

**STATE BOARD OF BUILDING REGULATIONS
AND STANDARDS**

Kentaro Tsutsumi, PE, Chairman

**REPORT OF THE ONE AND TWO
FAMILY DWELLING
FACT FINDING COMMITTEE RELATIVE TO
CODE CHANGE PROPOSAL NUMBER 7-94-2**

Submitted to:

**THE STATE BOARD OF BUILDING
REGULATIONS AND STANDARDS**

October, 1995

Douglas Cole Smith RA
Chief George W. Baker
Commissioner Matthias M. Mulvey
William Habib
Maurice Pilette, PE

Brian Gore, PE (Staff)

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Introduction

As a result of a code change proposal filed by Mr. Philip O'Sullivan of the Office of the State Fire Marshal on February 18, 1994, (Appendix A) the State Board of Building Regulations and Standards held the statutory required public hearing to receive public comment and testimony relative to the proposal. The proposal would amend Article 34 of the 5th Edition of the State Building Code (780 CMR) by the addition of two sub-sections;

Section 3401.14.5 Fire Suppression Systems: *All buildings which are defined by this code as one and two family dwellings, including manufactured homes, shall be equipped with a residential sprinkler [system] installed in accordance with the provisions of this code and NFPA 13D as listed in appendix A.*

Section 3401.14.6 Maintenance and Testing: *It shall be the responsibility of the owner to properly maintain the system.*

Acting upon recommendations made by its technical staff (Appendix I), the Board of Building Regulations and Standards (BBRS) appointed a special fact finding committee (hereafter the committee) to gather information relative to the proposal. The BBRS defined the following membership of the committee;

- Member of the Board of Building Regulations and Standards
- Head of a Fire Department
- Building Commissioner
- Home Builders Association Representative
- Representative of the State Fire Marshal

On September 23, 1994, the BBRs sought nominations from appropriate groups (Appendix E) and at its regular meeting of November 8, 1994, appointed the following members to the committee;

- **Douglas Cole Smith** AIA, *BBRS Member*
- **Chief George W. Baker**, *Mashpee Fire Department*
- **Matthias M. Mulvey**, *Building Commissioner, City of Quincy*
- **William Habib**, *Homebuilders Association of Massachusetts*
- **Maurice Pilette**, PE, representing the *State Fire Marshal*.

MISSION:

The committee was assigned the task to study code change proposal number 7-94-2 and identify, in report form, to the BBRs the issues and/or potential issues associated with the promulgation of the proposal.

The committee investigated the following areas;

- **Fire History and Statistics in One and Two Family Dwellings in Massachusetts**
- **Costs Associated with the design and installation of sprinkler systems in One and Two Family Dwellings and effects of such costs on the availability and affordability of housing.**
- **System maintenance and testing issues**
- **Licensing of Sprinkler Fitters**
- **Potable water supply protection (backflow preventers)**
- **Building Code enforcement issues**
- **Other General Code issues**

This report serves to document the factual findings of the committee. The committee was established as a fact finding committee therefore the report contains no recommendations relative to approval, disapproval or amendment of the proposal as submitted by the proponent.

I Overview of NFPA 13D

Overview of NFPA 13D. Standard for the Installation of Sprinkler Systems in One and Two Family Dwellings and Manufactured Homes

Overview provided by Bob Soloman, PE
(National Fire Protection Association, Quincy, MA))

NFPA 13D is an installation standard which addresses the specific needs of installing sprinklers in certain residential environments. This document is unique to one and two family dwellings of any type including "stick built", modular and manufactured housing. NFPA 13D is intended to provide a high level of life safety to the occupants of the dwelling and a high level of property protection as well.

Since the first edition of NFPA 13D was approved by NFPA in 1975, its primary purpose has been to improve the time for occupants to escape. The added time for occupant egress is accomplished through the use of listed residential sprinklers which are supplied by a network of specially sized pipes. Sprinklers are installed in those areas of the dwelling where fires tend to originate and which result in one or more fatalities. The following review highlights the various elements associated with these types of sprinkler systems.

Chapter 1. This chapter establishes the scope and purpose of the document. The scope is simply to provide design and installation criteria for 1 and 2 family dwellings. The purpose is to provide a system which will aid in the detection and control of a fire and provide improved protection against injury, life loss and property damage. A number of definitions are also listed in Chapter 1. These definitions encompass everything from the basic NFPA definitions for "Approved", Authority Having Jurisdiction" and "Listed". Other definitions are particular to NFPA 13D installations. Among these definitions are "Residential Sprinkler".

A residential sprinkler is defined as being a sprinkler which is specifically listed (evaluated) for use in residential environments. Residential sprinklers are distinctly

different from other types of sprinklers as they are evaluated with a simulated residential furnishing package. They have special wall wetting and floor wetting characteristics which gives them an ability to provide up to ten minutes of tenable air in the room of fire origin. This type of sprinkler is mandated for use in NFPA 13D.

Chapter 2. This chapter addresses the arrangement and acceptability of various water supplies. The four basic sources include: connection to a reliable waterworks system; elevated tank; pressure tank; stored water supply with a pump. NFPA 13D requires one of these sources for use in the design of a residential sprinkler system.

A multipurpose piping system is permitted for use in the dwelling. This type of system combines the sprinkler system pipe with the domestic plumbing pipe. The result is a recognition of savings since the two systems can be combined. Since the system is two fold, the designers must utilize piping which can satisfy both the fire protection aspect as well as the plumbing aspect for sanitation purposes.

Chapter 3. This chapter addresses the various materials and components which are deemed acceptable for these systems. Requirements for drains, gauges, piping, pipe support and sprinklers are contained in this chapter. Piping materials offer a range of options including steel, copper and two varieties of non-metallic materials. Since many single family homes tend to use copper or non-metallic pipe for their domestic plumbing systems, these are typically the first option for the sprinkler system as well. Two types of non-metallic pipe are currently recognized for use by NFPA 13. Chlorinated Polyvinyl Chloride (CPVC) and Polybutylene (PBS). Such pipes are evaluated for their use in environments which are characteristic of residential properties. All of the acceptable piping materials must be properly joined with materials and methods which are compatible and acceptable for use with the type of piping material.

The support methods and materials for steel pipe and copper tube need only comply with the requirements of the local plumbing code. Support of non-metallic pipe must be in conformance with the listing of the pipe.

As previously mentioned, NFPA 13D mandates the use of residential sprinklers. This chapter mandates their use and imposes limits on temperature ratings, coatings and finishes.

Chapter 4. System design criteria is governed in this chapter. The values provided in NFPA 13D are considered to be baseline criteria and were derived from the full scale fire testing which was completed in 1978-1980. Flow rates, number of design sprinklers, area of coverage, position, pipe sizing and location of sprinklers are the main design elements covered in this chapter.

The design approach for a residential sprinkler system involves a single sprinkler design point and a two sprinkler design point. The single sprinkler point must verify that the system can deliver 18 gallons per minute (GPM). The two sprinkler design point must verify that the system can deliver 13 GPM to each of two sprinklers or a total of 26 GPM. Each one of these flows must be capable of being supplied for a 10 minute duration. This results in the need to maintain a water supply capacity of approximately 260 gallons.

The floor area to be covered by any one sprinkler is based upon a maximum sprinkler spacing of 12 ft by 12 ft, or a total area of coverage of 144 sq ft. Other spacing limits include locating the sprinklers not more than 6 feet from a wall and not any closer than 8 feet between sprinklers.

The listing and performance test which all manufacturers must subject their sprinklers to allows for an evaluation at flow rates, areas of coverage and spacing which are a departure from the baseline numbers described above. Chapter 4 recognizes this potential for improving the efficiency of the sprinkler and the

technology. Currently, residential sprinklers are available on the market which can cover areas as large as 400 sq ft. with spacing of 20 ft. by 20 ft.

Methods for determining the pipe sizes and analyzing the friction losses throughout the pipe system are also governed in this chapter. An approximation method for determining pressure loss at various flow rates is governed by this design methodology. It is based upon the pressure loss through the pipe, fittings and appurtenances such as flow meters, check valves, control valves and pressure regulating valves. The purpose of specifically allowing this method of design is to avoid the more complex procedures associated with the NFPA 13, hydraulic calculation procedure. The approximation method is permitted as long as a grid or loop configuration is not used and as long as the city supply main is at least four in. in diameter.

Chapter 4 finishes out with a provision on location of sprinklers. Sprinklers are basically required throughout the premises, with 5 exceptions to protection being permitted. The five areas include: bathrooms; clothes, linen and pantry closets; garages, porches and carports; attics and crawl spaces not used for living purposes; entrance foyers which are not the only means of egress. These locations represent areas within the dwelling where a very low fatality rate exist when fires originate in such areas.

Chapter 5. This chapter was added in 1994 to address limited area dwellings. Although the design concept which was originally contemplated by this new chapter was directed at manufactured homes, there was no reason to restrict it to manufactured housing. Any dwelling which satisfies the criteria of a limited area dwelling (single story, 2,000 sq ft or less, and a ceiling height limit of 10 feet) is permitted to utilize the design provisions of Chapter 5.

This chapter allows the designer to utilize a sprinkler with a lower flow rate than the type of sprinkler which is described in chapter 4. This sprinkler is intended to

discharge at a rate of 10 GPM for a single sprinkler to be in operation and 6.5 GPM for two sprinklers. The water supplies for this design requirement allow for a 10 minute (single sprinkler) and 7 minute (two sprinkler) supply duration. This results in the ability to use a water storage tank with a capacity of approximately 100 gallons.

Other modifications are also made with regard to the area of coverage for each sprinkler. For example, compartments or rooms which only require one sprinkler, an area of coverage of 100 sq. ft. is permitted. When two or more sprinklers are required in a compartment or room, then the area of coverage is limited to 64 sq. ft. With few exceptions, the other requirements of chapters 1 through 4 are largely applicable to this design approach.

Appendix A. The appendix provides supplemental information of select requirements of the standard. It is intended to explain certain provisions and enhance the understanding of the document. One particular item in the appendix provides recent US fire data involving fires in one and two-family dwellings. These statistical tables indicate the source of ignition, areas of involvement and the percentage of civilian fatalities and civilian injuries.

II Fire Statistics in Massachusetts

In his foreword to the 1993 annual report (Appendix D), then State Fire Marshal F. James Kaufman states *".....the very young and the very old continue to die by fire disproportionately high rates"*.

The report also concludes that ;

"Over three quarters of all structure fires occurred in residential occupancies and almost half (49%) of the residential structure fires occurred in one and two family dwellings".

The report also shows the incidence of smoke or heat detectors activated in 42% of one and two family structure fires, while they failed to operate in 23% of fires.

The following indicates the incidences of fires in One and Two Family Dwellings in Massachusetts for the years 1982 to 1994 (excluding 1988) Table II-1 reflects (where possible) the number of fires, injuries and deaths caused by fires in one and two family dwellings.

**Fire Incidents in One and Two Family Dwellings by Year
1982 to 1994 ⁽¹⁾**

Table II-1

Year	Number of Reported Fires	Civilian Injury	Civilian Death	Firefighter Injury	Firefighter Death
1982	3,614	450	36	NA	NA
1983	3,256	NA	NA	NA	NA
1984	4,798	NA	40	NA	1
1985	4,629	NA	41	NA	2
1986	4,147	NA	41	NA	1
1987	4,714	279	39	508	0
1988	NA	NA	NA	NA	NA
1989	4,258	268	43	504	0
1990	3,992	217	50	354	0
1991	4,409	288	33	370	0
1992	4,506	254	43	376	0
1993	4,367	233	26	402	0
1994	4,361	255	46	353	0
TOTAL	51,051	2,262	438	2,867	4

(1) Statistics provided by the State Fire Marshal's Office
NA = Not available

III Costs Associated with the Installation of Residential Sprinklers

III-1 Design

Initial discussions with the Board of Registration of Professional Engineers and Land Surveyors indicate that the design of residential sprinkler systems (in accordance with NFPA 13D) would constitute the practice of engineering. As such, in accordance with MGL c 112 § 81T ⁽¹⁾ the design of such systems would require the services of a qualified registered professional engineer.

III-2 Installation

Installation of NFPA 13D sprinkler systems would require the services of a licensed sprinkler contractor. Licensing of sprinkler contractors is required by MGL c 146 § 85.⁽²⁾

III-3 Backflow Prevention

The question remains to be answered whether or not cross connection protection (backflow prevention) is required on NFPA 13D residential sprinkler systems. The State Legislature has established a "cross connection commission" which instructed to the investigation and study of possible health hazards from sprinkler systems and to report on the feasibility and cost effectiveness of requiring back flow preventers for such systems. Presently the determination of whether or not a system presents a potential health hazard rests with the State Department of Public Health in accordance with MGL c 111 § 160A.

III-4 Costs

In an effort to estimate construction costs associated with the installation of NFPA 13D residential sprinkler systems, the committee developed typical floor plans for a two story 2700 +/-sf single family residence (approximately 900 sf per floor plus a 900 sf cellar).

-
- (1) MGL c 112 §§ 81D-81T Registration of Professional Engineers and of Land Surveyors.
(2) MGL c 146 Licensing of Pipefitters, Refrigeration Technicians and Sprinkler Fitters.

The floor plans included the pipe sizing and layout of a residential sprinkler system. It was the committee's intent to obtain representative prices for the installation of the system in order to better assess the actual cost (1995 dollars) of the system. The system layout is presented in Appendix C.

Two estimates were received and are summarized in table III-1.

Table III-1

**Estimates developed from typical 1800 sf floor plan
(estimates include sprinkler coverage of 1800 sf cellar)**

<u>Item</u>	<u>Estimate #1</u>	<u>Estimate #2</u>
Material	1213	2112
Labor	1487	2640
Design	480	500
Estimated Permit Fee	100	25
Total	3280	5255
Square Foot estimate (1)	\$ 1.82	\$ 2.92
Square Foot estimate (2)	\$ 1.21	\$ 1.95
Pressurized Water Supply	1900	1800 - 2500
Total	5100	7025-7727
Square Foot estimate (1)	\$ 2.83	\$ 3.90 - \$ 4.29
Square Foot estimate (2)	\$ 1.89	\$ 2.60 - \$ 2.86

(1) Based on Area of Living space (1800 sf) i.e. excluding cellar

(2) Based on area of sprinkler coverage (2700 sf) i.e. including cellar

Design Costs shown in table III-1 represent the system designed by the installer. It is probable that the system design costs would increase if Registered Professional Engineers are required to design the systems. Registered Professional Engineer's services may be in the range of \$500 and \$1000.

The availability of a municipal water supply will have an effect on the overall cost of the system, both in terms of design and installation and possibly maintenance. If a pressurized storage tank system is required additional costs of approximately 50% of the original cost would result. (\$1800 to \$2500 - Table II-1).

Some water purveyors assess standby charges for sprinkler system connections. The standby charges, if assessed, would probably be different by municipality. The actual fees cannot be reported at this time without contacting all water purveyors individually. Typical ranges could be \$18 to \$30 per month.

The National Construction Estimator, 43rd edition (p 92), (Appendix C) shows estimates of \$1.50 per square foot of protected area for single family dwellings based on the following assumptions;

Sprinkler pipe installer and 1 helper with an average rate of pay of \$25.00 per hour.

Approximately 32 man hours for a typical 1500 to 1600 sf of protected area.

The following tables II-2 through II-5 show the amortized costs of various amounts in the range \$3000 to \$7000 which appears to be the range which may be expected for the installation of a residential sprinkler system in a typical two story 2000 sf residential building. The figures do not account for insurance cost savings or water purveyor "standby" charges.

Table III-2 - Interest Rate 7%

<u>Amount Financed</u>	<u>Monthly Repayment (1)</u>	
	<u>15 years</u>	<u>30 years</u>
3000	26.97	19.96
4000	35.96	26.62
5000	44.95	33.27
6000	53.94	39.93
7000	62.93	46.58
65000 ⁽²⁾	584.34	432.52

Table III-3- Interest Rate 8%

<u>Amount Financed</u>	<u>Monthly Repayment (1)</u>	
	<u>15 years</u>	<u>30 years</u>
3000	28.68	22.02
4000	38.23	29.36
5000	47.79	36.70
6000	57.35	44.03
7000	66.91	51.37
65000 ⁽²⁾	621.30	477.05

(1) Repayment figures include principal and interest but do not account for any insurance premium rebates which may or may not be available

Table III-4 - Interest Rate 9%

<u>Amount Financed</u>	<u>Monthly Repayment⁽¹⁾</u>	
	<u>15 years</u>	<u>30 years</u>
3000	30.44	24.14
4000	40.58	32.19
5000	50.73	40.24
6000	60.87	48.29
7000	71.02	56.34
65000 ⁽²⁾	659.43	523.13

(1) Repayment figures include principal and interest but do not account for any insurance premium rebates which may or may not be available

Table III-5 - Interest Rate 10%

<u>Amount Financed</u>	<u>Monthly Repayment⁽¹⁾</u>	
	<u>15 years</u>	<u>30 years</u>
3000	32.25	26.33
4000	43.00	35.11
5000	53.74	43.89
6000	64.49	52.67
7000	75.24	61.45
65000 ⁽²⁾	698.67	570.57

(1) Repayment figures include principal and interest but do not account for any insurance premium rebates which may or may not be available

Impact on the First Time Buyer Purchasing a "Starter" Home (1)

Table III-6 - Impact on the First Time Buyer Purchasing a Starter Home(1)

Principal	Interest Rate							
	7%		8%		9%		10%	
	15yr	30yr	15yr	30yr	15yr	30yr	15yr	30yr
116,910	1050.8	777.8	1117.2	857.85	1185.7	940.69	1256.3	1025.9
4000 (a)	35.96	26.62	38.23	29.36	40.58	32.19	43.00	35.11
6000 (b)	53.94	39.93	57.35	44.03	60.87	48.29	64.49	52.67

(1) Starter Home Considered by the Homebuilders Association to be 16,00 sf home with 2 stories of 800 sf each plus basement of 800 sf. Median purchase price of \$129,900

- (a) With municipal piped water supply
- (b) With stored and pressurized water supply.

Costs:

Down Payment (10%) \$12,990
 Balance to finance \$116,910

Cost of sprinkler installation from table III-1

- (a) \$1.58 per square foot covered area for piped municipal water supply \$3792 (average) use \$4000 for cost impact.
- (b) \$2.31 per square foot of covered area with pressurized stored water supply 5544, use \$ 6000 for cost impact.

III-5 Potential Cost Savings

The insurance industry's rate manual suggests a premium reduction in the fire coverage of up to 8% for systems installed in accordance with the NFPA 13D standard - source Mark G. Scolnick Insurance Co., Westford. Actual reductions will probably vary by insurance carrier.

IV System Maintenance and Testing:

The proposal requires the homeowner to maintain the system. The complexity of the system will determine the maintenance. It is anticipated that systems which utilize stored water supplies will require additional maintenance over those which are connected to a municipal water supply which would probably require no more maintenance than a typical plumbing system.

V Licensing Requirements for Installers:

Jurisdiction between licensed plumbers and licensed sprinkler installers.

VI Other Code Issues:

Should the Board adopt this proposal some interpretations in order to clarify certain issues would need to be addressed in order that building and fire officials can uniformly enforce the provisions, for example;

- Additions and alterations
- Jurisdiction and permitting
- Types of water supplies permitted
- Fire department connections
- Alarm requirements

VII Enforcement:

Jurisdictional authority is with the building code official., pursuant to MGL c 143 S 3. Plans transmitted to the Fire Department for approval. The proposal and to some extent, current regulations are presently unclear and could lead to jurisdictional

conflicts. An attendant code change to section 113 relative to transmittal of plans to the fire department for approval would assist in resolving the perceived conflict.

VIII Housing Market Impacts

The possible impact on the housing market at this time is difficult to assess. The committee recommends further study on this aspect of the proposal should the Board view this as a potentially viable impact.

"The National Association of Home Builders (NAHB) estimates that for every \$1,000 of cost imposed through regulations on homes designed for first time buyers, more than 20,000 would be applicants are precluded from (mortgage) eligibility" - Memorandum From Bill Habib Homebuilders Association of Massachusetts, Inc., to Doug Cole Smith, Chairman SBBRS Chair of sub-committee studying mandatory sprinklers in single family dwellings - January 23, 1995.

APPENDIX A

Code Change Proposal Number 7-94-2



The Commonwealth of Massachusetts

Executive Office of Public Safety

State Board of Building Regulations and Standards

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MASSACHUSETTS STATE BUILDING CODE REVISION PROPOSAL FORM (5th Edition)
(please type or print)

Date: 2/18/94

Building Code Section No. Article 34

CodeChangeNo. 7-94-2

Proponent:(Name) Philip J. O'Sullivan - State Fire Marshal's Office (State use only)

Address: 1010 Commonwealth Avenue, Boston, MA 02215

(Please check type of amendment proposed)

- Change Section as follows:
Delete Section and substitute as follows:
X Add new Section as follows:
Delete Section - no substitute:

PROPOSED CODE AMENDMENT: 3401.14.5 Fire suppression systems: All buildings which are defined by this code as one and two-family dwellings, including manufactured homes, shall be equipped with a residential sprinkler installed in accordance with the provisions of this code and NFPA 13D as listed in Appendix A. 3401.14.6 Maintenance and testing: It shall be the responsibility of the owner to properly maintain the system.

SUPPORTING STATEMENT(S): Residential sprinklers and smoke detectors provide the best level of fire protection in residential fires. Currently, the State Building Code only requires smoke detectors in one and two-family dwellings. Research studies conducted by NIST indicate smoke detectors alone will decrease fire deaths by 52% while the combination of smoke detectors and residential sprinklers will reduce fire deaths by 82%. In addition to saving lives and preventing burn injuries, sprinklers will minimize fire and water damage, thereby reducing property loss. Homeowners should also expect a reduction in fire insurance premiums when sprinklers are provided (typically 13%).

1. John R. Hall, Jr. "U.S. Experience with Sprinklers" NFPA - Quincy, Mass., June 1993.

(Use additional sheets if necessary)

APPENDIX B

BBRS Technical Staff Recommendations

Staff Recommendations on Code Change Proposal Number 7-94-2

Proponent: Philip O'Sullivan, State Fire Marshall's Office

Discussion:

When considering any code change proposal, the Board has a legislative mandate to consider both the life safety impacts on the classes of construction affected by the code change and also the economic impact. Code change proposal number 7-94-2, which would require the installation of automatic fire suppression for all new one and two family dwellings is undoubtedly a life and property safety proposal which has a cost impact on perhaps the largest population of buildings constructed in the Commonwealth.

The code change proposal offered by the proponent would require the Board, in a true cost benefit analysis, to place a cost on a human life. The issue then becomes emotionally charged as the Board obviously cannot affix the cost of a human life.

The Board must also ascertain whether or not there is a problem of sufficient magnitude in this class of building Massachusetts (or nationally) which would warrant adoption of the proposal and, if so, is the solution offered by the proponent the best solution (considering life safety and cost), or is it indeed the only solution.

If fire incident reports indicate that there exists a fire safety issue with the subject group of buildings (new one and two family dwellings) of such a proportion that action must be taken, the question must be asked; "what are the effects in the adoption of the proponents amendment"?; and equally as important, "what are the probable effects if the amendment is not adopted"?

Staff has made recent inquiries to attempt to begin to identify issues which need to be addressed in order to fully comprehend the impacts, both positive and negative on the proposal. The Board must recognize that the findings below were obtained from the results of a small number of telephone calls and must not be extrapolated to be considered representative of the state of affairs in the Commonwealth as a whole. The results will show that further study is necessary to fully define the issues;

Costs:

Reports of costs of installation in new one and two family dwellings range from \$1.50 per square foot to \$6 to \$8 per square foot. True costs may, or may not, be somewhere between the two ranges. With the information presented to date the costs of installation in a 2400 square foot two story home would be;

Area	Low range (1.50/sf)	High range (6.0/sf)
Cellar 1200 sf	\$1,800	\$7,200
1st floor (1200 sf)	\$1,800	\$7,200
2nd floor (1200 sf)	\$1,800	\$7,200
Attic	Not required	Not required
Attached Garage	Not required	Not required
Total (3600 sf)	\$5,400*	\$21,600*

* Excludes professional engineering services

The low range costs are advanced by the proponent while the higher range costs are advanced by the opponents to the proposal. The actual costs may, or may not, be somewhere in between the two estimates. Costs will certainly be impacted by the water supply available and the pressurized "packaged" systems permitted by NFIPA 13-D will probably result in higher costs than a system which is connected to the municipal water supply.

A residential sprinkler system is an engineered system and as such, it remains to be determined whether or not professional design services are required for its design. Additional costs for design professional services may be in the range \$500 to \$1000 if professional design services are required.

Reductions in Insurance Premiums:

Reductions in total policy premiums are in the range of 8%. This can be compared to a reduction of 5% if the home is equipped with a central station monitored fire alarm system. This result indicates the insurance industry's position of residential sprinkler systems over fire alarm systems. The savings must be kept in context and it must be understood that these reductions relate to property insurance and not life insurance.

Typical savings on a home with a total annual insurance premium of \$500 would be \$40 per year.

Water Supply Protection:

The issue of backflow prevention devices has not yet been sufficiently addressed. Regulations relating to backflow prevention must be developed in the interests of uniform application. Municipal Water Suppliers must also be consulted as they may indeed impose conditions above those which may be required by the DEP.

Other Code Issues:

The Board would, as a minimum, need to interpret provisions of the existing code or to amend other sections of the Code relating to additions to existing buildings. For example would an addition be required to have an automatic sprinkler system ?

System Maintenance and Testing:

NFIPA 13-D provides for the owner to maintain the system after installation. Issues such as educating the consumer to ensure that systems, once installed, are properly maintained in order to assure system will function as intended after installation. This is particularly important for pressurized water supplies which may comprise numerous valves and pressure gages. Arguably this is not too much different than the hot water boiler used as a heating source in many one and two family homes.

Staff Recommendations:

It is the opinion of staff that there still remain sufficient unanswered questions at this point in time which warrant the staff to recommend the following action be taken by the Board;

1. That the Board table code change proposal number 7-94-2.
2. The Board appoint a special sub committee to study and report back, as a minimum, on the following items and other additional items which the Board deems necessary in order for a final decision to be made;
 - Define the extent of the problem in Massachusetts. Is the problem in this class of building or in older multi family or older single family dwellings.
 - Quantify the reported fire in residential buildings and categorize by construction type; use group, number of fatalities; number of injuries; cause of fire; age of building involved.
 - Call fire departments versus career fire departments. Is the fire problem different depending upon the fire department staffing.
 - Contact the Department of Environmental Protection and Municipal Water Suppliers regarding regulations relating to the protection of municipal (and private) water supplies by means of backflow prevention devices and testing of those devices. In particular the interpretation of existing regulations relative to backflow prevention and new regulations which may need to be developed if this code change is adopted at this time.

- **System Design:** The issue of the design of the systems. Research the engineering registration laws and building code requirements relating to the requirements for NFIPA systems to be designed by a qualified registered professional engineer and identify costs associated with design and installation supervision.
- **Installation costs:** Research fully the costs of installation, including the water supply requirements permitted by NFIPA 13-D, such as wells, pressurized storage systems (pressurized nitrogen), in particular in areas where municipal water supplies are not available.
- **Installation procedures and licensing:** Jurisdiction between licensed plumbers and licensed sprinkler installers.
- **Insurance issues:** Assess the impact of reductions in property insurance premiums for the installation of sprinklers. Are there penalties in the premium for perceived accidental discharge.
- **Affordability:** Can the installation of automatic sprinklers be absorbed in contractor's profit margins.
- Are there any federal or state incentive programs available which would offset the costs of residential sprinklers at this time.
- What is the impact on the homeowner in terms of persons being displaced from the housing market. Figures such as 22,000 persons are excluded from the market for an increase of one thousand dollars to the cost of a single family home.

Suggested Composition of the Sub Committee

Head of a Fire Department
 Building Commissioner of a City or Town
 Representative of the National Home Builders Association
 Member of the Board of Building Regulations and Standards
 Representative of the State Fire Marshall's Office

The Committee should be appointed as expeditiously as possible and provided with a date certain to provide a report and recommendations to the Board.

APPENDIX C

Residential Sprinkler Layout

Used for Estimates

National Construction Estimator - 1995 p. 92 Fire Sprinkler
Systems



Mashpee Fire & Rescue Department
99 Nathan Ellis Highway
Mashpee, Massachusetts 02649
Phone 508-539-1454 Fax 508-539-1453

FAX TO

HOT FAX

To: Bill Wian Sales Manager

Fax Number 401-423-2035

From: George W. Baker, Fire Chief

Pages

Date: March 3, 1995

Memo:

As you are aware, the BBRS Sprinkler subcommittee is trying to identify the "costs" of residential sprinklers.

Can you give this to your membership to help us compare apples and apples. I don't need the contractors name but, you should keep track of what quote came from who, if any questions arise. If you give me the contractors name I will not include that in my report to the board.

Although not part of this objective quote, I think it would be interesting if time permits that your contractors also do one with plastic. This will be good ammunition for future fights.

Please note that these are straight 13D systems, no double back flow, no engineers stamp, ect..

Have your contractors call me if there are any questions.

Of course, the sooner I get this info the better.

RESIDENTIAL SPRINKLERS

SCOPE:

Provide a completed operational residential sprinkler system as shown on Sketches 1, 2 and 3. Price to include all material, labor, design services, permit fees and testing. All piping to be installed between joist space and piping concealed throughout.

MATERIALS:

Residential Chrome Pendent sprinklers (Central, Model Omega R-IM Chrome). OR equal

Type "L" Copper Pipe and Fittings / Alt. CPVC / Alt Poly if desired

Pressure Gauges

1" Flow Switch and 6" Electric Bell

SPECIAL CONDITIONS:

Assume water service (domestic supply) is provided and installed by others. The sprinkler contractor's work to commence at 1" outlet tee provided.

PRICE TO REFLECT THE FOLLOWING:

Estimated Material Cost	\$	<u>1,213</u>
Estimated Labor Cost	\$	<u>1,487</u>
Estimated Design Cost	\$	<u>483</u>
Estimated Permit Fees Cost	\$	<u>100</u>

TOTAL COST FOR SYSTEM \$ 3,280

(Assuming water supply has been provided)

If no water supply has been provided, what is additional cost for providing and installing a complete operational residential water supply tank and related equipment and piping.
(Home Fire Sales, Model "The (D) System" self contained 300 gpm gal. single pump ~~basic controller~~ or equal

horse

\$ 1,900

Grinnell F.P. Columbia, Md.

System Design: C.P.U.C.

PRICE TO REFLECT THE FOLLOWING:

Estimated Material Cost	\$ <u>2,112.08</u>
Estimated Labor Cost	\$ <u>2,640.00</u>
Estimated Design Cost	\$ <u>500.00</u>
Estimated Permit Fees Cost	\$ <u>\$ 25.00</u>

TOTAL COST FOR SYSTEM \$ [#] 5,277.08

(Assuming water supply has been provided)

If no water supply has been provided, what is additional cost for providing and installing a complete operational residential water supply tank and related equipment and piping.

(Home Fire Sales, Model "The (D) System" self contained 300 gpm gal. single pump base controller). or equal

^
horse

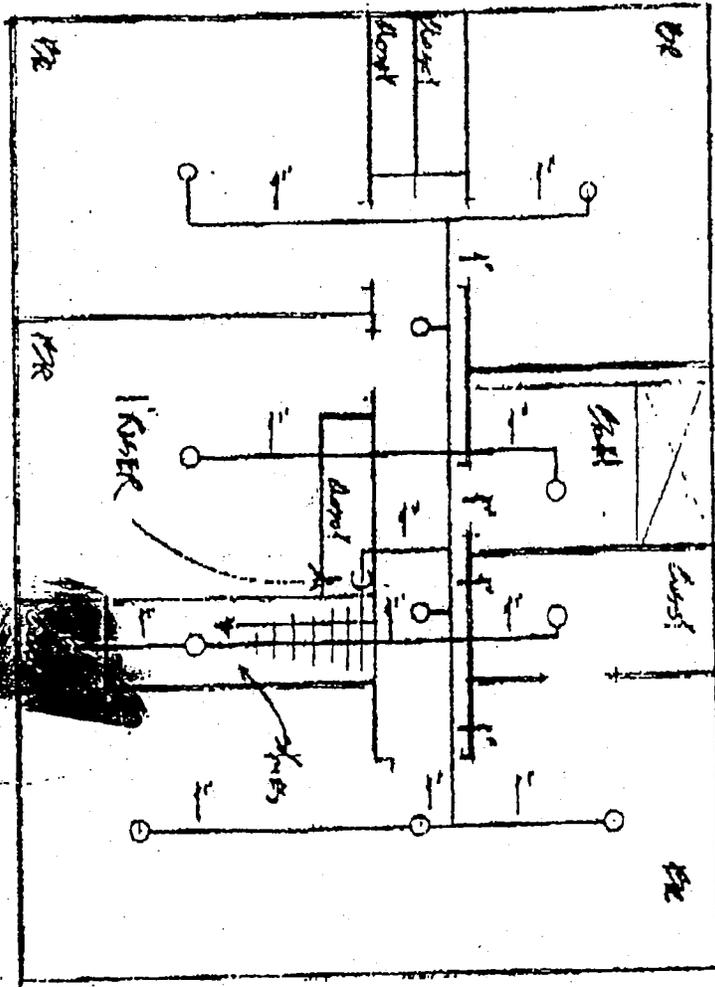
Between
\$ 1,800.00 AND 2,500.00
Depending upon supplier

B+T CONTRACTING CO.

SAUGUS MA

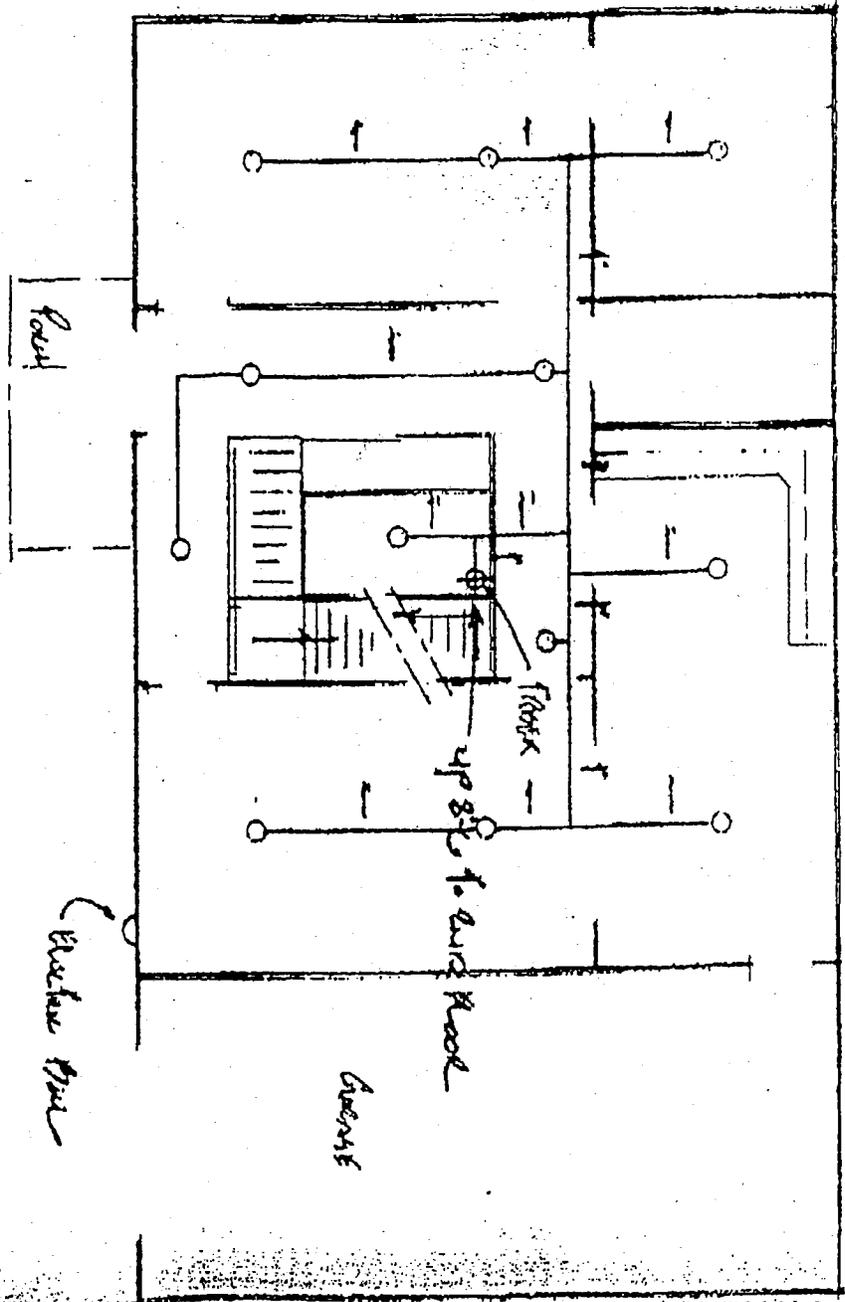
617-231-0780

617-945-3584



Radio Room
1/8" = 1'-0"

1st Floor
48-510



Back

Garage

up 8\"

APPENDIX D

Foreword to and Excerpts from
The Massachusetts Fire Problem:
1993 Annual Report of the State Fire Marshal
(pages 1 and 2 and pages 12 through 22

Foreword

by Jim Kauffman, State Fire Marshal

This is the 1993 annual description of the Massachusetts fire problem. It's described in a highly structured, statistical way from data provided by those on the front lines who put our fires out.

Yet this report doesn't really adequately describe the Massachusetts fire problem. No level of statistical analysis can adequately describe the terror and the cost of fire to people and to the economy of Massachusetts.

Like crime, until fire strikes us personally or someone we know, most of us will never truly understand what it means to be trapped by fire or lose something or someone by fire. And like crime, the numbers don't adequately measure the true economic impact of fire loss - until the town's largest employer burns to the ground.

Marty Ahrens, our data analyst and keeper of fire intelligence, has once again pulled out all the stops to measure the fire problem in Massachusetts in ways that decision makers can use. As I look at the numbers and as I look back at the fires I've personally witnessed this past year, some trends jump out at me which I think policy makers should know about. They reaffirm my belief *that fire safety doesn't cost; it pays*. I'll just touch on them briefly. They are analyzed in more detail inside.

- The very young and the very old continue to die by fire at disproportionately high rates. As our population ages, this will pose an even more severe public health issue. Smoke detectors save lives only if people hear them and are able to evacuate unassisted. For relatively little cost, residential sprinklers would make the biggest difference in saving the lives of those who cannot get out by themselves.
- Little money is expended by communities for fire prevention. It is viewed as an expense without definable payback. It should be viewed as an investment; as part of a municipal risk management plan. Fire prevention as a risk management tool minimizes the probability that the town's largest employer will burn to the ground and relocate elsewhere.
- Now that we've succeeded in getting smoke detectors installed in two-thirds of our homes, its time to make sure that they're placed appropriately and are maintained. Smoke detectors are taking a bad rap because needless/unwanted/false alarms cause people to ignore them. Or, through a lack of maintenance, they don't work when they're most needed. Greater efforts allocated to community fire prevention education would cure this deadly trend.

- Arson fires tend to be our deadliest and sustain the largest dollar losses. Those who track arsonists for a living say that 100% of adult arsonists have histories of juvenile firesetting. Yet beyond some excellent spot efforts, little is being done to combat juvenile firesetting in Massachusetts. Even when they're caught, there are few programs to deal with them.
- Fires in vacant buildings constitute some of our worst fires, pose the greatest risk to our firefighters, and as a result become very costly to communities. Fires in these occupancies are dramatically reduced when securely boarded up. Yet this is not always done. It's another low-cost opportunity for intelligent municipal risk management.
- Firefighters are not always equipped with protective clothing and tools which minimize the risk of personal injury and death. Aside from the obvious human/moral implications of not doing everything possible to protect those who protect us, this needlessly exposes municipalities to liability and its associated cost to citizens. I don't know of a single municipality that has won a lawsuit where a firefighter has been injured because he was not adequately protected.
- "Some people think that sprinklers seem out of place in a home. But there was a time when people couldn't imagine having a toilet indoors either."

– Philip Schaenman, TriData

The history of building in our country has always reflected advancements in technology. Modular building methods, advanced materials, better insulation, new standards of sanitation, more sophisticated ways to control temperature and humidity – all have enhanced the safety, comfort and flexibility of our built environment. All have contributed to the standard of living that marks American construction as one of the most advanced in the world.

Residential Sprinklers: An Unparalleled Opportunity

With the advent of quick response residential sprinkler technology, we now have a low-cost method of building a degree of life safety into our housing stock never before achievable. The technology is now fifteen years old and hundreds of fires have been extinguished with little damage and no life loss throughout America – many right here in Massachusetts.

In the view of fire protection professionals nationwide, low-cost, quick response residential sprinkler technology poses more potential for reducing life and property loss than any method developed to date.

Like indoor plumbing, the technology represents a technical and social breakthrough that fifty years from now will be taken for granted.

Violators may be punished by imprisonment for not more than one year and/or a fine of not more than \$1,000.

SPRINKLER PERFORMANCE

Occupancy	Operated	Fire Too		None	Unknown	Total
		Small	Did Not Operate			
Public Assembly	18	65	1	277	44	405
Educational	6	45	0	143	24	218
Institutional	12	154	0	112	47	325
Residential	111	406	1	7,130	1,239	8,887
Stores, Offices	32	98	2	345	75	552
Basic Industry	11	18	0	39	10	78
Manufacturing	93	112	3	82	24	314
Storage	16	19	4	348	58	445
Special Property	8	6	4	264	55	337
Unclassified	1	2	0	6	35	44
Total	308	924	16	8,746	1,611	11,605

8 Alarm Cambridge Fire In Mixed-Use Building

At 10:54 p.m. on Friday, October 1, 1993, the Cambridge Fire Department was notified of a fire in a mixed-use commercial and residential building. Fire was showing when the fire department arrived two minutes later and a working fire was requested. Fire began to show from the three story rear section of the building. Two children and two police officers were rescued from the low roof. Firefighting was hampered by a many-layered roof that prevented effective vertical ventilation and by many concealed spaces and cocklofts between floors that allowed the fire to spread rapidly. The subway was shut down because of the vibration hazard. Ultimately, eight alarms were struck. Firefighters from fifteen surrounding communities were needed to put down this fire and to allow crew rotation through a rehabilitation station. A total of 165 firefighters responded in 24 engine companies, 12 truck companies and 20 other vehicles. Eight firefighters were injured at this fire. Fortunately, none needed to be transported for further treatment. The cause of the fire remains undetermined. Because the building collapsed over the hardware store where the fire started, samples could not be taken and a full investigation was impossible.

Residential Structure Fires

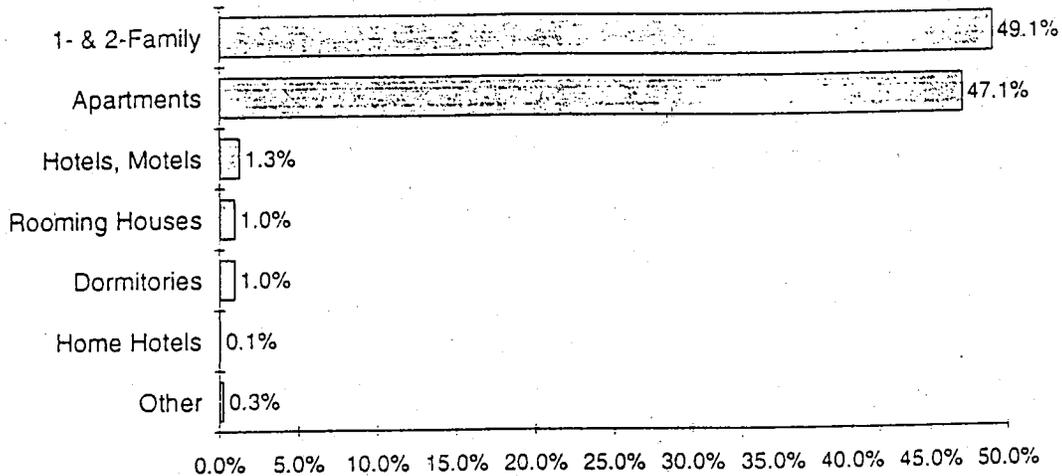
Over Three-Quarters Of Structure Fires Occurred in Residential Occupancies

Massachusetts fire departments reported that 8,887, or 76.6% of the 11,605 structure fires occurred in residential occupancies. These fires caused 51 civilian deaths, 520 civilian injuries, 907 fire service injuries and an estimated dollar loss of \$80,508,602. The average dollar loss per fire was \$9,059. The total number of reported residential structure fires decreased by 277, or 3%, from the 9,164 reported in 1992.

Almost Half Of Residential Structure Fires Occurred in 1- And 2-Family Homes

Four thousand, three hundred and sixty-seven (4,367) or 49.1% of the 8,887 residential structure fires occurred in one- and two-family homes; 4,189, or 47.1%, occurred in apartments; 114, or 1.3%, occurred in hotels or motels; 92, or 1%, occurred in rooming or boarding houses; 91 occurred in dormitories; eight occurred in home hotels (hotels with kitchen units in the bedrooms); and 26 of the residential structure fires occurred in unclassified occupancies.

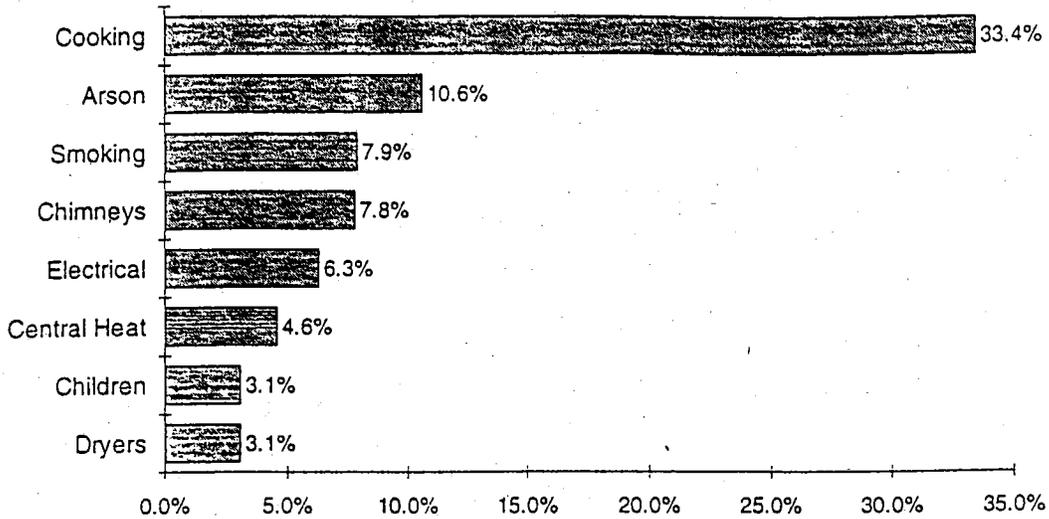
Residential Fires By Occupancy Type



Careless Cooking Caused One-Third Of Residential Fires

Unattended cooking and other careless cooking activities caused one-third of the residential structure fires in 1993. Almost 11% were considered incendiary or suspicious, or for statistical purposes, arson. Other leading causes of these fires were: the careless use and disposal of smoking materials; dirty chimneys and other chimney problems; problems with electrical equipment such as wiring, light fixtures, ballasts, cords, plugs, switches, outlets, lamps and light bulbs; furnace problems such as blow backs, automatic control failures, lack of maintenance or part failures; children playing with fire; and dryer problems such as overheating caused by lint build-ups.

Leading Causes Of Residential Fires

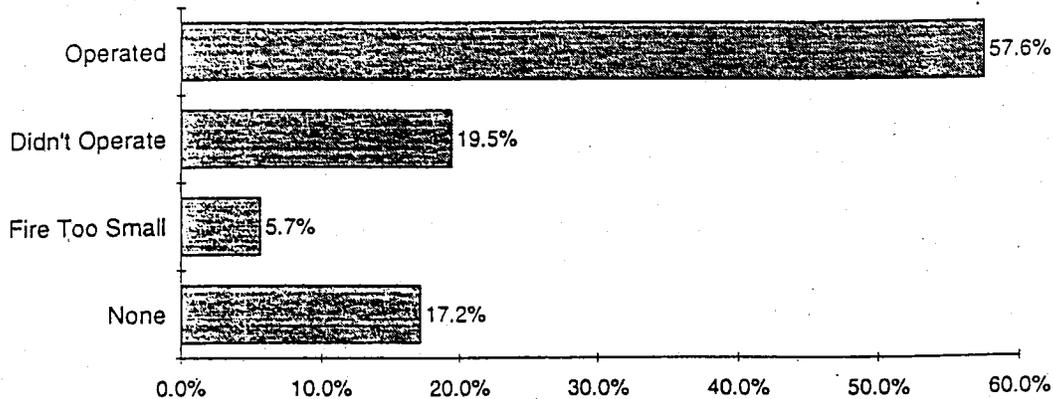


Detectors Sounded Alarm In 58% Of Residential Fires

Smoke or heat detectors were present and operated in 4,233, or 57.6%, of the 7,348 residential structure fires for which detector performance was known. Detectors were present, but did not operate in 1,434, or 19.5%, of these fires. In 416, or 5.7%, of these incidents, the fire was too small to activate the detector. No detectors were present in 1,265, or 17.2%, other residential fires.

Smoke detector performance was not reported or not classified in 1,538 incidents. These fires were excluded from the percentage calculations.

Detector Status In Residential Fires



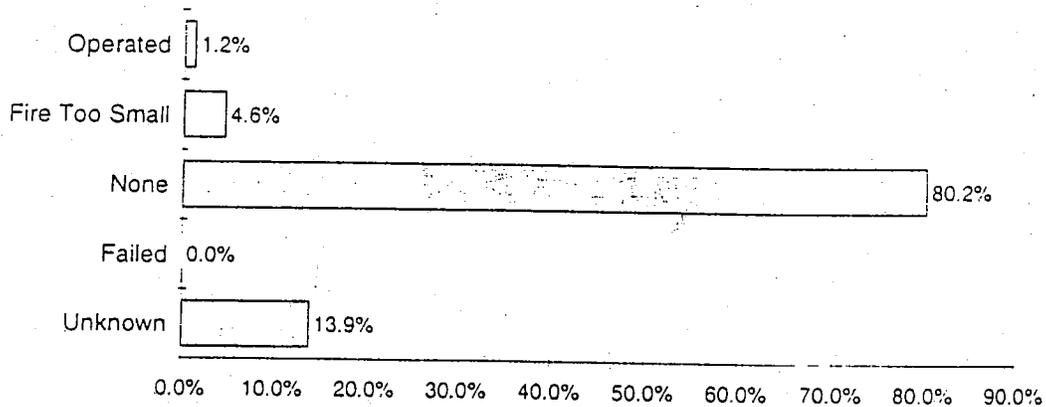
Houses Must Be Equipped With Detectors At Time Of Sale

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 sale or transfer of the building as provided in Section 26E. Automatic smoke detectors are required at all times in buildings containing six or more residential units.

Sprinklers Present In Only 5.8% Of Residential Fires

Most Massachusetts residences are not protected by sprinkler systems. Sprinklers were present and operated in 111, or 1.2%, of the 8,887 residential structure fires. Sprinklers were present, but the fire was too small to trigger operation in 406, or 4.6%, of these incidents. No sprinklers were present in 7,130, or 80.2%, of these fires. Sprinkler performance was unknown or not classified in 1,239, or 13.9%, of the residential structure fires. Sprinklers failed in one Boston apartment fire.

Sprinkler Status In Residential Fires



Fires In One- And Two-Family Homes

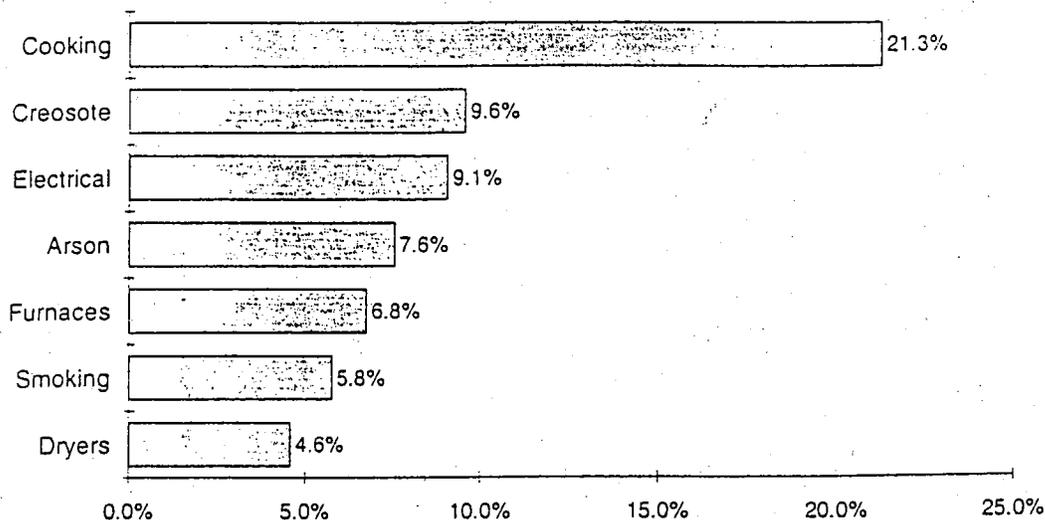
4,367 Fires, 26 Deaths, \$42 Million In Damage

Four thousand three hundred and sixty-seven (4,367) structure fires in one-and two-family homes caused 26 civilian deaths, 233 civilian injuries, 402 fire service injuries and an estimated dollar loss of \$42,310,779. The average dollar loss was \$9,689. Almost half (49.1%) of the Commonwealth's 8,887 residential structure fires occurred in one- and two-family homes.

Cooking Leading Cause Of Fires In One- And Two-Family Homes

The leading causes of fires in one-and two-family homes in 1993 were: unattended cooking and other careless cooking behavior; creosote build-up in chimneys; problems with electrical equipment such as wiring, light fixtures, cords, plugs, switches, outlets, lamps and light bulbs; arson; furnace problems such as blow backs, automatic control failures, lack of maintenance or part failures; the careless use and disposal of smoking materials; and dryer problems.

Leading Causes Of Fires In 1- & 2-Family Homes

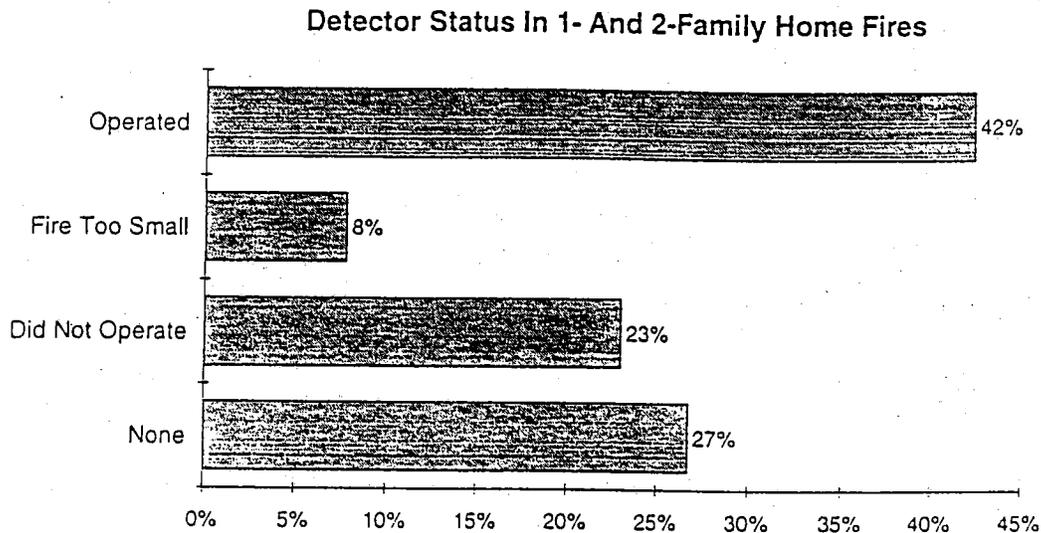


Bedroom and Living Room Fires Most Dangerous

More than one-quarter of the 4,367 fires in one-and two-family homes began in the kitchen; 13.3% started in the chimney; 7.6% originated in the bedroom; 6.6% began in the heating equipment room or area; and 4.7% started in the living room. The bedroom and living room fires were most dangerous to occupants. On average, 1 in every 5.2 bedroom fires and 1 in every 6.6 living room fires resulted in a civilian injury or death.

Only Half Of Fires Occurred In Homes With Working Smoke Detectors

Smoke or heat detectors were present and operated in 1,419, or 42.4% of the 3,347 one- and two-family home fires for which detector performance was known. Detectors were present, but did not operate in 769, or 23%, of these incidents. No detectors were present in 898, or 26.8%, of these fires. The fire was too small to activate the detector in on 261, or 7.8% of these incidents. The 1,060 fires for which the detector performance was not reported or not classified were excluded from analysis.



When we look at the incidents where no detectors were present or where detectors failed to operate, we see that half of the fires in one-and two-family homes occurred in houses that were not protected by the early warning of a smoke detector. Traditionally, one-and two-family homes have been the least regulated of the occupancies. We need to constantly remind home-owners to install and maintain smoke detectors in their homes.

Local Communities May Require Detectors In One-And Two-Family Homes

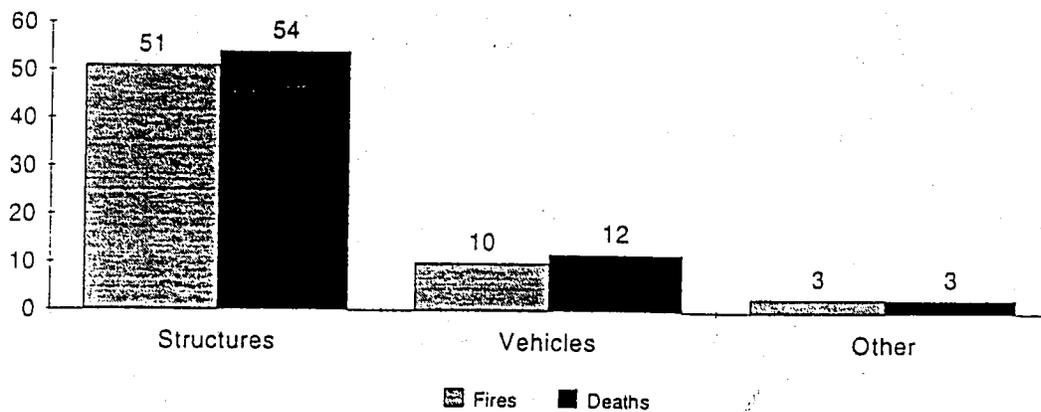
Local communities may elect to adopt Massachusetts General Law Chapter 148, Section 26E. This statute requires owner of one-and two-family homes to install smoke detectors. Detectors must be installed outside each separate sleeping area and on the ceiling of each stairway leading to a floor above.

Fire Deaths

69 People Died In Massachusetts Fires

Sixty-nine (69) people died in 61 Massachusetts fires during 1993. Fifty-four (54) people died in 51 structure fires. Twelve people died in 10 motor vehicle fires. Four of these deaths occurred in two airplane crashes. One person died in an illegal fireworks explosion on the Fourth of July; one died in a fuel pump fire at a gasoline station, and one person died in an outside self-immolation. Although four firefighters died while on duty in 1993, none of these deaths occurred at fire incidents.

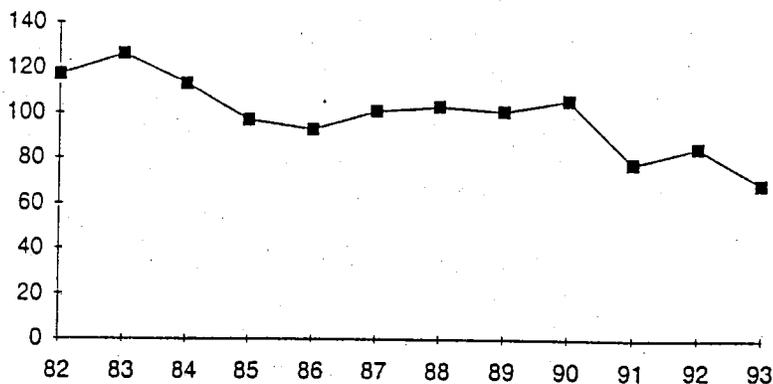
Fatal Fires & Fire Deaths By Situation Found



Massachusetts Fire Deaths at Record Low, But Trend Unlikely To Last

Fire deaths were down 19% from the 84 civilians and one firefighter who died in Massachusetts fires in 1992. This represents a record low for the Commonwealth.

Fire Deaths by Year

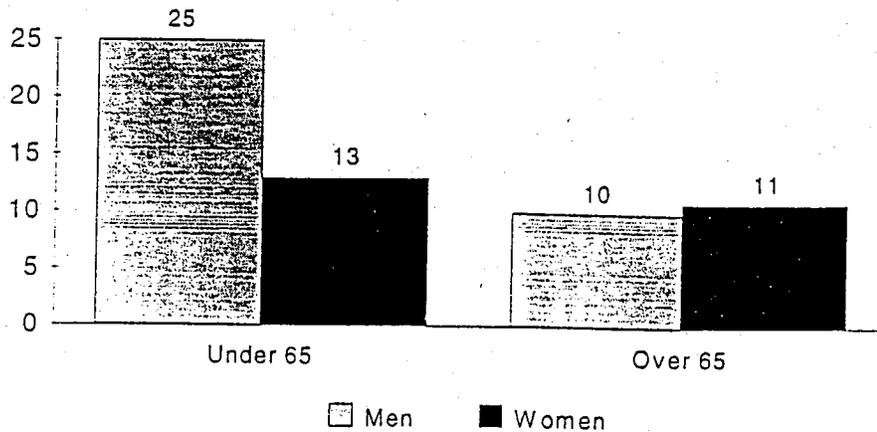


Unfortunately, we cannot be as optimistic about 1994. Fifty-seven civilians and one firefighter were known dead in Massachusetts fires by September 1, 1994. Clearly, work in fire prevention and public fire education is still essential.

35 Men, 24 Women, Ten Children Died in Fires

Thirty-five adult men, twenty-four adult women and ten children under 18 died in Massachusetts fires in 1993. Twenty-one, or 30%, of the 69 fire victims, were over 65 years of age. Ten of the elderly fire victims were men; eleven were women. Seven of the ten children who died in fires were under seven years old.

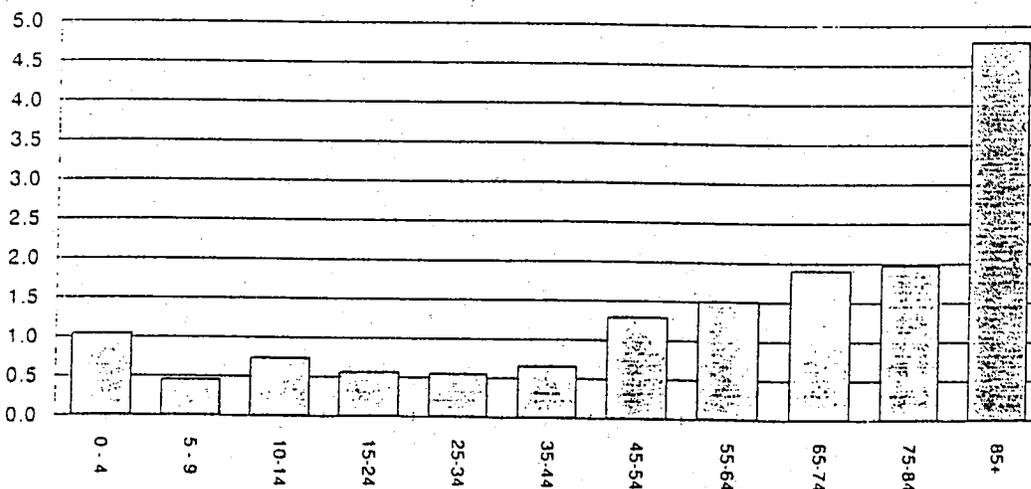
Adult Fire Deaths By Gender And Age



Elderly At Greatest Risk Of Dying In Fires

The graph below shows the relative risk of dying in fires experienced by the different age groups in 1993. A value of one means that the percentage of people who died in fires and the percentage of people of that age in the general population are equal. The risk was greater for the elderly. People over 85 years of age died at a rate almost five times the average.

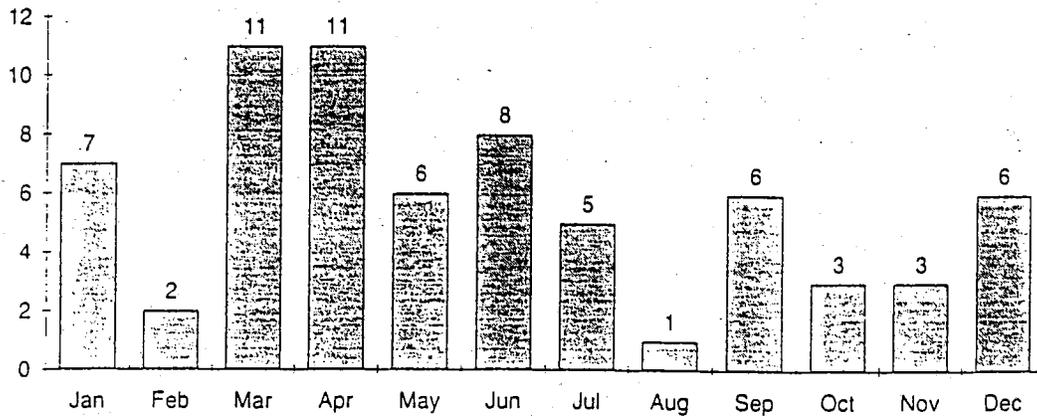
Relative Risk Of Fire Death By Age



1993 Fire Deaths Did Not Follow Usual Seasonal Pattern

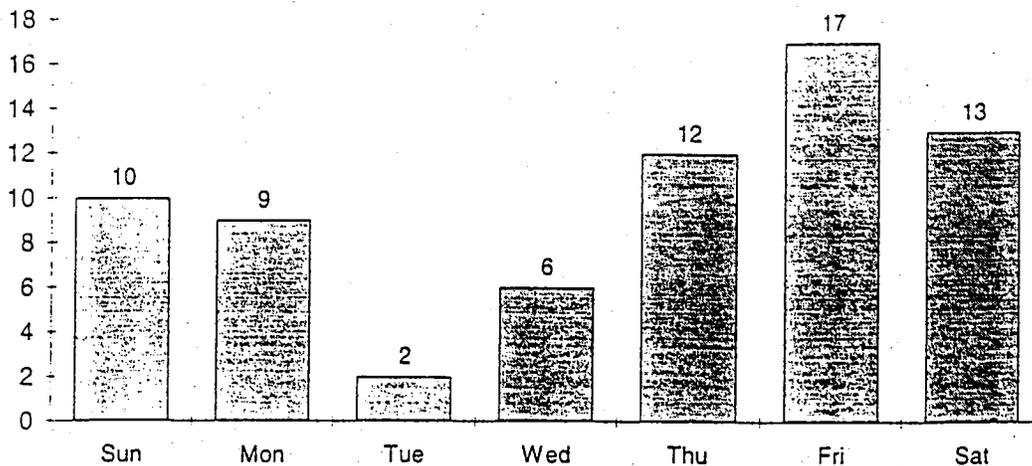
Normally fire deaths are more common in the winter months. This was not the case in 1993. Eleven people were killed in fires in both the months of March and April. Only one fire death occurred in August and two people died in fires in February.

Fire Deaths By Month



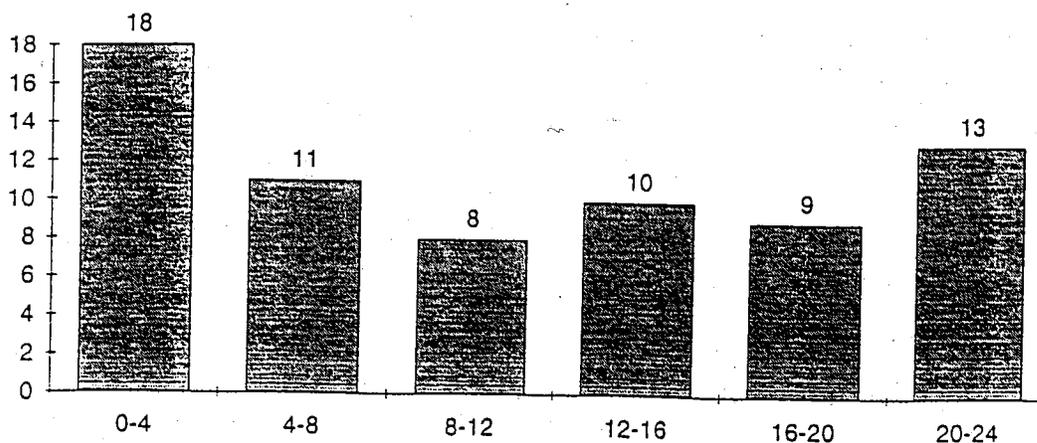
Friday was the peak day for fatal fires and fire deaths. Saturday ranked second. Only two fatal fires occurred on Wednesday.

Fire Deaths By Day Of Week



People were more likely to die in fires at night and in the very early morning hours. Eighteen people died in 16 fatal fires that occurred between midnight and 4:00 a.m. Thirteen people died in 13 fatal fires that occurred between 8:00 p.m. and midnight.

Fire Deaths By Time Period



Structure Fire Deaths

Careless Smoking Caused 37% Of Structure Fire Deaths

The careless use and disposal of smoking materials killed 20 people in 20 separate structure fires. As in previous years, smoking remains the leading cause of fatal fires and fire deaths. In 1993, 37% of the structure fire deaths were caused by the careless use and disposal of smoking materials.

Local fire departments reported that ten fatal structure fires were incendiary or suspicious. These ten fires caused 13 deaths. Four children died in four separate fires caused by children playing with fire.

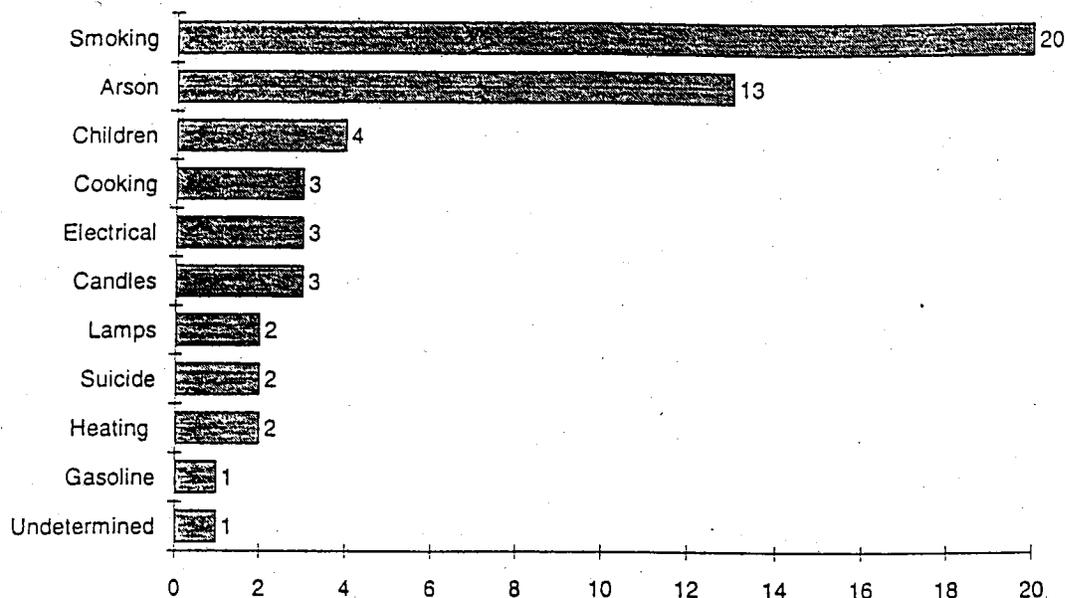
Three people died in fires caused by short circuits, ground faults or other electrical problems. Fixed wiring was involved in one of these fires, an outlet was involved in another and a cord or plug was involved in the third fatal electrical fire. Three people died in fires caused by candles.

Two people died in fires that occurred when combustible materials were placed too close to a lamp or a lamp overturned. Two people died in fires caused by unattended cooking. Two individuals set fires inside structures to commit suicide.

Two people died in fires caused by combustibles that were too close to heat sources. In one case, a gas stove ignited an elderly woman's sleeve. A furnace ignited a structural member or piece of framing in the other incident.

One person died in a fire that occurred when gasoline was used to clean parts. One man, living in a travel trailer, died in a fire caused by an improperly installed wood stove. One person died in a residential fire of undetermined origin.

Causes Of Structure Fire Deaths



74% Of Fire Deaths Occurred In Residential Occupancies

Fifty-one (51) or 74%, of the state's 69 fire deaths occurred in people's homes. Twenty-six (26) people died in 25 fatal fires in one-and two-family homes; 24 died in 22 fatal apartment fires; and one person died in a rooming house fire.

One of the single family fires occurred in a mobile home. Another occurred in a travel trailer that was being used as a residence.

Two other people died in non-residential areas on residential property. One woman died in an incendiary tool shed fire and another woman set her vehicle on fire while it was parked in her garage.

A three year old girl died when a candle overturned in her tent at a religious education campground. This was the only structure fire that was not even on residential property.

No Working Detectors In 18 Fatal Residential Fires

Eighteen people died in 18 fires that occurred in homes with no working smoke or heat detectors. In eleven of these incidents, no detectors were present at all. Detectors were present, but failed to operate in seven fatal fires.

Seventeen people died in 17 separate residential fires with detectors that did operate. 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. While smoke

detectors cannot by themselves save a person who is directly involved in the ignition, they alert other residents to the danger and give them precious time to escape.

Detector performance was unknown or not reported in 13 fatal residential fires that resulted in 16 fire deaths.

One And Two-Family Homes Less Likely To Have Working Smoke Detectors

No working detectors were present to sound the alarm in ten fatal fires in one-and two-family homes. In eight fatal fires, no detectors were present at all. In two fires, detectors were present, but did not operate. Six people died in fires that did activate detectors. All of these fires killed one person each.

Detector performance was unknown or not reported in nine fatal one-and two-family home fires. Ten people died in these nine fires.

Apartments Are More Likely To Be Protected By Smoke Detectors

Eleven apartment dwellers died in spite of working smoke detectors. Four people died in apartment fires where detectors were present, but did not operate. No detectors were present in three fatal apartment fires. All of these fires killed one person each.

Detector performance was unknown or not reported in four fatal apartment fires. Six people died in these four fires.

A smoke detector did not operate in a fatal rooming house fire. One person died in this incident.

Fatal Motor Vehicle Fires

Twelve people died in ten motor vehicle fires. Five people died in separate automobile fires that were caused by collisions. Four people died in two separate plane crashes. One homeless man died when the careless use and disposal of smoking materials started a fire on a tractor trailer truck. One man died in car fire caused by a fuel spill or accidental release. The cause of the remaining motor vehicle fire death was unknown or not reported.

Other Fatal Fires

One man died in a fire that started when a vehicle collided with a gasoline pump at a service station. Illegal fireworks killed another man on the Fourth of July. A third man died in an outside self-immolation.

APPENDIX E

Letters of Invitation



The Commonwealth of Massachusetts

Executive Office of Public Safety

State Board of Building Regulations and Standards

McCormack State Office Building
One Ashburton Place - Room 1301
Boston, Massachusetts 02108

WILLIAM F. WELD
Governor

KATHLEEN M. OTOOLE
Secretary

KENTARO TSUTSUMI
Chairman

THOMAS L. ROGERS
Administrator

TEL: (617) 727-3200 FAX: (617) 227-1754

November 16, 1994

Mr. Bill Habib
Home Builders Association of Massachusetts, Inc.
6 Beacon Street
Suite 205
Boston, MA 02108

Re: Code Change Proposal Number 7-94-2
Proponent: Philip O'Sullivan, State Fire Marshal's Office
Code Change: Requires Automatic Fire Suppression Systems
in All New One and Two Family Dwellings

Dear Mr. Habib:

Following the September 13, 1994 regular monthly meeting of the State Board of Building Regulations and Standards, the Board voted to table the above Code Change Proposal and to appoint a special subcommittee to further study the merits of the proposal and to prepare a report to the Board in order to allow the Board to complete its action relative to the proposal.

The composition of the subcommittee will consist of the following;

- Head of a Fire Department
- Building Commissioner of a City or Town
- Representative of the National Home Builders Association
- Member of the Board of Building Regulations and Standards
- Representative of the State Fire Marshal's Office

Please accept this invitation to participate in the code change process by naming a member of the Massachusetts Fire Chiefs Association as your representative on the subcommittee. The Board expressed its desire to complete its deliberations on the proposal within 120 days following the appointment of the subcommittee.

The subcommittee will primarily function as a fact finding committee and should concentrate on, but not be limited to, providing



The Commonwealth of Massachusetts

Executive Office of Public Safety

State Board of Building Regulations and Standards

McCormack State Office Building
One Ashburton Place - Room 1301
Boston, Massachusetts 02108

WILLIAM F. WELD
Governor

CATHLEEN M. OTOOLE
Secretary

KENTARO TSUTSUMI
Chairman

THOMAS L. ROGERS
Administrator

TEL: (617) 727-3200 FAX: (617) 227-1754

September 23, 1994

Mr. Steve Nally
BOWM
15 Granby Heights
Granby, MA 01033-9722

Re: Code Change Proposal Number 7-94-2
Proponent: Philip O'Sullivan, State Fire Marshal's Office
Code Change: Requires Automatic Fire Suppression Systems
in All New One and Two Family Dwellings

Dear Steve:

Following the September 13, 1994 regular monthly meeting of the State Board of Building Regulations and Standards, the Board voted to table the above Code Change Proposal and to appoint a special sub committee to further study the merits of the proposal and to prepare a report to the Board in order to allow the Board to complete its action relative to the proposal.

The composition of the subcommittee will consist of the following;

Head of a Fire Department
Building Commissioner of a City or Town
Representative of the National Home builders Association
Member of the Board of Building Regulations and Standards
Representative of the State Fire Marshal's Office

Please accept this invitation to participate in the code change process by naming a member of the Building Officials of Western Massachusetts as your representative on the sub committee. The Board will select a single member to represent the three building official's associations. The Board expressed its desire to complete its deliberations on the proposal within 120 days following the appointment of the subcommittee.

The subcommittee will primarily function as a fact finding committee and should concentrate on, but not be limited to, providing

sufficient information to permit the Board to complete its evaluation of the proposal and to take a final action on same.

Enclosed for distribution to your selected representative is a copy of the staff recommendations which identifies particular areas of unanswered questions. The list should be considered open ended and should be expanded as required by the committee. Also enclosed is a copy of the code change proposal as submitted to the Board together with the proponent's supporting documentation, in addition to the 1992 Residential Fire Incident Reports from the State Fire Marshal's Office and a Statistical Review of Fire Fatalities in One and Two Family Dwellings published by the California Building Industry Association.

A technical staff member will be assigned to the sub committee as recording clerk in order to facilitate with the preparation of the report.

Thank you in advance for your cooperation. The Board looks forward to working with the Building Enforcement community on this and future issues relating to fire prevention and fire protection.

Very truly yours,
STATE BOARD OF BUILDING REGULATIONS AND STANDARDS

Thomas L. Rogers
Administrator

Encs.

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The Commonwealth of Massachusetts

Executive Office of Public Safety

State Board of Building Regulations and Standards

McCormack State Office Building
One Ashburton Place - Room 1301
Boston, Massachusetts 02108

WILLIAM F. WELD
Governor

KATHLEEN M. O'TOOLE
Secretary

KENTARO TSUTSUMI
Chairman

THOMAS L. ROGERS
Administrator

TEL: (617) 727-3200 FAX: (617) 227-1754

September 23, 1994

Mr. Edward A. J. Poskus, A.I.A.
Building Commissioner
Town Hall
Ipswich, MA 01938

Re: Code Change Proposal Number 7-94-2
Proponent: Philip O'Sullivan, State Fire Marshal's Office
Code Change: Requires Automatic Fire Suppression Systems
in All New One and Two Family Dwellings

Dear Ed:

Following the September 13, 1994 regular monthly meeting of the State Board of Building Regulations and Standards, the Board voted to table the above Code Change Proposal and to appoint a special sub committee to further study the merits of the proposal and to prepare a report to the Board in order to allow the Board to complete its action relative to the proposal.

The composition of the subcommittee will consist of the following;

Head of a Fire Department
Building Commissioner of a City or Town
Representative of the National Home builders Association
Member of the Board of Building Regulations and Standards
Representative of the State Fire Marshal's Office

Please accept this invitation to participate in the code change process by naming a member of the Massachusetts Building Commissioners and Inspectors Association as your representative on the sub committee. The Board will select a single member to represent the three building official's associations. The Board expressed its desire to complete its deliberations on the proposal within 120 days following the appointment of the subcommittee.

The subcommittee will primarily function as a fact finding committee and should concentrate on, but not be limited to, providing

sufficient information to permit the Board to complete its evaluation of the proposal and to take a final action on same.

Enclosed for distribution to your selected representative is a copy of the staff recommendations which identifies particular areas of unanswered questions. The list should be considered open ended and should be expanded as required by the committee. Also enclosed is a copy of the code change proposal as submitted to the Board together with the proponent's supporting documentation, in addition to the 1992 Residential Fire Incident Reports from the State Fire Marshal's Office and a Statistical Review of Fire Fatalities in One and Two Family Dwellings published by the California Building Industry Association.

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Very truly yours,
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TEL: (617) 727-3200 FAX: (617) 227-1754

September 23, 1994

Mr. Gerry Hughes
Inspector of Buildings
P.O.Box 263
Norfolk, MA 02056

Re: Code Change Proposal Number 7-94-2
Proponent: Philip O'Sullivan, State Fire Marshal's Office
Code Change: Requires Automatic Fire Suppression Systems
in All New One and Two Family Dwellings

Dear Gerry:

Following the September 13, 1994 regular monthly meeting of the State Board of Building Regulations and Standards, the Board voted to table the above Code Change Proposal and to appoint a special sub committee to further study the merits of the proposal and to prepare a report to the Board in order to allow the Board to complete its action relative to the proposal.

The composition of the subcommittee will consist of the following;

Head of a Fire Department
Building Commissioner of a City or Town
Representative of the National Home builders Association
Member of the Board of Building Regulations and Standards
Representative of the State Fire Marshal's Office

Please accept this invitation to participate in the code change process by naming a member of the South East Massachusetts Building Officials Association as your representative on the sub committee. The Board will select a single member to represent the three building official's associations. The Board expressed its desire to complete its deliberations on the proposal within 120 days following the appointment of the subcommittee.

The subcommittee will primarily function as a fact finding committee and should concentrate on, but not be limited to, providing

sufficient information to permit the Board to complete its evaluation of the proposal and to take a final action on same.

Enclosed for distribution to your selected representative is a copy of the staff recommendations which identifies particular areas of unanswered questions. The list should be considered open ended and should be expanded as required by the committee. Also enclosed is a copy of the code change proposal as submitted to the Board together with the proponent's supporting documentation, in addition to the 1992 Residential Fire Incident Reports from the State Fire Marshal's Office and a Statistical Review of Fire Fatalities in One and Two Family Dwellings published by the California Building Industry Association.

A technical staff member will be assigned to the sub committee as recording clerk in order to facilitate with the preparation of the report.

Thank you in advance for your cooperation. The Board looks forward to working with the Building Enforcement community on this and future issues relating to fire prevention and fire protection.

Very truly yours,
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TEL: (617) 727-3200 FAX: (617) 227-1754

September 23, 1994

Chief Ronald E. Cormier
Leominster Fire Department
19 Church Street
Leominster, MA 01453

Re: Code Change Proposal Number 7-94-2
Proponent: Philip O'Sullivan, State Fire Marshal's Office
Code Change: Requires Automatic Fire Suppression Systems
in All New One and Two Family Dwellings

Dear Chief Cormier:

Following the September 13, 1994 regular monthly meeting of the State Board of Building Regulations and Standards, the Board voted to table the above Code Change Proposal and to appoint a special sub committee to further study the merits of the proposal and to prepare a report to the Board in order to allow the Board to complete its action relative to the proposal.

The composition of the subcommittee will consist of the following;

Head of a Fire Department
Building Commissioner of a City or Town
Representative of the National Home builders Association
Member of the Board of Building Regulations and Standards
Representative of the State Fire Marshal's Office

Please accept this invitation to participate in the code change process by naming a member of the Massachusetts Fire Chiefs Association as your representative on the sub committee. The Board expressed its desire to complete its deliberations on the proposal within 120 days following the appointment of the subcommittee.

The subcommittee will primarily function as a fact finding committee and should concentrate on, but not be limited to, providing sufficient information to permit the Board to complete its evaluation of the proposal and to take a final action on same.

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A technical staff member will be assigned to the sub committee as recording clerk in order to facilitate with the preparation of the report.

Thank you in advance for your cooperation. The Board looks forward to working with the Massachusetts Fire Chief's Association on this and future issues relating to fire prevention and fire protection.

Very truly yours,
STATE BOARD OF BUILDING REGULATIONS AND STANDARDS

Thomas L. Rogers
Administrator

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TEL: (617) 727-3200 FAX: (617) 227-1754

September 23, 1994

Mr. F. James Kaufman
State Fire Marshal
1010 Commonwealth Avenue
Boston, MA 02215

Re: Code Change Proposal Number 7-94-2
Proponent: Philip O'Sullivan, State Fire Marshal's Office
Code Change: Requires Automatic Fire Suppression Systems
in All New One and Two Family Dwellings

Dear Jim:

Following the September 13, 1994 regular monthly meeting of the State Board of Building Regulations and Standards, the Board voted to table the above Code Change Proposal and to appoint a special sub committee to further study the merits of the proposal and to prepare a report to the Board in order to allow the Board to complete its action relative to the proposal.

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Head of a Fire Department
Building Commissioner of a City or Town
Representative of the National Home builders Association
Member of the Board of Building Regulations and Standards
Representative of the State Fire Marshal's Office

Please accept this invitation to participate in the code change process by naming a member of the Massachusetts Fire Chiefs Association as your representative on the sub committee. The Board expressed its desire to complete its deliberations on the proposal within 120 days following the appointment of the subcommittee.

The subcommittee will primarily function as a fact finding committee and should concentrate on, but not be limited to, providing sufficient information to permit the Board to complete its evaluation of the proposal and to take a final action on same.

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A technical staff member will be assigned to the sub committee as recording clerk in order to facilitate with the preparation of the report.

Thank you in advance for your cooperation. The Board looks forward to working with the State Fire Marshal's Office on this and future issues relating to fire prevention and fire protection.

Very truly yours,
STATE BOARD OF BUILDING REGULATIONS AND STANDARDS

Thomas L. Rogers
Administrator

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