Massachusetts Fire Incident Reporting System

2001 Annual Report

Publication Number: 1014 – 168 – 800 – 8/03 – DFS
Approved by Philmore Anderson III, State Purchasing Agent

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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.*

August, 2003

This is the *2001 Annual Report of the Massachusetts Fire Incident Reporting System* (MFIRS) which summarizes the Massachusetts fire experience for 2001. It is based on the 27,885 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.

No Fire Related Firefighter Deaths
In 2001, for the second straight year, not a single Massachusetts firefighter lost his or her life while fighting a fire. After losing nine firefighters in 2000 this is good news. Firefighter injuries declined 17% from the number reported in 2000.

Fires Up in 2001
The total number of reported fires increased by 12% from 24,931 in 2000 to 27,885 in 2001. Structure fires rose 1% from 2000 to 2001. Motor vehicle fires decreased by 6%. Reported outside, brush, and other fires increased by 35% during the same time period.

Although the law states that only fires where a loss is sustained must be reported, many fire departments are encouraged to and wisely reporting all of the fire incidents that they respond to, giving a more accurate picture of the fire problem in Massachusetts.

Civilian Fire Deaths Down 1/4 in 2001
Civilian deaths in all types of fires decreased by 25% from 79 in 2000 to 59 in 2001. Thirty-two (32) men, 23 women, and four children died in Massachusetts' fires. Of the 59 fire related civilian deaths in 2001, 48 occurred in residential structure fires. Over three-quarters (81%) of civilians died in the "safety" of their own homes. Five (5) deaths occurred in vehicle fires in 2001. Two people died in three outside and other fires in 2001.

Cooking Caused the Most Fires in the Home – Stand By Your Pan
The leading cause of fires in the home in 2001 was cooking. Cooking caused 39%, of residential fires. Adhering to some simple rules will significantly decrease the likelihood of cooking related fires. Since we must cook to eat everyday, it is important to practice fire safety in the kitchen. Steps such as "standing by your pan" or not leaving cooking unattended, setting timers to remind yourself that you are cooking; turning handles in toward the stove; and keeping combustibles a safe distance from the stove are all examples of good fire prevention around the stove. Learning what to do if a fire does occur is also important because cooking is the leading cause of fire injuries as well. The

other leading causes of fires in the home are heating, electrical, smoking, arson, candles, clothes dryers, and juvenile-set fires.

Smoking Was the Leading Cause of Residential Fire Deaths
Once again smoking has claimed the distinction of being the leading cause of fatal fires and fire deaths in Massachusetts, with no other cause coming close. Smoking remains the leading cause of fires that kill. In 2001, the unsafe and improper use of smoking materials caused 16 fire deaths in 16 fatal fires, accounting for 33% of residential structure fire deaths and 36% of fatal residential structure fires.

Smoking Fires Pose High Risk to Older Adults
Older adults are at high risk of dying in fires caused by smoking. One-third, or 33%, of the 18 senior residential structure fire deaths occurred in smoking-caused fires.

Smoke Detectors Save Lives
A working smoke alarm can double a family's chances of surviving a fire. This report illustrates the continuing problem in Massachusetts of disabled smoke alarms. Usually the battery has been removed or the power source disconnected. A smoke detector that does not work is useless. Test your detectors smoke detectors on a monthly basis.

Lack of Working Detectors Contributing Factor in Fire Deaths
Two-thirds (66%) of residential fire victims were not alerted by smoke detectors. In half of these cases (50%), the victims were not alerted because no detectors were present at all, and in the other half (50%), because detectors were present but did not operate.

Almost 1/3 of Residential Fires Occurred in Homes With No Working Detectors
Unfortunately, in 30%, or about 1/3, of the residential structure fires, there were no working smoke detectors. Of this 30%, no detectors were present at all in 12% of the residential structure fires, and detectors were present but failed to operate in 18% of residential fires. Maintenance and testing of smoke detectors can save lives. People must realize fire can happen to them, and take precautions to ensure survival.

People Who Try to Put Fire Out Themselves More Likely to be Injured
The majority of victims injured in fires in 2001 were attempting to fight the fire. Those who attempt to control a fire, rather than escape and summon the professionals, are much more likely to suffer injuries. Men are more likely to be injured while attempting to control the fire than are women. Prevention of these types of injuries is to make and practice a home escape plan and leave firefighting to the professionals. They have the training and the protective clothing to do the job.

Prevention Efforts Can Make Your Home Safer
Over three-quarters (78%) of structure fires and 94% of structure fire deaths took place in residential occupancies. Efforts to reduce the incidence of fire and fire deaths must be focused on home fire safety to have the greatest impact. Increased maintenance of smoke alarms, installation of residential sprinklers, practice of home escape plans coupled with safer products such as self-extinguishing cigarettes, upholstered furniture that meets the California flammability standard and flame resistant sleepwear for all ages can help make homes, and the families who live in them, safer from fire.

1-& 2-Family Homes Least Likely to Have Working Detectors
In 2001, dormitories were the most likely residential occupancy to have operating smoke detectors. Residential board and care facilities were the next most likely while one- and two-family homes were the least likely to have working smoke detectors. Fire departments need to be proactive in educating the public on the need to have and maintain working smoke detectors.

Public Education & Tougher Industry Standards Impacts Candle Fires
After nearly tripling in the 1990s, candle fires have begun a downward trend since they peaked in 1999. Thanks to stronger public education and tougher industry standards, we are starting to see some success. In an effort to reduce the number of candle fires, we put together a statewide education campaign. The creation of the *Candle Circle of Safety* was born. This logo, identifies the five key fire safety behaviors for candles. Partnering with four major candle retailers in Massachusetts, we held candle safety events throughout the commonwealth to promote the *Candle Circle of Safety*.

Vacant Buildings Threaten Community
Vacant buildings 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 inside them 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 firefighters, the neighborhood and surrounding homes.

Local Efforts of Marking Vacant Buildings Lead to Statewide Action
In December of 2000, in response to the fire at Worcester Cold Storage Warehouse that claimed the lives of six Worcester firefighters, the Board of Fire Prevention Regulations passed an emergency amendment requiring a simple, statewide system of marking vacant buildings. The marking system requires a joint inspection by fire and building officials to determine whether it is safe for firefighters to conduct an interior fire attack. That same month the Board of Building Regulations and Standards passed a similar emergency amendment to its regulations. This amendment also required vacant buildings to be boarded up using the so-called “HUD method.”

These amendments took hold in 2001 and one can now see the vacant building markers across the Commonwealth.

Undetermined Fires Cause Almost 1/3 of All Structure Fire Deaths
Fires of undetermined causes accounted for almost one-third, or 31%, of all structure fire deaths in Massachusetts in 2001. Only 12% of civilian fire injuries occurred in fires without a determination as to the cause of origin.

MFIRS Is a Partnership
By law, fire departments are required to report any fire resulting in a dollar loss or a human casualty to the Office of the State Fire Marshal, using the Massachusetts Fire Incident Reporting System. Fire departments may report other fires and are encouraged to do so, giving a more accurate representation of the fire problem in their community. 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. This data is shared with other government agencies, industry, and the media.

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 2001, 364 of the 365 fire departments in Massachusetts either submitted incident reports to MFIRS or certified that they had no reportable fires. This is the highest compliance rate (99.7%) in the history of MFIRS.

We also wish to recognize the efforts of the staff of the Fire Data and Public Education Unit, 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.

This is the First Year Using MFIRS 5 Data

2001 is the first year that fire incident reporting data will be analyzed using version 5 reporting format and data codes. Fire departments were also able to submit their incident reports in the old version 4.1 which unfortunately caused difficulty in analyzing the data to produce this report. Therefore the 2001 data is a combination of original version 5 data combined with converted version 4.1 data. Massachusetts fire incidents were analyzed using the new version 5.0 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.

Fire Departments Do More Than Fight Fires

Although this report is about Massachusetts' fires, it is important to remember that fire departments have many other responsibilities including fire prevention and code enforcement, emergency medical services, hazardous materials response, public fire education and assisting the public with other emergencies. We honor the courage, dedication, and hard work of these individuals who are willing to risk their lives to keep us safe.

Using This Report

The information in this report is presented in self-contained sections. When applicable, material is repeated so that the reader can find the relevant material without reading the entire document. We encourage you to use this information.

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

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Executive Summary

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

-Massachusetts General Laws, Chapter 148, Section 2.

10,384 Structure Fires, 5,127 Vehicle Fires, 12,374 Outside & Other Fires in 2001
There were 27,885 fire and explosion incidents reported by fire departments to the Massachusetts Fire Incident Reporting System (MFIRS) in 2001. The 10,384 structure fires, 5,127 motor vehicle fires, and 12,374 outside and other fires caused 59 civilian deaths, 501 civilian injuries, 707 fire service injuries, and an estimated dollar loss of $205 million in property damages. In 2001 there were 2.1 civilian deaths for every 1,000 fires.

All Fires Up in 2001
The total number of reported fires increased by 12% from 24,931 in 2000 to 27,885 in 2001. Structure fires rose 1% from 2000 to 2001. From 2000 to 2001, motor vehicle fires went down 6%. Outside, brush, and other fires increased by 35% 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. In addition 2001 was a terrible year for brush fires throughout the Commonwealth particularly during the months April, May and June.

No Firefighter Deaths in 2001
In 2001, for the second straight year, not a single Massachusetts firefighter lost his or her life while fighting a fire. After losing nine firefighters in 2000 this is good news. Firefighter injuries declined 17% from the number reported in 2000

Civilian Fire Deaths Down 1/4 in 2001
Civilian deaths fell by 25% from 79 in 2000 to 59 in 2001. Thirty-two (32) men, 23 women, and four children died in Massachusetts' fires. Of the 59 civilian deaths in fires in 2001, 48 occurred in residential structure fires and three occurred in non-residential structure fires. Over three-quarters of the civilians died in the “safety” of their own homes. The majority of these victims died at night, while they were sleeping. Their homes did not have any 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.

Six (6) deaths occurred in motor vehicle fires in 2001. Two people died in four outside and other fires in 2001.

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 2001, the improper use and disposal of smoking materials caused 16 fire deaths, eight men and eight women, in 16 fatal fires. The unsafe and improper disposal of smoking materials caused 33% of residential structure fire deaths and 36%, or over one-third, of fatal residential structure fires.

Cooking Was the Leading Cause of Residential Structure Fires
Thirty-nine percent (39%) of residential structure fires were caused by unattended and other unsafe cooking practices in 2001. Forty-four percent (44%) of residential structure fires originated in the kitchen.

Almost 1/3 of Residential Fires Occurred in Homes With No Working Smoke Detectors
Unfortunately, in 30% of the residential structure fires, there were no working smoke detectors. No detectors were present at all in 12% of the residential structure fires. Detectors were present but failed to operate in 18%. The fire was too small to activate the detector in 8% of residential fires. Detectors operated in 62% of residential structure fires. These percentages were calculated for 5,670 fires where the detector performance was known.

Detectors Operated in 62% of Structure Fires that Caused Injuries
Of the 300 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 using a neighbor's phone or cell phone as soon as possible, letting the professionals with the proper training and gear extinguish the fire.

Structure Arson Down 17%
For statistical purposes, a fire is considered arson when the *Cause of Ignition* is listed as intentionally set and, the Age of Person in the Fire or Wildland Fire Module is greater than 17 or if the field is left blank. Three thousand four hundred and twenty-six (3,426) Massachusetts fires were considered arson in 2001. The 620 structure arsons, 743 vehicle arsons, and 2,063 outside and other arsons caused nine civilian deaths, 30 civilian injuries, 86 fire service injuries, and an estimated dollar loss of $15.2 million.

Structure arson fell by 17%. Motor vehicle arsons fell 7% from 2000 to 2001, although since 1987, motor vehicle arson has fallen 85%. 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 states that owners of burned vehicles must personally file

a report at the fire station before they can collect on their fire insurance. Outside and other arsons increased 14% from the 1,815 reported in 2000.

Dormitory Fires Up
Reported fires in dormitories increased by 44% from 115 in 2000 to 166 in 2001. Dormitory fires accounted for 2% of the 8,134 residential structure fires.

59% of School Fires Were Considered Arson
Fifty-nine percent (59%) of the 182 school fires were considered arson. This is a 3% increase from the 113 arsons reported in 2000.

Reports for confined indoor rubbish fires are not required to provide a cause of ignition, although some do. Based on previous years' data, where confined indoor rubbish fires were required to provide a cause and the cause given was predominantly "intentionally set," we can infer that most of these fires were also intentionally set. When we include the indoor rubbish fires with no cause reported to the arson category, arsons increase to 63% of school fires in 2001.

Cooking started 13% of fires in Massachusetts' schools in 2001. Seven percent (7%) were electrical; another 7% were heating-related fires. Smoking was the cause of 4% of the fires in schools in 2001.

Twenty-seven (27), or 60%, of the 45 indoor rubbish fires in schools in 2001 occurred in the bathroom. Children were probably involved in many of these fires.

There were no fires in schools where sprinklers were present and operated. In 70% of the fires in non-residential schools, there were no sprinkler systems. Twenty-six percent (26%) of these fires were too small to activate the sprinkler system and in 4% of the fire the sprinkler system failed to activate.

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 teach the citizens fire safety and fire prevention through public education and inspections. 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 fails, then the alarm comes in and the trucks roll.

Fire Department Enforces M.G.L. Chapter 148 and 527 CMR
The fire department is legally required to enforce the provisions of 527 Code of Massachusetts Regulations (CMR). This contains regulation sections on fireworks, dry cleaning, oil burners, gas stations, liquid propane, plastics, transportation of flammable liquids, above ground 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 and the annual report of the Massachusetts Burn Injury Reporting System (M-BIRS) 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 1997. 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 2001, 244 fire departments participated in the S.A.F.E. program.

Warren Young Hero Kayla Bedell
On October 17, 2001 at 2:37 a.m., the Bedell household awoke to the sound of smoke alarms. Mr. and Mrs. Bedell alerted their three daughters, who were in an adjacent bedroom. Six-year old Kayla remained calm and remembered her lessons in fire safety. She immediately made sure her sisters, ages 2 and 4, were awake and kept them at her side. Kayla informed the family members that they needed to crawl low beneath the smoke. The family safely exited the home, proceeded to their meeting place on their neighbor's porch, and placed a call to the fire department. Kayla, a first grader at the Warren Community Elementary School had received fire safety instruction from the Warren Fire Department S.A.F.E. Program one week earlier. That evening she went home and encouraged the family to practice an escape plan. Kayla is just one of over 155 "young heroes" from the first seven years of the S.A.F.E. Program. These young heroes are children that have found themselves in a real life emergency and responded correctly by using the life safety lessons they learned from firefighters in school.

99.7% of Massachusetts Fire Departments Participated in MFIRS
By law, fire departments are required to report any fire or explosion resulting in a human casualty or dollar loss to the Office of the State Fire Marshal. This is done through the Massachusetts Fire Incident Reporting System (MFIRS). Three hundred forty-four (342) Massachusetts Fire Departments reported at least one fire during 2001. Twenty-two (22) reported that they had no fires that met the criteria. Ninety-nine point seven percent (99.7%) of the Massachusetts Fire Departments complied with fire incident reporting this year. This is the highest compliance rate in MFIRS history. 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.

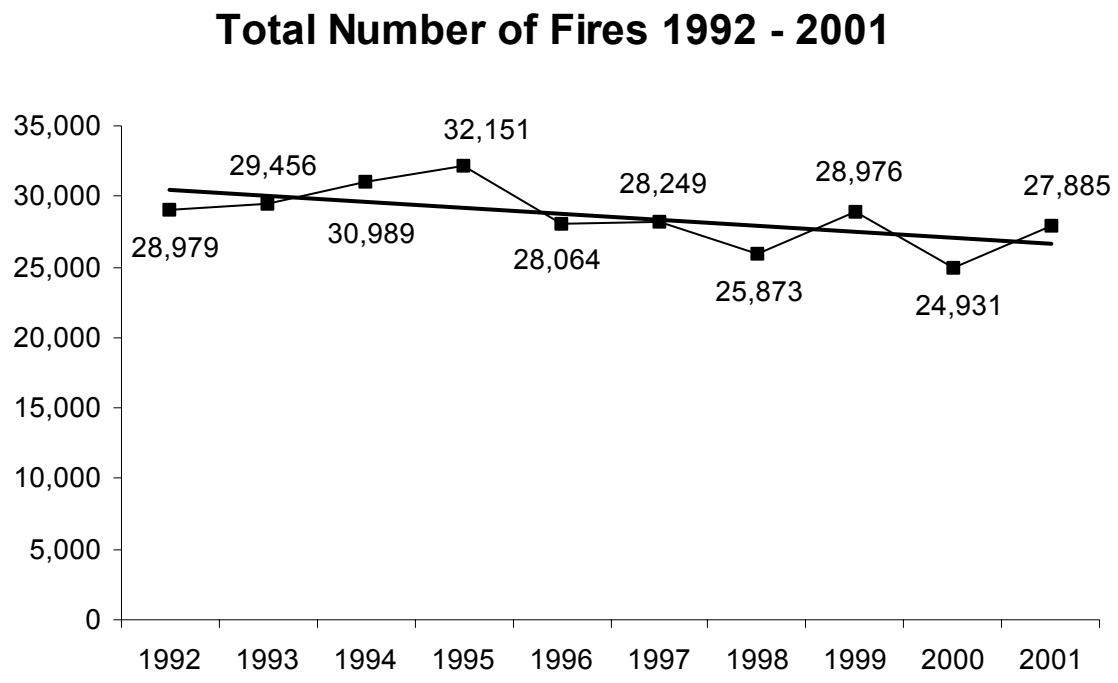
More and more departments are automating fire incident reporting and other department functions. In 2001, 45% of Massachusetts' fire departments submitted their data electronically.

Fires by Incident Type

27,885 Fire Incidents Reported in 2001
Massachusetts fire departments reported 27,885 incidents to the Massachusetts Fire Incident Reporting System (MFIRS) in 2001. The total number of incidents was up 12% from the 24,931 incidents reported in 2000

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 1992 through 2001. The graph following the table is a representation of this table for the total number of reported fires in the Commonwealth for that same time period. Note the overall downward trend in the total number of fires since 1992.

Year	Total Fires	Structure Fires	Vehicle Fires	Other Fires
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
1993	29,456	11,605	7,234	10,617
1992	28,979	11,982	7,160	9,837



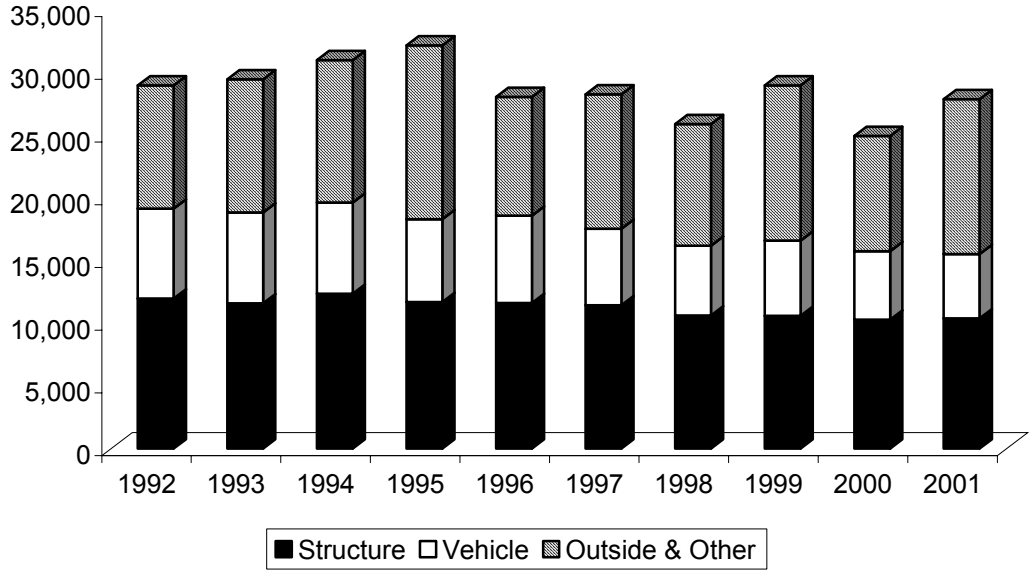
10,384 Structure Fires, 51 Civilian Deaths
Massachusetts fire departments reported 10,384 structure fires to the Massachusetts Fire Incident Reporting System (MFIRS) in 2001. These fires killed 51 civilians, caused 389 civilian injuries, 636 fire service injuries, and an estimated $175.5 million in property damage. Structure fires accounted for 37% of the total incidents and 86% of the civilian deaths in 2001. There were 620 structure arsons in 2001. Structure fires in the Massachusetts Fire Incident Reporting System include any fires that occur inside or on a structure.

5,127 Motor Vehicle Fires Account for Almost 1/5 of Reported Fires
The 5,127 motor vehicle fires caused six civilian deaths, 44 civilian injuries, 21 fire service injuries, and $23 million in property damage. These incidents accounted for 18% of the reported 27,885 fires in 2001. There were 743 motor vehicle arsons in 2001. Motor vehicle fires accounted for 10% of civilian fire deaths. Motor vehicle fires were down 6% from 2000. 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.

12,374 Brush Fires, Trash Fires, and Other Outside Fires, Reported in 2001
The 12,374 outside and other fires caused two civilian deaths, 68 civilian injuries, 50 fire service injuries, and an estimated dollar loss of $6.5 million. The 6,462 trees, grass and brush fires, 3,080 outside rubbish fires, 789 cultivated vegetation or crop fires, 506 special outside fires, and 1,537 other fires accounted for 44% of the total fire incidents in 2001. These fires were up 35% from the 9,176 such outside and other fire incidents reported in 2000. There were 2,063 outside and other arsons in 2001. 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 graph depicts the breakout of the number of reported structure fires, motor vehicle fires and outside and other fires for the time period 1992 to 2001. During the first five years of this period (1992-1996) the total number of structure fires increased. However from 1997 through 2001 the number of structure fires steadily dropped. 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.

Incident Type by Year 1992 - 2001

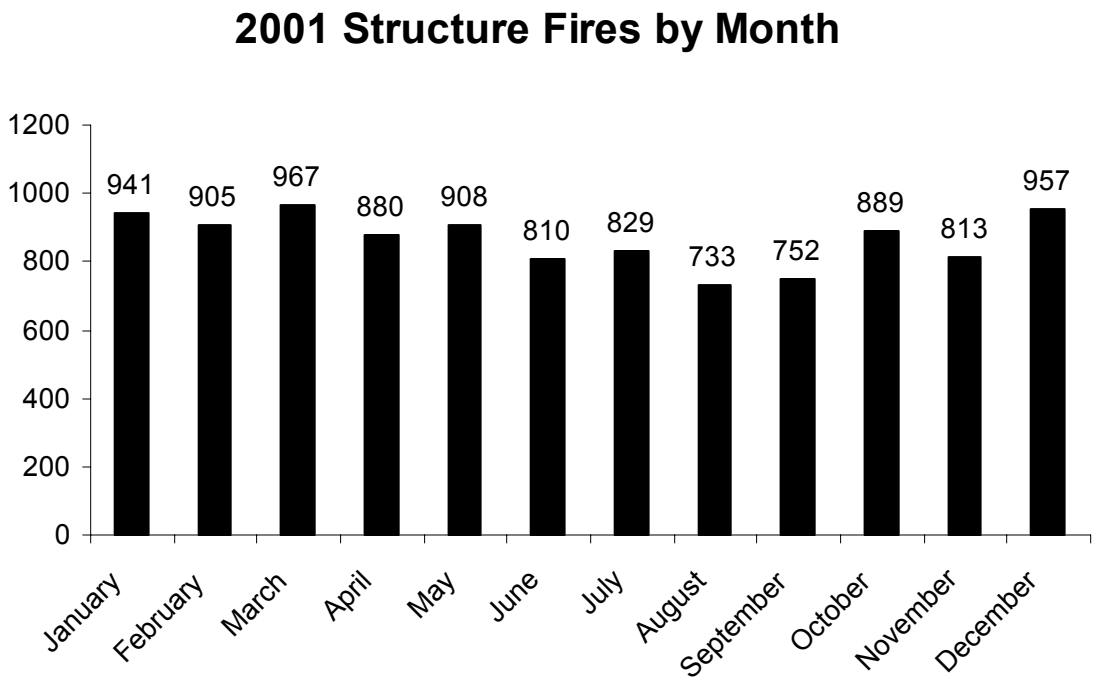


Structure Fires

10,384 Structure Fires Account for 37% of Reported Fires, 86% of Fire Deaths
The 10,384 structure fires caused 51 civilian deaths, 389 civilian injuries, 636 fire service injuries, and an estimated dollar loss of $176 million. The average structure fire caused $16,908 in property damage. Structure fires accounted for 37% of reported fires and 86% of the civilian fire deaths in 2001.

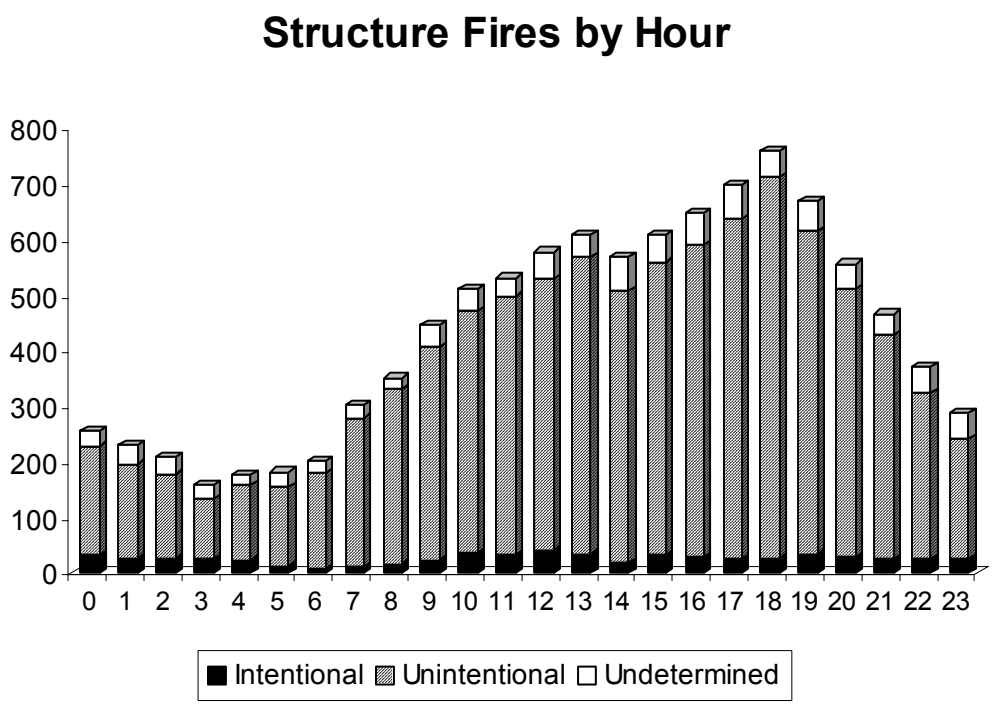
According to the MFIRS definition, any fire occurring inside or on a structure is considered a structure fire. This includes chimney fires, cooking fires, indoor waste basket fires, fires on a back porch, exterior trim fires, and vehicle fires that occur inside a garage. The number of structure fires rose by 1% from the 10,280 reported in 2000.

Structure Fires Most Common in Colder Months
Heating equipment plays a frequent role in structure fires. It is not surprising that March was the peak month for these incidents in 2001. December ranked second and January 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 June had the third lowest number of structure fires in 2001.



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 10:00 a.m. and 1:00 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 graph below 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 it is considered to be intentionally set[1]. 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 3/4 of Structure Fires Occurred in Residential Occupancies
Over three-quarters of the state's 10,384 structure fires and 48 of the 51 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. Utilities,

[1] In 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. For conversion purposes, if an incident was coded with an Ignition Factor = Incendiary or Suspicious (Codes 11, 12, 21, 22) in MFIRS version 4 it converted to Cause of Ignition = Intentional (Code 1) in MFIRS version 5.

laboratories and communications are considered basic industries. Special properties include construction or unoccupied properties and properties used for transportation.

STRUCTURE FIRES BY OCCUPANCY TYPE

Occupancy	# of Fires	% of Total	Injuries FF	Injuries Civ	Deaths FF	Deaths Civ	Dollar Loss
Public Assembly	367	4%	17	3	0	0	$7,353,743
Educational	241	2%	2	2	0	0	1,623,037
Institutional	230	2%	1	7	0	0	6,810,021
Residential	**8,134**	**78%**	**512**	**337**	**0**	**48**	**99,674,566**
1- & 2-Family homes	*4,267*	*41%*	*298*	*161*	*0*	*29*	*65,284,291*
Apartments	*3,308*	*32%*	*196*	*161*	*0*	*17*	*31,288,785*
All other residential	*559*	*5%*	*18*	*15*	*0*	*2*	*3,101,785*
Mercantile, business	549	5%	52	9	0	1	21,861,047
Basic Industry	51	1%	6	6	0	1	6,251,651
Manufact., processing	210	2%	13	19	0	0	20,035,586
Storage Properties	248	2%	11	4	0	1	8,951,840
Special Properties	208	2%	9	1	0	0	1,759,716
Unclassified	149	1%	13	1	0	0	1,254,605
Total	**10,384**	**100%**	**636**	**389**	**0**	**51**	**$175,575,812**

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. 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 buildings under construction or demolition, vacant property, outbuildings, bridges, roads, railroad property, outdoor properties, water areas, aircraft areas and equipment operating areas.

19% of Structure Fires Are Confined to Non-Combustible Containers[2]
One thousand nine hundred and fifty-four (1,954), or 19% of all structure fires, were reported as confined to non-combustible containers in 2001. One thousand one hundred and nineteen (1,119) of the reported fires were cooking fires contained to a non-combustible container accounting for 11% of structure fires. Three hundred and thirty-seven (337), or 3%, were fires confined to a fuel burner or boiler malfunction. Two hundred and sixty-one (261), or 3%, of all structure fires reported in 2001 were fires confined to a chimney. Two hundred and twenty-seven (227), or 2%, of these fires were contained rubbish fires. Six (6), or less than 1%, were commercial compactor fires that were confined to the rubbish. Four (4), or less than 1%, of these fires in the Commonwealth were contained to an incinerator overload or malfunction. The number of contained fires is expected to rise in 2002 when all fire departments will be reporting in the new version 5 format.

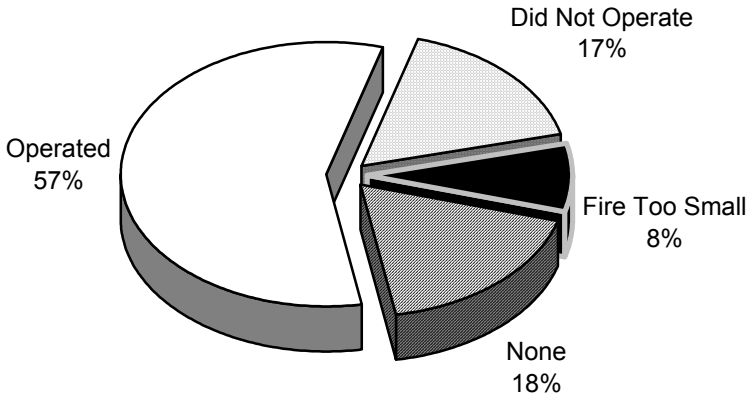
Detectors Alerted Occupants in 45% of Confined Fires
Smoke or heat detectors alerted the occupants in 875, or 45%, of the residential structure fires that were confined to non-combustible containers. In 22% of these fires, the detectors did not alert the occupants. In 33% of these fires, it was undetermined if the detectors alerted the occupants of the residence.

This is the first time that this data has been collected in this way. We are not sure if it means fires confined to non-combustible containers usually have someone present at ignition, like a pan fire, and the person present extinguishes it before a smoke detector is activated. It could also mean that no detectors were present; detectors were present but not operating; or that no one was home to be alerted by the detectors.

Detectors Sounded the Alarm in 57% of Structure Fires
Smoke or heat detectors sounded the alarm in 57% of the 7,176 structure fires for which detector status was known. Smoke detectors failed to alert occupants in 35% of the structure fires in 2001; in these incidents, smoke detectors were present but did not operate in 17% of these fires and no detectors were present in 18% of the structure fires. In 8%, the fire was too small to activate the detector. Detector status for structure fires was undetermined or not reported in 1,486 incidents. These incidents were excluded from the percentage calculations.

[2] 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 Structure



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

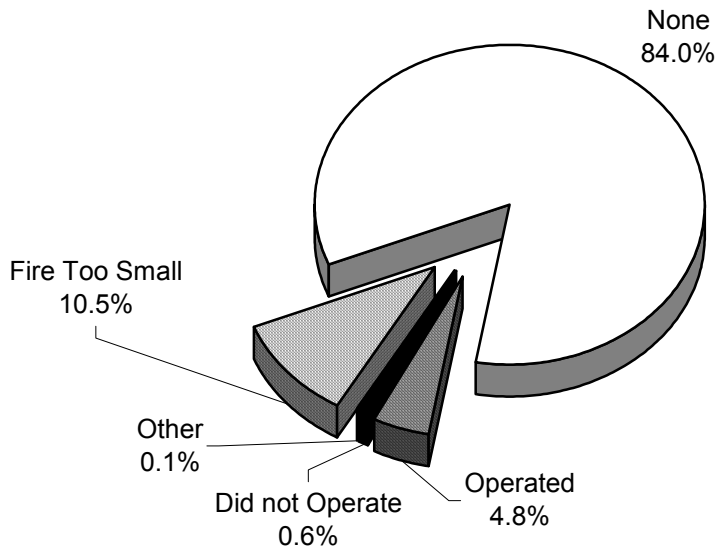
DETECTOR PERFORMANCE	Operated	Did Not Operate	Fire Too Small	None	Unknown	Total
Public Assembly	101	28	22	79	73	303
Educational	119	24	25	25	24	209
Institutional	169	21	15	1	23	196
Residential	4,095	1,031	478	658	1,104	6,774
Mercantile, Business	179	49	37	141	86	484
Basic Industry	25	6	0	21	3	40
Manufacturing	72	25	9	85	40	198
Storage Properties	21	9	6	157	45	234
Special Properties	13	4	0	70	20	101
Unclassified	9	3	1	42	68	123
Total	**4,104**	**1,200**	**593**	**1,279**	**1,486**	**8,662**

Sturbridge Building Fire had Greatest Dollar Loss

- On August 13, 2001 at 8:53 p.m. the Sturbridge Fire Department was called to a large loss fire in a plastics manufacturing building of undetermined cause. There were no injuries. Smoke detectors were present and operating. There was no automatic extinguishing system present. Damages from this fire were estimated at $7,000,000. and was the largest loss fire in Massachusetts in 2001. The fire department was on scene for approximately 23 hours.

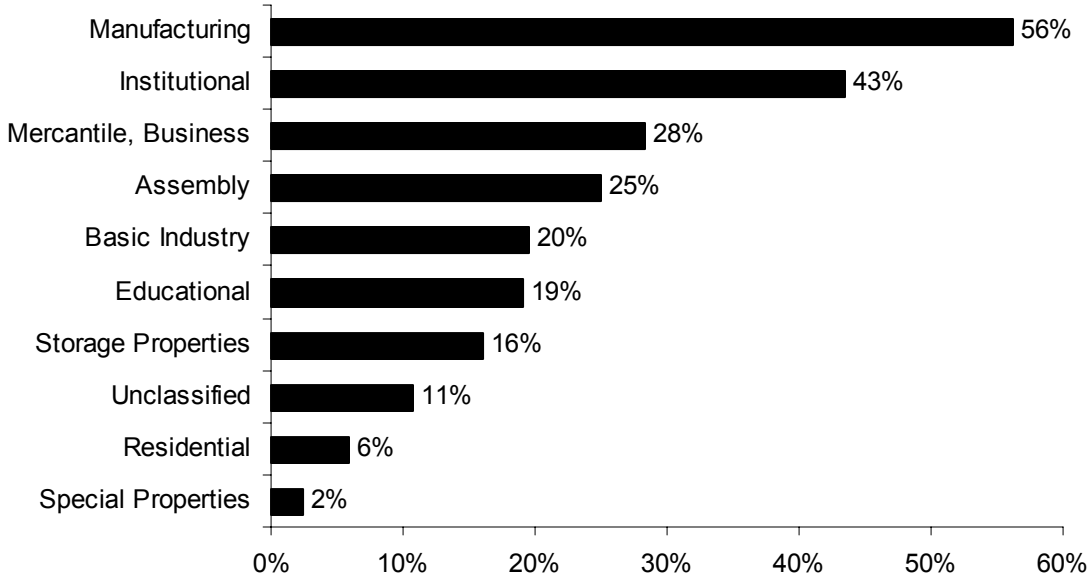
Sprinklers Operated in 5% of Fires
Sprinklers were present and operated in 5% of the 6,662 structure fires for which sprinkler status was known. Sprinklers were present, but the fire was too small to activate them in 10% of fires. Sprinkler equipment was present but did not operate in 1% of these fires. No sprinkler equipment was present in 84% of structure fires. Sprinkler performance was undetermined or not reported in 2,290 incidents. These incidents were excluded from the percentage calculations.

Sprinkler Status in Structure Fires



Only 10% of Fires in Buildings With Sprinklers
Overall, 10% of the structure fires in 2001 occurred in buildings that had sprinklers, regardless of whether the fire was large enough to activate the sprinkler. Manufacturing and institutional properties were the most likely to be sprinklered. Fifty-six percent (56%) of the fires in manufacturing or processing facilities and 43% of the fires in institutional properties occurred in buildings with sprinklers. Only 6% of the residential fires occurred in sprinklered buildings.

Fires In Sprinklered Buildings by Occupancy



The table below shows sprinkler performance by occupancy group.

SPRINKLER PERFORMANCE

	Operated	Did Not Operate	Fire Too Small	None	Unknown	Total
Public assembly	10	6	51	278	22	367
Educational	1	5	34	194	7	241
Institutional	0	3	77	138	12	230
Residential	7	12	318	7,669	128	8,134
Mercantile, business	4	5	111	397	29	546
Basic industry	2	2	4	41	2	51
Manufact., processing	8	4	78	94	26	210
Storage properties	0	3	20	209	16	248
Special properties	0	0	1	203	4	208
Unclassified	1	0	5	134	9	149
Total	**33**	**40**	**699**	**9,357**	**255**	**10,384**

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 fully protected by an adequate system of automatic sprinklers by March 30, 1998.

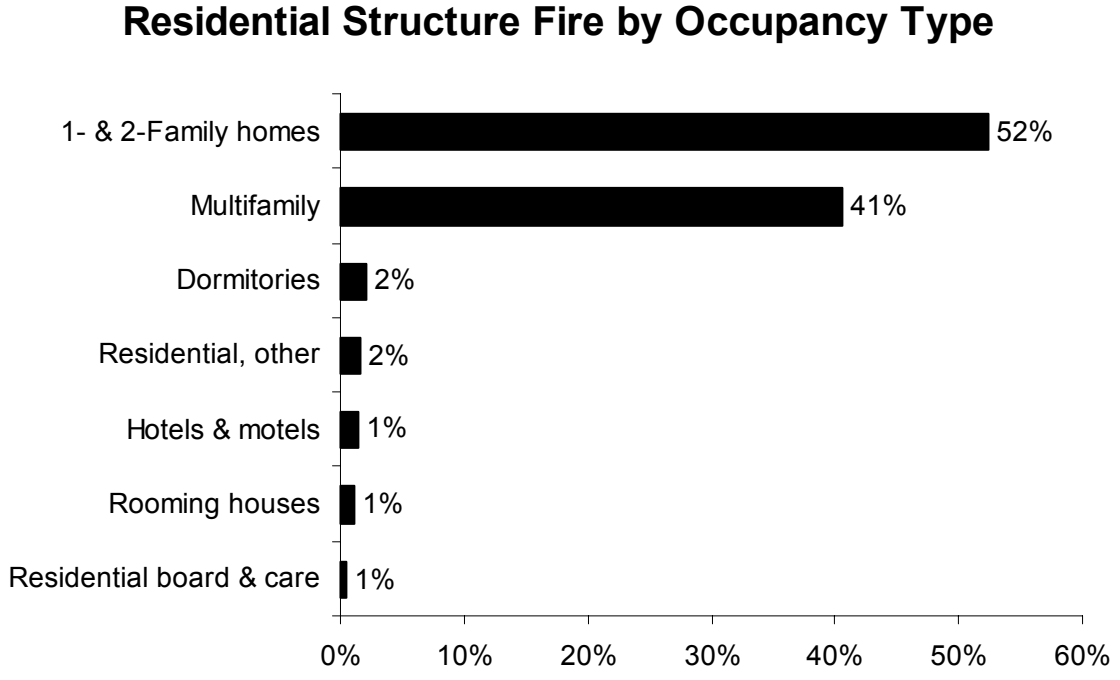
Written Permit Required from Fire Department before Disconnecting Sprinklers
Under the provisions of MGL Chapter 148, Section 27A, it is illegal to "…shut off, disconnect, obstruct, remove or destroy… any part of any sprinkler system, water main, hydrant, or other device used for fire protection… without 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

78% of Structure Fires Occurred in Residential Occupancies
Massachusetts fire departments reported that 8,134, or 78% of the 10,384 structure fires occurred in residential occupancies. These fires caused 48 civilian deaths, 337 civilian injuries, 512 fire service injuries and an estimated dollar loss of $100 million. The average dollar loss per fire was $12,254. The total number of reported residential structure fires went up 2% from the 8,005 reported in 2000. 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	4,267	52%	298	161	0	29	$65,284,291
Multifamily	3,308	41%	196	161	0	17	31,288,785
Rooming houses	98	1%	2	1	0	1	259,210
Hotels & motels	118	1%	8	9	0	1	1,089,976
Residential board & care	41	1%	0	1	0	0	35,652
Dormitories	166	2%	2	0	0	0	288,896
Unclassified	136	2%	6	4	0	0	1,427,756
Total	**8,134**	**100%**	**512**	**337**	**0**	**48**	**$99,674,566**

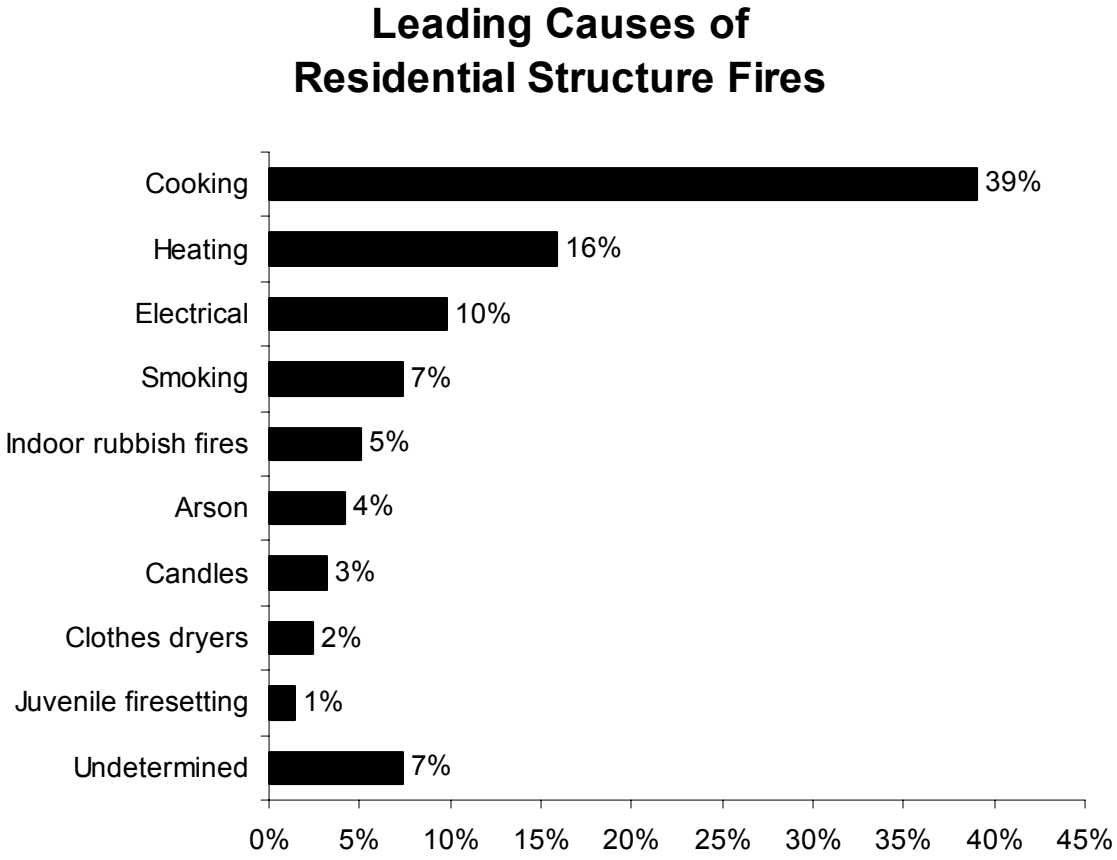


Residential Occupancy Sub-Group Definitions

- **1- & 2-Family**: This category includes one or two family homes, detached, manufactured homes, mobile homes and duplexes/
- **Mulitfamily 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 (311).
- **Dormitories**: This category includes dormitory type residences and sorority or fraternity houses. It also includes barracks; 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 Leading Cause of Residential Structure Fires

The leading causes of residential structure fires in 2001 were cooking, heating, electrical, smoking, indoor rubbish fires, arson, candles, clothes dryers, and juvenile firesetting. Cooking was the leading cause of residential structure fires accounting for 39% with 3,173 incidents. Heating accounted for 1,293, or 16% of the total fires. Electrical problems caused 795, or 10%, of incidents. Only 7%, or 603, of the total residential structure fires were of undetermined cause. The unsafe use and disposal of smoking materials accounted for 602, or another 7%, of these incidents. Indoor rubbish fires were the cause of 412, or 5% of residential structure fires. Arson accounted for 342, or 4%, of residential structure fires. Three percent (3%), or 258, were caused by candles. Clothes dryer fires were the cause for 194, or another 2%, of these incidents. Juvenile firesetting accounted for 115, or 1%, of residential structure fires in Massachusetts in 2001.



44% of Residential Fires Started in the Kitchen
For residential structure fires where area of origin was reported, 44% of the fires started in the kitchen. Seven percent (7%) started in the heating room or area; another 7% began in the bedroom; 6% started in the chimney; 4% started in the living room; and 3% started in the laundry room in 2001. Area of origin was unknown in 158 incidents. These incidents were excluded from the percentage calculations.

21% of Residential Structure Fires Confined to Non-Combustible Containers[3]
One thousand five hundred and eighty (1,580), or 19% of all residential structure fires, were reported as confined to non-combustible containers in 2001. Nine hundred and forty-seven (947) of the reported fires were cooking fires contained to a non-combustible container accounting for 12% of residential structure fires. Three hundred (300), or 4%, were fires confined to a fuel burner or boiler malfunction. Two hundred and forty-six (246), or 3%, of all residential structure fires reported in 2001 were fires confined to a chimney. Eighty-four (84), or 1%, of these fires were contained rubbish fires. Three (3),

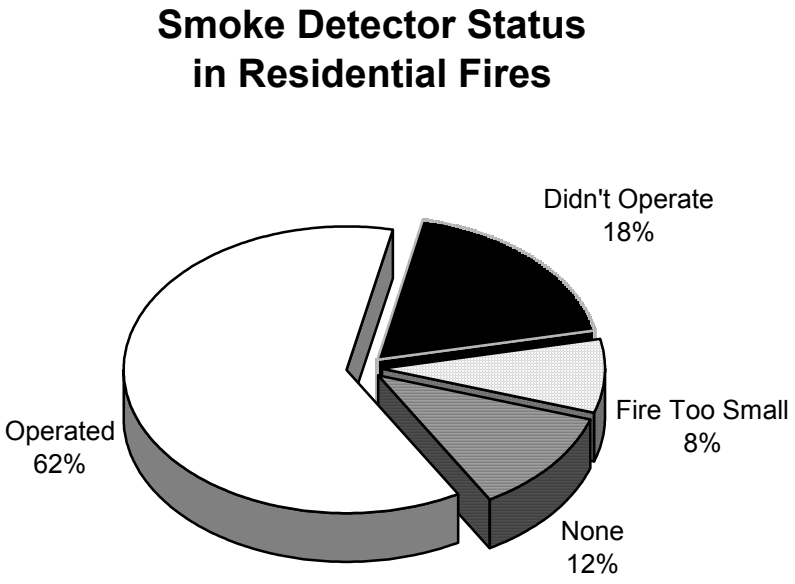
[3] In MFIRS v5 a fire in a building contained to a non-combustible container (Incident Type = 113-118) does not have to have a Fire Module completed. Therefore the following data fields do not need to be completed: area of origin, detector status, item first ignited, heat source, factors contributing to ignition, cause of ignition, equipment involved in ignition and sprinkler performance. These incidents are not included in the analysis of these fields unless the Fire Module was voluntarily reported.

or less than 1%, of these fires in the Commonwealth were contained to an incinerator overload or malfunction. The number of contained fires is expected to rise in 2002 when all fire departments will be reporting in the new version 5 format.

Detectors Alerted Occupants in 47% of Confined Fires
Smoke or heat detectors alerted the occupants in 741, or 47%, of the residential structure fires that were confined to non-combustible containers. In 20% of these fires, the detectors did not alert the occupants. In 33% of these fires, it was undetermined if the detectors alerted the occupants of the residence.

This is the first time that this data has been collected in this way. We are not sure if it means fires confined to non-combustible containers usually have someone present at ignition, like a pan fire, and the person present extinguishes it before a smoke detector is activated. It could also mean that no detectors were present; detectors were present but not operating; or that no one was home to be alerted by the detectors.

Detectors Sounded in 62% of Residential Fires
Smoke or heat detectors were present and operated in 62% of the 6,774 residential structure fires for which detector performance was known. Detectors were present but did not operate in 18%, of these incidents. No detectors were present in 12% of the residential fires. In 8%, the fire department reported that the fire was too small to trigger the detector. Smoke detector performance was not reported or not classified in 1,104 incidents. These fires were excluded from the percentage calculations.



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 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.

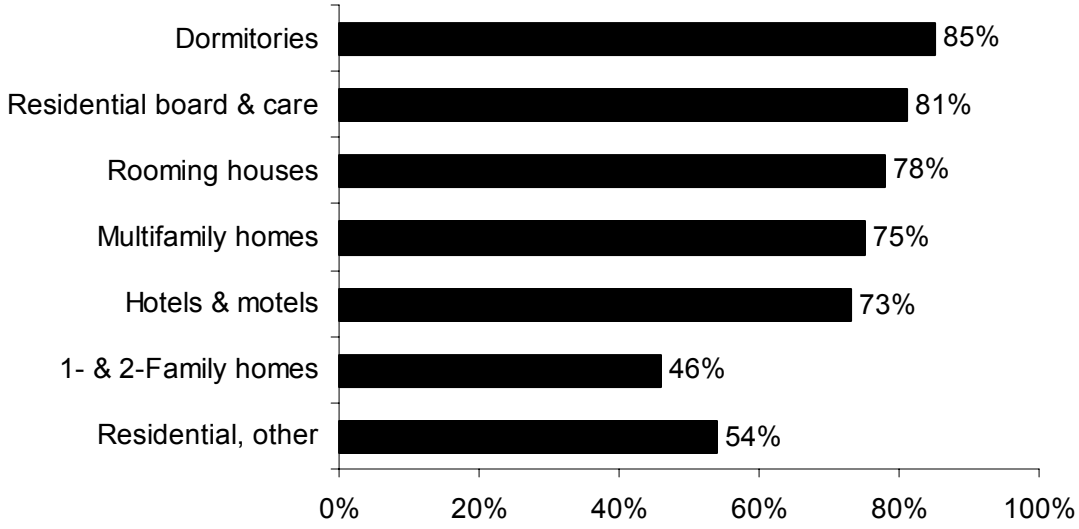
Studies have indicated that not unlike any other appliance in your household, smoke detectors do not last forever. The life span for a typical smoke detector whether it is a battery-powered or hard-wired is 10 years. Smoke alarms that are 10 years old or older should be replaced. The manufacture date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

Automatic smoke detectors are required at all times in buildings containing three or more residential units. Massachusetts General Law Chapter 148, Section 26E (a) requires owners of one- and two- family homes 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.

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.

Dormitories Highest Percentage of Operating Detectors
Dormitories were the most likely residential occupancy to have operating smoke detectors. Residential board and care residences such as long-term care and halfway houses, 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 residential occupancies.

Operating Detectors in Residential Occupancy Fires



1/2 of Residential Fire Deaths Occurred with No Working Detectors
Eighty-one percent (81%) of all 2001 fire deaths took place in residential occupancies, or the so -called "safety" of people's homes. Overall, 50% of the 48 residential structure fire deaths occurred in buildings with no working detectors; 25% took place in homes where detectors did not operate and 25% of deaths occurred where there were no detectors present at all. Another Twenty-five percent (25%) of residential structure fire deaths occurred where smoke detectors were present and operated. Smoke detector status was unknown for 25% of these deaths.

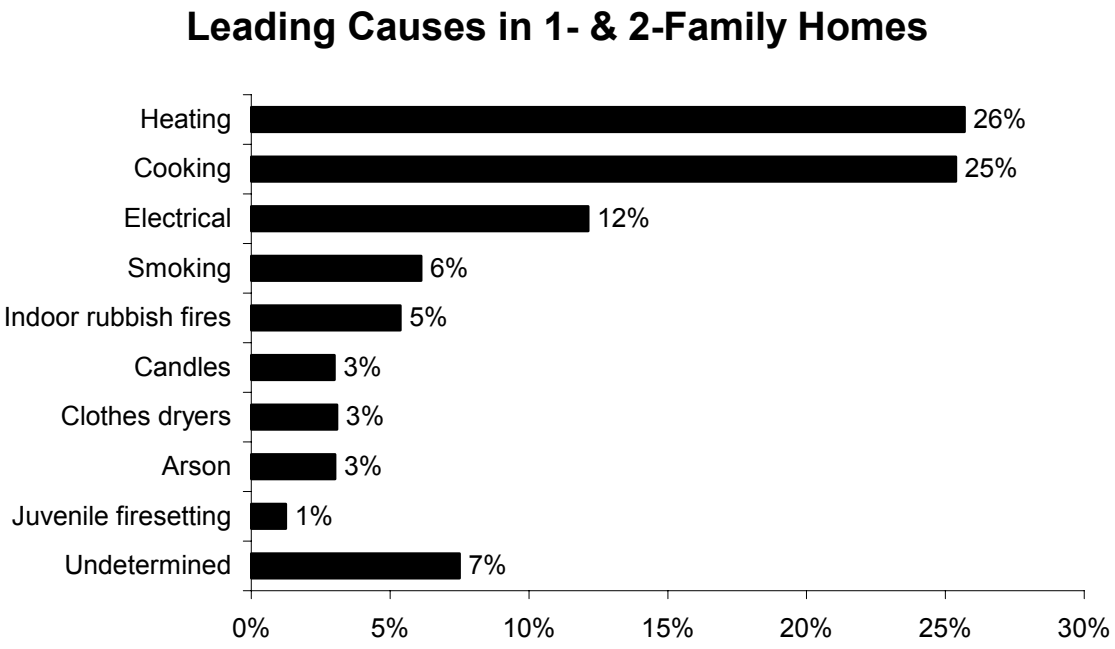
Sprinklers Present in Only 7% of Residential Structure Fires
Sprinklers were present and operated in 0.1% of the 5,012 residential structure fires where sprinkler performance was known in 2001. In 0.2% of the fires in residential occupancies, the sprinkler systems did not operate. In 6.3%, the fire was too small to activate the system. In 93% of the cases, there were no sprinkler systems present or installed. Sprinkler performance was not classified for 1,756 incidents involving residential structure fires.

Only You Can Make Your Home Safer for You and Your Family
Over three-quarters (78%) of structure fires and 81% of fire deaths took place in residential occupancies. Efforts to reduce the incidence of fire and fire deaths must be focused on home fire safety to have the greatest impact. Increased maintenance of smoke alarms, installation of residential sprinklers, practice of home escape plans coupled with safer products such as self-extinguishing cigarettes, upholstered furniture that meets the California flammability standard, and flame resistant sleepwear for all ages can help make homes and the families who live in them safer from fire.

Fires in One- and Two-Family Homes

4,267 Fires, 29 Civilian Deaths, $65.2 Million in Damage
Four thousand two hundred and sixty-seven (4,267) structure fires in one- and two-family homes caused 29 civilian deaths, 161 civilian injuries, 298 fire service injuries, and an estimated $65.2 million in property damage. In 2001, 52% of the Commonwealth's 8,134 residential structure fires occurred in one- and two-family homes. The average dollar loss from these types of fires was $15,300. Fires in one- and two-family homes were up 4% from 4,109 in 2000.

Heating and Cooking Were Leading Causes
Heating caused 26% 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 25%. Twelve percent (12%) of one- and two-family residential structure fires were caused by electrical problems. The unsafe and improper use of smoking materials caused 6% of the fires. Indoor rubbish fires accounted for 5% of the fires in this category. Candle fires, clothes dryer fires and arson were each the cause of 3% of the one- and two-family structure fires. Juvenile-set fires accounted for 1% of these fires. There was no cause determined in 7% of the fires in one- and two-family structures.



30% 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, 30% started in the kitchen. The second leading area of origin was heating equipment rooms or areas, accounting for 12% of these fires. Eleven percent (11%) started in the chimney; 7% started in the bedroom; 4% started in the living room. The laundry room, exterior wall surfaces, crawl or substructure spaces and storage areas each accounted for 3% of these incidents. Area of origin was undetermined in 82 incidents. These incidents were excluded from the percentage calculations.

Nearly 1/4 of 1- & 2-Family Fires Were Confined to Non-Combustible Containers[4]
Nine hundred and eighteen (918), or 22% of all residential structure fires in one- and two-family homes, were reported as confined to non-combustible containers in 2001. Three hundred and eight-three (383) were cooking fires contained to a non-combustible container accounting for 9% of all the residential structure fires in one- and two-family homes. Two hundred and forty-eight (248), or 6%, were fires confined to a fuel burner or boiler. Two hundred and thirty-two (232), or 5%, of all one- and two-family fires reported in 2001 were confined to a chimney. Fifty-two (52), or 1%, of these fires were contained rubbish fires. Three (3), or less than 1%, of these fires were contained to an incinerator overload or malfunction. The number of contained fires is expected to rise in 2002 when all fire departments will be reporting in the new version 5 format.

Detectors Alerted Occupants in 31% of Confined Fires
Smoke or heat detectors alerted the occupants in 288, or 31%, of the one- and two-family fires that were confined to non-combustible containers. In 26% of these fires, the detectors did not alert the occupants. In 43% of these fires, it was undetermined if the detectors alerted the occupants of the residence.

This is the first time that this data has been collected in this way. We are not sure if it means fires confined to non-combustible containers usually have someone present at ignition, like a pan fire, and the person present extinguishes it before a smoke detector is activated. It could also mean that no detectors were present; detectors were present but not operating; or that no one was home to be alerted by the detectors.

Detectors Did Not Operate in Almost 1/4 of One- and Two-Family Fires
Smoke or heat detectors were present and operated in 46% of the 2,632 one- and two-family residential structure fires for which detector performance was known. Detectors were present but did not operate in 24% of these incidents. No detectors were present in 19% of the residential fires, which took place in a one- or two-family home. In 11%, the fire department reported that the fire was too small to trigger the detector. Smoke detector performance was not reported or not classified in 763 incidents. These fires were excluded from the percentage calculations.

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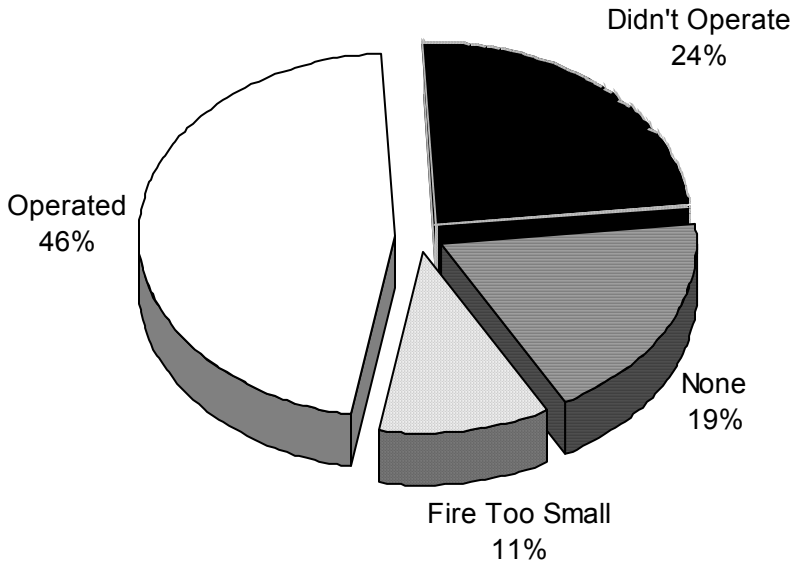
[4] In MFIRS v5 a fire in a building contained to a non-combustible container (Incident Type = 113-118) does not have to have a Fire Module completed. Therefore the following data fields do not need to be completed: area of origin, detector status, item first ignited, heat source, factors contributing 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 1- & 2-Family Home Fires



Detectors Required in All One- and Two-Family Homes
Massachusetts General Law Chapter 148, Section 26E (a) requires owners of existing one- and two-family homes 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.

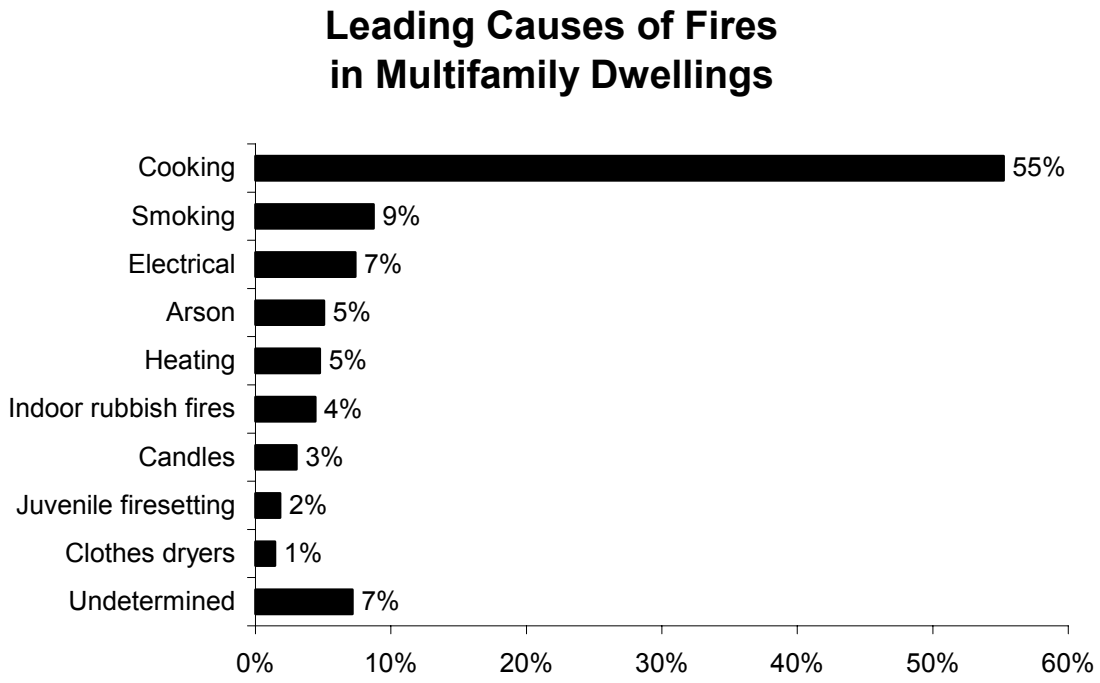
No Sprinklers Present in 99% of One- and Two-Family Structure Fires
In 2001 there were no fires in one- and two-family homes where sprinklers were present and operated. Less than 1% of the systems did not operate. In less than 1% of incidents, the fire was too small to activate the system. In 99% of the cases where sprinkler status was known, there was no sprinkler system. Four hundred and eighty-seven (487) incidents were not classified. These were excluded from the percentage calculations.

Multifamily Home Fires

3,308 Fires, 17 Civilian Deaths, $31 Million in Damage
Three thousand three hundred and eight (3,308), or 41%, of the Commonwealth's 8,134 residential structure fires occurred in multifamily dwellings in 2001. These 3,308 fires caused 17 civilian deaths, 161 civilian injuries, 196 fire service injuries, and an estimated dollar loss of $31.2 million. The average dollar loss per fire was $9,459. Fires in apartments were down 7% from 3,544 in 2000.

This residential occupancy category includes apartments, condominiums, townhouses, rowhouses and tenements. It is equivalent to the fixed property codes 420 – 429 in MFIRS version 4.

Unsafe Cooking Caused Over 1/2 of Apartment Fires
Fifty-five percent (55%) of the fires in apartments were caused by unsafe cooking in 2001. The improper and unsafe use of smoking materials caused 9% of fires in multifamily dwellings. Electrical problems caused 7% of the incidents. Arson caused 5% of the fires in these dwellings. Heating also accounted for 5% of apartment fires. Indoor rubbish fires caused 4% of these fires. Candles accounted for 3% of apartment fires. Juvenile-set fires caused 2% of the fires in apartments. Clothes dryer fires caused 1% of the fires in multifamily homes. For 7% of apartment fires in 2001 the cause was not determined.



62% of Apartment Fires Started in the Kitchen
For apartment fires where area of origin is known, 62% started in the kitchen. Seven percent (7%) started in the bedroom; 4% started in the living room, and 2% each started in the hallway or corridor, on an exterior balcony or unenclosed porch, in a heating room or area, in the bathroom, or in the laundry room. Area of origin was undetermined or not reported for 58 incidents. These incidents were excluded from the percentage calculations.

14% of Multifamily Home Fires Confined to Non-Combustible Containers[5]
Four hundred and seventy-four (474), or 14% of all structure fires in multifamily homes, were reported as confined to non-combustible containers in 2001. Four hundred and nine (409) were cooking fires contained to a non-combustible container accounting for 12% of all the multifamily dwelling fires in 2001. Forty-one (41), or 1%, were fires confined to a fuel burner or boiler malfunction. Twenty (20), or another 1%, of these fires were contained rubbish fires. Four (4), or less than 1%, of apartment fires reported in 2001 were fires confined to a chimney. The number of contained fires is expected to rise in 2002 when all fire departments will be reporting in the new version 5 format.

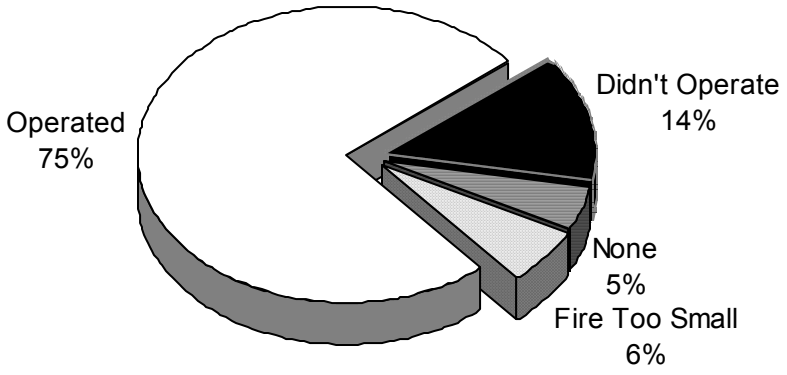
Detectors Alerted Occupants in 71% of Confined Fires
Smoke or heat detectors alerted the occupants in 337, or 71%, of the multifamily dwelling fires that were confined to non-combustible containers. In 12% of these fires, the detectors did not alert the occupants. In 17% of these fires, it was undetermined if the detectors alerted the occupants of the residence.

This is the first time that this data has been collected in this way. We are not sure if it means fires confined to non-combustible containers usually have someone present at ignition, like a pan fire, and the person present extinguishes it before a smoke detector is activated. It could also mean that no detectors were present; detectors were present but not operating; or that no one was home to be alerted by the detectors.

Detectors Sounded in 75% of Apartment Fires
Smoke or heat detectors were present and operated in 75%, of the 2,649 apartment building fires for which detector performance was known. Detectors were present but did not operate in 14% of these incidents. In 6%, the fire department reported that the fire was too small to trigger the detector. No detectors were present in 5% of the fires which took place in an apartment. Smoke detector performance was not reported or not classified in 308 incidents. These fires were excluded from the percentage calculations.

[5] 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



All Apartments Must Have Smoke Detectors
According to Massachusetts General Law Chapter 148, Section 26C, apartment houses containing six or more units must be equipped with hard-wired smoke detectors. In buildings of three to five dwelling units, the detectors may be hard-wired or battery operated in the units themselves. Detectors in common hallways and basements must be hard-wired.

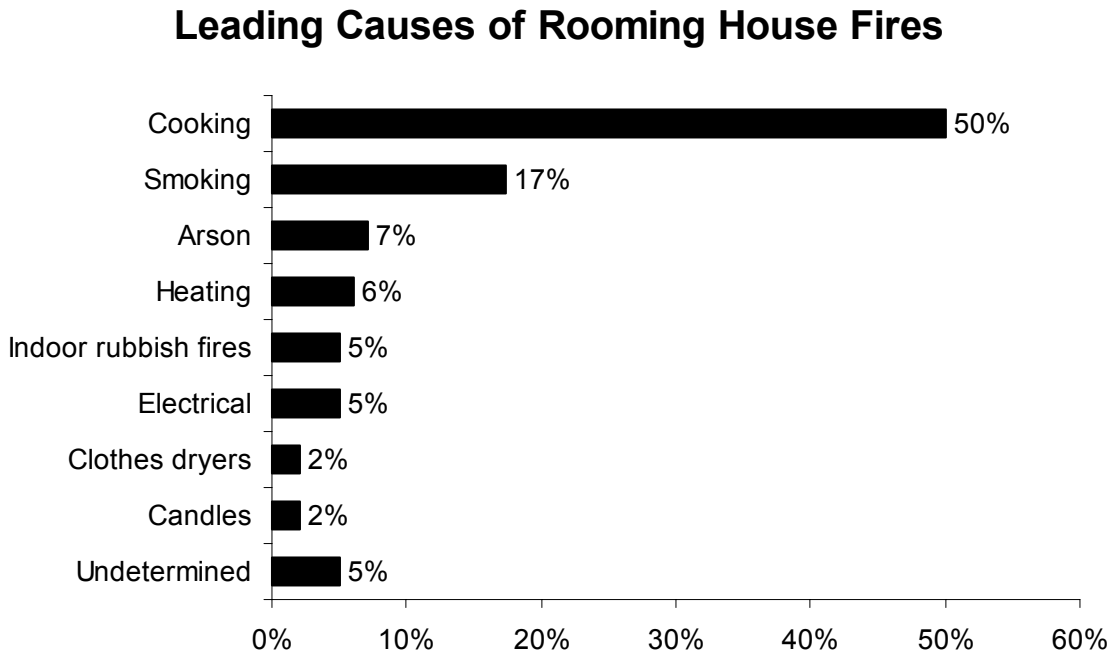
Sprinklers Present in Only 13% of Multifamily Dwelling Fires
Sprinklers were present and operated in only six, or less than 1% of the 1,813 multifamily dwelling fires where sprinkler status was known in 2001. In only eight of the fires, less than one percent (1%), the sprinkler system did not operate. In 218, or 12%, of these incidents, the fire was too small to activate the system. In 1,584, or 87%, of the cases, there were no sprinkler systems present or installed. In 1,143 incidents, sprinkler 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 buildings with three or more apartments are required by the state building codes to have them installed. Also, apartments are likely to be found in high-rise buildings which were required to be retrofitted with sprinklers by March, 1998. Sprinklers were present in 13% of multifamily fires, but only 1% of fires in one- and two-family dwellings.

Rooming House Fires

98 Fires, 1 Civilian Death and $259,210 in Damage
Ninety-eight (98) rooming, lodging, and boarding house fires were reported to the Massachusetts Fire Incident Reporting System (MFIRS) in 2001. These 98 fires caused one civilian death, one civilian injury, two firefighter injuries and an estimated $259,210 in damages. The average dollar loss per fire was $2,645. One percent (1%) of the 8,134 residential structure fires in 2001 occurred in rooming, boarding, or lodging houses. Fires in rooming houses were up 40% from 70 in 2000.

Cooking Caused 1/2 of Rooming House Fires
Of the 98 incidents in rooming houses, cooking caused 50%. The unsafe use and disposal of smoking materials was the next significant cause, igniting 17%, of the rooming house fires. Arson was the third leading cause of the 98 incidents, causing 7%. Heating caused 6% of the fires in rooming houses. Indoor rubbish fires caused 5% of these fires. Electrical fires in rooming houses accounted for another 5% of the incidents. Clothes dryers and candles each accounted for 2% of these fires. Five percent (5%) of the fires in rooming houses were undetermined.



51% of Rooming House Fires Started in the Kitchen
Fifty-one percent (51%) of the fires started in the kitchen. Twenty-one percent (21%) started in the bedroom; 4% started in each of the heating equipment room, the laundry room and an exterior balcony or unenclosed porch; and 3% started in a substructure area

or crawlspace. Area of origin was undetermined in one of the rooming house fires. This was excluded from the percentage calculations.

1/3 of Rooming House Fires Are Confined to Non-Combustible Containers[6]
Thirty-one (31), or 32% of all structure fires in rooming houses, were reported as confined to non-combustible containers in 2001. Twenty-nine (29) were cooking fires contained to a non-combustible container accounting for 30% of all the fires in rooming or boarding houses in 2001. One (1), or 1%, was a fire confined to a fuel burner or boiler malfunction. Another one (1), or 1%, of these rooming house fires were confined to a chimney. The number of contained fires is expected to rise in 2002 when all fire departments will be reporting in the new version 5 format.

Detectors Alerted Occupants in 77% of Confined Fires
Smoke or heat detectors alerted the occupants in 24, or 77%, of the rooming house fires that were confined to non-combustible containers. In 3% of these fires, the detectors did not alert the occupants. In 19% of these fires, it was undetermined if the detectors alerted the occupants of the residence.

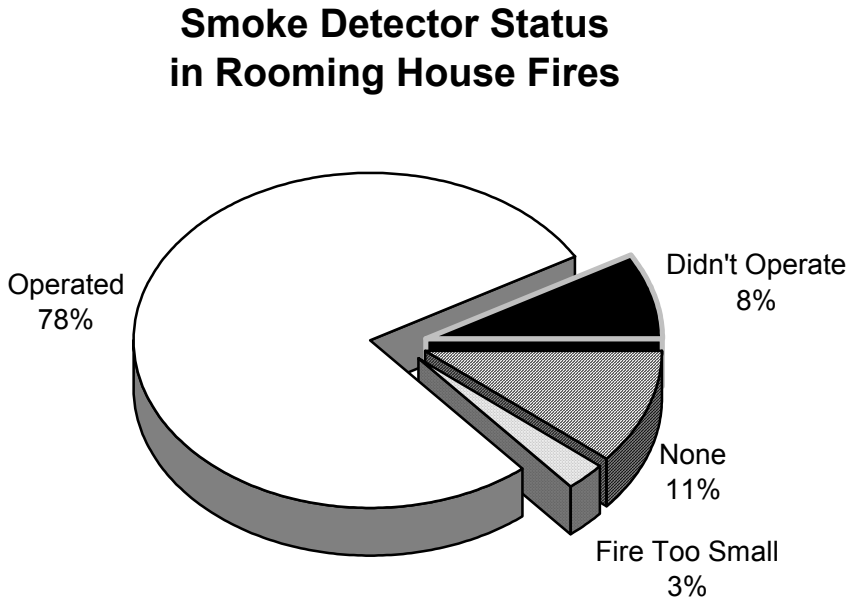
This is the first time that this data has been collected in this way. We are not sure if it means fires confined to non-combustible containers usually have someone present at ignition, like a pan fire, and the person present extinguishes it before a smoke detector is activated. It could also mean that no detectors were present; detectors were present but not operating; or that no one was home to be alerted by the detectors.

Detectors Sounded in Over 3/4 of Rooming House Fires
Smoke detectors are now required in rooming houses. Smoke or heat detectors were present and operated in 78% of the 72 rooming house fires for which detector performance was known. Detectors were present but did not operate in 8% of these incidents. In 3% of incidents, the fire department reported that the fire was too small to trigger the detector. In another 11% of rooming house fires, there were no detectors present. Smoke detector performance was not reported or not classified in seven incidents. These fires were excluded from the percentage calculations.

Sprinklers Present in 1/4 of Rooming House Residential Structure Fires
The fire was too small to activate the sprinklers in 25% of the 57 rooming house structure fires in 2001 where sprinkler status was known. There were no reported fires in rooming houses where sprinklers were present and should have activated. In 75% of the cases, there was no sprinkler system installed. Sprinkler status was unknown in 22 incidents.

[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.

Local Communities May Adopt MGL Ch. 148 s.26H
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 locally accepted. This was enacted after 15 people died in a Beverly rooming house fire on July 4, 1984. Our records show 75 communities have chosen to adopt this law.

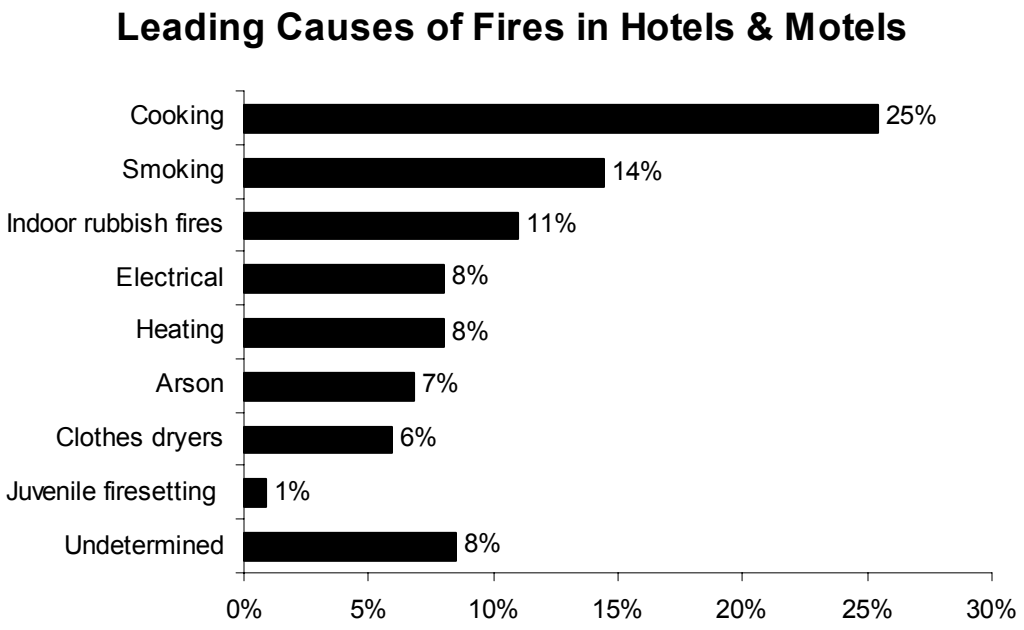


Hotel and Motel Fires

118 Fires, 1 Civilian Death and $1 Million in Damages
One hundred and eighteen (118) structure fires in hotels, motels and home hotels caused one civilian death, nine civilian injuries, eight fire service injuries, and $1,089,976 in estimated property damage. The average dollar loss per fire was $9,237. In 2001, 1% of the 8,134 residential structure fires occurred in hotels, motels, or home hotels. Fires in hotels and motels were up 9% from 108 in 2000.

Cooking Caused 1/4 of Hotel & Motel Fires
Of the 118 fires in hotels and motels in 2001, cooking was the leading cause, accounting for 25% of the fires in this occupancy. Smoking materials ignited 14% of these fires. Indoor rubbish fires were responsible for 11% of the fires in hotels and motels. Electrical problems and heating equipment each caused 8%. Arson accounted for 7% of hotel and motel fires in 2001. Clothes dryers caused another 6% of these fires. Juvenile-set fires

accounted for 1% of the fires in hotels and motels in 2001. Eight percent (8%) of the fires in this category went undetermined.



Over 1/2 of Hotel and Motel Fires Started in the Kitchen
For hotel and motel fires where area of origin is known, 53%, or over one-half, of the fires started in the kitchen. Ten percent (10%) of these fires began in the laundry room. Eight percent (8%) started in a hallway or corridor. Bedrooms were where 7% of these fires began. Three percent (3%) of these fires started in each of the following areas: the bathroom, storage areas, exterior wall surfaces, heating room or area and an assembly area for less than 100 people, lobby or meeting room. There were three fires in hotels and motels where area of origin was unknown. These incidents were excluded from the percentage calculation.

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.' This term includes 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 www.usfa.fema.gov/hotel.

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

11% of Hotel or Motel Fires Confined to Non-Combustible Containers[7]
Eleven (11), or 11% of all structure fires in hotels and motels, were reported as confined to non-combustible containers in 2001. Five (5), or 5%, of the fires in hotels or motels were confined to a fuel burner or boiler malfunction. Four (4) were cooking fires contained to a non-combustible container accounting for 4% of these fires. Two (2), or 2%, of hotel or motel fires in 2001 were confined to a chimney. The number of contained fires is expected to rise in 2002 when all fire departments will be reporting in the new version 5 format.

Detectors Alerted Occupants in 55% of Confined Fires
Smoke or heat detectors alerted the occupants in 6, or 55%, 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 36% of these fires, it was undetermined if the detectors alerted the occupants of the residence.

This is the first time that this data has been collected in this way. We are not sure if it means fires confined to non-combustible containers usually have someone present at ignition, like a pan fire, and the person present extinguishes it before a smoke detector is activated. It could also mean that no detectors were present; detectors were present but not operating; or that no one was home to be alerted by the detectors.

Detectors Sounded in 73% of Hotel and Motel Fires
Smoke or heat detectors were present and operated in 73% of the 98 hotel and motel residential structure fires for which detector performance was known. Detectors were present but did not operate in 10% of these incidents. No detectors were present in 7% of the residential fires which occurred in a hotel or motel. In 10%, the fire department reported that the fire was too small to trigger the detector. Smoke detector performance was not reported or not classified in 9 incidents. These fires were excluded from the percentage calculations.

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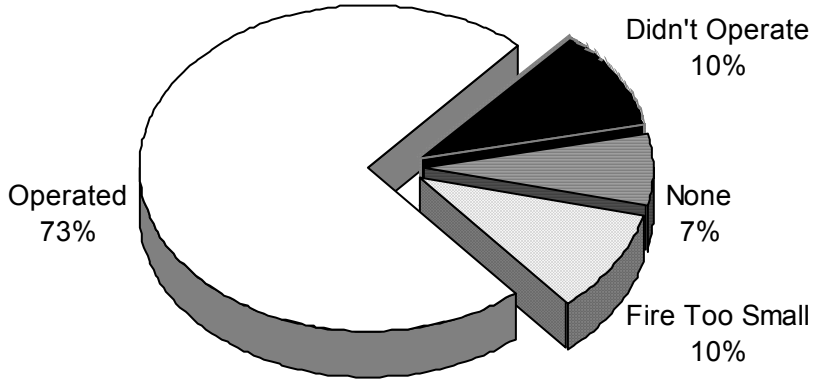
[7] In MFIRS v5 a fire in a building contained to a non-combustible container (Incident Type = 113-118) does not have to have a Fire Module completed. Therefore the following data fields do not need to be completed: area of origin, detector status, item first ignited, heat source, factors contributing 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



Sprinklers Absent in 41% of Hotel and Motel Residential Structure Fires
There were no fires where sprinklers were present and operated in 68 hotel and motel structure fires in 2001 where sprinkler status was known. In one (1) incident, or 1% of these fires, sprinklers were present but did not operate. In 39, or 57%, of incidents, the fire was too small to activate the system. In 28, or 41%, of the cases, there was no sprinkler system. Sprinkler performance was not classified for 38 incidents.

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

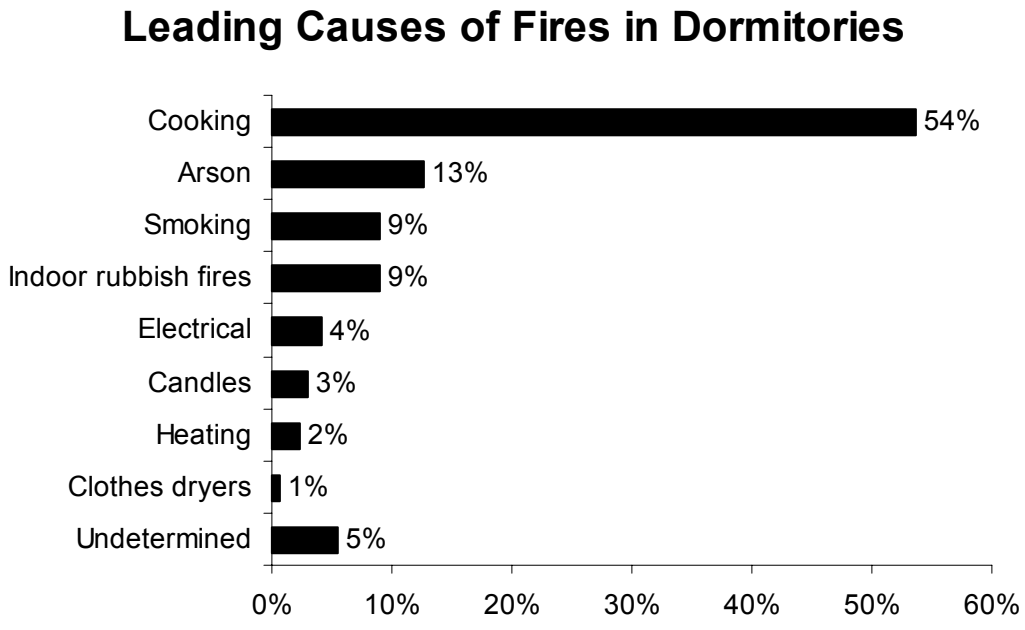
- Choose lodging equipped with sprinklers and smoke detectors in each room.
- If you are hearing impaired, you may request a room with an appropriate smoke detector with a flashing strobe light.
- Think about fire safety when checking into a hotel or motel. Count the number of doors down the hall to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

Dormitory Fires

166 Fires, 2 Firefighter Injuries, $288,896 in Damages
One hundred and sixty-six (166) dormitory structure fires caused two firefighter injuries, and an estimated dollar loss of $288,896 in damages. The average dollar loss per fire was $1,740. In 2001, 2% of the 8,134 residential structure fires occurred in dormitories. Fires in dormitories were up 44% from 115 in 2000.

Cooking Accounted for Over 1/2 of Dormitory Fires
In the 166 incidents of dormitory fires, the leading cause was cooking, accounting for 54%. Arson accounted for 13% of the fires in dormitories. Smoking accounted for 9% of these fires. Indoor rubbish fires were responsible for another 9% of these incidents. Four percent (4%) of these incidents were caused by electrical problems. Candles caused 3% of the fires in dormitories. Heating caused 2% of these fires. Clothes dryer fires were responsible for 1%. Five percent (5%) of dormitory fires were undetermined.



Over 1/2 of Dormitory Fires Started in the Kitchen
For dormitory fires where area of origin is known, 55% of the fires started in the kitchen. Eleven percent (11%) began in the bedroom; 8% started in the hallway; 4% originated in

the lavatory; 3% occurred in a lounge area, and 2% each in a heating room or area and an interior stairway or ramp. There were five incidents where area of origin was unknown. These incidents were excluded from the percentage calculations.

59% of Dormitory Fires Confined to Non-Combustible Containers[8]
Fifty-eight (58), or 59% of all structure fires in dormitories, were reported as confined to non-combustible containers in 2001. Fifty-three (53) were cooking fires contained to a non-combustible container accounting for 54% of these fires. Four (4), or 4%, of the reported fires were confined to a fuel burner or boiler malfunction. One (1), or 1%, of fires in Massachusetts' dormitories in 2001 were confined to chimneys. The number of contained fires is expected to rise in 2002 when all fire departments will be reporting in the new version 5 format.

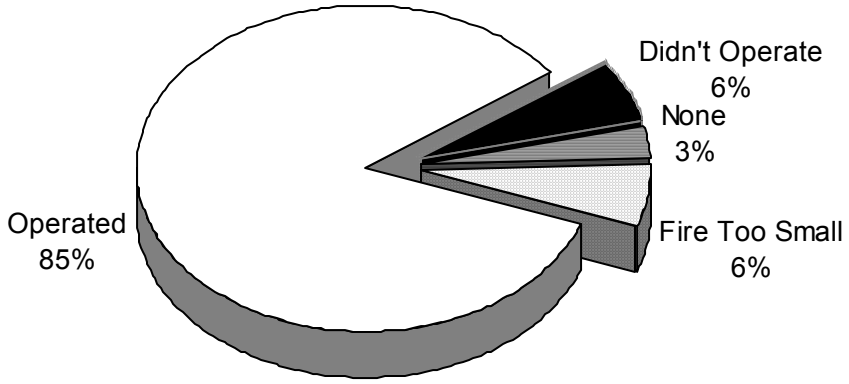
Detectors Alerted Occupants in 76% of Confined Fires
Smoke or heat detectors alerted the occupants in 44, or 76%, of the dormitory fires that were confined to non-combustible containers. In 7% of these fires, the detectors did not alert the occupants. In 17% of these fires, it was undetermined if the detectors alerted the occupants of the residence.

This is the first time that this data has been collected in this way. We are not sure if it means fires confined to non-combustible containers usually have someone present at ignition, like a pan fire, and the person present extinguishes it before a smoke detector is activated. It could also mean that no detectors were present; detectors were present but not operating; or that no one was home to be alerted by the detectors.

Detectors Sounded in 85% of Dormitory Fires
Smoke or heat detectors were present and operated in 85% of the 128 dormitory structure fires for which detector performance was known. Detectors were present but did not operate in 6% of these incidents. No detectors were present in 3% of the residential fires, which occurred in a dormitory. In 6%, of incidents the fire department reported that the fire was too small to trigger the detector. Smoke detector performance was not reported or not classified in six incidents. These fires were excluded from the percentage calculations.

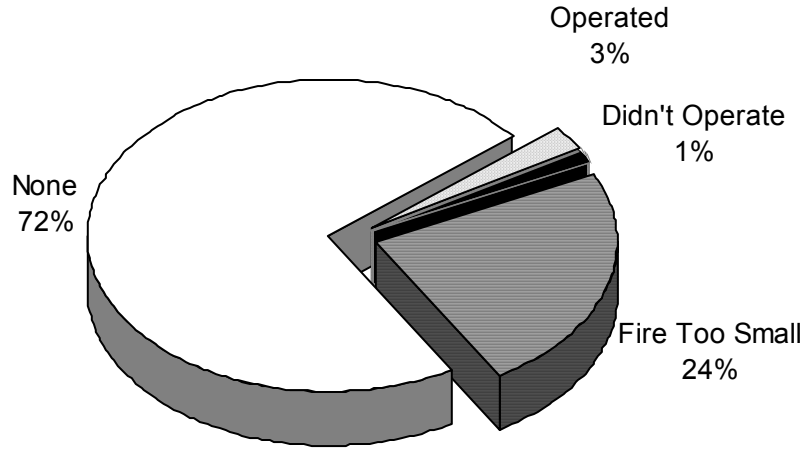
[8] In MFIRS v5 a fire in a building contained to a non-combustible container (Incident Type = 113-118) does not have to have a Fire Module completed. Therefore the following data fields do not need to be completed: area of origin, detector status, item first ignited, heat source, factors contributing 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 Dormitory Fires



Sprinklers Present in Slightly Over 1/4 of Dormitory Residential Structure Fires
Sprinklers were present and operated in 3% of the 80 dormitory residential structure fires where sprinkler status was known. In 1% sprinklers were present but did not activate. In 24% of these incidents, the fire was too small to activate the system. In 72%, or almost three-quarters of the cases, there was no sprinkler system. Fifty-four (54) incidents were not classified. These percentages were calculated without these incidents.

Sprinkler Status in Dormitory Fires

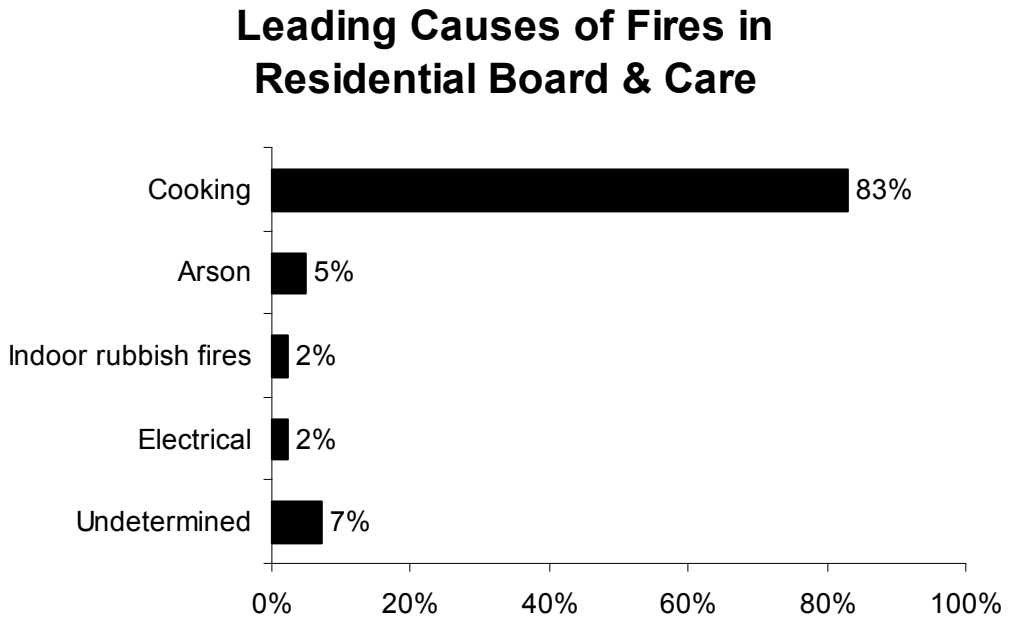


Residential Board & Care Fires

41 Fires, $36,652 in Damages
Forty-one (41) residential board and care structure fires caused one civilian injury and an estimated dollar loss of $36,652 in damages. The average dollar loss per fire was $870. In 2001, 1% of the 8,134 residential structure fires occurred in residential board and care buildings.

This is a new residential Property Use code in version 5. Residential Board & Care includes long term-term health care facilities and halfway houses. It excludes facilities with nursing care (code - 311).

Cooking Accounted for Over 3/4 of Residential Board & Care Fires
In the 41 incidents of residential board and care structure fires, the leading cause was cooking, accounting for 34 incidents, or 83%, of the fire incidents. Arson accounted for two incidents, or 5% of these fires. One incident, or 2%, of these incidents was attributed to an indoor rubbish fire. Seven percent (7%), or three incidents, of residential board and care structure fires were undetermined.



92% of Residential Board & Care Fires Started in the Kitchen
For the 38 residential board and care building fires where area of origin is known, 35, or 92%, of the fires started in the kitchen. Five percent (5%) began in the bedroom; and 3% began in a vehicle storage area, garage or carport. There were three fires where area of origin was undetermined and these incidents were not included in the calculations.

Almost 1/2 of Board & Care Fires Confined to Non-Combustible Containers[9]
Twenty (20), or 48% of all structure fires in residential board and care facilities, were reported as confined to non-combustible containers in 2001. Nineteen (19) were cooking fires contained to a non-combustible container accounting for 46% of these fires. One (1), or 2%, of these fires was a contained rubbish fire. The number of contained fires is expected to rise in 2002 when all fire departments will be reporting in the new version 5 format.

Detectors Alerted Occupants in 70% of Confined Fires
Smoke or heat detectors alerted the occupants in 14, or 70%, of the fires in residential board and care lodgings that were confined to non-combustible containers. In 5% of these fires, the detectors did not alert the occupants. In 25% of these fires, it was undetermined if the detectors alerted the occupants of the residence.

This is the first time that this data has been collected in this way. We are not sure if it means fires confined to non-combustible containers usually have someone present at ignition, like a pan fire, and the person present extinguishes it before a smoke detector is activated. It could also mean that no detectors were present; detectors were present but not operating; or that no one was home to be alerted by the detectors.

Detectors Sounded in 80% of Board & Care Fires
Smoke or heat detectors were present and operated in 80% of the 31 residential board and care structure fires for which detector performance was known. No detectors were present in 10% of these fires. In another 10% of incidents the fire department reported that the fire was too small to trigger the detector.

Sprinklers Present in Less Than 1/3 of Residential Board & Structure Fires
There were no fires in sprinklered residential board and care structures where a sprinkler either activated or should have activated but didn't. Of the 28 fires where sprinkler status was known, in nine, or 32%, of these incidents, the fire was too small to activate the system. In 19, or 68%, there were no sprinkler systems present. Three (3) incidents were not classified. These percentages were calculated without these incidents

[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.

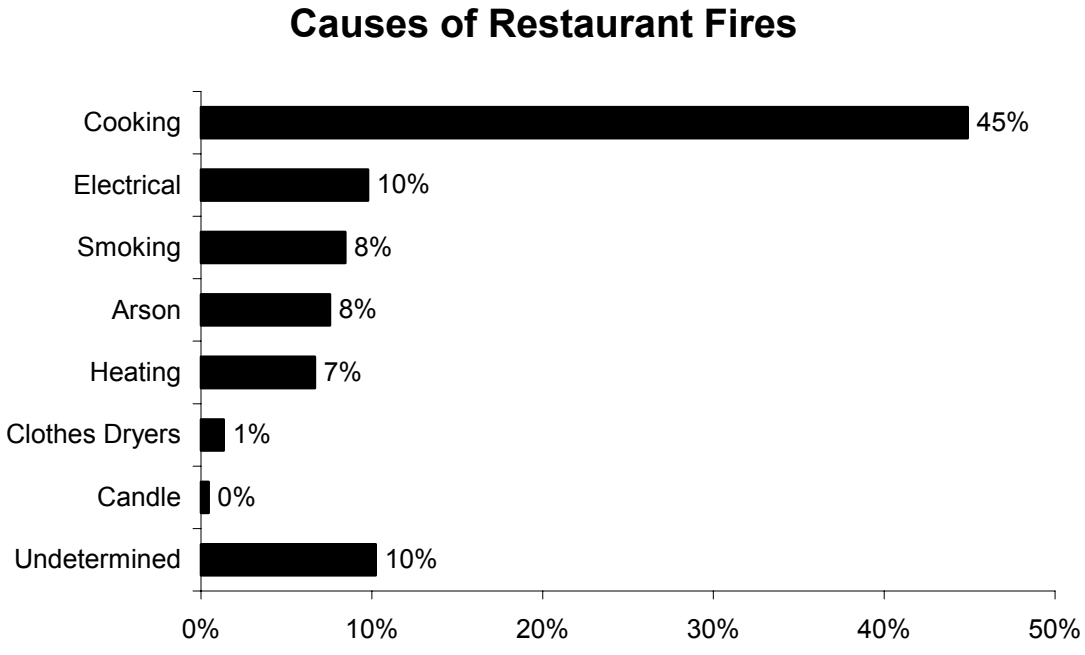
Restaurant Fires

225 Fires, 11 Firefighter Injuries, $5.2 Million in Damages

Two hundred and twenty-five (225) structure fires in 2001 occurred in restaurants and other eating and drinking establishments, causing 11 firefighter injuries, and an estimated dollar loss of $5.2 million. The average dollar loss per fire was $23,168. In 2001, 2% of the 10,384 structure fires in Massachusetts occurred in restaurants. Fires in restaurants were up 8% from 209 in 2000.

Almost 1/2 of Restaurant Fires Caused by Cooking

Unattended cooking and unsafe cooking practices caused 45% of the restaurant fires; electrical problems caused 10% of these restaurant fires; 8% of the fires were caused by unsafe use of smoking materials; another 8% were considered intentionally set; heating equipment caused 7%; clothes dryer fires were responsible for 1%, and candles were the cause of less than 1% of the fires in restaurants in 2001. Ten percent (10%) of the fires in restaurants were undetermined.



Over 1/3 of Restaurant Fires Started in the Kitchen
Thirty-five percent (35%) of the 221 fires in restaurants, where area of origin was known, started in the kitchen. Five percent (5%) of the fires began on an exterior wall surface; 4% of the fires started in a substructure area or crawl space; 3% each started in the duct work, storage area, trash chute, attic and bathroom, and 2% of the fires in restaurants originated on the exterior roof surface. Four of the restaurant fires had an unknown area of origin; these were excluded from the percentage calculations.

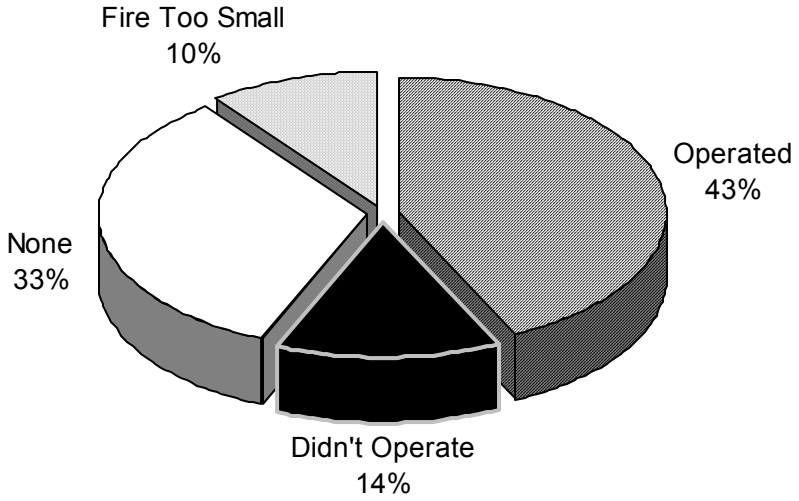
17% of Restaurant Structure Fires Confined to Non-Combustible Containers[10]
Thirty-eight (38), or 17% of all restaurant structure fires, were reported as confined to non-combustible containers in 2001. Twenty-eight (28) were cooking fires contained to a non-combustible container accounting for 12% of restaurant structure fires. Four (4), or 2%, of all restaurant structure fires reported in 2001 were fires confined to a chimney. Another four, or 2%, of these fires were contained rubbish fires. Two, or 1%, were fires confined to a fuel burner or boiler malfunction. The number of contained fires is expected to rise in 2002 when all fire departments will be reporting in the new version 5 format.

Detectors Alerted Occupants in 47% of Confined Fires
Smoke or heat detectors alerted the occupants in 18, or 47%, of the residential structure fires that were confined to non-combustible containers. In 21% of these fires, the detectors did not alert the occupants. In 32% of these fires, it was undetermined if the detectors alerted the occupants of the residence.

Detectors Operated in 43% of Restaurant Fires; None Present in 33%
Smoke or heat detectors were present and operated in 43% of the 138 restaurant fires where detector performance was known. Detectors were present, but did not operate in 14% of these fires. In 10% of the incidents the fire was too small to activate the detector. No smoke detectors were present in 33% of the restaurant fires. Detector performance was unknown or not classified in 54 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.

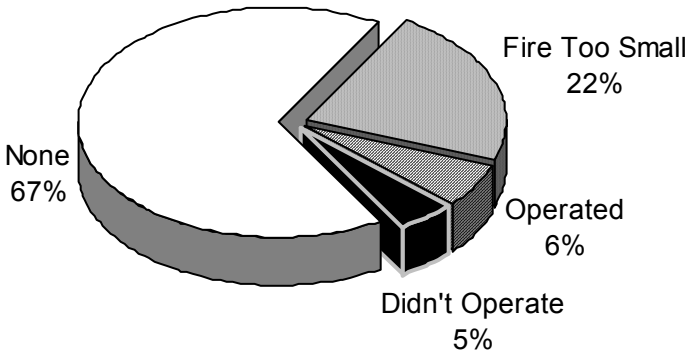
[10] In MFIRS v5 a fire in a building contained to a non-combustible container (Incident Type = 113-118) does not have to have a Fire Module completed. Therefore the following data fields do not need to be completed: area of origin, detector status, item first ignited, heat source, factors contributing 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 Restaurants



No Sprinklers in Over 2/3 of Restaurant Fires
Sprinklers were present and operated in 6% of the 130 restaurant fires where sprinkler status was known. In 5% of these fires, sprinkler equipment was present but did not operate. In 22% of these fires, the fire was too small to activate the sprinkler. No sprinkler equipment was present in 67% of the restaurant fires in 2001. Sprinkler status was unknown in 62 incidents. These incidents were excluded from the percentage calculations.

Sprinkler Status in Restaurant Fires

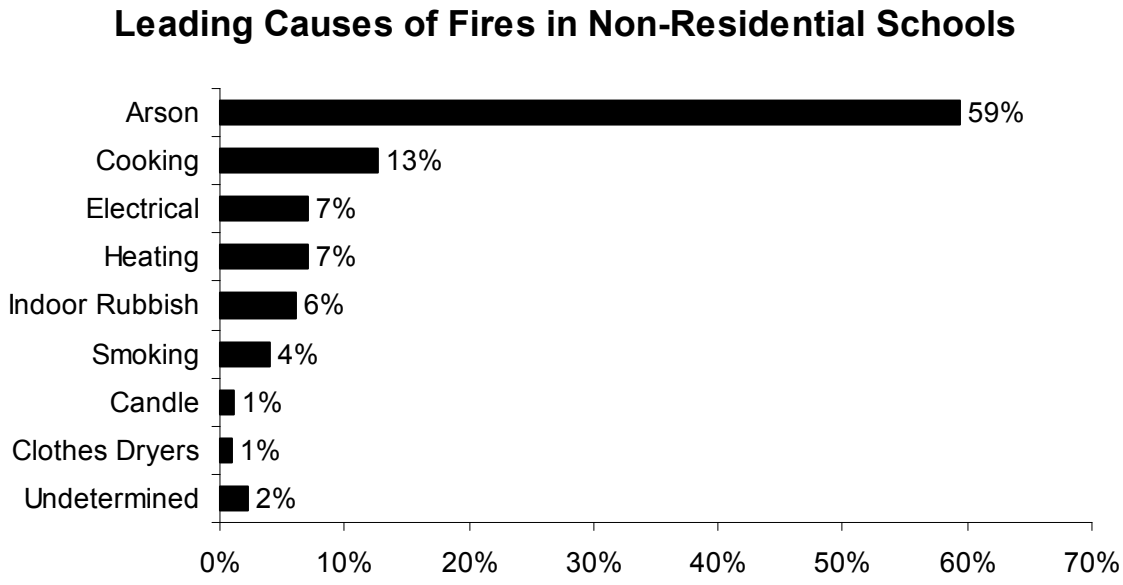


School Fires

182 Fires Caused 1 Civilian and 2 Fire Service Injuries
One hundred and eighty-two (182) structure fires in schools caused one civilian injury, two firefighter injuries and $253,511 in property damages. The average dollar loss per fire was $1,393. In 2001, 2% of the structure fires occurred in non-residential schools. Fires in non-residential schools were down 10% from 203 in 2000.

59% of School Fires Were Arson
When we combine the intentionally set fires (49%), and the juvenile-set fires (10%), arsons account for 59% of school fires.

Cooking started 13% of the fires in schools in 2001. Electrical problems caused 7% of these fires. Problems with heating equipment accounted for another 7% of these fires. Indoor rubbish fires that were not reported as intentionally set caused 6% of school fires in 2001. The unsafe use and improper disposal of smoking materials caused 4% of the fires in non-residential schools. Dryer fires and candles were each responsible for than 1% of these incidents. Six percent (6%) of the fires in non-residential schools were undetermined.

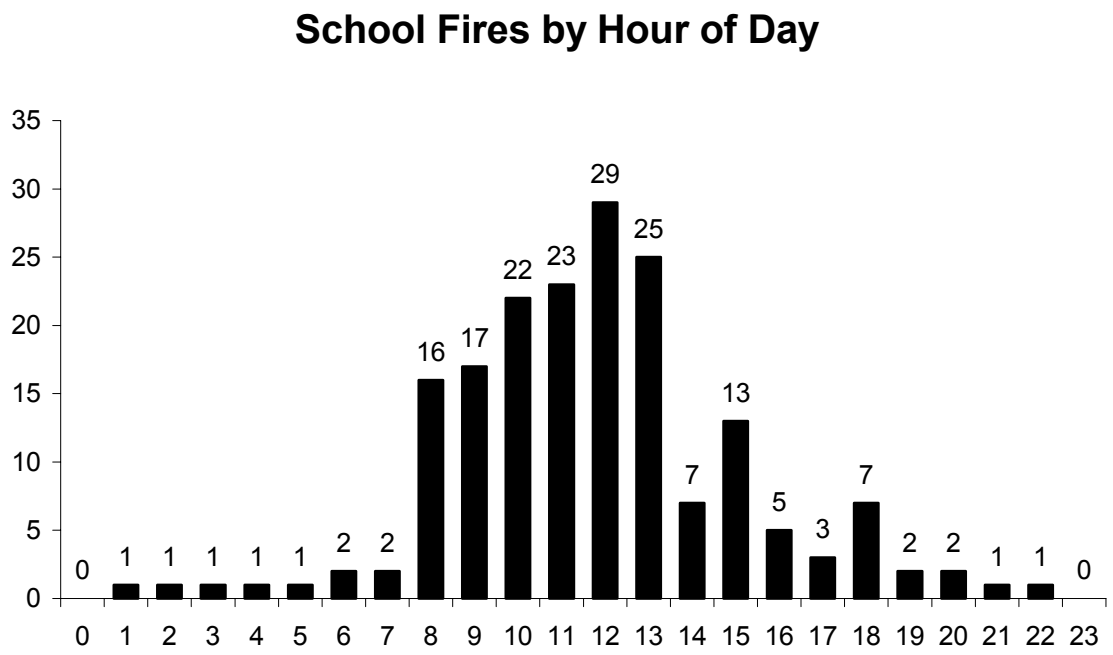


Because of the new rules in version 5, the Cause of Ignition field does not have to be completed for confined indoor rubbish fires. One can assume that these fires were intentional in nature. If we add the seven indoor rubbish fires with no Cause of Ignition to the arson category, arsons increase to 63% of 2001 school fires.

2001 is the first year data is being analyzed in the new version 5, which does not require the completion of the Cause of Ignition field for confined indoor rubbish fires, although in many cases it was. Based on previous years' data, where confined indoor rubbish fires were required to provide a cause and the cause given was predominantly "intentionally set," we can infer that most of these fires were also intentionally set. If we add the seven indoor rubbish fires with no Cause of Ignition to the arson category, arsons increase to 63% of 2001 school fires.

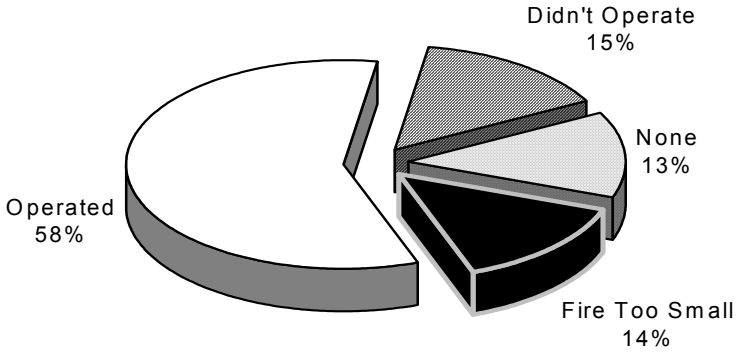
1/3 of Non-Residential School Fires Started in Bathrooms
Thirty-three percent (33%) of the fires in non-residential schools started in lavatories, locker rooms or cloak rooms; 11% began in hallways or corridors; 7% started in small assembly areas; 4% started in kitchens; 3% each started in storage areas and the exterior roof, and 2% each started in a heating equipment room or area, or in a common room or lounge. There were three incidents where area of origin was undetermined. 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. Eighty-six percent (86%) of the non-residential school structure fires occurred during the eight hours between 8:00 a.m. and 1:00 p.m. with a sharp increase between 12:00 p.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. This could account for a number of the fires of undetermined cause as well.



Detectors Operated in 58% of Non-Residential School Fires
Smoke detectors were present and operated in 58% of the 143 non-residential school fires where detector performance was known. Detectors were present but did not operate in 15% of these fires. The fire was too small to activate the detector in 14% of the fires in non-residential schools. No detectors were present in 13% of these fires. Detector performance was unknown in 17 of the fires in non-residential schools. These fires were excluded from the analysis. Non-residential schools are not required by law to have smoke or heat detectors. However, many if not all have some form of fire alarm system.

Smoke Detector Status School Fires



No Sprinklers in 2/3 of Fires in Non-Residential Schools
There were no fires in non-residential schools where sprinklers were present and operated. Of the 80 non-residential school fires were sprinkler performance was known, 26% of these fires were too small to trigger the sprinkler. Sprinklers were present but did not operate in 4% of these fires. In 70% of the fires in non-residential schools, there were no sprinkler systems. Sprinkler performance was unknown in 80 fires in non-residential schools. These incidents were excluded from the percentage calculations.

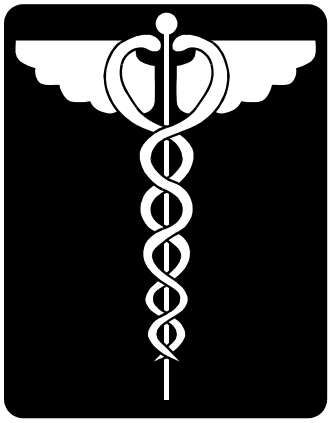
Schools Must Hold Fire Drills Four Times a Year
Effective fire prevention has undoubtedly contributed to the low injury rate at school fires. According to 527 CMR 10.09, fire drills must be conducted four times a year. The fire department must approve an evacuation plan developed by someone from the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

Dracut High School Had Largest Loss School Fire

♦ On March 6, 2001 at 11:25 a.m. the Dracut Fire Department was called to a fire at the Dracut High School. An incorrectly installed piece of electrical distribution equipment started the fire in the attic of the school. This blaze was the largest loss fire in this category of structure fires, with an estimated $30,000 worth of damage done. Luckily, no one was injured. Smoke or heat detectors were present and operating

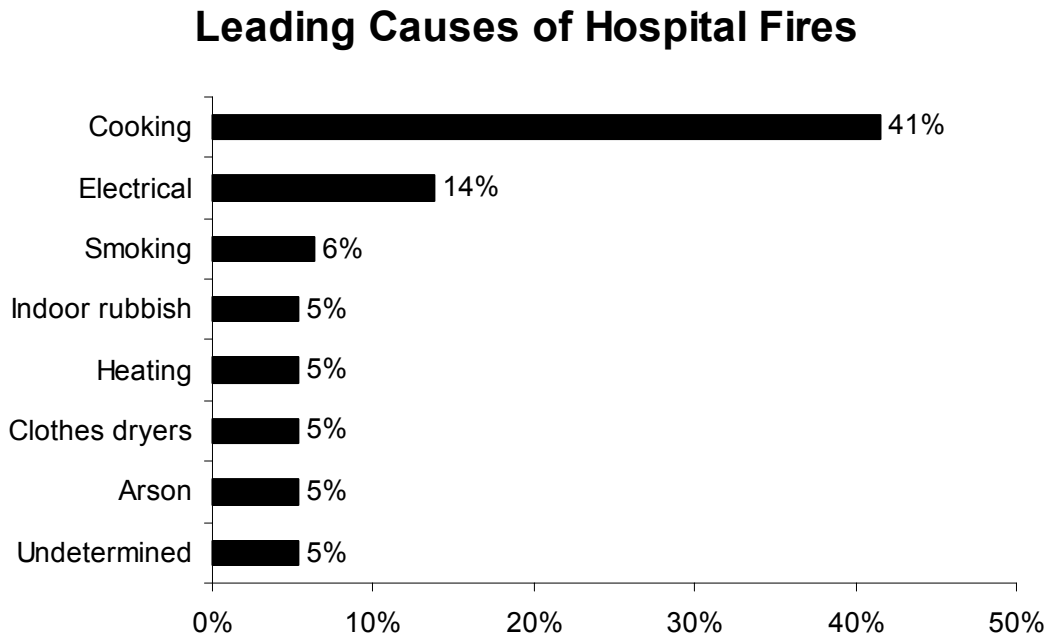
Fires in Hospitals[11]

94 Fires Caused 4 Civilian Injuries
Ninety-four (94) structure fires in hospitals caused four civilian injuries and an estimated dollar loss of $304,359. The average loss per fire was $3,238. In 2001, less than 1% of the 10,384 structure fires occurred in hospitals. Fires in hospitals were up 4% from 90 in 2000.



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 clinic and clinic type infirmaries. It does not include doctor's or dentist's offices; nursing homes; alcohol or substance abuse centers; and mental retardation/development disability facilities.

Cooking Caused 41% of Hospital Fires
Unattended cooking and other unsafe cooking practices caused 41% of the fires in hospitals in 2001. Electrical problems initiated 14% of the fires; the unsafe use of smoking materials accounted for 6% of these fires; indoor rubbish fires, heating



[11] In version 4 structures with a Fixed Property Use code between 330 & 339 (hospitals, infirmaries, sanitoriums, santariums, clinics and any institutional property where the sick were cared for) were included in this count. However, with the conversion to version 5 codes, all codes between 323 & 341 (asylums, mental institutions, hospitals, mental or psychiatric, hospices, clinics, infirmaries, doctor's offices and hemodialysis center) have been included in this count.

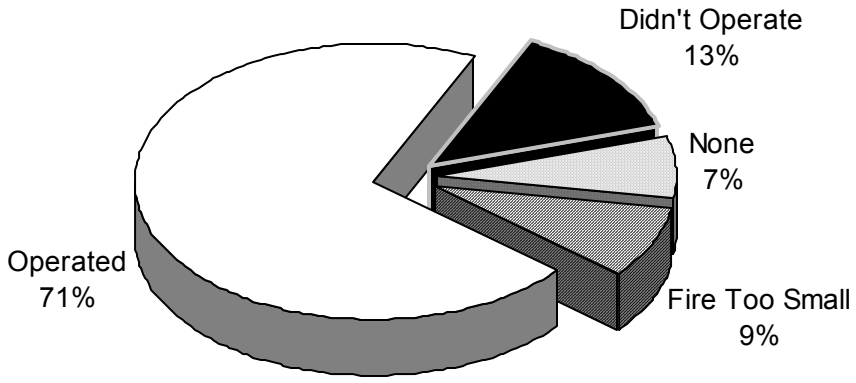
equipment, clothes dryer fires and arson each accounted for 5% of the fires in hospitals in 2001.

Almost 1/3 of Hospital Fires Began in the Kitchen
In the 92 hospital fires where area of origin was known, 30% started in the kitchen; 9% began in patient rooms; 5% occurred in laundry areas; another 5% occurred in a machinery room or elevator machinery room; 4% occurred in a lavatory, locker room or a cloakroom; 3% began in a beverage serving area or cafeteria; another 3% of fires in hospital started in a heating room or area and another 3% of fires in hospitals originated in an exterior balcony or enclosed porch. Area of origin was undetermined in two of the fires in hospitals. These incidents were excluded from the calculations.

Detectors Operated in Almost 3/4 of Hospital Fires
Smoke detectors were present and operated in 71% of the 82 fires in hospitals where detector performance was known. In 13% of incidents, the detectors were present but did not operate. The fire was too small in 9% of these incidents. In 7% of the fires in hospitals, there were no detectors present at all.

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

Smoke Detector Status in Hospital Fires



Fire Too Small for 70% of These Fires
There were no hospital fires where sprinklers were present and should have activated in 2001. Of the 47 hospital fires where sprinkler performance was known, the fire was too

small to activate the sprinkler in 33, or 70%, of these fires. Thirty percent (30%), or 14, of the hospital fires had no sprinkler systems. Sprinkler performance was unknown in 44 of the fires in hospital facilities. These incidents were excluded from this analysis.

Arson Caused Hospital Fire With Most Injuries in 2001

- On August 30, 2001 at 10:01 p.m. the Northampton Fire Department was called to a fire at Cooley Dickinson Hospital. A cigarette lighter was used to ignite some linen in a patient's room. The fire caused three civilian injuries and an estimated $20,000 in property loss. Smoke alarms were present and operated. There was no sprinkler system present.

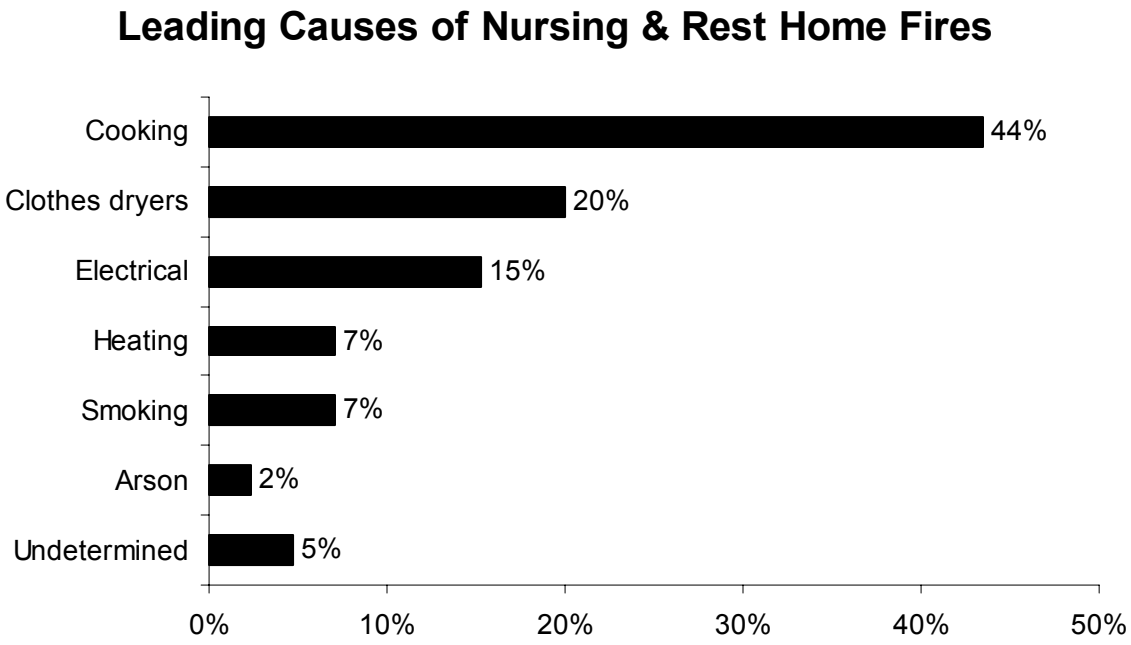
Nursing Home and Rest Home Fires[12]

85 Fires Caused 2 Civilian Injuries, 1 Fire Service Injury and $202,662 in Damages
Eighty-five (85) structure fires occurred in nursing homes and rest homes during 2001. These fires caused two civilian injuries, one fire service injury and an estimated dollar loss of $202,712. The average loss per fire was $2,385. In 2001, less than one percent (0.8%) of the 10,384 structure fires occurred in nursing homes and rest homes. Fires in nursing homes and rest homes were down 3% from 88 in 2000.

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 Clothes Dryers Were the Leading Causes of Nursing Home Fires
Unattended cooking and other unsafe cooking practices caused 44% of the fires in nursing and rest homes. Clothes dryers were involved in 20% of these fires. Electrical problems caused 15% of these fires. Heating equipment was involved in 7% of these incidents. Improper use or disposal of smoking materials caused another 7% of nursing home fires. Arson accounted for 2% of these fires. Five percent (5%) of the fires in nursing or rest homes were undetermined.

[12] 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.



Nearly 1/2 of Fires Began in the Kitchen
Forty-nine percent (49%) of the 80 nursing and rest home fires where area of origin was known began in the kitchen. Twenty-one percent (21%) of the fires in nursing homes started in laundry rooms; 9% began in the patient rooms. Fires occurring in patient rooms were either smoking fires or electrical fires. Four percent (4%) originated in a common room while another 4% occurred in an equipment or service area. Three percent (3%) occurred in lavatories, locker rooms, or coatrooms. Area of origin was undetermined for two incidents. They were excluded from the percentage calculations.

23% of Nursing Home Fires Are Confined to Non-Combustible Containers[13]
Nineteen (19), or 23%, of all nursing home structure fires were reported as confined to non-combustible containers in 2001. Seventeen (17) of the reported fires were cooking fires contained to a non-combustible container accounting for 20% of nursing home structure fires. One, or 1%, of these fires was a contained rubbish fire. Another one, or 1%, was a fire confined to a fuel burner or boiler malfunction. The number of contained fires is expected to rise in 2002 when all fire departments will be reporting in the new version 5 format.

Detectors Alerted Occupants in 79% of Confined Fires
Smoke or heat detectors alerted the occupants in 15, or 79%, of the residential structure fires that were confined to non-combustible containers. In 16% of these fires, the

[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.

detectors did not alert the occupants. In 5% of these fires, it was undetermined if the detectors alerted the nursing home occupants.

Detectors Operated in 80% of Nursing Home Fires
Smoke detectors were present and operated in 81% of the 58 fires in nursing and rest homes where detector performance was known. Detectors were present but did not operate in 10% of these fires. Nine percent (9%) of these fires were too small to activate the detector. Smoke detector status was undetermined for nine incidents. They were excluded from the percentage calculations.

Fire Too Small to Activate Sprinkler in Over 3/4 of Nursing Home Fires
Sprinkler performance was known in 45 of the 83 nursing or rest home fires. Nineteen (19) of the fires were contained to their non-combustible containers and therefore sprinkler performance did not have to be reported. There were no fires in which sprinklers were present and operated. Sprinklers were present but did not operate in 2% of these fires. In 78% of the fires in nursing and rest homes where sprinkler performance was known, the fire was too small to activate the sprinkler. No sprinkler systems were present in 20% of these fires. In 21 of these incidents, sprinkler performance was undetermined. These fires were excluded from the analysis.

Clothes Dryer Caused Largest Nursing Home Loss Fire

- On Sunday, March 25, 2001 at 10:52 a.m. the Amesbury Fire Department was called to a fire in a nursing home caused by a clothes dryer in a laundry room. This fire caused $50,000 in property damage. Smoke alarms and the sprinkler system operated properly. There were no injuries reported at this fire.

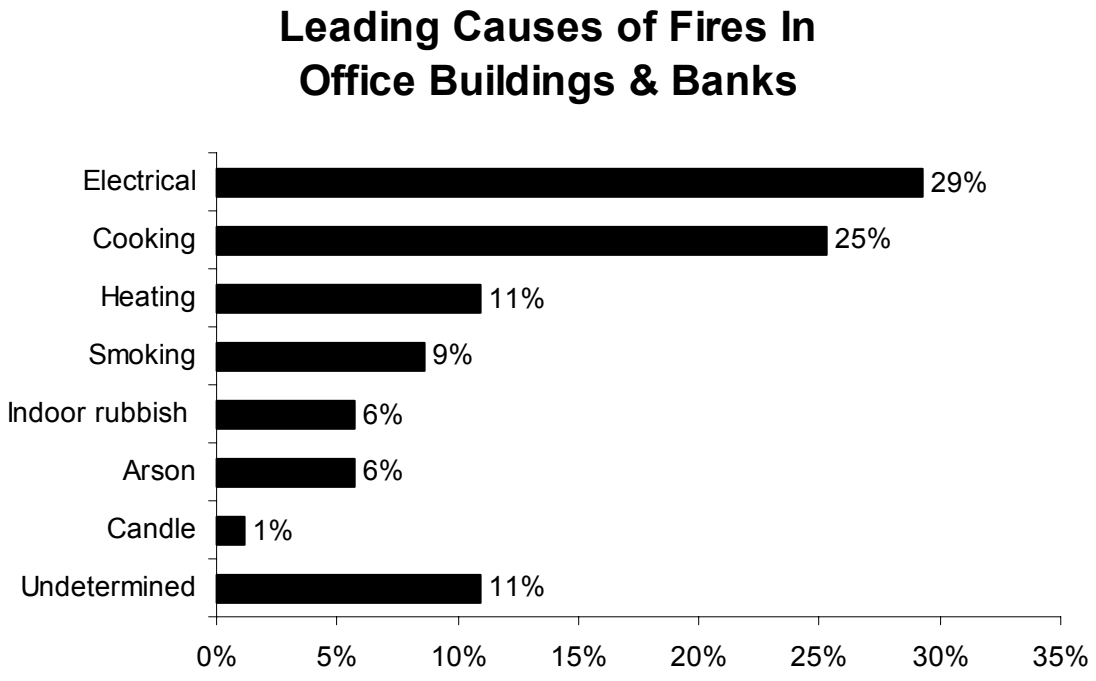
Office Building and Bank Fires

174 Fires, 1 Civilian & 7 Firefighter Injuries, $6.1 Million in Damages

One hundred seventy-four (174) structure fires occurred in offices and banks during 2001. These fires caused one civilian injury, seven firefighter injuries, and an estimated dollar loss of $6.1 million. The average dollar loss per fire was $35,124. In 2001, 2% of the 10,384 structure fires occurred in offices and banks. Fires in office buildings and banks were down 3% from 179 in 2000.

Electrical Problems Caused Over 1/4 of Office & Bank Fires

Electrical problems caused 29% of the 174 fires in office buildings and banks in 2001. Unattended cooking and other unsafe cooking practices caused 25%; 11% were caused by heating equipment; smoking materials ignited 9%; 6% of the fires in offices and banks were due to indoor rubbish fires and another 6% were considered arson; and candles were responsible for 1% of these fires in 2001. Eleven percent (11%) of the fires in office buildings and banks in 2001 were undetermined.

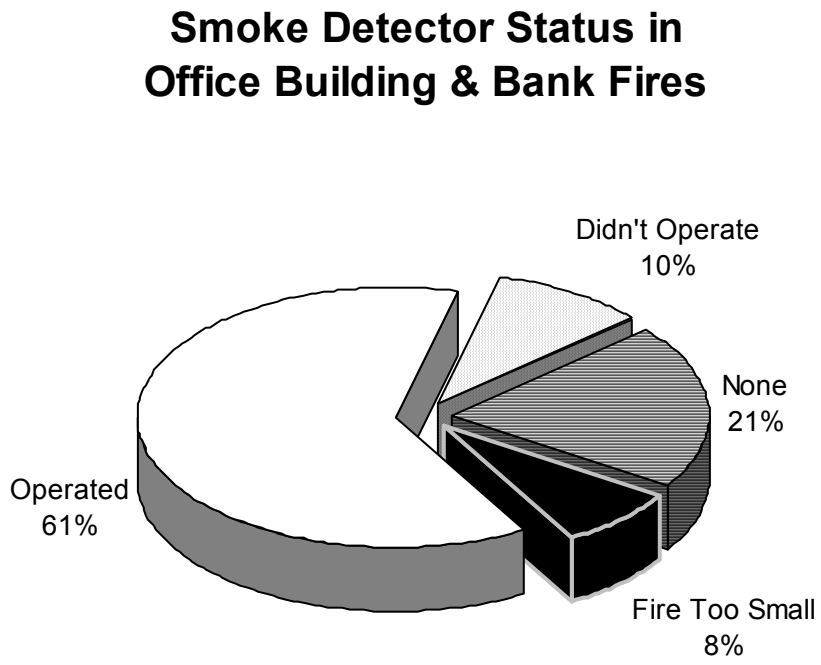


Almost 1/5 Office Building and Bank Fires Started in Kitchen

Of the 170 fires in office buildings and banks where area of origin was known, 18% started in the kitchen. Fourteen percent (14%) of these fires began in the office; 5% began on an exterior wall surface; 4% began in the machinery room; 4% started in the hallway; 4% started in heating equipment areas; 3% occurred in a bathroom; 3% started on the exterior roof; 3% began in the attic or crawl space and another 3% occurred in a switchgear area or transformer vault. Area of origin was unknown in four fires and were excluded from the percentage calculation.

No Detectors in 21% of Office Building and Bank Fires

Smoke detectors were present and operated in 62% of the 146 fires in office buildings and banks where smoke detector performance was known. Detectors were present but did not operate in 10% of these fires. In 8%, the fire was too small to activate the detector. Twenty-one percent (21%) of fires in office buildings or banks did not have any smoke detectors. Detector performance was undetermined in 19 office building and bank fires. These incidents were excluded from the analysis.



Over 1/2 of Office Building and Banks Had No Sprinklers

No sprinklers were installed in 58% of the 102 fires occurring in office buildings and banks where sprinkler performance was known. In 38% of these incidents, the fire was too small to activate the sprinkler. Sprinklers were present but failed to operate in 3% of these fires. Sprinklers operated in only 1%, of these incidents. Sprinkler performance was not known in 63, or 38% of the total number of office building and bank fires. These incidents were excluded from the analysis.

Vacant Building Fires

Over 1/4 of Vacant Building Fires Considered Arson
One hundred and sixty-two (162) structure fires occurred in buildings that were vacant, under construction or demolition[14]. These 162 fires caused six civilian injuries, 27 firefighter injuries and an estimated $13.4 million in damages. The average dollar loss per vacant building fire was $82,411. Forty-three (43), or 27% of the fires in vacant buildings were considered arson. These 43 fires caused five firefighter injuries and $832,400 in damages. In 2001, 7% of the 592 Massachusetts structure arson fires occurred in vacant buildings. Fires in vacant buildings were up 34% from 32 in 2000.

In version 4, a vacant building was coded using the fixed property use codes of special properties: construction, unoccupied properties (between 910 and 919). In version 5 a vacant building is now coded using a new field, building status. In version 5 a building may be any property type. To be considered vacant the property should be coded with a building status of: 1-under construction, 3-idle, not routinely used, 4-under major renovation, 5-vacant and secured, 6-vacant and unsecured and 7-being demolished.

The following table and chart illustrate the trend in vacant building fires and arsons: they are steadily declining each year. It should be noted that these statistics do not include the Boston Fire Department. Data from the BFIRS system loses the capability to identify vacant buildings during conversion to MFIRS. We expect this problem to be eliminated when Boston completes its conversion to MFIRS version 5. Therefore, the numbers in the table should be considered to be underestimated, but consistent from year to year.

FIRES AND ARSONS IN VACANT BUILDINGS

Year	# of Fires	# of Arsons	% Arsons
1992	268	182	68%
1993	219	159	73%
1994	178	122	69%
1995	161	118	73%
1996	113	69	61%
1997	106	64	60%
1998	111	68	61%
1999	108	59	55%
2000	73	32	44%
2001	162	43	27%

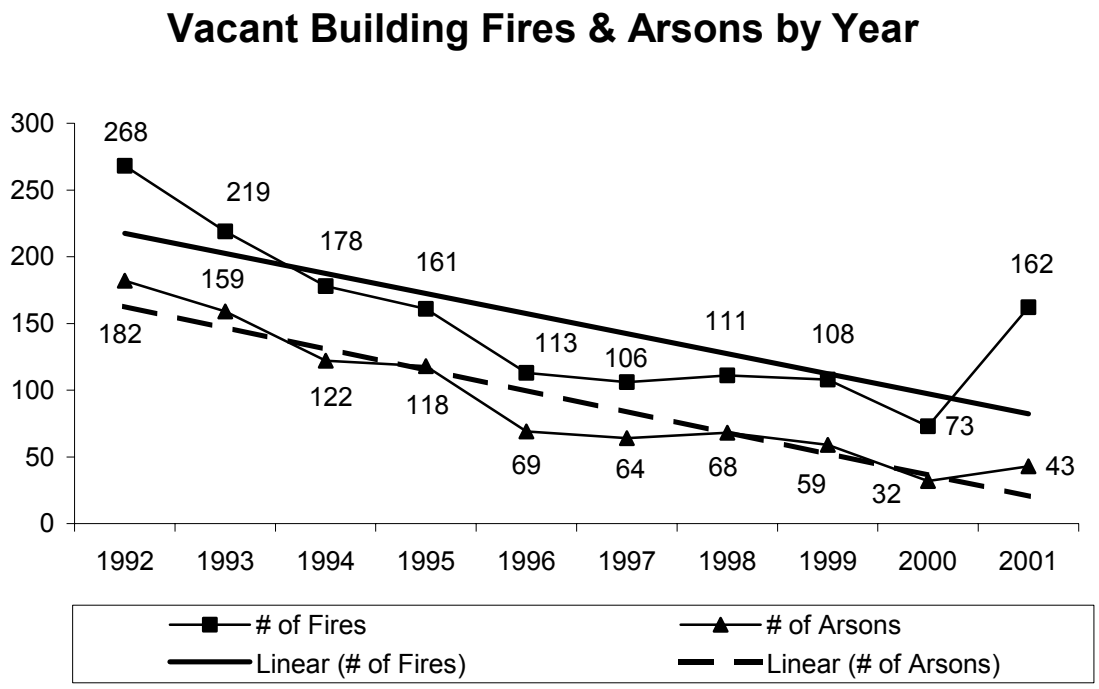
[14] In version 4 a vacant building was defined by having a Fixed Property Use code in the subsection of construction, unoccupied properties, between 910 & 919. However in version 5, the Property Use is separate from the Building Status. In v5 a building is considered vacant if the Building Status is 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.

The following graph clearly shows this downward trend in both vacant building fires and vacant building arsons. The 2001 numbers are from the new version 5 format. 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 a 422 – Apartments, 3-6 units or a 915 – Vacant property. If the report used the former code then it would not have been counted as a vacant property fire. However in the new system, this same incident would now be coded with a Property Use of 429 – Multi-family dwellings and a Building Status of 5 or 6 – Vacant, secured or unsecured.

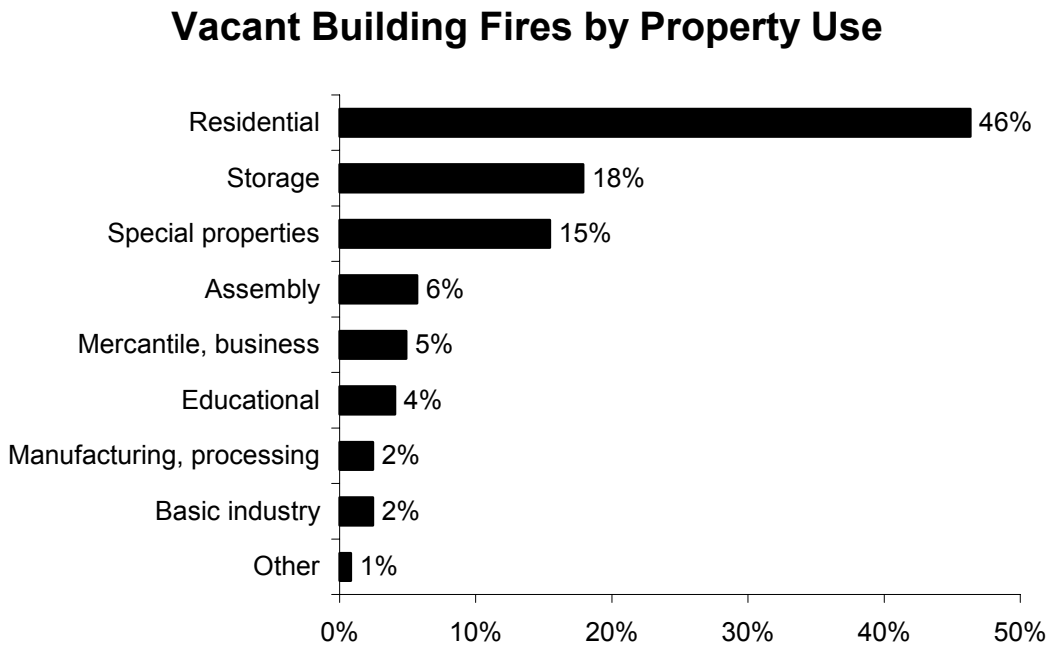
The addition of this new field is most likely the primary reason for the dramatic increase in vacant property fires.

The 32% drop in reported vacant building fires from 1999 to 2000 was more likely due to the aftermath of the December 3, 1999 Worcester Cold Storage Warehouse Fire where six firefighters loss their lives. A homeless squatter couple had been living in the abandoned cold storage warehouse. The fire was ignited 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 increased inspections, stricter adherence to building and fire codes along with tighter security around these structures.



Almost 1/2 of All Vacant Building Fires Were Residential
Out of the 162 vacant building fires, 123 had a known property use. Fifty-seven (57), or 46%, of these fires occurred in residential occupancies. Twenty-two (22), or 18%, happened in storage facilities; 19, or 15% occurred in special properties; 7, or 6%, were in public assembly properties; 6, or 5%, happened at a mercantile or business location; 5, or 4%, were at educational facilities; 3, or 2%, occurred at basic industrial sites; another 3, or 2%, happened at manufacturing or processing locations. One vacant building fire, or 1%, occurred in an "other" type of building.

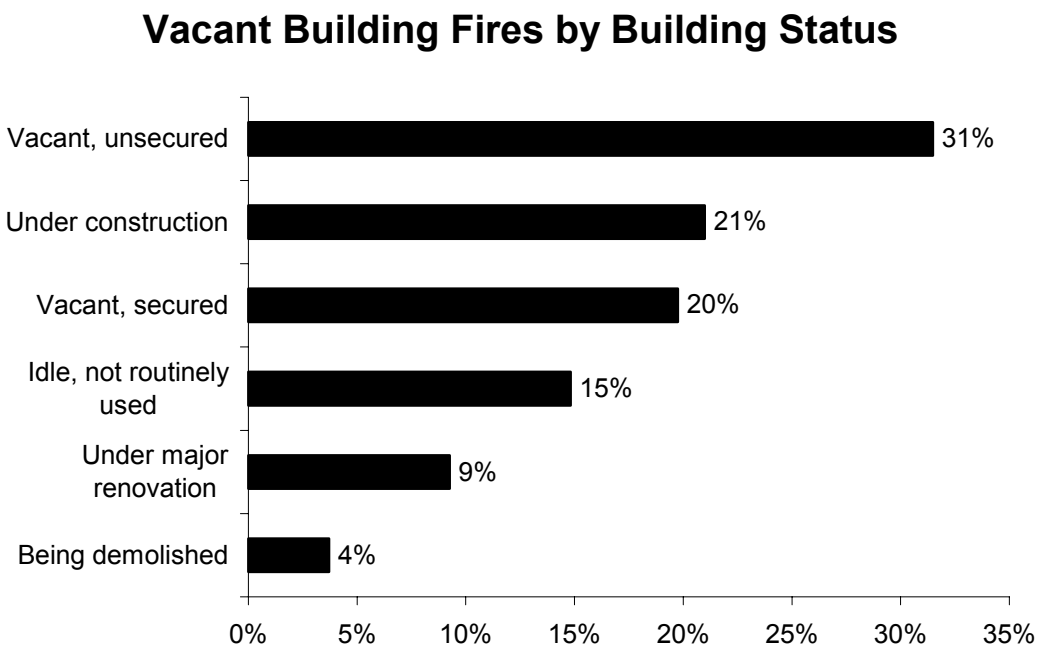
Thirty-seven (37) of the remaining 39 vacant building fires were completed in the version 4 format[15]. Using version 4 codes, there is no way to know what the actual property use of the building was. When converted to version 5, their Property Use codes are converted to UUU – Undetermined with a Building Status 1 - Under construction; 3 - Idle, not routinely used; 4 - Under major renovation; 5 - Vacant, secured; 6 - Vacant, unsecured; and 7 - Being demolished. The other two vacant building fires had a property use code of NNN – None. These 39 incidents were excluded from the calculations.



[15] Before conversion there were 3 other version 4 incidents that were originally coded in the Fixed Property Use (FPU) code range 910-919. However v4 FPU code 916 – Contractor's shed converts to v5 Property Use code 808 – Outbuilding or shed with no population of the building status field. There was also one v4 incident with a FPU code of 910 – Construction, unoccupied property, insufficient information to classify any further. It converted to a v5 Property Use code of UUU-Undetermined with no population of the building status field. These 3 incidents were excluded from all of the calculations in this section.

Almost 1/3 Were Vacant and Unsecured Buildings

Of the 162 fires in vacant buildings in 2001, 51, or 31% were in vacant buildings that were unsecured. Thirty-four (34), or 21%, of these fires happened in buildings under construction; 32, or 20% occurred in vacant buildings that were secured; 24 fires took place in buildings that were idle or not routinely used; 15 or 9% happened in buildings undergoing major renovations; and six, or 4%, of the fires in these buildings occurred in buildings that were in the process of being demolished.



Over 1/4 of All Vacant Building Arsons Occurred in Residential Buildings

Twenty-eight percent (28%) of the vacant building arsons in 2001 occurred in residential occupancies. Sixteen percent (16%) took place in storage facilities; 7% happened in special properties and 2% occurred in "other" properties. Twenty (20), or 47%, of the vacant building arsons reported in 2001, were completed in the version 4 format and were converted to a property use code of undetermined.

Over 1/2 of All Vacant Building Arsons Occurred in Unsecured Buildings

Fifty-three percent (53%) of all vacant building arsons in 2001 occurred in unsecured vacant buildings. Nineteen percent (19%) happened in buildings under construction, while 12% occurred in secured, vacant buildings. Idle buildings that are not routinely used and buildings under major renovation each accounted for 7% of the vacant building arsons in 2001. Two percent (2%) of these arsons occurred in buildings being demolished.

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.

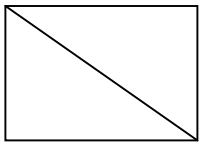
When the sprinkler systems are present, they should be maintained. If the head of the fire department decides to grant a request under MGL Chapter 148, Section 27A to disconnect the system, extra precautions should be taken. Removing furniture, contents and debris from the interior of the building, insisting 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.

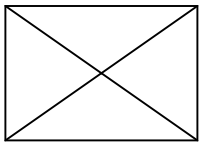
Some communities have gone on the offensive against vacant buildings. Some of the steps being taken by cities and towns are marking vacant buildings, more frequent patrols of areas where these structures are located, pre-incident planning including inspections of these buildings, tougher fines for owners who fail to keep vacant structures secured, and the taking of these properties by the municipality through a variety of means.

The City of Worcester took the lead. Since the tragic death of six of its own firefighters on December 3, 1999 at the vacant Worcester Cold Storage Warehouse, 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 10.0), 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

Largest Loss Vacant Building Fire in Palmer

- On February 11, 2001, at 10:05 a.m. the Palmer Fire Department was called to a 3-alarm fire in a secured, vacant building. The fire began in one of the workrooms. The cause of the fire was a pile of oily rags spontaneously combusting. There was one firefighter injury associated with this fire. Smoke detectors and sprinklers were not present. Damages from this blaze were estimated to be $5,000,000.

- On February 5, 2001, at 2:14 p.m., the Oak Bluffs Fire Department was called to a fire in a single-family seasonal residence. Sixty-eight (68) personnel worked this 3-alarm fire. A malfunctioning residential fire alarm along with strong winds in excess of 25 knots helped contribute to the rapid spread of the fire throughout the 3-story home. The fire was believed to have been started by a faulty electrical connection. There were two fire service injuries associated with this fire. Damages from this fire were estimated to be $3,000,000.

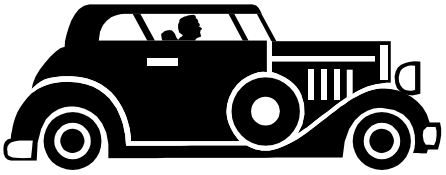
- On February 5, 2001, at 10:13 a.m. the Plymouth Fire Department was called to a computer center that was undergoing major renovation. The fire began in a storage area. A spark from a cutting torch ignited a flammable liquid in a nearby pipe. Three civilians and four firefighters were injured during this fire. Detectors and sprinklers were present and effective. Damages from this fire were estimated to be $10,001.

- On July 21, 2001, at 8:06 p.m. the Grafton Fire Department was called to a fire in a vacant and secured vehicle storage building. This fire was the result of a mechanical failure with one of the vehicles parked in the building. There were no injuries sustained in this fire. Smoke detectors were present and operated. Sprinklers were not present and damages from this blaze were estimated to be $1,000,000.

Motor Vehicle Fires

5,127 Motor Vehicle Fires Account for Almost 1/5 of Reported Fires

The 5,127 motor vehicle fires accounted for six, or 10%, of civilian fire deaths, 44 civilian injuries, 21 fire service injuries, and an estimated property damage of $23 million. Motor vehicle fires accounted for 18% of total reported fire incidents. The 5,127 fires in 2001 are a 6% drop from the 5,473 motor vehicle fires in 2000.



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.

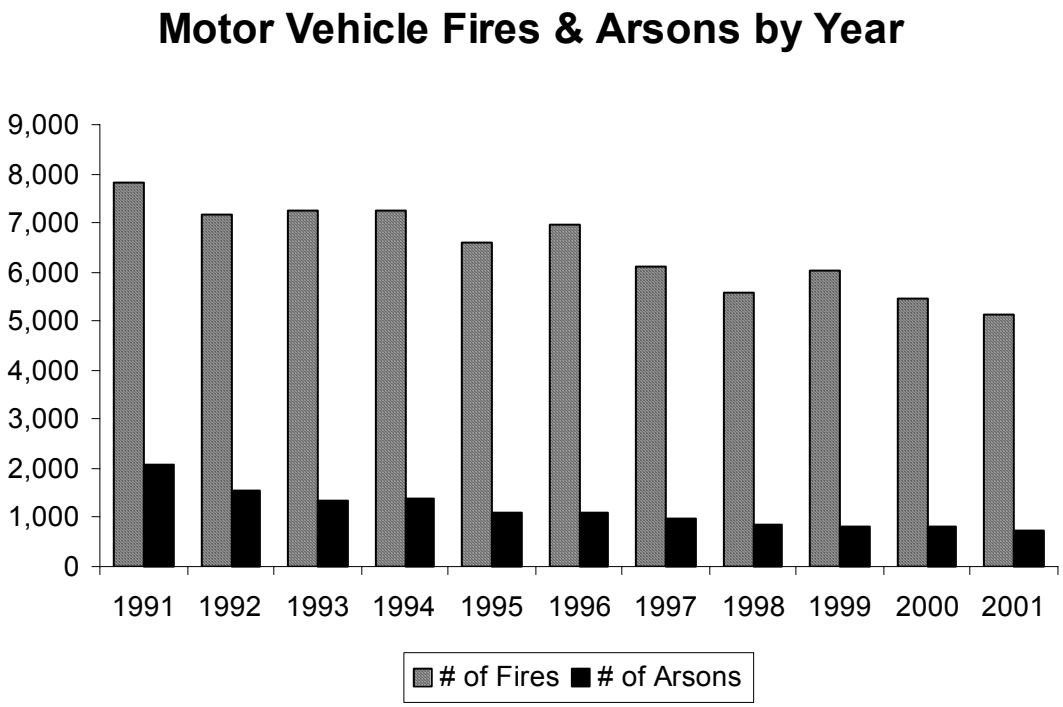
The Burned Motor Vehicle Reporting Law

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 personally appear at fire headquarters in the community where the fire occurred to complete a report. Since it took effect in 1987, motor vehicle arsons have decreased 84% from a high of 5,116 in 1987 to 743 in 2001. The percentage of motor vehicle fires that are arsons has also dropped 70% in the past decade from 21.6% in 1992 to 14.5% in 2001. The table below shows the effectiveness of this law over the past decade.

VEHICLE FIRES AND VEHICLE ARSONS BY YEAR

Year	# of Fires	# of Arsons	% Arsons
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%
1993	7,234	1,329	18.4%
1992	7,160	1,543	21.6%

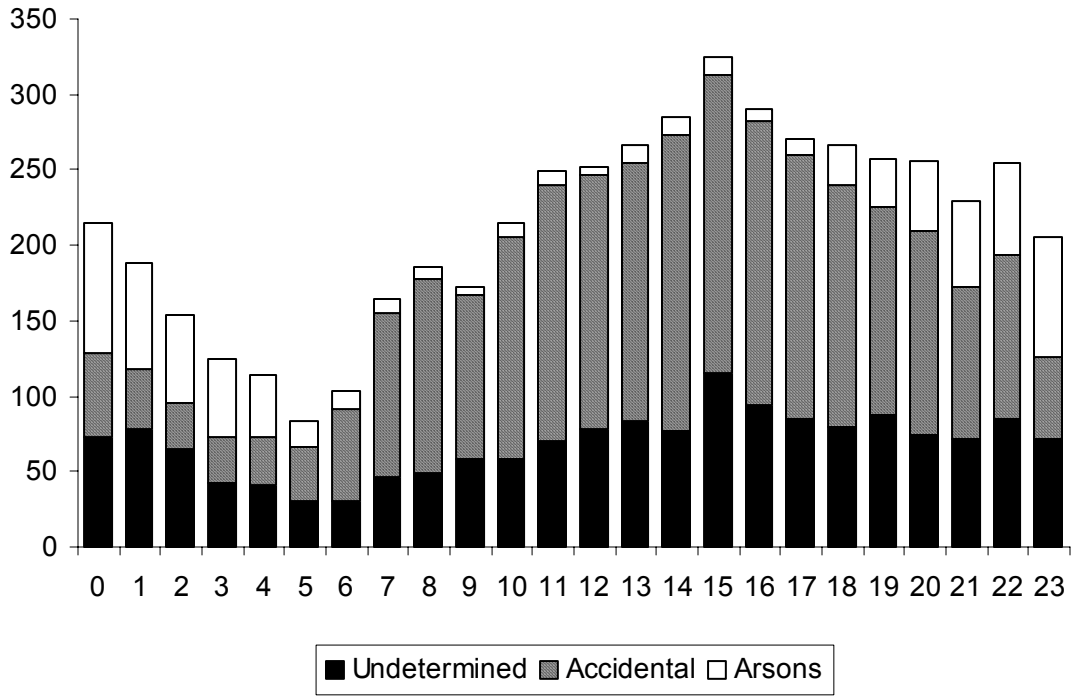
The following graph illustrates the data in the table.



Mechanical Failures Caused 42% of Massachusetts Motor Vehicle Fires
Of the 5,127 motor vehicle fires in 2001, 39% were caused by some type of mechanical failure or malfunction; 15% were considered intentionally set and 14% resulted from other accidental causes. The cause was undetermined or not reported in 32% 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 graph shows, accidental or unintentional fires are more common during the day and early evening. Incendiary and suspicious 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



Almost 3/4 of Massachusetts Motor Vehicle Fires Involved Automobiles
Automobiles and vans accounted for 71% of the 5,127 motor vehicle fires, 4% were trucks weighing less than one ton and another 4% 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 leaves or dried grass underneath.

What should you do if you have a car fire?

- Pull over to the side of the road and stop as soon as possible. Park the car, set the parking brake (or put the transmission in gear for cars with a manual transmission). Fire can disable a car's electrical system in seconds. Power steering and brakes will be harder to use than normal.
- Turn off the ignition. You want to make sure no more gasoline is pumped to the fire.
- Get everyone out of the car.

- Move away and call 911. Do not open the hood. You risk burning your hand and giving 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.

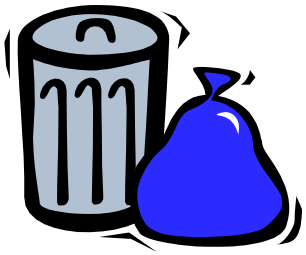
Gas Station Safety

- 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 it 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

12,374 Brush, Trash, and Other Outside Fires Reported in 2001

The 12,374 outside and other fires caused two civilian deaths, 68 civilian injuries, 50 fire service injuries, and an estimated dollar loss of $6.5 million. The 6,462 trees, grass and brush fires, 3,080 outside trash fires, 789 cultivated vegetation or crop fires, 506 special outside fires, and 1,537 other fires accounted for 44% of the total fire incidents in 2001. These fires were up 35% from the 9,179 incidents reported in 2000. 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 12,374 reported outside and other fires include:

- 6,462 natural vegetation fires (trees, grass, and brush fires) which caused 32 firefighter injuries, seven civilian injuries, and an estimated dollar loss of $280,642; this is a 58% increase from the 4,082 incidents reported in 2000. 2001 was a terrible year for brush fires throughout the Commonwealth, especially during the months April, May and June.
- 3,080 trash fires which caused seven fire service injuries, one civilian injuries and an estimated dollar loss of $177,072; this is a 10% increase from the 2,807 incidents reported in 2000;
- 789 cultivated vegetation or crop fires that caused two fire service injuries, seven civilian injuries, and an estimated dollar loss of $521,775; this is a 17% drop from the 950 incidents reported in 2000;
- 506 special outside fires (including outside storage, equipment, mailbox fires and outside gas or vapor explosions) that caused one civilian death, 12 civilian injuries, two fire service injuries, and an estimated dollar loss of $615,816; this is an 406% increase from the 100 incidents reported in 2000;
- 1,537 other fires which could not be classified further which caused one civilian death, 41 civilian injuries, seven fire service injuries, and an estimated dollar loss of $4,959,997; this is a 27% increase from the 1,191 incidents reported in 2000.

Large Loss Outside and Other Fires

- On Saturday, March 18, 2001 at 8:55 p.m. the Boston Fire Department was called to a fire at a Boston Edison electric generating plant. The fire started in the switchgear area and began when water caused a short circuit. Smoke and heat detector performance was undetermined, as was sprinkler performance. Damages from this fire were estimated to be $4 million. There were no injuries resulting from this fire.

- On Sunday, March 19, 2001 at 1:53 a.m. the Boston Fire Department was called to a fire at another Boston Edison electric generating plant. The fire began in the switchgear area and was started when water caused a short circuit. Smoke and heat detector performance was undetermined, as was sprinkler performance. Damages form this fire were also estimated to be $4 million. There were no injuries resulting from this fire. These fires were two separate incidents that coincidentally happened within five hours of each other.

- On Monday, October 2, 2001 at 4:33 p.m. the Ludlow Fire Department was called to a fire at the Massachusetts Municipal Wholesale Electric Company's electric generating plant. The fire started in the switchgear area from an unspecified short circuit. The original call came in as an explosion and fire in the main switchyard. Upon arrival the incident commander immediately called for a second alarm. Suppression efforts were kept to keeping exposures cool and maintaining the perimeter around the main transformer. Units from the fire department remained on scene for approximately 21 hours. The regional HazMat team monitored air quality. The main transformer was a total loss and estimates to replace it were believed to be $2 million. There were no injuries associated with this fire.

Largest Injury Loss Outside and Other Fires

- On Saturday, April 8, 2001 at 2:34 p.m. the Ware Fire Department was called to a brush fire. High winds hampered firefighting efforts. Surrounding towns provided mutual aid for this fire that took 38 firefighters 12 hours to put out. Three firefighters were injured. There was no estimation as to the dollar loss incurred by this fire.

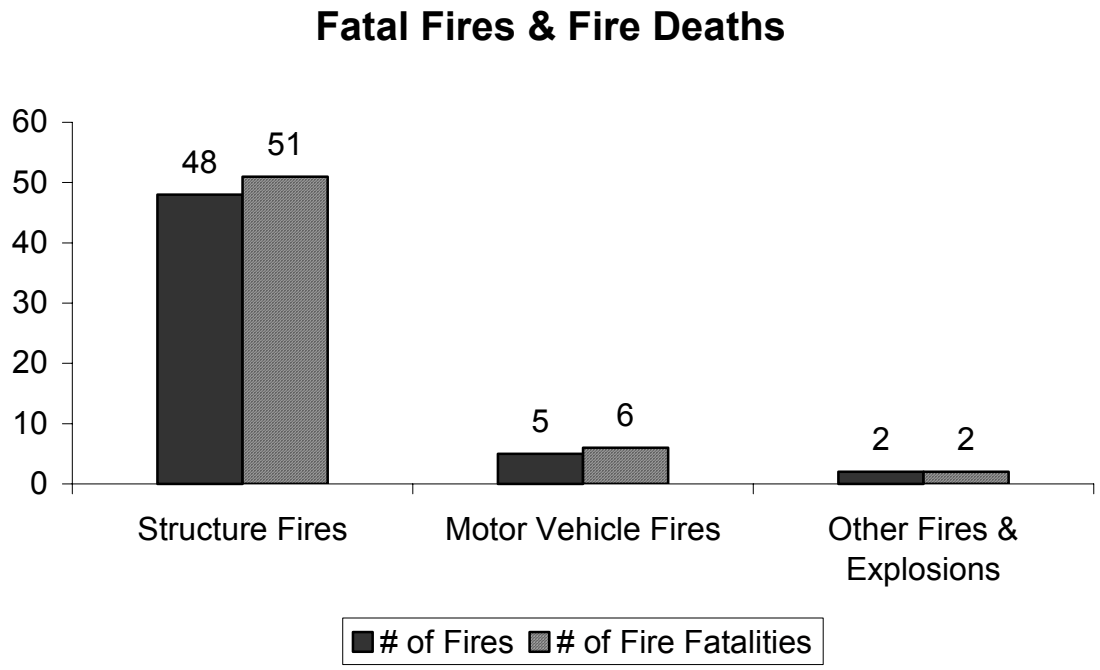
- On Friday, September 1, 2001 at 11:00 a.m. the New Bedford Fire Department was called to an explosion with no after-fire on a barge locate in the harbor. The workers on the barge had been performing seismic work under the direction of the Army Corps of Engineers. Explosive charges were being used to send signals to seismic equipment, thereby mapping the harbor floor. During an unscheduled test to ensure the continuity of the wiring, a charge onboard the barge also exploded. The explosion self-extinguished. Three members of the crew were injured. There was no estimation as to the dollar loss incurred by this fire. After an investigation by the Office of the State Fire Marshal, their license was revoked.

2001 Massachusetts Fire Deaths

Civilian Fire Deaths

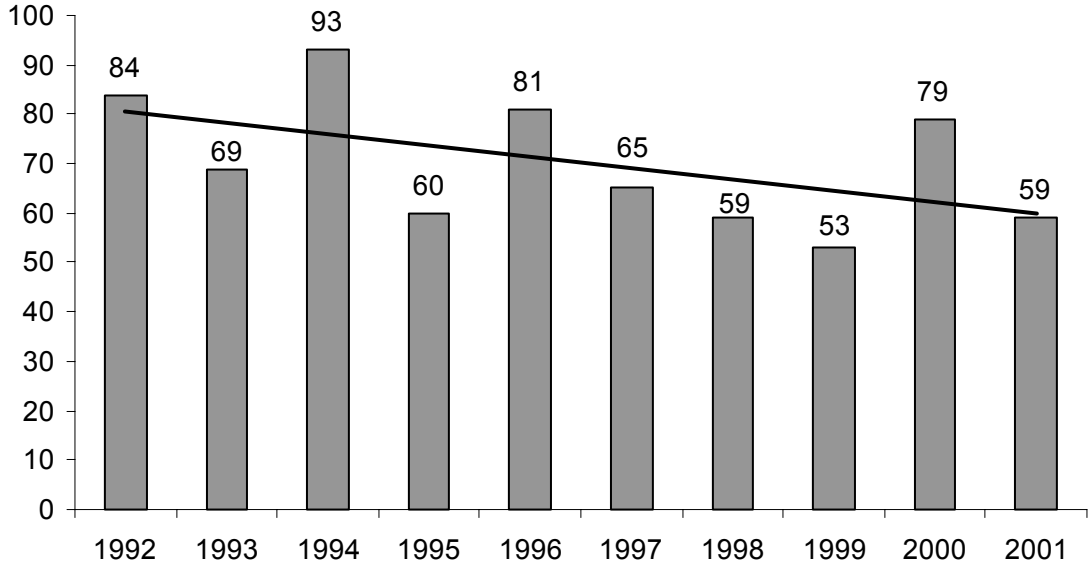
59 Civilians Died in Massachusetts Fires
Fifty-nine (59) civilians died in 55 Massachusetts fires during 2001. Fifty-one (51) civilians died in 48 structure fires. Six (6) people died in five motor vehicle fires. Two (2) people died in two outside and other fires in 2001. In 2001, there were 9.3 fire deaths per one million population in Massachusetts down from 12.4 fire deaths per one million population in 2000.

There were no fire-related fire service fatalities in the Commonwealth of Massachusetts in 2001. The following graph shows the number of fatal fires and the number of fire fatalities in structure fires, motor vehicle fires and other fires and explosions.



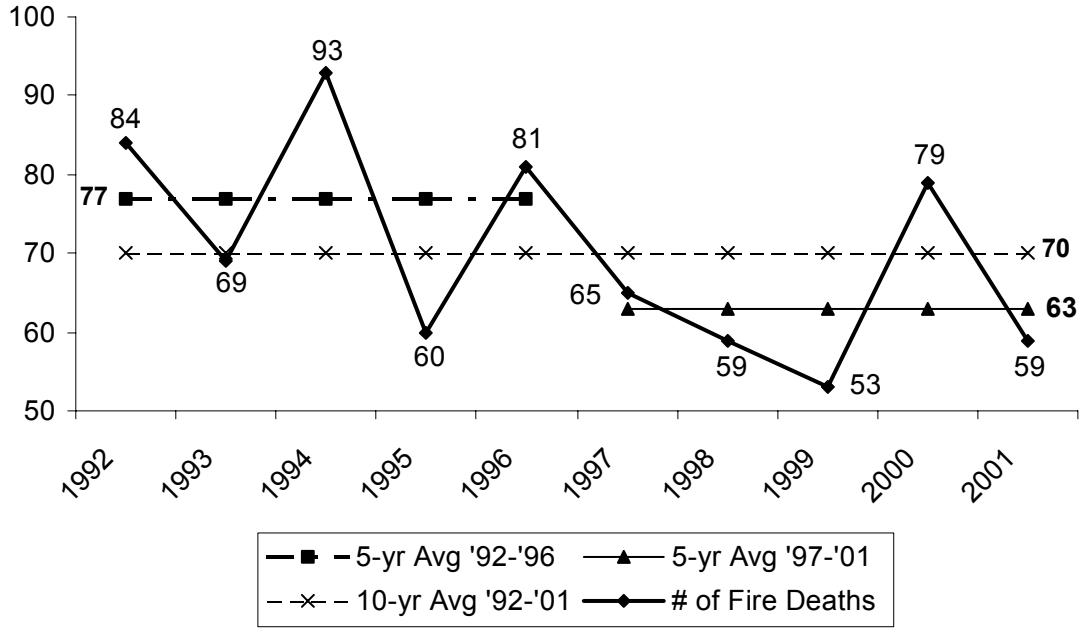
Fire Deaths Were Down 25% From Previous Year
In 2001 fire deaths fell by 20, or 25%, from the previous year. The following chart shows the trend of civilian fire deaths for the past decade on a steady decline. Fifty-nine (59) fire deaths is the second lowest total of deaths in the past ten years; second only to the all-time low (since the end of World War II) of 53 in 1999. Civilian fire deaths have decreased by 30% since 1992.

Civilian Fire Deaths by Year

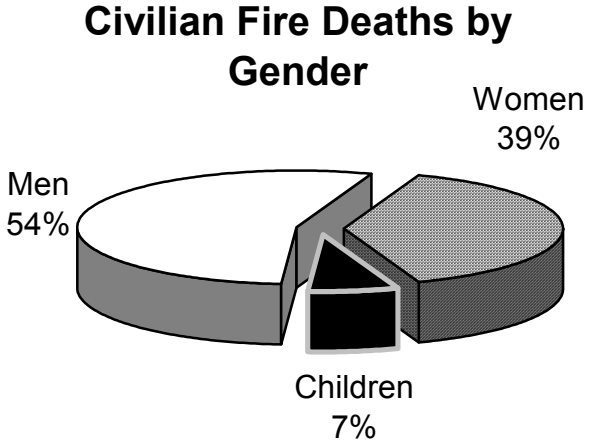


The following graph illustrates the five year averages for the periods from 1992 through 1996, 77 deaths, and 1997 through 2001, 63 deaths. It also shows the ten-year average of 70 deaths for the period 1992 through 2001. Four of the last five years have been below the ten year average and three of the last five years are below the five year average. Note that the chart below starts at 50 rather than the traditional zero value. The 59 fire deaths in 2001 are 19% below the average for the past decade and for the past five years.

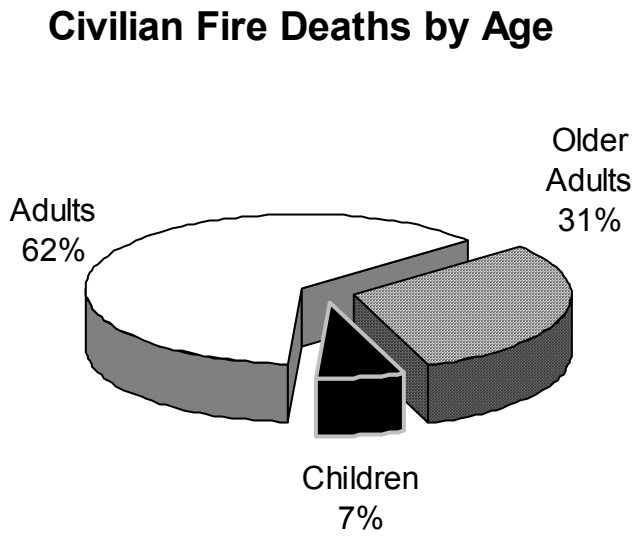
Civilian Fire Deaths by Year



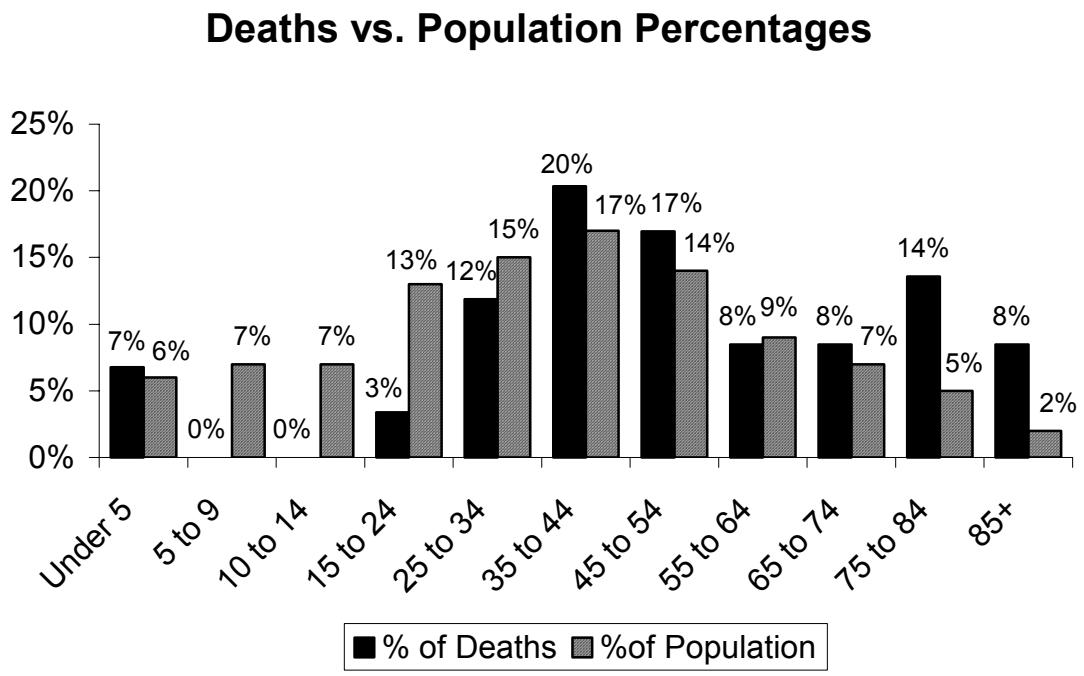
32 Men, 23 Women and 4 Children under 18 Died from Fires in 2001
Of the 59 fire deaths, 32, or 54%, were men, 23, or 39%, were women and four, or 7%, were children under 18. The following pie chart illustrates civilian fire deaths by gender.



Eighteen (18), or 31%, of the civilian fatal fire victims were older adults over 65 years of age. This included ten elderly women and eight elderly men. Four (4), or 7%, were under 18-years old. Thirty-seven (37), or 62%, were adults between 18 and 65 years of age. The following pie chart illustrates civilian fire deaths by age.



Older Adults at Great Risk for Fire Death
Older adults (>65) account for 14% of the population but 31% of the fire deaths. The risk of fire death for older adults is 2.2, up from 2.1 last year. The following graph shows the percentage of fire deaths versus population percentage by age groups in 2001. If the percentage of deaths in a given age bracket is greater than its population, that group is at a high risk for fire death. People ages 5 to 14 had the lowest risk of fire deaths in 2001.



Older adults, especially those over the age of 85 had the greatest risk of dying in a fire.

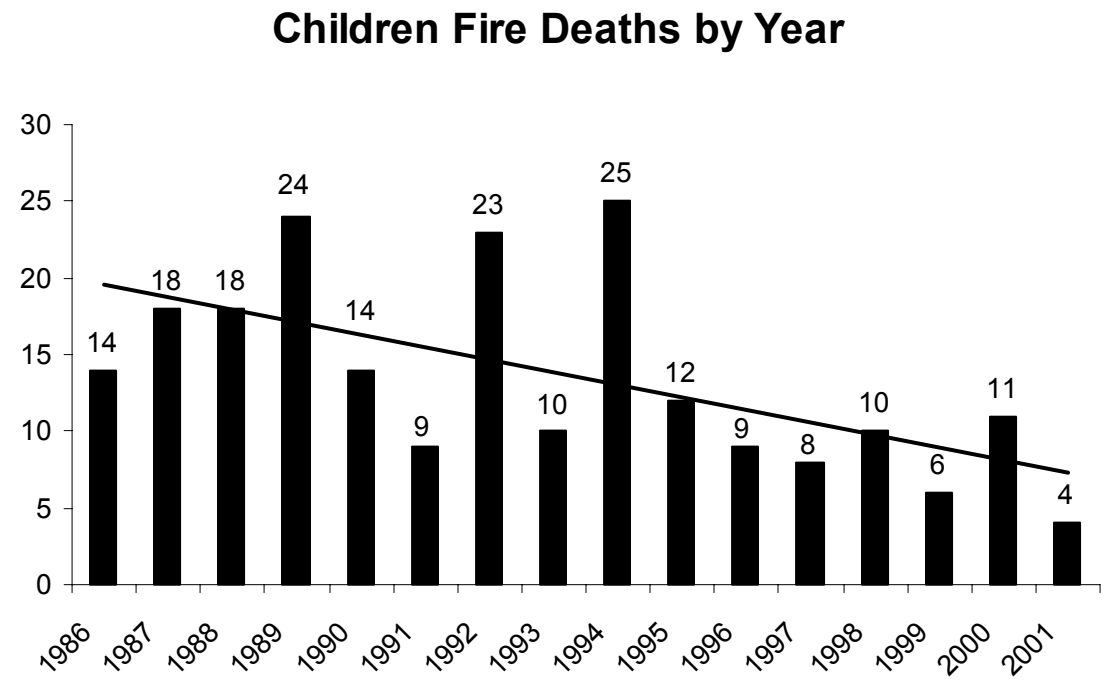
The percentages of the population in each age group were calculated using data from the 2000 Census from the U.S. Census Bureau.

Children under five years old accounted for 6% of the fire deaths and 7% of the population in 2001. Children between the ages of five and nine did not have any fire deaths; children ages 10 to 14 also did not have any fire deaths; young adults ages 15 to 24 accounted for 3% of the fire deaths; people ages 25 to 34 accounted for 12%; adults between the ages of 35 and 44 were 20% of the fire fatalities, the highest of any age group; people ages 45 to 54 were 17%; victims between the ages of 55 to 64 accounted for 8%; and older adults over the age of 65 accounted for 31% of the fire fatalities in Massachusetts in 2001.

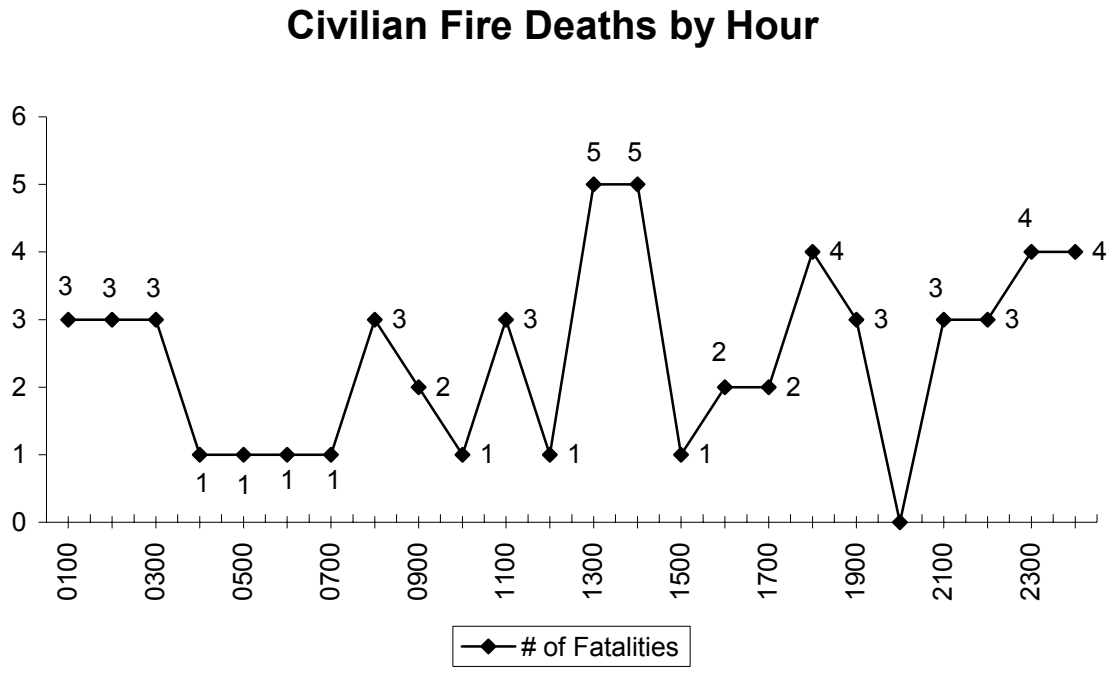
According to USFA statistics, children under 10 accounted for an estimated 22% of all fire-related deaths nationally from 1994 – 1998.[16] Contrary to national trends, children are no longer at a disproportionate risk of dying in fires in Massachusetts. The following graph illustrates the number of child (age <18) fire fatalities in Massachusetts from 1986

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

through 2001. 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.



Nearly 1/2 of the Fire Victims Died in Fires between 10:00 p.m. and 7:00 a.m. People were more likely to die in fires that occurred while they slept. Twenty-four (24), or 44%, of the fire victims died in fires that occurred between 10:00 p.m. and 7:00 a.m. The graph below shows the fire death frequency by time of day on the 24-hour clock. Midnight to 1:00 a.m. is represented by 0100; 1:00 a.m. to 2:00 a.m. is represented by 0200, etc.



The importance of having working smoke alarms is clearly demonstrated here. Because 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 2001, there were 51 structure fire deaths in 48 fatal fires. For the third time since 1994, not all of the structure fire deaths occurred in residential occupancies. One fatal fire occurred in a motor vehicle repair shop, one occurred in an electric transmission and distribution system building and one occurred in a detached tool shed.

1 Civilian Died in a Fatal Garage Explosion

- On December 17, 2001, at 11:27 a.m., the Worcester Fire Department was called to an explosion and resulting fire in a vehicle maintenance garage caused by welding. The victim, a 48-year old man, was making repairs to an oil delivery truck. He was welding some metal parts on the oil tank when the heat of the welding torch ignited vapors inside the tank. The victim died from burns and smoke inhalation. The fire caused $5,000 worth of damage. There were no smoke detectors present in the garage.

Man Killed in Detached Tool Shed

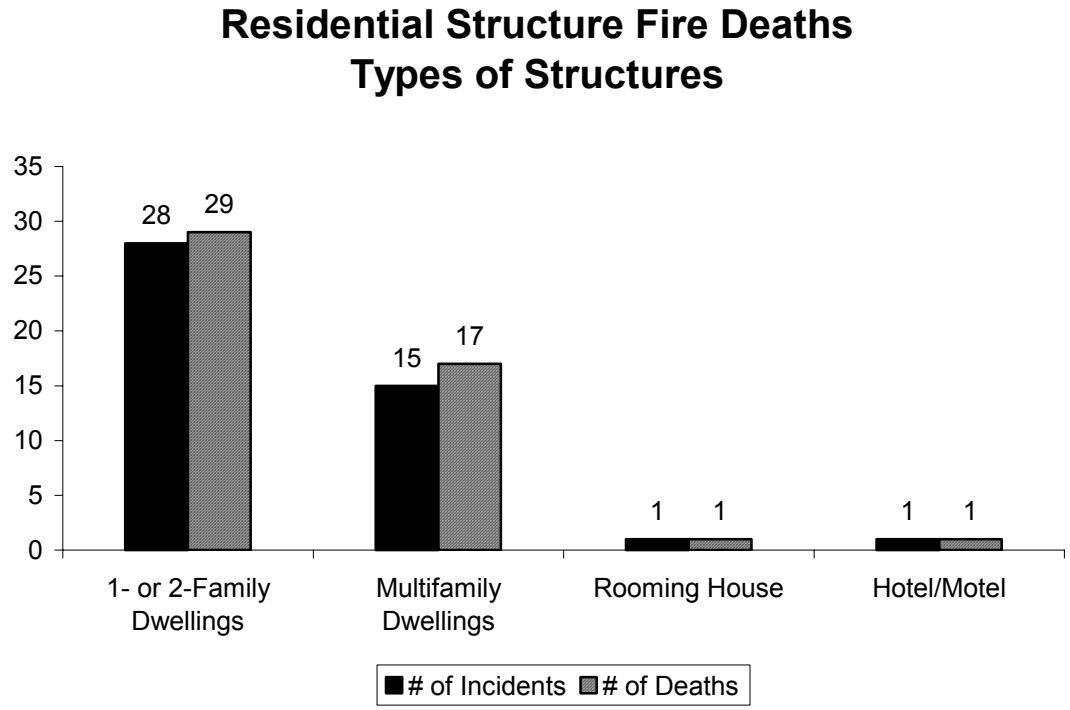
- On May 14, 2001, at 12:30 p.m., the Clinton Fire Department was called to a fatal structure fire in a detached tool shed of undetermined causes. The fire had occurred the day before, on May 13 at approximately 11:00 a.m. The victim's mother had extinguished the fire by sticking a garden hose through a window and returned to the house. She did not enter the shed until the next day and it was not until an hour and a half later that she discovered the body. The victim, a 38-year old male was found on the floor with obvious fatal burns. No detectors were present in the tool shed. There was no estimate of the damages caused by this fire.

One Worker Killed in Electrical Substation Explosion

- On Wednesday, January 3, 2001, at 11:40 a.m., the Everett Fire Department was called to an explosion with an ensuing fire at a Massachusetts Electric substation. The explosion was the result of an operational deficiency in the equipment, which was caused when an electrical arc jumped from a breaker. All three Massachusetts Electric employees that were working inside the building were immediately set ablaze, and were still on fire when they exited the building. A number of neighbors who heard the explosion and witnessed the three emerge from the substation, immediately rushed in to help extinguish the flames. Within a day, the man succumbed to his burn injuries. The two women were severely burned but survived. There was no estimate of the damages caused by this fire.

Residential Structure Fire Deaths

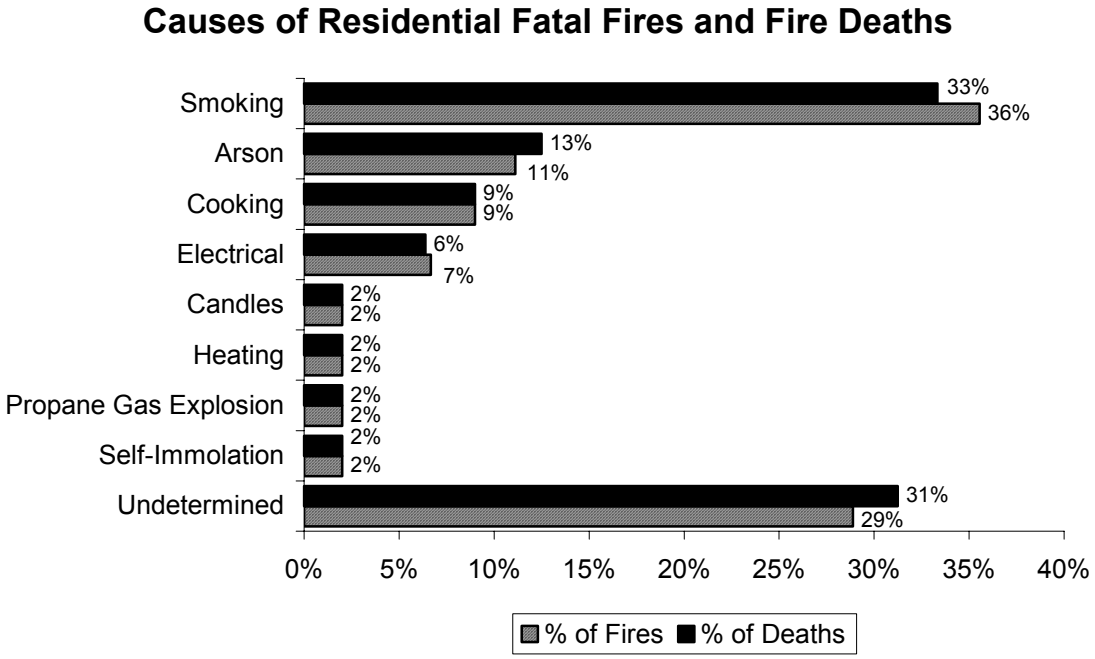
Ninety-four percent (94%) of structure fire deaths occurred in residential occupancies. In 2001 there were 48 residential structure fire deaths in 45 residential fatal fires. This represents 94% of the structure fire deaths and 81% of all fire deaths. Twenty-nine (29) fire deaths occurred in 28 fires in one- and two-family dwellings; 17 fire deaths occurred in 15 apartment fires; one fire death took place in a rooming house; and one fire-related death occurred in a hotel. The graph below shows the number of fatal fire incidents and the number of civilian fatalities associated with various types of residential structures.



Smoking & Arson Are the Leading Causes of Fire Deaths

In 2001, 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. In 1999, cooking and smoking tied as the leading causes of fires that kill. In 2001, smoking remained the leading cause of fire deaths. The second leading cause of fire deaths in 2001 was arson with cooking dropping to the third leading cause of fire fatalities in Massachusetts in 2001.

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



16 Fatal Smoking Fires Cause 16 Deaths

In 2001, the improper use and disposal of smoking materials caused 16 fire deaths in 16 fatal fires. The unsafe and improper use of smoking materials caused 33% of residential structure fire deaths and 36% of fatal residential structure fires. Six (6), or 33%, of the 18 residential structure fire deaths to people over the age of 65 were caused by smoking.

- On January 16, 2001, at 6:53 p.m. the Hopedale Fire Department was called to a fire in a single family home caused by the improper use and disposal of smoking materials. The 90-year old female victim was sleeping at the time of the fire. She was overcome by the heat and smoke generated by the fire. She died from burns and smoke inhalation. Detectors were present but did not operate. The fire caused an estimated $90,000 worth of damage. There was one other civilian injury and one fire service injury associated with this fire.

- On January 29, 2001, at 1:37 p.m. the Norwood Fire Department was called to a fire in a two-family home caused by the improper use and disposal of smoking materials. The 42-year old male victim was overcome by the heat and smoke while attempting to extinguish the fire. The abandoned cigarette ignited a mattress and pillow. The victim died from burns and smoke inhalation. The fire caused $50,000 worth of damage. There were no smoke detectors in the home.

- On February 7, 2001, at 9:12 a.m. the Springfield Fire Department was called to a fire in a two-family home caused by the improper disposal of smoking materials. The fire began in a second floor bedroom on the mattress. The victim, a 99-year old woman, was found on the kitchen floor. She was overcome by the heat and smoke generated

by the fire and died from smoke inhalation. Damages were estimated to be $50,000. There were three fire service injuries and one other civilian injury in this blaze.

- On April 3, 2001, at 3:43 p.m. the Wareham Fire Department was called to a fire in a single-family home caused by improper disposal of smoking materials. The fire began in the living room when some smoking material ignited a piece of furniture. The physically handicapped victim, a 49-year old man, was overcome by the heat and smoke generated by the fire. He died from burns and smoke inhalation. There were two civilian injuries and one fire service injury associated with this fire. Damages from this blaze were estimated to be $180,000.

- At 4:22 p.m., on April 27, 2001, the Salem Fire Department was called to a fire in an apartment building caused by the improper disposal of smoking materials. The victim, a 47-year old man who was sleeping when the fire started, died from burns and smoke inhalation. The fire was started when a cigarette came into contact with an upholstered chair igniting its fabric. Damages from this blaze were estimated to be $50,000. No other injuries were associated with this fire. Detectors were present in other areas of the home but were not functioning.

- On May 23, 2001, at 11:34 p.m., the Boston Fire Department was called to a fire in an apartment building caused by the careless disposal of smoking materials. The victim, a 53-year old man, was sleeping when the fire started and died from smoke inhalation. Damages from this blaze were estimated to be $150,000. Smoke detectors were not present. There was one fire service injury associated with this fire.

- At 7:02 a.m., on May 30, 2001, the Newton Fire Department was called to a fatal fire in a Newton Housing Authority apartment complex 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 53-year old woman, was overcome by heat and smoke while escaping, and died from burns and smoke inhalation. There were four other civilian injuries associated with this fire. Damages from this fire were estimated at $250,000. Smoke detectors were present and operating. The building was not sprinklered.

- On June 10, 2001, at 3:00 a.m., the Boston Fire Department was called to a fatal fire in a single-family condominium caused by the improper disposal of smoking materials. The fire began in the bedroom when the victim fell asleep and her cigarette ignited the bedding. The victim, a 35-year old woman, was asleep when the fire started and subsequently had her escape route blocked by the ensuing fire. She was overcome by the heat and smoke and died from burns and smoke inhalation. Smoke detectors were present in other areas of the home but failed to work. Damages from this blaze were estimated to be $100,000. One firefighter received an injury during this incident.

- At 12:22 a.m., on July 12, 2001, the Easton Fire Department was called to a fatal fire in a single-family home caused by the unsafe disposal of smoking materials. The

victim, a 74-year old man, was sleeping when a discarded cigarette ignited furniture in his bedroom. He was unable to escape and died from smoke inhalation. There were no smoke detectors present in the home. One firefighter was injured battling this blaze. Damages from this blaze were estimated to be $200,000.

- On July 23, 2001, at 8:14 a.m., the Beverly Fire Department was called to a fire at an elderly housing complex that was caused by unsafe disposal of smoking materials. After falling asleep on the sofa, the victim, a 70-year old man, dropped the cigarette he was smoking igniting the sofa. He later died at the hospital from burns to over 95% of his body and smoke inhalation. One firefighter was injured during this fire. Smoke detectors were present and operated. Damages from this blaze were estimated to be $15,000.

- On October 13, 2001, at 10:47 a.m., the Hyannis Fire Department was called to a fatal fire in a single-family home caused by the careless disposal of smoking materials in the living room. While attempting to extinguish the fire, the victim, a 75-year old man was overcome by the heat and smoke generated by the fire. Firefighters found him in a bathroom. He died from burns and smoke inhalation. Detectors were present, but did not operate. There was one fire service injury associated with this fire. Damages from this blaze were estimated to be $15,000.

- On December 15, 2001, at 10:55 p.m., the Egremont Fire Department was called to a fatal fire in a single-family residence caused by improper disposal of smoking materials. The victim, a 34-year old woman, was overcome by smoke in the living room. She later died from burns and smoke inhalation. Damages to the property were estimated to be $30,000. There was one other injury associated with this fire. Smoke detectors were present but did not operate.

- On December 18, 2001, at 9:15 a.m., the Quincy Fire Department was called to a fatal fire caused by the unsafe disposal of smoking materials in a single-family home that killed it's 47-year old bedridden female owner. Investigators believe that the victim was asleep at the time of the fire and possibly impaired by medication. She had recently come home from the hospital. The victim's two children could not get her out of the house and went for help. One of the children received burn injuries to her hands. A firefighter was also injured while fighting this fire. Smoke detector performance was undetermined. Damages from this blaze were estimated to be $250,000.

Smoking on Oxygen

In 2001, smoking while home oxygen was in use caused three of the 16 smoking-related fire deaths in three of the 16 smoking-related fatal fires.

- At 1:54 a.m., on March 31, 2001, the New Bedford Fire Department was called to a fatal fire in a single-family home. The victim, a 53-year old man, succumbed to the burns and smoke inhalation sustained during the fire. Someone in the house was smoking while the victim was using his oxygen. The fire was confined to the living

room, while the entire home sustained smoke damage. Two women who were also in the home when the fire started were assisted outside by neighbors and police. They were transported and admitted to St. Luke's Hospital for smoke inhalation. Detectors were present but did not operate. Damages from this fire were estimated to be $50,000.

- On April 8, 2001, at 8:12 a.m., the North Brookfield Fire Department was called to a fatal fire in a duplex owned by the local housing authority. The victim, a 76-year old woman, died while smoking on oxygen. The fire was contained to the bedding and mattress. It self-extinguished and the heat had dissipated by the time it was discovered by a neighbor when she went to bring a newspaper to the victim. The fire department was called to the scene and conducted an investigation and performed overhaul. Damages from this fire were estimated to be $7,000. Detector performance was undetermined.

- On August 9, 2001, at 1:56 p.m., the Plainville Fire Department was called to a fatal fire in a residential trailer. The victim, a 62-year-old woman, died in a fire started by smoking while on oxygen. The victim fell asleep while smoking and ignited the chair that she was sitting in. The fire was confined to the room of origin. Hardwired smoke detectors were present but failed to alert the occupants. There was no estimation as to the amount of damages caused by this fire.

6 Fatal Arson Fires Cause 7 Deaths

Arson accounted for 15% of fire deaths and 13% of the fatal fires in residential structures. Seven (7) people died in six (6) residential arson fires in 2001.

- On March 31, 2001, at 1:33 a.m., the Woburn Fire Department was called to a fatal arson fire in a rooming house. Clothing not being worn was ignited. The victim, a 45-year old woman, who may have been impaired by drugs or alcohol was overcome by the heat and smoke while sleeping. Firefighters pulled her unconscious body from the burning building. She later died from her burns and smoke inhalation. There were no smoke detectors present. There were no other injuries associated with this fire. Damages from this fire were estimated to be $2,000.

- At 12:54 a.m., on June 25, 2001, the Boston Fire Department was called to a fatal arson fire in a hotel. The fire began at the rear of the building on the ground level. The victim, a 37-year old man, was overcome by the smoke generated by the fire. He died from smoke inhalation. Smoke detectors were present and operated in this fire. There were two other injuries associated with this fire. Three firefighters were also injured battling this blaze. Damages from this fire were estimated to be $400,000.

- On June 30, 2001, at 1:01 p.m., the Boston Fire Department was called to a fatal arson fire in a single-family home. The victim, an 80-year old woman, was overcome by the smoke generated by the fire. Firefighters found her "limp" body on the second floor and tried to revive her. She later died from smoke inhalation. Smoke detectors

were present and operated in this fire. Four firefighters were injured battling this blaze. Damages from this fire were estimated to be $150,000.

- Early on the morning of August 24, 2001, the Boston Fire Department was called to a fatal arson fire in an apartment building. The fire began at the front of the building on the ground level. Gasoline had been poured on the house and ignited. The victim, a 53-year old man, was overcome by the smoke generated by the fire and died from smoke inhalation. Detector performance was undetermined. Two firefighters were injured battling this blaze. Damages from this fire were estimated to be $200,000.

- On December 1, 2001, at 11:41 p.m., the Fall River Fire Department was called to a fatal arson fire in an apartment building. The two arsonists, both males, 28 and 26-years old, were found in the basement. They had started the fire and became trapped by there own handy-work. They both died from burns and smoke inhalation. No one else was injured in this fire. There were no smoke detectors present and the estimated damage of this fire was $70,000.

Arson - Self-Immolation

One Massachusetts resident committed suicide in one incident by lighting himself on fire. A suicide is considered arson because it is intentionally set.

- On January 29, 2001, at 9:55 p.m., the Boston Fire Department was called to a fatal self-immolation fire in a public housing apartment building. The victim, a 35-year old man, was overcome by the heat and smoke generated by the fire. The victim started the fire on a bedroom mattress. He died from burns and smoke inhalation that he sustained in the fire. There were no other injuries associated with this fire. Smoke detectors were present and operated in this fire. Damages from this fire were estimated to be $15,000.

4 Fatal Cooking Fires Cause 4 Deaths

While cooking is the leading cause of residential structure fires, it is only the third leading cause of residential fire deaths. Four Massachusetts residents died in four residential fires caused by cooking in 2001. Cooking fires accounted or 9% of the fire deaths and 9% of fatal fires in people's homes in Massachusetts.

- On January 1, 2001, at 11:43 a.m., the Springfield Fire Department was called to a fire in a single-family home caused when cooking materials were left unattended on an electric stove. The victim, a 22-year old female, had fallen asleep while the stove was still on. Neighbors pulled her from the burning home, but she died from burns and smoke inhalation. No other injuries were associated with this fire. Damages from this blaze were estimated to be $25,000. Smoke detector performance was unable to be determined.

- On March 19, 2001, at 9:58 p.m., the Yarmouth Fire Department was called to a fire in a two-family home caused by abandoned cooking materials that were left in an electric toaster. The victim, a 42-year old man, was overcome by heat and smoke

generated by the fire. He died from burns and smoke inhalation. Investigators believe that the victim became disoriented, and therefore was not able to escape. There were no other injuries associated with this fire. Detectors were present but did not operate. Damages from this blaze were estimated to be $20,000.

- On June 2, 2001, at 2:19 a.m., the Falmouth Fire Department was called to a fire in a single-family home caused by unattended cooking materials left on the stove. The 37-year old female victim was overcome by the smoke generated by the fire while escaping and died from burns and smoke inhalation. A neighbor received burns to his left arm while making a rescue attempt. One firefighter was also injured after he fell on a charged hose line while carrying a ground ladder. Smoke detectors were present, but not in the area of origin, and operating. Damages from the blaze were estimated to be $150,000.

- On June 13, 2001, at 8:54 a.m., the Wakefield Fire Department was called to a fatal fire in an apartment building. The victim, an 80-year old woman, was reaching over her electric stove while heating water to make coffee. Her clothing came into contact with the heating element and ignited. She fled from the kitchen and collapsed on the carpet in the living room, where the first arriving police officers found her. All clothing was burned off of her body. The fire was confined to the victim and the living room. Smoke detectors were present and operating. There was no estimation as to the amount of damages caused by this fire.

3 Fatal Electrical Fires Cause 3 Deaths

Fires caused by electrical problems totaled 6% of the fire deaths and 7% of the fatal fires in people's homes. Three Massachusetts citizens died in three residential fires.

- On January 27, 2001, at 2:21 a.m., the Dartmouth Fire District #3 was called to a fire in a single-family trailer home caused by a short circuit in an extension cord. The victim, a 66-year old man, was asleep and died of burns and smoke inhalation. One firefighter was injured fighting this fire. Smoke detector performance was undetermined, and there was no estimate of damages.

- On February 8, 2001, at 12:25 a.m., the Springfield Fire Department was called to a fatal fire in a single-family home. The fire was caused by improper electrical wiring in the bedroom. The fire was contained to the bedroom, where the victim, a 78-year old man, was found. There was one firefighter injury associated with this fire, and damages were estimated to be $20,000. There were no smoke detectors present in this fire.

- On April 23, 2001, at 2:38 p.m., the Boston Fire Department was called to a fatal fire in a single-family home caused by an unspecified short circuit. The victim, an 84-year old woman, was unable to escape the fire and died from the burns and smoke inhalation. One civilian and eight firefighters were injured during this fire. Smoke detectors were present in other parts of the building but did not operate. Damages from this fire were estimated to be $300,000.

1 Fatal Candle Fire Causes 1 Death
One candle fire accounted for one, or 2%, of residential structure fire deaths, and 2% of the residential structure fatal fires.

- On March 9, 2001, at 1:51 a.m., the Boston Fire Department was called to a fatal fire at a three-family home caused by an unattended candle. The candle was too close to the wall and ignited the wall covering in the bathroom. The victim, a 37-year old man, was attempting to escape when he was overcome by the heat and smoke generated by the fire. He died from burns and smoke inhalation. Two firefighters were injured fighting this fire. There were no smoke detectors present in the building, and damages were estimated to be $200,000.

1 Fatal Heating Fire Causes 1 Death
One fatal heating fire caused one fire death in 2001. This fatal fire was caused by a wood stove. There were no fatal fires involving portable space heaters.

- On December 19, 2001 at 9:20 p.m. the Westfield Fire Department was called to a fatal fire in a single-family home. The cause was determined to be radiated heat from a wood stove. The victim, a 75-year old woman, was trapped by the fire while escaping and overcome by heat and smoke. She died from burns and smoke inhalation. There were no other injuries associated with this fire. Damages from this fire were estimated to be $125,000. Detector performance was undetermined.

1 Death in a Fire Involving a Propane Gas Explosion
One man was killed when there was a propane gas explosion in his home. This fire represents 2% of the fatal fires and 2% of the fire deaths in Massachusetts in 2001.

- On August 4, 2001, at 1:42 p.m. the Falmouth Fire Department was called to a fatal propane gas explosion with ensuing fire in a single-family home. The victim, a 65-year old man, was trying to escape but was overcome by the heat and smoke generated by the fire. Firefighters were able to locate the victim, remove him from the scene and transport him to the hospital. Five days later on August 9, the victim succumbed to the injuries he sustained in the explosion. There were no other injuries associated with this incident. Detectors were present and operating. Total estimated damages from this blaze were $10,000.

13 Fatal Fires of Undetermined Causes
Thirteen (13) fatal residential structure fires took the lives of 15 Massachusetts residents in 2001. These 13 fires that remain undetermined after investigation, represent 29% of the fatal fires; and the 15 related deaths represent 31% of the fire deaths in 2001.

- On January 1, 2001, at 7:56 p.m., the Clinton Fire Department was called to a fatal fire in a three-family apartment building of undetermined cause. The victim, a 91-year old man, was overcome by the heat and smoke generated by the fire. He was found sitting on a chair in his bedroom. He died two days later in the hospital from burns and smoke inhalation. There were two other civilian injuries associated with

this fire. Two firefighters were injured battling this blaze. Damages from this fire were estimated to be $30,000.

- On January 12, 2001, at 1:18 p.m., the Hingham Fire Department was called to a fatal fire in a single-family home of undetermined causes. The most probable ignition source was the electric stove as some of the burners were found in the 'ON' position. The victim, a 92-year old woman, lived in the home alone. Firefighters encountered heavy fire as they located and removed the victim from the burning structure. She died from burns and smoke inhalation. There were no other injuries associated with this fire. There were no smoke detectors present in the home. Damages from this blaze were estimated at $80,000.

- On January 23, 2001, at 6:57 p.m., the Ipswich Fire Department was called to a fire in a three-unit apartment building of undetermined causes. Two of the three victims, a 33-year old woman and her 3-year old daughter, were overcome by heat and smoke. The third victim, a 5-month old daughter was dropped out of the window by her mother but sustained blunt head trauma in the fall. She was med-flighted to Mass General Hospital where she later died from her injuries. Her mother and sister died from burns and smoke inhalation. Detectors were present but were not operating. Two firefighters sustained injuries fighting this fire. Damages from this blaze were estimated at $253,000.

- On March 9, 2001, at 6:34 a.m., the Somerville Fire Department was called to a fatal fire in a 4-unit apartment house of undetermined cause. The victim, a 57-year old man, was overcome by heat and smoke. The fire began in the living room and the victim was found in the bathroom suggesting he became disoriented in the smoke while trying to escape. He died from burns and smoke inhalation. Smoke detectors were present in other parts of the building and operating. Damages from this blaze were estimated to be $300,000. There were no other injuries associated with this fire.

- On March 17, 2001, at 4:06 a.m., the Medway Fire Department was called to a fire in a single-family home of undetermined cause. The victim, a 31-year old man, was overcome by the heat and smoke and died from smoke inhalation. No other injuries were associated with this fire. There was no estimation as to the amount of damages caused by this fire. Smoke detectors were present and operating during this fire.

- On March 18, 2001, at 5:29 p.m., the Hatfield Fire Department was called to a fatal fire in a single-family home of undetermined cause. The victim, a 39-year old man, was asleep when the fire began. He was overcome by the heat and smoke generated by the fire, that originated in the kitchen area. The victim was found on the first floor under a bay window. There were no other injuries associated with this fire, and damages were estimated to be $69,000. Smoke detectors were not present.

- On April 4, 2001, at 9:49 p.m., the Fall River Fire Department was called to a fire in a single-family home of undetermined cause that killed a 73-year old woman. The victim apparently panicked, and fire blocked her escape route. She died from burns

and smoke inhalation. A passer-by made a rescue attempt and received burns to his hands. Smoke detector performance was undetermined. Damages from this blaze were estimated to be $150,000. This fire ignited an exposure fire in a neighbor's three-family home. Damages to this exposed building were estimated at $10,000.

- On April 9, 2001, at 10:15 p.m., the Springfield Fire Department was called to a fire at a single-family home of undetermined causes. The most likely cause was from unattended cooking. The victim, an 80-year old man, died as a result of smoke inhalation. There were two firefighter injuries associated with this fire. Damages from this fire were estimated to be $20,000. There were no smoke detectors present in the home.

- On April 22, 2001, at 3:59 a.m., the Wakefield Fire Department was called to a fire in an apartment building of undetermined cause. The most likely source of ignition was the spontaneous combustion of a towel located under the gas grill, which may have ignited the propane. The towel was soaked with citrus cleaner and was rolled up into a ball. The victim, a 56-year old woman, jumped from the second floor window to escape the heat and smoke generated by the fire. Two weeks later on May 5, 2001, she succumbed to her injuries. There were four civilian injuries and two firefighter injuries associated with this fire. Smoke detectors were present in other parts of the building but did not operate in this fire. There was no estimation as to the amount of damages caused by this fire.

- On May 23, 2001, at 11:49 p.m., the Haverhill Fire Department was called to a fatal fire of undetermined causes in a six-unit apartment building. The victim, a 52-year old man, became trapped by the heat and smoke generated by the fire while attempting to escape. He later died from his burns and smoke inhalation. Smoke detectors were present but it was undetermined if they operated. There were two fire service injuries associated with this fire. There was no estimation as to the amount of damages caused by this fire.

- On July 9, 2001, at 5:28 p.m., the Fitchburg Fire Department was called to a fatal fire in a single-family residence of undetermined causes. The victim, a 63-year old woman, died from burns and smoke inhalation. Damages from this fire were estimated to be $35,000. Smoke detector performance was undetermined.

- On November 21, 2001, at 10:23 a.m., the Revere Fire Department was called to a fatal fire of undetermined causes in a single-family residence. The fire began in a heating room or area. The victim, a 4-year old boy, was asleep at the time of the fire. He died from burns and smoke inhalation. There were no other injuries associated with this fire. There were no smoke detectors in the residence. There was no estimation as to the amount of damages caused by this fire.

- On December 23, 2001, at 2:56 p.m., the Fall River Fire Department was called to a fatal fire in an apartment building of undetermined causes. The victim, an 87-year old woman, was overcome by the heat and smoke while escaping. Smoke detectors were

present and operating. Damages from this blaze are estimated to be $300. Two other residents were injured in this fire with burn injuries while making a rescue attempt.

Bedroom or Living Room is the Area of Origin for Over 1/2 of All Victims
Twenty-four (24), or 54%, of the civilians that died in residential fires were killed in fires that started in the living room or bedroom. Twelve, or 27%, succumbed to fires that originated in the bedroom, another 12, or 27%, victims died in fires that began in the living room, and eight victims, or 18%, perished in fires that began in the kitchen. The area of origin for the remaining 14 fatalities, or 27%, were spread throughout the structure with no one area being associated with more than two deaths. The area of origin was undetermined for four fire fatalities. These victims were excluded from the percentage calculations.

Over 1/3 of Deaths Involved Smoking Materials as a Heat Source
Of the 48 residential structure fire deaths, 35% involved smoking materials: 25% were from cigarettes; 8% were from undetermined smoking materials and 2% were from cigarette lighters. Eight percent (8%) of the deaths involved radiated or conducted heat from operating equipment. Four percent (4%) involved heat from arcing electrical equipment. Heat from powered equipment, a candle, an open flame and a hot or smoldering object were each involved in 2% of the fire deaths. Eight percent (8%) of the deaths were attributed to an undefined heat source. Heat source was undetermined in 17 deaths, or 35%, of the residential structure fire deaths in 2001.

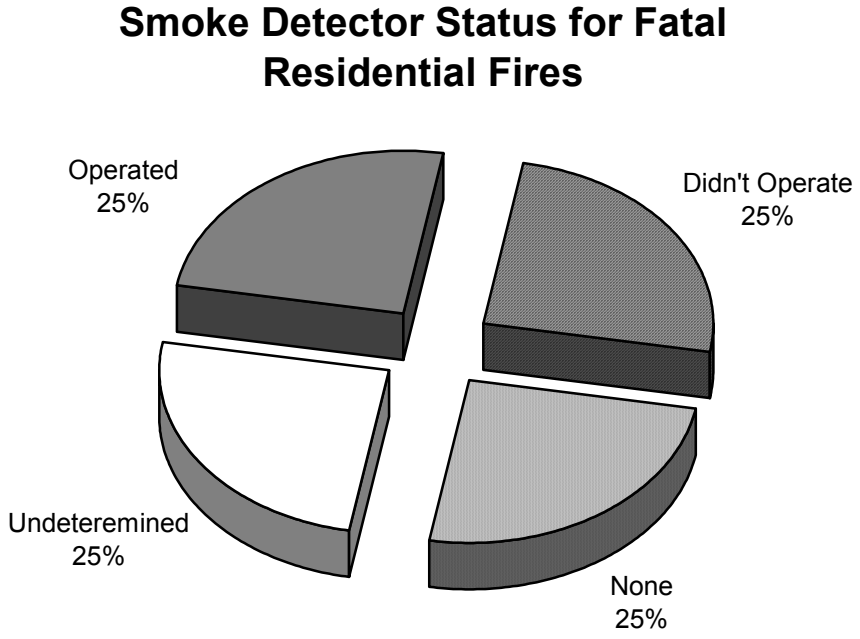
Furniture Ignited First in 18% of Deaths
Of the 48 residential structure fire deaths, 18% of the fire deaths were from fires where furniture was the form of material first ignited. Nine percent (9%) of deaths occurred when mattresses or pillows were the first to burn. Another 9% of residential fire deaths occurred when structural components were the first to burn. Four percent (4%) died from fires where the clothing a person was wearing was the first material ignited. Another 4% of the deaths occurred in fires clothing not on a person was the material first ignited. Four percent (4%) died when a flammable gas or liquid was the first material ignited. First material ignited was undetermined in 17, or 35%, of the residential structure fire deaths in 2001.

No Working Detectors for 1/2 of Residential Fire Victims
Of the forty-eight (48) people who died in residential structure fires in 2001. The smoke detector performance was known for 36 of the victims. Victims were not alerted by smoke detectors in 21 fires that killed 24 people, or 50% of the victims. In ten of these incidents, no detectors were present at all. These ten fires claimed the lives of 12 individuals. Detectors were present, but did not operate in 11 fires that killed 12 people.

Twelve (12) people died in 12 separate residential fires with detectors that did operate, accounting for 25% 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. 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.

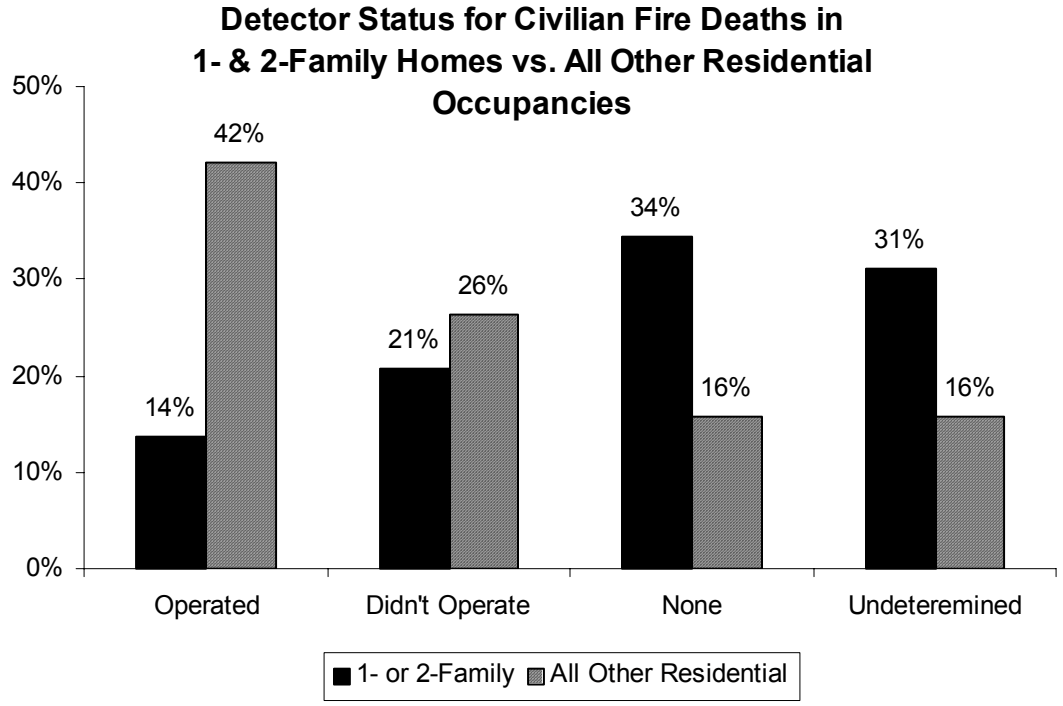
Detector performance was undetermined in 12 residential structure fires that killed 12 people accounting for another 25% of the residential structure fire deaths in 2001. The following pie chart shows the smoke detector status as a percentage of the civilian residential structure fire deaths in 2001.



No Working Smoke Detectors in Over 1/2 of Fire Deaths in 1 & 2-Family Homes
There were 53% more fire deaths in 1- & 2-family homes than all the other residential occupancies combined. Twenty-nine (29) people died in 28 one- and two-family dwelling fires in 2001. Sixteen, or 55%, 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 16 deaths, six occurred in homes where smoke detectors failed to work while the other ten deaths were in homes where there were no smoke detectors present. Four deaths, or 14%, occurred in homes where the smoke detectors operated. Nine deaths, or 31%, occurred in nine fires where smoke detector performance was undetermined.

Other Residential Occupancies More Likely to be Protected by Smoke Detectors
Nineteen (19) people died in 17 apartment and other residential fires in 2001. The detector performance was known for 16 of the victims. Six individuals perished in four fires where smoke detectors were present but did not function. Seven people died in seven other apartment or other residential fires where smoke detectors were present and working. Detector performance was unknown or not reported in three fires where three people lost their lives. 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.

As the following graph illustrates more people died in 1- and 2-family homes that did not have working smoke detectors than died in all other residences combined.



Sleeping Was the Leading Human Factor Contributing to Injury[17]
Of the 48 fatal structure fire victims, 26 had some human factor contributing to their injury. Thirty-five percent (35%) of the fatalities were asleep; 8% were unattended or unsupervised; 6% were bedridden or had another physical handicap; 4% were impaired by alcohol; 2% were impaired by drugs; and another 2% had a mental handicap. Twenty-two (22), or 46%, of the 48 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 35% of fatalities were asleep shortly before becoming a casualty but 21% were still asleep at the time they died. This would seem to indicate a number of people were awoken from their sleep and attempted to escape before being overcome.

21% of Victims Were Sleeping at Time of Death
Ten (10), or 21%, of the 48 fatal fire victims were sleeping. This was the leading activity at the time of injury of all the fatal fire deaths in residential structure fires. Another 17% were trying to escape; 15% of the victims were unable to act; 6% were involved in an irrational action; 4% were trying to extinguish the fire; 2% were attempting a rescue; while another 2% of the victims returned to the vicinity of the fire before it was under

[17] 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.

control. Activity at time of death was undetermined for 16, or 33%, victims of fatal fires in 2001.

98% of Victims Suffered Burns, Smoke Inhalation or Both
For 43, or 98%, of the victims where the primary apparent symptom of their injury was known, 31, or 70%, suffered burns and smoke inhalation; 10, or 23%, suffered from smoke inhalation only and two, or 5% died from only the burns incurred in the fire. The other victim died as the result of blunt trauma to the head from her fall from the third story while trying to escape the fire. The primary apparent symptom was undetermined in four deaths. These victims were excluded from the percentage calculation.

Fatal Motor Vehicle Fires

In 2001, five motor vehicle fires killed six civilians. Motor vehicle fire deaths are determined subsequent to the autopsy of the victim, where smoke is found in the lungs of the victim, an indication the victim survived the impact of the collision. One of the fires was an airplane crash with the remaining four involving automobile accidents.

- On January 15, 2001, at 12:29 a.m., the Westport Fire Department was called to a vehicle fire on a paved public street. Upon arrival, the car was fully involved and arriving firefighters began to attack the fire. The victim, a 35-year old male, was located inside the front passenger seat of the vehicle. The fire was the result of a one-car motor vehicle accident when the automobile struck a large tree. The fire started when the heat from the hot exhaust manifold ignited fuel leaking from the ruptured fuel line. The victim died of burns and smoke inhalation in this fire. The estimated damages from this blaze were $5,000.

- On July 28, 2001, at 4:53 p.m., the Westfield Fire Department was called to an airplane crash at Westfield Barnes Municipal Airport. The victim, a 55-year old man, was initially trapped inside the plane's wreckage and could not escape. Westfield firefighters extricated the victim and transported him to a local hospital. He later died from burns and smoke inhalation. The estimated damages from this airplane accident were $500,000.

- On August 5, 2001, at 2:12 p.m., the Adams Fire Department was called to a fatal motor vehicle accident. The victim, a 31-year old man, died from the burns he incurred while trapped inside the vehicle. The estimated damages from this blaze were $1,000.

- On October 25, 2001, at 2:26 p.m., the Taunton Fire Department was called to a fatal single car accident. According to witnesses, the car traveling on Interstate 495 in the high-speed travel lane, crossed all three lanes and struck the Bay State bridge abutment. It then rolled over and burst into flames. The victims, a 2-year old girl and her 44-year old father, died from burns, smoke inhalation and the blunt trauma

brought about by the crash. No one else was injured in this incident. The estimated damages from this blaze were $15,000.

- On December 17, 2001 at 2:32 a.m. the Quincy Fire Department was called to a vehicle arson fire in a residential parking garage. The occupant of the car, an unidentified male, was extricated from the extinguished wreckage by firefighters. The fire started in the passenger compartment of the car. The victim died from the burns and the smoke inhalation associated with this suspicious fire. No other injuries were associated with this fire. Damages from this fire were estimated to be $25,000.

Other Fatal Fires & Explosions

In 2001, two outside and other fire or explosion incidents killed two civilians.

Man Killed in Cutting Torch Explosion

- On April 26, 2001, at 3:06 p.m., the Palmer Fire Department was called to a fatal explosion outside of a motor vehicle repair shop. The victim, a 28-year old man, was using a cutting torch to open a 55-gallon drum, which still contained some residual windshield washer fluid. An explosion occurred, and the victim received internal traumatic injuries to the head from the ensuing shrapnel. The victim died from these injuries. There were no other injuries associated with this fire. There was no estimation of damage caused by this fire.

Woman Dies From Self-Immolation

- The Marlborough Fire Department was called to an outside fire behind a liquor store on December 19, 2001, at 7:20 p.m. The victim, a 20-year old woman, had poured gasoline on herself and ignited her clothing with a butane grill lighter. The lighter ignited the gasoline soaked into the victim's clothing. Firefighters on scene also found a burning two-gallon plastic gas can further down the alley. No other injuries were associated with this fire.

Multiple Fire Deaths

For statistical purposes, a fire is considered a multiple death fire if it kills three or more people. In 2001, there was one multiple death fire in Ipswich which killed 3 people, a mother and her two young daughters.

Firefighter Deaths

In 2001, there were no fire-related fire service fatalities in the Commonwealth of Massachusetts.

Conclusion

In 2001, there were 55 fatal fires in Massachusetts with 59 accompanying fatalities. Fifty-nine (59) deaths is the second lowest annual total of deaths in the past 10 years. This was a 25% decrease from the 79 fire deaths reported in 2000, and continued the downward trend over the past decade. Of these 59 deaths, 51 occurred in structure fires; and 94% of all fatal structure fire victims, died in residential structure fires. Twenty-nine (29) of these deaths occurred in 1- and 2-family homes.

Smoking was the leading cause of residential fire deaths in 2001, responsible for 16 deaths in 16 fires. Smoking on oxygen accounted for three of these 16 deaths and three of the 16 fires. Arson was the second leading cause of fire deaths accounting for six deaths and seven fires with cooking ranking third at four deaths and four fires.

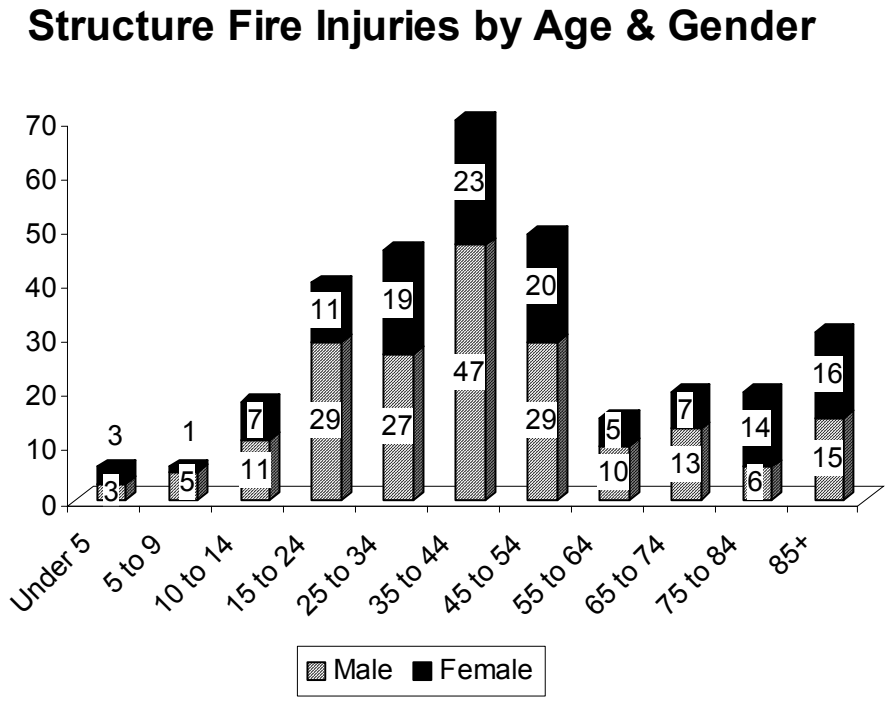
Thirty-three percent (33%) of the 18 residential structure fire deaths to people over the age of 65 were caused by smoking. Older adults (65+) were at greater risk for fire deaths in Massachusetts in 2001. Older adults accounted for 14% of the population but 31% of the fire deaths. Children are no longer at a disproportionate risk of dying in Massachusetts' fires.

People were more likely to die in fires that occurred while they slept. Twenty-one percent (21%) of fire fatalities were sleeping at the time of death. Half 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. Two-thirds of the fire victims who either had no detector installed or one that did not operate died in 1- and 2-family homes. Over half of the victims died in fires that began in either the bedroom or living room, two of the areas in the home were people are most likely to fall asleep. Furniture was the leading item first ignited in all the residential structure fire deaths. Also, 98% of these victims suffered burns, smoke inhalation or both.

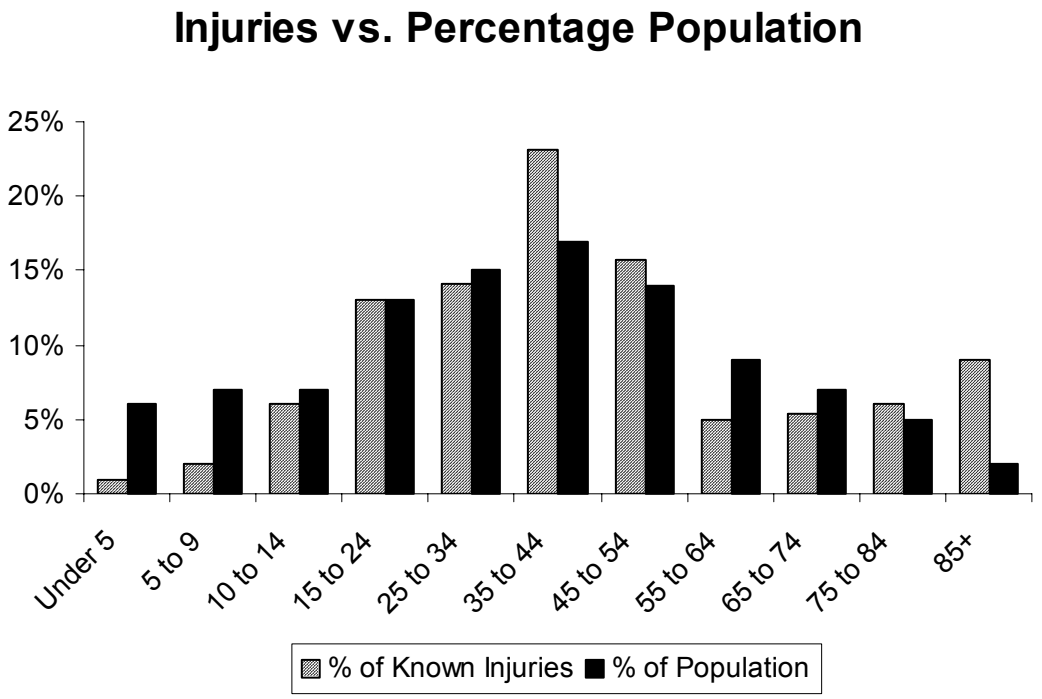
Civilian Injuries

501 Civilians Injured in Fires in 2001 – Mostly at Home
Massachusetts' fires injured 501 civilians in 2001, but only 484 of these injuries had casualty reports completed in full. Three hundred and eighty-nine (389), or 78%, of civilian injuries occurred in structure fires. Three hundred and thirty-seven (337), or 87%, of all the structure fire injuries occurred in residential structure fires. Forty-four (44), or 9%, occurred in motor vehicle fires. Twelve (12), or 2%, occurred in special outside fires. Seven (7), or 1%, of civilian injuries occurred in brush fires. Another seven (7), or 1%, occurred in cultivated vegetation or crop fires. One (1) injury occurred in one outdoor trash fire. Forty-one (41), or 8%, of civilian injuries were caused by unclassified fires.

Structure Fire Injuries
Of the 344 civilian injuries resulting from structure fires where gender was reported, 210, or 61%, were men and 134, or 39%, were women. Overall, 38 children under 18 years of age, 212 adults and 71 older adults (65+) were injured by structure fires in 2001. The following chart illustrates the structure fire injuries by gender in 2001. Men and women ages 35-44 and 45-54 were injured the most and children under 5 and between 5-9 were injured the least in 2001. Six (6) children ages 0-4 were injured; another six (6) children ages 5-9; 18 children ages 10-14; 40 people ages 15-24; 46 people ages 25-34; 70 people ages 35-44; 49 people ages 45-54; 15 people ages 55-64; 20 people ages 65-74; 20 people ages 75-84 and 31 people were injured that were over 85 years of age.



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



Adults 35 to 44 and Seniors Over 85 at High Risk for Fire Injury
The age group of over 85 represents 2% of the population, and they accounted for 9% of the injuries. This puts this age group at over four times the risk for injury in a fire. Adults between the ages of 35 and 44 represent 17% of the population and yet they accounted for 23% of the injuries in 2001. The disparity in the number of injuries to the percentage of population is most likely caused by the tendency to try and control the fire. In both age groupings, 40% of the fire-related injuries were incurred while trying to control the fire.

87% of Injuries Were Due to Smoke Inhalation Or Burns Or Both
Of the 425 civilian injuries where nature of injury was known, 36%, or over one-third of the injuries, were caused by burns only. Thirty-four percent (34%) were caused by smoke inhalation only. Burns and smoke inhalation together caused 16% of the injuries. Four percent (4%) of injuries were cuts or lacerations. Fractures, strains or sprains, and dizziness, fainting or weakness each accounted for less than 1% of the fire-related injuries in 2001. The nature of injury was undetermined or not reported in 60 civilian fire injuries. These were excluded from the percentage calculations.

43% 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. Almost half 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 professional from outside the burning building. Of the 380 victims for which activity at time of injury was known, 43%, were attempting to control the fire; 15% were escaping; 9% were sleeping; 6% were attempting a rescue; 4% were unable to act; another 4% were acting irrationally; 2% returned to the vicinity of the fire before it was under control; and 1% returned to the vicinity of the fire after the fire was under control. Seventeen percent (17%) were injured in 'Other' activities. There were 105 injuries where the activity at time of injury was unknown; these were excluded from the percentage calculations

Almost Twice as Many Women Were Sleeping Before Sustaining Injuries
In 2001, the only activity at the time of injury where there is greater than a 2% difference between men and women is sleeping. In structure fires, 17, or 15% of women who sustained injuries, were sleeping. Fifteen (15), or 9% of male victims who received injuries were sleeping at the time of injury or time of the fire.

In past years, 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 just as likely to attempt to control the fire and be injured. Seventy-six (76) men, or 43%, were injured while trying to control the fire; while 48 women, or 42%, were injured trying to put the fire out.

Prevention of these injuries is to have and practice a home escape plan and leave firefighting to the professionals. They have the training and the protective clothing to do the job.

Over 3/4 of Victims Were Asleep Just Before the Injury
Of the 80 victims for which the human factor contributing to the injury was known, 78% were asleep; 14% were possibly impaired by alcohol; 5% were physically disabled; 3% were possibly mentally disabled; and 1% were an unattended or unsupervised person.

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.

The following table is a cross tabulation table 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. However, mainly because of the conversion of version 4 data to version 5 it is impossible to tell what their physical or mental state was right before their injury. 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

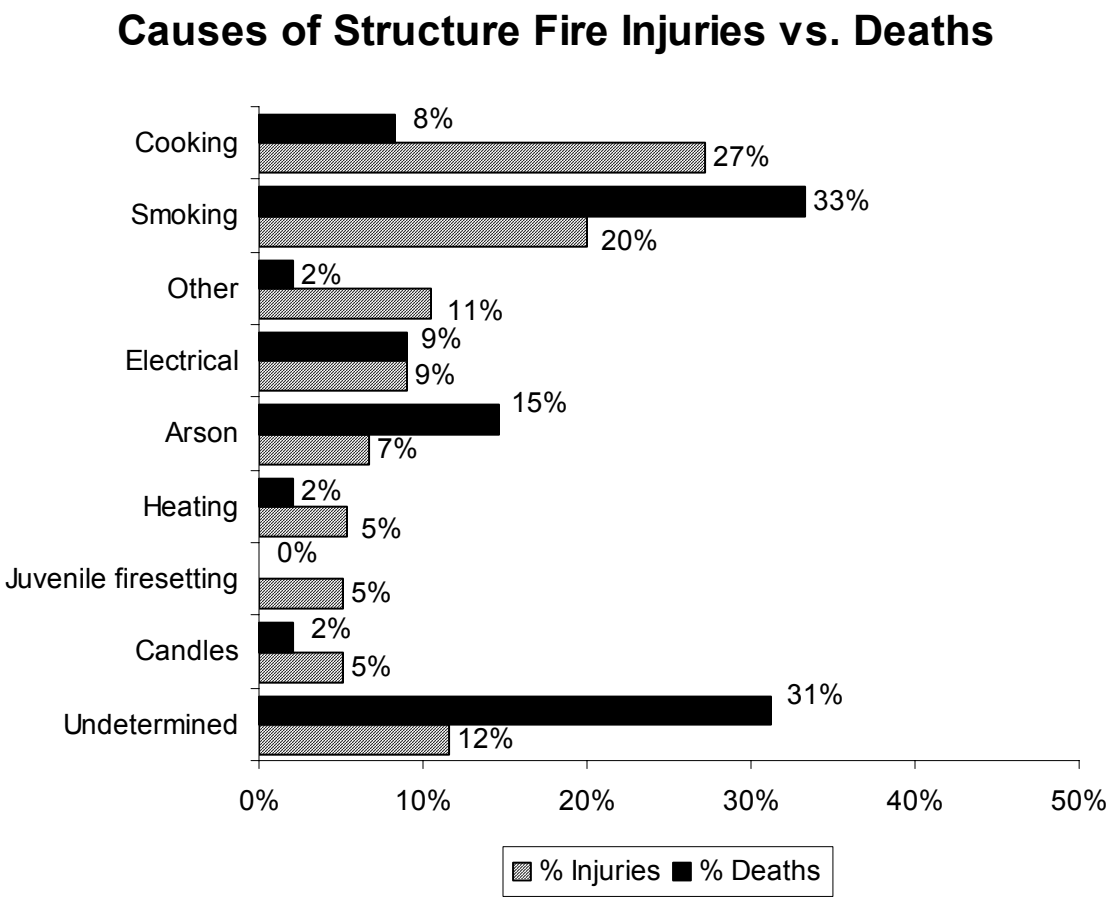
Activity At Injury	Asleep	Possibly Impaired by Alcohol	Possibly Impaired by Drug	Physically Disabled	Unattended or Unsupervised Person	Unknown
Escaping	19	3	0	2	0	28
Rescue Attempt	2	0	0	0	0	16
Fire Control	9	1	0	1	1	102
Return before fire cont.	0	0	0	0	0	4
Return after fire cont.	0	0	0	0	0	1
Sleeping	**28**	3	0	0	0	0
Unable to act	0	2	0	0	0	9
Irrational action	0	1	1	0	0	6
Unknown	4	1	1	2	0	80
Total	62	11	2	4	1	266

2/3 of All Victims Were Involved With the Ignition of the Fire
Two-thirds, or 66%, of all victims were involved with the ignition of the fire that injured them. Almost half (138), or 48%, of the 301 civilian victims where *Location at Time of Incident* was known, were not in the area of origin but involved with the ignition at the time the fire started. 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. Ninety-one (91), or 30%, of these victims were in the area of fire origin but not involved with its ignition. Only 20%, or 61, of the 301 victims were in the area of origin and intimately involved with the ignition of the fire. Nine (9), or 3% were not in the area of origin and not involved with the start of the fire. The *Location at Time of Incident* was undetermined or not reported in 73 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 31% of structure fire injuries and 12% of structure fire deaths. Smoking fires caused 23% of structure fire injuries and 48% of structure fire deaths. Electrical fires caused 9% of structure fire injuries and 9% of structure fire deaths. Arson caused 8% of structure fire injuries and 21% of structure fire deaths. Heating equipment fires caused 6% of injuries and 3% of deaths. Candles caused 6% of injuries and 3% of deaths. Juvenile set fires caused another 6% of structure fire injuries and did not cause any

structure fire deaths in 2001. Clothes dryer fires caused 4% of structure fire injuries and none of the deaths. All the other known causes of structure fires combined caused 12% of the structure fire injuries and 3% of structure fire deaths. Undetermined fires caused 12% of structure fire injuries and 31% of structure fire deaths in Massachusetts in 2001.

The leading cause of fire-related injuries is most often not the leading cause of fire-related deaths. 2001 followed the recent trend of cooking causing the most injuries and smoking causing most of the 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 fall upon and ignite the victim's clothing, bedding or furniture that they were sleeping upon. The resulting smoke usually renders the victim unconscious and thus they are 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.



Detectors Operated in 62% of Structure Fires that Caused Injuries
Of the 300 injuries where detector performance was known, 62% occurred where smoke detectors were present and operated. Twenty-four percent (24%) of the injuries occurred in structure fires where detectors were present but did not operate. Eleven percent (11%) of the injuries occurred where there were no detectors present in the structure at all. Three percent (3%) of civilian structure fire injuries occurred where the fire was too small to activate the smoke detector. Smoke detector performance was unknown for 64 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.

Motor Vehicle Fire Injuries
There were 44 motor vehicle fire injuries in 2001. Of the 39 victims where gender was known, 79% were men and 21% were women. Seventy-five percent (75%) of the injuries were caused by exposure to fire products, when cause was known. Eight percent (8%) of the injuries were caused when the victim was struck by or from contact with an object. Six percent (6%) were caught in or trapped by the vehicle. Forty-seven percent (47%) of these injuries were burns only; 25% were from both burns and smoke inhalation and 22% were caused only by smoke inhalation when the primary apparent symptom was reported. Thirty-eight percent (38%), of the victims were trying to control the fire when injured where activity at time of injury was known. The causes of motor vehicle fires that injured civilians in 2001 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
Sixty-eight (68), or 10%, of civilian fire injuries occurred in outside and other fire incidents. Twelve (12), or 2% of civilian injuries were caused by special outside fires. Seven (7), or 1%, of civilian injuries each occurred in brush fires and cultivated vegetation or crop fires. One (1), or less than 1%, occurred in an outdoor rubbish fire. Forty-one (41), or 6%, of civilian injuries were caused by unclassified fires.

Where gender was known, 79% of the civilian victims were men and 21% were women. Burns accounted for almost half, 48%, of the injuries to this group, when the primary apparent symptom was known. The victim was intimately involved with the ignition in over half, or 57%, 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 result is fires and injuries.

Home Escape Plan

- Practice your home escape plan with the whole family 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.

Smoke Detectors

- Install smoke detectors on every level and outside each sleeping area.
- Test smoke detectors monthly.
- Replace the battery 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 tightfitting 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 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”.

Clothes 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 commercial dryer vents regularly.

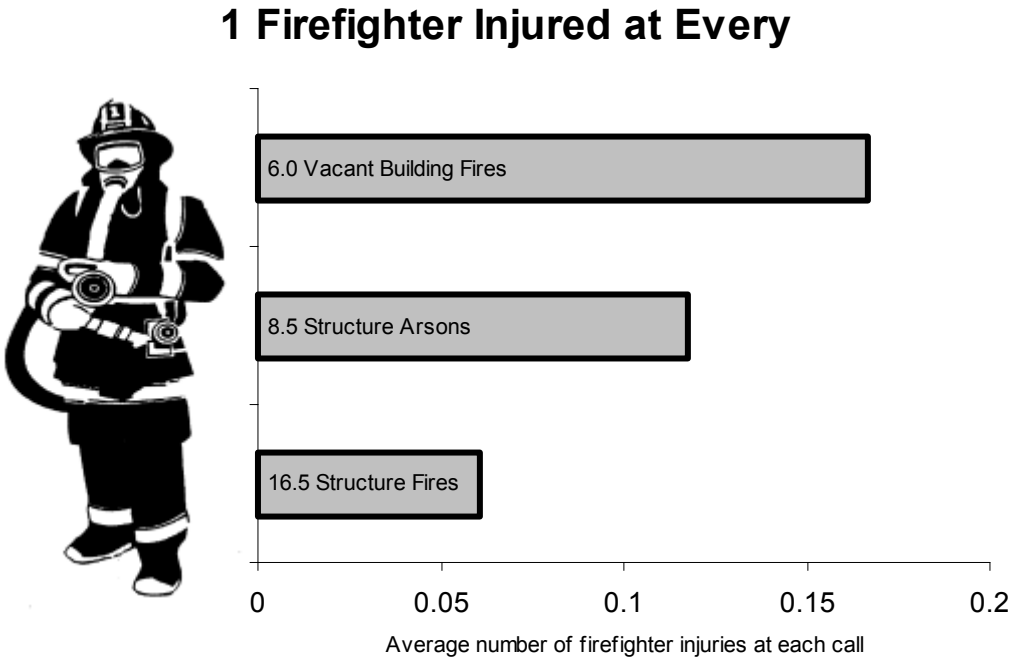
Fire Service Injuries

707 Firefighters Injured in 2001
In 2001, 707 firefighters were injured while fighting the 27,885 reported fires in Massachusetts. There were no firefighter deaths in 2001. On average, a firefighter was injured at one of every 39 fires in 2001. Six hundred and twenty-nine (629) firefighters were injured at structure fires. Twenty-one (21) firefighters were injured at motor vehicle fires. Forty-eight (48) firefighters were injured at outside and other fires. Fire service injuries fell 17% from the 837 reported injuries in 2000.

90% of Firefighter Injuries Occurred At Structure Fires
Firefighters were injured more frequently at structure fires than any other incident type. Ninety percent (90%) of firefighter injuries occurred at structure 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. One hundred and seven (107), or 19% of structure fire firefighter injuries occurred at electrical fires. Seventy-three (73), or 13%, occurred in structure arsons. Smoking fires accounted for 12%; heating accounted for 6% and cooking accounted for 5% of fire service personnel injuries at structure fires.

Firefighters Injured at One of Every 8.5 Structure Arsons, 6 Vacant Building Fires
Arson fires of all incident types accounted for 86, or 12%, of firefighter injuries in 2001. Seventy-three (73) of these 86 arson-related injuries occurred at structure arsons. These

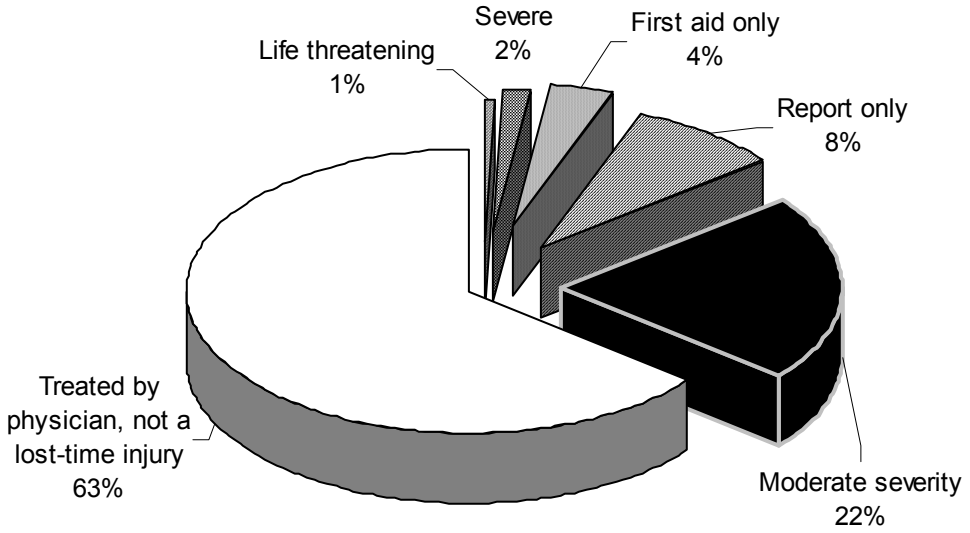


73 injuries represent 13% of the number of firefighter injuries incurred fighting structure fires, and 10% of the total firefighter injuries in 2001. One firefighter was injured at every 8.5 structure arsons. The highest ratio of fire service injuries to number of fires in 2001 was in structure arsons. Structure arson fires were the single most dangerous type of fire for firefighters in 2001.

The firefighter injury rater for vacant building fires was even higher. On average, a firefighter was injured at one of every six vacant building fires.

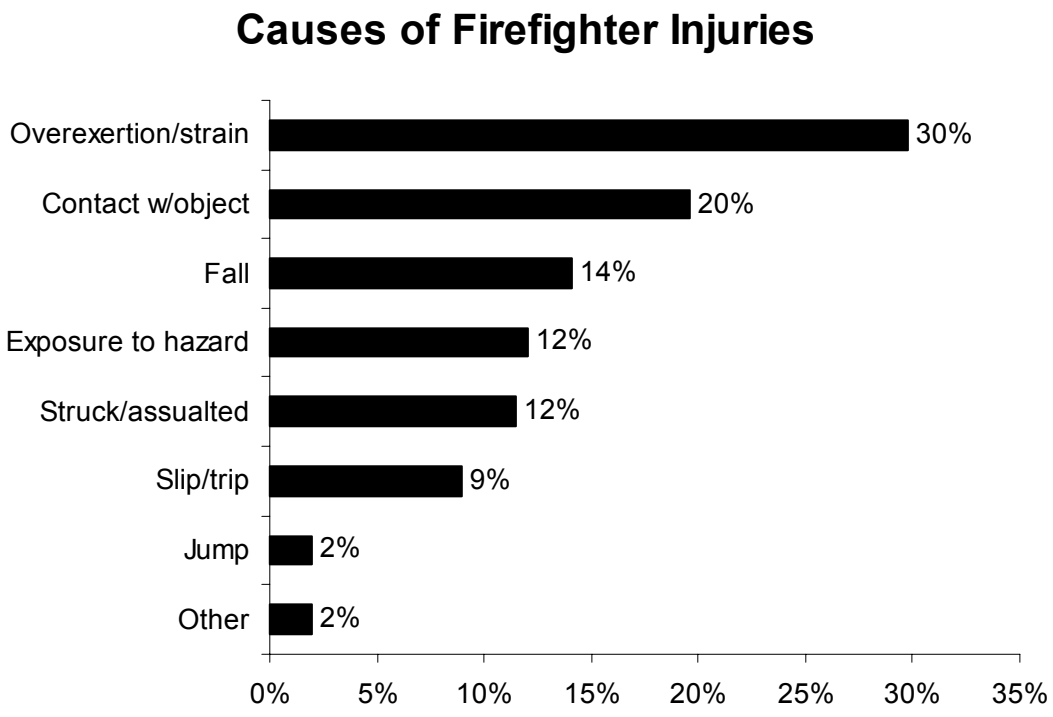
63% of Firefighter Injuries Minor
When examining the severity of the 698 firefighter injuries sustained, 63% were reported having been treated by a physician with no time lost. Moderate severity injuries accounted for 22% of firefighter injuries, meaning that immediate medical attention was needed but there is little danger of death or permanent disability. Eight percent (8%) of the injuries were reports only, including exposures to toxic substances or harmful physical agents through any route of entry into the body. Four percent (4%) of these injuries were recorded as only needing first aid. Two percent (2%) of firefighter injuries were coded as severe. This means that the injury was potentially life threatening if the condition was not controlled. One percent (1%) of the firefighter injuries were life threatening, where body processes and vital signs were not normal.

Severity of Firefighter Injuries



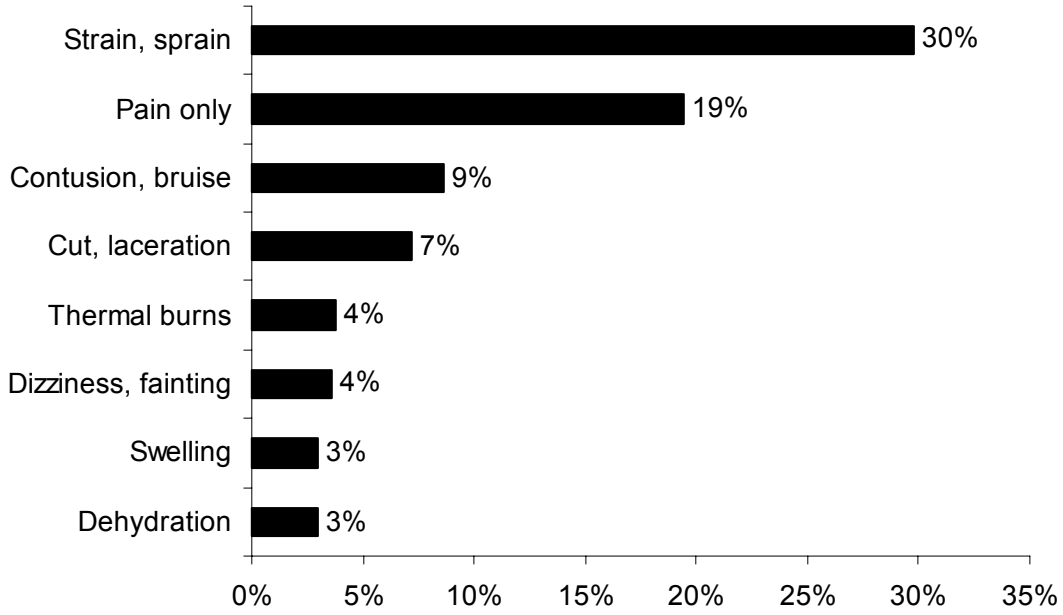
Almost 1/3 of Injuries from Overexertion or Strain
Thirty percent (30%) of the 547 firefighter injuries where cause is known were due to overexertion or strain; 20% were caused by contact with some object; 14% of firefighters were injured from a fall; 12% were exposed to some form of hazard including heat,

smoke or toxic agents; another 12% were injured when they were struck or assaulted by a person, animal or object; 9% were injured when the slipped or tripped; 2% were injured when they jumped, and another 2% 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 151 firefighter injuries. These injuries were excluded from the percentage calculations.



Almost 1/3 Experienced Sprains or Strains; 19% of Firefighters Reported Pain
Of the 474 firefighter injuries where primary symptom was known, 30% of injured firefighters reported sprains or strains as their primary symptom; 19% reported pain only; 9% reported contusions, bruises or minor trauma; 7% reported lacerations or cuts; 4% reported dizziness, fainting, or weakness; another 4% reported thermal burns; 3% suffered from dehydration and another 3% of the fire-related fire service injuries in 2001 was due to swelling. Primary apparent symptom was not reported for 224 firefighter injuries. These injuries were excluded from the percentage calculations.

Primary Symptoms of Firefighter Injuries



Firefighters Face Other Risks in Addition to Fires
The Massachusetts Fire Incident Reporting System only collects information about 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, 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, 32% of eye injuries were caused by avulsions, cuts or lacerations caused 17% of the injuries to the ears and face, 46% of the injuries to the back and spine were sprains or strains, and puncture wounds caused 30% of the foot injuries.

Firefighter Injuries by Part of Body

Eyes (28)
Avulsion 32%
Foreign body obstruction 25%

Respiratory* (39)
Smoke inhalation 13%
Shortness of breath 8%

Trunk (93)
Sprain, strain 35%
Pain only 23%
Contusion, bruise 9%

Internal (16)
Exhaustion, fatigue 19%
Cardiac symptoms 19%

Hand, Fingers (173)
Cut, laceration 13%
Strain, sprain 3%
Thermal burns 2%
Contusion, bruise 2%

Leg (22)
Pain only 27%
Strain, sprain 23%
Contusion, bruise 23%

Ears & Face (41)
Cut, laceration 17%
Thermal burns 15%
Dizziness, fainting 9%

Back & Spine (72)
Sprain, strain 46%
Pain only 38%

Arm (34)
Sprain, strain 21%
Contusion, bruise 21%

Wrist (15)
Sprain, strain 40%
Pain only 13%

Knee (51)
Sprain, strain 47%
Pain only 25%
Contusion, bruise 12%
Swelling 8%

Foot & Toes (16)
Puncture wound 30%
Pain only 20%
Swelling 20%
Contusion, bruise 20%

***Respiratory** – 28% of the reported injuries to the respiratory area of the body had 'None' as their *Primary Apparent Symptom*. These injuries were most likely reported as exposures to toxic substances.

Arson Fires

3,426 Arsons - 620 Structures, 743 Vehicles, 2,063 Other Arsons
Three thousand four hundred and twenty-six (3,426), or 12%, of the 27,885 fire incidents reported to the Massachusetts Fire Incident Reporting System, were considered to be intentionally set[18], for the purpose of analysis, arson. The 620 structure arsons, 743 motor vehicle arsons, and 2,063 outside and other arsons caused nine civilian deaths, accounting for 15% of civilian fire deaths, 30 civilian injuries and 86 fire service injuries. The estimated dollar loss from arsons was $15.2 million. The average dollar loss per arson fire was $4,447. Total arson was up 2% from 3,360 in 2000.

The table below illustrates that structure arsons and motor vehicle arsons are at an all time low. Even given the 14% increase in reported outside and other arsons since the previous year, 2001 was the third lowest total for outside and other arsons in the last 11 years.

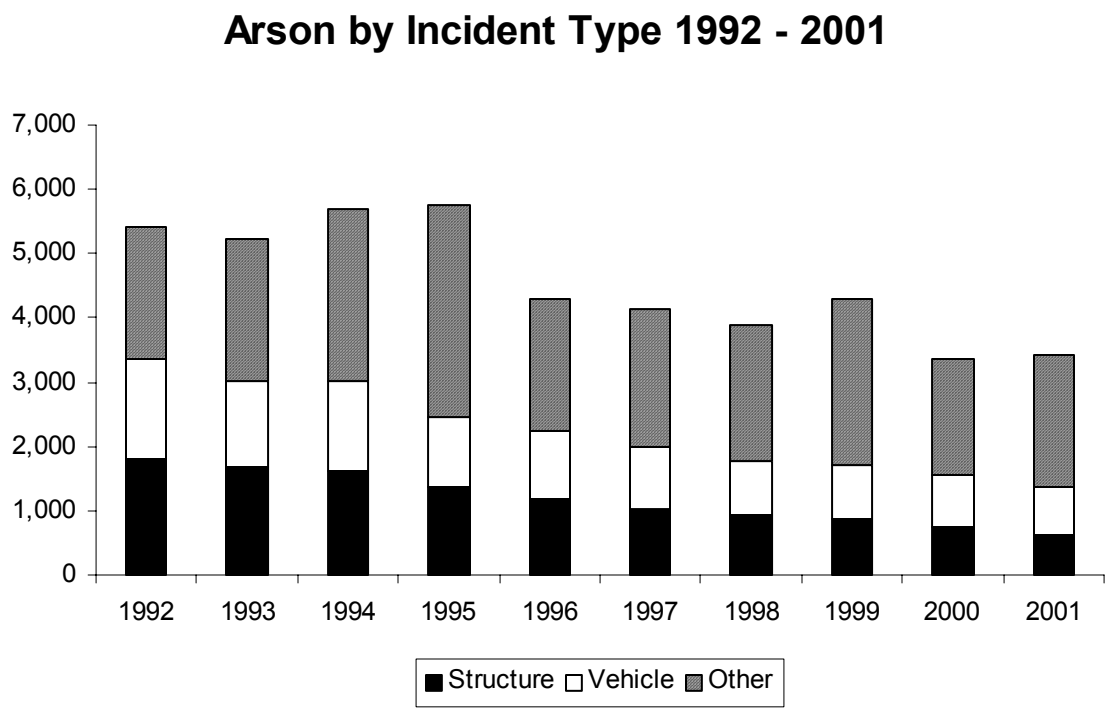
ARSONS BY YEAR

Year	Total Arsons	Structure Arsons	% All Arsons	Vehicle Arsons	%All Arsons	Other Arsons	% All Arsons
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%
1993	5,221	1,684	32%	1,329	25%	2,208	42%
1992	5,422	1,807	33%	1,543	28%	2,072	38%

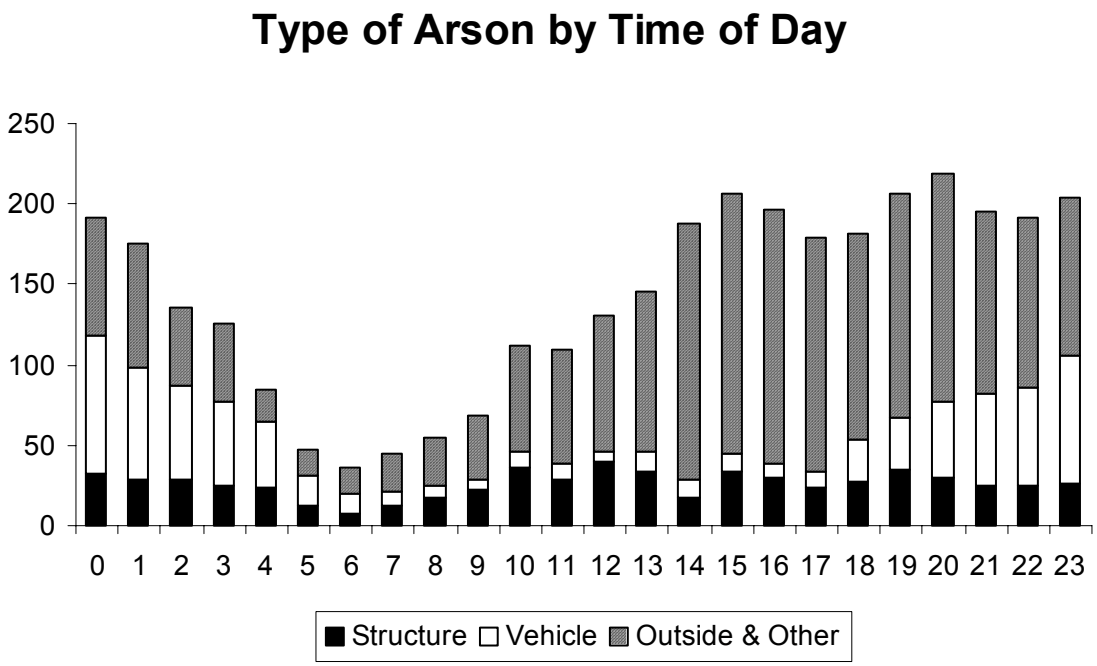
The following chart illustrates arson by incident type over the past decade. This type of chart can be used as a visual representation of the ratios between the three types of arson, structure, motor vehicle and outside and other arsons. The trend has been for structure arsons to comprise a smaller percentage of total arsons, while the percentage of outside and other arsons to total arsons has risen during the same time span. For example, structure arsons accounted for 33% of arson fires in 1992 but only 18% of the total reported arson fires in 2001. Looking at these ratios allows one to more clearly identify specific fire problems. Trends may be masked if you were to look just at total numbers.

[18] In 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. For conversion purposes, if an incident was coded with an Ignition Factor = Incendiary or Suspicious (Codes 11, 12, 21, 22) in MFIRS version 4 it converted to Cause of Ignition = Intentional (Code 1) in MFIRS version 5.

For instance, outside and other arsons numbered 2,072 in 1992 and 2,063 in 2001. The difference in the totals is small, however they accounted for 38% of the arson problem in 1992 and 60% of the arson problem in 2001. Total arsons have declined over the same period, but this shows most of the reduction has occurred in structure and motor vehicle arsons.



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 10:00 a.m. to 1:00 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 2:00 p.m. to 8:00 p.m.



Structure Arson

620 Arsons, 7 Civilian Deaths, 19 Civilian Injuries, 73 Fire Service Injuries
Six hundred twenty (620), or 6%, of the 10,384 structure fires were considered intentionally set in 2001, down 17% from 747 in 2000. The seven civilian deaths accounted for 12% of the total civilian death count. The 19 civilian injuries accounted for 4% of the overall civilian injuries and 78% of civilian arson injuries. Seventy-three (73) fire service injuries accounted for 10% of the total fire service injuries and 85% of the injuries firefighters sustained in arsons. The estimated dollar loss for structure arsons was $10,265,959, accounting for 5% of the overall dollar loss and 67% of the estimated dollar loss in arson incidents. The average loss per structure arson was $16,558.

Structure Arsons Pose High Injury Risk to Firefighters
Firefighters were injured at 1 of every 8.5 structure arsons in 2001. Compare that to the fact that overall at structure fires, fire service personnel were injured at 1 of every 16.3 incidents. This means that a firefighter was twice as likely to be injured at a structure arson than at a structure fire generally.

55% of Structure Arsons Occurred in Residences
Three hundred and forty-two (342), or 55%, of the 620 structure arsons occurred in residential occupancies. Educational occupancies accounted for 99[19], or 16%, of the 620 structure arsons in 2001. 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.

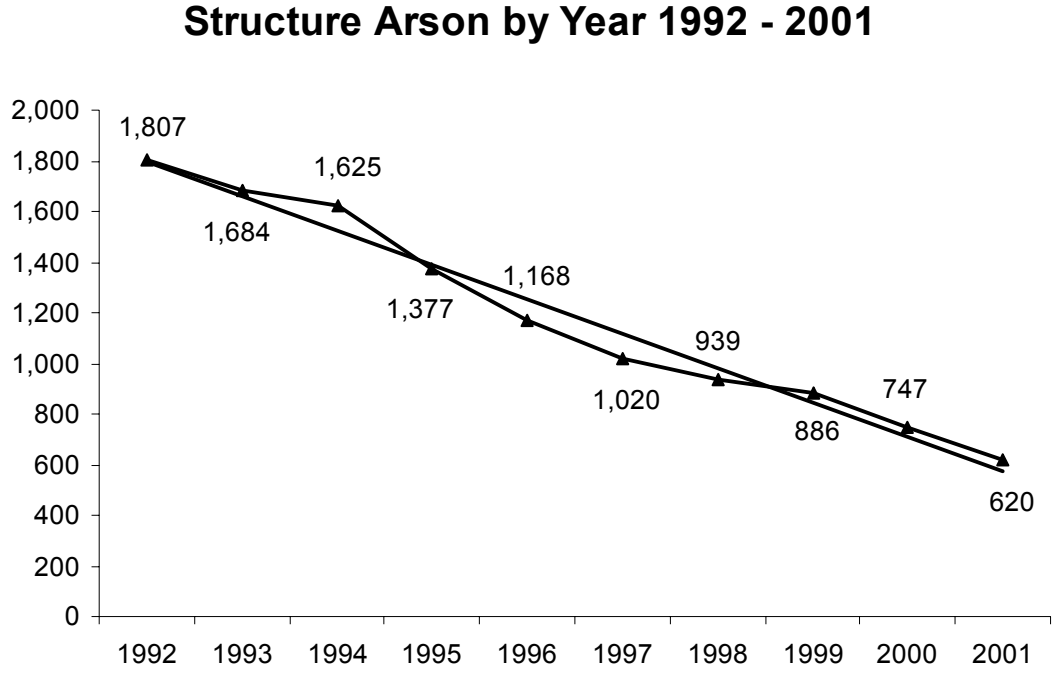
[19] Note: This figure does not include the 13 confined indoor rubbish fires that were reported MFIRS.

STRUCTURE ARSON BY OCCUPANCY TYPE

Occupancy	Structure Arsons	Percent of Total	Injuries FF	Injuries Civ	Deaths FF	Deaths Civ	Dollar Loss
Public assembly	33	5.3%	0	0	0	0	$572,501
Educational	99	16.0%	1	1	0	0	92,451
Institutional	9	1.5%	0	3	0	0	22,851
Residential	**342**	**55.2%**	**51**	**15**	**0**	**7**	**5,200,056**
1- & 2- Family	*129*	*20.8%*	*17*	*5*	*0*	*3*	*2,454,555*
Multifamily	*167*	*26.9%*	*28*	*8*	*0*	*2*	*2,205,861*
All Other Residential	*46*	*7.4%*	*6*	*2*	*0*	*2*	*539,640*
Mercantile, business	44	7.1%	14	0	0	0	1,980,950
Basic industry	2	0.3%	0	0	0	0	500
Manufacturing	6	1.0%	0	0	0	0	10,050
Storage properties	35	5.6%	1	0	0	0	1,653,700
Special properties	25	4.0%	2	0	0	0	265,000
Unclassified	25	4.0%	4	0	0	0	467,900
Total	**620**	**100%**	**73**	**19**	**0**	**7**	**$10,265,959**

Structure Arson Down 66% Since 1992

Structure arson has been on a downward trend since 1991 when 1,974 structure arsons were reported to MFIRS[20]. Structure arsons have decreased 66% since 1,807 were reported in 1992. The chart below shows the trend of structure arsons in the past decade.



The following table shows the cities that reported the most structure arsons in 2001, their 2000 population according to the United States Census, the number of structure arsons reported in 2001, the rate of structure arsons per 1,000 people in 2001, and the same information for 2000. The cities are ranked by the 2001 rate of arsons per 1,000 population.

The City of Boston, as the largest city in the Commonwealth, leads the state in the number of structure arsons, yet three other cities have higher structure arson rates. Although the Town of Fitchburg ranked fifth in total structure arsons, its rate of 0.66 structure arsons per 1,000 population was the highest in the state and was more than six times the state structure arson rate of .10 per 1,000 population.

MASSACHUSETTS CITIES WITH THE MOST STRUCTURE ARSONS IN 2001

City	Population	2001 Arsons	2001 Rate/ 1,000 Pop.	2000 Arsons	2000 Rate/ 1,000 Pop
Fitchburg	39,102	26	0.66	15	0.38
New Bedford	93,768	30	0.32	10	0.11
Fall River	91,938	27	0.29	33	0.36
Boston	589,141	153	0.26	150	0.25
Springfield	152,082	36	0.24	50	0.33
Lawrence	72,043	17	0.24	22	0.31
Amherst	34,874	8	0.23	5	0.14
Everett	38,037	7	0.18	2	0.05
Cambridge	101,355	18	0.18	17	0.17
Woburn	37,258	6	0.16	2	0.05
Lowell	105,167	16	0.15	15	0.14
Salem	40,407	6	0.15	1	0.02
Worcester	172,648	21	0.12	21	0.12
Brockton	94,304	10	0.11	16	0.17
Haverhill	58,969	5	0.08	12	0.20
Massachusetts	**6,349,097**	**620**	**0.10**	**747**	**0.12**

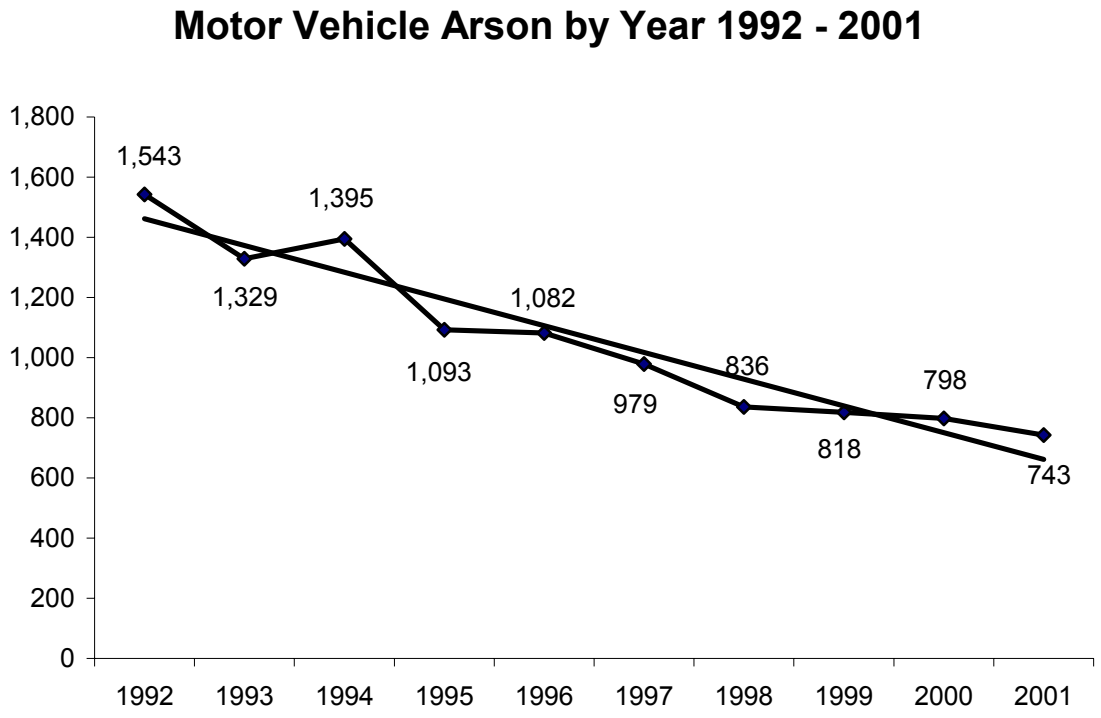
Motor Vehicle Arson

743 Arsons, 1 Civilian Death 3 Civilian Injuries and 4 Fire Service Injuries
Seven hundred and forty-three (743), or 14%, of the 5,127 vehicle fires were considered intentionally set in 2001. The one civilian death accounted for 2% of the overall civilian deaths and 17% of the motor vehicle deaths. Six (6) fire service injuries accounted for 1% of the total fire service injuries and 19% of firefighter injuries associated with motor vehicle fires. The estimated dollar loss in motor vehicle arsons was $4.0 million,

[20] 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.

accounting for 2% of the overall fire dollar loss. The average loss per vehicle arson was $5,397. Automobiles and vans accounted for 85% of the 692 motor vehicle arsons for which mobile property type was reported.

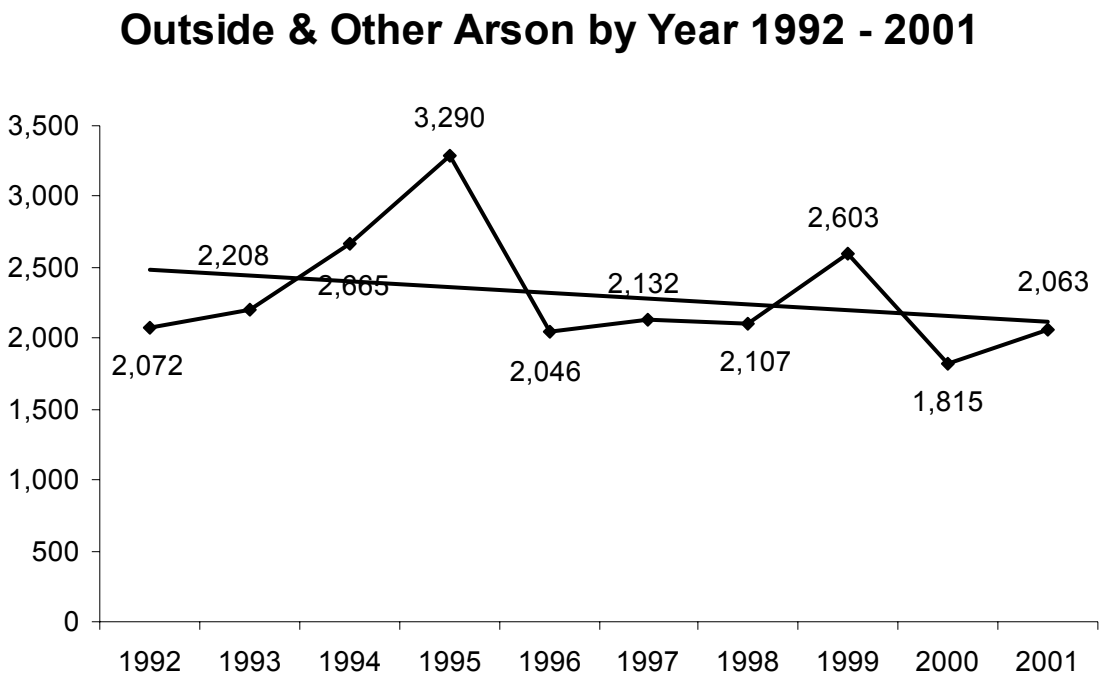
The Burned Motor Vehicle Reporting Law
The Massachusetts Fire Incident Reporting System identified motor vehicle fires and motor vehicle arson as a major problem in 1985. The Burned Motor Vehicle Reporting Law took effect in August of 1987. The law requires owners of burned motor vehicles to personally appear at fire headquarters in the community where the fire occurred to complete a report. Since the law took effect in 1987, motor vehicle arsons have decreased 85% from 5,116 in 1987 to 743 in 2001. The graph below shows the effectiveness of this law over the past decade.



Outside and Other Arson

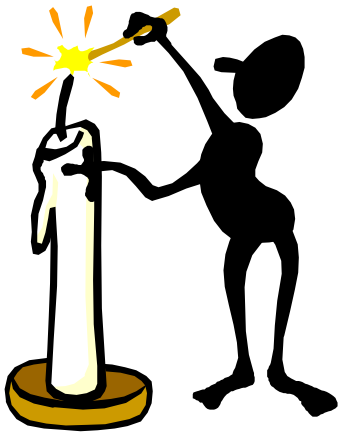
2,063 Arsons, 1 Civilian Death 8 Civilian Injuries, 9 Fire Service Injuries
Two thousand and sixty-three (2,063), or 17%, of the total outside and other fires were considered intentionally set in 2001. One civilian was killed and eight civilians were injured in outside and other arson fires. Nine (9) firefighters were injured in these incidents. Eighty-nine percent (89%) of the fire service injuries occurred at brush fires, while the other 11% occurred at an outside rubbish fire. The estimated dollar loss for these arsons was $958,431. 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 increase by 14% from the 1,815 reported in 2000, the 2,063 reported arsons is still the third lowest total in the past 11 years.



Candle Fires

272 Fires Caused 1 Civilian Death and $6.3 Million in Damages
In 2001, candles caused 272 fires. These fires caused one civilian death, 20 civilian injuries, 25 firefighter injuries and an estimated dollar loss of $6.3 million in damages. There was a 3% decline from the 281 fires started by candles in Massachusetts in 2000.



One fire in a single-family home in Concord caused by a candle resulted in $1,000,000 in damages. There were also 16 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 $450,000. This is the main reason that the average dollar loss of candle fires increased from $12,503 in 2000 to $23,181 in 2001.

95% of Candle Fires Occurred in Homes
Of the 272 candle fires, 95% were residential structure fires. Candles caused 258 residential structure fires, one civilian death, 20 civilian injuries, 25 firefighter injuries and an estimated dollar loss of $6,287,086.

Over 1/3 of Candle Fires in Homes Occurred in the Bedroom
Of the 255 candle fires in residential structures where area of origin was known, 37% occurred in the bedroom. Fourteen percent (14%) occurred in the living room; 11% occurred in the bathroom; 10% started in the kitchen and 5% started in the bar or beverage service area. Three candle fires occurring in Massachusetts' homes did not specify the area of origin. These were excluded from the percentage calculations.

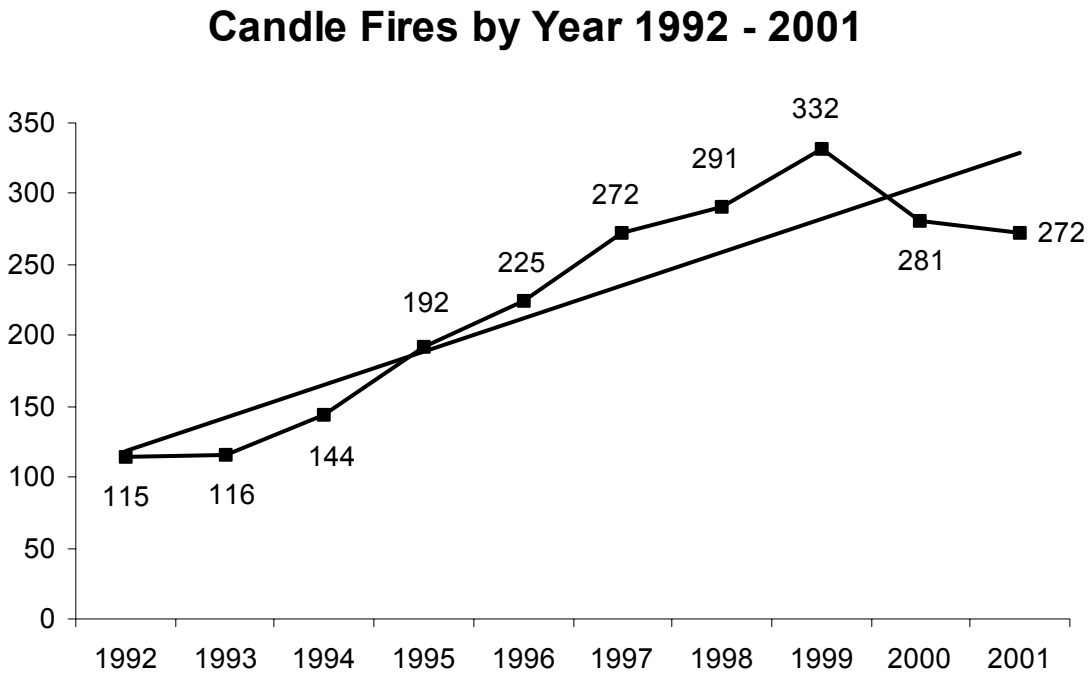
Smoke Detectors Operated in Almost 2/3 of Candle Fires in Homes
Of the 219 candle fires in homes where smoke detector status was known, smoke detectors operated in 65%. Smoke detectors were present but did not operate in 20% of these incidents. No detectors were present in 11% of candle fires in people's homes. Four percent (4%) of the candle fires were too small to activate the smoke detector. In 39 incidents, the smoke detector status was undetermined or not reported. These were excluded from the percentage calculations.

In the fatal candle fire there were no smoke detectors in the residence

- On March 9, 2001, at 1:51 a.m., the Boston Fire Department was called to a fatal fire at a three-family home caused by an unattended candle. The candle was too close to the wall and ignited the wall covering in the bathroom. The victim, a 37-year old man, was attempting to escape when he was overcome by the heat and smoke generated by the fire. He died from burns and smoke inhalation. Two firefighters were injured fighting this fire. There were no smoke detectors present in the building, and damages were estimated to be $200,000.

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 have 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 table shows the increase from 115 candle fires in 1992 to 272 in 2001.



A new downward trend, thanks to stronger public education and tougher industry standards, may have begun in 2000. There was a 15% drop from the all time high of 332 reported candle fires in 1999. From 1999 to 2001 this drop increased to 18%.

In an effort to reduce the number of candle fires, the Office of the State Fire Marshal put together a statewide education campaign. The creation of the *Candle Circle of Safety* was born. This logo, identifies the five key fire safety behaviors for candles. Partnering with four major candle retailers in Massachusetts, the Office of the State Fire Marshal held candle safety events throughout the commonwealth to promote the *Candle Circle of Safety*.

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.

In conjunction with the National Fire Protection Association (NFPA), the Office of the State Fire Marshal conducted a follow-up survey in 1999 that went out to any fire department having a candle fire. 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 are:

- 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 state 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.

A copy of the study and more information on candle fire safety can be found on our webpage at *http://www.state.ma.us/dfs/lifesafe/candlesafety.htm*.

The American Society for the Testing of Materials (ASTM) is a not-for-profit organization that develops standards for materials, products, and systems used by American manufacturers and purchasers. In 1997, the ASTM formed the Candle Products Subcommittee in an effort to address candle fire safety. Throughout the process of developing candle fire safety standards, the Office of the State Fire Marshal has been in contact the ASTM Subcommittee to protect the interest of public fire educators and the fire service. To date, the ASTM has passed three standards relating to candle fire safety:

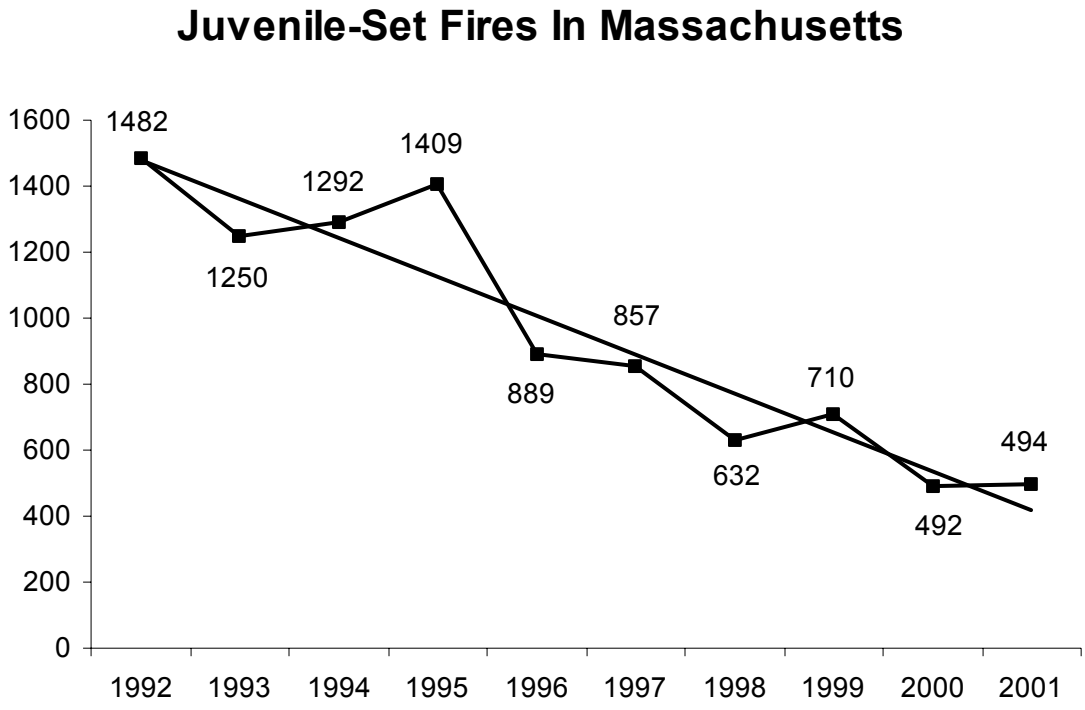
- F20568-00 – This standard creates a cautionary label that gives three safety messages placed on every candle sold.
- F2179-02 – A standard for the production of thermal resistant glass for the use of filled candles.
- PS-59 – This standard is a provisional standard that limits flame heights, secondary ignition, candles stability, and end of useful life, which limits radiant heat allowed as a burning candle reaches near bottom.

This last standard, PS-59, is a provisional standard. That means, the candle industry has a safety standard to use as the ASTM continues to look at other candle fire safety issues to be added at a later date. Some topics currently under review are flammable candle accessories such as floral rings, maximum container temperatures, exploding candles (gel) and wick centering.

Children and Fire: a Deadly Combination

Children Playing With Fire Caused 494 Fires

In 2001, children playing with matches, lighters and other heat sources caused 494 reported fires, 24 civilian injuries, 21 fire service injuries and an estimated dollar loss of nearly $2.1 million. The average dollar loss per fire was $4,163. These fires are up 0.4% from 492 incidents in 2000. The trend over the past 11 years has been declining. This may be due to the number of juvenile firesetters' intervention programs across the Commonwealth. It may also be measuring the positive impact of the child resistant lighter standard that took effect in 1994.

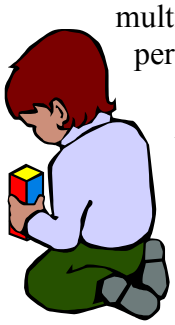


The 494 fires set by children included: 139 structure fires; 253 brush, tree or grass fires; 51 outside rubbish fires; 26 cultivated vegetation or crop fires; eight motor vehicle fires; one outside gas or vapor combustion explosion and 16 fires that could not be classified further.

Juvenile-set Fires Cause 20 Civilian and 21 Firefighter Injuries

Twenty (20) civilian injuries and 21 fire service injuries occurred in the 139 structure fires set by children. Child-set structure fires caused an estimated dollar loss of $2 million with an average dollar loss of $14,650 per fire.

Forty-five percent (45%) of the 164 structure fires caused by children occurred in multifamily homes, and 40% occurred in one- or two-family homes. Thirty-six percent (36%) of the juvenile-set fires started in the bedroom.



Almost 3/4 of Structure Fires Set by Children Using Smoking Materials

Thirty-four percent (34%) of the structure fires set by children were started using lighters. Another 34% of the structure fires were started with matches. Two percent (2%) were started by cigarettes and 1% was caused by undetermined smoking materials. Therefore, almost three-fourths of juvenile set fires were started by smoking materials. Seven percent (7%) of the juvenile set structure fires involved candles. This demonstrates a need for education to both parents and children on the danger of matches and lighters, and safer candle use.

Child Playing with Matches Injured 4 Firefighters & Cause $250,000 Loss

- On June 16, 2001 at 2:40 p.m., the Boston Fire Department was called to a fire in an apartment building caused by a child playing with matches in the living room. The sofa ignited. There were no civilian injuries, but four firefighters were injured in this fire. The fire was confined to the building and damages were estimated to be $250,000. Smoke detectors were present and operated and were no sprinklers present.

Child Playing with Cigarette Lighter Injured 11 People

- On October 10, 2001 at 10:46 a.m., the Boston Fire Department was called to a fire in an apartment building caused by a child playing with a cigarette lighter in a bedroom. The lighter ignited the mattress that the child was playing on. Firefighters were able to keep the fire from spreading beyond the bedroom where it had started, and damages were estimated to be $5,000. There were 11 civilian injuries associated with this fire. Smoke detectors were present and operating; there were no sprinklers present.

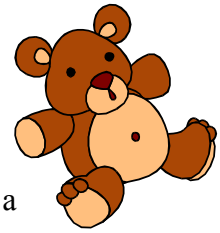
Figures Underestimate the Problem

Because the fire department may consider 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. For example, 12% of the 182 structure fires in schools were considered intentionally set. Because most of these fires occurred during the school day, it is likely that many were set by students. The *Cause of Ignition* was unknown or not reported in 53% of the outside fires. There were also 45 confined indoor rubbish fires at schools (where *Cause of Ignition* does not have to be completed). Twenty-seven (27) of which started in the bathroom. Children were probably involved in many of these.

Beginning January 1, 2002, Version 5 of the Massachusetts Fire Incident Reporting System (MFIRS v5) will be able to capture these types of incidents by allowing the recording of multiple causal factors. There is also an Arson/ Juvenile Firesetting Module to 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.

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.

Many Smokers Disable Child Resistant Feature on Lighters

When the child-resistant lighters were introduced, the fire prevention community believed that most young children would be unable to use these lighters and therefore safer from fire. Unfortunately, many adults also found the child-resistant features to be cumbersome and disabled the mechanisms. Consequently, children still have access to lighters they can operate. The U.S. Consumer Product Safety Commission urges people to buy lighters that are easy for adults to use without removing the protective mechanism.

Clothes Dryer Fires

Lack of Maintenance Caused 29% of Dryer Fires

Two hundred and fifty-two (252) dryer fires caused 15 civilian injuries, 11 firefighter injuries, and an estimated dollar loss of $2.8 million. The average dollar loss per fire was $10,987. Of these 252 fires, 194, or 77%, occurred in residential occupancies.

Thirty-two percent (32%) of the dryer fires were caused by worn out parts; 12% were caused by mechanical failures or malfunctions; 8% were caused by operational deficiencies; another 8% were caused by combustibles being too close to heat; and 6% were caused by part failures, leaks, breaks, or control failures.

Forty-nine percent (49%) of the 252 dryers involved in fires were identified as electricity as their power source. Twenty-one percent (21%) involved gas-fueled clothes dryers. This may be a reflection of the market share of electrical and gas-powered dryers not any inherent danger of one power source over another.

Fifty-three percent (53%) of clothes dryer fires identified the heat source as radiated or conducted heat from equipment inside the dryer itself. Twelve percent (12%) of dryer fires identified the form heat source as coming from other operating equipment.

Most Clothes Dryer Fires Occurred In Homes

Fifty-two percent (52%) of the clothes dryer fires occurred in one- and two-family homes; 19% occurred in apartments; 10% occurred in institutional properties such as nursing homes (7%), asylums (2%), hospitals and jails; 8% occurred in mercantile or business properties such as laundry/dry cleaning businesses (5%); 3% occurred in hotel and motels and another 3% occurred in assembly properties, such as restaurants (1%) and athletic or health clubs.

However, the rank among the fire causes in these occupancies is very different. Dryers caused 3% of the fires in one- and two-family homes, 1% of the apartment fires, 11% of the fires in institutional properties; 3% of the fires in mercantile or business properties, 6% of the fires in hotels and motels and 2% of the fires in assembly properties.

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. Someone should be at home whenever the dryer is in use and the home should have working smoke alarms.

Clothes Dryer Fires Caused $550,000 In Losses

- On January 1, 2001 at 9:61 p.m. the Brookline Fire Department was called to a fire in a multifamily home caused by a clothes dryer. A worn out part inside the machine started the blaze that caused an estimated dollar loss of $550,000. Smoke detectors were present in other areas of the home but they did not operate. There were two fire service injuries associated with this fire.

Clothes Dryer Fire Causes 5 Civilian Injuries

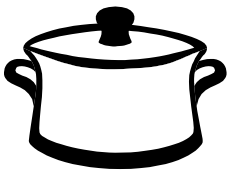
- On February 28, 2001 at 11:41 a.m. the Hyannis Fire Department was called to a fire in an inn. The fire was caused by an unspecified failure in the dryer. The damages from this fire were estimated to be $100, however, there were five civilian injuries associated with this incident. Smoke detectors were present in the inn and operating. There were no sprinklers.

Cooking Fires

Cooking Caused 3,841 Fires, 4 Civilian Deaths, 107 Civilian Injuries

Unattended cooking, other unsafe cooking practices and defective cooking equipment caused 3,841 fires, four civilian deaths, 107 civilian injuries, 31 firefighter injuries and an estimated dollar loss of $12 million. The average dollar loss per fire was $3,108. Cooking fires accounted for 14% of the total 27,885 fires that occurred in 2001.

Ninety-four percent (94%) of the fires caused by cooking occurred in structures. The 3,841 fires included: 3,600 structure fires; 39 special outside fires; 37 cultivated vegetation or crop fires; eight brush fires; six outside rubbish fires; five motor vehicle fires; and 146 fires that could not be classified further.



Unattended Cooking Starts 42% – Stand by Your Pan!

Forty-two percent (42%) of these fires were caused by unattended cooking; 5% were caused by combustibles left too close to the cooking equipment; 4% of the fires started because the cooking equipment was worn out; abandoned or discarded cooking materials accounted for 3%; 2% started when the equipment was accidentally turned on or not turned off; and 2% were caused by a manual control failure. Human error was responsible for the majority of these fires.

Almost 2/3 of Cooking Fires Were Unintentional

In 65% of cooking fires the cause of ignition was reported as unintentional. Nine percent (9%) of these fires were the result of a failure of equipment or heat source. Only 1% of the reported cooking fires were classified as intentional. Less than 1% were caused by some act of nature. In 5% of cooking fires, the cause of ignition was undetermined.

Twenty-one percent (21%) of cooking fires were fires contained to non-combustible containers.[21]

Cooking Was the Leading Cause of Injury in Fires in 2001
Cooking was the leading cause of injury in fires in 2001. This is not surprising considering that almost one-half of residential structure fires start in the kitchen. Of the cooking fire injuries where gender is known, 50% of victims were female and 50% were male. Of the 96 victims where age is known, 2% of victims were under age 10; 1% of victims were between the ages of 10-14; 21% were 15-24; 20% were 25-34; 14% were 35-44; 10% were 45-54; 4% were 55-64; 5% were 65-74; 8% were 75-84 and 15% were over the age of 85.

2/3 of Victims in Room or Area of Fire Origin
Of the cooking fire injuries where location at ignition is known, 24% were intimately involved with the ignition; 42% of victims were in the room or space of fire origin but not involved; 32% were not in the area of origin but involved; and 2% were not in the area of origin and not involved.

Over 2/3 of Cooking Injuries Occurred When Trying to Control Fire
Of the cooking fire injuries for which activity at time of injury was known, 67% of victims were trying to control the fire; of the 62 victims injured while attempting to control the fire 53% were male. six percent (6%) were escaping; 4% were acting irrationally; 4% were unable to act; 3% were sleeping, 2% were attempting a rescue, and 1% 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 cooking fire injuries where nature of injury was known, 61% of victims suffered only from burns; 24% suffered only from smoke inhalation or asphyxia; 13% burns and asphyxia; and 2% of cooking injuries was caused by cuts or lacerations.

Cooking Third Leading Cause of Deaths
Four fatal cooking fires caused four fire deaths in 2001. Cooking caused 9% of fatal fires and 9% of fire deaths in 2001. One of the cooking fire victims' clothing caught fire and this was the specific cause of the fire. 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.

- On January 1, 2001, at 11:43 a.m., the Springfield Fire Department was called to a fire in a single-family home caused when cooking materials were left unattended on

[21] 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 2001, there were 1,119 confined cooking fires. However fire departments only filed a Basic Module in 791 of these incidents.

an electric stove. The victim, a 22-year old female, had fallen asleep while the stove was still on. Neighbors pulled her from the burning home, but she died from burns and smoke inhalation. No other injuries were associated with this fire. Damages from this blaze were estimated to be $25,000. Smoke detector performance was unable to be determined.

- On March 19, 2001, at 9:58 p.m., the Yarmouth Fire Department was called to a cooking fire in a two-family home caused by abandoned cooking materials that were left in an electric toaster. The victim, a 42-year old man, was overcome by heat and smoke generated by the fire. He died from burns and smoke inhalation. Investigators believe that the victim became disoriented, and therefore was not able to escape. There were no other injuries associated with this fire. Detectors were present but did not operate. Damages from this blaze were estimated to be $20,000.

- On June 2, 2001, at 2:19 a.m., the Falmouth Fire Department was called to a fire in a single-family home caused by unattended cooking materials left on the stove. The 37-year old female victim was overcome by the smoke generated by the fire while escaping and died from burns and smoke inhalation. A neighbor received burns to his left arm while making a rescue attempt. One firefighter was also injured after he fell on a charged hose line while carrying a ground ladder. Smoke detectors were present, but not in the area of origin, and operating. Damages from the blaze were estimated to be $150,000.

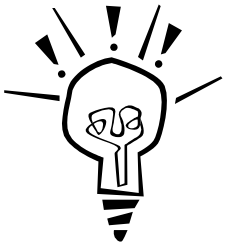
- On June 13, 2001, at 8:54 a.m., the Wakefield Fire Department was called to a fatal fire in an apartment building. The victim, an 80-year old woman, was reaching over her electric stove while heating water to make coffee. Her clothing came into contact with the heating element and ignited. She fled from the kitchen and collapsed on the carpet in the living room, where the first arriving police officers found her. All clothing was burned off of her body. The fire was confined to the victim and the living room. Smoke detectors were present and operating. There was no estimation as to the amount of damages caused by this fire.

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 tightfitting 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.

Electrical Fires

1,076 Fires, 3 Civilian Deaths, 32 Civilian Injuries & 107 Fire Service Injuries
Local fire departments reported that there were 1,076 structure fires caused by electrical problems in Massachusetts in 2001. These fires caused three civilian deaths, 32 civilian injuries, 107 fire service injuries and an estimated dollar loss of $32.4 million. The average loss per fire was $30,140.



In 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 coded between 20 and 29 – 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 criterion is to have Factors Contributing to Ignition as 54 – Equipment Overloaded or between 30 and 39 – Electrical Failure Malfunction. This change to the newer system, the conversion of v4 data to v5 data, and the new criteria are responsible for the 80% increase in reported electrical fires.

Unspecified Short Circuit Arc Responsible for 2/3 of Electrical Fires[22]
Six hundred and ninety-nine (699), or 66%, of electrical fires were caused by an unspecified short circuit arc. Three hundred and forty-two (342), or 32%, were caused by an unclassified electrical failure or malfunction. Fifteen percent (15%), or 161 of the fires, were caused by overloaded equipment. Eight percent (8%), or 81 of these fires, had a short circuit arc from defective or worn insulation. Seventy-one (71), or 7%, of electrical fires were caused by a short circuit arc from mechanical damage. An arc or spark from operating equipment caused 54, or 5% of these fires. Water caused a short circuit arc in 44, or 4%, of electrical fires. Two percent (2%), or 21 electrical fires in Massachusetts in 2001 were caused by fluorescent light ballast. There were 19 electrical fires with an undetermined factor contributing to ignition. These incidents were excluded from the calculations.

[22] This is one of the new fields in version 5 that allows for multiple codes. In this case two factors contributing to ignition may be coded. This field also is not a mandatory field, although fire departments are strongly encouraged to complete it, should it apply to the incident. Because of these factors, the percentages may not add up to 100%.

Electrical Equipment Fires
The following table shows electrical fires by equipment involved. The most common equipment involved in ignition in these fires was electrical wiring, accounting for 44% of the fires.

ELECTRICAL EQUIPMENT FIRE STATISTICS

Equipment	# of Fires	% of Elec. Eq.	Injuries FF	Injuries Civ	Deaths FF	Deaths Civ	Dollar Loss
Electrical wiring	202	44%	19	3	0	0	$6,242,596
Lamp, lighting	76	17%	1	1	0	0	828,866
Cord, plug	66	14%	7	5	0	1	1,614,642
Elec. distr., power trans.	46	10%	12	4	0	0	1,604,550
Elec.meter, meter box	21	5%	0	0	0	0	153,200
Wiring, box - circ. break.	16	3%	3	0	0	0	667,260
Transformer	12	3%	1	0	0	0	4,967,500
Total	**458**	**100%**	**50**	**15**	**0**	**1**	**$16,924,989**

202 Electrical Wiring Fires Caused $6.2 Million in Damages
Electrical wiring was involved in 202, or 44%, of the electrical equipment fires in 2001. These fires caused three civilian injuries, 19 fire service injuries and an estimated dollar loss of $6.2 million. The average dollar loss per electrical wiring fire was $30,904.

Lamp, Light Fixtures Involved in 76 Fires
Lamps and other light fixtures were involved in 76, or 17%, of electrical equipment fires during 2001. These fires caused one civilian injury, one fire service injury and an estimated dollar loss of $828,866. The average loss per fire was $10,906.

66 Cord or Plug Fires Caused 7 Fire Service Injuries
Sixty-six (66), or 14%, of the structure fires involving electrical equipment were caused by cords or plugs. These fires caused one civilian death, five civilian injuries, seven fire service injuries and an estimated dollar loss of $1.6 million. The average dollar loss per fire was $24,464.

Electrical Distribution, Power Transfer, Caused 46 Fires
Electrical distribution or power transfer devices were involved in 46, or 10%, of the electrical equipment fires. These fires caused four civilian injuries, 12 firefighter injuries and an estimated dollar loss of $1.6 million. The average loss per fire was $34,882.

Electric Meter, Meter Boxes Were Involved in 21 Fires
Electric meters and meter boxes caused 21, or 5%, of the 458 electrical equipment structure fires in 2001. These 21 fires caused an estimated $153,200 in damage. The average dollar loss was $7,295.

16 Fires Involving Wiring from Meter Box to Circuit Breaker
Sixteen (16) electrical equipment fires involving the wiring from the meter box to the circuit breaker box caused three firefighter injuries and an estimated dollar loss of

$667,260. These fires accounted for 3% of the structure fires involving electrical equipment. The average dollar loss per fire was $41,704.

12 Transformer Fires in 2001
Twelve (12) fires, or 3%, involving transformers or associated overcurrent or disconnect equipment caused one firefighter injury and an estimated dollar loss of $4,967,500. The average loss per fire was $413,958.

Almost 3/4 of Electrical Fires Occurred in Residential Occupancies.
Of the 1,070 electrical fires where property use was known, 795, or 74% occurred in residential occupancies. One hundred and nineteen (119), 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 39, or 4%, of these fires. Institutional building such as hospitals and asylums had 27, or 3%, of the 2001 electrical fires occur on their premises. Manufacturing or processing facilities had 25, or 2%, of these incidents. Storage properties accounted for 23, or another 2%. Educational properties accounted for 20, or 2%, of Massachusetts' electrical fires in 2001. Fourteen (14), or 1%, of these fires occurred in special or outside properties. The remaining eight, or 1%, of Massachusetts' electrical fires occurred in basic industry properties such as laboratories, communications centers, electrical distribution sites and utility and distribution centers.

16% of Electrical Fires Begin in the Kitchen
One hundred and seventy-four (174), or 16%, of the 1,076 electrical fires occurred in the kitchen. One hundred and seven (107), or 10%, originated in the bedroom. Substructure area or crawl space (53), the living room (52) and the ceiling, floor assembly or crawl space between stories (50) each accounted for 5% of the electrical fires in Massachusetts in 2001.

Electrical Wiring Was the Item First Ignited in Over 1/3 of Electrical Fires
In 410, or 38%, electrical fires, electrical wiring or cable insulation was the item first ignited. In 199, or 11% of these fires, a structural member, framing, was the first item ignited.

3 Electrical Fires Cause $9 Million in Damages

- On February 5, 2001, at 2:14 p.m., the Oak Bluffs Fire Department was called to a fire in a single-family residence. Sixty-eight (68) personnel fought this three-alarm fire. A malfunctioning residential fire alarm along with strong winds in excess of 25 knots helped contribute to the rapid spread of the fire throughout the three-story home. The fire was believed to have been started by a faulty electrical connection. There were two fire service injuries associated with this fire, and damages were estimated to be $3,000,000.

- On April 20, 2001 at 11:40 a.m. the Shrewsbury Fire Department was called to a fire at an electric transmission, distribution sub-station. The fire began in the switchgear area of this property. Heat from an overloaded transformer, ignited the class IIIB

liquid inside the transformer. There were no injuries reported. There were no smoke or heat detectors present. Sprinklers were not present. Damages from this fire were estimated to be $4,500,000.

- On August 5, 2001 at 9:01 p.m., the Boston Fire Department was called to a fire at a single story gift shop at a local tourist stop. One hundred and twenty (120) personnel battled this three-alarm fire. An arc from a faulty contact in a crawl space ignited the adjoining ceiling. Smoke detectors were present and operating. There were no injuries associated with this fire. Damages from this blaze were estimated to be $1,500,000. There were no sprinklers present.

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.
- Light bulbs that wear out too fast.

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.

Electrical Fires Caused 3 Fire Deaths in 2001
Fires caused by electrical problems totaled 6% of the fire deaths and 7% of the fatal fires in people's homes. Three Massachusetts citizens died in three residential fires.

- On January 27, 2001, at 2:21 a.m., the Dartmouth Fire District #3 was called to a fire in a single-family trailer home caused by a short circuit in an extension cord. The victim, a 66-year old man, was asleep and died of burns and smoke inhalation. One firefighter was injured fighting this fire. Smoke detector performance was undetermined, and there was no estimate of damages.

- On February 8, 2001, at 12:25 a.m., the Springfield Fire Department was called to a fatal fire in a single-family home. The fire was caused by improper electrical wiring in the bedroom. The fire was contained to the bedroom, where the victim, a 78-year old man, was found. There was one firefighter injury associated with this fire, and damages were estimated to be $20,000. There were no smoke detectors present in this fire.

- On April 23, 2001, at 2:38 p.m., the Boston Fire Department was called to a fatal fire in a single-family home caused by an unspecified short circuit. The victim, an 84-year old woman, was unable to escape the fire and died from the burns and smoke inhalation. One civilian and eight firefighters were injured during this fire. Smoke detectors were present in other parts of the building but did not operate. Damages from this fire were estimated to be $300,000.

Fireworks Incidents

43 Incidents Involving Fireworks in 2001
According to the 2001 Massachusetts Fire Incident Reporting System (MFIRS) data, there were 43 incidents reported that involved fireworks, a 10% increase from the 39 incidents reported in 2000. Two firefighters and one civilian were injured in these incidents and there was an estimated $157,725 in property damages. The average dollar loss per fireworks incident was $3,668. Fourteen (14), or one-third (33%), of the fireworks-caused fires in 2001 took place during the week of the 4th of July. Ten (10) of the 14, occurred on July 3rd and 4th. Almost half (48%) of the fireworks incidents were brush fires, while almost one-third (30%) were structure fires.

- On April 14, 2001, at 10:39 a.m., the Bourne Fire Department was called to a structure fire in a single-family home. The fire was started in a storage area, ignited by the use of illegal fireworks and it quickly spread to the remainder of the structure. It was undetermined if smoke detectors were present inside the building. There were no injuries associated with this fire, but damages were estimated to be $125,000.

- On July 4, 2001, at 10:10 a.m., the Springfield Fire Department was called to a structure fire in an apartment building. The fire started when fireworks ignited the roof of an exterior balcony. It spread to the other parts of the building. There were no

smoke detectors or sprinklers. There were no injuries associated with this fire and damages were estimated to be $20,000.

In version 5, a fireworks explosion without fire is coded as an Incident Type 243 – Fireworks explosion (no fires). In 2001, eight such incidents were reported.

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 —2001 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 no fireworks-related burn injuries reported to M-BIRS in 2001. Since we started collecting burn injury reports in M-BIRS in 1984, the average number of fireworks-related burns per year is 14 burns. 1989 had the highest number of reported fireworks-related burns with 45 reported burn injuries. Except for 2001, 1999 had the fewest number of reported fireworks-related burn injuries with three reported burn injuries.

Grill Fires

85 Incidents Involving Grills in 2001
In 2001, there were 85 fires and explosion incidents reported to the Massachusetts Fire Incident Reporting System (MFIRS) involving open fired grills. These incidents caused two civilian injuries and an estimated dollar loss of $142,815. Predictably, 76% 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 85 grill incidents, 41, or 48%, of the grills were gas grills. Of the other 52% of the grill fires, 5% were grills fueled with charcoal or other solid fuels; 3% were liquid-fueled; 1% were powered electrically; and 44% did not specify the type of fuel. They were most likely a combination of charcoal grills and more gas grills. LP-gas grill fire incidents caused an estimated $25,340 in damage. Eighty-five percent (85%) of the LP-gas grill fires in Massachusetts occurred between May and September.

- On May 5, 2001 at 9:38 p.m. the Somerville Fire Department was called to a fire where a gas grill located on the second story exterior balcony ignited the wall of a two-family home. The fire spread was confined to the balcony. There were no injuries

associated with this fire. Smoke detectors were in the home but failed to operate. The estimated property loss of this incident was $5,000.

It is illegal to have LP-gas on balconies or porches above the first floor. 527 Code of Massachusetts Regulation 6.07 (5)(a) 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 and may affect an unexpected neighbor.

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 — 2001 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. One civilian was reported to M-BIRS in 2001 with burn injuries from a grill. This one incident occurred in April.

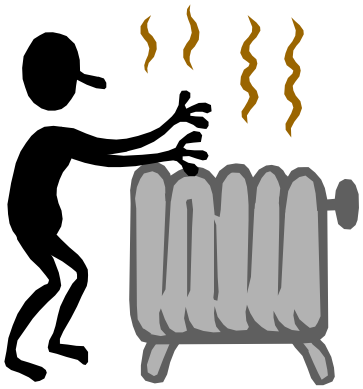
Grill Safety
Follow these safety tips when using a grill:
- Use all barbecue grills away from the house in the backyard.
- Supervise children whenever any grill is in use.
- Never use gasoline on any grill!

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.
- Never put hot coals or ashes into any combustible container.
- Allow used coals to cool in the grill or in a metal container after grilling.

Heating Equipment Fires

1,457 Fires, 1 Civilian Death, 21 Civilian Injuries, 32 Fire Service Injuries



Massachusetts fire departments reported that some form of heating equipment was involved in 1,457, or 14%, of the 10,384 structure fires in 2001. These heating equipment fires caused one civilian fire death, 21 civilian injuries, 32 fire service injuries, and an estimated dollar loss of $7.8 million. The average loss per fire was $5,335.

Only one type of equipment per fire incident may be reported to MFIRS v5. 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 10 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[23]

Equipment	# of Fires	% of Heat Eq.	Injuries FF	Injuries Civ	Deaths FF	Deaths Civ	Dollar Loss
Boiler, furnace, or cent. heat. unit	337	23%	0	0	0	0	45,056
Furnace, central heating unit	287	37%	3	0	0	0	$653,072
Chimney, flue of unknown type	261	18%	0	0	0	0	81,520
Furnace, local heat. unit, built-in	208	14%	7	4	0	0	1,418,254
Fireplace, chimney, other	151	10%	3	1	0	0	870,002
Heating, vent. & air cond., other	84	6%	4	5	0	1	1,437,405
Water heater	50	3%	2	4	0	0	595,601
Chimney connector, vent connect.	43	3%	3	0	0	0	1,243,550
Heater, excl. catalytic & oil filled	27	2%	4	2	0	0	575,580
Stove, heating	21	1%	0	4	0	0	536,500
Total	**1,457**	**100%**	**32**	**21**	**0**	**1**	**$7,773,490**

[23]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 of 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.

41% of All Heating Fires Were Confined Fires
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, chimney or flue fires confined to the chimney or flue; and fuel burner/boiler malfunctions, fire confined. When one of these incidents is reported, the official writing the report only needs to complete a Basic Module, so data fields that would otherwise be captured on the Fire Module are not required.

In 2001, a year in which reports completed in both version 4 and version 5 were accepted, 337, or 23% of all heating related structure fires in Massachusetts, were coded as fuel burner/boiler malfunction, fire contained. Two hundred and sixty-one (261), or 18%, were determined to be chimney or flue fires, confined to the chimney or flue.

The number of contained fires is expected to rise in 2002 when all fire departments will be reporting in the new version 5 format.

Heating Equipment Fire Killed 1 Civilian
Fires involving heating equipment claimed the lives of one civilian in one fire in 2001. This victim accounted for 2% of the total residential structure fire deaths. The fatal heating fire accounted for 2% of the total fatal residential structure fires in Massachusetts. This is a 93% drop in heating related fire deaths and an 89% drop in heating related fatal fires from 2000. There were no fatal fires involving space heaters in Massachusetts in 2001. Five fires involving space heaters caused 10 deaths in 2000.

- On December 19, 2001 at 9:20 p.m. the Westfield Fire Department was called to a fatal fire in a single-family home. The cause was determined to be radiated heat from a wood stove. The victim, a 75-year old woman, was trapped by the fire while escaping and overcome by heat and smoke. She died from burns and smoke inhalation. There were no other injuries associated with this fire. Damages from this fire were estimated to be $125,000. Detector performance was undetermined.

Central Heating Units

287 Fires, 3 Civilian Injuries
Central heating units were involved in 287 structure fires in 2001. These fires caused three civilian injuries and an estimated dollar loss of $653,072. The average loss per fire was $2,276.

Over 1/2 Caused by Automatic Control Failures
Of the 287 central heating unit fires automatic control failures caused 51% of these fires; 13% were caused by a lack of maintenance or worn out; 8% were caused by an unclassified mechanical failure or malfunction; and 5% were caused by part failures, leaks.

One hundred ninety-three (193), or 76%, of the 255 central heating unit fires where the power source was known were caused by liquid-fueled equipment. These fires caused one civilian injury and an estimated dollar loss of $288,511. The average loss per fire was $1,495.

Thirty-two (32), or 11%, of the central heating unit fires were caused by electrically powered equipment. Twenty-seven (27), or 11%, were caused by gas-fueled equipment. Three (3), or 1%, of the central heating unit fires were caused by solid fueled equipment. Version 5 has a new data field called Equipment Power Source, that describes the power source of the equipment involved in ignition.

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. Only licensed tradespeople may install oil, gas, or electric heating units. Regulations about oil burners may be found in 527 CMR 4.

Fixed Heater Fires

208 Fires, 4 Civilian Injuries, 7 Fire Service Injuries
Two hundred and eight (208) fixed heater structure fires caused four civilian injuries, seven fire service injuries and an estimated dollar loss of $1.4 million. The average dollar loss per fire was $6,819.

Fixed heaters include stationary local units such as wood stoves or fireplaces. 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. Seventy-seven percent (77), or 37%, of fixed heater fires were caused by a lack of maintenance or failure to clean the equipment. Thirty (30), or 14%, of these fires were caused by the heat source being to close to combustibles. Fifteen (15), or 7%, were caused by an unclassified mechanical failure or malfunction. An unspecified short-circuit arc was the cause of 12, or 6%, of fixed heater fires in 2001.

When the equipment power source was listed as solid-fueled equipment, the fixed heater was assumed to be a wood or coal stove. Seventy-four (74), or 44% of fixed heater fire incidents in 2001 involved wood or coal stoves. These fires caused four fire service injuries and an estimated dollar loss of $340,527. The average loss per fire was $4,602.

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.

- 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.

Chimney Fires

364 Fires Caused 5 Fire Service Injuries
Three hundred sixty-four (364) structure fires involved chimneys, gas vent flues, chimney connectors or vent connectors. These 364 fires caused five fire service injuries and an estimated dollar loss of $1.7 million. The average dollar loss per fire was $4,672.

Two hundred and sixty-one (261) of these chimney or flue fires were confined to the chimney or flue. [24]

Forty-one percent (41%) of the remaining 105 fires were caused by a creosote build-up or lack of maintenance; 14% were caused by construction, installation, or design deficiency; and 8% were caused by operational deficiencies.

Have Chimneys Cleaned Annually to Remove Creosote
Creosote is a black, tar-like by-product of fire. It can accumulate in 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.

[24] In MFIRS v5 a fire in a building contained to a non-combustible container (Incident Type = 113-118) does not have to have a Fire Module completed. Therefore the following data fields do not need to be completed: area of origin, detector status, item first ignited, heat source, factors contributing to ignition, cause of ignition, and equipment involved in ignition. These incidents are not included in the analysis of these fields.

Fires Caused by Fireplaces

93 Fires, 1 Civilian Injuries, 3 Fire Service Injuries
Ninety-three (93) fireplaces were involved in Massachusetts structure fires in 2001. These fires caused one civilian injury, three fire service injuries and an estimated dollar loss of $616,401. The average dollar loss per fire was $6,628.

An improper startup caused 30% of these 105 fireplace incidents; 24% were caused by construction, installation or design deficiencies; and 9% were caused by having combustibles too close to the heat source.

Space Heater Fires

27 Fires, 2 Civilian Injuries, 4 Fire Service Injuries
Twenty-seven (27) space heater fires caused two civilian injuries, four firefighter injuries and an estimated dollar loss of $575,580. The average dollar loss per fire was $21,318. Forty-one percent (41%) of these fires were caused by combustible materials such as bedding, rubbish, or furniture that were too close to the heater, 11% were caused by unclassified mechanical failures or malfunctions and another 11% were caused by unclassified electrical failures or malfunctions.

Seventy-seven (77%) of the portable heaters involved in fires were electric; 9% were liquid fueled; and 5% were gas fueled. The type of heater was determined from the new version 5 equipment power source field.

There were no fatal fires caused by space heaters in Massachusetts in 2001.

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 someone or a pet might bump it and knock it over.
- If you must use an extension cord, make sure it is a heavy-duty cord marked with a power rating as least as high as that on the label of the heater itself. (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 Hot Water Heaters

50 Fires, 4 Civilian Injuries and 2 Fire Service Injuries
Fifty (50) structure fires were caused by hot water heaters in 2001. These 50 fires caused four civilian injuries, two firefighter injuries and an estimated dollar loss of $595,601. The average dollar loss per fire was $11,912. Combustibles placed too close to the water heater caused 20% of the fires; 12% resulted from unclassified mechanical failures or malfunctions; 8% resulted from part failures, leaks, or breaks; another 8% were the result of a lack of maintenance or being worn out; and another 8% from unclassified electrical failures or malfunctions.

Fifty-five percent (55%) of the 42 fires involving hot water heaters where the equipment power source was known were identified as gas-fueled water heaters. Thirty-eight percent (38%) were identified as electrically powered water heaters; and 7% were caused by liquid fueled water heaters.

Fires Caused by Smoking

Smoking Caused 8% of Fires and Over 1/4 of Deaths
During 2001, 2,363, or 8%, of the 27,885 reported incidents were caused by the improper use or disposal of smoking materials. These 2,363 caused 16, or 27%, of the 59 civilian deaths, 87 civilian injuries, 76 fire service injuries, and an estimated dollar loss of $11.5 million. The average dollar loss per fire was $4,860. The number of smoking fires increased by 84% from 2000 to 2001.

V5 More Accurately Describes Smoking Fire Problem
With the switch to MFIRS version 5 our parameters for calculating fires caused by smoking have changed. Because we may now accurately distinguish between arsons and juvenile-set fires and smoking fires where the heat source is a match or lighter, for the first time, we have included in this category smoking-related fires where the heat source was a match or a lighter. This is one of the reasons for the shocking increase in smoking-related fires. However, we believe one of the benefits of v5 is the ability to more accurately describe the risk smoking materials pose. In 2001, if one was to subtract all fires with a heat source of a match or cigarette lighter, there were 1,552 total fires, accounting for 16 civilian deaths, 61 civilian injuries, 55 fire service injuries, and an estimated dollar loss of $9.4 million. The average dollar loss per fire would be $6,047; and the number of smoking fires would have increased by only 21% from the previous year.

742 Structure Fires - Up From 556 In 2000
The 2,363 fires caused by smoking included: 742 structure fires, up from 556 in 2000; 79 motor vehicle fires, up from 57 in 2000; 1,100 tree, brush or grass fires, up from 404 in 2000; 239 trash or rubbish fires, up from 167 in 2000; 128 cultivated vegetation or crop fires, up from 72 in 2000; 33 special outside fires, up from 1 in 2000, and 42 fires that could not be classified further, up from 24 in 2000. The number of fires caused by smoking has increased 84% from 2000 to 2001.

There are many possible explanations for this marked increase in fires caused by smoking. The first possible explanation is the changing of the parameters we use to calculate smoking-related fires. Another possible reason is that the conversion to version 5 has allowed more departments to start reporting electronically and therefore submit all of their fire incident reports regardless of the dollar loss incurred, since the biggest increase was in outside and other fires.

A more far reaching explanation may be all 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 thus accounting for the rise in brush fires attributed to smoking. 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. Eighty-two

percent (82%) 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 2001 were mercantile and business properties accounting for 5% and public assembly building accounting for 4%.

Smoking Caused Over 1/4 of Fatal Fires, 16 Deaths
The 742 smoking-related structure fires caused all 16 smoking-related fire deaths, 77 civilian injuries, 67 fire service injuries, an estimated dollar loss of $11 million and an average dollar loss of $14,867. Smoking fires accounted for 29% of the fatal fires in 2001.

Smoking-related fires were the leading cause of all fire deaths in Massachusetts in 2001. Smoking-related fires accounted for 27% of all 2001 fire fatalities and 29% of all fatal fires in Massachusetts. The unsafe and improper use of smoking materials caused 33% of residential structure fire deaths and 36% of fatal residential structure fires. Six (6), or 33%, of the 18 residential structure fire deaths to people over the age of 65 were caused by smoking.

Of the 742 smoking-related structure fires, 600 occurred in residences. Smoke detectors operated in 43% of the smoking-related residential structure fires where detector status was known. There were no working detectors in an additional 18% of these incidents. No smoke detectors were present in 33% of incidents. In 6% the fire was too small to activate the smoke detector. The leading areas of origin were the bedroom where 27% of residential smoking fires occurred, outside balconies or porches, where 13% of the fires occurred and the living room, where 11% started.

Smoking Remains the Leading Cause of Fire Deaths
In 2001, the improper use and disposal of smoking materials caused 16 fire deaths in 16 fatal fires. The unsafe and improper use of smoking materials caused 33% of residential structure fire deaths and 36% of fatal residential structure fires. One-third of the 18 older adult deaths in residential structure fires were caused by smoking. In 2000, 19 people died in 18 smoking-related fires. Although the number of smoking related fires are on the decline, smoking fires are still responsible for the most fatalities.

In 56% of these deaths, there were no working smoke detectors; 38% of the deaths occurred where smoke detectors did not operate and 19% of deaths occurred where there were no detectors present at all. Thirteen percent (13%) of smoking fire deaths occurred in structures where smoke detectors were present and operated, however both of these victims were intimately involved in ignition. The smoke detectors helped prevent these fires from claiming any additional lives. Thirty-one percent (31%) of smoking-related deaths occurred where smoke detector status was unreported.

- On January 29, 2001, at 1:37 p.m. the Norwood Fire Department was called to a fire in a two-family home caused by the improper use and disposal of smoking materials. The 42-year old male victim was overcome by the heat and smoke while attempting to extinguish the fire. The abandoned cigarette ignited a mattress and pillow. The

victim died from burns and smoke inhalation. The fire caused $50,000 worth of damage. There were no smoke detectors in the home.

- On February 7, 2001, at 9:12 a.m. the Springfield Fire Department was called to a fire in a two-family home caused by the improper disposal of smoking materials. The fire began in a second floor bedroom on the mattress. The victim, a 99-year old woman, was found on the kitchen floor. She was overcome by the heat and smoke generated by the fire and died from smoke inhalation. Damages were estimated to be $50,000. There were three fire service injuries and one other civilian injury in this blaze.

- On April 3, 2001, at 3:43 p.m. the Wareham Fire Department was called to a fire in a single-family home caused by improper disposal of smoking materials. The fire began in the living room when some smoking material ignited a piece of furniture. The physically handicapped victim, a 49-year old man, was overcome by the heat and smoke generated by the fire. He died from burns and smoke inhalation. There were two civilian injuries and one fire service injury associated with this fire. Damages from this blaze were estimated to be $180,000.

- At 4:22 p.m., on April 27, 2001, the Salem Fire Department was called to a fire in an apartment building caused by the improper disposal of smoking materials. The victim, a 47-year old man who was sleeping when the fire started, died from burns and smoke inhalation. The fire was started when a cigarette came into contact with an upholstered chair igniting its fabric. Damages from this blaze were estimated to be $50,000. No other injuries were associated with this fire. Detectors were present in other areas of the home but were not functioning.

- On May 23, 2001, at 11:34 p.m., the Boston Fire Department was called to a fire in an apartment building caused by the careless disposal of smoking materials. The victim, a 53-year old man, was sleeping when the fire started and died from smoke inhalation. Damages from this blaze were estimated to be $150,000. Smoke detectors were not present. There was one fire service injury associated with this fire.

- At 7:02 a.m., on May 30, 2001, the Newton Fire Department was called to a fatal fire in a Newton Housing Authority apartment complex caused by the improper use and disposal of smoking materials. The fire started in the bedroom where the victim fell asleep while smoking. The 53-year old woman was overcome by heat and smoke while escaping, and died from burns and smoke inhalation. There were four other civilian injuries associated with this fire. Damages from this fire were estimated at $250,000. Smoke detectors were present and operating. The building was not sprinklered.

- On June 10, 2001, at 3:00 a.m., the Boston Fire Department was called to a fatal fire in a single-family condominium caused by the improper disposal of smoking materials. The fire began in the bedroom when the victim fell asleep and her cigarette ignited the bedding. The 35-year old woman was asleep when the fire started and subsequently had her escape route blocked by the ensuing fire. She was overcome by

the heat and smoke and died from burns and smoke inhalation. Smoke detectors were present in other areas of the home but failed to work. Damages from this blaze were estimated to be $100,000. One firefighter received an injury during this incident.

- At 12:22 a.m., on July 12, 2001, the Easton Fire Department was called to a fatal fire in a single-family home caused by the unsafe disposal of smoking materials. The victim, a 74-year old man, was sleeping when a discarded cigarette ignited furniture in his bedroom. He was unable to escape and died from smoke inhalation. There were no smoke detectors present in the home. One firefighter was injured battling this blaze. Damages were estimated to be $200,000.

- On July 23, 2001, at 8:14 a.m., the Beverly Fire Department was called to a fire at an elderly housing complex that was caused by unsafe disposal of smoking materials. After falling asleep on the sofa, the victim, a 70-year old man, dropped the cigarette he was smoking igniting the sofa. He later died at the hospital from burns to over 95% of his body and smoke inhalation. One firefighter was injured during this fire. Smoke detectors were present and operated. Damages from this blaze were estimated to be $15,000.

- On October 13, 2001, at 10:47 a.m., the Hyannis Fire Department was called to a fatal fire in a single-family home caused by the careless disposal of smoking materials in the living room. While attempting to extinguish the fire, the victim, a 75-year old man was overcome by the heat and smoke generated by the fire. Firefighters found him in a bathroom. He died from burns and smoke inhalation. Detectors were present, but did not operate. There was one fire service injury associated with this fire. Damages from this blaze were estimated to be $15,000.

- On December 15, 2001, at 10:55 p.m., the Egremont Fire Department was called to a fatal fire in a single-family residence caused by improper disposal of smoking materials. The victim, a 34-year old woman, was overcome by smoke in the living room. She later died from burns and smoke inhalation. Damages to the property were estimated to be $30,000. There was one other injury associated with this fire. Smoke detectors were present but did not operate.

- On December 18, 2001, at 9:15 a.m., the Quincy Fire Department was called to a fatal fire caused by the unsafe disposal of smoking materials in a single-family home that killed it's 47-year old bedridden female owner. Investigators believe that the victim was asleep at the time of the fire and possibly impaired by medication. She had recently come home from the hospital. The victim's two children could not get her out of the house and went for help. One of the children received burn injuries to her hands. A firefighter was also injured while fighting this fire. Smoke detector performance was undetermined. Damages from this blaze were estimated to be $250,000.

Smoking on Oxygen
In 2001, the use of oxygen while smoking caused three of the 16 smoking-related fire deaths in three of the 16 smoking-related fatal fires.

- At 1:54 a.m., on March 31, 2001, the New Bedford Fire Department was called to a fatal fire in a single-family home. The victim, a 53-year old man, succumbed to the burns and smoke inhalation sustained during the fire. Someone in the house was smoking while the victim was using his oxygen. The fire was confined to the living room, while the entire home sustained smoke damage. Two women who were also in the home when the fire started were assisted outside by neighbors and police. They were transported and admitted to St. Luke's Hospital for smoke inhalation. Detectors were present but did not operate. Damages from this fire were estimated to be $50,000.

- On April 8, 2001, at 8:12 a.m., the North Brookfield Fire Department was called to a fatal fire in a duplex owned by the local housing authority. The victim, a 76-year old woman, died while smoking on oxygen. The fire was contained to the bedding and mattress. It self-extinguished and the heat had dissipated by the time it was discovered by a neighbor when she went to bring a newspaper to the victim. The fire department was called to the scene and conducted an investigation and performed overhaul. Damages from this fire were estimated to be $7,000. Detector performance was undetermined.

- On August 9, 2001, at 1:56 p.m., the Plainville Fire Department was called to a fatal fire in a residential trailer. The victim, a 62-year-old woman, died in a fire started by smoking while on oxygen. The victim fell asleep while smoking and ignited the chair that she was sitting in. The fire was confined to the room of origin. Hardwired smoke detectors were present but failed to alert the occupants. There was no estimation as to the amount of damages caused by this fire.

Smoking Fires Ignite Clothing, Sleepwear, Bedding & Upholstered Furniture
Almost one-third, or 30%, 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 intensity and rate at which the fire will burn once it starts. 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."

Carbon Monoxide Incidents

In 2001, 167 fire departments voluntarily reported 1,634 carbon monoxide (CO) incidents; hazards (incident type = 424), carbon monoxide detector activation due to malfunction (incident type = 736) and carbon monoxide detector activation – no CO (incident type = 746). 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. Fire departments responded to some 435 CO hazard incidents that caused three civilian injuries and a dollar loss of $2,000.

Boston chose not to report a single carbon monoxide incident. The Town of Duxbury however, with a population of 14,428, reported the most CO incidents in 2001, 249 CO calls. The next five cities in terms of the number of carbon monoxide calls reported were: Framingham, 55 calls; Plymouth, 38 incidents; Sandwich, 34 calls; Springfield, 33 calls and Abington with 31 carbon monoxide incidents in 2001.

CO detector activation with no CO is when a CO detector activated in response to pollution, an unknown trigger or a non-threatening situation. Fire departments responded to 1,199 of these calls that resulted in one firefighter injury. In version 5.0 these types of calls are split into two categories: CO detector activation due to malfunction and CO detector activation – no CO. Sixty (60) fire departments reported 203 CO detector activations due to malfunction. While 131 fire departments reported 996 CO detector activations with no CO found after investigation.

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

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	119	51	14	54	0	1	0	3	$118,685
Acton	7	5	2	0	0	0	0	0	$343,000
Acushnet	32	14	3	15	0	1	0	0	$921,500
Adams	15	6	6	3	1	3	0	0	$218,100
Agawam	100	33	18	49	0	2	0	0	$304,738
Alford	2	1	0	1	0	0	0	0	$1,200
Amesbury	45	14	11	20	0	1	0	0	$1,314,483
Amherst	165	57	16	92	0	4	0	6	$530,150
Andover	132	35	51	46	0	0	0	0	$1,424,852
Aquinnah	Fire Department In Good Standing, Certified No Fires To Report								
Arlington	60	45	13	2	0	2	0	1	$283,115
Ashburnham	38	19	2	17	0	1	0	2	$40,000
Ashby	6	4	2	0	0	0	0	0	$18,000
Ashfield	Fire Department In Good Standing, Certified No Fires To Report								
Ashland	5	4	1	0	0	0	0	0	$90,000
Athol	98	31	13	54	0	0	0	4	$557,705
Attleboro	136	27	34	75	0	0	0	0	$255,300
Auburn	104	29	34	41	0	0	0	5	$2,774,840
Avon	33	9	16	8	0	0	0	0	$103,681
Ayer	36	14	8	14	0	0	0	0	$10,800
Barnstable Fire Districts									
Barnstable	*35*	*12*	*7*	*16*	*0*	*0*	*0*	*1*	*$28,301*
C.O.M.M.	*68*	*47*	*10*	*11*	*0*	*10*	*0*	*6*	*$915,553*
Hyannis	*174*	*55*	*28*	*91*	*1*	*22*	*0*	*6*	*$1,088,785*
West Barnstable	*14*	*3*	*2*	*9*	*0*	*0*	*0*	*0*	*$67,245*
Barre	30	19	6	5	0	0	0	1	$175,933
Becket	1	0	1	0	0	0	0	0	$8,000
Bedford	23	11	3	9	0	0	0	2	$167,000
Belchertown	69	35	8	26	0	0	0	0	$117,500
Bellingham	28	15	9	4	0	1	0	0	$193,897
Belmont	92	54	14	24	0	2	0	4	$323,501
Berkley	57	11	6	40	0	0	0	0	$163,300
Berlin	37	7	8	22	0	0	0	2	$803,100
Bernardston	22	8	3	11	0	0	0	1	$8,700
Beverly	22	19	2	1	1	0	0	3	$254,500

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	10	3	0	7	0	0	0	0	$6,800
Acton	0	0	0	0	0	0	0	0	$0
Acushnet	1	1	0	0	0	0	0	0	$5,000
Adams	1	0	0	1	0	1	0	0	$0
Agawam	17	2	0	15	0	0	0	0	$4,108
Alford	0	0	0	0	0	0	0	0	$0
Amesbury	2	0	0	2	0	0	0	0	$150
Amherst	47	8	0	39	0	0	0	0	$17,950
Andover	9	1	2	6	0	0	0	0	$3,001
Aquinnah	Fire Department In Good Standing, Certified No Fires To Report								
Arlington	2	2	0	0	0	0	0	0	$50
Ashburnham	1	0	0	1	0	0	0	0	$0
Ashby	0	0	0	0	0	0	0	0	$0
Ashfield	Fire Department In Good Standing, Certified No Fires To Report								
Ashland	0	0	0	0	0	0	0	0	$0
Athol	9	0	0	9	0	0	0	0	$0
Attleboro	49	4	2	43	0	0	0	0	$19,750
Auburn	7	1	0	6	0	0	0	0	$1,000
Avon	7	1	4	2	0	0	0	0	$45,375
Ayer	1	1	0	0	0	0	0	0	$0
Barnstable Fire Districts									
Barnstable	*2*	*0*	*0*	*2*	*0*	*0*	*0*	*0*	*$0*
C.O.M.M.	*8*	*3*	*1*	*4*	*0*	*0*	*0*	*0*	*$170,296*
Hyannis	*12*	*4*	*2*	*6*	*0*	*0*	*0*	*0*	*$22,850*
West Barnstable	*2*	*0*	*0*	*2*	*0*	*0*	*0*	*0*	*$35*
Barre	0	0	0	0	0	0	0	0	$0
Becket	0	0	0	0	0	0	0	0	$0
Bedford	5	2	1	2	0	0	0	1	$5,000
Belchertown	6	0	1	5	0	0	0	0	$4,000
Bellingham	3	1	2	0	0	0	0	0	$71,937
Belmont	14	2	1	11	0	0	0	1	$57,550
Berkley	8	0	2	6	0	0	0	0	$25,000
Berlin	12	1	0	11	0	0	0	0	$500
Bernardston	2	0	0	2	0	0	0	0	$0
Beverly	1	1	0	0	0	0	0	1	$5,000

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	83	42	28	13	0	2	0	6	$794,426
Blackstone	47	16	3	28	0	1	0	0	$301,650
Blandford	13	4	5	4	0	0	0	0	$39,100
Bolton	5	3	2	0	0	0	0	0	$310,500
Boston	4,769	1,757	692	2,320	8	32	0	106	$31,408,891
Bourne	98	25	20	53	0	3	0	1	$530,375
Boxborough	1	1	0	0	0	0	0	0	$25,000
Boxford	83	20	12	51	0	0	0	0	$0
Boylston	1	1	0	0	0	0	0	0	$150,000
Braintree	68	26	38	4	0	3	0	0	$717,850
Brewster	39	12	6	21	0	1	0	0	$20,551
Bridgewater	4	4	0	0	0	0	0	0	$0
Brimfield	2	0	2	0	0	0	0	0	$50,090
Brockton	270	142	121	7	0	24	0	6	$2,155,450
Brookfield	3	3	0	0	0	0	0	1	$35,000
Brookline	57	40	13	4	0	3	0	7	$3,121,750
Buckland	1	1	0	0	0	0	0	0	$0
Burlington	48	37	6	5	0	0	0	0	$61,375
Cambridge	428	302	48	78	0	10	0	17	$2,186,478
Canton	38	15	19	4	0	0	0	0	$2,542,705
Carlisle	3	0	1	2	0	0	0	0	$50,005
Carver	6	5	1	0	0	0	0	1	$210,500
Charlemont	6	1	1	4	0	0	0	0	$1,200
Charlton	93	37	17	39	0	0	0	3	$700,755
Chatham	21	15	5	1	0	4	0	0	$153,380
Chelmsford	74	37	30	7	0	2	0	8	$978,200
Chelsea	58	48	4	6	0	0	0	2	$30,460
Cheshire	2	1	1	0	0	0	0	0	$26,500
Chester	Fire Department In Good Standing, Certified No Fires To Report								
Chesterfield	1	0	1	0	0	0	0	0	$1,500
Chicopee	319	146	56	117	0	13	0	5	$1,353,520
Chilmark	Fire Department In Good Standing, Certified No Fires To Report								
Clarksburg	1	0	0	1	0	0	0	0	$0
Clinton	16	12	3	1	2	7	0	2	$1,620,200
Cohasset	12	12	0	0	0	2	0	0	$0

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	4	2	0	2	0	0	0	0	$20,505
Blackstone	10	1	1	8	0	0	0	0	$0
Blandford	1	0	1	0	0	0	0	0	$0
Bolton	0	0	0	0	0	0	0	0	$0
Boston	327	153	159	15	4	2	0	22	$4,336,900
Bourne	4	0	1	3	0	0	0	0	$0
Boxborough	0	0	0	0	0	0	0	0	$0
Boxford	5	0	0	5	0	0	0	0	$0
Boylston	0	0	0	0	0	0	0	0	$0
Braintree	4	0	3	1	0	0	0	0	$6,600
Brewster	9	1	0	8	0	0	0	0	$1,000
Bridgewater	1	1	0	0	0	0	0	0	$0
Brimfield	0	0	0	0	0	0	0	0	$0
Brockton	46	10	35	1	0	1	0	0	$168,100
Brookfield	0	0	0	0	0	0	0	0	$0
Brookline	1	0	1	0	0	0	0	0	$5,000
Buckland	1	1	0	0	0	0	0	0	$0
Burlington	0	0	0	0	0	0	0	0	$0
Cambridge	28	19	4	5	0	1	0	2	$52,521
Canton	1	1	0	0	0	0	0	0	$0
Carlisle	0	0	0	0	0	0	0	0	$0
Carver	0	0	0	0	0	0	0	0	$0
Charlemont	0	0	0	0	0	0	0	0	$0
Charlton	4	1	0	3	0	0	0	0	$700
Chatham	0	0	0	0	0	0	0	0	$0
Chelmsford	8	4	1	3	0	0	0	5	$270,100
Chelsea	0	0	0	0	0	0	0	0	$0
Cheshire	0	0	0	0	0	0	0	0	$0
Chester	Fire Department In Good Standing, Certified No Fires To Report								
Chesterfield	0	0	0	0	0	0	0	0	$0
Chicopee	29	2	7	20	0	0	0	0	$25,600
Chilmark	Fire Department In Good Standing, Certified No Fires To Report								
Clarksburg	0	0	0	0	0	0	0	0	$0
Clinton	2	2	0	0	0	0	0	0	$1,500,000
Cohasset	0	0	0	0	0	0	0	0	$0

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	12	9	2	1	0	0	0	0	$61,000
Concord	43	25	6	12	0	0	0	0	$1,346,502
Conway	Fire Department In Good Standing, Certified No Fires To Report								
Cotuit	6	2	4	0	0	0	0	0	$12,761
Cummington	1	1	0	0	0	0	0	0	$0
Dalton	14	4	1	9	0	0	0	0	$169,600
Danvers	40	18	20	2	0	0	0	0	$546,266
Dartmouth Fire Districts									
Dartmouth Dst. 1	*35*	*11*	*9*	*15*	*0*	*1*	*0*	*0*	*$0*
Dartmouth Dst. 2	*2*	*2*	*0*	*0*	*0*	*0*	*0*	*0*	*$240,000*
Dartmouth Dst. 3	*133*	*57*	*31*	*45*	*1*	*1*	*0*	*8*	*$0*
Dedham	162	14	24	124	0	0	0	3	$256,400
Deerfield Fire Districts									
Deerfield	*3*	*1*	*0*	*2*	*0*	*0*	*0*	*0*	*$1,072*
South Deerfield	*17*	*2*	*6*	*9*	*0*	*0*	*0*	*0*	*$7,500*
Dennis	99	12	14	73	0	1	0	0	$1,324,685
Devens	19	10	2	7	0	1	0	1	$100
Dighton	52	6	2	44	0	0	0	2	$1,164,900
Douglas	46	18	6	22	0	0	0	2	$129,800
Dover	Fire Department In Good Standing, Certified No Fires To Report								
Dracut	148	42	39	67	0	1	0	1	$297,750
Dudley	9	4	5	0	0	0	0	0	$88,200
Dunstable	Fire Department In Good Standing, Certified No Fires To Report								
Duxbury	80	29	14	37	0	0	0	0	$335,350
East Bridgewater	46	16	14	16	0	2	0	0	$267,026
East Brookfield	12	3	3	6	0	0	0	0	$7,000
East Longmeadow	68	18	13	37	0	4	0	0	$43,820
Eastham	3	2	1	0	0	0	0	0	$2,600
Easthampton	70	37	4	29	0	0	0	8	$2,191,970
Easton	33	25	8	0	1	4	0	4	$1,149,800
Edgartown	14	5	3	6	0	3	0	0	$0
Egremont	1	1	0	0	1	1	0	0	$30,000
Erving	3	1	0	2	0	0	0	0	$85,000
Essex	2	2	0	0	0	0	0	0	$1,150,000
Everett	156	71	33	52	1	8	0	3	$1,504,047
Fairhaven	52	19	19	14	0	0	0	1	$27,680
Fall River	616	173	127	316	4	19	0	6	$2,173,260

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	3	0	0	3	0	0	0	0	$251
Conway	Fire Department In Good Standing, Certified No Fires To Report								
Cotuit	1	1	0	0	0	0	0	0	$1
Cummington	0	0	0	0	0	0	0	0	$0
Dalton	1	0	0	1	0	0	0	0	$100
Danvers	4	0	4	0	0	0	0	0	$26,500
Dartmouth Fire Districts									
Dartmouth Dst. 1	*4*	*1*	*3*	*0*	*0*	*0*	*0*	*0*	*$0*
Dartmouth Dst. 2	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Dartmouth Dst. 3	*10*	*1*	*6*	*3*	*0*	*0*	*0*	*0*	*$0*
Dedham	12	1	0	11	0	0	0	0	$50,000
Deerfield Fire Districts									
Deerfield	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
South Deerfield	*1*	*0*	*0*	*1*	*0*	*0*	*0*	*0*	*$0*
Dennis	26	0	3	23	0	0	0	0	$808,200
Devens	1	0	0	1	0	0	0	0	$0
Dighton	0	0	0	0	0	0	0	0	$0
Douglas	1	0	0	1	0	0	0	0	$0
Dover	Fire Department In Good Standing, Certified No Fires To Report								
Dracut	14	4	10	0	0	1	0	0	$75,000
Dudley	0	0	0	0	0	0	0	0	$0
Dunstable	Fire Department In Good Standing, Certified No Fires To Report								
Duxbury	1	0	0	1	0	0	0	0	$0
East Bridgewater	12	1	1	10	0	0	0	0	$2,001
East Brookfield	1	0	0	1	0	0	0	0	$0
East Longmeadow	7	0	1	6	0	0	0	0	$11,420
Eastham	0	0	0	0	0	0	0	0	$0
Easthampton	2	0	0	2	0	0	0	0	$0
Easton	1	0	1	0	0	0	0	0	$10,000
Edgartown	0	0	0	0	0	0	0	0	$0
Egremont	0	0	0	0	0	0	0	0	$0
Erving	0	0	0	0	0	0	0	0	$0
Essex	0	0	0	0	0	0	0	0	$0
Everett	33	7	9	17	0	0	0	0	$12,155
Fairhaven	2	1	0	1	0	0	0	0	$0
Fall River	218	27	23	168	2	1	0	0	$352,660

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	157	48	20	89	2	2	0	1	$1,047,352
Fitchburg	251	72	55	124	1	5	0	8	$990,340
Florida	11	4	0	7	0	0	0	1	$40,000
Foxborough	67	21	17	29	0	1	0	0	$66,100
Framingham	462	267	55	140	0	2	0	11	$1,723,886
Franklin	111	20	18	73	0	3	0	0	$1,059,521
Freetown	61	19	25	17	0	2	0	0	$285,644
Gardner	128	25	40	63	0	1	0	1	$467,010
Georgetown	1	1	0	0	0	0	0	0	$6,000
Gill	20	12	1	7	0	0	0	0	$0
Gloucester	112	41	13	58	0	4	0	16	$991,757
Goshen	Fire Department In Good Standing, Certified No Fires To Report								
Gosnold	Fire Department In Good Standing, Certified No Fires To Report								
Grafton	50	17	4	29	0	0	0	0	$1,012,100
Granby	59	17	8	34	0	2	0	0	$150,550
Granville	2	1	0	1	0	0	0	0	$1,000
Great Barrington	74	51	4	19	0	0	0	1	$1,780,200
Greenfield	77	30	13	34	0	2	0	1	$187,675
Groton	5	5	0	0	0	0	0	0	$530,000
Groveland	3	2	1	0	0	0	0	0	$3,750
Hadley	3	3	0	0	0	0	0	1	$82,000
Halifax	21	10	5	6	0	0	0	0	$35,875
Hamilton	16	13	0	3	0	0	0	0	$38,500
Hampden	Fire Department In Good Standing, Certified No Fires To Report								
Hancock	Fire Department In Good Standing, Certified No Fires To Report								
Hanover	74	31	7	36	0	2	0	4	$469,750
Hanson	3	3	0	0	0	0	0	1	$415,000
Hardwick	1	1	0	0	0	0	0	0	$120,000
Harvard	31	11	3	17	0	0	0	0	$124,000
Harwich	27	17	1	9	0	2	0	0	$63,600
Hatfield	17	6	1	10	1	0	0	0	$90,460
Haverhill	93	35	55	3	1	3	0	3	$454,750
Hawley	5	4	0	1	0	1	0	0	$1,000
Heath	3	1	1	1	0	0	0	0	$75,500
Hingham	174	54	16	104	1	2	0	3	$1,108,870

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	30	2	1	27	0	0	0	0	$9,412
Fitchburg	92	26	16	50	0	0	0	3	$650,855
Florida	2	1	0	1	0	0	0	1	$35,000
Foxborough	1	0	0	1	0	0	0	0	$0
Framingham	20	4	3	12	0	0	0	4	$249,500
Franklin	9	1	0	8	0	1	0	0	$75,001
Freetown	14	4	7	3	0	1	0	0	$54,100
Gardner	13	0	2	11	0	0	0	0	$2,100
Georgetown	0	0	0	0	0	0	0	0	$0
Gill	0	0	0	0	0	0	0	0	$0
Gloucester	15	2	2	11	0	0	0	0	$205,004
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	6	2	0	4	0	0	0	0	$100,000
Granville	0	0	0	0	0	0	0	0	$0
Great Barrington	10	2	0	8	0	0	0	0	$32,000
Greenfield	10	3	1	6	0	0	0	1	$38,050
Groton	1	1	0	0	0	0	0	0	$0
Groveland	0	0	0	0	0	0	0	0	$0
Hadley	1	1	0	0	0	0	0	0	$80,000
Halifax	2	0	1	1	0	0	0	0	$300
Hamilton	0	0	0	0	0	0	0	0	$0
Hampden	Fire Department In Good Standing, Certified No Fires To Report								
Hancock	Fire Department In Good Standing, Certified No Fires To Report								
Hanover	5	3	0	2	0	0	0	0	$221,000
Hanson	0	0	0	0	0	0	0	0	$0
Hardwick	0	0	0	0	0	0	0	0	$0
Harvard	4	0	0	4	0	0	0	0	$0
Harwich	4	0	0	4	0	0	0	0	$0
Hatfield	5	1	0	4	0	0	0	0	$0
Haverhill	9	5	4	0	0	0	0	0	$4,000
Hawley	0	0	0	0	0	0	0	0	$0
Heath	1	0	1	0	0	0	0	0	$500
Hingham	24	0	1	23	0	0	0	0	$2,300

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	$0
Holbrook	68	26	7	35	0	4	0	3	$576,842
Holden	32	10	2	20	0	0	0	0	$37,650
Holland	14	5	3	6	0	0	0	0	$15,700
Holliston	20	9	4	7	0	1	0	2	$1,329,975
Holyoke	19	1	3	15	0	1	0	0	$11,500
Hopedale	16	14	2	0	1	2	0	1	$108,325
Hopkinton	24	11	13	0	0	0	0	2	$1,019,349
Hubbardston	0	0	0	0	0	0	0	0	$0
Hudson	70	31	14	25	0	0	0	5	$207,620
Hull	28	13	4	11	0	1	0	1	$279,000
Huntington	23	13	1	9	0	0	0	0	$0
Ipswich	7	1	6	0	3	0	0	2	$261,000
Kingston	117	36	20	61	0	1	0	0	$78,233
Lakeville	56	10	10	36	0	0	0	0	$29,000
Lancaster	8	7	0	1	0	0	0	0	$301,000
Lanesborough	25	5	5	15	0	0	0	0	$0
Lawrence	532	137	153	242	0	6	0	28	$6,809,916
Lee	17	8	8	1	0	1	0	1	$148,500
Leicester	48	12	13	23	0	0	0	0	$223,600
Lenox	63	36	6	21	0	0	0	0	$101,275
Leominster	199	83	34	82	0	14	0	5	$579,533
Leverett	3	1	2	0	0	1	0	0	$10,000
Lexington	47	21	21	5	0	0	0	3	$385,600
Leyden	7	1	1	5	0	0	0	0	$0
Lincoln	1	0	0	1	0	0	0	0	$0
Littleton	13	9	1	3	0	0	0	0	$6,620
Logan Airport F.D.	8	2	2	4	0	0	0	0	$1,250
Longmeadow	60	17	12	31	0	1	0	0	$263,800
Lowell	217	173	39	5	0	7	0	12	$36,200
Ludlow	101	41	14	46	0	4	0	0	$283,700
Lunenburg	8	3	3	2	0	0	0	1	$4,200
Lynn	151	79	65	7	0	6	0	23	$730,230
Lynnfield	1	1	0	0	0	0	0	0	$350,000

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	1	0	0	1	0	0	0	0	$50
Holden	1	0	0	1	0	0	0	0	$0
Holland	2	0	0	2	0	0	0	0	$0
Holliston	2	0	0	2	0	0	0	0	$25
Holyoke	1	0	0	1	0	0	0	0	$0
Hopedale	0	0	0	0	0	0	0	0	$0
Hopkinton	0	0	0	0	0	0	0	0	$0
Hubbardston	0	0	0	0	0	0	0	0	$0
Hudson	7	0	0	7	0	0	0	0	$0
Hull	2	1	0	1	0	0	0	1	$100,000
Huntington	1	0	0	1	0	0	0	0	$0
Ipswich	0	0	0	0	0	0	0	0	$0
Kingston	33	1	2	30	0	0	0	0	$747
Lakeville	6	0	0	6	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	187	17	69	101	0	0	0	2	$508,796
Lee	0	0	0	0	0	0	0	0	$0
Leicester	5	0	2	3	0	0	0	0	$0
Lenox	1	1	0	0	0	0	0	0	$45,000
Leominster	11	4	2	5	0	0	0	0	$11,025
Leverett	0	0	0	0	0	0	0	0	$0
Lexington	5	2	1	2	0	0	0	0	$24,500
Leyden	0	0	0	0	0	0	0	0	$0
Lincoln	0	0	0	0	0	0	0	0	$0
Littleton	0	0	0	0	0	0	0	0	$0
Logan Airport F.D.	0	0	0	0	0	0	0	0	$0
Longmeadow	6	1	1	4	0	0	0	0	$1,000
Lowell	30	16	13	1	0	0	0	5	$0
Ludlow	12	1	0	11	0	0	0	0	$3,000
Lunenburg	0	0	0	0	0	0	0	0	$0
Lynn	13	3	10	0	0	0	0	0	$77,500
Lynnfield	0	0	0	0	0	0	0	0	$0

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	155	21	30	104	0	0	0	1	$894,700
Manchester	40	16	4	20	0	0	0	1	$12,000
Mansfield	94	38	17	39	0	2	0	1	$92,360
Marblehead	22	16	3	3	0	2	0	2	$909,000
Marion	9	4	4	1	0	1	0	0	$21,000
Marlborough	130	24	25	81	1	1	0	3	$1,102,365
Marshfield	108	43	11	54	0	0	0	1	$3,000
Mashpee	73	21	8	44	0	0	0	4	$140,640
Mattapoisett	29	10	7	12	0	0	0	0	$0
Maynard	12	11	1	0	0	2	0	0	$828,800
Medfield	55	18	8	29	0	0	0	0	$89,650
Medford	76	33	32	11	0	1	0	7	$492,200
Medway	42	18	4	20	1	0	0	0	$100,000
Melrose	16	10	4	2	0	1	0	2	$222,500
Mendon	1	1	0	0	0	0	0	0	$273,000
Merrimac	58	10	15	33	0	0	0	0	$0
Methuen	178	48	58	72	0	0	0	1	$2,555,041
Middleborough	143	39	34	70	0	0	0	3	$446,071
Middlefield	3	2	0	1	0	0	0	0	$124,000
Middleton	23	10	4	9	0	2	0	3	$6,138,275
Milford	213	78	36	99	0	5	0	9	$1,127,310
Millbury	35	17	8	10	0	0	0	0	$779,100
Millis	19	8	3	8	0	1	0	1	$36,550
Millville	5	1	2	2	0	0	0	0	$11,500
Milton	113	54	21	38	0	3	0	2	$270,400
Monroe	Fire Department In Good Standing, Certified No Fires To Report								
Monson	36	11	7	18	0	0	0	0	$13,175
Montague Fire Districts									
Montague Center	*19*	*6*	*1*	*12*	*0*	*0*	*0*	*0*	*$65,720*
Lake Pleasant	*Fire Department In Good Standing, Certified No Fires To Report*								
Turners Falls	*39*	*15*	*3*	*21*	*0*	*3*	*0*	*1*	*$22,800*
Monterey	5	0	1	4	0	0	0	0	$3,000
Montgomery	Fire Department In Good Standing, Certified No Fires To Report								
Nahant	26	8	1	17	0	0	0	0	$27,000
Nantucket	54	16	17	21	0	1	0	0	$355,075
Natick	57	36	20	1	0	1	0	2	$2,200,465
Needham	82	23	15	44	0	4	0	1	$207,700

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	8	2	2	4	0	0	0	0	$77,000
Manchester	1	0	0	1	0	0	0	0	$0
Mansfield	1	0	0	1	0	0	0	0	$0
Marblehead	0	0	0	0	0	0	0	0	$0
Marion	0	0	0	0	0	0	0	0	$0
Marlborough	15	1	2	12	1	1	0	0	$8,600
Marshfield	10	2	0	8	0	0	0	0	$0
Mashpee	8	0	1	7	0	0	0	0	$1,500
Mattapoisett	0	0	0	0	0	0	0	0	$0
Maynard	0	0	0	0	0	0	0	0	$0
Medfield	11	2	1	8	0	0	0	0	$16,000
Medford	9	1	7	1	0	0	0	1	$14,100
Medway	2	0	0	2	0	0	0	0	$0
Melrose	3	2	0	1	0	0	0	0	$60,000
Mendon	0	0	0	0	0	0	0	0	$0
Merrimac	21	1	0	20	0	0	0	0	$0
Methuen	24	2	13	9	0	0	0	0	$71,950
Middleborough	10	0	3	7	0	0	0	0	$101
Middlefield	0	0	0	0	0	0	0	0	$0
Middleton	2	0	1	1	0	0	0	0	$14,000
Milford	20	4	0	16	0	1	0	1	$1,030
Millbury	0	0	0	0	0	0	0	0	$0
Millis	4	1	1	2	0	0	0	0	$6,000
Millville	0	0	0	0	0	0	0	0	$0
Milton	11	2	1	8	0	0	0	0	$11,000
Monroe	Fire Department In Good Standing, Certified No Fires To Report								
Monson	2	0	0	2	0	0	0	0	$0
Montague Fire Districts									
Montague Center	*3*	*0*	*0*	*3*	*0*	*0*	*0*	*0*	*$0*
Lake Pleasant	*Fire Department In Good Standing, Certified No Fires To Report*								
Turners Falls	*6*	*1*	*1*	*4*	*0*	*0*	*0*	*0*	*$15,000*
Monterey	0	0	0	0	0	0	0	0	$0
Montgomery	Fire Department In Good Standing, Certified No Fires To Report								
Nahant	1	0	0	1	0	0	0	0	$0
Nantucket	9	0	4	5	0	0	0	0	$44,300
Natick	2	2	0	0	0	0	0	0	$500
Needham	6	1	0	5	0	0	0	1	$0

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	615	204	126	285	1	8	0	21	$3,159,940
New Braintree	Fire Department In Good Standing, Certified No Fires To Report								
New Marlborough	Fire Department In Good Standing, Certified No Fires To Report								
New Salem	10	3	0	7	0	0	0	0	$52,000
Newbury	7	3	4	0	0	0	0	0	$17,500
Newburyport	50	30	12	8	0	2	0	0	$71,600
Newton	206	152	44	10	1	12	0	9	$2,541,720
Norfolk	41	17	0	24	0	0	0	3	$755,150
North Adams	78	29	13	36	0	2	0	7	$299,200
North Andover	42	19	15	8	0	7	0	1	$217,300
North Attleboro	96	24	20	52	0	3	0	1	$616,500
North Brookfield	3	2	1	0	1	0	0	0	$37,000
North Reading	2	1	1	0	0	0	0	0	$24,900
Northampton	114	27	31	56	0	7	0	0	$409,862
Northborough	55	9	14	32	0	0	0	0	$406,100
Northbridge	11	6	4	1	0	0	0	0	$74,150
Northfield	Non-Reporting Community								
Norton	189	55	33	101	0	0	0	0	$498,110
Norwell	89	27	15	47	0	1	0	3	$335,003
Norwood	104	17	22	65	1	2	0	0	$450,500
Oak Bluffs	7	6	0	1	0	0	0	3	$3,279,000
Oakham	19	8	1	10	0	0	0	1	$16,000
Orange	78	19	11	48	0	3	0	0	$0
Orleans	26	8	4	14	0	0	0	2	$358,600
Otis	1	1	0	0	0	0	0	0	$50,000
Oxford	44	15	16	13	0	0	0	0	$147,055
Palmer Fire Districts									
Bondsville	*5*	*2*	*1*	*2*	*0*	*0*	*0*	*0*	*$12,054*
Palmer	*43*	*14*	*13*	*16*	*1*	*0*	*0*	*1*	*$5,120,000*
Three Rivers	*4*	*3*	*1*	*0*	*0*	*0*	*0*	*0*	*$200*
Paxton	11	11	0	0	0	0	0	0	$2,049,000
Peabody	37	20	15	2	0	1	0	4	$471,250
Pelham	Fire Department In Good Standing, Certified No Fires To Report								
Pembroke	32	17	9	6	0	0	0	0	$186,400
Pepperell	54	24	4	26	0	1	0	0	$376,000

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	Fire Department In Good Standing, Certified No Fires To Report								
New Bedford	88	30	31	27	0	0	0	5	$312,102
New Braintree	Fire Department In Good Standing, Certified No Fires To Report								
New Marlborough	Fire Department In Good Standing, Certified No Fires To Report								
New Salem	0	0	0	0	0	0	0	0	$0
Newbury	3	0	3	0	0	0	0	0	$17,500
Newburyport	2	1	1	0	0	0	0	0	$7,500
Newton	5	4	0	1	0	0	0	2	$200,500
Norfolk	3	0	0	3	0	0	0	0	$0
North Adams	16	4	1	11	0	1	0	1	$40,600
North Andover	5	1	2	2	0	0	0	1	$20,500
North Attleboro	8	1	1	6	0	0	0	0	$1,500
North Brookfield	0	0	0	0	0	0	0	0	$0
North Reading	0	0	0	0	0	0	0	0	$0
Northampton	22	5	5	12	0	5	0	0	$49,375
Northborough	7	1	1	5	0	0	0	0	$234,000
Northbridge	1	0	0	1	0	0	0	0	$400
Northfield	Non-Reporting Community								
Norton	13	2	6	5	0	0	0	0	$58,250
Norwell	5	1	1	3	0	0	0	0	$0
Norwood	20	0	1	19	0	0	0	0	$10,000
Oak Bluffs	0	0	0	0	0	0	0	0	$0
Oakham	2	0	0	2	0	0	0	0	$0
Orange	25	2	0	23	0	1	0	0	$0
Orleans	2	0	0	2	0	0	0	0	$0
Otis	0	0	0	0	0	0	0	0	$0
Oxford	3	0	0	3	0	0	0	0	$5,505
Palmer Fire Districts									
Bondsville	*2*	*1*	*0*	*1*	*0*	*0*	*0*	*0*	*$50*
Palmer	*7*	*3*	*2*	*2*	*0*	*0*	*0*	*0*	*$45,000*
Three Rivers	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Paxton	0	0	0	0	0	0	0	0	$0
Peabody	4	1	3	0	0	0	0	0	$18,000
Pelham	Fire Department In Good Standing, Certified No Fires To Report								
Pembroke	4	2	0	2	0	0	0	0	$15,200
Pepperell	6	1	0	5	0	0	0	0	$0

Fire Experience by Community

Community	Total Fires	Structure Fires	Vehicle Fires	Other Fires	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Peru	2	1	0	1	0	0	0	0	$10,500
Petersham	5	1	1	3	0	0	0	0	$500
Phillipston	11	0	2	9	0	0	0	0	$1,700
Pittsfield	342	87	24	231	0	3	0	5	$809,300
Plainfield	Fire Department In Good Standing, Certified No Fires To Report								
Plainville	11	6	4	1	1	0	0	0	$134,210
Plymouth	267	67	55	145	0	10	0	8	$2,302,680
Plympton	17	2	3	12	0	0	0	0	$28,700
Princeton	70	13	6	51	0	1	0	0	$11,500
Provincetown	37	21	3	13	0	0	0	1	$63,720
Quincy	400	75	66	259	2	6	0	12	$3,282,381
Randolph	120	42	25	53	0	1	0	0	$239,452
Raynham	180	29	27	124	0	0	0	0	$415,450
Reading	33	22	5	6	0	0	0	2	$458,300
Rehoboth	9	8	1	0	0	0	0	0	$8,000
Revere	224	80	34	110	1	1	0	2	$386,625
Richmond	1	1	0	0	0	0	0	0	$65,000
Rochester	16	10	4	2	0	0	0	0	$1,257,500
Rockland	34	21	9	4	0	3	0	0	$55,000
Rockport	6	4	2	0	0	0	0	0	$109,000
Rowe	Fire Department In Good Standing, Certified No Fires To Report								
Rowley	33	10	6	17	0	1	0	1	$11,000
Royalston	7	2	0	5	0	0	0	0	$0
Russell	17	6	2	9	0	0	0	0	$42,000
Rutland	31	12	3	16	0	1	0	0	$797,550
Salem	314	76	34	204	1	7	0	1	$861,185
Salisbury	67	23	10	34	0	1	0	1	$386,150
Sandisfield	1	1	0	0	0	0	0	0	$300,000
Sandwich	149	68	14	67	0	2	0	1	$362,010
Saugus	83	49	26	8	0	3	0	6	$719,175
Savoy	1	0	0	1	0	0	0	0	$1,400
Scituate	100	33	19	48	0	0	0	1	$169,040
Seekonk	65	17	9	39	0	0	0	1	$411,395
Sharon	26	16	8	2	0	1	0	0	$388,250
Sheffield	4	4	0	0	0	0	0	0	$304,000

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	52	4	0	48	0	0	0	0	$40,200
Plainfield	Fire Department In Good Standing, Certified No Fires To Report								
Plainville	0	0	0	0	0	0	0	0	$0
Plymouth	15	5	0	10	0	0	0	0	$25,000
Plympton	3	0	0	3	0	0	0	0	$0
Princeton	6	1	1	4	0	0	0	0	$10,000
Provincetown	7	4	1	2	0	0	0	0	$50,100
Quincy	41	4	4	33	1	2	0	0	$39,660
Randolph	11	1	1	9	0	0	0	0	$0
Raynham	10	1	1	8	0	0	0	0	$0
Reading	1	0	0	1	0	0	0	0	$0
Rehoboth	1	1	0	0	0	0	0	0	$500
Revere	16	5	6	5	0	0	0	0	$106,100
Richmond	0	0	0	0	0	0	0	0	$0
Rochester	1	1	0	0	0	0	0	0	$1,000
Rockland	5	1	3	1	0	0	0	0	$0
Rockport	1	1	0	0	0	0	0	0	$70,000
Rowe	Fire Department In Good Standing, Certified No Fires To Report								
Rowley	1	0	1	0	0	0	0	0	$0
Royalston	0	0	0	0	0	0	0	0	$0
Russell	1	0	0	1	0	0	0	0	$0
Rutland	0	0	0	0	0	0	0	0	$0
Salem	78	6	17	55	0	0	0	0	$267,510
Salisbury	6	0	4	2	0	0	0	0	$17,700
Sandisfield	0	0	0	0	0	0	0	0	$0
Sandwich	13	0	1	12	0	1	0	0	$8,400
Saugus	2	2	0	0	0	0	0	0	$40,000
Savoy	0	0	0	0	0	0	0	0	$0
Scituate	19	2	1	16	0	0	0	0	$12,677
Seekonk	5	0	0	5	0	0	0	1	$100
Sharon	2	1	1	0	0	0	0	0	$12,500
Sheffield	0	0	0	0	0	0	0	0	$0

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	*19*	*4*	*3*	*12*	*0*	*0*	*0*	*1*	*$830,600*
Shelburne Falls	*20*	*10*	*1*	*9*	*0*	*0*	*0*	*0*	*$22,010*
Sherborn	54	12	8	34	0	0	0	0	$145,751
Shirley	38	10	3	25	0	0	0	0	$0
Shrewsbury	81	40	24	17	0	0	0	0	$4,653,600
Shutesbury	6	2	3	1	0	0	0	0	$21,000
Somerset	58	4	14	40	0	5	0	1	$626,200
Somerville	80	43	35	2	1	5	0	7	$1,162,800
Sout Hadley Fire Districts									
S. Hadley Dist. #1	*7*	*2*	*4*	*1*	*0*	*0*	*0*	*0*	*$132,000*
S. Hadley Dist. #2	*4*	*1*	*1*	*2*	*0*	*0*	*0*	*0*	*$5,000*
Southampton	32	7	5	20	0	1	0	0	$18,810
Southborough	54	16	12	26	0	0	0	3	$199,710
Southbridge	73	45	7	21	0	1	0	0	$427,120
Southwick	17	11	4	2	0	6	0	0	$302,000
Spencer	59	17	14	28	0	2	0	0	$185,300
Springfield	1,125	475	178	472	4	14	0	59	$2,756,385
Sterling	21	8	11	2	0	0	0	1	$151,475
Stockbridge	Fire Department In Good Standing, Certified No Fires To Report								
Stoneham	42	12	20	10	0	0	0	2	$862,100
Stoughton	98	38	14	46	0	2	0	0	$1,709,400
Stow	3	3	0	0	0	0	0	0	$38,000
Sturbridge	75	18	20	37	0	0	0	0	$7,129,250
Sudbury	21	7	3	11	0	0	0	0	$426,150
Sunderland	5	1	3	1	0	0	0	1	$53,300
Sutton	14	7	3	4	0	0	0	0	$30,100
Swampscott	76	29	4	43	0	0	0	0	$287,100
Swansea	108	34	19	55	0	1	0	2	$1,500
Taunton	248	30	47	171	2	0	0	4	$1,218,179
Templeton	31	5	4	22	0	0	0	0	$102,000
Tewksbury	24	12	7	5	0	0	0	0	$517,000
Tisbury	8	5	2	1	0	0	0	0	$4,200
Tolland	0	0	0	0	0	0	0	0	$0
Topsfield	77	59	6	12	0	0	0	0	$10,960
Townsend	18	4	2	12	0	0	0	0	$1,000
Truro	5	5	0	0	0	1	0	0	$12,000

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	*1*	*0*	*0*	*1*	*0*	*0*	*0*	*0*	*$0*
Shelburne Falls	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Sherborn	7	0	3	4	0	0	0	0	$28,400
Shirley	0	0	0	0	0	0	0	0	$0
Shrewsbury	6	0	5	1	0	0	0	0	$8,500
Shutesbury	1	0	0	1	0	0	0	0	$0
Somerset	1	1	0	0	0	0	0	0	$1,000
Somerville	8	4	4	0	0	0	0	3	$46,800
South Hadley Fire Districts									
S. Hadley Dist. #1	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
S. Hadley Dist. #2	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Southampton	1	0	1	0	0	0	0	0	$1,850
Southborough	3	2	0	1	0	0	0	0	$3,500
Southbridge	6	1	3	2	0	0	0	0	$13,000
Southwick	2	0	0	2	0	1	0	0	$0
Spencer	11	2	1	8	0	0	0	0	$7,200
Springfield	308	36	29	243	0	5	0	6	$444,009
Sterling	1	0	1	0	0	0	0	0	$3,000
Stockbridge	Fire Department In Good Standing, Certified No Fires To Report								
Stoneham	2	2	0	0	0	0	0	0	$5,000
Stoughton	5	0	0	5	0	0	0	0	$0
Stow	0	0	0	0	0	0	0	0	$0
Sturbridge	13	1	1	11	0	0	0	0	$4,000
Sudbury	1	0	0	1	0	0	0	0	$0
Sunderland	0	0	0	0	0	0	0	0	$0
Sutton	1	0	0	1	0	0	0	0	$0
Swampscott	2	1	1	0	0	0	0	0	$8,000
Swansea	6	0	1	5	0	0	0	0	$0
Taunton	71	1	13	57	0	0	0	0	$53,292
Templeton	15	1	2	12	0	0	0	0	$44,000
Tewksbury	3	2	1	0	0	0	0	0	$85,000
Tisbury	0	0	0	0	0	0	0	0	$0
Tolland	0	0	0	0	0	0	0	0	$0
Topsfield	4	0	1	3	0	0	0	0	$2,000
Townsend	3	1	0	2	0	0	0	0	$0
Truro	0	0	0	0	0	0	0	0	$0

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	35	13	8	14	0	0	0	0	$82,000
Tyringham	Fire Department In Good Standing, Certified No Fires To Report								
Upton	53	22	3	28	0	0	0	1	$151,000
Uxbridge	5	5	0	0	0	1	0	0	$9,000
Wakefield	112	92	16	4	2	5	0	3	$211,000
Wales	1	0	0	1	0	0	0	0	$2,500
Walpole	157	79	19	59	0	1	0	0	$380,200
Waltham	247	103	38	106	0	4	0	6	$1,666,555
Ware	80	14	5	61	0	1	0	2	$218,426
Warehame Fire Districts									
Onset	*48*	*32*	*4*	*12*	*0*	*1*	*0*	*3*	*$0*
Wareham	*134*	*37*	*30*	*67*	*1*	*2*	*0*	*2*	*$682,460*
Warren	41	16	9	16	0	1	0	2	$236,350
Warwick	7	1	1	5	0	0	0	0	$0
Washington	Fire Department In Good Standing, Certified No Fires To Report								
Watertown	24	16	4	4	0	1	0	4	$1,302,100
Wayland	5	2	1	2	0	0	0	2	$1,055,500
Webster	52	12	12	28	0	0	0	0	$0
Wellesley	86	37	9	40	0	2	0	0	$322,995
Wellfleet	10	6	3	1	0	0	0	8	$601,728
Wendell	1	1	0	0	0	0	0	0	$0
Wenham	17	5	2	10	0	0	0	0	$24,500
West Boylston	7	3	0	4	0	1	0	0	$30,040
West Bridgewater	32	19	13	0	0	5	0	3	$169,775
West Brookfield	3	1	2	0	0	0	0	0	$53,000
West Newbury	2	2	0	0	0	0	0	0	$200
West Springfield	186	68	46	72	0	0	0	1	$1,546,031
West Stockbridge	13	2	4	7	0	0	0	0	$8,500
West Tisbury	1	1	0	0	0	0	0	0	$200
Westborough	123	65	18	40	0	3	0	1	$1,394,255
Westfield	202	74	40	88	2	6	0	3	$2,855,805
Westford	5	3	0	2	0	0	0	0	$60,200
Westhampton	3	3	0	0	0	0	0	0	$104,000
Westminster	41	4	6	31	0	0	0	0	$77,310
Weston	10	3	6	1	0	0	0	0	$483,800
Westport	112	11	11	90	1	0	0	0	$78,500
Westwood	112	61	11	40	0	0	0	0	$98,245
Weymouth	43	26	15	2	0	7	0	2	$1,917,620

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	2	0	1	1	0	0	0	0	$0
Tyringham	Fire Department In Good Standing, Certified No Fires To Report								
Upton	2	0	0	2	0	0	0	0	$0
Uxbridge	0	0	0	0	0	0	0	0	$0
Wakefield	4	1	2	1	0	0	0	0	$1,500
Wales	0	0	0	0	0	0	0	0	$0
Walpole	1	1	0	0	0	0	0	0	$80,000
Waltham	5	2	0	3	0	0	0	0	$805
Ware	17	1	1	15	0	0	0	2	$2,000
Wareham Fire Districts									
Onset	*1*	*1*	*0*	*0*	*0*	*0*	*0*	*0*	*$0*
Wareham	*11*	*2*	*4*	*5*	*0*	*0*	*0*	*0*	*$47,725*
Warren	3	1	2	0	0	0	0	0	$2,500
Warwick	2	0	1	1	0	0	0	0	$0
Washington	Fire Department In Good Standing, Certified No Fires To Report								
Watertown	1	0	0	1	0	1	0	0	$500
Wayland	0	0	0	0	0	0	0	0	$0
Webster	0	0	0	0	0	0	0	0	$0
Wellesley	8	0	0	8	0	0	0	0	$150
Wellfleet	0	0	0	0	0	0	0	0	$0
Wendell	0	0	0	0	0	0	0	0	$0
Wenham	0	0	0	0	0	0	0	0	$0
West Boylston	0	0	0	0	0	0	0	0	$0
West Bridgewater	1	0	1	0	0	0	0	0	$4,500
West Brookfield	0	0	0	0	0	0	0	0	$0
West Newbury	0	0	0	0	0	0	0	0	$0
West Springfield	33	4	6	23	0	0	0	0	$211,001
West Stockbridge	0	0	0	0	0	0	0	0	$0
West Tisbury	0	0	0	0	0	0	0	0	$0
Westborough	7	0	4	3	0	0	0	0	$1,500
Westfield	30	4	2	24	0	0	0	1	$171,195
Westford	0	0	0	0	0	0	0	0	$0
Westhampton	2	2	0	0	0	0	0	0	$93,000
Westminster	9	1	3	5	0	0	0	0	$55,200
Weston	0	0	0	0	0	0	0	0	$0
Westport	12	1	0	11	0	0	0	0	$1,400
Westwood	13	1	0	12	0	0	0	0	$900
Weymouth	9	5	4	0	0	0	0	0	$148,000

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	14	3	2	9	0	0	0	0	$82,500
Whitman	80	54	4	22	0	1	0	4	$391,000
Wilbraham	49	7	6	36	0	1	0	0	$308,500
Williamsburg	1	1	0	0	0	0	0	0	$800
Williamstown	24	21	3	0	0	0	0	0	$385,450
Wilmington	29	12	14	3	0	1	0	2	$18,000
Winchendon	18	12	5	1	0	0	0	1	$495,680
Winchester	13	8	2	3	0	0	0	0	$159,000
Windsor	1	0	1	0	0	0	0	0	$5,200
Winthrop	107	67	7	33	0	2	0	0	$926,047
Woburn	102	39	46	17	1	2	0	2	$1,047,075
Worcester	1,385	326	230	829	1	4	0	44	$2,423,443
Worthington	1	1	0	0	0	0	0	0	$0
Wrentham	92	8	7	77	0	0	0	0	$50,371
Yarmouth	135	38	21	76	1	7	0	3	$486,527

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	1	0	0	1	0	0	0	0	$0
Whitman	3	0	0	3	0	0	0	0	$0
Wilbraham	5	0	0	5	0	0	0	0	$0
Williamsburg	0	0	0	0	0	0	0	0	$0
Williamstown	0	0	0	0	0	0	0	0	$0
Wilmington	2	0	2	0	0	0	0	0	$0
Winchendon	0	0	0	0	0	0	0	0	$0
Winchester	1	0	1	0	0	0	0	0	$5,000
Windsor	0	0	0	0	0	0	0	0	$0
Winthrop	13	1	1	11	0	0	0	0	$14,330
Woburn	15	6	6	3	1	2	0	0	$245,750
Worcester	289	21	58	210	0	0	0	11	$542,974
Worthington	0	0	0	0	0	0	0	0	$0
Wrentham	5	1	0	4	0	0	0	0	$30,020
Yarmouth	25	2	6	17	0	0	0	1	$70,890

2001 Fires by Incident Type

Incident Type	Total Fires	% of Total	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Structure Fires	10,384	37%	51	389	0	636	$175,575,812
Vehicle Fires	5,127	18%	6	44	0	21	23,038,249
Brush Fires	6,462	23%	0	7	0	32	280,642
Outside Rubbish Fires	3,080	11%	0	1	0	7	177,072
Special Outside Fires	506	2%	1	12	0	2	615,816
Cultivated Vegetation & Crop Fires	789	3%	0	7	0	2	521,775
Other Fires	1,537	6%	1	41	0	7	4,959,997
Total Fires	**27,885**	**100%**	**59**	**501**	**0**	**707**	**$205,169,363**

2001 Arsons* by Incident Type

Incident Type	Total Fires	% of Total	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Structure Arsons	620	18%	7	19	0	738	$10,265,959
Vehicle Arsons	743	22%	1	3	0	4	4,010,272
Brush Arsons	1,108	32%	0	1	0	8	58,048
Outside Rubbish Arsons	632	18%	0	0	0	1	32,796
Special Outside Arsons	77	2%	0	0	0	0	7,300
Cultivated Vegetation & Crop Arsons	167	5%	0	3	0	0	25,206
Other Arsons	79	2%	0	4	0	1	835,081
Total Arsons	**3,462**	**100%**	**9**	**30**	**0**	**86**	**$15,234,662**

*For statistical purposes, a fire is considered arson when Cause of Ignition is listed as intentionally set and the Age of Person (Fire Module) is greater than 17 or if the field is blank.

2001 Fires by County

County	Total Fires	Structure Fires	Vehicle Fires	Other Fires	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Barnstable	1,159	427	209	381	4	55	0	33	$7,211,168
Berkshire	700	231	95	274	2	10	0	15	4,764,925
Bristol	2,983	832	641	1,142	10	47	0	52	13,507,518
Dukes	22	16	7	18	0	3	0	3	3,279,200
Essex	2,398	848	658	662	6	46	0	96	27,164,240
Franklin	384	132	40	108	0	10	0	5	1,566,577
Hampden	2,349	1,072	469	889	7	52	0	69	15,132,088
Hampshire	628	152	88	209	1	13	0	17	4,056,028
Middlesex	3,584	1,695	838	474	7	74	0	124	30,230,429
Nantucket	54	18	8	11	0	1	0	0	355,075
Norfolk	2,219	628	430	711	5	47	0	34	18,991,920
Plymouth	2,131	673	424	624	2	57	0	46	11,339,868
Suffolk	5,380	2,297	866	2,178	9	36	0	112	33,004,908
Worcester	3,894	1,258	699	1,498	6	50	0	101	34,565,419
Total	**27,885**	**10,384**	**5,127**	**12,374**	**59**	**501**	**0**	**707**	**$205,169,363**

2001 Arsons* by County

County	Total Arsons	Structure Arsons	Vehicle Arsons	Other Arsons	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Barnstable	151	17	17	117	0	1	0	1	$1,142,649
Berkshire	83	12	1	70	0	2	0	2	192,900
Bristol	523	77	97	349	2	2	0	6	894,654
Dukes	0	0	0	0	0	0	0	0	0
Essex	402	45	138	219	0	0	0	4	1,384,611
Franklin	53	7	4	42	0	1	0	1	53,550
Hampden	465	54	49	632	0	6	0	7	916,383
Hampshire	104	18	8	78	0	5	0	2	248,175
Middlesex	278	96	73	109	2	6	0	24	1,546,577
Nantucket	9	0	5	5	0	0	0	0	44,300
Norfolk	191	25	25	141	1	3	0	1	628,193
Plymouth	230	37	53	140	0	1	0	1	607,451
Suffolk	365	161	172	32	4	2	0	22	4,485,730
Worcester	572	71	102	399	0	1	0	15	3,089,489
Total	**2,854**	**747**	**798**	**1,815**	**9**	**29**	**0**	**71**	**$12,145,173**

*For statistical purposes, a fire is considered arson when Cause of Ignition is listed as intentionally set and the Age of Person (Fire Module) is greater than 17 or if the field is blank.

2001 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	1,159	5.2	4	3.5	0.18	151	0.7
Berkshire	134,953	700	5.2	2	2.9	0.15	83	0.6
Bristol	534,678	2,983	5.6	10	3.4	0.19	523	1.0
Dukes	14,987	22	1.5	0	0.0	0.00	0	0
Essex	723,419	2,398	3.3	6	2.5	0.08	402	0.6
Franklin	71,535	384	5.4	0	0.0	0.00	53	0.7
Hampden	456,228	2,349	5.1	7	3.0	0.15	465	1.0
Hampshire	152,251	628	4.1	1	1.6	0.07	104	0.7
Middlesex	1,465,396	3,584	2.4	7	2.0	0.05	278	0.2
Nantucket	9,520	54	5.7	0	0.0	0.00	9	0.9
Norfolk	650,308	2,219	3.4	5	2.3	0.08	191	0.3
Plymouth	472,822	2,131	4.5	2	0.9	0.04	230	0.5
Suffolk	689,807	5,380	7.8	9	1.7	0.13	365	0.5
Worcester	750,963	3,894	5.2	6	1.5	0.08	572	0.8
Massachusetts	**6,349,097**	**27,885**	**4.4**	**59**	**2.1**	**0.09**	**3,426**	**0.5**

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