by time of day. Midnight to 1:00 a.m. is represented by 0, 1:00 a.m. to 2:00 a.m. is represented by 1, etc.

Causes of Motor Vehicle Fires by Time of Day



Over 2/3 of Massachusetts Motor Vehicle Fires Involved Automobiles
Automobiles and vans accounted for 69% of the 4,522 motor vehicle fires, 1% were trucks weighing less than one ton and 3% were trucks weighing more than one ton.

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. 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 51 motor vehicle fires at gas and service stations in 2003. There were 52 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.

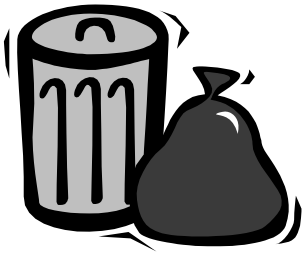
Gas Station Safety

- 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

10,196 Brush, Trash, and Other Outside Fires Reported in 2003

The 10,196 outside and other fires caused four civilian deaths, 34 civilian injuries, 27 fire service injuries, and an estimated dollar loss of $3.2 million. The 2,981 trees, grass and brush fires, 2,867 outside trash fires, 702 special outside fires, 26 cultivated vegetation or crop fires, and 3,620 other fires accounted for 37% of the total fire incidents in 2003. These fires were down 8% from the 11,110 incidents reported in 2002. Fire departments are required to report any fire 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 10,196 reported outside and other fires include:

- 2,981 natural vegetation fires (trees, grass, and brush fires) which caused one civilian death, five civilian injuries, 14 firefighter injuries, and an estimated dollar loss of $371,878; this is a 35% decrease from the 4,611 incidents reported in 2002;
- 2,867 trash fires that caused four civilian injuries, two fire service injuries and an estimated dollar loss of $72,309; this is a 5% decrease from the 3,021 incidents reported in 2002;
- 702 special outside fires (including outside, storage, equipment, mailbox fires and outside gas or vapor explosions) that caused one civilian death, seven civilian injuries, two fire service injuries, and an estimated dollar loss of $460,211; this is a 6% decrease from the 746 incidents reported in 2002;
- 26 cultivated vegetation or crop fires which caused an estimated dollar loss of $20; this is a 91% drop from the 279 incidents reported in 2002;
- 3,620 other fires that could not be classified further which caused two civilian deaths, 18 civilian injuries, nine fire service injuries, and an estimated dollar loss of $2,278,821; this is a 50% increase from the 2,413 incidents reported in 2002[26].

[26] The increase in other fires is mostly from Worcester. 2003 was the first full year that Worcester used MFIRS version 5. In 2003, for the first time, the Worcester Fire Department reported all of their incidents to MFIRS. This year they reported 1,925 unclassified fires to MFIRS. As they become more familiar with

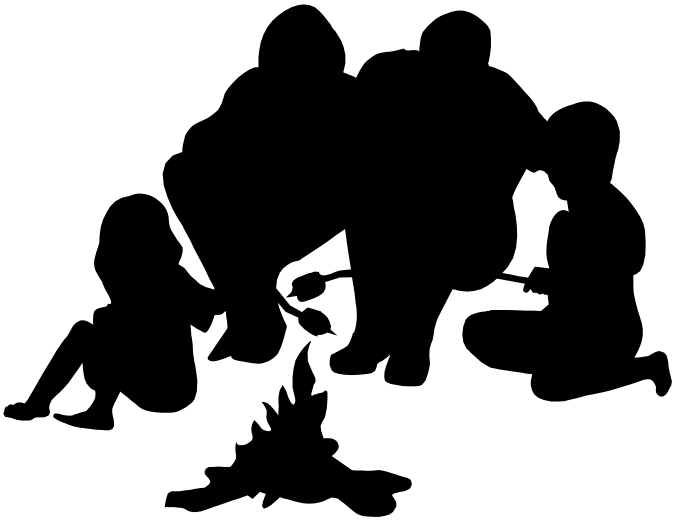
Large Loss Outside and Other Fires

- On March 27, 2003 at 1:14 p.m. the Dartmouth District #2 Fire Department was called to a four-acre fire in town. A hot or smoldering object ignited the surrounding vegetation in an open field. Damages from this fire were estimated to be $300,000. There were no injuries resulting from this fire.

- On February 1, 2003 at 7:56 p.m. the Townsend Fire Department was called to a fire on the property of a local lumber company of undetermined cause. Damages from this fire were estimated to be $300,000. There were no injuries associated with this fire.

Most Injuries From an Outside and Other Fire

- On January 28, 2003 at 2:02 p.m. the Boston Fire Department was called to an outside explosion at an MBTA facility. A worker had been cutting too close to a container of ignitable liquid. Two civilians were injured. Damages from this fire were estimated to be $1,000.



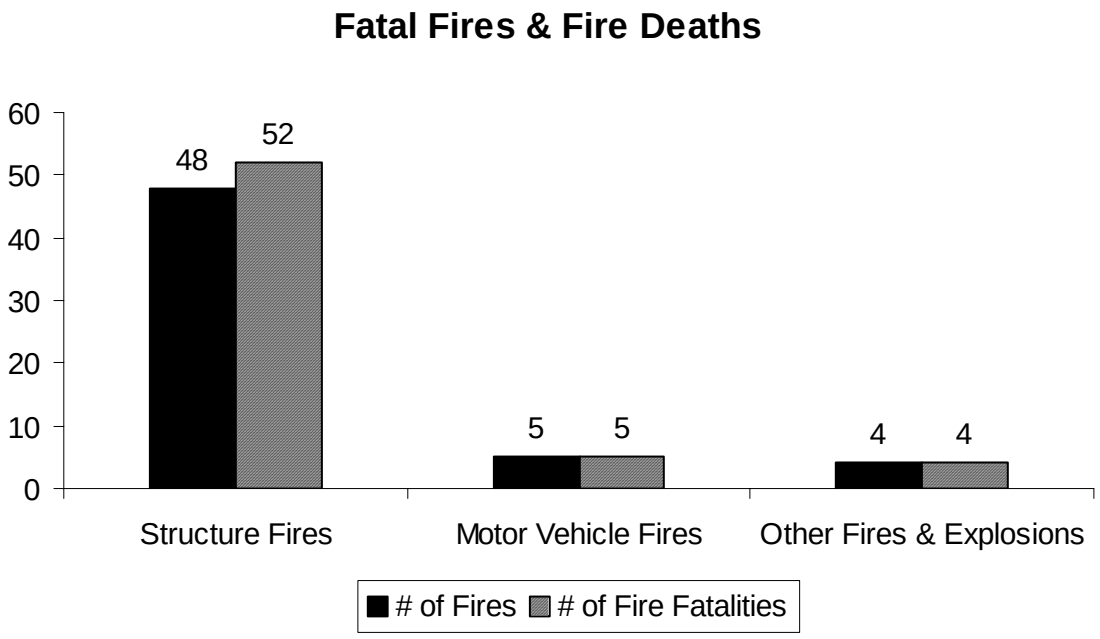
the system, we expect the number of unclassified fires to decrease while seeing a corresponding increase in other types of fires.

2003 Massachusetts Fire Deaths

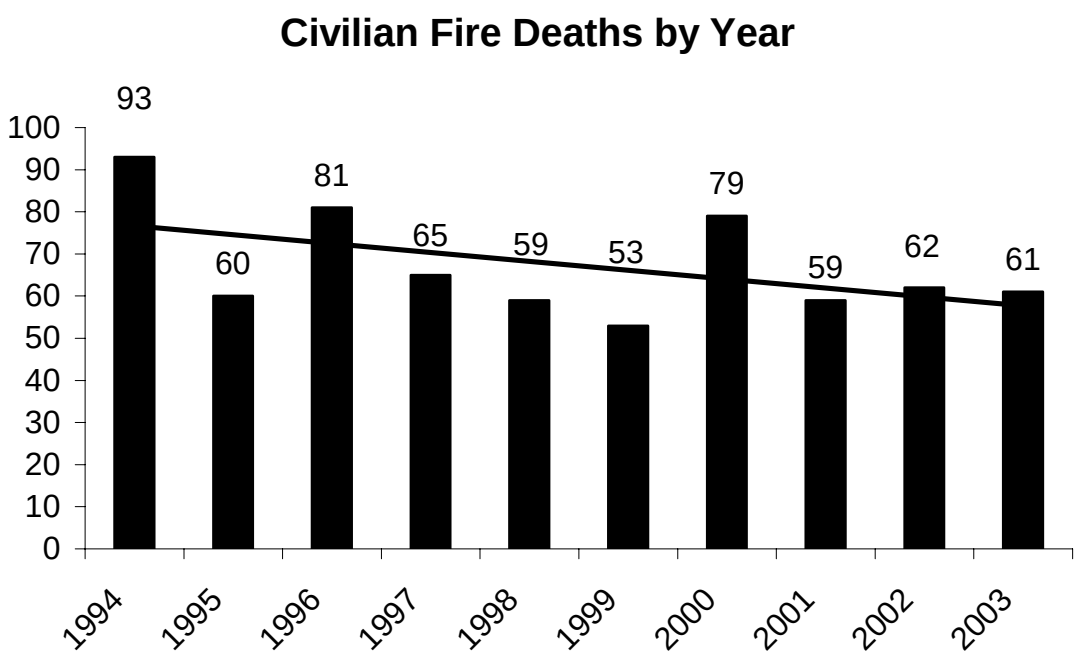
Civilian Fire Deaths

61 Civilians Died in Massachusetts Fires
Sixty-one (61) civilians died in 57 Massachusetts fires during 2003. Fifty-two (52) civilians died in 48 structure fires. Five (5) people died in five motor vehicle fires. Four (4) people died in four outside and other fires in 2003. In 2003, there were 9.6 fire deaths per one million population in Massachusetts down slightly from 9.8 fire deaths per one million population in 2002.

There was one fire-related fire service fatality in the Commonwealth of Massachusetts in 2003. The following graph shows the number of fatal fires and the number of fire deaths in structure fires, motor vehicle fires and other fires and explosions.

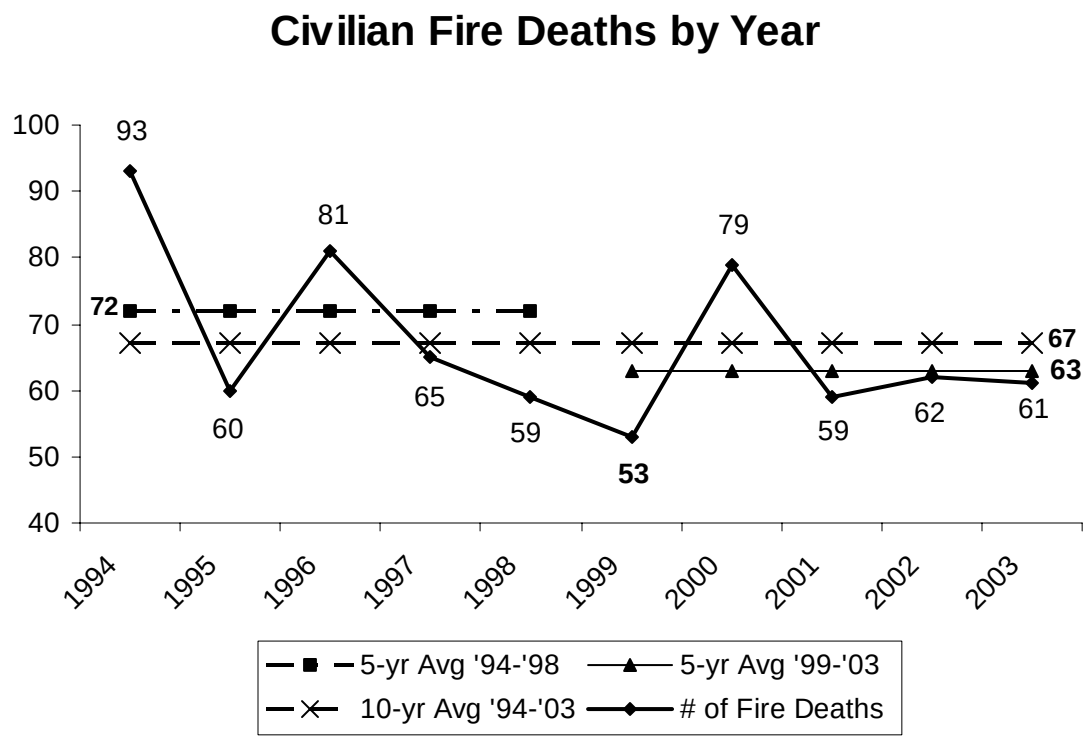


Fire Deaths Were Down 2% From Previous Year
In 2003 fire deaths dropped by one, or 2%, from the previous year. The following chart shows the trend of civilian fire deaths for the past decade on a steady decline. The graph shows the number of civilian fire deaths per year for the last ten years. The 53 civilian fire deaths in 1999 were the lowest on record since the end of World War II. Civilian fire deaths have decreased by 34% from the high of 93 in 1994.

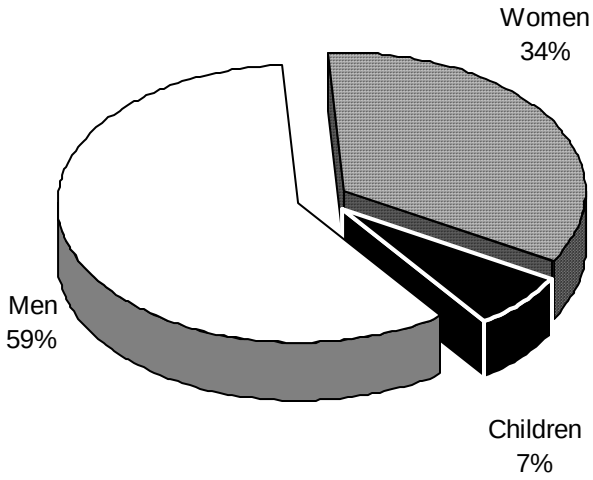


Four of the Last Five Years Have Been Below Both the 10 & 5-Year Averages
Because the number of fire deaths fluctuates from year to year and may be influenced by uncontrollable outside factors such as high energy costs for heating, it is helpful to look at averages over five and 10-year periods. The following graph illustrates the number of fire deaths for the past 10 years in relation to the five-year averages for the periods from 1994 through 1998 and 1999 through 2003 deaths. The average number of fire deaths per year from 1994 through 1998 was 72 deaths. The average number of fire deaths per year from 1999 through 2003 was 63 deaths. The graph also depicts the relationship of the number of fire deaths in relation to the 10-year average of 67 deaths for the same time period. Four of the last five years have been below both the ten- and five-year averages.

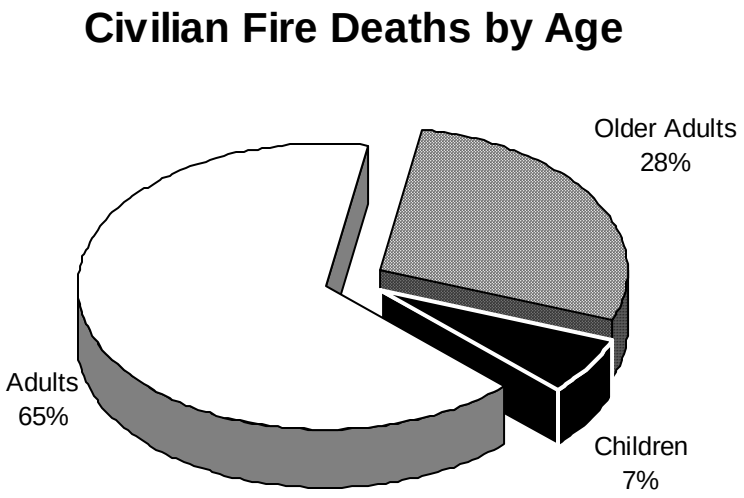
Note that the chart below starts at 40 rather than the traditional zero value. This is so the reader can concentrate on the sometimes subtle changes in the figures. The 61 fire deaths in 2003 are 9% below the ten-year average and 3% below the five-year average.



36 Men, 21 Women and 4 Children under 18 Died from Fires in 2003
Of the 61 fire deaths, 36 or 59%, were men, 21, or 34%, were women and four, or 7%, were children under 18. The following pie chart illustrates the above figures.



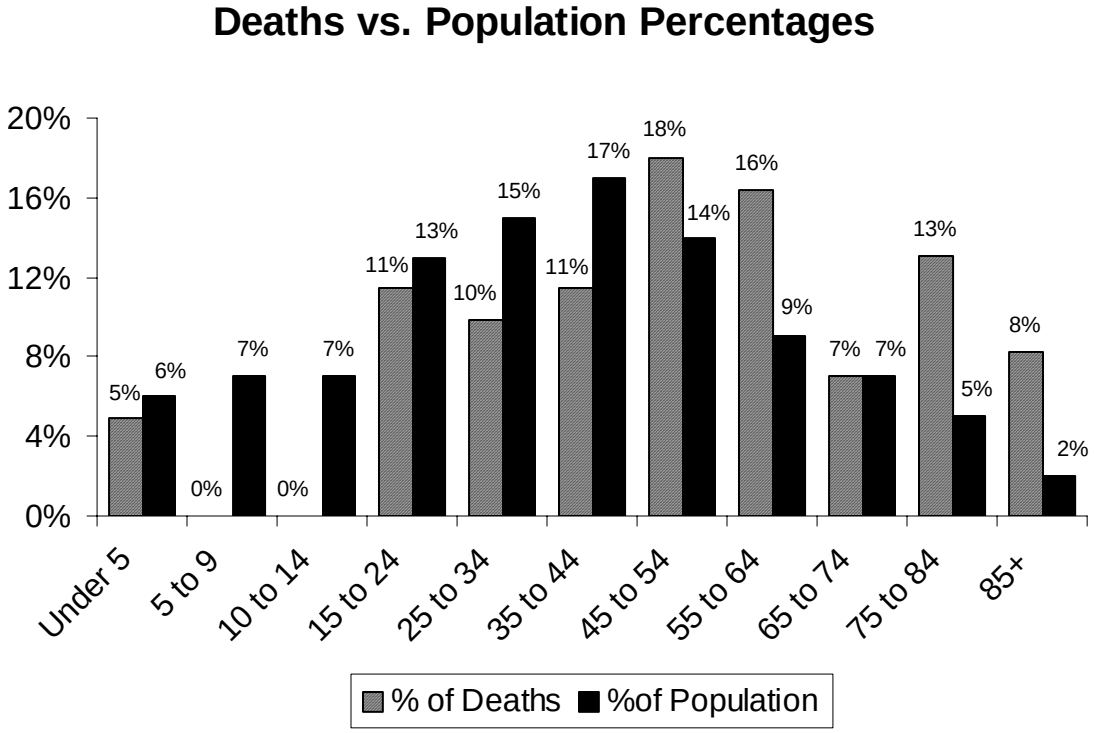
Seventeen (17), or 28%, of the civilian fatal fire victims were over 65 years of age. This included 10 elderly women and seven elderly men. Four (4), or 7%, of the civilian fatal fire victims were under 18-years old. Forty (40), or 65%, were adults between 18 and 65 years of age. The following pie chart illustrates the above figures.



Older Adults at Great Risk for Fire Death

Older adults, those over the age of 65, account for 14% of the population but 28% of the fire deaths. The risk of fire death for older adults is 2.0, down from 2.1 last year. This means that older adults were twice as likely to be fire-related fatalities than other age groups. The following graph shows the percentage of fire deaths versus population percentage by age groups in 2003. If the percentage of deaths in a given age bracket is greater than its percentage of the population, that group is at a higher than expected risk for fire death. People ages 5 to 14 had the lowest risk of fire deaths in 2003. Older adults, especially over the age of 75 had the greatest risk of dying in a fire.

In 2003 almost half, 47%, of all older adult fire deaths were caused by the careless disposal of smoking materials while in the confines of their own home. Twelve percent (12%) of these deaths were attributed to electrical fires; and 6% each were caused by cooking fires and fires started by heating equipment.



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 that 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.

Massachusetts' Oldest Citizens are at Greatest Risk of Dying in a Fire
In Massachusetts adults over the age of 45 were at a greater risk of dying in a fire. Older adults over the age of 75 had the greatest risk; they were three times more likely to die in a fire in 2003.

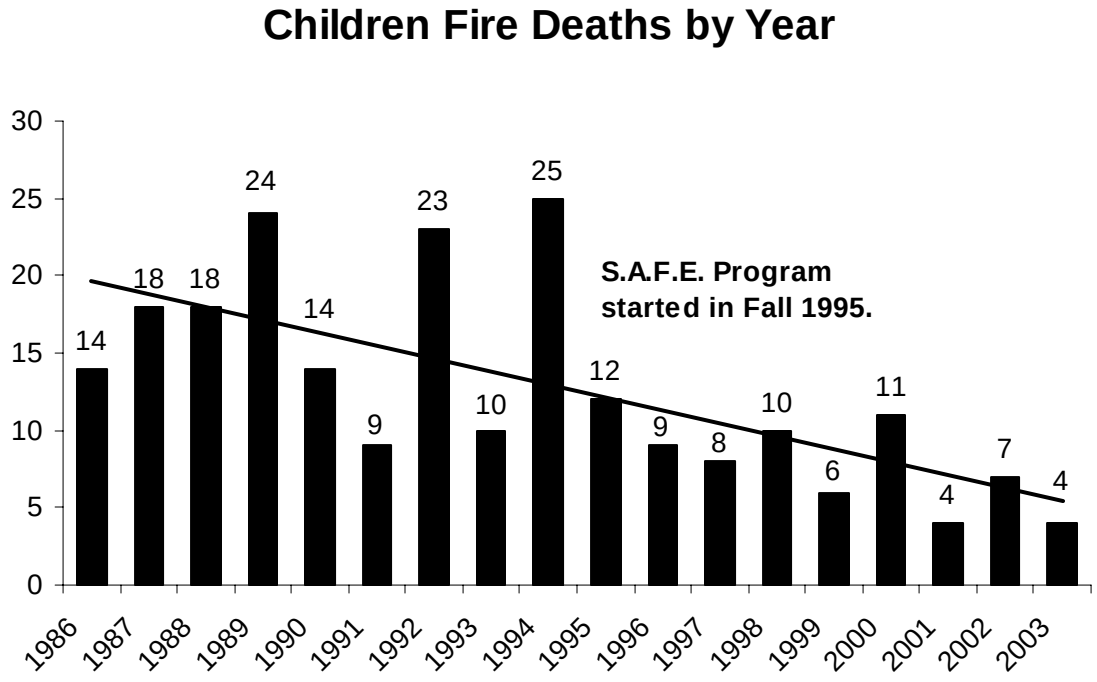
No Deaths to Children Ages 5-14
Children under five years old accounted for 5% of the fire deaths and 6% of the population in 2003. There were no deaths to children between the ages of five to 14; young adults ages 15 to 24 accounted for 11% of the fire deaths and 13% of the population; people ages 25 to 34 accounted for 10% of the fire deaths and 15% of the population; adults between the ages of 35 and 44 were 11% of the fire fatalities and account for 17% of the population; people ages 45 to 54 accounted for 18% fatal fire victims, the highest of any age group and 14% of the Massachusetts population; victims between the ages of 55 to 64 accounted for 16% of the fatal fire deaths and 9% of the

population; and older adults over the age of 65 accounted for 28% of the fire fatalities in Massachusetts in 2003, but only 14% of the population. Older adults over the age of 75 had the greatest risk of dying in a fire, the accounted for 7% of the population and 21% of the fire deaths in 2003, making them three 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 2003. 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 four in 2001 and again in 2003. According to United States Fire Administration statistics, children under 10 accounted for an estimated 22% of all fire-related deaths nationally from 1994 – 1998.[27] In 2003 children under 10 accounted for only 5% of all Massachusetts fire-related deaths.

Child Fire Deaths Drop By 2/3 Since Start of S.A.F.E. Program
Fire deaths of children under age 18 have fallen 67% since the start of the S.A.F.E. Program in the fall of 1995. Since fire death numbers fluctuate quite a bit from year, it is helpful to look both at the trendline in the graph below and at averages over several years.

During the nine years where the S.A.F.E. Program has been in effect, from 1995 to 2003, the average number of child fire deaths per year has been 7.9. In the nine years prior to the S.A.F.E. Program, 1986-1994, the average number of child fire deaths per year was

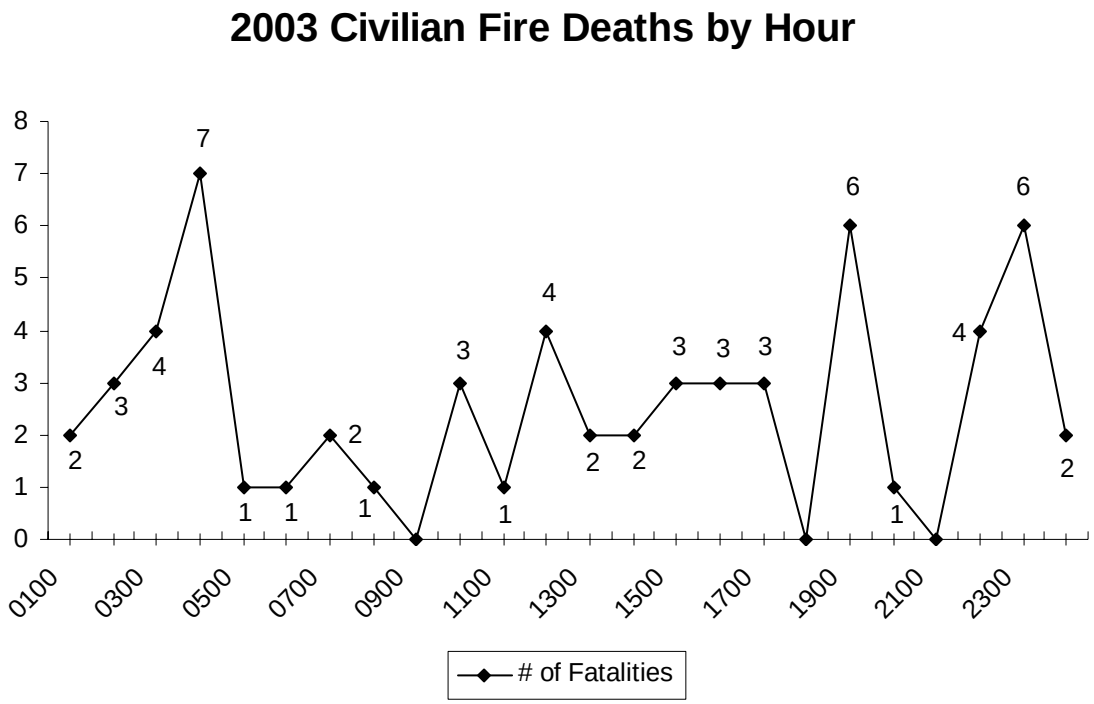


[27] Source: United States Fire Administration's **Facts on Fire: Fire in the United States.**

17.6. This 55% drop in the average number of child fire deaths is significant when compared to the 38% drop in 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.

People Were More Likely to Die in Fires That Occurred While They Slept
People were more likely to die in fires that occurred while they slept. Thirty-two (32), or 52%, 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 0100; 1:01 a.m. to 2:00 a.m. is represented by 0200, etc.



The importance of having working smoke alarms is clearly demonstrated here. Because over one-half of the fire victims die during normal sleeping hours, the need to quickly awaken sleepers to the presence of danger is paramount.

Structure Fire Deaths

In 2003, there were 52 structure fire deaths in 48 fatal fires. Not all of the structure fire deaths occurred in residential occupancies. Two fatal fires occurred in detached residential parking garages, one fatal fire occurred in an outside storage tank, and one occurred in a storage trailer.

Man Killed in Residential Garage

- On February 9, 2003, at 4:51 p.m. the Milton Fire Department was called to a fire in a detached residential garage that was being used as a residence. Smoking materials ignited the victim's bedding and clothes. The 35-year old male victim was overcome by the heat and smoke while attempting to escape. There were no other casualties associated with this fire. The fire caused $100,000 worth of damage. Garages are not required to have smoke alarms because they are not expected to be used as sleeping areas.

Man Killed While Welding Outside Storage Tank

- On July 3, 2003, at 12:57 p.m., the Framingham Fire Department was called to a fatal fire in an outside storage tank. Two workers were welding at the top of the tank while there was still some product left in the tanks. The welding torches ignited the vapors in the tank. The victim, a 31-year old man, was thrown to the ground by the initial blast and sustained trauma to his head and later died from his injuries. The other welder was also injured but was able to make his way down the tank to a safe area. Multiple types of detectors were present and alerted the other occupants at the industrial site. Sprinklers were present but did not activate because the fire was not in the protected part of the structure. Damages from this fire were estimated to be $100,000.

One Man Killed in Detached Garage Fire & Explosion

- On July 11, 2003, at 11:19 a.m., the Springfield Fire Department was called to a fatal fire in a detached garage. The victim, a 62-year old man, was working in his garage when it exploded. The cause of the fire was undetermined, but the victim was a licensed pyrotechnic technician and retired police officer. There were no other injuries associated with this fire. Damages from this fire were estimated to be $30,000.

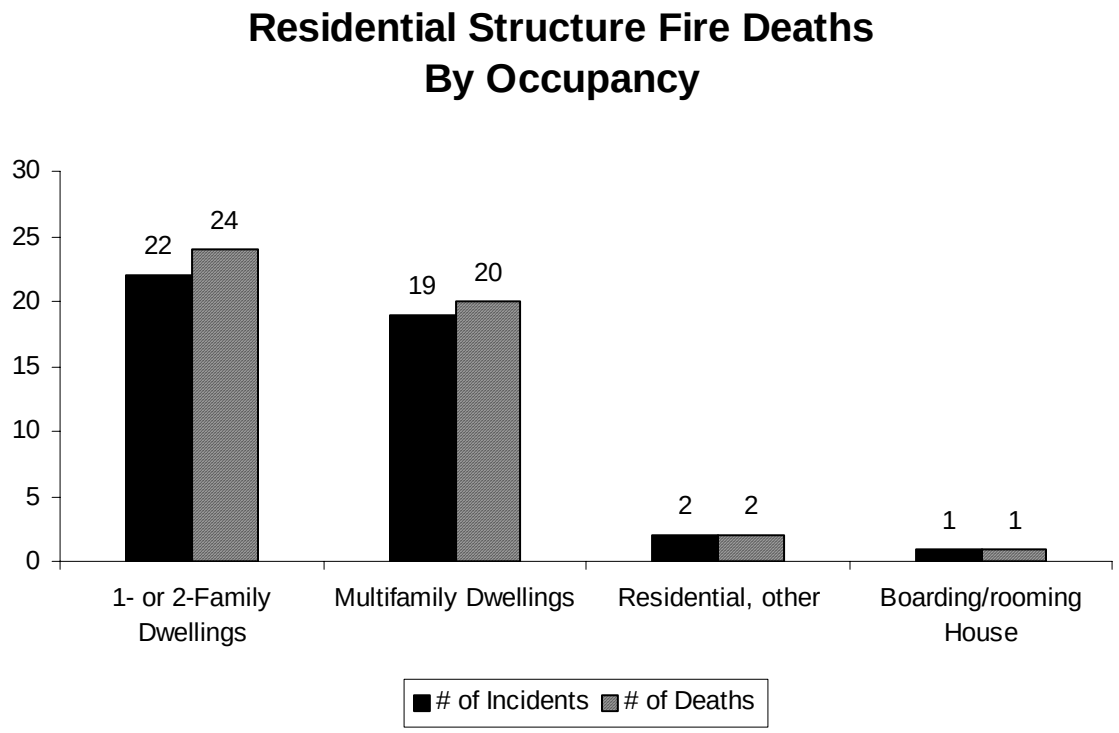
Homeless Man & Woman Killed Storage Trailer Fire

- On October 22, 2003, at 11:31 p.m., the Worcester Fire Department was called to a fatal fire of undetermined cause. The fire was in a storage trailer in which two homeless people were living. The victims were a 50-year old man and a 52-year old woman. There was only one means of egress from the trailer. There were no other injuries associated with this fire. Damages from this fire were estimated to be $5,000.

Residential Structure 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.

Ninety-two percent (92%) of structure fire deaths occurred in residential occupancies. In 2003 there were 47 residential structure fire deaths in 44 residential fatal fires. This represents 92% of the structure fire deaths and 77% of all fire deaths. Twenty-four (24) fire deaths occurred in 22 fires in one- and two-family dwellings; 20 fire deaths occurred in 19 apartment fires; one fire death took place in a rooming house; and two fire deaths occurred in two unclassified residences. The graph below shows the number of fatal fire incidents and the number of civilian fatalities associated with various types of residential occupancies.

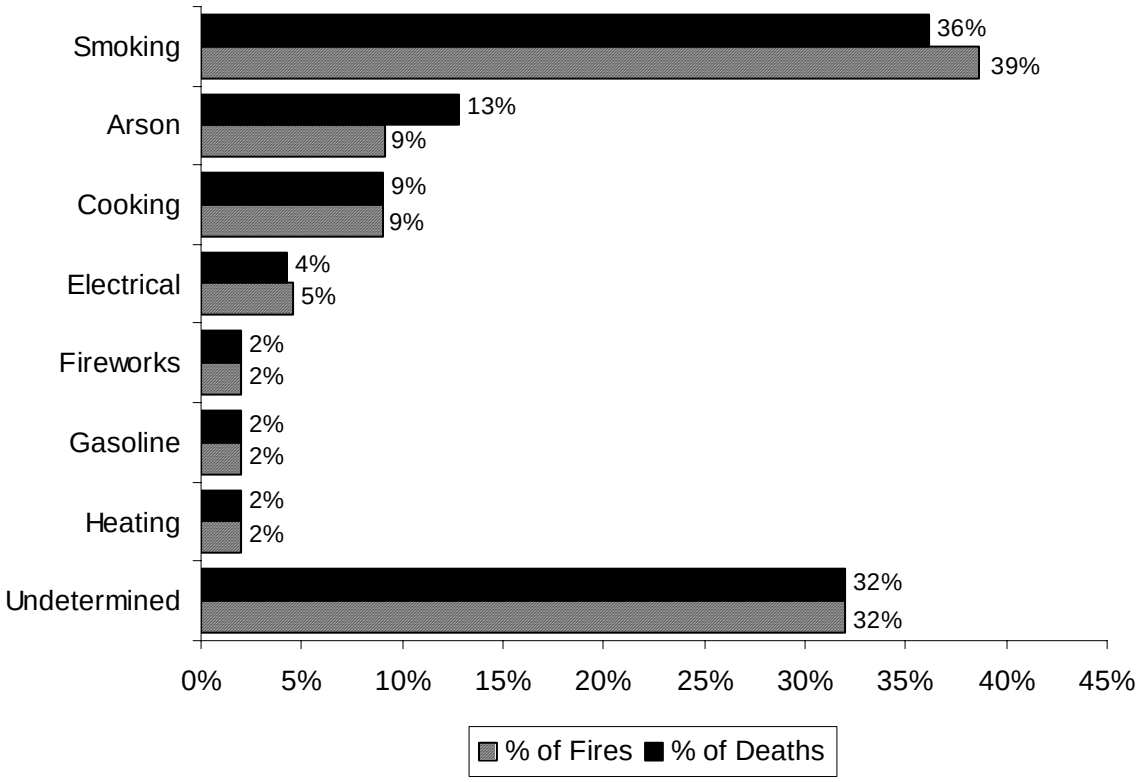


Smoking Remains the Leading Causes of Fire Deaths
In 2003, smoking was once again the leading cause of residential structure fire deaths. For years, smoking has been far and away the leading cause of fatal fires and fire deaths in Massachusetts, with no other cause coming close except in 1999. In 1999, cooking and smoking tied as the leading causes of fires that kill. In 2003, smoking remained the leading cause of residential fire deaths accounting for 36%. The second leading cause of

fire deaths in 2003 was arson which caused 13%, with cooking third, accounting for 9% of the fire deaths; and electrical fires the fourth leading cause of fire fatalities in Massachusetts in 2003 causing 4% of residential fire deaths.

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

Causes of Residential Fatal Fires and Fire Deaths



17 Fatal Smoking Fires Cause 17 Deaths in Homes
In 2003, the improper use and disposal of smoking materials caused 17 fire deaths in 17 fatal residential fires. The unsafe and improper use of smoking materials caused 36% of residential structure fire deaths and 39% of fatal residential structure fires. Eight (8), or 47%, of the 17 residential structure fire deaths of people over the age of 65 were caused by smoking.

- On February 1, 2003, at 7:01 p.m. the Lynn Fire Department was called to a fire in a rooming house caused by the improper use and disposal of smoking materials. The 61-year old male victim's clothing ignited giving him burns over 90% of his body. He was transported to a local hospital where he later succumbed to his burn injuries.

Smoke detectors were present and alerted other occupants to the fire. Sprinklers were present but did not activate because the fire was too small. There were no other injuries associated with this fire. There was no estimate of damage caused by this fire.

- On February 8, 2003, at 4:51 p.m. the West Springfield Fire Department was called to a fatal fire in a trailer that was being used as a residence. The fire was caused improper disposal of smoking materials. The 65-year old male victim was overcome by the heat and smoke while asleep. There were no other casualties associated with this fire. Detectors and sprinklers were not present. The fire caused $10,000 worth of damage.

- On February 16, 2003, at 10:00 p.m. there was a fire death in Somerville. The Somerville Fire Department was later called to complete an investigation of the fatal fire in an apartment building caused by the improper use and disposal of smoking materials. A cigarette lighter had exploded, igniting the victim's clothing. The 72-year old woman died a few days later in a local hospital from burns to 85% of her body. There were no other casualties. Detectors were present but did not operate because the fire was too small. No sprinklers were present. No estimation was made as to damages from the incident.

- On February 19, 2003, at 2:01 a.m. the Brewster Fire Department was called to a fire in a single-family home caused by the improper disposal of smoking materials. An abandoned cigarette ignited the sofa in the finished basement. The victim, a 47-year old woman, was overcome by the heat and smoke while trying to escape. Firefighters rescued her and transported her to the hospital where she died from her injuries. Damages were estimated to be $252,000. The victim's husband and son also sustained injuries in this fire. Detectors were present and operated.

- On March 2, 2003, at 1:29 p.m. the Medfield Fire Department was called to a fire in a four-unit apartment building caused by the improper disposal of smoking materials. The fire began in the living room where smoking materials ignited a piece of furniture. The victim, a 61-year old man, was overcome by the heat and smoke as he slept in the living room. He died from burns and smoke inhalation. Smoke detectors were present and alerted the other occupants of the building. There were no other injuries associated with this fire. Damages from this blaze were estimated to be $110,000.

- At 8:36 a.m., on March 14, 2003, the Revere Fire Department was called to a fire in an 87-unit apartment complex caused by the improper disposal of smoking materials. The victim, a 51-year old man, who was sleeping in the living room when the fire started, died from burns and smoke inhalation. Damages from this blaze were estimated to be $85,000. There were two fire service injuries associated with this fire. Detectors were present and alerted the other residents of the building.

- On March 15, 2003, at 10:07 a.m., the Hull Fire Department was called to a fire in a two-family home caused by the improper disposal of smoking materials. The victim,

a 64-year old woman, dropped a match onto her clothing, igniting her clothes and the chair she was sitting on. The victim was transported to a local hospital where she later died from her burn injuries. Smoke detectors were present but failed to operate. Damages from this blaze were estimated to be $5,000. There were no other injuries associated with this fire.

- At 2:04 p.m., on May 26, 2003, the Hingham Fire Department was called to a fatal fire in a single-family house caused by the improper use and disposal of smoking materials. The fire started in the bedroom where the victim fell asleep while smoking. The victim, a 64-year old disabled man, was overcome by heat and smoke and died from burns and smoke inhalation. There were no other injuries. Damages were limited to the room where the fire had started and estimated at $97,000. Smoke detectors were not present. The building was not sprinklered.

- On May 27, 2003, at 7:41 p.m., the North Adams Fire Department was called to a fatal fire in a 106-unit apartment building caused by the improper disposal of smoking materials. The fire began in the living room when the victim fell asleep and her cigarette ignited the furniture. The 83-year old woman, asleep when the fire started, was overcome by the heat and smoke. She was transported to a local hospital where she died from burns and smoke inhalation. Detectors were present and alerted the other occupants of the building. Damages from this blaze were estimated to be $20,000. One firefighter received an injury during this incident. The building was not sprinklered.

- At 8:16 p.m., on June 1, 2003, the Haverhill Fire Department was called to a fatal fire in a six-unit apartment building caused by the unsafe disposal of smoking materials. The victim, a 75-year old woman, accidentally discarded a cigarette and ignited her clothing. She was unable to escape and died from burns and smoke inhalation. Smoke detectors were present but it was undetermined if they operated. There were no other injuries associated with this fire. Damages from this fire were estimated to be $4,500. Sprinklers were not present.

- On October 5, 2003, at 5:24 p.m., the Methuen Fire Department was called to a fire in a single-family home caused by the unsafe disposal of smoking materials. The victim, an 85-year old woman, was found unconscious on the kitchen floor. She died from burns and smoke inhalation. There were no other injuries associated with this fire. Smoke detectors were present but it was undetermined if they operated properly. No estimation was made as to damages from this fire.

- On October 9, 2003, at 4:07 p.m., the Huntington Fire Department was called to a fatal fire in an apartment building caused by a cigar. The victim, an 82-year old man, succumbed three days later to the burns sustained during the fire. His cigar had ignited his clothing. First arriving units found the victim at the kitchen sink attempting to put out the fire. Detectors were present and operated. There were no other injuries associated with this fire. The fire was contained to the victim and damages were not estimated.

- At 6:22 a.m., on November 11, 2003, the Worcester Fire Department was called to a fatal fire in a single-family home caused by the unsafe disposal of smoking materials. The victim, a 42-year old man, succumbed to the burns and smoke inhalation sustained during the fire. A cigarette ignited a piece of furniture. There were no other injuries associated with this fire. Detectors were present but it was undetermined if they were operating. No estimation was made as to damages from this fire.

- On December 2, 2003, at 5:06 a.m., the Methuen Fire Department was called to a fatal fire in a four-unit apartment building caused by the improper use of smoking materials. The fire began in the living room. The victim, a 42-year old man, was found dead in his bathtub. He had succumbed to burns and smoke inhalation. There were no other injuries associated with this fire. Smoke detectors were present but it was undetermined if they operated. Damages from this fire were estimated to be $50,000.

- On December 20, 2003, at 5:17 p.m., the Medford Fire Department was called to a fatal fire in a single-family home caused by abandoned or discarded smoking materials. The victim, a 46-year-old man, who may have been impaired by alcohol, was overcome by the heat and smoke while escaping. The fire began in the living room. He was transported to a local hospital were he died from burns and smoke inhalation. There were no other injuries associated with this fire. There were no smoke detectors present. The victim was intimately involved with the ignition. No estimation was made as to damages from this fire.

Smoking on Oxygen
In 2003, the use of oxygen while smoking caused two of the 17 smoking-related fire deaths in two of the 17 smoking-related fatal fires.

- On June 24, 2003, at 12:45 p.m., the Boston Fire Department was called to a fatal fire caused by smoking while on home oxygen. The fire occurred in a three-unit apartment building that killed the 71-year old physically disabled male occupant. Investigators believe that he set his clothes on fire while he was smoking in a hospital bed and using home oxygen in his living room. The victim's wife and daughter extinguished the fire. Smoke detectors were present but the fire was too small to activate them. Damages from this blaze were estimated to be $5,000. There were no sprinklers present in the building.

- At 12:27 a.m., on November 18, 2003, the Carver Fire Department was called to a fatal fire in a single-family home. The victim, a 78-year old physically disabled man, was smoking while using home oxygen. The smoking material ignited a wall covering, which eventually spread to the entire structure. There were no other injuries associated with this fire. It was undetermined if detectors were present. Damages from this fire were estimated to be $60,000.

4 Fatal Arson Fires Cause 6 Deaths
Six (6) people died in four (4) residential arson fires in 2003. Arson accounted for 13% of fire deaths and 9% of the fatal fires in residential structures.

- On April 3, 2003, at 2:58 a.m., the Lawrence Fire Department was called to a fatal arson fire in a five-unit apartment building. The victims, a 26-year old woman and her 2-year old daughter, were overcome by the heat and smoke while attempting to escape. They died from burns and smoke inhalation. Smoke detectors were present but failed to operate. There was one fire service injury associated with this fire. Damages from this blaze were estimated to be $280,000.

- On April 17, 2003, at 4:56 a.m., the Brockton Fire Department was called to a fatal arson fire in a single-family home. The victims, a 64-year old man and his 54-year old wife, were overcome by the heat and smoke while sleeping. They died from smoke inhalation. It is believed that their two grandchildren (a 17-year old girl and a 16-year old boy), who were living with them, set the fire to kill their grandparents. Both of the grandchildren sustained minor injuries in the fire. Smoke detectors were present but failed to operate. Damages from this blaze were estimated to be $75,000.

- On May 18, 2003, at 12:48 p.m., the Springfield Fire Department was called to a fatal arson fire in a single-family house. Upon arrival firefighters found the victim, a 36-year old man, suffering severe burns from attempting self-immolation. The fire spread up the stairs to the second floor of the home. The victim was transported to a local hospital where he later died from his burn injuries. There were no smoke detectors in the home. Damages from this blaze were estimated to be $75,000. There were no other injuries associated with this fire.

- On December 14, 2003, at 7:05 p.m., the Malden Fire Department was called to a fatal arson fire in a single-family home. The victim, a 20-year old man, was overcome by the heat and smoke while attempting to escape. He may have been impaired by alcohol. He was transported to a local hospital were he succumbed to his burn injuries. It was undetermined if detectors were present. There were no other injuries associated with this fire. No estimation was made as to damages from this fire.

4 Fatal Cooking Fires Cause 4 Deaths
While cooking is the leading cause of residential structure fires, it is the third leading cause of residential fire deaths. Four (4) Massachusetts residents died in four residential fires caused by cooking in 2003. Cooking fires accounted or 9% of the fire deaths and 9% of fatal fires in people's homes in Massachusetts.

- On January 10, 2003, at 4:50 p.m., the Uxbridge Fire Department was called to a fatal cooking fire in a single-family home. The victim was a 63-year old woman. The source of the fire was food on the stove in the kitchen. The victim was found in the bedroom suffering from breathing difficulty. She was transported to a local hospital where she later died. There were no other injuries associated with this fire. Detectors were present and operated. Damages from the blaze were estimated to be $500.

- On February 2, 2003, at 10:10 a.m., the Cambridge Fire Department was called to a fatal cooking fire in a 19-story, 170-unit apartment building. The victim, a 60-year old mentally disabled man, was at his stove when his clothing ignited causing severe burns to his body. A sprinkler head activated and extinguished the fire. The victim was transported to a local hospital where he later succumbed to his burn injuries. Detectors were present and alerted other residents of the building. However the victim was intimately involved with the ignition. There were no other injuries associated with this fire. Damages were estimated to be $4,500.

- On April 3, 2003, at 1:00 a.m., the Fall River Fire Department was called to a fire in a six-unit apartment building caused by the unattended stove igniting the nearby wall covering. The 30-year old male victim was overcome by the heat and smoke as he slept in a nearby bedroom. It is believed that he may have been impaired by alcohol. He was transported to a local hospital where he later died from smoke inhalation. There were two other civilian injuries and one fire service injury associated with this fire. Smoke detectors were present, but failed to operate. Damages from this fire were estimated to be $120,000.

- On November 20, 2003, at 10:05 a.m., the Revere Fire Department was called to a fire at an apartment complex. The victim, an 80-year old physically disabled man, was cooking at the stove when his clothing ignited. A visiting nurse found his badly burned body on the floor. He succumbed to the burn injuries. No other injuries were associated with this fire. Detectors were present but it was undetermined if they operated. No estimation was made as to damages from this fire.

2 Fatal Electrical Fires Caused 2 Deaths

Two fatal electrical fires, or 5% of fatal residential structure fires, caused two, or 4%, of residential structure fire deaths in 2003.

- On January 2, 2003 at 3:13 a.m. the Brockton Fire Department was called to a fatal fire in a single-family home. The cause was determined to be overheated wiring used to heat outdoor fish ponds. The fire originated in a storage area in the rear of the house. The victim, a 78-year old woman, was overcome by heat and smoke as she slept in her basement bedroom. Firefighters rescued the victim and transported her to a local hospital where she died from smoke inhalation. There were two other civilian injuries associated with this fire, the victim's daughter and son-in-law. Damages from this fire were estimated to be $300,000. Detectors were present and operated, and were responsible for alerting the daughter and her husband.

- On October 30, 2003 at 11:17 p.m., the Boston Fire Department was called to a fatal fire in a three-unit apartment building. The cause was determined to be a short circuit arc from worn insulation of electrical wires. The victim, an 89-year old physically disabled woman, was overcome by heat and smoke as she attempted to escape. She died from burns and smoke inhalation. There was one other civilian injury associated

with this fire. Damages from this fire were estimated to be $600,000. There were no detectors present. This fire started three exposure fires in buildings adjacent to it.

1 Fatal Heating Fire Caused 1 Death
One fatal heating fire, or 2% of fatal residential structure fires, caused one, or 2%, of residential structure fire deaths in 2003. An electrical baseboard heater caused this fatal fire.

- On February 17, 2003 at 7:45 p.m., the Boston Fire Department was called to a fatal fire in an apartment building. The cause was drapes too close to the electrical baseboard heater. The physically disabled victim, a 90-year old woman, was sleeping at the time of the fire. Unable to escape, she was overcome by heat and smoke. There were no other injuries associated with this fire. Damages from this fire were estimated to be $200,000. Detectors were present and alerted the other residents to the fire. Sprinklers were not present.

1 Fatal Gasoline Fire Caused 1 Death
One fatal fire involving gasoline accounted for 2% of the fatal fires in 2003, and caused one, or 2%, of residential structure fire deaths in 2003. This fatal fire was caused when gasoline soaked clothes on a teenage boy were ignited and he ran into the house igniting the house. It was undetermined how or why the victim was doused in gasoline.

- On December 17, 2003 at 3:51 p.m., the Wakefield Fire Department was called to a fatal fire in a single-family home. The victim, a 16-year old boy, somehow had the clothes he was wearing doused in gasoline and ignited while he was outside of the house. He panicked and ran into the house igniting pieces of furniture in the living room. It was undetermined how his clothes came to have gasoline on them and how they ignited. Some of his siblings were inside the house when the victim ran inside; they escaped the fire. The victim died from his burn injuries. There was one firefighter injury associated with this fire. Detectors were present and alerted the other occupants of the home. Damages from this fire were estimated to be $150,000.

1 Fireworks Fire Caused 1 Death
One fatal fireworks fire, or 2% of all fatal residential structure fires, caused one, or 2%, of residential structure fire deaths in 2003. A ‘jumping jack’ firework landed too close to a dried out Christmas tree and ignited it.

- On December 22, 2003 at 4:46 a.m., the Gloucester Fire Department was called to a fatal fire in a single-family home. One of the occupants had thrown a ‘jumping jack’ firework at the base of a dried out Christmas tree. The tree quickly ignited, and the fire continued to grow inside the living room. One of the occupants tried to remove the tree from the building but was unsuccessful. The victim, a 45-year old woman, was overcome by heat and smoke in a rear bedroom. The victim and another female were transported to a local hospital, where the victim soon died from smoke inhalation. There were three other civilian injuries associated with this fire. No

estimation was made as to damages from this fire. There were no smoke detectors present in the building.

14 Fatal Fires of Undetermined Causes

Fourteen (14) fatal residential structure fires that took the lives of 15 Massachusetts residents in 2003 remain undetermined after investigation. These represent 32% of the fatal fires, and the 15 related deaths represent 32% of the fire deaths in 2003. The cause of one-third of all fire deaths could not be definitely determined after investigation. According to NFPA 921, Chapter 16.2.4, whenever the cause of a fire cannot be proven, the proper classification is "undetermined." Undetermined is also acceptable when multiple fire causes or ignition factors cannot be eliminated, leaving the investigator with most probable causes – NFPA 921, Chapter 16.2.5.

- On January 9, 2003, at 11:53 p.m., the Worcester Fire Department was called to a fatal fire in an apartment building of undetermined cause. The victim, a 69-year old woman, was asleep in the room next to where the fire started. She died from smoke inhalation. There were no other injuries associated with this fire. Smoke detectors were present and operating, and alerted other occupants of the building to the fire. Damages from this fire were estimated to be $50,000.

- On January 18, 2003, at 4:21 a.m., the Medford Fire Department was called to a fatal fire in a two-family home of undetermined cause. The fire was in an illegal loft apartment that was located over the garage was attached to the main house by a breezeway. The victim, a 20-year old woman, was overcome by the heat and smoke while she slept. She died from burns and smoke inhalation. Smoke detectors were present in the home but it was undetermined if they operated. One firefighter incurred an injury while battling this blaze. Damages from this blaze were estimated at $150,000.

- On February 20, 2003, at 3:07 a.m., the Holyoke Fire Department was called to a fire in an eight-unit apartment building of undetermined cause. The victim, a 4-year old boy, was overcome by heat and smoke as he slept. He died from burns and smoke inhalation. He was transported to a local hospital where he later died. There were six other civilian injuries and one fire service injury associated with this fire. Detectors were present and operated. Damages from this blaze were estimated at $200,000.

- On April 5, 2003, at 7:08 a.m., the Amherst Fire Department was called to a fatal fire in a two-family home of undetermined cause. The fire began in the living room. The victim, a 21-year old woman, was overcome by the heat and smoke as she slept in a nearby bedroom. She died from smoke inhalation. Smoke detectors were present but it was undetermined if they operated properly. Damages from this blaze were estimated to be $98,000. There was one fire service injury associated with this fire. The most probable cause was either a candle or careless disposal of smoking materials.

- On May 3, 2003, at 4:47 a.m., the Boston Fire Department was called to a fire in a three-unit apartment building of undetermined cause. The fire began on a first floor porch. The victim, a 2-year old boy, was dropped from a third floor window to try and escape the fire. He died from head trauma sustained in the fall. There were no other injuries associated with this fire. Damages from this blaze were estimated at $300,000. Smoke detectors were present but failed to operate because of a lack of cleaning.

- On June 14, 2003, at 4:22 a.m., the North Adams Fire Department was called to a fatal fire in a single-family home of undetermined cause. The victim, a 40-year old man, was asleep and possibly impaired by alcohol at the time of the fire. While trying to escape, he succumbed to burn injuries and smoke. The most probable cause was unattended cooking. There were three fire service injuries associated with this fire, and damages were estimated to be $80,000. It was undetermined if detectors were present and there were no sprinklers.

- On June 18, 2003, at 10:43 p.m., the Groton Fire Department was called to a fatal fire in a single-family home of undetermined cause. The victim, an 83-year old man, was overcome by the heat and smoke while he slept. He was transported to a local hospital where he succumbed to his injuries. There were no other injuries associated with this fire, and damages were estimated to be $100,000. It was undetermined if detectors were present.

- On August 7, 2003, at 11:37 p.m., the Lowell Fire Department was called to a fire in a 13-unit apartment building of undetermined cause that killed a 21-year old man. The victim was escaping when he was overcome by the heat and smoke. He died from burns and smoke inhalation. Another civilian was seriously injured in this fire. Three firefighters were injured fighting this fire. Smoke detectors were present and alerted the occupants of the building. Sprinklers were not present. Damages from this blaze were estimated to be $500,000.

- On September 6, 2003, at 12:27 a.m., the Lawrence Fire Department was called to a fire in a six-unit apartment building of undetermined cause. The fire began in the living room. The victim, a 30-year old man, died as a result of burns and smoke inhalation. There were no other injuries associated with this fire. Damages from this fire were estimated to be $200,000. Smoke detectors were present and operating. There were no sprinklers present in the building.

- On October 23, 2003, at 2:19 p.m., the Norwood Fire Department was called to a fatal fire in a single-family home of undetermined cause. The fire started in the kitchen. The victims were a 92-year old physically disabled man and his 87-year old wife. They were both found in their bedroom and it is believed that the wife tried to help her husband out of the house when both succumbed to smoke inhalation. Smoke detectors were present and operated. Damages from this blaze were estimated to be $230,000.

- On November 7, 2003, at 3:32 a.m., the Gloucester Fire Department was called to a fatal fire in a single-family residence of undetermined cause. The victim, an 82-year old woman, was overcome by the heat and smoke while she attempted to escape from the second floor. There were no other injuries associated with this fire. No estimation as to the damages was made. It was undetermined if detectors were present.

- On November 23, 2003, at 1:58 a.m., the Onset Fire Department was called to a fatal fire in a manufactured home (trailer) of undetermined cause. The victim, a 51-year old man, died from burns and smoke inhalation. There were no other injuries associated with this fire. It was undetermined if detectors were present. No estimation as to the damages was made. There were four exposure fires associated with this fire; two more manufactured homes and two automobiles.

- On November 29, 2003, at 7:01 p.m., the Mashpee Fire Department was called to a fatal fire in a single-family home of undetermined cause. The victim, a 56-year old physically disabled woman, was asleep at the time of the fire. She was characterized as a heavy smoker who was on home oxygen. Smoking while using home oxygen was the most likely cause of the fire. There was one fire service injury associated with this fire. It was undetermined if detectors were present. Damages from this blaze were estimated to be $220,000.

- On December 25, 2003, at 11:38 p.m., the East Bridgewater Fire Department was called to a fatal fire in a manufactured home (trailer) of undetermined cause. The trailer was located behind an auto body shop and received its electricity from the shop. The victim, a 37-year old man, who may have been impaired by alcohol, was overcome by the heat and smoke. Firefighters located him inside the trailer and transported him to a local hospital where he died from his burn injuries and smoke inhalation. There were no other injuries associated with this fire. It was undetermined if detectors were present. No estimation as to the damages was made.

Living Room or Kitchen is the Area of Origin for Over 1/2 of All Victims
Twenty-two (22), or 56%, of the civilians that died in residential fires were killed in fires that started in the living room or kitchen. Thirteen (13), or 33%, succumbed to fires that originated in the living room, another nine, or 23%, victims died in fires that began in the kitchen, and five victims, or 13%, perished in fires that began in the bedroom. The area of origin for the remaining 11 fatalities, or 23%, were spread throughout the structure with no one area being associated with more than two deaths. The area of origin was undetermined for six fire fatalities. These victims were excluded from the percentage calculations.

43% of Deaths Involved Smoking Materials as a Heat Source
Of the 47 residential structure fire deaths, 43% involved smoking materials[28]: 15% were from cigarettes; 11% were from unspecified smoking materials; another 11% were from cigarette lighters; 2% were from a pipe or a cigar; and another 2% were from an open flame or smoking material. Six percent (6%) of the deaths involved heat from powered equipment. Four percent (4%) of the deaths involved radiated or conducted heat from operating equipment; and 2% each were from fireworks and arcing. Four percent (4%) of the deaths were attributed to an unclassified heat source. Heat source was undetermined in 18 deaths, or 38%, of the residential structure fire deaths in 2003.

Clothing Ignited First in 17% of Deaths
Of the 47 residential structure fire deaths, 17% of the fire deaths were from fires where wearing apparel on the victim was the item first ignited. Fifteen percent (15%) of deaths occurred when furniture was the first to burn; 11% were upholstered sofa or chairs and 4% were unclassified furniture. Six percent (6%) of residential fire deaths occurred when linen other than bedding was the first to burn. Interior wall coverings or finishes and flammable liquid or gas in or from a container were each the item first ignited in four percent (4%) of the fatal fire deaths in 2003. A Christmas tree, cooking materials, electrical wire or cable insulation, exterior wall covering or finish, poured flammable liquid or gas, floor coverings such as rugs, carpets or mats, soft goods and a structural member or framing were each the item first ignited in 2% of the 2003 fatal fire deaths. Two, or 4%, of the deaths, had multiple items first ignited. First material ignited was undetermined in 15, or 32%, of the residential structure fire deaths in 2003.

The fire service through 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 Bulletin 117) for upholstered furniture that addresses both small open flame (match, lighter, candle) and cigarette ignitions and the recently implemented 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.

Although many buildings and building materials are now said to be ‘fire proof’ or at the very least fire resistant, almost all of the contents we have inside our homes are more flammable than ever and create ever increasing levels of toxic gases when they burn.

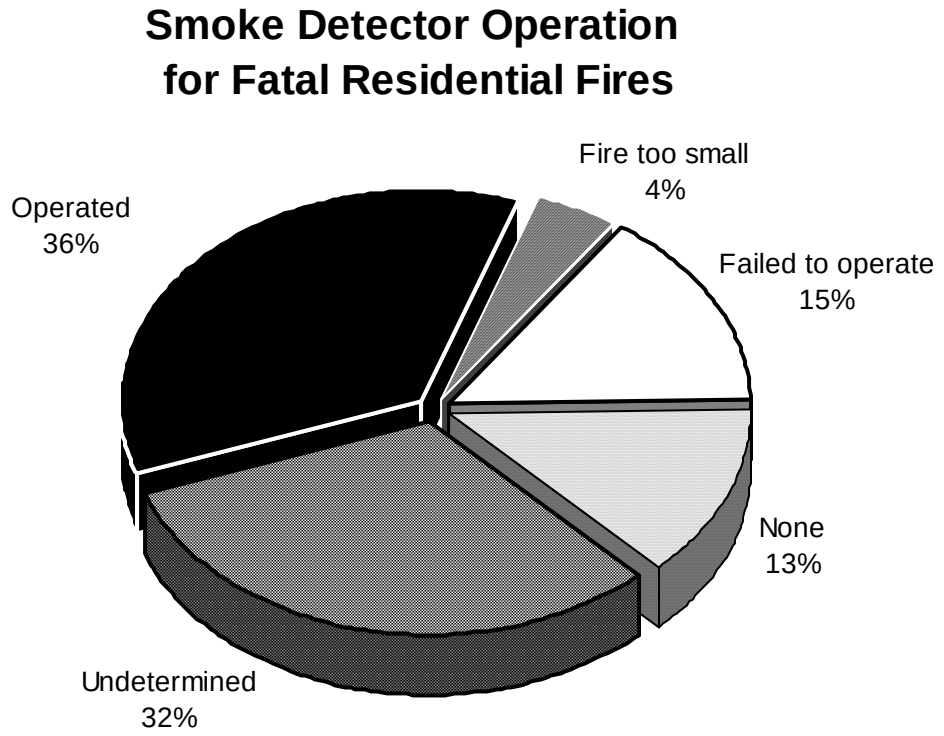
No Working Detectors for Over 1/4 of Residential Fire Victims
Of the forty-seven (47) people who died in residential structure fires in 2003, the smoke detector performance was known for 32 of the victims. Victims were not alerted by smoke detectors in 11 fires that killed 13 people, or 28% of the victims. In six of these

[28] Only 36% of these deaths were attributed to smoking. In one incident with two deaths, the intentionally set fire was ignited using a cigarette lighter; and another incident was a case of self-immolation. When we query for smoking-related fires, we first take out intentionally set fires and those set by children under the age of seven.

incidents, no detectors were present at all, killing six individuals. Detectors were present, but did not operate in five fires that killed seven people. Two people, or 4% of the victims, died in two fires where the fire was too small to activate the detectors.

Seventeen (17) people died in 16 separate residential fires with detectors that did operate, accounting for 36% 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. In 2003, eight of the fatal residential fire victims that were intimately involved in ignition had their smoke detector operate. While smoke detectors cannot by themselves save a person who is directly involved in the ignition, they alert other occupants to the danger and give them precious time to escape to safety.

Detector performance was undetermined in 15 residential structure fires that killed 15 people accounting for 32% of the residential structure fire deaths in 2003. In seven of these 15 fires, detectors were present but it was undetermined as to whether they operated or not. The pie chart shows the smoke detector status as a percentage of the civilian residential structure fire deaths in 2003.

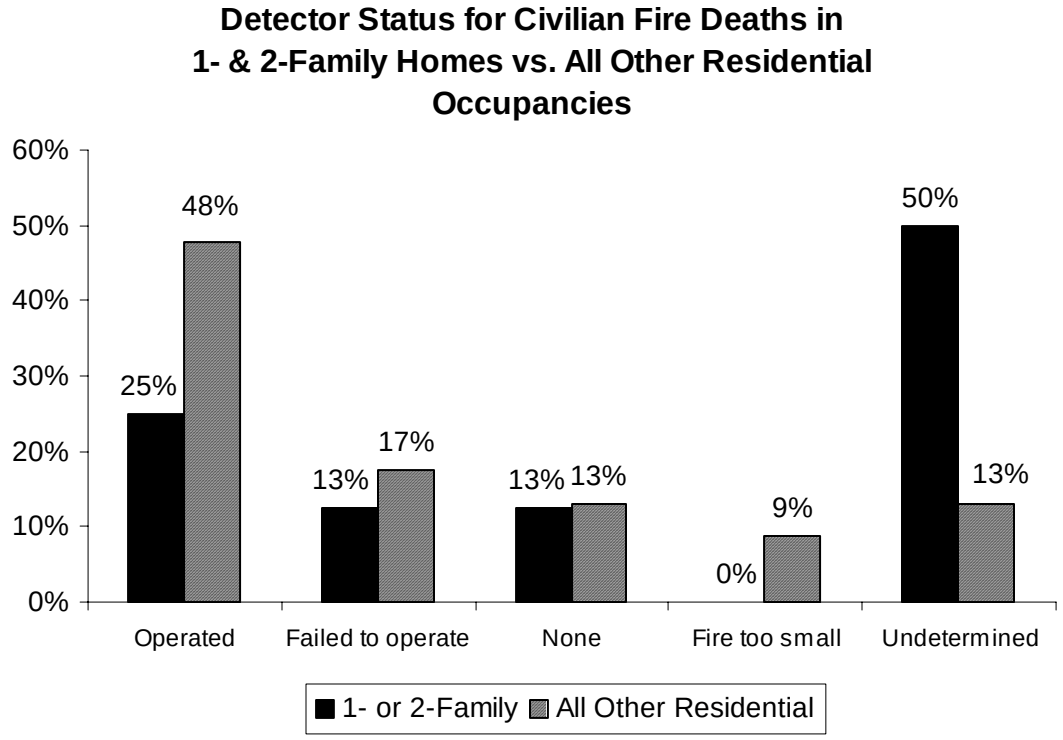


No Working Smoke Detectors in 1/4 of Fire Deaths in 1 & 2-Family Homes
There were 4% more fire deaths in 1- & 2-family homes than all other residential occupancies combined. Twenty-four (24) people died in 22 one- and two-family dwelling fires in 2003. Six (6), or 25%, of the fire deaths in one- and two-family homes occurred in fires with no detectors at all or with detectors that failed to operate. Of these six deaths, three occurred in homes where smoke detectors failed to work while the other three deaths were in homes where there were no smoke detectors present. Six (6) deaths, or 25%, occurred in homes where the smoke detectors operated. Twelve (12) deaths, or 50%, occurred in three fires where smoke detector performance was undetermined.

1 Detector Fails from Lack of Maintenance
Of the seven residential fire deaths where smoke detectors were present but failed to operate, one, or 13%, did not operate because of a lack of maintenance. It was undetermined why the other six detectors failed.

Other Residential Occupancies More Likely to be Protected by Smoke Detectors
Twenty-one (21) people died in 20 apartment and other residential fires in 2003. The detector performance was known for 20 of the 23 victims. Four (4) individuals perished in three fires where smoke detectors were present but did not function. Eleven (11) people died in 11 apartment or other residential fires where smoke detectors were present and working. In residential fatal fires other than the fires that occurred in one- and two-family homes, there were three fatal fires with three fatalities where there were no detectors present. The fire was too small to trigger the detector in two fires that claimed two victims. Detector performance was unknown or not reported in three fires where three people lost their lives.

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



Sleeping Was the Leading Human Factor Contributing to Injury[29]
Of the 47 fatal residential structure fire victims, 28 had some human factor contributing to their injury. Thirty-four percent (34%) of the fatalities were asleep before they died; 19% were possibly impaired by alcohol; 17% were bedridden or had another physical handicap; 9% were unconscious; 4% possibly had a mental handicap; and 2% were impaired by drugs. Nineteen (19), or 40%, of the 47 civilians fire deaths did not have a human factor contributing to injury reported.

In version 5, 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 34% of fatalities were asleep shortly before becoming a casualty but only 26% were still asleep at the time they died. This would seem to indicate that some people were awoken from their sleep and attempted to escape before being overcome. This combined with the lack of working smoke detectors in 28% of the fire deaths indicates that victims did not have enough time to get to safety.

26% of Victims Were Sleeping at Time of Death
Twelve (12), or 26%, of the 47 fatal fire victims were sleeping when they died. This was the leading activity at the time of injury of all the fatal fire deaths in residential structure fires. Twenty-three percent (23%) of the victims were trying to escape; 4% were unable

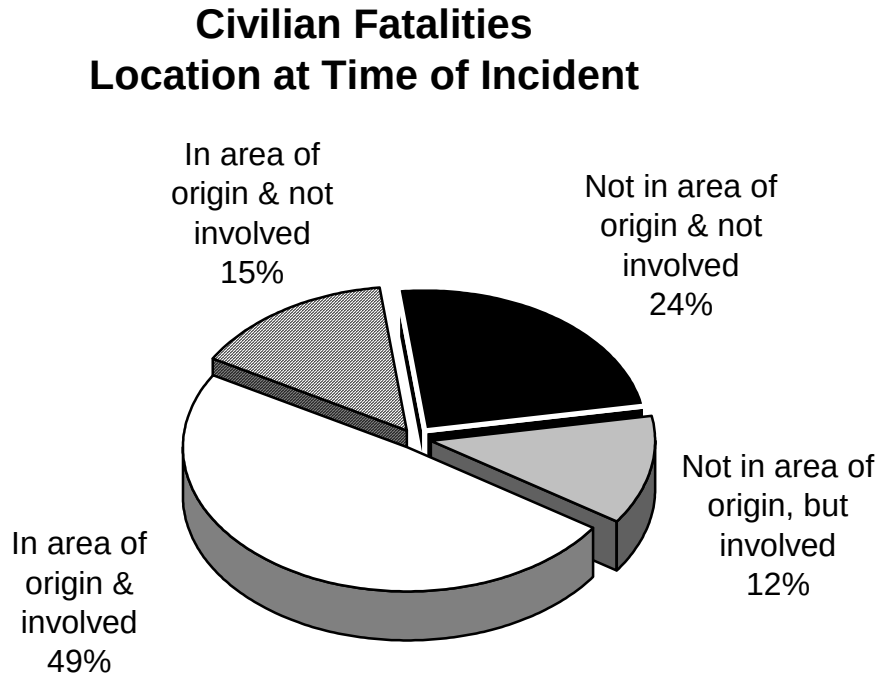
[29] Some fields in version 5 allow for multiple entries. Therefore the number of entries may be greater than the actual number of incidents being analyzed.

to act; while 2% were attempting a rescue; and another 2% were involved in an irrational action; the activity at time of death of another 13% was classified as "other". Activity at time of death was undetermined for 12, or 26%, victims of fatal fires in 2003.

95% of Victims Suffered Burns, Smoke Inhalation or Both
For 41, or 95%, of the victims where the primary apparent symptom of their injury was known, 27, or 63%, suffered burns and smoke inhalation; nine, or 21%, suffered from smoke inhalation only, and five, or 11% died from only the burns incurred in the fire. The primary apparent symptom for the other two victims was internal trauma and breathing difficulty or shortness of breath. The primary apparent symptom was undetermined in four deaths. These victims were excluded from the percentage calculation.

Almost 2/3 of the Victims Were in the Area of Origin
Knowing where the victim was at the time of the incident and if they were involved in starting the fire helps us determine if they could have escaped to safety if given a warning by smoke or heat detectors.

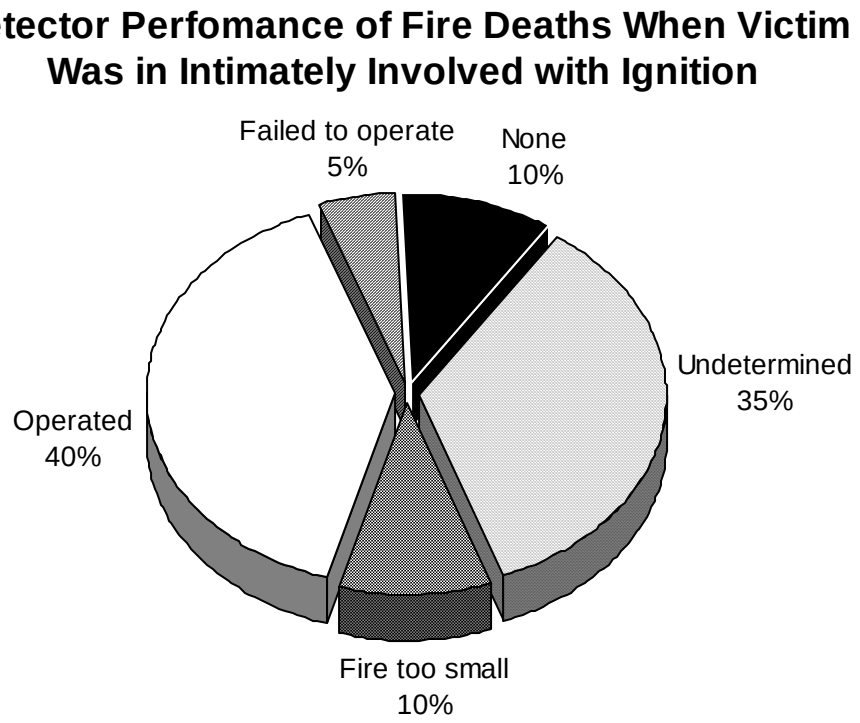
Twenty-six, or 63%, of the residential fatal fire victims were in the area of origin of the fire. The majority of these victims (20), or 49%, were intimately involved with the ignition of the fire that killed them. These 20 were in the area of origin and somehow involved with the fire's ignition. Six (6), or 15%, were in the area of origin but not involved with the ignition. Ten (10), or 24%, of the victims were not in the area of origin and not involved with the ignition of the fire that claimed their lives. Five (5), or 12%, of these victims were not in the area of origin but were somehow involved in starting these fires. The *Location at Time of Incident* was unknown for six of the residential fatal fire victims. These six were excluded from the calculations.



40% of Detectors Operated When the Victim Was Intimately Involved in Ignition
There were 20 victims that were reportedly in the area of origin and involved with the ignition of the fire that killed them. Eight (8), or 40%, of these 20 victims, actually had a working smoke detector in their home at the time of the fire. Two (2), or 10%, did not have any smoke detectors in their home. One victim (5%) had a detector but it failed to operate. For two of the victims, or another 10%, the fire was too small to activate their smoke detectors. It was undetermined for seven of the victims that were intimately involved with ignition whether their homes had operating smoke detectors.

Five (5), of the eight victims where the detectors operated started the fire with the careless disposal of smoking materials. One of the victims was killed when his clothing caught fire as he got too close to the kitchen stove. Another victim was killed when the heater ignited her drapes. The last victim was a teenage boy who somehow became doused with gasoline and had his clothes ignite. In four of these cases the clothes the victim was wearing was the first thing to ignite. In two other instances the furniture that the victim was on ignited. Six (6) of the eight victims were over the age of 60. Five (5) of the victims were either sleeping or unable to act.

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 2003, 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. One of the fires was an airplane crash, three involved automobile accidents, and one was a case of self-immolation. All of these fatal motor vehicle fires occurred between June and December.

3 Motor Vehicle Accidents Cause 3 Fires and 3 Deaths
Three (3) Massachusetts residents were killed in three separate motor vehicle accidents resulting in three motor vehicle fires. These three incidents accounted for 5% of the fatal fires and 5% of the fire fatalities in 2003.

- On August 26, 2003, at 12:06 p.m., the Princeton Fire Department was called to a motor vehicle accident on Route 31. The victim, a 45-year old man, was the driver and lone occupant of the car. The car crashed into a tree and immediately exploded. The victim died from the burns sustained in this fire. No estimation was made as to damages from the blaze.

- On October 20, 2003, at 10:39 p.m., the Westborough Fire Department was called to a motor vehicle fire caused by a single car accident. The car was apparently speeding, snapped a utility pole, and flipped over onto its roof before coming to rest against a building. The victim, a 19-year old man driving the vehicle, was trapped inside the car's wreckage and could not escape. Bystanders were able to help the other three occupants out of the vehicle. The victim died from burns and trauma sustained in the accident. Damages from this fire were estimated to be $20,000.

- On December 21, 2003, at 3:09 a.m., the Easton Fire Department was called to a fatal motor vehicle fire caused by a single car accident. Local youths had placed truck tires in the road as a practical joke. It is believed that in an attempt to swerve around the tires the vehicle left the road and struck a tree. The car soon burst into flames and became fully involved. The driver, a 21-year old man, was trapped inside of the car. He died from trauma and the burns incurred while trapped inside the vehicle. The estimated damages from this blaze were $7,000.

Arson – Self-Immolation
One (1) Massachusetts resident committed suicide in one incident by lighting himself on fire inside of his car. Self-immolation is considered arson because the fire is intentionally set. This incident accounted for 2% of the fatal fires and 2% of the fire fatalities in the Commonwealth in 2003.

- On August 23, 2003 at 1:48 p.m. the Springfield Fire Department was called to a vehicle fire in a parking lot. The victim, a 43-year old man, doused his car with

gasoline and ignited it in an attempt at self-immolation. The victim was transported to a local hospital where he died from burns and smoke inhalation. No other injuries were associated with this fire. Damages from this fire were estimated to be $10,000.

Airplane Crash Kills 1 Person
One (1) Massachusetts resident was killed when the airplane he was flying crashed and erupted in flames. This incident accounted for 2% of the fatal fires and 2% of the fire fatalities in the Commonwealth in 2003.

- On June 19, 2003, at 5:05 p.m., the Tyringham Fire Department was called to an airplane crash off of Breakneck Road. The victim, a 61-year old man, was the pilot and lone occupant of the plane. Poor access to the crash site hampered firefighters' efforts. The fire started when a spark or flame from the engine ignited the aviation gas leaking from the ruptured fuel line. The victim died from the burns sustained in this fire. The estimated damages from this incident were $125,000.

Other Fatal Fires & Explosions

In 2003, four outside and other fire or explosion incidents killed four civilians. These four incidents accounted for 7% of the fatal fires and 7% of the fire fatalities in Massachusetts in 2003.

Man Burned to Death in Homicide
- On March 11, 2003, at 2:15 p.m., the Billerica Fire Department was called to investigate the discovery of a badly burned body. The victim, a 30-year old man, was last seen on February 17, 2003, the same day his burned car was found by the fire department. A Massachusetts Bay Transportation Authority worker found the body near train tracks in a melting pile of snow. It is suspected that this was a homicide.

Woman Dies in Undetermined Outside Fire
- The Brockton Fire Department was called to an outside fire on a public street on April 23, 2003, at 11:45 p.m. Upon arrival firefighters found a teenager standing next to the burning body. The teenager thought it was a mannequin. Unfortunately it was a 47-year old woman who lived in the nearby house. It was undetermined how she was burned. No other injuries were associated with this fire. There was no estimation as to the dollar loss incurred by this fire.

Man Dies from Self-Immolation
- The Woburn Fire Department was called to a brush fire behind a boarding house on April 29, 2003, at 4:10 a.m. The victim, a 50-year old man, was found to be on fire. Firefighters extinguished the fire with a carbon dioxide fire extinguisher. It was determined that the victim had poured kerosene on himself and ignited it in a suicide

attempt. No other injuries were associated with this fire. There was no estimation as to the dollar loss incurred by this fire.

Man Intentionally Burned to Death in Woods

- On May 17, 2003, at 7:31 p.m., the Barnstable Fire Department was called to a brush fire in the Hyannis Ponds Wildlife Management Area. While extinguishing the fire, firefighters found the victim, a 26-year old man, tied to a tree. Identification had to be done by dental records. The victim died from his burns injuries. The most probable cause was that this victim was the subject of a homicide. There were no other injuries associated with this fire, and no estimate of damage caused by this fire.

Multiple Fire Deaths

For statistical purposes, a fire is considered a multiple death fire if it kills three or more people. There were no multiple death fires in Massachusetts in 2003.

Civilian Fire Deaths - Conclusion

In 2003, there were 57 fatal fires in Massachusetts with 61 accompanying fatalities. This was a 2% decrease from the 62 fire deaths reported in 2002, and a return to the downward trend of the past decade. Of these 61 deaths, 52 occurred in structure fires.

The Majority of Fire Deaths Occur in Residential Occupancies

Ninety-two percent (92%) of all fatal structure fire victims, died in residential structure fires. Twenty-four (24) of these deaths occurred in one- and two-family homes. We focus our analysis on these deaths because it is where prevention can yield the greatest results or have the most impact.

Smoking Was the Leading Cause of Residential Fire Deaths

Smoking was the leading cause of residential fire deaths in 2003, responsible for 17 deaths in 17 fires. Smoking on oxygen accounted for two of these 17 deaths and two of the 17 fires, and is suspected in a third. Arson was the second leading cause of residential fire deaths accounting for six deaths and four fatal fires with cooking fires accounting for four deaths and four fatal fires.

Older Adults (65+) at Greatest Risk of Dying in Fires – Twice as Likely

Older adults (65 years+) were at a greater risk for dying in a Massachusetts fire in 2003. Older adults accounted for 14% of the population but 29% of the fire deaths. They were twice as likely to become a fire victim. Smoking caused almost half, 47%, of the 17 residential structure fire deaths to people over the age of 65 in 2003.

Because of the comprehensive and consistent education that the Commonwealth's children are receiving through the S.A.F.E. program, the number of child fire deaths in Massachusetts is declining, and children are no longer at a greater risk of dying in a Massachusetts fire.

People Were More Likely to Die in Fires That Occurred While They Slept

People were more likely to die in fires that occurred while they slept. Twenty-six percent (26%) of fire fatalities were sleeping at the time of death. Over one quarter (28%) of the residential fire victims did not have a working smoke detector so they were never afforded the chance of escape because they had no prior warning. Over half (56%) of the victims died in fires that began in either the living room or kitchen. Clothing that a person was wearing was the leading item first ignited in all the residential structure fire deaths; furniture was the second leading item first ignited. Also, 95% of these victims suffered burns, smoke inhalation or both.

Twenty-six (26), or 55%, of all the civilians that died in residential fires were reported to be in the area of fire origin. Of these 26 victims, 20, or 77%, 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.

Growing Trend of Homeless Fire Deaths

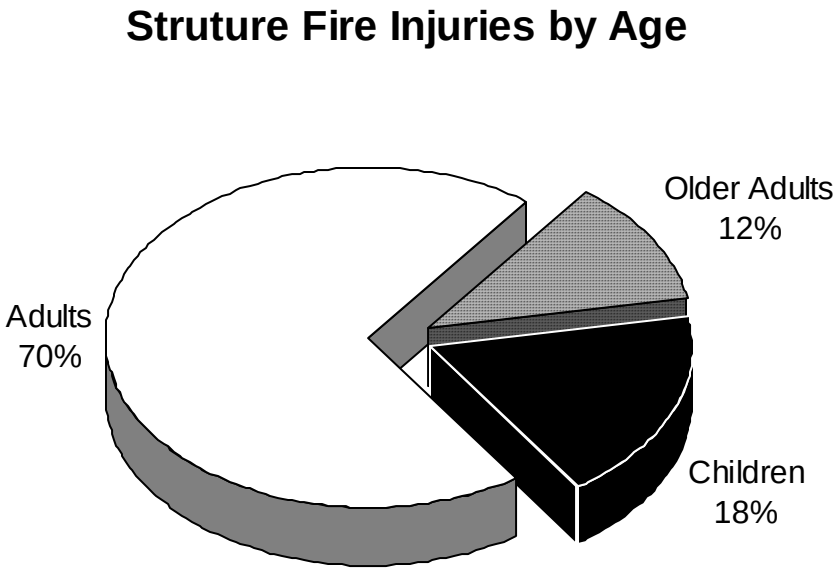
There seems to be a growing trend of fire deaths involving homeless people and people living in places not considered as traditional residential structures. In 2003, we saw a couple die in a storage trailer they were using as shelter and one man die in a smoking fire in a detached residential garage also being used as a shelter. There were two such fires causing two fire deaths in 2002.

Civilian Injuries

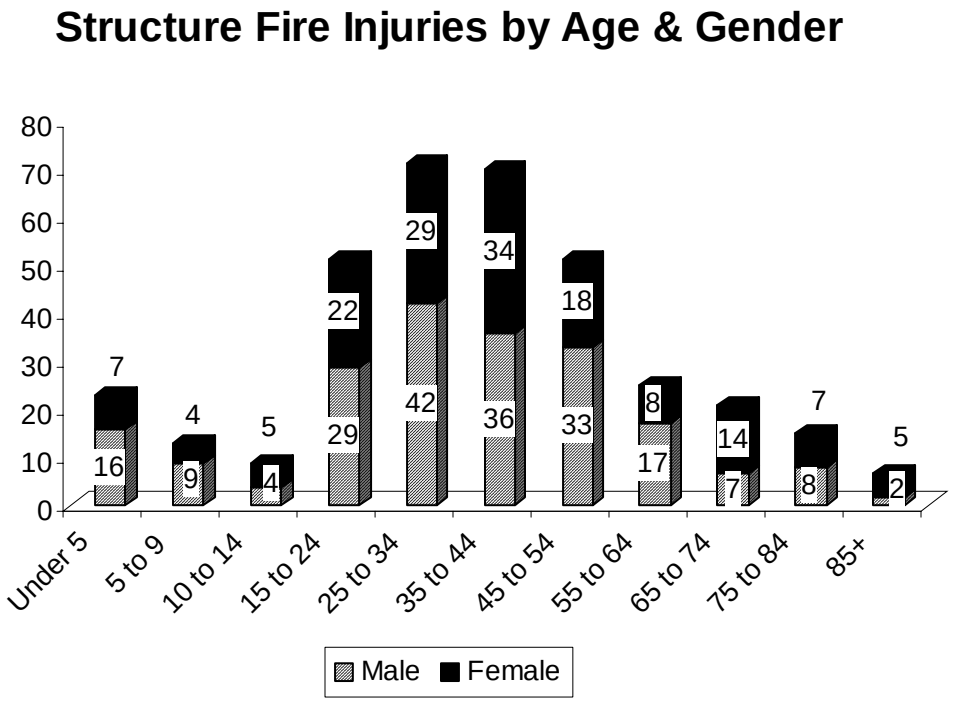
418 Civilians Injured in Fires in 2003 – Mostly at Home
Massachusetts' fires injured 418 civilians in 2003, but only 415 of these injuries had casualty reports completed in full. Three hundred and fifty-nine (359), or 86%, of civilian injuries occurred in structure fires. Three hundred and thirty-one (331), or 92%, of all the structure fire injuries occurred in residential structure fires. Twenty-five (25), or 6%, occurred in motor vehicle fires. Seven (7), or 2%, occurred in special outside fires such as mailbox or outside equipment fires. Brush fires accounted for five, or 1%, of civilian fire injuries; outside rubbish fires accounted for four, or 1%, of civilian injuries. Eighteen (18), or 4%, of civilian injuries were caused by unclassified fires.

Structure Fire Injuries

Of the 357 civilian injuries resulting from structure fires where gender was reported, 203, or 57%, were men and 154, or 43%, were women. Overall, 65 children under 18 years of age, 248 adults and 43 older adults (65+) were injured by structure fires in 2003.

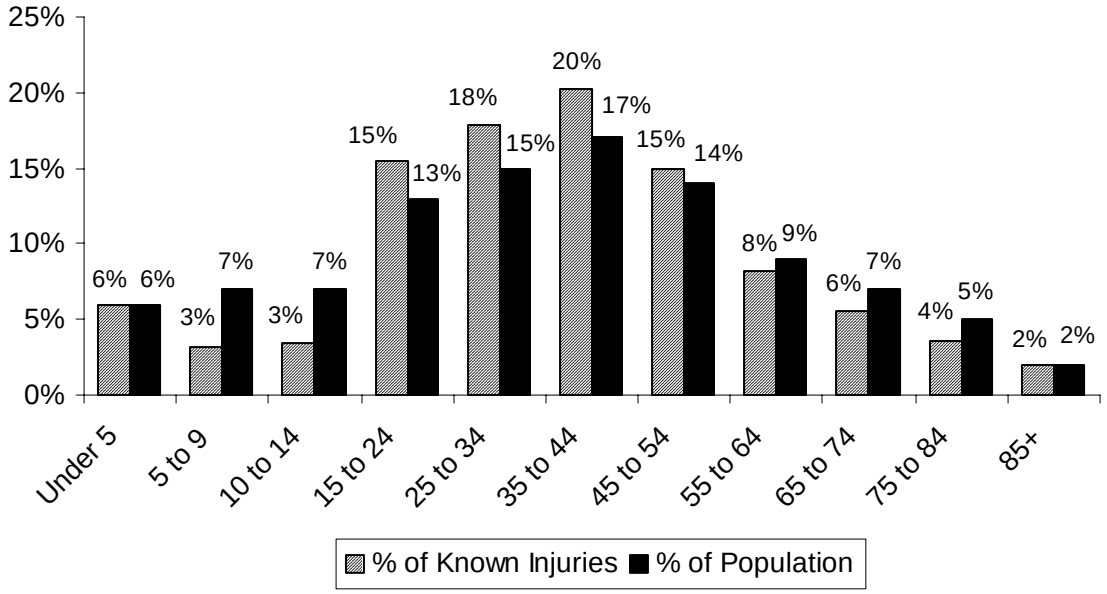


The following chart illustrates the structure fire injuries by age and gender in 2003. Men and women ages 25-34 and 35-44 were injured the most and older adults over 85 and children between 10-14 were injured the least in 2003. Twenty-three (23) children ages 0-4 were injured; 13 children ages 5-9; nine (9) children ages 10-14; 51 people ages 15-24; 71 people ages 25-34; 70 people ages 35-44; 51 people ages 45-54; 25 people ages 55-64; 21 people ages 65-74; 15 people ages 75-84; and seven (7) people were injured that were over 85 years of age, of which five were women and two were men.



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.

Injuries vs. Percentage Population



Young Adults & Adults 15 to 44 at High Risk for Fire Injury
Adults between the ages of 35 and 44 represent 17% of the population and yet they accounted for 20% of the injuries in 2003. Adults between the ages of 25 and 34 represent 15% of the population and yet they accounted for 18% of the injuries in 2003. And young adults between the ages of 15 and 24 represent 13% of the population and yet they accounted for 15% of the injuries in 2003. 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, over one-third, 37%, of the fire-related injuries were incurred while trying to control the fire.

In 2001, older adults over the age of 85 accounted for 9% of the civilian fire injuries. In 2003, as in 2002, they only accounted for 2% of these injuries. They also account for 2% of the Commonwealth's population. In 2003 they were not at any greater risk of receiving a fire-related injury.

88% of Injuries Were Directly Related to Exposure to Fire Products
Of the 322 civilian injuries in structure fires where the Cause of Injury was known, 88% were directly linked to exposure to fire products; 4% of the casualties were exposed hazardous materials or toxic fumes; 2% each were caused by being struck by or contact with an object and the victim falling, slipping or tripping; and 1% each were injured jumping in an escape attempt, overexertion, and from being caught or trapped. Another 1% of the civilian fire injuries were caused by 'Other' causes; and less than 1% were reported to have multiple causes.

82% of Injuries Were Due to Smoke Inhalation or Burns or Both
Of the 292 civilian injuries in structure fires where the Primary Apparent Symptom was known, 36%, or over one-third of the injuries, were caused by smoke inhalation only. Twenty-eight percent (28%) were caused by burns only. Burns and smoke inhalation together caused 17% of the injuries. Breathing difficulty or shortness of breath was responsible for 5% of these injuries. Scald burns caused 2%. One percent (1%) of injuries were each caused by cuts or lacerations, inhalation of hazardous fumes, cardiac symptoms, strains or sprains, and dizziness, fainting or weakness. Abrasions, emotional or psychological stress, fractures, disorientation, a chemical burn, an electrical burn, swelling, having a body part crushed by something, respiratory arrest, nausea, an unclassified sickness, exhaustion or fatigue, and only pain, each accounted for less than 1% of the structure fire-related injuries in 2003. The nature of injury was undetermined or not reported in 65 civilian fire injuries. These were excluded from the percentage calculations.

35% Injured While Trying to Control the Fire

Those who attempt to control a fire rather than escape and summon professional firefighters are much more likely to suffer injuries. Over one-third were injured while attempting to control the fire themselves. It is important for people to exit a burning building, closing doors behind them to contain the fire, and to call the professionals from outside the burning building. Of the 268 victims for which activity at time of injury was known, 35%, were attempting to control the fire, down from 43% in 2002; 21% were escaping; 13% were sleeping; 6% returned to the vicinity of the fire before it was under control; 6% were unable to act; 5% were attempting a rescue; and 3% were acting irrationally. Eleven percent (11%) were injured in 'Other' activities. There were 89 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 2003, 35% of female victims sustained their injuries while attempting to control the fire as compared to only 34% of male victims. A higher percentage of men (7%) sustained their injuries while making a rescue attempt than women (3%) and 15% of men were sleeping compared to 11% of women. There is a 3% or less difference between men and women in every other activity except when trying to escape: 24% of female injuries happened while the victim is escaping compared to 18% of male injuries.

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.

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

Almost 2/3 of Victims Were Asleep Just Before the Injury[30]
Of the 93 victims for which the human factor contributing to the injury was known, 63% were asleep; 15% were possibly impaired by alcohol; 8% were unattended or unsupervised persons; 6% were physically disabled; 3% were possibly mentally disabled; another 3% were possibly impaired by drugs; and 1% 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*.

When both of the fields were completed, the majority of civilian fire injuries are the result of people being asleep at the time of injury or time of the fire. The next leading cause was when someone was asleep and then tried to escape.

CIVILIAN INJURIES BY ACTIVITY AND PRIOR CONDITION

Human Factors Contributing to Injury

Activity At Injury	Asleep	Uncon-scious	Possibly Impaired: Alcohol	Possibly Impaired: Drugs	Mentally Disabled	Physically Disabled	Physically Restrained	Unsuper-vised
Escaping	**12**	0	4	0	0	3	0	2
Rescue attempt	3	0	0	0	0	0	0	1
Fire control	8	0	4	0	0	1	0	1
Return before fire control	3	0	0	1	0	1	0	0
Return after fire control	0	0	0	0	0	0	0	0
Sleeping	**28**	0	2	0	0	0	0	1
Unable to act	1	1	1	1	0	1	0	0
Irrational action	0	0	0	1	1	0	0	0
Other	0	0	0	0	1	0	0	1
Unknown	0	0	0	0	0	0	0	0
Total	**55**	1	13	3	2	6	0	6

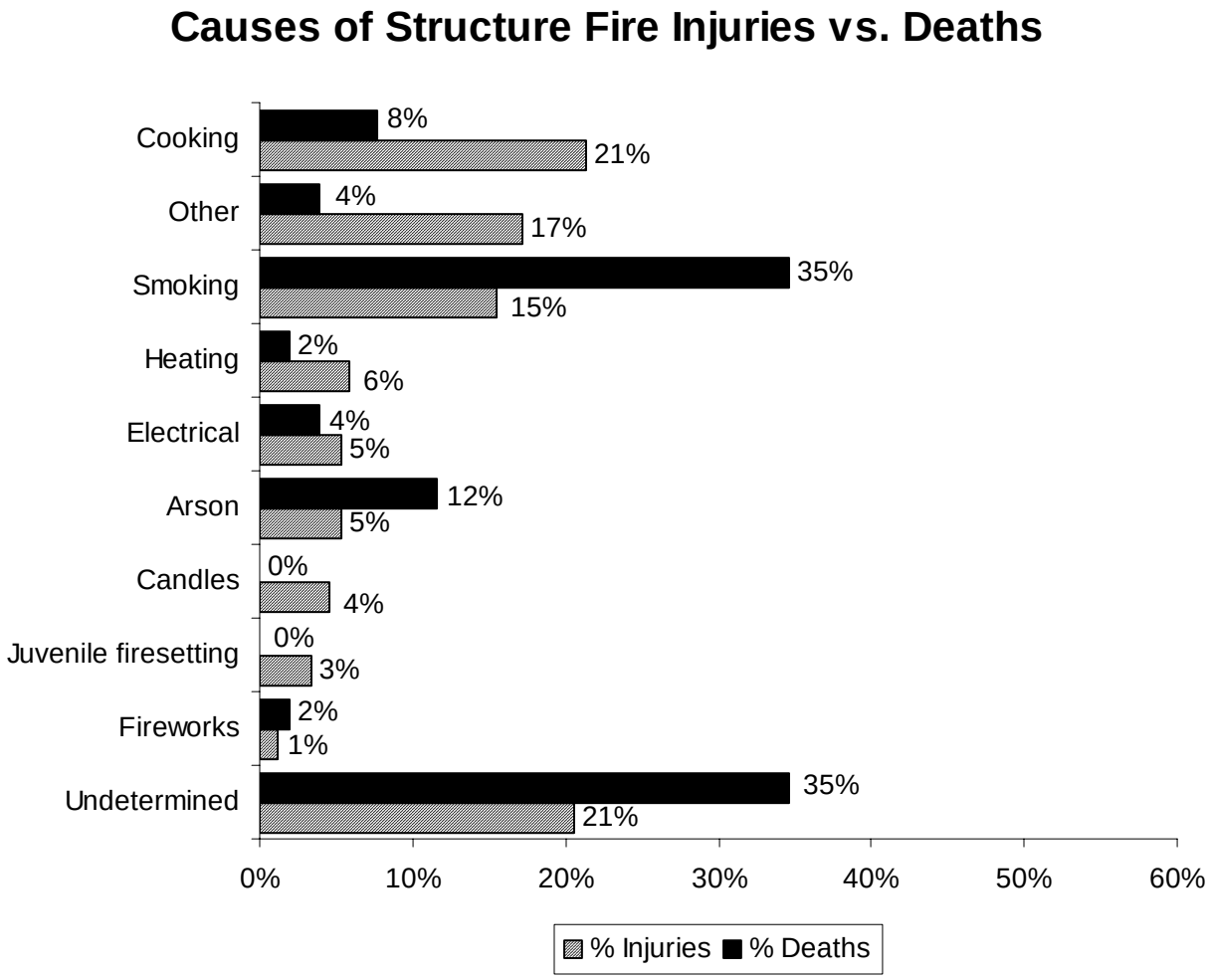
55% of All Victims Were Involved With the Ignition of the Fire
Fifty-five percent (55%) of all victims were involved with the ignition of the fire that injured them. One hundred and sixteen (116), or 43%, of the 268 civilian victims where

[30] This is a new field. It is not mandatory that it be completed. It loosely corresponds to the version 4 field Condition Before Injury. This is the reason for the low number of victims for which the field had been completed. It also does not contain a corresponding value for the version 4 code - awake and unimpaired.

Location at Time of Incident was known, were in the area of origin and intimately involved with the ignition of the fire. Thirty-three (33), or 12% were not in the area of origin but were involved with the start of the fire. An example of this is when someone starts a fire, leaves the area but becomes trapped by the heat or smoke of the fire and is injured in their attempt to escape. Fifty-five (55), or 21%, of the 268 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. Sixty-four (64), or 24%, of these victims were not in the area of fire origin and were also not involved with its ignition the *Location at Time of Incident* was undetermined or not reported in 89 civilian fire injuries. These were excluded from the percentage calculations.

Cooking Was the Leading Cause of Injuries in Structure Fires

Cooking was the leading cause of injuries in structure fires. Fires started by cooking caused 21% of structure fire injuries and 8% of structure fire deaths. Smoking fires caused 15% of structure fire injuries and 35% of structure fire deaths. Heating equipment fires caused 6% of injuries and 2% of deaths. Electrical fires caused 5% of structure fire injuries and 4% of structure fire deaths. Arson caused 5% of structure fire injuries and 12% of structure fire deaths. Candles caused 4% of injuries and none of the deaths.



Juvenile-set fires caused 3% of structure fire injuries and none of the structure fire deaths in 2003. Fireworks caused 2% of the structure fire injuries and 1% of the structure fire deaths. All the other known causes of structure fires combined caused 17% of the structure fire injuries and 4% of structure fire deaths[31]. In 2003, undetermined fires caused 21% of structure fire injuries and 35% of structure fire deaths in Massachusetts.

Leading Cause of Injuries Most Often Not the Leading Cause of Fire Deaths
The leading cause of fire-related injuries is most often not the leading cause of fire-related deaths. 2003 followed the recent trend of cooking causing the most injuries and smoking causing the most fire deaths. The main reason for this difference is that in most smoking-related fire deaths, the victim is 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 that they were sleeping upon. 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 leave the cooking materials unattended. 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.

The fire service needs to redouble its efforts to get manufacturers to agree to produce and sell a self-extinguishing cigarette. The Moakley Bill has been submitted to Congress at the national level for this purpose. New York has passed the Safer Cigarette Law and similar legislation has been filed here in Massachusetts.

Detectors Operated in 62% of Structure Fires that Caused Injuries
Of the 273 injuries where detector performance was known, 62% occurred where smoke detectors were present and operated. Fifteen percent (15%) of the injuries occurred in structure fires where detectors were present but did not operate. Nineteen percent (19%) 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 unknown for 43 structure fire injuries. These injuries were excluded from the percentage calculations. The presence of operating smoke detectors generally gives the victims the time needed to escape the byproducts of the fire; heat, flame and smoke.

Detectors Alerted Occupants in 40% of Confined Fires that Caused Injuries
Smoke or heat detectors alerted the occupants in 19, or 40%, of the 48 residential structure fires that were confined to non-combustible containers where injuries occurred. In 31% of these fires, the detectors did not alert the occupants. In 29% of these fires, it was undetermined if the detectors alerted the occupants of the residence.

[31] The two deaths in the Other category of fires were from gasoline and a welding explosion.

Motor Vehicle Fire Injuries

There were 25 motor vehicle fire injuries in 2003. Eighty percent (80%) were men and 20% were women. Sixty-four percent (64%) of the injuries were caused by exposure to fire products, where cause was known. Four percent (4%) of the injuries were caused when the victim was struck by or from contact with an object. Another 4% fell, slipped, or tripped after exiting the vehicle. When the primary apparent symptom was reported 21% of these injuries were each reported as burns only, smoke inhalation only, and pain only. Where activity at time of injury was known, 22% of the victims were trying to control the fire when injured; 11% were trying to escape; and another 11% were attempting some form of irrational act. The causes of motor vehicle fires that injured civilians in 2003 included fuel spills, collisions, arson, and mechanical malfunctions. See the Motor Vehicle Fire section for safety tips in the event of a car fire.

Outside and Other Fire Injuries

Thirty-four (34), or 8%, of civilian fire injuries occurred in outside and other fire incidents in 2003. Seven (7), or 2% of civilian injuries were caused by special outside fires. Five (5), or 1%, of civilian injuries occurred in brush fires; and four, or 1%, occurred during outdoor rubbish fires. Eighteen (18), or 4%, of civilian injuries were caused by unclassified fires.

Where gender was known, 76% of the civilian victims were men and 24% were women. Burns accounted for almost two-thirds, 65%, of the injuries to this group, when the primary apparent symptom was known. The victim was intimately involved with the ignition in almost two-thirds, or 65%, of these injuries where location at ignition was known.

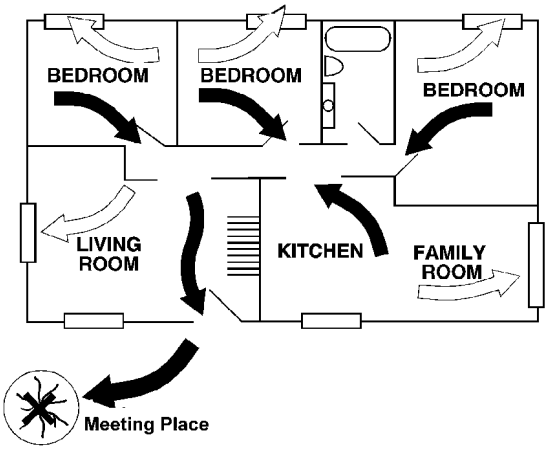
Safety Practices Are the Best Prevention Methods

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 possible. 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 and injuries.

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.

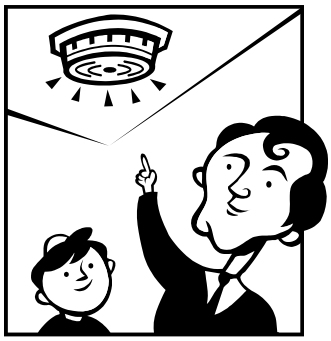
- If you plan for a child or a senior to exit a window, make sure they can open it easily.
- If you can't get out, close your door and go to the window and signal for help. Teach children to never hide under beds or in closets.
- If you must go through smoke, crawl low. The coolest, cleanest air will 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.



- 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 use 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.

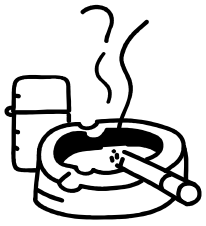


Cooking Safety

- 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.

2003 Firefighter Deaths

In 2003, there was one fire-related fire service fatality in the Commonwealth of Massachusetts. Firefighter Martin H. McNamara V of the Lancaster Fire Department succumbed to injuries sustained while he was on an attack line in the basement of an apartment building fire.

Lancaster Firefighter Martin H. McNamara V
Firefighter Martin H. McNamara V was one of the first firefighters responding to the scene of an apartment fire at 76 Mill St. He was on the first attack line in. He later found himself in the basement with three Clinton firefighters. After an unforeseen flare up of the fire, in dense smoke and debris, he became disoriented and trapped. He was 31-years old.

Fire Service Injuries

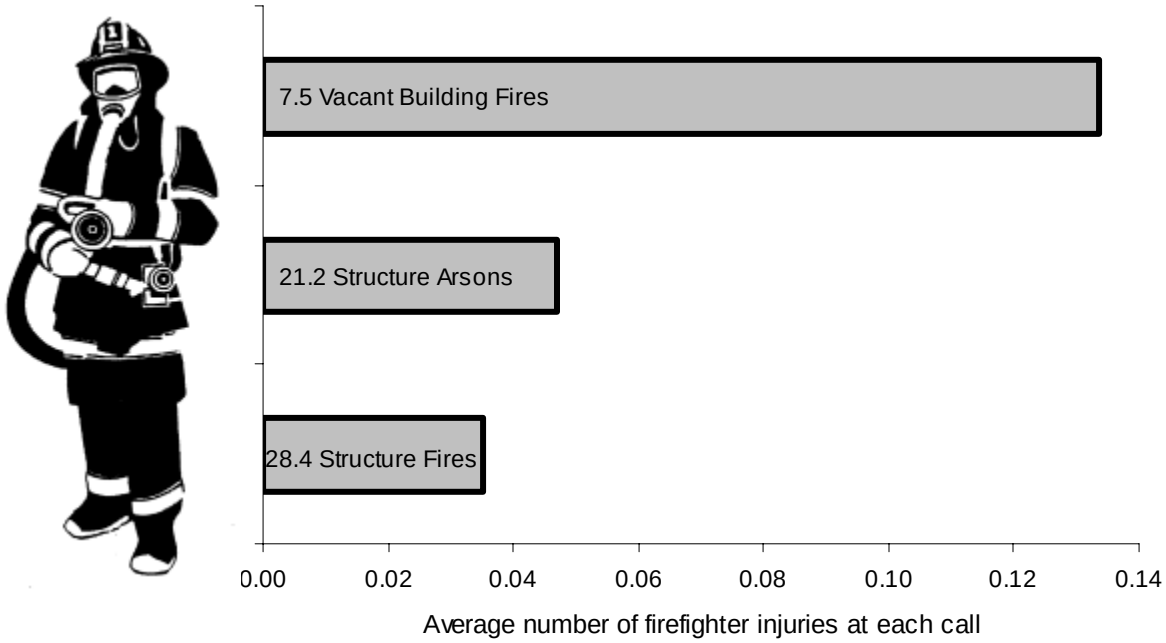
514 Firefighters Injured in 2003
In 2003, 514 firefighters were injured while fighting the 27,715 reported fires in Massachusetts. There was one firefighter death in 2003. On average, one firefighter was injured at one of every 54 fires in 2003. Four hundred and fifty-eight (458) firefighters were injured at structure fires. Twenty-nine (29) firefighters were injured at motor vehicle fires. Twenty-seven (27) firefighters were injured at outside and other fires.

89% of Firefighter Injuries Occurred at Structure Fires
Firefighters were injured more frequently at structure fires than any other fire incident type. Eighty-nine percent (89%) of firefighter injuries occurred at structure fires. While structure fires only account for 47% of all fires.

We ranked the total number of firefighter injuries at structure fires by fire cause. The largest number of firefighter injuries took place at electrical-caused fires. Forty-eight (48), or 10% of structure fire firefighter injuries occurred at electrical fires. Forty-four (44), or 10%, occurred in smoking fires. Cooking accounted for 7%; and heating and arsons each accounted for 4% of fire service injuries at structure fires.

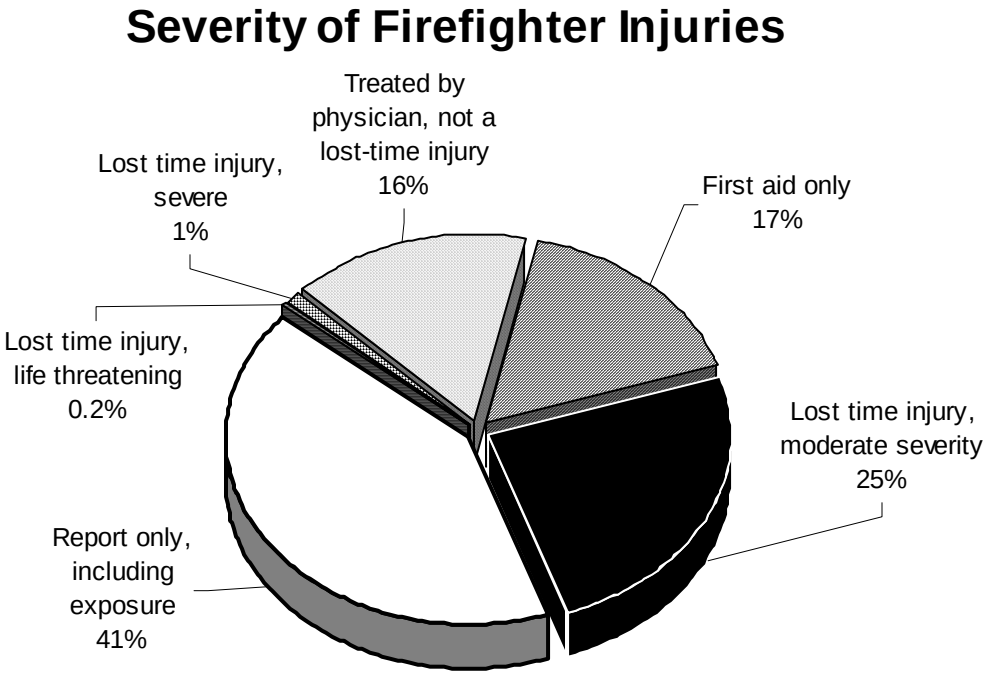
Firefighters Injured at One of Every 7 Vacant Building Fires
One of the most dangerous types of fires for firefighters in 2003 were vacant building fires. Vacant building fires accounted for 47, or 9%, of firefighter injuries in 2003. These 47 injuries also represent 10% of the number of firefighter injuries incurred fighting structure fires in 2003. On average there was one firefighter injury for every 7.5 vacant building fires, or 0.13 firefighter injuries at every vacant building fire. On average there was only 0.05 reported firefighter injuries per structure arson in 2003, or one firefighter injured at every 21.2 structure arsons. On average there was 0.04 reported firefighter injuries per structure fire in the Commonwealth in 2003, or one firefighter injured at every 28.4 structure fires.

The following graph illustrates this.



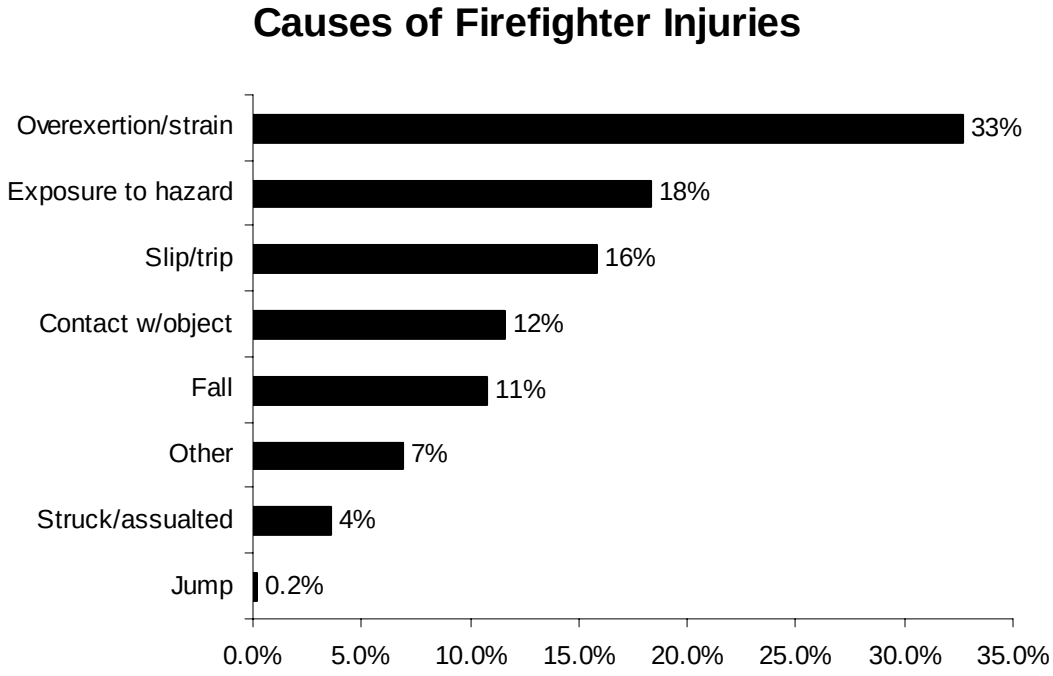
70% of Firefighter Injuries Minor

When examining the severity of the 487 firefighter injuries that reported severity, 41% of the injuries were reports only, including exposures to toxic substances or harmful physical agents through any route of entry into the body. Moderate severity injuries accounted for 25% of firefighter injuries, meaning that immediate medical attention was needed but there is little danger of death or permanent disability. Seventeen percent (17%) of these injuries were recorded as only needing first aid. Sixteen percent (16%) reported having been treated by a physician with no time lost. One percent (1%) of firefighter injuries were coded as severe. This means that the injury was potentially life threatening if the condition was not controlled. One (1), or less than 1%, of the firefighter injuries was life threatening, where body processes and vital signs were not normal. The severity was not reported for 27 firefighter injuries. These injuries were excluded from the percentage calculations.



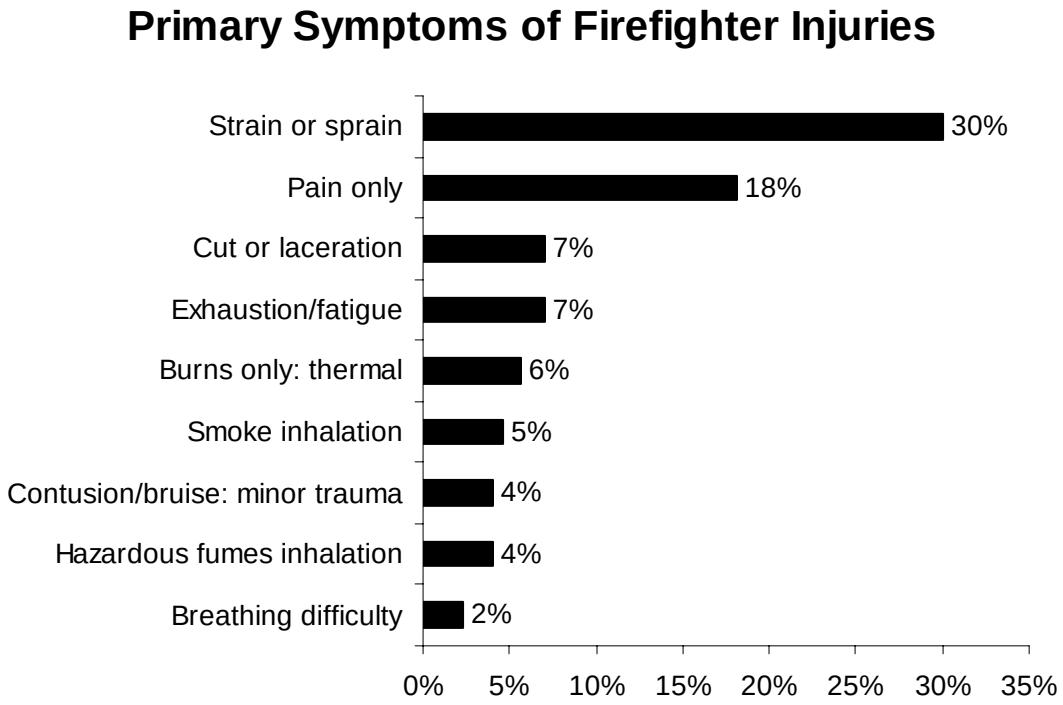
1/3 of Injuries from Overexertion or Strain

Thirty-three percent (33%) of the 447 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; 16% were injured when they slipped or tripped; 12% were caused by contact with some object; 11% of firefighters were injured from a fall; 4% were



injured when they were struck or assaulted by a person, animal or object; 0.2% were injured when they jumped, and another 7% of the Massachusetts fire service injuries were caused by other conditions where no code was available to describe the instance. The cause was not reported for 67 firefighter injuries, and these injuries were excluded from the percentage calculations.

Almost 1/3 Experienced Sprains or Strains; 18% of Firefighters Reported Pain
Of the 479 firefighter injuries where primary symptom was known, 30% of injured firefighters reported sprains or strains as their primary symptom; 18% reported pain only;



7% each reported exhaustion or fatigue and lacerations or cuts; 6% reported thermal burns; 5% reported smoke inhalation; 4% of the fire-related fire service injuries in 2003 were caused by each contusion or bruises or hazardous fume inhalation. Primary apparent symptom was not reported for 35 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) primarily 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, 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, 30% of eye

injuries were caused by avulsions; cuts or lacerations caused 47% of the injuries to the hands and fingers; 62% of the injuries to the back and spine were sprains or strains; and hazardous fume inhalation and smoke inhalation each caused 32% of the internal injuries.

Brockton Manufacturing Plant Had 14 Fire Service Casualties

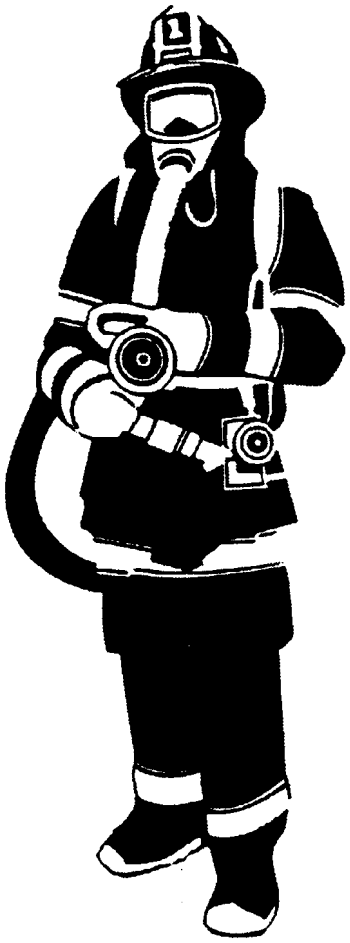
- On November 5, 2003, at 8:06 p.m., the Brockton Fire Department was called to a fire and hazardous materials incident at a manufacturing plant. The fire began in a container of oily rags near an etching machine. The fire was suppressed by the sprinkler system. There were no civilian injuries; but there were 14 reported fire service injuries. All 14 fire service injuries were exposure reports to hazardous fumes from the materials stored in the building. The fire department was on scene for approximately three and a half hours. No estimate was made to the damages from this fire.

1/5 of All Firefighter Injuries Were To Internal Body Parts

Ninety (90), or 20%, of all known firefighter injuries occurred to firefighters' trunks. Thirty-five (35), or 39% of these injuries were from strains or sprains and 34, or 38%, were from pain only. The chart below shows the distribution of firefighter injuries by body part. The percentages given are the ratio of the number of reported primary apparent symptoms for each given body part grouping.

Firefighter Injuries by Part of Body

Eyes (20)	
Avulsion	30%
Pain only	20%
Trunk (90)	
Strain or sprain	39%
Pain only	38%
Thermal burns	4%
Internal (46)	
Hazardous fumes inhalation	33%
Smoke inhalation	33%
Cardiac symptoms	13%
Breathing difficulty	11%
Exhaustion/fatigue	4%
Hand, Fingers (47)	
Cut, laceration	47%
Thermal burns	11%
Swelling	9%
Strain or sprain	9%
Legs (14)	
Strain, sprain	43%
Contusion, bruise	21%



Ears & Face (7)	
Thermal burns	57%
Burns & smoke inhalation	14%
Scald burns	14%
Back & Spine (52)	
Sprain, strain	62%
Pain only	25%
Arm (28)	
Sprain, strain	29%
Pain only	29%
Contusion, bruise	18%
Wrist (15)	
Sprain, strain	47%
Pain only	20%
Knee (42)	
Sprain, strain	55%
Pain only	36%
Foot & Toes (7)	
Strain, sprain	29%
Swelling	29%

Arson Fires

1,456 Arsons - 382 Structures, 276 Vehicles, 798 Other Arsons
One thousand four hundred and fifty-six (1,456), or 5%, of the 27,715 fire incidents reported to the Massachusetts Fire Incident Reporting System, were considered to be intentionally set, or for the purpose of analysis, arson[32]. The 382 structure arsons, 276 motor vehicle arsons, and 798 outside and other arsons caused 10 civilian deaths, accounting for 16% of civilian fire deaths, 22 civilian injuries and 20 fire service injuries. The estimated dollar loss from arsons was $9.7 million. The average dollar loss per arson fire was $6,652. Total arson was down 22% from 1,874 in 2002.

'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.

1,531 Fires with Cause Still Under Investigation
In 2003, 1,531 Massachusetts fires were still listed as Cause Under Investigation. There were 2,297 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 larger drop than expected in reported arsons; only after we have five or more years of version 5 data will we be able to tell how substantial this drop really is. 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.

The following table illustrates that structure arsons and motor vehicle arsons are at an all time low. 2003 was the lowest total for outside and other arsons in the last 10 years.

Confined Indoor Rubbish Fires Collect No Causal Data
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.

New Arson Module Will Bring Better Understanding & Tracking of Arsons
One of the new modules in version 5 is the Arson Module. This module contains many new 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

[32] 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.

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 new fields is 'Other Investigative Information.' This field identifies other pertinent information pertinent to the case. In 2003, 29%, of the 63 reported arsons which had this field completed, were reported to have criminal or civil actions pending; 19% had some code violations; and 17% had some other crimes involved; 16% occurred in vacant structures; 10% reported financial problems; 5% were involved with some illicit drug activity; 3% occurred in structures that were for sale; and in 1% of these incidents there was a recent change in insurance.

Suspected Motive

Another new field is 'Suspected Motivation Factors.' It indicates the suspected stimulus that caused the subject to burn any real or personal property. In 15% of the 240 reported arsons that had this field completed, the motive was thought to be from playing with fire or curiosity of fire. In 13% the motive was for thrills; personal motivation was suspected in 8% of these arsons; in 3% the arsonist held something against the institution; insurance fraud was suspected in 2%; and intimidation was the suspected motive in another 2% of these 240 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.

ARSONS BY YEAR

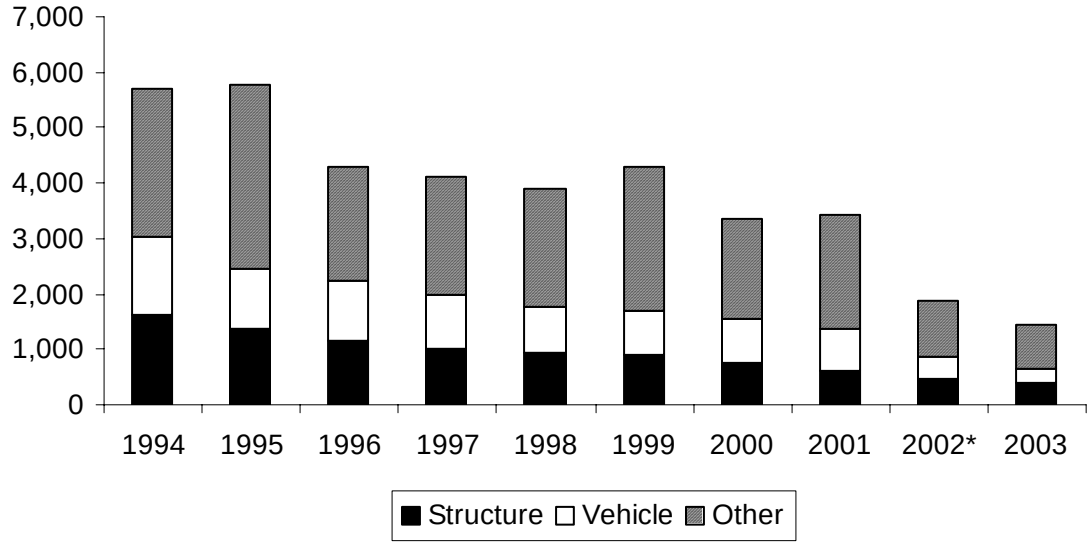
Year	Total Arsons	Structure Arsons	% All Arsons	Vehicle Arsons	%All Arsons	Other Arsons	% All Arsons
2003	1,456	382	26%	276	19%	798	55%
2002*	1,867	488	26%	395	21%	991	53%
2001	3,426	620	18%	743	22%	2,063	60%
2000	3,360	747	22%	798	24%	1,815	54%
1999	4,307	886	21%	818	19%	2,603	60%
1998	3,882	939	24%	836	22%	2,107	54%
1997	4,131	1,020	25%	979	24%	2,132	52%
1996	4,296	1,168	27%	1,082	25%	2,046	48%
1995	5,760	1,377	24%	1,093	19%	3,290	57%
1994	5,686	1,625	29%	1,395	25%	2,665	47%

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

Largest Reduction in Structure & 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 structure 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, structure arsons accounted for 29% of arson fires in 1994 but only 26% of the total reported arson fires in 2003. Looking at these ratios allows one to more clearly identify specific fire problems, such as increases in structure or motor vehicle arsons. Trends may be masked if you were to look just at total numbers.

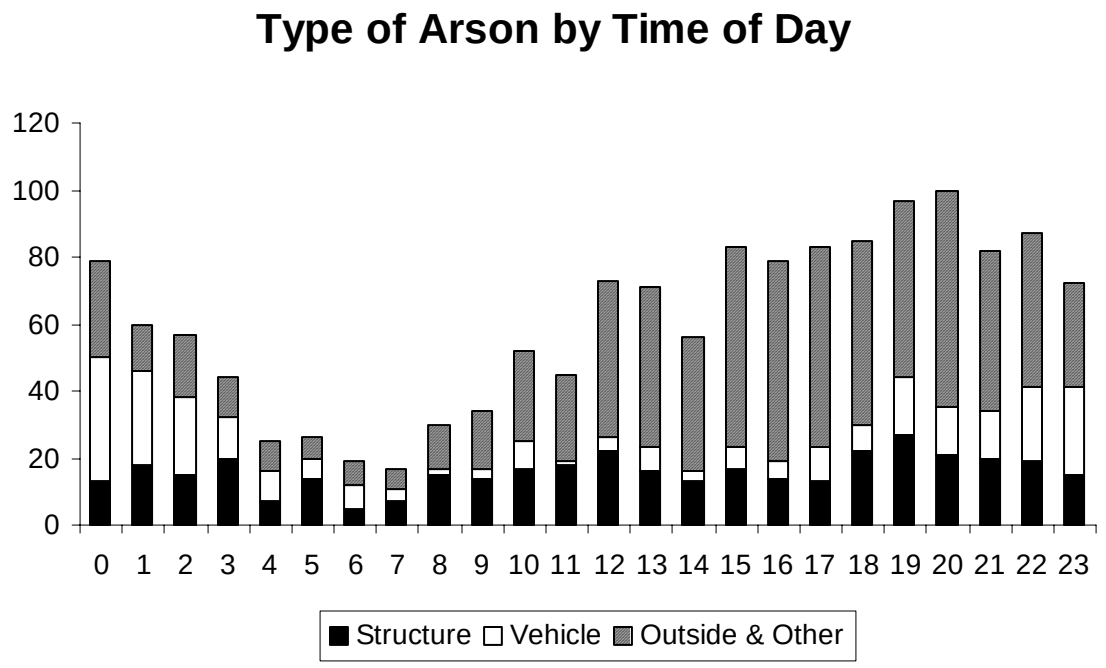
Arson by Incident Type 1994 - 2003



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

For instance, outside and other arsons numbered 2,665 in 1993 and 798 in 2003. 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 5:00 p.m. and midnight. The peak times for structure arson were from 6:00 p.m. to 10:00 p.m. Motor vehicle arsons were most likely to occur between 10:00 p.m. and 2:00 a.m. Outside and other arsons peaked from 3:00 p.m. to 10:00 p.m.



Structure Arson

382 Arsons, 6 Civilian Deaths, 19 Civilian Injuries, 18 Fire Service Injuries
In 2003, there were 382 reported structure arsons. They caused six civilian deaths, 19 civilian injuries, 18 fire service injuries and an estimated dollar loss of $7.2 million. These 382 incidents accounted for 3% of the 12,997 structure fires in 2003, down 21% from the 485 reported structure arsons in 2002. The six civilian deaths accounted for 10% of the total civilian death count and 12% of all structure fire deaths. The 19 civilian injuries accounted for 5% of the overall civilian injuries and 5% of all civilian injuries at structure fires. Eighteen (18) fire service injuries accounted for 4% of the total fire service injuries and 4% of the injuries fire fighters sustained at all structure fires in 2003. The estimated dollar loss for structure arsons was $7,222,373, accounting for 4% of the overall dollar loss and 5% of the estimated dollar loss in all reported structure fires. The average loss per structure arson was $18,907.

In 2003, 677 Massachusetts structure fires were still listed as Cause Under Investigation. There were 351 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 larger drop in reported structure arsons; only after we have five or more years of version 5 data will we be able to tell how substantial this drop really is.

Over 1/2 of Structure Arsons Occurred in Residences
Two hundred and twenty-one (221), or 58%, of the 382 structure arsons occurred in residential occupancies. Educational occupancies accounted for 54, or 14%, of the 382 structure arsons in 2003. 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.

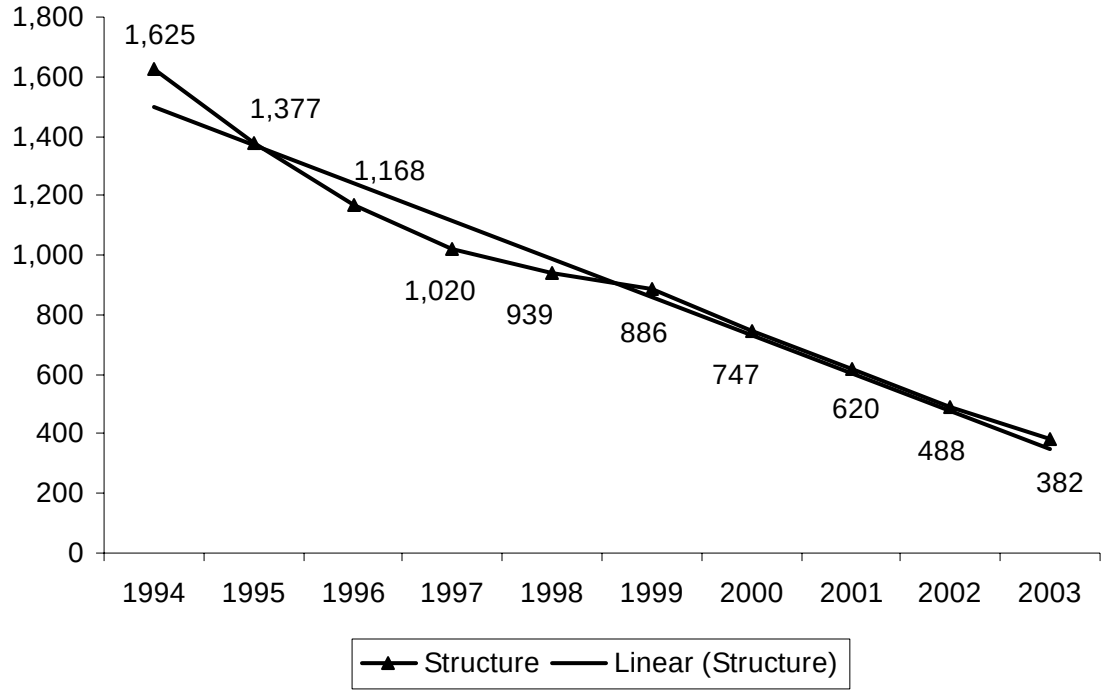
STRUCTURE ARSON BY OCCUPANCY TYPE

Occupancy	Structure Arsons	Percent of Total	Injuries FF	Injuries Civ	Deaths FF	Deaths Civ	Dollar Loss
Assembly	17	4.5%	1	0	0	0	$464,100
Educational	54	14.1%	0	0	0	0	61,431
Institutional	22	5.8%	0	2	0	0	29,920
Residential	**221**	**57.9%**	**17**	**15**	**0**	**6**	**5,387,672**
1- & 2- Family	*105*	*27.5%*	*5*	*6*	*0*	*4*	*3,394,701*
Multifamily	*95*	*24.9%*	*9*	*6*	*0*	*2*	*1,777,025*
All Other Residential	*21*	*5.5%*	*3*	*5*	*0*	*0*	*215,946*
Mercantile, business	23	6.0%	0	1	0	0	202,300
Basic Industry	1	0.3%	0	0	0	0	2,000
Manufacturing	0	0.0%	0	0	0	0	0
Storage	21	5.5%	0	0	0	0	890,200
Special Properties	22	5.8%	0	1	0	0	184,750
Unclassified	1	0.3%	0	0	0	0	0
Total	**382**	**100%**	**18**	**19**	**0**	**6**	**$7,222,373**

Structure Arson Down 64% Since 1993
Structure arson has been on a downward trend since 1991 when 1,974 structure arsons were reported to MFIRS[33]. Structure arsons have decreased 76% since 1,625 were reported in 1994. The chart below shows the trend of structure arsons in the past decade.

[33] The highest number of reported structure arsons in the past 20 years, occurred in 1984 when 2,133 structure fires were considered to be intentionally set.

Structure Arson by Year 1994 - 2003



The following table shows the cities that reported the most structure arsons in 2003, their 2000 population according to the United States Census, the number of structure arsons reported in 2003, the rate of structure arsons per 1,000 people in 2003, and the same information for 2002. The cities are ranked by the 2003 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, Walpole had a higher structure arson rate. Although the City of Walpole ranked seventh in total structure arsons, its rate of 0.35 structure arsons per 1,000 population was the highest in the state and was almost six times the state structure arson rate of .06 per 1,000 population. All eight of these arsons occurred at MCI - Cedar Junction.

MASSACHUSETTS CITIES WITH THE MOST STRUCTURE ARSONS IN 2003

City	Population	2003 Arsons	2003 Rate/ 1,000 Pop.	2002 Arsons	2002 Rate/ 1,000 Pop.
Walpole	22,824	8	0.35	1	0.04
Amherst	34,874	8	0.23	1	0.03
Falmouth	32,660	7	0.21	2	0.06
Fall River	91,938	19	0.21	27	0.29
Chicopee	54,653	11	0.20	13	0.24
Fitchburg	39,102	5	0.13	5	0.13
Holyoke	39,838	5	0.13	5	0.13
Boston	589,141	73	0.12	151	0.26
Brockton	94,304	11	0.12	7	0.07
New Bedford	93,768	10	0.11	13	0.14
Lawrence	72,043	7	0.10	2	0.03
Weymouth	53,988	5	0.09	5	0.09
Springfield	152,082	10	0.07	15	0.10
Lynn	89,050	5	0.06	5	0.13
Lowell	105,167	5	0.05	4	0.04
Worcester	172,648	7	0.04	13	0.08
Massachusetts	**6,349,097**	**382**	**0.06**	**485**	**0.08**

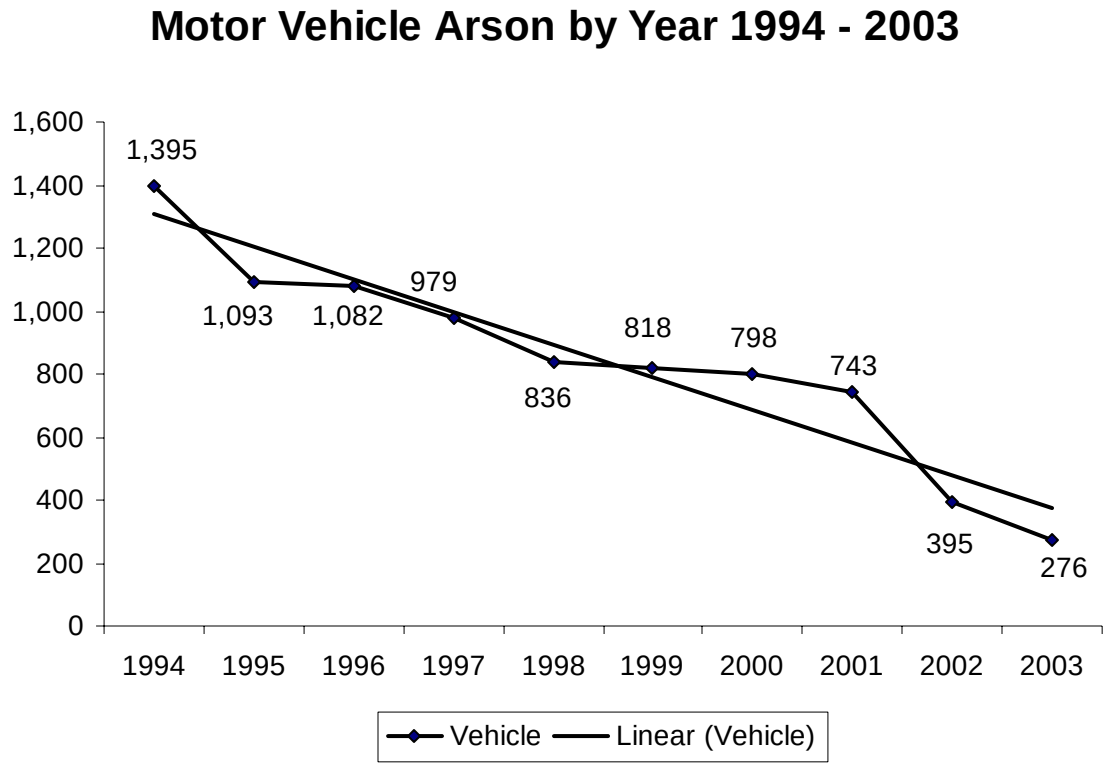
Motor Vehicle Arson

276 Arsons, 1 Civilian Death and 1 Fire Service Injury

Two hundred and seventy-six (276), or 6%, of the 4,522 vehicle fires were considered intentionally set in 2003. The civilian death, an act of self-immolation, accounted for 2% of the overall civilian deaths and 20% of the motor vehicle deaths. The fire service injury accounted for less than 1% of the total fire service injuries and 3% of firefighter injuries associated with motor vehicle fires. The estimated dollar loss in motor vehicle arsons was $2.3 million, accounting for 1% of the overall fire dollar loss and 11% of the dollar loss associated with all the 2003 motor vehicle fires. The average loss per vehicle arson was $8,608. Passenger cars and vans accounted for 87% of the 276 motor vehicle arsons for which mobile property type was reported.

In 2003, 632 Massachusetts motor vehicle fires were still listed as Cause Under Investigation. There were 915 motor vehicle fires where the Cause of Ignition was listed as Undetermined. In the past (in version 4) many of these fires would have been coded as ‘Suspicious’ and would have been counted as arsons. The change in coding requirements did create a larger drop in reported motor vehicle arsons; only after we have five or more years of version 5 data will we be able to tell how substantial this drop really is.

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 95% from 5,116 in 1987 to 276 in 2003.



Outside and Other Arson

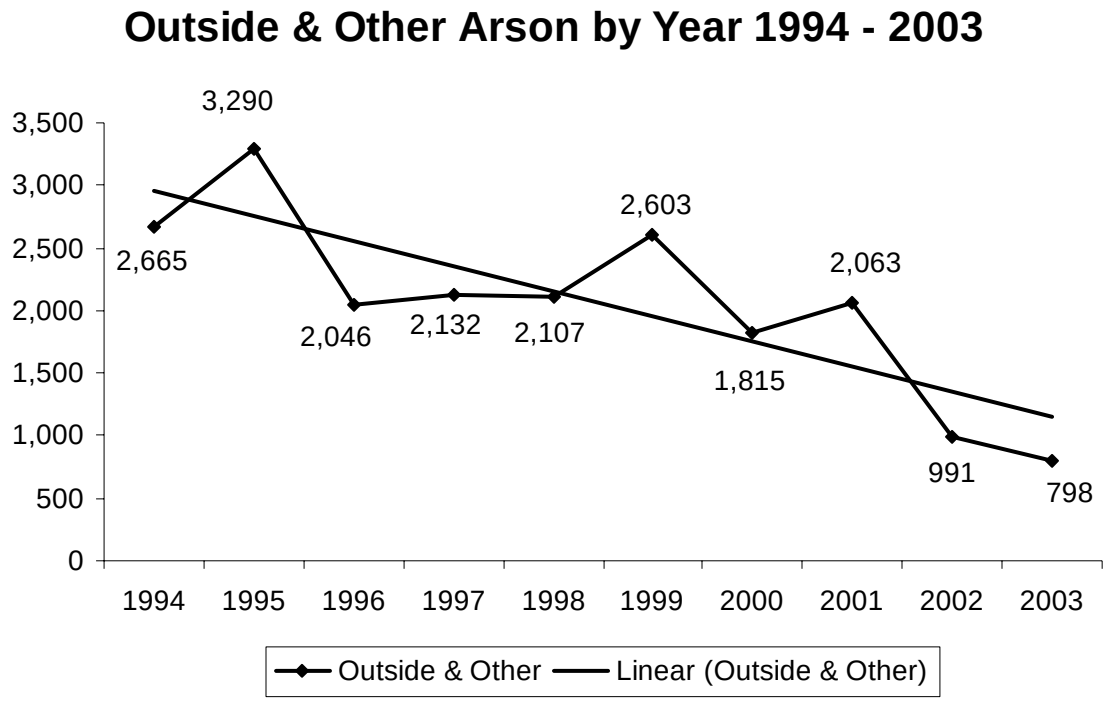
798 Arsons, 3 Civilian Deaths, 3 Civilian Injuries, 1 Fire Service Injury
Seven hundred and ninety-eight (798), or 8%, of the total outside and other fires were considered intentionally set in 2003. The three civilian deaths accounted for 5% of the overall civilian deaths and 75% of the outside and other fire deaths. The 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 three civilian injuries in outside and other arson fires accounted for 1% of the total civilian injuries and 9% of civilian injuries in all outside and other fires. The estimated dollar loss for these arsons was $87,194. The average loss per outside and other arson was $109.

In 2003, 222 outside and other fires were still listed as 'Cause Under Investigation.' There were also 1,031 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 larger drop in reported outside and other arsons; only after we have five or more years of version 5 data will we be able to tell how substantial this drop really is.

No Causal Data for Outside Rubbish Fires

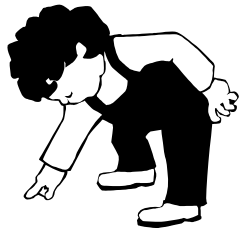
Another reason for this large drop is that in version 5, outside rubbish fires such as dumpster fires use the abbreviated reporting format where a Fire Module is not needed and the field Cause of Ignition is not captured. Thus many intentionally set outside rubbish fires will not be counted as arsons.

It is important to keep in mind that no-loss fires are voluntarily reported and these numbers represent only a fraction of the problem. While outside and other arsons did decrease by 19% from the 991 reported in 2002, the 798 reported arsons is the lowest total in the past 10 years.



Juvenile-set Fires

Children Playing With Fire Caused 414 Fires & $2.6 Million



In 2003, children playing with matches, lighters and other heat sources caused 414 reported fires, 14 civilian injuries, 11 fire service injuries and an estimated dollar loss of nearly $2.6 million. The average dollar loss per fire was $6,262. These fires were down 23% from 536 incidents in 2002. This continues the declining trend over the past decade. This may be due to the number of juvenile firesetters' intervention programs across the Commonwealth. We expected the number of juvenile-set fires to increase in 2002 with the implementation of v5 and our increased ability to capture these incidents. This makes the drop all the more remarkable.

Version 5 Should Give Us A Better Understanding of the Problem

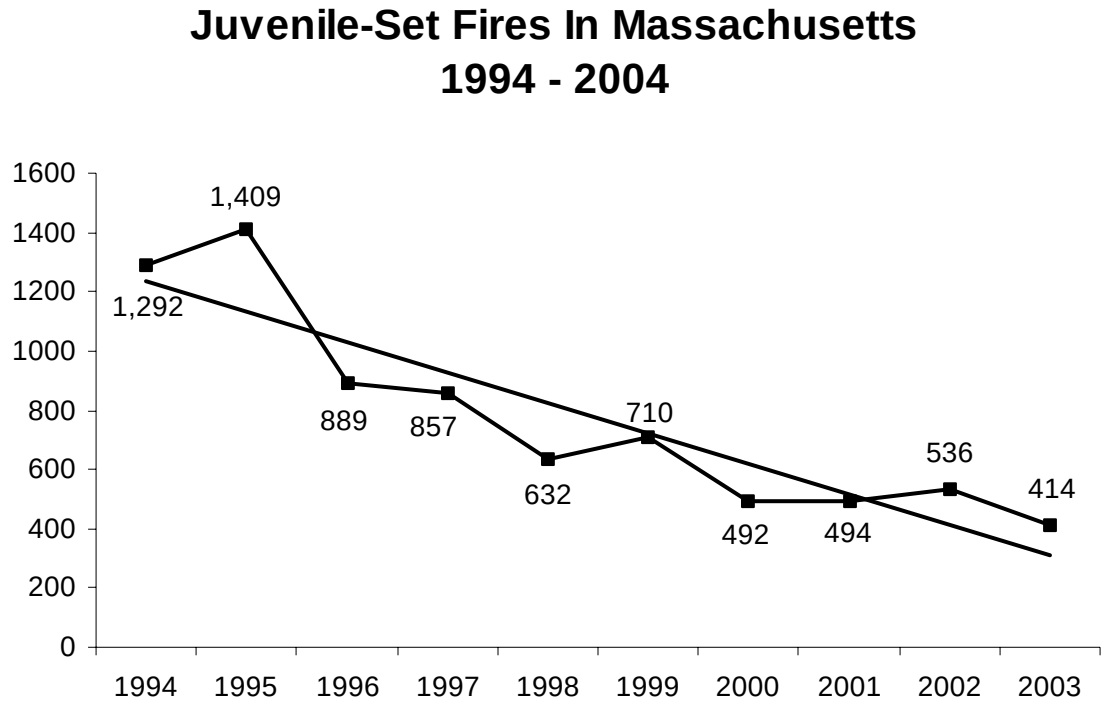
In the past in version 4, you could not code a fire as suspicious or incendiary and also as juvenile-set. The fire department may have considered a fire deliberately set by a juvenile or a group of children to be incendiary; these statistics should be considered an underestimate of the severity of the juvenile firesetting problem. Version 5 is able to capture these types of incidents by allowing the recording of multiple causal factors. The Arson/Juvenile Firesetting Module can collect information when a fire is intentionally set by an adult or set by a child. The information that will be collected with regard to juvenile firesetting will include age, race, family type, gender and ethnicity. Also included will be the motivation and risk factors associated with firesetting, for example, if there is a history of shoplifting, stealing, physical assault, fire play, transiency, etc.

The second half of the new Arson Module is the new Juvenile Firesetter[34] Module. This module contains many new data fields that we can use to identify key items of information that could be used for local, state and national intervention programs. With this information we can develop and implement juvenile firesetting prevention initiatives and track trends to see if they exhibit similar characteristics.

Other than identify the age, gender and race of the subject, one of the new fields is called Motivation Risk Factors. It is an attempt to identify the possible motivation for the subject to burn, or attempt to burn, any real or personal property. The leading Motivation Risk Factors reported to MFIRS in 2003 were mild and moderate curiosity about fire, a history of trouble outside of school, and a history of fire play or firesetting. The leading family type was two-parent families followed by single-parent families. When age was given, the majority of the subjects were between 12 and 17 years old. When gender was completed 94% of the children were listed as males.

[34] Each juvenile-firesetter is assigned a unique number for that particular incident. No other personal identification information for juvenile firesetters is recorded on an MFIRS report.

The 414 fires set by children included: 101 structure fires; 257 brush, tree or grass fires; 24 special outside fires; 11 outside rubbish fires; eight motor vehicle fires; three cultivated vegetation or crop fires; and 10 fires that could not be classified further.



Juvenile-set Structure Fires Cause 12 Civilian & 10 Firefighter Injuries
Twelve (12) civilian injuries and 10 fire service injuries occurred in the 101 structure fires set by children. Child-set structure fires caused an estimated dollar loss of $2.5 million with an average dollar loss of $24,842 per fire.

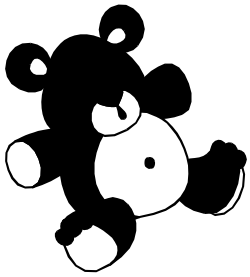
Forty-four percent (44%) of the 101 structure fires caused by children occurred in one- or two-family homes; 35% occurred multifamily homes; and 10% occurred in high schools, junior high schools or middle schools. Thirty-seven percent (37%) of the juvenile-set fires started in the bedroom; 15% started in the kitchen; and 9% began in the bathroom.

69% of Structure Fires Set by Children Using Smoking Materials
Over 2/3, 69%, of juvenile-set fires were started by smoking materials[35]. Thirty-five percent (35%) of the structure fires set by children were started with matches. Twenty-seven percent (27%) of the structure fires were started using lighters. Five percent (5%) were caused by unspecified smoking materials and 1% were started by cigarettes. Ten percent (10%) of the juvenile set structure fires were started by fireworks; and 8% involved powered equipment. This demonstrates a need for education to both parents and

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

children on the danger of matches and lighters, the use of illegal fireworks and safer candle use.

Child Playing with Matches Injured 4 Civilians



- On April 4, 2003 at 10:46 a.m., the Rockland Fire Department was called to a fire in a six-unit apartment building caused by a child playing with matches in a common area. The match ignited a structural component. Thirty-five (35) firefighters were able to keep the fire from spreading beyond the building, and damages were estimated to be $150,000. There were four civilian injuries in this fire. No firefighters were injured fighting this fire. Smoke detectors were present and operated; there were no sprinklers present.

Child Playing with Lighter Causes $275,000 in Damages

- One March 12, 2003, at 3:43 p.m., the Bellingham Fire Department was called to a fire in a single-family home caused by a child playing with a cigarette lighter. The child ignited a decoration inside the house and heavily damaged the only floor of the house. Three firefighters were injured battling this blaze. It was undetermined if smoke detectors were present. Damages from this fire were estimated to be $275,000.

Parents and Caregivers Must Protect Children from Themselves

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

- Make sure that all matches and lighters are stored out of children's reach.
- If you need a lighter, buy one that is child resistant. Since, 1994, all disposable butane lighters and most novelty-lighters must be able to resist the efforts of 85% of children under 5 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 firesetters 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.

Cooking Fires

Cooking Caused 6,019 Fires, 4 Civilian Deaths, 78 Civilian Injuries

Unattended cooking, other unsafe cooking practices and defective cooking equipment caused 6,019 fires, four civilian deaths, 78 civilian injuries, 31 firefighter injuries and an estimated dollar loss of $10.3 million. The average dollar loss per fire was $1,716. Cooking fires accounted for 22% of the total 27,715 fires that occurred in 2003.

Ninety-eight percent (98%) of the fires caused by cooking occurred in structures. The 6,019 fires included: 5,915 structure fires; 36 special outside fires; one brush fire; and 67 fires that could not be classified further.

Confined Cooking Fires Account for 20% of Total Fires

There were 5,432 cooking fires confined to a non-combustible container. These 5,432 fires represent 20% of the total 27,715 fires that occurred in Massachusetts in 2003. This is the largest single cause of fires in Massachusetts. These fires are also a 33% increase over the 4,084 confined cooking fires that were reported in 2002.

85% of Cooking Fires Were Unintentional

In 85% of 919 cooking fires where the 'Cause of Ignition' was reported, it was reported as unintentional. Six percent (6%) of these fires were the result of a failure of equipment or heat source. Only 2% of the reported cooking fires were classified as intentional. In 6% of cooking fires, the cause of ignition was undetermined. Four thousand two hundred and twenty-four (4,224), or 70%, of all cooking fires, were fires contained to non-combustible containers that did not have a Fire Module completed.[36]

Unattended Cooking Starts 22% – Stand by Your Pan!

Twenty-two percent (22%) of cooking fires where 'Factors Contributing to Ignition' was completed were caused by unattended cooking; 7% were caused by combustibles left too close to the cooking equipment; another 7% was caused by the misuse of materials or product; abandoned or discarded cooking materials accounted for 5%; 4% of the fires started because the cooking equipment had not been cleaned; and 3% started when the equipment was accidentally turned on or not turned off. Human error was responsible for the majority of these fires. Seventy percent (70%) of cooking fires were confined fires where only a

[36] In version 5, a fire contained to a non-combustible container has 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 2003, there were 5,432 confined cooking fires. However fire departments filed a Fire Module in 545, or 10%, of these incidents.

Basic Module was completed and therefore none of the information that is contained in the Fire and Structure Fire Modules was collected.

Cooking Was the Leading Cause of Injury in Fires in 2003
Cooking was the leading cause of injury in fires in 2003. This is not surprising considering that almost one-half (48%) of residential structure fires start in the kitchen. Of the 77 cooking fire injuries where gender is known, 48% of victims were male and 52% were female. Of the 77 victims where age is known, 9% of victims were under age 10; 1% of victims were between the ages of 10-14; 13% were 15-24; 19% were 25-34; 21% were 35-44; 13% were 45-54; 8% were 55-64; 5% were 65-74; 8% were 75-84 and 3% were over the age of 85. People aged 35 to 44 accounted for over one-fifth of the people injured in cooking fires.

Over 3/4 of Victims in Room or Area of Fire Origin
Of the 64 cooking fire injuries where location at ignition is known, 53% were intimately involved with the ignition; 25% of victims were in the room or space of fire origin but not involved; 6% were not in the area of origin but involved, most likely these are the people who initially left the cooking unattended; and 16% were not in the area of origin and not involved.

61% of Cooking Injuries Occurred When Trying to Control Fire
Of the 62 cooking fire injuries for which activity at time of injury was known, 61% of victims were trying to control the fire; of the 38 victims injured while attempting to control the fire 61% were female. Eleven (11%) were escaping; 8% acted irrationally; and 3% each were sleeping, unable to act; and were attempting to return to the vicinity of the fire before the fire was under control.

Over 1/2 of All Cooking Injuries Were Burns
Of the 66 cooking fire injuries where nature of injury was known, 52% of victims suffered only from burns; 35% suffered only from smoke inhalation or breathing difficulty; 8% suffered from burns and asphyxia; and 2% of cooking injuries was each caused by nausea, disorientation, and exhaustion or fatigue. 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.

Cooking Was the Third Leading Cause of Residential Fire Deaths
While cooking is the leading cause of residential structure fires, it was the third leading cause of residential fire deaths. Four (4) Massachusetts residents died in four residential fires caused by cooking in 2003. Cooking fires accounted or 9% of the fire deaths and 9% of fatal fires in people's homes in Massachusetts. 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 most common victims of cooking fires. They must be persuaded that they can indeed safely lower themselves to the ground and roll to smother the flames.

For a listing of cooking-related fire deaths in 2003, please refer to the Fire Deaths section of this report.

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.
- Stop, drop and roll if clothing ignites, no matter how young or old.

Fires Caused by Smoking

Smoking Caused 4% of Fires and 30% of Deaths

During 2003, 1,240, or 4%, of the 27,715 reported incidents were caused by the improper use or disposal of smoking materials. These 1,240 caused 18, or 30% of the 61 civilian deaths and 35% of the 52 structure fire deaths, 59 civilian injuries, 48 fire service injuries, and an estimated dollar loss of $12.6 million. The average dollar loss per fire was $10,177. The number of smoking fires decreased by 23% from 1,611 in 2002 to 1,240 in 2003. Given the expanded definition of what a smoking fire is in version 5, this is a real decrease in the number of smoking fires.

V5 More Accurately Describes Smoking Fire Problem

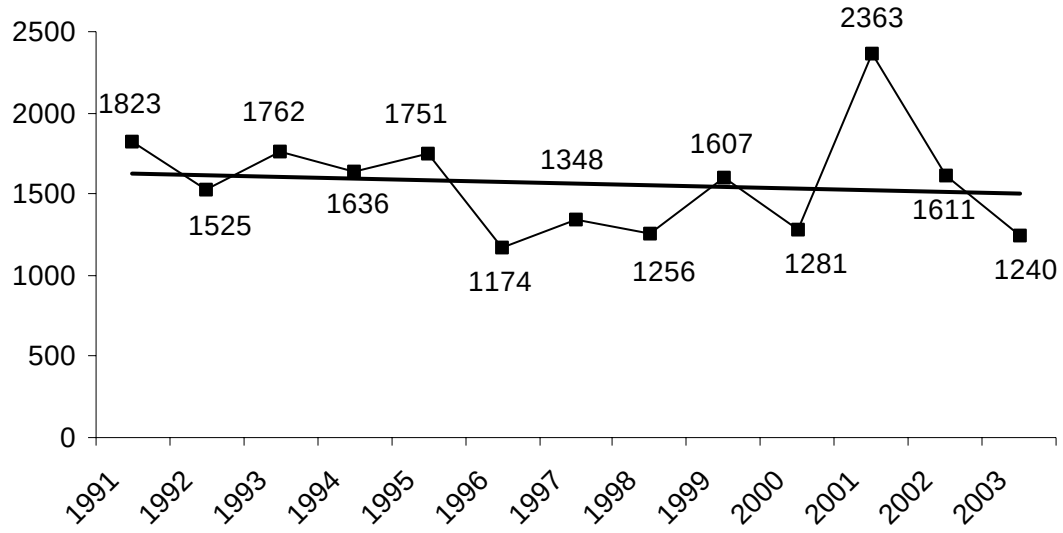
With the switch to MFIRS version 5 our parameters for calculating fires caused by smoking have changed. We may now accurately distinguish between arson or juvenile-set fires and smoking fires where the heat source is a match or lighter. For the first time, we have included in the category of smoking-related fires where the heat source was a match or a lighter in addition to fires started by cigarettes, cigars and pipes. This is one of the reasons for the shocking increase of smoking-related fires in 2001 from previous years. However, we believe one of the benefits of v5 is the ability to more accurately describe the fire risk smoking materials pose. In 2003, if one was to subtract all fires with a heat source of a match or cigarette lighter, there were 1,029 total fires, accounting for 16

civilian deaths, 49 civilian injuries, 42 fire service injuries, and an estimated dollar loss of $11.8 million. The average dollar loss per fire would be $11,458; and the number of smoking fires would have decreased by 25% from 1,380 fires reported the previous year. This would lead us to incorrectly believe that fires started by smoking materials are diminishing.

580 Structure Fires - Down From 688 In 2002
The 1,240 fires caused by smoking included: 580 structure fires, down from 688 in 2002; 68 motor vehicle fires, down from 75 in 2002; 423 tree, brush or grass fires, down from 628 in 2002; 53 trash or rubbish fires, down from 86 in 2002; 68 special outside fires, up from 67 in 2002; one cultivated vegetation or crop fire, down from 28 in 2002, and 47 fires that could not be classified further, up from 39 in 2002. The number of fires caused by smoking has decreased 23% from 2002 to 2003.

After a peak of 2,363 smoking fires of all types in 2001, smoking fires are now on a declining trend. Smoking fires have decreased 48% for the time period between 2001 and 2003.

Smoking Fires 1991 - 2003



Eighty-three percent (83%) of all smoking-related structure fires occurred in residential occupancies. The occupancy groupings with the next highest percentages of smoking-related structure fires in Massachusetts in 2003 were mercantile and business properties accounting for 5% and storage properties accounting for 4%.

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. Public assembly buildings, including restaurants,

nightclubs and bars only accounted for 2% of all the smoking related structure fires in 2003. 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 Remains the Leading Cause of Fire Deaths
The 580 smoking-related structure fires caused all 18 smoking-related fire deaths, 55 civilian injuries, 44 fire service injuries, an estimated dollar loss of $12.3 million and an average dollar loss of $21,333. Smoking fires accounted for 32% of the fatal fires in 2003. The unsafe and improper use of smoking materials caused 36% of residential structure fire deaths and 39% of fatal residential structure fires. Eight (8), or 47%, of the 17 residential structure fire deaths to people over the age of 65 were caused by smoking. In 2002, 19 people died in 16 smoking-related fires. Smoking fires are still responsible for the most fatalities.

No Working Detectors in 1/4 of Fatal Smoking Fires
In 24% of these deaths, there were no working smoke detectors; 6% of these deaths occurred where smoke detectors did not operate and 18% of these deaths occurred where there were no detectors present at all. Thirty-five percent (35%) of smoking fire deaths occurred in structures where smoke detectors were present and operated, however all of these victims were intimately involved in ignition or in the area of origin when the fire began. The smoke detectors helped prevent these fires from claiming any additional lives. In 2% of these fires the fire was determined to be too small to activate the residence's detectors. Twenty-nine percent (29%) of smoking-related deaths occurred where smoke detector status was undetermined or unreported.

For a listing of all the smoking-related fire deaths in 2003, please refer to the Fire Deaths section of this report.

Smoking on Oxygen
In 2003, the use of oxygen while smoking caused two of the 18 smoking-related fire deaths in two of the 16 smoking-related fatal fires.

83% of Structure Smoking Fires Occurred in Residences
Of the 580 smoking-related structure fires, 475, or 83%, occurred in residences. Smoke detectors operated in 55% of the smoking-related residential structure fires where detector status was known. Detectors were present but failed to operate in an additional 11% of these incidents. No smoke detectors were present in 19% of these incidents. In 15% the fire was too small to activate the smoke detector. The leading areas of origin were the bedroom, where 22% of residential smoking fires occurred; kitchens, where 18% of the fires occurred; living rooms, where 11% of the fires occurred; outside balconies or porches, where 9% of the fires occurred; and the bathroom, where 4% started.

Smoking Fires Ignite Clothing, Sleepwear, Bedding & Upholstered Furniture
Almost one-quarter, or 24%, of smoking fires first ignited clothing, bedding or upholstered furniture. If smokers were using self-extinguishing cigarettes, many of these

deaths could have been avoided. Some tobacco companies have begun to sell self-extinguishing cigarettes in test markets. There is no federal standard for self-extinguishing cigarettes despite nearly 20 years of proposed legislation. The state of New York has recently passed legislation for self-extinguishing cigarettes and Massachusetts is considering such a standard for the Commonwealth.

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.

State regulations 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.

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. It lowers the ignition temperature, allowing fires to start more easily than usual.

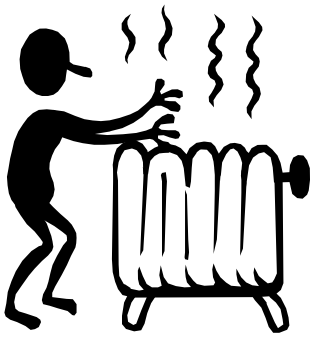
Oxygen can saturate clothing, rugs, and upholstery, increasing the fire danger even when the home oxygen system is "turned off".

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

2,491 Fires, 1 Civilian Death, 21 Civilian Injuries, 19 Fire Service Injuries



Massachusetts fire departments reported that some form of heating equipment was involved in 2,491, or 19%, of the 12,997 structure fires in 2003. These heating equipment fires caused one civilian fire death, 21 civilian injuries, 19 fire service injuries, and an estimated dollar loss of $7.6 million. The average loss per fire was $3,064.

91% of All Heating Fires Were Confined Fires

In 2003, 91% of heating fires were confined to the container of origin. In version 5, you are able to report two types of structure fires caused by heating equipment that are contained to its non-combustible container. When one of these incidents is reported, the official writing the report only needs to complete a Basic Module, so causal data fields that would otherwise be captured on the Fire Module are not required. One thousand five hundred nineteen (1,519), or 61% of all heating related structure fires in Massachusetts, were coded as fuel burner/boiler malfunction, fire contained. Seven hundred and fifty-one (751), or 30%, were determined to be chimney or flue fires, confined to the chimney or flue.

The number of contained heating fires rose in 2003. Confined heating equipment fires increased by 527 incidents, or 30%, from the 1,743 reported in 2002.

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. 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 top 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[37]

Equipment	# of Fires	% of Heat Eq.	Injuries FF	Injuries Civ	Deaths FF	Deaths Civ	Dollar Loss
Central heating units	1,486	60%	4	7	0	0	$739,203
Confined, of unknown type	*1,432*	*57%*	*2*	*3*	*0*	*0*	*$380,528*
Furnace, central heating unit	*54*	*2%*	*2*	*4*	*0*	*0*	*358,675*
Chimney, flue	764	31%	1	1	0	0	811,768
Confined, of unknown type	*717*	*29%*	*1*	*1*	*0*	*0*	*199,968*
Fireplace, chimney, other	*20*	*1%*	*0*	*0*	*0*	*0*	*193,650*
Chimney, brick, stone, masonry	*14*	*1%*	*0*	*0*	*0*	*0*	*219,650*
Chimney, metal, incl. stovepipe	*13*	*1%*	*0*	*0*	*0*	*0*	*198,500*
Fixed, local heating	67	3%	5	6	0	0	1,964,535
Stove, heating	*48*	*2%*	*4*	*5*	*0*	*0*	*765,035*
Furnace, local heat. unit, built-in	*19*	*1%*	*1*	*1*	*0*	*0*	*1,199,500*
Water heater	29	1%	0	1	0	0	352,150
Fireplace	24	1%	2	0	0	0	226,050
Fireplace, masonry	*16*	*1%*	*1*	*0*	*0*	*0*	*165,000*
Fireplace insert/stove	*8*	*0.3%*	*1*	*0*	*0*	*0*	*61,050*
Portable space heaters	18	1%	0	3	0	0	300,502
Heater, excl. catalytic & oil filled	*13*	*1%*	*0*	*2*	*0*	*1*	*542,602*
Heater, oil filled	*3*	*0.1%*	*0*	*1*	*0*	*0*	*10,000*
Heater, catalytic	*2*	*0.1%*	*0*	*0*	*0*	*0*	*25,500*
Heating, vent. & air cond., other	62	2%	6	3	0	0	437,175
Total	**2,491**	**100%**	**19**	**21**	**0**	**1**	**$7,631,283**

Central Heating Units

1,486 Fires, 4 Civilian Injuries, 7 Fire Service Injuries & $739,203 in Losses
Central heating units[38] were involved in 1,486 structure fires in 2003. These fires caused four civilian injuries, seven fire service injuries, and an estimated dollar loss of $739,203. The average loss per fire was $497. One thousand four hundred and thirty-two (1,432) of these fires involving central heating units were confined fires where fields on the Fire Module were not collected. The analysis was done on the remaining 54 incidents involving central heating units.

[37]In this table we followed the USFA & NFPA recommendations inferring codes for Equipment Involved from the fires contained to non-combustible containers (Incident Types 114 & 116). Incident Type – 114: Chimney or flue fire, confined to chimney or flue = Equipment Type – 129: Chimney or flue of unknown type. Incident Type – 116: Fuel burner/boiler malfunction, fire confined = Equipment Type – 130: Boiler furnace, or central heating unit of unknown type.

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

Almost 1/4 Caused by Automatic Control Failures
Of the 54 central heating unit fires 22% were caused by automatic control failures; mechanical failures or malfunctions caused 20% of these fires; 17% were caused by backfires; 6% each were caused by combustibles being too close to the heat source, and a failure to clean the equipment; and 2% each were caused by a abandoned or discarded products, an electrical failure, and a misuse of the product.

Twenty-seven (27), or 50%, of the 54 central heating unit fires where the power source was known were caused by liquid-fueled equipment. These fires caused one civilian injury, one fire service injury and an estimated dollar loss of $105,000. The average loss per fire was $3,889.

Nineteen (19), or 35%, of the central heating unit fires were caused by gas-fueled equipment. Eight (8), or 15%, were caused by electrically powered equipment[39].

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 three foot clear space around the furnace.
- Only licensed trades people may install oil, gas, or electric heating units.
- Regulations about oil burners may be found in 527 CMR 4.

Chimney Fires

764 Fires Caused 1 Civilian Injury, 1 Fire Service Injury & $811,768 in Damages
Seven hundred and sixty-four (764) structure fires involved chimneys[40], gas vent flues, chimney connectors or vent connectors. These 764 fires caused one civilian injury, one fire service injury and an estimated dollar loss of $811,768. The average dollar loss per fire was $1,063.

Seven hundred and seventeen (717) of these chimney or flue fires were confined to the chimney or flue and did not have the fields on the Fire Module were not collected. The analysis was done on the remaining 47 incidents involving chimneys or flues.

[39] Version 5 has a data field called Equipment Power Source that describes the power source of the equipment involved in ignition.
[40] 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 = between 125 and 127.

Twenty-eight percent (28%) of the remaining 47 fires were caused by a failure to clean the creosote build-up; 11% were each caused by construction deficiencies, installation deficiencies, and operational deficiencies; 6% were caused by combustibles being too close to the heat source, and another 6% from worn out parts.

Have Chimneys Cleaned Annually to Remove Creosote
Creosote is a black, tar-like by-product of fire. It can accumulate in your chimney and cause a fire. Have your chimney cleaned at the start of each heating season and check it monthly for soot build-up. It should also be checked for loose mortar. If you use a wood or coal stove, keep the temperature in the recommended range. Use chimney guards to prevent animals from nesting in your chimney. If you should have a chimney fire, have the chimney inspected by a professional before using it again.

Fixed Heater Fires

67 Fires, 6 Civilian Injuries, 5 Fire Service Injuries & $2 Million
Sixty-seven (67) fixed heater[41] structure fires caused four civilian injuries, five fire service injuries and an estimated dollar loss of $2 million. The average dollar loss per fire was $29,321.

$1 Million Loss in Fixed Heater Fire
On December 13, 2003, at 4:44 a.m., the Boston Fire Department was called to a fire in a vacant and secured office building. The fire was started by a mechanical malfunction of a gas powered local heating unit in the ceiling and floor assembly. There were no injuries associated with this fire. There were no detectors or sprinklers in the building. Damages from this fire were estimated to be $1,000,000.

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 area immediately surrounding it.

16% Caused by Combustibles Being Too Close to the Heat Source
Sixteen percent (16%) of fixed heater fires were caused by combustibles being to close to the heat source. Unattended equipment caused 10% of these fires. Seven percent (7%) were caused from a failure to clean the heater. Four percent (4%) of these fires were each caused by unclassified mechanical failures or malfunctions, installation deficiencies, and the heater being accidentally turned on and not turned off. Operational deficiencies and worn out parts were each the cause of 3% of fixed heater fires in 2003.

[41] These include all structure fires with Equipment Involved = 124: Stove, heating and 131: Furnace, local heating unit, built-in.

Electrical powered fixed heaters caused 23, or 37%, of these fires and were responsible for two civilian injuries, one fire service injury and a dollar loss of $384,860. Eighteen (18), or 29%, were caused by gas fueled fixed heaters and they were responsible for one civilian injury, one fire service injury and a dollar loss of $1.2 million. The average loss per fire was $67,249. Thirteen (13), or 21% of fixed heater fire incidents in 2003, involved wood stoves. These fires caused three civilian injuries, three fire service injuries and an estimated dollar loss of $341,200. Nine (9), or 14%, of these heater fires were caused by liquid fueled heaters, and they were responsible for $27,000 in losses.

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 an explosion, flash fire or explosion.
- Install a carbon monoxide detector.
- 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

29 Fires, 1 Civilian Injury and $352,150 in Damages
Twenty-nine (29) structure fires were caused by hot water heaters[42] in 2003. These 29 fires caused one civilian injury, and an estimated dollar loss of $352,150. The average dollar loss per fire was $12,143. Combustibles placed too close to the water heater, automatic control failures and unspecified electrical failures each caused 14% of the fires; 10% resulted from unclassified mechanical failures or malfunctions; and 7% resulted from unspecified short-circuit arcs.

[42] These include all structure fires with Equipment Involved = 151: Water Heater.

Fifty-five percent (55%) of the 29 fires involving hot water heaters were identified as electric powered water heaters. Forty-one percent (41%) were identified as gas fueled water heaters, and 3% were identified as liquid fueled water heaters.

Fires Caused by Fireplaces

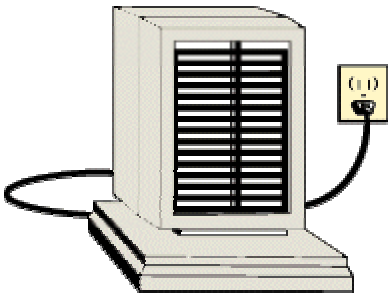
24 Fires, 2 Fire Service Injuries & $226,050 in Damages
Twenty-four (24) fireplaces[43] were involved in Massachusetts structure fires in 2003. These fires caused two fire service injuries, and an estimated dollar loss of $226,050. The average dollar loss per fire was $9,419.

A failure to clean caused 33% of these 24 fireplace incidents; 17% were caused by construction deficiencies; 13% were caused by combustibles being placed too close to the fireplace; and worn out parts, and a misuse of the product, each caused 8% of fireplace fires.

Twenty-three (23), or 96%, of fireplaces involved in fires were solid fueled. The other incident (4%) involved an unknown power source.

Portable Space Heater Fires

18 Fires, 3 Civilian Injuries & $300,502 in Damages
Eighteen (18) space heater[44] fires caused three civilian injuries and an estimated dollar loss of $300,502. The average dollar loss per fire was $16,695. Thirty-three percent (33%) of these fires were caused by combustible materials such as bedding, rubbish, or furniture that were too close to the heater, 11% were each caused by the heater not being used for its intended purpose, and a misuse of the product; and 6% were each caused by the heater being accidentally turned on and not turned off, an electrical failure, an installation deficiency, and the heater overloaded.



Thirteen (13), or 72% of the portable heaters involved in fires were electric; three, or 17%, were gas fueled; and two, or 11% were liquid fueled. The type of heater was determined from the equipment power source field.

[43] These include all structure fires with Equipment Involved = Between 121 and 123.
[44] These include all structure fires with Equipment Involved = Between 141 and 143; and Equipment Portability = 1: Portable

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 flammable materials. 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 at high as that on the label of the heater itself. (These are usually orange colored.)
- 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 all liquid-fired (kerosene) unvented space heaters are illegal in Massachusetts.

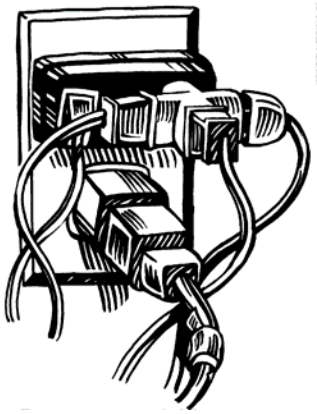
Fires Caused by HVAC, Other

62 Fires, 3 Civilian Injuries, 6 Fire Service Injuries and $437,175 in Damages
Sixty-two (62) structure fires were caused by unclassified heating, ventilating and air conditioning equipment (HVAC, other)[45] in 2003. These 62 fires caused three civilian injuries, six fire service injuries and an estimated dollar loss of $437,175. The average dollar loss per fire was $7,051. Unclassified mechanical failures or malfunctions caused 24% of these fires; combustibles placed too close to the equipment and unspecified electrical failures each caused 8% of the fires; failure to clean the equipment caused 6%; automatic control failures caused 5%; and 3% resulted from the equipment being worn out.

Forty-four percent (44%) of the 62 fires involving unclassified heating, ventilating or air conditioning equipment were identified as electric powered. Twenty-nine percent (29%) were identified as liquid fueled equipment, and 27% were identified as gas fueled equipment.

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

Electrical Fires



679 Fires Caused 2 Civilian Deaths & 1 Fire Service Death
Local fire departments reported that there were 679 structure fires caused by electrical problems in Massachusetts in 2003. These fires caused two civilian deaths, one fire service death, 19 civilian injuries, 47 fire service injuries and an estimated dollar loss of $22.3 million. The average loss per fire was $32,853.

When we used MFIRS version 4, this section of the annual report used to count electrical equipment fires. The criteria to qualify for an electrical equipment fire was to have the Form of Heat of Ignition – heat from electrical equipment arcing, overloaded. In version 5 this section has been expanded to include all fires caused by electrical problems or malfunctions. The new criteria is to have 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.

2 Fatal Electrical Fires Causes 2 Deaths
Two fatal electrical fires, or 5% of residential fatal structure fires, caused two, or 4%, of residential structure fire deaths in 2003.

- On January 2, 2003 at 3:13 a.m. the Brockton Fire Department was called to a fatal fire in a single-family home. The cause was determined to be overheated wiring used to heat outdoor fish ponds. The fire originated in a storage area in the rear of the house. The victim, a 78-year old woman, was overcome by heat and smoke as she slept in her basement bedroom. Firefighters rescued the victim and transported her to a local hospital where she died from smoke inhalation. There were two other civilian injuries associated with this fire, the victim's daughter and son-in-law. Damages from this fire were estimated to be $300,000. Detectors were present and operated, and were responsible for alerting the daughter and her husband.

- On October 30, 2003 at 11:17 p.m., the Boston Fire Department was called to a fatal fire in a three-unit apartment building. The cause was determined to be a short circuit arc from worn insulation of electrical wires. The victim, an 89-year old physically disabled woman, was overcome by heat and smoke as she attempted to escape. She died from burns and smoke inhalation. There was one other civilian injury associated with this fire. Damages from this fire were estimated to be $600,000. There were no detectors present. This fire started three exposure fires in buildings adjacent to it.

Lancaster Firefighter Martin H. McNamara V

- Firefighter Martin H. McNamara V was one of the first firefighters responding to the scene of an apartment fire at 76 Mill St. He was on the first attack line in. He later found himself in the basement with three Clinton firefighters. After an unforeseen

flare up of the fire, in dense smoke and debris, he became disoriented and trapped. He was 31-years old.

Unspecified Electrical Failure Responsible for 32% of Electrical Fires[46]
Two hundred and seventeen (217), or 32% of electrical fires, were caused by an unclassified electrical failure or malfunction. One hundred and fifty-five (155), or 23%, were caused by an unspecified short circuit arc. Ten percent (10%), or 69 of these fires, had a short circuit arc from defective or worn insulation. Thirty-six (36), or 5%, of electrical fires were caused by an arc from a faulty contact or broken conductor. The heat source being too close to combustibles caused 31, or 5%, of these fires. An arc or spark from operating equipment caused 30, or 4% of these fires. Twenty-five (25), or 4%, of electrical fires were caused by a short circuit arc from mechanical damage. Three percent (3%), or 18 of the fires, were caused by overloaded equipment. Water caused a short circuit arc in 16, or 2%, of electrical fires. Mechanical failure caused 13, or 2%, of electrical fires in 2003.

Electrical Equipment Fires

Three hundred and eighty-four (384), or 57%, of the 679 electrical fires reported the type of equipment involved in ignition. These 384 fires caused two civilian deaths, one fire service death, 12 civilian injuries, 25 fire service injuries and an estimated dollar loss of $9 million. The average dollar loss per fire was $23,428.

123 Electrical Service, Wiring, Meter Boxes & Circuit Breaker Fires
The most common equipment involved in ignition in electrical fires that was reported was electrical service, wiring, meter boxes and circuit breakers accounting for 123, or 32%, of the fires. These fires caused two civilian deaths, five civilian injuries, 11 fire service injuries and an estimated dollar loss of $3 million. The average dollar loss per electrical wiring fire was $24,198.

Lamp, Lighting Fixtures Involved in 90 Fires
Lamps and other lighting fixtures were involved in 90, or 23%, of electrical equipment fires where equipment involved in ignition was reported. These fires caused two civilian injuries, three fire service injuries and an estimated dollar loss of $2.3 million. The average loss per fire was $25,990.

[46] *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%.

Cords or Plugs Caused 28 Fires
Twenty-eight (28), or 7%, of the structure fires where electrical equipment involved was reported were caused by cords or plugs. These fires caused one fire service death, one civilian injury, four fire service injuries and an estimated dollar loss of $1.1 million. The average dollar loss per fire was $38,971.

27 Fires Involving Kitchen & Cooking Equipment
Twenty-seven (27) electrical equipment fires involving kitchen or cooking equipment caused one civilian injury and an estimated dollar loss of $108,700. These fires accounted for 7% of the structure fires involving electrical equipment when equipment involved in ignition was reported. The average dollar loss per fire was $4,026.

Household Appliances (Non-Cooking) Caused 21 Fires
Non-cooking household appliances such as clothes dryers, washing machines and trash compactors, caused 21, or 5%, of the 384 electrical structure fires where equipment involved in ignition was reported. These 21 fires caused an estimated $48,250 in damage. The average dollar loss was $2,298.

Heating Equipment Caused 20 Fires
Twenty (20), or 5%, of the structure fires involving known electrical equipment were caused by various heating equipment. These fires caused one civilian injury and an estimated dollar loss of $460,900. The average dollar loss per fire was $23,045.

Transformer, Generator, Battery or Chargers Caused 19 Fires
Transformers, generators, batteries and chargers were involved in 19, or 5%, of the electrical fires where equipment involved in ignition was reported. These fires caused three fire service injuries and an estimated dollar loss of $197,059. The average loss per fire was $10,372.

Ventilation & Air Conditioners Caused 17 Fires
Seventeen (17), or 4%, of the structure fires involving known electrical equipment were caused by air conditioning or ventilation units. These fires caused one civilian injury, one fire service injury and an estimated dollar loss of $1 million. The average dollar loss per fire was $61,212.

11 Fires Involving Unspecified Electrical Distribution Equipment
Eleven (11) electrical equipment fires involving unspecified electrical distribution equipment caused one fire service injury and an estimated dollar loss of $191,810. These fires accounted for 3% of the structure fires involving reported electrical equipment. The average dollar loss per fire was $17,437.

28 All Other Electrical Equipment Fires
The remaining 28 electrical fires where equipment involved in ignition was reported caused two fire service injuries and an estimated dollar loss of $542,200. The average dollar loss per fire was $19,364.

295 Unspecified Electrical Equipment Fires Caused $13.3 Million in Damages
There were 295 electrical fires where the piece of equipment involved in ignition was unknown or not reported. These 295 fires caused seven civilian injuries, 22 fire service injuries and an estimated dollar loss of $13.3 million. The average dollar loss per fire was $45,121.

Large Loss Electrical Fires

- On May 5, 2003 at 12:20 a.m., the Chelmsford Fire Department was called to a fire in a one-story mail and packaging facility that was caused by an unspecified short-circuit arc. The fire began in the loading area. This fire caused $1.5 million in property damage. There were no injuries associated with this fire. There were no smoke detectors present at this fire. However sprinklers were present and were reported to effectively suppress the fire until the fire department arrived to extinguish the fire.

- On March 2, 2003 at 11:40 p.m. the Stoughton Fire Department was called to a fire in a five-unit apartment building. Heat from an improperly installed fan in the bathroom ignited one of the studs used for framing the wall. There were no injuries reported. Smoke detectors were present and alerted the occupants to the fire. Sprinklers were not present. Damages from this fire were estimated to be $800,000.

- On October 29, 2003 at 11:10 p.m., the Palmer Fire Department was called to a fire at a motor vehicle service facility. A lightning strike caused an electrical failure and ignited part of the wood frame in a storage room. There were no injuries associated with this fire. There were no smoke detectors or sprinklers present in this building. Damages from this blaze were estimated to be $702,700.

Almost 3/4 of Electrical Fires Occurred in Residential Occupancies
Of the 679 electrical fires where property use was known, 504, or 74% occurred in residential occupancies. Seventy-six (76), or 11%, occurred in mercantile or business properties, such as offices, banks, retail stores or markets. Public assembly buildings like restaurants, libraries and courthouses accounted for 26, or 4%, of these fires. Storage properties accounted for 15, or 2%, of these fires. Institutional buildings such as hospitals and asylums also had 15, or 2%, of the 2003 electrical fires occur on their premises. Educational properties accounted for 14, or 2%, of Massachusetts' electrical fires in 2003. Thirteen (13), or 2%, of Massachusetts' electrical fires occurred in basic industry properties such as laboratories, communications centers, electrical distribution sites and utility and distribution centers. Manufacturing or processing facilities had 11, or 2%, of these incidents. Four (4), or 1%, of electrical fires occurred in special or outside properties.

20% of Electrical Fires Began in the Kitchen or Bedroom
Sixty-seven (67), or 10%, of the 679 electrical fires occurred in the kitchen. Sixty-six (66), or another 10%, originated in the bedroom. A wall assembly was the area of origin for 48, or 7%, of these fires. The floor assembly or crawl space between stories

(39) accounted for 6% of the electrical fires. The attic or crawl spaces (37), the bathroom (36), and the living room (33) each accounted for 5% of these fires. Substructure area or crawl space (27), the laundry room (25), and the heating room or area (24) each accounted for 5% of the electrical fires in Massachusetts in 2003.

Electrical Wiring Was the Item First Ignited in 1/3 of Electrical Fires
In 217, or 32%, of electrical fires, electrical wiring or cable insulation was the item first ignited. This includes fixed wiring and appliance cords. In 92, or 14% of these fires, a structural member, framing, was the first item ignited.

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.

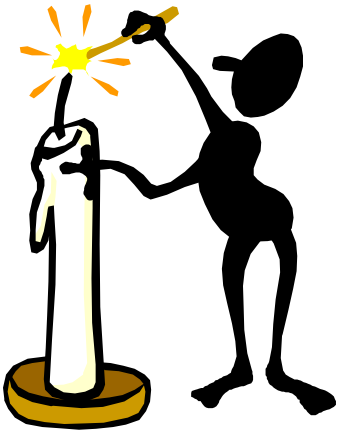
Any of these signs may indicate a potential problem. Contact a licensed electrician if you notice any of these signs. Or contact the local fire department. Many departments now have new technologies such as thermal imaging cameras that can see inside walls to detect potential problems before they expand 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. 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



177 Fires Caused 16 Civilian Injuries and $3 Million in Damages
In 2003, candles caused 177 fires. These fires caused 16 civilian injuries, six firefighter injuries and an estimated dollar loss of $3 million in damages. There was a 15% decline from the 208 fires started by candles in Massachusetts in 2002.

Large Loss Candle Fires
One fire in a single-family home in Natick caused by a candle resulted in $500,000 in damages. Another fire in a Boston apartment building caused $230,000 in damages. There were also nine other residential structure fires in one- and two-family homes or apartments caused by candles that each caused an estimated dollar loss between $100,000 and $200,000. This is the main reason that the average dollar loss of candle fires is still so high at $17,494 even though there was a decrease in candle fires from 2002 to 2003.

No Fatal Fires from Candles in 2003
In 2003 no one died in a fire started by a candle.

98% of Candle Fires Occurred in Homes
Of the 177 candle fires, 98% were residential structure fires. Candles caused 173 residential structure fires, 16 civilian injuries, six firefighter injuries and an estimated dollar loss of $3,026,439. Two candle fires (1%) each happened in public assembly properties and mercantile or business properties.

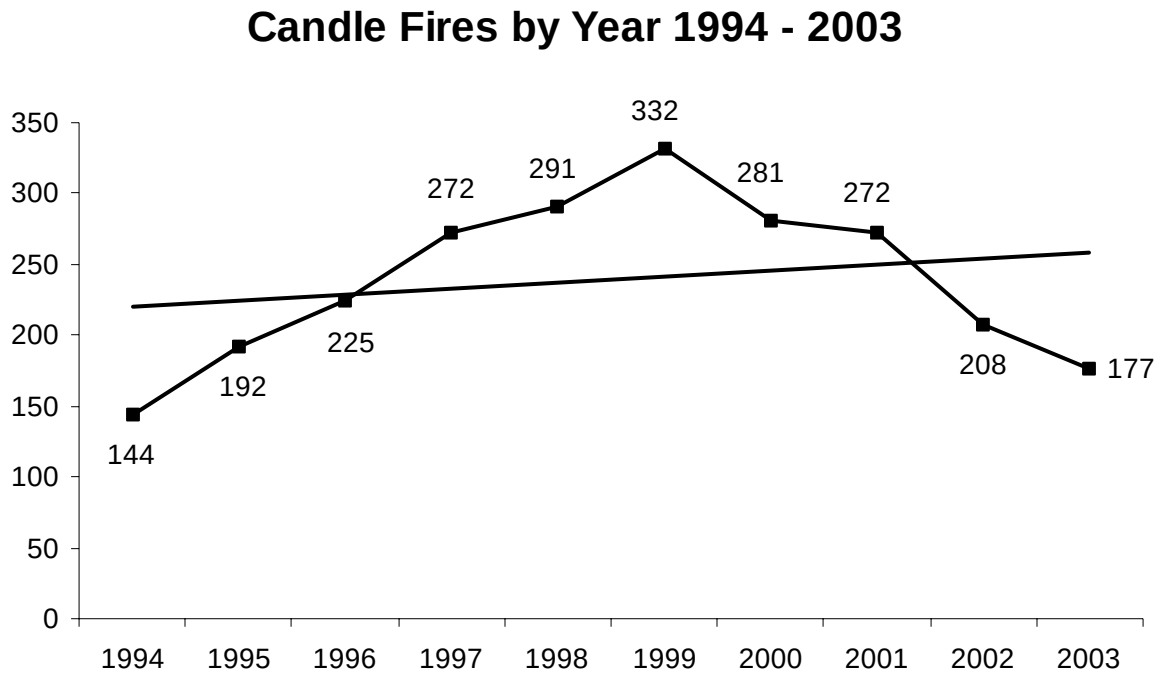
46% of Candle Fires in Homes Occurred in the Bedroom
Of the 173 candle fires in residential structures where area of origin was known, 46% occurred in the bedroom. Fourteen percent (14%) occurred in the living room; 13% started in the kitchen; 12% occurred in the bathroom; 8% occurred in some other function rooms such as enclosed patios and three-season rooms; and 1% each started in an office, substructure crawl space, ceiling crawl space, laundry room, unclassified structural area, display window, and wall assembly. Three (3), or 2%, of the candle fires occurring in a Massachusetts homes did not specify the area of origin.

Smoke Detectors Operated in Almost 71% of Candle Fires in Homes
Of the 141 candle fires in homes where smoke detector status was known, smoke alarms operated in 71%. Smoke detectors were present but did not operate in 14% of these incidents. No detectors were present in 11% of candle fires in people's homes. Four percent (4%) of the candle fires were too small to activate the smoke detector. In 32 incidents, the smoke detector status was undetermined or not reported. These were excluded from the percentage calculations.

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 332 in 1999. The following chart shows the increase from 116 candle fires in 1993 to 177 in 2003. In 1999, a new effort to analyze these incidents began. In conjunction with the National Fire Protection Association (NFPA), the Office of the State Fire Marshal conducted a follow-up survey that went out to any fire department having a candle fire for one year. The goal was to gain a greater understanding of these incidents, why they are happening and what we can do to prevent them.



Major findings from the report were:

- 75% of the fires occurred when the candle was left unattended.
- 40% of the fires resulted from combustible materials being too close to the candle.

- Teenagers face the greatest risk of starting candle fires. Although teens account for only 9% of the state population, 21% of the candle fires were attributed to them. Two-thirds of candle users, however, were between 20 and 64 years old.
- 98% of the candles used in Massachusetts' candle fires were not needed as sources of light but were used for other purposes such as decoration, pleasure or mood.

The year 2000 may be the beginning of a new downward trend thanks to stronger public education and tougher industry standards. There was a 15% drop from the all time high of 332 reported candle fires in 1999. From 1999 to 2003 this drop increased to 47%. During this year, 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.

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

Clothes Dryer Fires

Failure to Clean Caused 18% of Dryer Fires

Ninety-seven (97) clothes dryer fires caused three civilian injuries, five firefighter injuries, and an estimated dollar loss of $604,242. The average dollar loss per fire was $6,229. Of these 97 fires, 85, or 88%, occurred in residential occupancies.

Eighteen percent (18%) of the dryer fires were caused by a failure to clean the machines; 15% were caused by mechanical failures or malfunctions; 5% were caused by worn out parts; 5% were caused by operational deficiencies; another 5% were caused by combustibles being too close to the dryer; and 4% each were caused by automatic control failures, and installation deficiencies.

Sixty-nine percent (69%) of the 97 dryers involved in fires were identified as having electricity as their power source. Twenty-nine percent (29%) involved gas-fueled clothes dryers. This may be a reflection of the market share of electrical and gas-powered dryers rather than any inherent danger of one power source over another.

Thirty-seven percent (37%) of clothes dryer fires identified the heat source as radiated or conducted heat from equipment inside the dryer itself. Thirty-three percent (30%) of dryer fires identified the form of heat source as coming from other operating equipment.

Most Clothes Dryer Fires Occurred In Homes

Seventy-one percent (71%) of the dryer fires occurred in one- and two-family homes; 13% occurred in apartments; 8% occurred in mercantile or business properties such as laundry or dry cleaning businesses; 3% occurred in institutional properties such as nursing homes hospitals and jails; 1% occurred in hotel and motels; and another 1% occurred in assembly properties, such as restaurants and athletic or health clubs.

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.

Large Loss Clothes Dryer Fires

- On January 18, 2003 at 12:48 p.m., the Mansfield Fire Department was called to a dryer fire in a single-family home. The fire began in an electric powered clothes dryer in the laundry room on the first floor. Two firefighters were injured fighting this fire. Damages from this fire were estimated to be $343,400. Detector were present but it was undetermined if they operated.

♦ On April 19, 2003 at 7:52 p.m. the Worcester Fire Department was called to a fire in a single-family house caused by an electric powered clothes dryer that was in the kitchen. An operational deficiency started the blaze that caused an estimated dollar loss of $85,000. Smoke detectors were present and operated. There were two fire service injuries associated with this fire.

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

Fireworks Incidents

73 Incidents Involving Fireworks Caused 1 Civilian Death

According to the 2003 Massachusetts Fire Incident Reporting System (MFIRS) data, there were 73 fire and explosion incidents reported that involved fireworks, a 1% decrease from the 74 fire and explosion incidents reported in 2002. Incidents involving fireworks caused one civilian death, five civilian injuries, one firefighter injury and an estimated $70,451 in property damages. The average dollar loss per fireworks incident was $1,468. Twelve (12), or 25%, of the fireworks-caused fires in 2003 took place during the week of the 4th of July. Seven (7) of the 12, occurred on July 4th and 5th. Almost half (42%) of the fireworks incidents were brush fires, while almost a quarter, 23% were structure fires.

In version 5, a fireworks explosion without fire is coded as an Incident Type 243 – Fireworks explosion (no fires). In 2003, 25 such incidents were reported.

1 Civilian Dead & 3 Civilians Injured in Fireworks Fire

- On December 22, 2003 at 4:46 a.m., the Gloucester Fire Department was called to a fatal fire in a single-family home. One of the occupants had thrown a 'jumping jack' firework at the base of a dried out Christmas tree. The tree quickly ignited, and the fire continued to grow inside the living room. One of the occupants tried to remove the tree from the building but was unsuccessful. The victim, a 45-year old woman, was overcome by heat and smoke in a rear bedroom. The victim and another female were transported to a local hospital, where the victim soon died from smoke inhalation. There were three other civilian injuries associated with this fire. No estimation was made as to damages from this fire. There were no smoke detectors present in the building.

Large Loss Fireworks Fire

♦ On July 4, 2003, at 11:10 p.m., the Natick Fire Department was called to a car fire. The fire started when fireworks ignited a seat in the passenger area of the 2002 Ford Mustang. There were no injuries associated with this fire and damages were estimated to be $20,300.

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 —2003 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 two fireworks-related burn injuries reported to M-BIRS in 2003. Since we started collecting burn injury reports in M-BIRS in 1984, the average number of fireworks-related burns per year is 13 burns. The highest number of reported fireworks-related burns occurred in 1989, with 45 reported burn injuries. Except for 2001, in which there were no reported burn injuries, 2003 had the next fewest number of reported fireworks-related burn injuries with just the two reported burn injuries.

Grill Fires

33 Incidents Involving Grills in 2003

In 2003, there were 33 fires and explosion incidents reported to the Massachusetts Fire Incident Reporting System (MFIRS) involving open fired grills. These incidents caused four civilian injuries and an estimated dollar loss of $225,190. Predictably, 65% of these incidents occurred in the months of May to September when people are most likely to use their outdoor grills.

Gas Grill Fires

Of the 33 grill incidents, 27, or 82%, of the grills were gas grills. Twelve percent (12%) were grills fueled with charcoal or other solid fuels and 3% were electrically powered. For another 3% the type of fuel was not specified. LP-gas grill fire incidents caused an estimated $197,915 in damage. Sixty-eight percent (68%) of the LP-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.

- On October 26, 2003 at 6:07 a.m. the Southbridge Fire Department was called to a fire where a gas grill located on the first floor exterior balcony ignited the wall of a two-family home. The fire quickly spread throughout building. There were two civilian injuries associated with this fire. Smoke detectors were in the building and operated. The estimated dollar loss of this incident was $190,000. Sprinklers were not present.

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 — 2003 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. Three civilians were reported to M-BIRS in 2003 with burn injuries from a grill. Two (2), or 67%, of these injuries occurred between May and September.

Grill Safety
Follow these safety tips when using a grill:

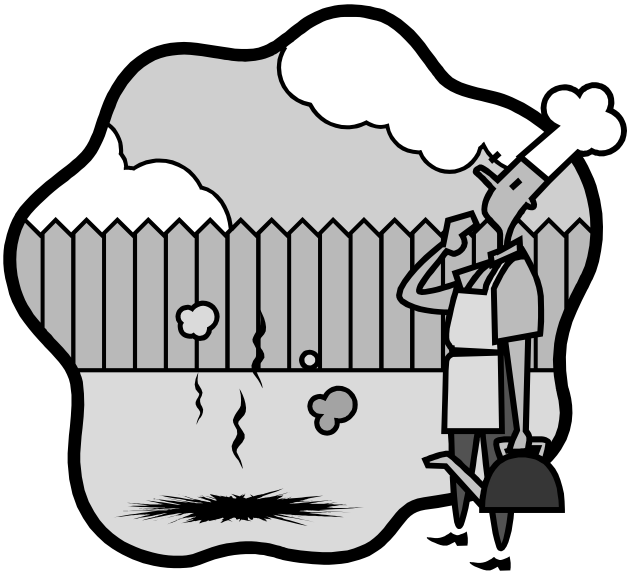
- Use all barbecue grills away from the house in the backyard.
- Supervise children whenever any grill is in use.
- Never use gasoline on any grill!

Gas Grill Safety

- Keep all LP-gas outside, three feet away from building openings such as doors, windows, dryer vents and 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. It is recommended LP-gas canisters be ten feet away from the house, if possible, especially when in use.
- 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.



Carbon Monoxide Incidents

In 2003, 209 fire departments voluntarily reported 2,739 carbon monoxide (CO) incidents. Of these 2,739 incidents, 1,338 were CO hazard incidents. A CO hazard is an identifiable carbon monoxide emergency whether or not a CO detector activated and the presence of CO was confirmed and some corrective action was indicated. The other 1,401 incidents were divided between 751 carbon monoxide detector activations due to malfunction and 650 carbon monoxide detector activations – no CO found.

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 1,401 CO detector activations. In version 5 these types of calls are split into two categories: CO detector activation due to malfunction and CO detector activation - no CO. One hundred and sixty (160) fire departments reported 751 CO detector activations due to malfunction. While 142 fire departments reported 650 CO detector activations with no CO found after investigation.

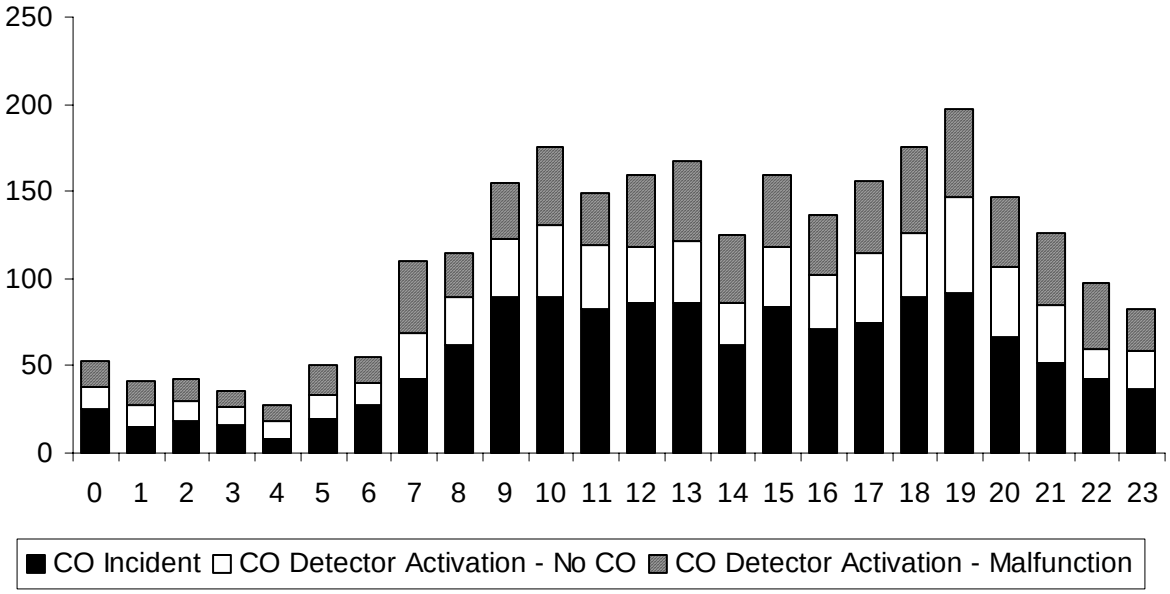
Boston, the largest city in the Commonwealth, reported the most CO incidents in 2003, 130 carbon monoxide incidents. The City of Newton reported the second most CO incidents in 2003; 79 CO calls. The next five cities in terms of the number of carbon monoxide calls reported were: Marshfield, 79 calls; Abington, 45 incidents; Wellesley, 45 calls; Framingham, 44 calls; and Plymouth with 44 carbon monoxide incidents in 2003.

94% of All CO Incidents Occur in Residences
Ninety-four percent (94%) of all carbon monoxide calls occurred in residential occupancies. Mercantile and business properties are the next leading property use for CO calls accounting for 2% of the incidents. Public assembly, educational, institutional and special properties each accounted for 1% of these calls. Storage facilities, basic industrial, and manufacturing and processing facilities each accounted for less than 1% of the carbon monoxide calls in 2003.

1/2 of All CO Calls Occur During the Winter
Half (50%) of all the CO calls that occurred in 2003 happened during the colder months of November, December, January and February. Most CO calls occurred between the hours of 7:00 and 10:00 in the morning and 3:00 and 8:00 in the evening.

These seem to be the times when most people are waking up and 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.

Carbon Monoxide Calls by Hour



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 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. Finding little or no CO when the fire department arrives does not prove conclusively that no problem exists. An appliance may release large quantities of CO at one particular stage in its operation. Knowledgeable repair people must check out the equipment. 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.

The United States Consumer Product Safety Commission (CPSC) has produced a 'scratch and sniff' pamphlet on the "*Senseless" Killer*, to remind people that carbon monoxide has no taste or color. Sample copies are available from the Office of the State Fire Marshal.

Appendix

2003 Fire Experience by Community

Community	Total Fires	Structure Fires	Vehicle Fires	Other Fires	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Abington	78	48	13	17	0	2	0	0	$77,905
Acton	11	5	6	0	0	0	0	0	$1,339,600
Acushnet	22	11	7	4	0	0	0	0	$0
Adams	6	3	2	1	0	0	0	0	$39,100
Agawam	97	53	16	28	0	0	0	1	$264,200
Alford	Fire Department In Good Standing, Certified No Fires To Report								
Amesbury	50	28	7	15	0	2	0	0	$381,800
Amherst	139	64	11	64	1	2	0	6	$604,815
Andover	152	58	39	55	0	0	0	1	$724,520
Aquinnah	1	1	0	0	0	0	0	0	$11,000
Arlington	61	38	5	18	0	0	0	0	$256,020
Ashburnham	5	4	1	0	0	0	0	0	$0
Ashby	17	13	4	0	0	0	0	0	$163,500
Ashfield	2	2	0	0	0	1	0	0	$38,400
Ashland	3	2	1	0	0	0	0	0	$193,000
Athol	90	46	13	31	0	1	0	2	$166,000
Attleboro	160	30	36	94	0	3	0	2	$165,000
Auburn	70	24	28	18	0	1	0	0	$119,760
Avon	54	16	21	17	0	0	0	0	$407,650
Ayer	20	10	4	6	0	1	0	0	$65,351
Barnstable Fire Districts									
Barnstable	*22*	*4*	*6*	*12*	*1*	*0*	*0*	*0*	*$254,000*
C.O.M.M.	*62*	*40*	*16*	*6*	*0*	*5*	*0*	*2*	*$4,749,396*
Hyannis	*131*	*54*	*23*	*54*	*0*	*12*	*0*	*4*	*$380,926*
West Barnstable	*4*	*0*	*4*	*0*	*0*	*0*	*0*	*0*	*$17,500*
Barre	22	11	4	7	0	0	0	0	$215,610
Becket	1	1	0	0	0	0	0	0	$50,000
Bedford	25	9	4	12	0	0	0	0	$3,004,100
Belchertown	44	24	4	16	0	0	0	0	$350
Bellingham	66	31	12	23	0	3	0	5	$910,254
Belmont	191	157	6	28	0	2	0	3	$1,340,830
Berkley	23	8	7	8	0	0	0	0	$33,500
Berlin	19	6	3	10	0	0	0	0	$19,670
Bernardston	24	8	7	9	0	3	0	1	$71,300
Beverly	22	16	3	3	0	4	0	0	$481,900

2003 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	5	1	1	3	0	0	0	0	$2,000
Acton	0	0	0	0	0	0	0	0	$0
Acushnet	0	0	0	0	0	0	0	0	$0
Adams	1	1	0	0	0	0	0	0	$0
Agawam	4	1	2	1	0	0	0	0	$10,000
Alford	Fire Department In Good Standing, Certified No Fires To Report								
Amesbury	2	1	0	1	0	0	0	0	$0
Amherst	23	8	0	15	0	0	0	0	$295
Andover	8	0	1	7	0	0	0	0	$0
Aquinnah	0	0	0	0	0	0	0	0	$0
Arlington	3	1	0	2	0	0	0	0	$0
Ashburnham	0	0	0	0	0	0	0	0	$0
Ashby	0	0	0	0	0	0	0	0	$0
Ashfield	0	0	0	0	0	0	0	0	$0
Ashland	0	0	0	0	0	0	0	0	$0
Athol	8	2	0	6	0	0	0	1	$0
Attleboro	11	3	1	7	0	0	0	0	$0
Auburn	0	0	0	0	0	0	0	0	$0
Avon	3	1	1	1	0	0	0	0	$20,500
Ayer	0	0	0	0	0	0	0	0	$0
Barnstable Fire Districts									
Barnstable	*3*	*0*	*0*	*3*	*1*	*0*	*0*	*0*	*$1,000*
C.O.M.M.	*3*	*0*	*2*	*1*	*0*	*0*	*0*	*0*	*$3,000*
Hyannis	*10*	*4*	*1*	*5*	*0*	*0*	*0*	*0*	*$5,276*
West Barnstable	*1*	*0*	*1*	*0*	*0*	*0*	*0*	*0*	*$15,000*
Barre	2	0	0	2	0	0	0	0	$40
Becket	0	0	0	0	0	0	0	0	$0
Bedford	4	1	0	3	0	0	0	0	$24,000
Belchertown	1	0	0	1	0	0	0	0	$0
Bellingham	9	2	0	7	0	0	0	3	$275,000
Belmont	2	1	0	1	0	0	0	0	$0
Berkley	2	1	1	0	0	0	0	0	$8,000
Berlin	0	0	0	0	0	0	0	0	$0
Bernardston	0	0	0	0	0	0	0	0	$0
Beverly	1	1	0	0	0	0	0	0	$2,000

2003 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	158	66	28	64	1	1	0	0	$1,584,213
Blackstone	33	9	1	23	0	0	0	0	$4,000
Blandford	5	3	2	0	0	0	0	0	$86,000
Bolton	5	1	4	0	0	0	0	0	$26,500
Boston	3,669	1,934	570	1,165	4	45	0	27	$28,152,586
Bourne	73	22	23	28	0	2	0	2	$726,700
Boxborough	21	10	6	5	0	0	0	0	$199,800
Boxford	27	17	1	9	0	0	0	0	$500,000
Boylston	6	2	1	3	0	0	0	0	$3,000
Braintree	138	25	30	83	0	1	0	1	$1,609,321
Brewster	54	31	7	16	1	2	0	4	$624,850
Bridgewater	91	33	16	42	0	0	0	2	$606,202
Brimfield	1	0	0	1	0	0	0	0	$9,500
Brockton	213	137	68	8	4	15	0	24	$2,430,900
Brookfield	3	2	0	1	0	0	0	0	$0
Brookline	23	15	7	1	0	1	0	3	$332,200
Buckland	Fire Department In Good Standing, Certified No Fires To Report								
Burlington	104	48	26	30	0	1	0	3	$638,200
Cambridge	497	340	41	116	1	8	0	17	$2,790,700
Canton	29	10	14	5	0	2	0	0	$2,740,300
Carlisle	2	1	0	1	0	0	0	0	$400,000
Carver	11	9	2	0	1	0	0	0	$260,008
Charlemont	13	4	1	8	0	0	0	0	$0
Charlton	64	29	14	21	0	0	0	0	$535,450
Chatham	40	15	5	20	0	0	0	1	$165,350
Chelmsford	67	34	30	3	0	1	0	3	$4,897,036
Chelsea	240	190	34	16	0	0	0	56	$1,967,105
Cheshire	4	2	1	1	0	0	0	0	$137,000
Chester	3	2	0	1	0	0	0	0	$162,500
Chesterfield	8	2	0	6	0	0	0	0	$55,000
Chicopee	238	117	45	76	0	12	0	5	$1,722,645
Chilmark	3	2	0	1	0	0	0	0	$0
Clarksburg	1	1	0	0	0	0	0	0	$60,000
Clinton	19	2	1	16	0	0	0	0	$0
Cohasset	17	17	0	0	0	0	0	0	$0

2003 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	17	3	3	11	1	0	0	0	$8,106
Blackstone	2	0	1	1	0	0	0	0	$0
Blandford	0	0	0	0	0	0	0	0	$0
Bolton	0	0	0	0	0	0	0	0	$0
Boston	164	74	58	32	0	0	0	1	$1,452,220
Bourne	0	0	0	0	0	0	0	0	$0
Boxborough	1	1	0	0	0	0	0	0	$2,500
Boxford	0	0	0	0	0	0	0	0	$0
Boylston	0	0	0	0	0	0	0	0	$0
Braintree	6	0	0	6	0	0	0	0	$410
Brewster	3	0	0	3	0	0	0	0	$0
Bridgewater	2	1	0	1	0	0	0	0	$2
Brimfield	0	0	0	0	0	0	0	0	$0
Brockton	13	11	2	0	2	5	0	3	$358,100
Brookfield	0	0	0	0	0	0	0	0	$0
Brookline	1	1	0	0	0	0	0	0	$10,000
Buckland	Fire Department In Good Standing, Certified No Fires To Report								
Burlington	2	0	0	2	0	0	0	0	$0
Cambridge	12	2	0	10	0	0	0	0	$2,500
Canton	1	1	0	0	0	0	0	0	$500
Carlisle	0	0	0	0	0	0	0	0	$0
Carver	1	1	0	0	0	0	0	0	$25,000
Charlemont	0	0	0	0	0	0	0	0	$0
Charlton	5	2	1	2	0	0	0	0	$0
Chatham	0	0	0	0	0	0	0	0	$0
Chelmsford	5	2	3	0	0	0	0	0	$28,501
Chelsea	2	2	0	0	0	0	0	2	$20,000
Cheshire	0	0	0	0	0	0	0	0	$0
Chester	1	1	0	0	0	0	0	0	$50,000
Chesterfield	6	1	0	5	0	0	0	0	$55,000
Chicopee	39	11	4	24	0	1	0	0	$119,670
Chilmark	0	0	0	0	0	0	0	0	$0
Clarksburg	0	0	0	0	0	0	0	0	$0
Clinton	0	0	0	0	0	0	0	0	$0
Cohasset	0	0	0	0	0	0	0	0	$0

2003 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	3	3	0	0	0	0	0	0	$0
Concord	4	2	0	2	0	0	0	0	$6,100
Conway	15	9	2	4	0	0	0	0	$331,000
Cotuit	2	1	1	0	0	0	0	0	$500
Cummington	2	2	0	0	0	0	0	0	$4,000
Dalton	18	11	3	4	0	0	0	0	$102,000
Danvers	35	16	19	0	0	1	0	0	$336,400
Dartmouth Fire Districts									
Dartmouth #1	*45*	*23*	*7*	*15*	*0*	*0*	*0*	*2*	*$0*
Dartmouth #2	*7*	*1*	*1*	*5*	*0*	*0*	*0*	*1*	*$830,000*
Dartmouth #3	*94*	*44*	*22*	*28*	*0*	*0*	*0*	*0*	*$0*
Dedham	15	11	4	0	0	0	0	0	$486,000
Deerfield Fire Districts									
Deerfield	*7*	*1*	*1*	*5*	*0*	*0*	*0*	*0*	*$0*
South Deerfield	*24*	*10*	*7*	*7*	*0*	*0*	*0*	*0*	*$94,700*
Dennis	80	27	6	47	0	2	0	2	$340,000
Devens	17	7	4	6	0	0	0	0	$1,750
Dighton	21	8	3	10	0	0	0	1	$193,900
Douglas	28	12	4	12	0	0	0	0	$7,000
Dover	1	1	0	0	0	0	0	0	$0
Dracut	165	38	20	107	0	1	0	0	$351,570
Dudley	8	3	4	1	0	0	0	2	$42,000
Dunstable	Fire Department In Good Standing, Certified No Fires To Report								
Duxbury	50	24	4	22	0	0	0	0	$892,100
East bridgewater	65	25	9	31	1	3	0	1	$292,000
East brookfield	17	4	6	7	0	0	0	0	$0
East longmeadow	37	14	7	16	0	0	0	0	$98,600
Eastham	26	12	1	13	0	0	0	0	$61,000
Easthampton	67	32	10	25	0	0	0	0	$382,375
Easton	39	18	16	5	1	4	0	2	$809,915
Edgartown	1	1	0	0	0	0	0	0	$0
Egremont	Fire Department In Good Standing, Certified No Fires To Report								
Erving	Fire Department In Good Standing, Certified No Fires To Report								
Essex	2	1	1	0	0	0	0	0	$21,000
Everett	94	47	26	21	0	0	0	0	$344,860
Fairhaven	54	21	11	22	0	0	0	0	$189,000
Fall river	544	223	117	204	1	19	0	9	$1,655,655

2003 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	1	0	0	1	0	0	0	0	$0
Conway	0	0	0	0	0	0	0	0	$0
Cotuit	0	0	0	0	0	0	0	0	$0
Cummington	0	0	0	0	0	0	0	0	$0
Dalton	1	0	1	0	0	0	0	0	$3,000
Danvers	1	1	0	0	0	1	0	0	$10,000
Dartmouth Fire Districts									
Dartmouth #1	*3*	*0*	*0*	*3*	*0*	*0*	*0*	*0*	*$0*
Dartmouth #2	*1*	*0*	*1*	*0*	*0*	*0*	*0*	*0*	*$0*
Dartmouth #3	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
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	4	4	0	0	0	0	0	0	$1,000
Devens	1	1	0	0	0	0	0	0	$500
Dighton	0	0	0	0	0	0	0	0	$0
Douglas	2	0	1	1	0	0	0	0	$0
Dover	0	0	0	0	0	0	0	0	$0
Dracut	8	1	3	4	0	0	0	0	$25,000
Dudley	1	1	0	0	0	0	0	0	$1,500
Dunstable	Fire Department In Good Standing, Certified No Fires To Report								
Duxbury	5	1	0	4	0	0	0	0	$1,500
East Bridgewater	3	1	0	2	0	1	0	0	$148,500
East Brookfield	1	0	0	1	0	0	0	0	$0
East Longmeadow	7	1	1	5	0	0	0	0	$85,200
Eastham	1	0	0	1	0	0	0	0	$0
Easthampton	5	1	1	3	0	0	0	0	$570
Easton	2	0	2	0	0	0	0	0	$20,000
Edgartown	0	0	0	0	0	0	0	0	$0
Egremont	Fire Department In Good Standing, Certified No Fires To Report								
Erving	Fire Department In Good Standing, Certified No Fires To Report								
Essex	0	0	0	0	0	0	0	0	$0
Everett	6	2	2	2	0	0	0	0	$17,150
Fairhaven	2	1	0	1	0	0	0	0	$120,000
Fall river	60	19	14	27	0	0	0	0	$95,075

2003 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	93	41	18	34	0	8	0	1	$1,955,526
Fitchburg	153	56	35	62	0	3	0	3	$801,355
Florida	6	3	3	0	0	0	0	0	$27,000
Foxborough	54	17	16	21	0	0	0	0	$89,235
Framingham	428	295	53	80	1	3	0	13	$2,315,074
Franklin	11	11	0	0	0	1	0	0	$1,119,500
Freetown	58	13	21	24	0	1	0	0	$773,635
Gardner	90	47	13	30	0	0	0	1	$782,035
Georgetown	1	1	0	0	0	0	0	0	$105,000
Gill	7	1	1	5	0	0	0	0	$0
Gloucester	127	76	15	36	2	3	0	0	$25,200
Goshen	Fire Department In Good Standing, Certified No Fires To Report								
Gosnold	Fire Department In Good Standing, Certified No Fires To Report								
Grafton	52	26	14	12	0	0	0	0	$100,000
Granby	29	4	8	17	0	1	0	0	$177,500
Granville	4	2	0	2	0	0	0	0	$31,000
Great Barrington	61	45	7	9	0	0	0	1	$375,000
Greenfield	132	68	22	42	0	2	0	1	$165,250
Groton	20	10	3	7	1	0	0	1	$405,000
Groveland	1	1	0	0	0	0	0	1	$95,000
Hadley	9	3	2	4	0	0	0	0	$418,500
Halifax	2	1	1	0	0	0	0	0	$0
Hamilton	38	27	1	10	0	2	0	0	$20,000
Hampden	2	1	0	1	0	0	0	0	$123,000
Hancock	Fire Department In Good Standing, Certified No Fires To Report								
Hanover	53	23	13	17	0	0	0	0	$147,200
Hanson	23	8	4	11	0	0	0	0	$80,000
Hardwick	18	2	2	14	0	1	0	0	$12,000
Harvard	31	17	7	7	0	0	0	0	$159,000
Harwich	72	41	11	20	0	1	0	0	$177,850
Hatfield	14	4	2	8	0	0	0	0	$0
Haverhill	211	102	64	45	1	1	0	1	$473,500
Hawley	1	0	0	1	0	0	0	0	$0
Heath	5	4	0	1	0	0	0	0	$0
Hingham	49	20	15	14	1	1	0	3	$502,375

2003 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	13	7	1	5	0	0	0	0	$27,251
Fitchburg	22	5	2	15	0	1	0	0	$22,140
Florida	0	0	0	0	0	0	0	0	$0
Foxborough	0	0	0	0	0	0	0	0	$0
Framingham	16	3	0	13	0	0	0	0	$103,305
Franklin	0	0	0	0	0	0	0	0	$0
Freetown	13	1	3	9	0	0	0	0	$51,925
Gardner	5	0	0	5	0	0	0	0	$10
Georgetown	0	0	0	0	0	0	0	0	$0
Gill	0	0	0	0	0	0	0	0	$0
Gloucester	10	3	0	7	0	0	0	0	$0
Goshen	Fire Department In Good Standing, Certified No Fires To Report								
Gosnold	Fire Department In Good Standing, Certified No Fires To Report								
Grafton	0	0	0	0	0	0	0	0	$0
Granby	2	0	0	2	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	$19,000
Greenfield	3	1	0	2	0	0	0	0	$90,000
Groton	0	0	0	0	0	0	0	0	$0
Groveland	0	0	0	0	0	0	0	0	$0
Hadley	1	0	0	1	0	0	0	0	$0
Halifax	0	0	0	0	0	0	0	0	$0
Hamilton	3	0	0	3	0	0	0	0	$0
Hampden	0	0	0	0	0	0	0	0	$0
Hancock	Fire Department In Good Standing, Certified No Fires To Report								
Hanover	1	0	1	0	0	0	0	0	$17,000
Hanson	1	0	0	1	0	0	0	0	$0
Hardwick	1	0	0	1	0	0	0	0	$0
Harvard	1	0	1	0	0	0	0	0	$13,000
Harwich	2	2	0	0	0	0	0	0	$0
Hatfield	0	0	0	0	0	0	0	0	$0
Haverhill	18	2	2	14	0	0	0	0	$3,700
Hawley	0	0	0	0	0	0	0	0	$0
Heath	0	0	0	0	0	0	0	0	$0
Hingham	7	0	1	6	0	0	0	0	$25,425

2003 Fire Experience by Community

Community	Total Fires	Structure Fires	Vehicle Fires	Other Fires	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Hinsdale	1	1	0	0	0	0	0	0	$250,000
Holbrook	58	27	14	17	0	1	0	3	$312,000
Holden	54	22	9	23	0	1	0	0	$285,000
Holland	13	7	1	5	0	0	0	0	$139,000
Holliston	9	6	2	1	0	1	0	0	$73,050
Holyoke	363	190	50	123	1	16	0	5	$857,636
Hopedale	15	13	2	0	0	1	0	1	$459,900
Hopkinton	4	0	4	0	0	0	0	0	$10,000
Hubbardston	29	13	3	13	0	1	0	0	$158,100
Hudson	29	13	10	6	0	0	0	1	$371,450
Hull	131	28	6	97	1	1	0	0	$344,150
Huntington	1	1	0	0	1	0	0	0	$0
Ipswich	37	22	3	12	0	2	0	0	$289,101
Kingston	67	23	18	26	0	0	0	0	$188,756
Lakeville	27	8	4	15	0	0	0	0	$32,050
Lancaster	1	1	0	0	0	0	1	0	$300,000
Lanesborough	15	7	2	6	0	0	0	0	$0
Lawrence	491	256	96	139	3	1	0	11	$3,322,721
Lee	6	2	3	1	0	0	0	0	$5,350
Leicester	50	35	5	10	0	4	0	0	$383,000
Lenox	71	50	6	15	0	1	0	1	$37,275
Leominster	239	137	36	66	0	3	0	0	$188,205
Leverett	3	1	1	1	0	0	0	0	$10,000
Lexington	64	44	12	8	0	3	0	6	$2,118,032
Leyden	3	1	0	2	0	0	0	0	$0
Lincoln	44	21	6	17	0	0	0	0	$36,100
Littleton	41	17	9	15	0	3	0	0	$303,900
Logan Airport FD	7	3	1	3	0	0	0	0	$0
Longmeadow	39	21	9	9	0	0	0	2	$438,100
Lowell	155	69	79	7	1	6	0	6	$674,950
Ludlow	58	33	13	12	0	1	0	3	$612,800
Lunenburg	17	9	4	4	0	1	0	0	$38,600
Lynn	96	55	39	2	1	4	0	16	$286,635
Lynnfield	138	90	12	36	0	0	0	6	$20,500

2003 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	2	1	1	0	0	0	0	0	$195,000
Holden	7	0	0	7	0	0	0	0	$0
Holland	1	0	0	1	0	0	0	0	$0
Holliston	0	0	0	0	0	0	0	0	$0
Holyoke	14	5	2	7	0	2	0	0	$32,750
Hopedale	1	1	0	0	0	0	0	0	$150
Hopkinton	0	0	0	0	0	0	0	0	$0
Hubbardston	1	0	0	1	0	0	0	0	$0
Hudson	4	2	1	1	0	0	0	0	$5,350
Hull	0	0	0	0	0	0	0	0	$0
Huntington	0	0	0	0	0	0	0	0	$0
Ipswich	2	0	1	1	0	0	0	0	$6,000
Kingston	12	1	2	9	0	0	0	0	$126,700
Lakeville	1	0	0	1	0	0	0	0	$0
Lancaster	0	0	0	0	0	0	0	0	$0
Lanesborough	0	0	0	0	0	0	0	0	$0
Lawrence	16	7	3	6	2	0	0	1	$473,000
Lee	1	1	0	0	0	0	0	0	$2,000
Leicester	3	0	0	3	0	0	0	0	$0
Lenox	2	1	0	1	0	0	0	1	$30,000
Leominster	5	1	0	4	0	0	0	0	$8,000
Leverett	0	0	0	0	0	0	0	0	$0
Lexington	6	2	1	3	0	0	0	0	$158,500
Leyden	1	0	0	1	0	0	0	0	$0
Lincoln	1	1	0	0	0	0	0	0	$0
Littleton	1	0	0	1	0	0	0	0	$0
Logan Airport FD	0	0	0	0	0	0	0	0	$0
Longmeadow	2	2	0	0	0	0	0	0	$350
Lowell	9	5	4	0	0	0	0	1	$50,200
Ludlow	3	2	0	1	0	1	0	0	$300
Lunenburg	2	0	0	2	0	0	0	0	$0
Lynn	6	5	1	0	0	0	0	0	$101,500
Lynnfield	0	0	0	0	0	0	0	0	$0

2003 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	241	113	27	101	1	1	0	0	$758,000
Manchester	39	24	6	9	0	0	0	0	$0
Mansfield	76	31	14	31	0	3	0	12	$1,066,996
Marblehead	31	20	11	0	0	0	0	0	$2,183,725
Marion	2	1	1	0	0	0	0	0	$870,450
Marlborough	51	20	28	3	0	0	0	0	$567,550
Marshfield	130	75	9	46	0	3	0	6	$0
Mashpee	76	37	17	22	1	3	0	6	$1,877,555
Mattapoisett	24	5	10	9	0	0	0	0	$0
Maynard	10	8	2	0	0	0	0	0	$115,200
Medfield	46	23	8	15	1	0	0	0	$249,210
Medford	279	169	47	63	2	7	0	6	$1,002,455
Medway	11	9	1	1	0	0	0	0	$0
Melrose	5	4	1	0	0	2	0	0	$20,500
Mendon	28	11	1	16	0	0	0	0	$8,200
Merrimac	35	18	6	11	0	0	0	0	$0
Methuen	138	44	49	45	2	0	0	0	$553,600
Middleborough	121	37	42	42	0	2	0	1	$310,000
Middlefield	1	1	0	0	0	0	0	0	$100,000
Middleton	21	13	4	4	0	0	0	0	$399,750
Milford	124	64	29	31	0	2	0	5	$526,265
Millbury	49	24	11	14	0	1	0	2	$559,500
Millis	6	4	1	1	0	0	0	0	$263,500
Millville	11	5	0	6	0	0	0	0	$75,100
Milton	180	113	24	43	1	1	0	2	$197,050
Monroe	Fire Department In Good Standing, Certified No Fires To Report								
Monson	28	7	10	11	0	0	0	0	$17,500
Montague Fire Districts									
Montague Center	*10*	*3*	*0*	*7*	*0*	*0*	*0*	*0*	*$0*
Turners falls	*54*	*33*	*5*	*16*	*0*	*1*	*0*	*1*	*$1,855,500*
Monterey[i]	0	0	0	0	0	0	0	0	$0
Montgomery	Non-Reporting Community								
Nahant	18	10	0	8	0	0	0	0	$87,500
Nantucket	33	15	6	12	0	0	0	0	$1,219,720
Natick	39	21	16	2	0	1	0	1	$1,414,600
Needham	49	19	14	16	0	0	0	1	$20,500

2003 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	3	3	0	0	1	0	0	0	$200,000
Manchester	0	0	0	0	0	0	0	0	$0
Mansfield	9	3	0	6	0	0	0	0	$2,100
Marblehead	0	0	0	0	0	0	0	0	$0
Marion	0	0	0	0	0	0	0	0	$0
Marlborough	0	0	0	0	0	0	0	0	$0
Marshfield	12	2	0	10	0	0	0	1	$0
Mashpee	4	2	1	1	0	0	0	0	$400,050
Mattapoisett	1	0	1	0	0	0	0	0	$0
Maynard	0	0	0	0	0	0	0	0	$0
Medfield	4	0	1	3	0	0	0	0	$430
Medford	8	1	1	6	0	0	0	0	$1,000
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	7	0	0	7	0	0	0	0	$0
Methuen	6	0	3	3	0	0	0	0	$5,000
Middleborough	3	1	1	1	0	0	0	0	$0
Middlefield	0	0	0	0	0	0	0	0	$0
Middleton	1	0	0	1	0	0	0	0	$0
Milford	0	0	0	0	0	0	0	0	$0
Millbury	1	0	1	0	0	0	0	0	$1,000
Millis	0	0	0	0	0	0	0	0	$0
Millville	0	0	0	0	0	0	0	0	$0
Milton	16	4	3	9	0	0	0	0	$15,500
Monroe	Fire Department In Good Standing, Certified No Fires To Report								
Monson	1	0	1	0	0	0	0	0	$0
Montague Fire Districts									
Montague Center	*1*	*0*	*0*	*1*	*0*	*0*	*0*	*0*	*$0*
Turners falls	*4*	*0*	*0*	*4*	*0*	*0*	*0*	*0*	*$0*
Monterey[i]	0	0	0	0	0	0	0	0	$0
Montgomery	Non-Reporting Community								
Nahant	0	0	0	0	0	0	0	0	$0
Nantucket	2	2	0	0	0	0	0	0	$90,000
Natick	3	2	1	0	0	1	0	1	$321,000
Needham	3	0	0	3	0	0	0	0	$0

2003 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	Fire Department In Good Standing, Certified No Fires To Report								
New Bedford	348	124	88	136	0	21	0	1	$1,006,818
New Braintree	1	1	0	0	0	0	0	0	$0
New Marlborough	2	2	0	0	0	0	0	0	$210,000
New Salem	5	1	1	3	0	0	0	0	$10,500
Newbury	4	4	0	0	0	0	0	3	$397,500
Newburyport	20	17	1	2	0	0	0	1	$1,209,600
Newton	251	152	44	55	0	4	0	6	$2,676,525
Norfolk	26	14	1	11	0	1	0	1	$386,000
North Adams	59	27	9	23	2	0	0	5	$372,150
North Andover	112	39	17	56	0	0	0	3	$654,600
North Attleboro	83	22	17	44	0	1	0	3	$470,000
North Brookfield	Fire Department In Good Standing, Certified No Fires To Report								
North Reading	63	35	6	22	0	0	0	0	$0
Northampton	114	49	16	49	0	3	0	0	$972,743
Northborough	38	11	8	19	0	1	0	1	$302,725
Northbridge	42	31	7	4	0	1	0	0	$60,300
Northfield	Non-Reporting Community								
Norton	35	18	12	5	0	1	0	0	$303,025
Norwell	73	23	13	37	0	0	0	0	$0
Norwood	35	27	8	0	2	0	0	3	$1,800,300
Oak bluffs	2	2	0	0	0	0	0	0	$160,000
Oakham	9	3	2	4	0	0	0	0	$0
Orange	43	19	7	17	0	0	0	0	$0
Orleans	45	14	6	25	0	0	0	0	$347,000
Otis	Fire Department In Good Standing, Certified No Fires To Report								
Oxford	98	35	26	37	0	1	0	0	$492,670
Palmer Fire Districts									
Palmer	*55*	*22*	*20*	*13*	*0*	*0*	*0*	*0*	*$1,380,400*
Bondsville	*10*	*7*	*2*	*1*	*0*	*1*	*0*	*0*	*$13,295*
Three rivers	*14*	*7*	*2*	*5*	*0*	*0*	*0*	*0*	*$125,000*
Paxton	7	4	2	1	0	0	0	0	$32,000
Peabody	275	140	29	106	0	4	0	1	$316,635
Pelham	Fire Department In Good Standing, Certified No Fires To Report								
Pembroke	25	13	9	3	0	3	0	0	$165,507
Pepperell	6	5	0	1	0	0	0	0	$8,050

2003 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	30	10	8	12	0	0	0	0	$148,100
New Braintree	0	0	0	0	0	0	0	0	$0
New Marlborough	0	0	0	0	0	0	0	0	$0
New Salem	0	0	0	0	0	0	0	0	$0
Newbury	0	0	0	0	0	0	0	0	$0
Newburyport	2	1	0	1	0	0	0	0	$0
Newton	8	0	1	7	0	0	0	0	$300
Norfolk	1	1	0	0	0	0	0	1	$250,000
North Adams	2	1	0	1	0	0	0	0	$500
North Andover	5	0	1	4	0	0	0	0	$0
North Attleboro	6	1	3	2	0	0	0	0	$58,000
North Brookfield	Fire Department In Good Standing, Certified No Fires To Report								
North reading	1	1	0	0	0	0	0	0	$0
Northampton	3	0	0	3	0	0	0	0	$102
Northborough	2	0	1	1	0	0	0	0	$5,100
Northbridge	1	1	0	0	0	1	0	0	$0
Northfield	Non-Reporting Community								
Norton	1	0	1	0	0	0	0	0	$1,500
Norwell	13	2	0	11	0	0	0	0	$0
Norwood	1	0	1	0	0	0	0	0	$1,500
Oak bluffs	0	0	0	0	0	0	0	0	$0
Oakham	1	0	0	1	0	0	0	0	$0
Orange	3	1	0	2	0	0	0	0	$0
Orleans	0	0	0	0	0	0	0	0	$0
Otis	Fire Department In Good Standing, Certified No Fires To Report								
Oxford	11	1	1	9	0	0	0	0	$2,500
Palmer Fire Districts									
Bondsville	*1*	*1*	*0*	*0*	*0*	*1*	*0*	*0*	*$1,300*
Palmer	*4*	*2*	*1*	*1*	*0*	*0*	*0*	*0*	*$2,000*
Three Rivers	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Paxton	1	0	0	1	0	0	0	0	$0
Peabody	4	0	0	4	0	0	0	0	$0
Pelham	Fire Department In Good Standing, Certified No Fires To Report								
Pembroke	1	1	0	0	0	0	0	0	$0
Pepperell	1	1	0	0	0	0	0	0	$0

2003 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	3	2	0	1	0	0	0	0	$0
Petersham	5	3	0	2	0	0	0	0	$0
Phillipston	6	3	0	3	0	0	0	0	$0
Pittsfield	229	70	18	141	0	2	0	7	$349,170
Plainfield	3	2	0	1	0	0	0	0	$0
Plainville	163	13	0	150	0	0	0	0	$30,000
Plymouth	231	82	41	108	0	2	0	5	$1,875,892
Plympton	16	7	1	8	0	0	0	0	$93,000
Princeton	17	6	3	8	1	0	0	1	$160,000
Provincetown	23	13	4	6	0	0	0	0	$0
Quincy	576	329	58	189	0	2	0	18	$853,900
Randolph	73	25	29	19	0	0	0	1	$540,900
Raynham	113	24	38	51	0	0	0	3	$234,100
Reading	53	37	13	3	0	1	0	1	$178,175
Rehoboth	58	31	1	26	0	2	0	0	$82,000
Revere	79	33	23	23	2	0	0	2	$96,900
Richmond	7	2	1	4	0	0	0	0	$134,000
Rochester	6	5	1	0	0	2	0	0	$735,000
Rockland	49	27	14	8	0	6	0	0	$205,000
Rockport	1	1	0	0	0	0	0	0	$0
Rowe	1	0	1	0	0	0	0	0	$2,230
Rowley	27	18	3	6	0	2	0	0	$74,500
Royalston	8	4	0	4	0	0	0	0	$0
Russell	4	1	2	1	0	0	0	0	$3,400
Rutland	33	18	1	14	0	2	0	0	$678,075
Salem	499	405	26	68	0	5	0	6	$1,054,850
Salisbury	28	11	7	10	0	1	0	0	$751,000
Sandisfield	5	5	0	0	0	0	0	0	$79,500
Sandwich	141	94	16	31	0	5	0	2	$862,145
Saugus	120	46	18	56	0	2	0	4	$447,906
Savoy	Fire Department In Good Standing, Certified No Fires To Report								
Scituate	99	52	12	35	0	0	0	4	$1,029,100
Seekonk	74	21	20	33	0	0	0	0	$310,910
Sharon	60	28	14	18	0	0	0	0	$569,635
Sheffield	3	2	1	0	0	0	0	0	$1,000

2003 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	0	0	0	0	0	0	0	0	$0
Petersham	0	0	0	0	0	0	0	0	$0
Phillipston	0	0	0	0	0	0	0	0	$0
Pittsfield	51	2	0	49	0	0	0	1	$1,000
Plainfield	0	0	0	0	0	0	0	0	$0
Plainville	0	0	0	0	0	0	0	0	$0
Plymouth	15	4	6	5	0	0	0	1	$85,050
Plympton	2	1	0	1	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	17	2	2	13	0	0	0	0	$12,100
Randolph	3	0	2	1	0	0	0	0	$15,000
Raynham	0	0	0	0	0	0	0	0	$0
Reading	3	3	0	0	0	0	0	0	$1,000
Rehoboth	4	3	0	1	0	0	0	0	$25,000
Revere	2	0	2	0	0	0	0	0	$0
Richmond	1	0	0	1	0	0	0	0	$0
Rochester	0	0	0	0	0	0	0	0	$0
Rockland	5	2	0	3	0	0	0	0	$0
Rockport	0	0	0	0	0	0	0	0	$0
Rowe	0	0	0	0	0	0	0	0	$0
Rowley	0	0	0	0	0	0	0	0	$0
Royalston	1	0	0	1	0	0	0	0	$0
Russell	0	0	0	0	0	0	0	0	$0
Rutland	9	1	0	8	0	0	0	0	$0
Salem	22	2	5	15	0	0	0	2	$87,000
Salisbury	2	2	0	0	0	0	0	0	$375,000
Sandisfield	0	0	0	0	0	0	0	0	$0
Sandwich	6	0	0	6	0	0	0	0	$0
Saugus	0	0	0	0	0	0	0	0	$0
Savoy	Fire Department In Good Standing, Certified No Fires To Report								
Scituate	4	2	0	2	0	0	0	0	$900
Seekonk	12	2	4	6	0	0	0	0	$16,700
Sharon	0	0	0	0	0	0	0	0	$0
Sheffield	0	0	0	0	0	0	0	0	$0

2003 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	*5*	*2*	*0*	*3*	*0*	*0*	*0*	*1*	*$75,000*
Shelburne Falls	*12*	*5*	*2*	*5*	*0*	*0*	*0*	*0*	*$18,000*
Sherborn	17	3	0	14	0	0	0	0	$111,400
Shirley	4	4	0	0	0	0	0	0	$0
Shrewsbury	106	67	27	12	0	0	0	0	$184,900
Shutesbury	11	10	1	0	0	0	0	0	$207,700
Somerset	35	10	6	19	0	0	0	0	$96,000
Somerville	89	45	39	5	1	3	0	23	$2,648,200
South Hadley Fire Districts									
S. Hadley Dist.#1	*1*	*1*	*0*	*0*	*0*	*0*	*0*	*0*	*$25,000*
S. Hadley Dist.#2	*13*	*4*	*2*	*7*	*0*	*0*	*0*	*0*	*$9,500*
Southampton	18	8	2	8	0	1	0	0	$3,050
Southborough	40	18	8	14	0	0	0	0	$52,535
Southbridge	81	43	10	28	0	5	0	3	$653,550
Southwick	77	33	7	37	0	0	0	0	$482,300
Spencer	72	38	12	22	0	1	0	0	$122,300
Springfield	931	483	156	292	3	12	0	8	$1,945,519
Sterling	27	14	8	5	0	0	0	0	$33,300
Stockbridge	Non-Reporting Community								
Stoneham	22	8	12	2	0	0	0	0	$117,400
Stoughton	104	67	17	20	0	0	0	0	$1,096,000
Stow	1	1	0	0	0	0	0	0	$270,000
Sturbridge	60	27	10	23	0	3	0	2	$351,200
Sudbury	68	38	9	21	0	1	0	0	$235,900
Sunderland	16	6	0	10	0	0	0	0	$12,400
Sutton	25	12	9	4	0	0	0	0	$34,900
Swampscott	85	57	5	23	0	0	0	1	$150,000
Swansea	123	67	28	28	0	1	0	1	$50,000
Taunton	82	8	21	53	0	0	0	0	$0
Templeton	54	23	14	17	0	0	0	2	$0
Tewksbury	120	71	19	30	0	0	0	0	$1,235,901
Tisbury	20	3	3	14	0	0	0	0	$0
Tolland	2	2	0	0	0	0	0	0	$105,000
Topsfield	72	52	8	12	0	0	0	0	$1,500
Townsend	12	3	3	6	0	0	0	0	$880,800
Truro	3	1	0	2	0	0	0	0	$349,000

2003 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	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Sherborn	2	0	0	2	0	0	0	0	$0
Shirley	0	0	0	0	0	0	0	0	$0
Shrewsbury	3	0	3	0	0	0	0	0	$6,000
Shutesbury	1	1	0	0	0	0	0	0	$31,000
Somerset	1	1	0	0	0	0	0	0	$0
Somerville	5	4	1	0	0	0	0	0	$7,900
South Hadley Fire Districts									
S. Hadley Dist.#1	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
S. Hadley Dist.#2	*2*	*1*	*0*	*1*	*0*	*0*	*0*	*0*	*$500*
Southampton	2	2	0	0	0	0	0	0	$50
Southborough	1	1	0	0	0	0	0	0	$0
Southbridge	4	0	2	2	0	0	0	0	$10,100
Southwick	6	0	0	6	0	0	0	0	$0
Spencer	3	0	0	3	0	0	0	0	$1,500
Springfield	53	10	18	25	2	3	0	0	$284,970
Sterling	3	1	0	2	0	0	0	0	$0
Stockbridge	Non-Reporting Community								
Stoneham	0	0	0	0	0	0	0	0	$0
Stoughton	5	0	1	4	0	0	0	0	$0
Stow	1	1	0	0	0	0	0	0	$270,000
Sturbridge	4	0	0	4	0	0	0	0	$0
Sudbury	1	0	0	1	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	2	0	0	2	0	0	0	0	$0
Swansea	4	0	3	1	0	0	0	0	$0
Taunton	11	0	1	10	0	0	0	0	$0
Templeton	4	0	2	2	0	0	0	0	$0
Tewksbury	6	0	0	6	0	0	0	0	$0
Tisbury	1	1	0	0	0	0	0	0	$0
Tolland	0	0	0	0	0	0	0	0	$0
Topsfield	2	0	2	0	0	0	0	0	$0
Townsend	3	1	1	1	0	0	0	0	$303,000
Truro	0	0	0	0	0	0	0	0	$0

2003 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	29	11	7	11	0	0	0	1	$790,500
Tyringham	1	0	1	0	1	0	0	0	$125,000
Upton	26	11	2	13	0	0	0	0	$167,005
Uxbridge	78	50	10	18	1	1	0	2	$318,435
Wakefield	66	49	13	4	1	0	0	3	$727,250
Wales	Fire Department In Good Standing, Certified No Fires To Report								
Walpole	123	70	10	43	0	3	0	0	$320,000
Waltham	199	81	27	91	0	3	0	2	$397,200
Ware	46	20	3	23	0	0	0	1	$269,155
Wareham Fire Districts									
Wareham	*126*	*44*	*24*	*58*	*0*	*0*	*0*	*2*	*$537,650*
Onset	*51*	*28*	*4*	*19*	*1*	*1*	*0*	*0*	*$0*
Warren	31	20	7	4	0	0	0	0	$1,203,880
Warwick	8	5	1	2	0	0	0	0	$5,200
Washington	Fire Department In Good Standing, Certified No Fires To Report								
Watertown	103	72	5	26	0	0	0	0	$72,900
Wayland	48	15	0	33	0	0	0	0	$19,715
Webster	18	5	5	8	0	0	0	0	$5,000
Wellesley	133	108	7	18	0	3	0	2	$545,700
Wellfleet	13	7	1	5	0	0	0	0	$0
Wendell	2	1	1	0	0	0	0	0	$8,000
Wenham	23	14	1	8	0	0	0	0	$10,550
West Boylston	11	5	6	0	0	0	0	0	$281,250
West Bridgewater	29	23	4	2	0	4	0	2	$46,750
West Brookfield	3	3	0	0	0	0	0	0	$0
West Newbury	7	3	1	3	0	1	0	0	$149,550
West Springfield	152	89	24	39	1	8	0	2	$1,036,170
West Stockbridge	10	1	2	7	0	0	0	0	$500
West Tisbury	1	1	0	0	0	0	0	0	$0
Westborough	69	36	11	22	1	2	0	0	$139,085
Westfield	148	74	35	39	0	0	0	2	$1,804,115
Westford	1	1	0	0	0	0	0	0	$130,000
Westhampton	4	4	0	0	0	0	0	0	$0
Westminster	19	9	9	1	0	0	0	0	$536,000
Weston	37	14	14	9	0	2	0	1	$534,900
Westport	48	14	3	31	0	2	0	2	$177,677
Westwood	94	67	9	18	0	1	0	1	$89,590
Weymouth	357	241	38	78	0	1	0	2	$1,266,250

2003 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	4	1	1	2	0	0	0	0	$1,000
Tyringham	0	0	0	0	0	0	0	0	$0
Upton	2	0	2	0	0	0	0	0	$50,000
Uxbridge	6	1	1	4	0	0	0	0	$1,000
Wakefield	0	0	0	0	0	0	0	0	$0
Wales	Fire Department In Good Standing, Certified No Fires To Report								
Walpole	8	8	0	0	0	2	0	0	$1,500
Waltham	5	1	2	2	0	0	0	0	$30,000
Ware	5	1	0	4	0	0	0	0	$5
Wareham Fire Districts									
Onset	*2*	*2*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Wareham	*2*	*0*	*1*	*1*	*0*	*0*	*0*	*0*	*$50*
Warren	3	3	0	0	0	0	0	0	$57,200
Warwick	1	1	0	0	0	0	0	0	$0
Washington	Fire Department In Good Standing, Certified No Fires To Report								
Watertown	0	0	0	0	0	0	0	0	$0
Wayland	0	0	0	0	0	0	0	0	$0
Webster	0	0	0	0	0	0	0	0	$0
Wellesley	7	3	0	4	0	0	0	0	$4,350
Wellfleet	0	0	0	0	0	0	0	0	$0
Wendell	1	0	1	0	0	0	0	0	$0
Wenham	1	0	0	1	0	0	0	0	$0
West Boylston	1	1	0	0	0	0	0	0	$200
West Bridgewater	2	2	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	3	4	0	0	0	0	$17,200
West Stockbridge	1	0	0	1	0	0	0	0	$0
West Tisbury	0	0	0	0	0	0	0	0	$0
Westborough	2	1	0	1	0	0	0	0	$0
Westfield	7	3	2	2	0	0	0	0	$886,075
Westford	0	0	0	0	0	0	0	0	$0
Westhampton	0	0	0	0	0	0	0	0	$0
Westminster	0	0	0	0	0	0	0	0	$0
Weston	0	0	0	0	0	0	0	0	$0
Westport	0	0	0	0	0	0	0	0	$0
Westwood	3	0	0	3	0	0	0	0	$750
Weymouth	15	5	4	6	0	0	0	0	$70,000

2003 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	12	4	2	6	0	0	0	0	$265,000
Whitman	60	28	10	22	0	3	0	1	$185,000
Wilbraham	53	17	3	33	0	0	0	0	$362,500
Williamsburg	6	3	2	1	0	0	0	0	$111,100
Williamstown	22	15	2	5	0	0	0	0	$147,300
Wilmington	31	12	12	7	0	0	0	0	$95,000
Winchendon	15	11	4	0	0	0	0	1	$691,950
Winchester	14	7	6	1	0	0	0	1	$237,000
Windsor	Fire Department In Good Standing, Certified No Fires To Report								
Winthrop	65	35	8	22	0	1	0	0	$1,947,115
Woburn	20	14	3	3	1	0	0	0	$30,250
Worcester	2,606	290	193	2,123	3	0	0	36	$4,242,460
Worthington	Fire Department In Good Standing, Certified No Fires To Report								
Wrentham	125	11	10	104	0	0	0	1	$203,143
Yarmouth	123	57	16	50	0	5	0	1	$180,550

[i]Monterey Fire Deparment reported 33 incidents to MFIRS in 2003. None of these incidents were fires or explosions.

2003 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	0	0	0	0	0	0	0	0	$0
Whitman	1	0	0	1	0	0	0	0	$0
Wilbraham	1	0	0	1	0	0	0	0	$0
Williamsburg	0	0	0	0	0	0	0	0	$0
Williamstown	2	1	0	1	0	0	0	0	$6,000
Wilmington	3	1	0	2	0	0	0	0	$0
Winchendon	0	0	0	0	0	0	0	0	$0
Winchester	0	0	0	0	0	0	0	0	$0
Windsor	Fire Department In Good Standing, Certified No Fires To Report								
Winthrop	8	2	1	5	0	1	0	0	$850,002
Woburn	1	0	0	1	1	0	0	0	$0
Worcester	142	7	39	96	0	0	0	0	$212,866
Worthington	Fire Department In Good Standing, Certified No Fires To Report								
Wrentham	3	0	0	3	0	0	0	0	$20
Yarmouth	8	4	0	4	0	1	0	0	$3,500

[i]Monterey Fire Deparment reported 33 incidents to MFIRS in 2003. None of these incidents were fires or explosions.

2003 Fires By Incident Type

Incident Type	Total Fires	% of Total	Civilian Deaths	Civilian Inj.	Fire Service Deaths	Fire Service Inj.	Dollar Loss
Structure Fires	12,997	47%	52	359	1	458	$156,028,396
Vehicle Fires	4,522	16%	5	25	0	29	22,086,416
Brush Fires	2,981	11%	1	5	0	14	371,878
Outside Rubbish Fires	2,867	10%	0	4	0	2	72,309
Special Outside Fires	702	3%	1	7	0	2	460,211
Cult. Veg.& Crop Fires	26	0.1%	0	0	0	0	20
Other Fires	3,620	13%	2	18	0	9	2,278,821
Total Fires	**27,715**	**100%**	**61**	**418**	**1**	**514**	**$181,298,051**

2003 Arsons* By Incident Type

Incident Type	Total Fires	% of Total	Civilian Deaths	Civilian Inj.	Fire Service Deaths	Fire Service Inj.	Dollar Loss
Structure Arsons	382	26%	6	19	0	18	$7,222,373
Vehicle Arsons	276	19%	1	0	0	1	2,375,824
Brush Arsons	416	29%	1	1	0	1	2,893
Outside Rubbish Arsons	141	10%	0	1	0	0	4,699
Special Outside Arsons	144	9%	1	1	0	0	42,642
Cult. Veg.& Crop Arsons	7	1%	0	0	0	0	20
Other Arsons	90	6%	1	0	0	0	36,940
Total Arsons	**1,456**	**100%**	**10**	**22**	**0**	**20**	**$9,685,391**

*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.

2003 Fires By County

County	Total Fires	Structure Fires	Vehicle Fires	Other Fires	Civilian Deaths	Civilian Inj.	Fire Service Deaths	Fire Service Inj.	Dollar Loss
Barnstable	1,080	511	177	392	3	45	0	25	$14,552,348
Berkshire	516	245	59	212	3	3	0	14	2,501,345
Bristol	2,140	768	496	876	2	58	0	39	8,448,131
Dukes	28	10	3	15	0	0	0	0	171,000
Essex	2,983	1,701	492	790	9	35	0	55	15,526,043
Franklin	418	201	63	154	0	7	0	4	3,170,180
Hampden	2,334	1,185	404	745	5	50	0	28	11,815,180
Hampshire	519	228	62	229	2	7	0	7	3,133,088
Middlesex	4,130	2,314	742	1,074	11	55	0	98	41,047,607
Nantucket	33	15	6	12	0	0	0	0	1,219,720
Norfolk	2,627	1,349	367	911	4	21	0	44	16,438,138
Plymouth	1,902	837	368	697	9	48	0	51	11,906,995
Suffolk	4,067	2,200	636	1,231	6	52	0	85	34,687,206
Worcester	4,938	1,433	647	2,858	7	37	1	64	16,681,070
Total	**27,715**	**12,997**	**4,522**	**10,196**	**61**	**418**	**1**	**514**	**$181,298,051**

2003 Arsons* By County

County	Total Arsons	Structure Arsons	Vehicle Arsons	Other Arsons	Civilian Deaths	Civilian Inj.	Fire Service Deaths	Fire Service Inj.	Dollar Loss
Barnstable	57	23	58	29	1	1	0	0	$441,077
Berkshire	63	8	1	54	0	0	0	2	61,500
Bristol	172	45	42	85	0	0	0	0	546,400
Dukes	1	1	0	0	0	0	0	0	0
Essex	121	25	19	77	2	1	0	1	1,063,200
Franklin	15	4	1	10	0	0	0	0	121,000
Hampden	151	39	34	78	2	8	0	8	1,484,815
Hampshire	50	14	1	35	0	0	0	0	56,522
Middlesex	153	47	22	84	3	1	0	1	1,543,562
Nantucket	2	2	0	0	0	0	0	0	90,000
Norfolk	108	29	16	63	0	2	0	2	872,560
Plymouth	114	36	16	62	2	6	0	6	790,227
Suffolk	175	77	61	37	0	1	0	1	2,222,222
Worcester	274	32	58	184	0	2	0	2	392,306
Total	**1,456**	**382**	**276**	**798**	**10**	**22**	**0**	**20**	**$9,685,391**

*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.

2003 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	1,080	4.9	3	2.8	0.13	57	0.3
Berkshire	134,953	516	3.8	3	5.8	0.22	63	0.5
Bristol	534,678	2,140	4.0	2	0.9	0.04	172	0.3
Dukes	14,987	28	1.9	0	0.0	0.00	1	0
Essex	723,419	2,983	4.1	9	3.0	0.12	121	0.2
Franklin	71,535	418	5.8	0	0.0	0.00	15	0.2
Hampden	456,228	2,334	5.1	5	2.1	0.11	151	0.3
Hampshire	152,251	519	3.4	2	3.9	0.13	50	0.3
Middlesex	1,465,396	4,130	2.8	11	2.7	0.08	153	0.1
Nantucket	9,520	33	3.5	0	0.0	0.00	2	0.2
Norfolk	650,308	2,627	4.0	4	1.5	0.06	108	0.2
Plymouth	472,822	1,902	4.0	9	4.7	0.19	114	0.2
Suffolk	689,807	4,067	5.9	6	1.5	0.09	175	0.3
Worcester	750,963	4,938	5.9	6	1.5	0.09	274	0.3
Massachusetts	6,349,097	27,715	4.4	61	2.2	0.10	1,456	0.2

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

2003 Non-Fire Responses By County and By Incident Type

County	Total Non-Fire Responses	Overpressure Rupt. & Explos. (No-fire)	Rescue EMS Incidents	Hazardous Conditions (No-fire)	Service Calls	Good Intent Calls	False Alarm Calls	Severe WX[1] & Natural Disaster	Special Incident Type
Barnstable	26,195	59	18,751	1,315	1,878	1,144	2,903	43	102
Berkshire	7,258	17	3,632	694	1,180	530	1,159	22	24
Bristol	35,771	68	20,410	1,787	3,210	3,192	6,822	56	226
Dukes	1	0	0	1	0	0	0	0	0
Essex	40,284	89	20,687	3,239	5,076	2,643	8,123	78	349
Franklin	3,737	27	1,658	432	629	320	617	22	32
Hampden	28,267	86	15,460	1,413	3,515	2,196	5,460	27	110
Hampshire	7,124	58	3,180	601	551	472	2,184	9	69
Middlesex	84,182	176	44,955	5,808	9,765	5,017	17,133	79	1,249
Nantucket	2	0	0	2	0	0	0	0	0
Norfolk	61,778	245	33,334	4,900	9,115	3,414	8,883	56	1,831
Plymouth	37,070	104	21,361	3,619	4,574	2,777	4,319	113	203
Suffolk	85,883	80	40,663	7,056	10,039	13,617	14,024	15	389
Worcester	56,959	128	36,578	4,144	4,641	3,148	7,932	76	312
Massachusetts	474,511	1,137	260,669	35,011	54,173	38,470	79,559	596	4,896

[1] WX is the abbreviation for Weather.

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

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

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

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

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

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

Abington
Acton
Acushnet
Agawam
Amesbury
Amherst
Arlington
Ashburnham
Ashland
Attleboro
Auburn
Avon
Ayer
Barnstable
Barre
Belchertown
Bellingham
Belmont
Berkley
Beverly
Billerica
Boston
Boxborough
Braintree
Bridgewater
Brockton
Brookfield
Brookline
Burlington
Cambridge
Centerville
Chatham
Chelsea
Chelmsford
Chicopee
Cohasset
Concord
Cotuit
Danvers
Dartmouth Dist. 1
Dartmouth Dist. 3
Dedham
Dighton
Duxbury
East Bridgewater
East Longmeadow
Easton
Edgartown
Everett
Fairhaven
Fall River
Falmouth
Fitchburg
Foxborough
Framingham
Franklin
Gardner
Georgetown
Grafton
Granby
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
South Hadley-
District 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 : 181

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

Total: 112

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

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

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

Abington	Easton	Mansfield	S. Hadley-Dist. 2
Acton	Everett	Marblehead	Southborough
Acushnet	Fairhaven	Marlborough	Sterling
Agawam	Fall River	Marshfield	Stoneham
Amesbury	Falmouth	Mashpee	Stoughton
Amherst	Fitchburg	Maynard	Sudbury
Arlington	Foxborough	Medfield	Swansea
Ashland	Framingham	Medford	Taunton
Athol	Franklin	Medway	Tewksbury
Avon	Georgetown	Melrose	Tyngsboro
Ayer	Grafton	Milford	Upton
Barnstable	Great Barrington	Millbury	Wakefield
Barre	Groton	Natick	Walpole
Bellingham	Hamilton	Newton	Waltham
Belmont	Hanover	North Andover	Ware
Berkley	Hanson	North Attleboro	Watertown
Beverly	Harwich	North Reading	Wayland
Billerica	Haverhill	Northborough	Wellesley
Boston	Hingham	Norton	Wenham
Brewster	Holden	Norwell	West Barnstable
Brookfield	Holliston	Orange	West Boylston
Brookline	Holyoke	Paxton	West Springfield
Burlington	Hopedale	Pelham	Westborough
Centerville	Hopkinton	Plainville	Westford
Chatham	Hudson	Randolph	Westminster
Chelmsford	Hull	Raynham	Westport
Clinton	Hyannis	Revere	Westwood
Cohasset	Ipswich	Rockland	Whitman
Concord	Kingston	Rutland	Wilmington
Cotuit	Lancaster	Salem	Winthrop
Dartmouth Dist. 1	Lawrence	Saugus	Woburn
Dartmouth Dist. 3	Lexington	Scituate	Wrentham
Dedham	Longmeadow	Shrewsbury	Yarmouth
Duxbury	Lowell	Somerset	
E. Longmeadow	Lunenburg	Somerville	**Total: 113**


SMOKEY
REMEMBER!
only
you can
PREVENT
FOREST
FIRES
Smokey