



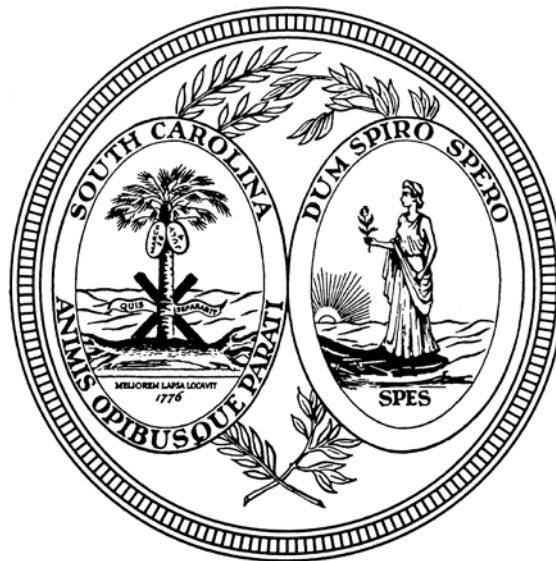
SOUTH CAROLINA GENERAL ASSEMBLY

Legislative Audit Council

November 2010

A REVIEW OF THE OFFICE OF STATE FIRE MARSHAL

INCONSISTENT REGULATION OF FIRE
EXTINGUISHING EQUIPMENT HAS RESULTED
IN S.C. BUSINESSES AND OTHER
ORGANIZATIONS PAYING FOR
UNNECESSARY EQUIPMENT UPGRADES



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Legislative Audit Council

A REVIEW OF THE OFFICE OF STATE FIRE MARSHAL

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Introduction

Audit Objectives

Members of the General Assembly requested the Legislative Audit Council (LAC) conduct a review of certain issues at the Office of State Fire Marshal (OSFM), a division of the Department of Labor, Licensing, and Regulation (LLR).

Our objectives for this report were to:

- Review the policies and practices the OSFM uses for interpreting the International Fire Code (IFC) and the National Fire Protection Association (NFPA) fire codes.
- Determine how the OSFM communicates the IFC and NFPA fire codes to resident fire marshals and regulated organizations.
- Determine if the administration of the fire codes for fire extinguishing equipment is independent and free of conflict of interest.
- Review the OSFM policies and practices for regulating portable fire extinguishers.
- Review the OSFM policies and practices for regulating fire extinguishing systems for commercial kitchen stoves.

Scope and Methodology

The period of this review was generally from 2005 until the present, with consideration of earlier periods when relevant. Information used in this report was obtained from a variety of sources including:

- Interviews with OSFM officials and staff.
- OSFM training and testing material, policy memorandums, and other issue-oriented documentation such as letters and e-mails.
- Fire equipment industry technical information regarding certain fire hazards, fire extinguishing equipment, and related Underwriters Laboratory (UL) safety listings.
- S.C. Code of Laws, regulations, and IFC and NFPA fire codes.
- OSFM website information including a frequently asked questions (FAQ) section, fire cause and death statistics, and other miscellaneous items.
- Interviews with personnel from fire equipment dealers and wholesalers and regulated organizations (churches, schools, hospitals, and businesses).
- Interviews with resident fire marshals.
- Other states' fire marshals' survey responses.
- Vendor and resident fire marshal inspection forms and checklists.

When addressing most of our objectives, we relied on national and international fire codes, state laws, interviews, reports, and technical articles about fire hazards and fire extinguishing equipment. The OSFM in most recent years has placed a high reliance on the national and international fire codes regarding fire events in the state in its interpretation, communication, and enforcement of the fire codes for the purpose of keeping the public safe from fire. The division did not keep adequate data for us to determine the basis for decisions regarding the regulation of fire extinguishing equipment.

We reviewed the OSFM internal controls regarding the interpretation of fire codes, the communication of fire codes to the public, and oversight of resident fire marshals and fire equipment vendors. The use of computerized data was not central to our audit objectives.

We conducted this performance audit in accordance with generally accepted government auditing standards with the exception of the general standard concerning quality control. Due to budget reductions, funding was not available for a scheduled external quality control review. In our opinion, this omission did not affect the results of the audit.

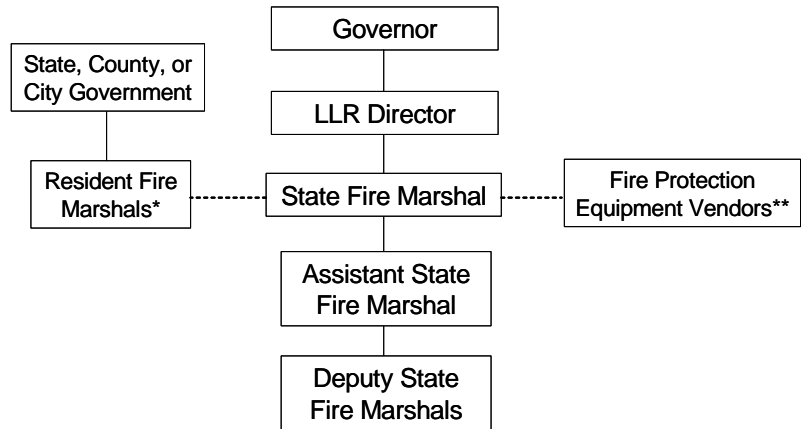
Generally accepted government auditing standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

The State Fire Marshal is appointed by the Governor, and is the Deputy Director of the Division of Fire and Life Safety at the Department of Labor, Licensing and Regulation. The State Fire Marshal is responsible for overseeing his division staff, certifying resident fire marshals, and licensing and permitting fire protection equipment vendors in the state.

Chart 1.1 shows the organizational structure of the OSFM.

Chart 1.1: OSFM Organizational Structure



* OSFM certifies resident fire marshals and communicates with them, but has no direct control over them. However, resident fire marshals' inspections can be appealed to the OSFM.

** OSFM licenses vendors, communicates with them, fines them for violations, and revokes vendors' licenses when necessary.

Source: Office of State Fire Marshal

The deputy fire marshals each have a territory, comprised of several counties, in which they carry out the duties of the OSFM. They are responsible for inspecting schools, foster homes, state facilities, detention facilities, and liquefied petroleum gas installations.

The OSFM is required to perform certain duties as described in S.C. Code §23-9-40:

It shall be the duty of the State Fire Marshal to enforce all laws and ordinances of the State, and the several counties, cities, and political subdivisions thereof, with reference to the following:

- (a) The prevention of fires;
- (b) The storage, sale and use of combustibles and explosives;
- (c) The installation and maintenance of automatic or other fire alarm systems and fire extinguishing equipment; ...

Further, the OSFM is authorized to adopt nationally and internationally recognized fire codes for the state by S.C. Code §1-34-10, which states:

The public policy of South Carolina is to maintain reasonable and consistent standards...in order to protect the public health, safety, and welfare of its citizens. Accordingly, all agencies should enforce the same editions of nationally recognized codes and standards....

The OSFM adopted the latest versions of the IFC with regulation 71-8301.3.C., and NFPA codes and standards 10, 17, 17A and 96 with the approval of S.C. Regulation 71-8300.2. E., F., and P., respectively, the codes pertaining to the regulation of the fire extinguishing equipment.

In South Carolina, fire extinguishing equipment is required to be certified by an independent product safety organization, such as Underwriters Laboratories (UL). Other testing organizations exist, but UL is the most well known. Fire extinguishing equipment bears a UL “Listing” which indicates the product has passed the UL testing requirements and has met established safety standards.

Aftermarket Parts

The OSFM may have caused extra expenses for businesses in the state until 2006 by requiring the use of Original Equipment Manufacturer (OEM) parts instead of allowing for aftermarket parts.

Aftermarket parts are parts manufactured by third party companies for use in fire extinguishing equipment. Aftermarket parts may be considered as “generic” alternatives to OEM parts and must be certified by UL or another testing company to verify the parts work with the equipment. Aftermarket parts are cheaper than OEM parts.

As a result of discussions between the OSFM and manufacturers of aftermarket parts, the Governor signed Act 341 of 2006 that allows the use of aftermarket parts in South Carolina.

Examinations, Certification, Licensing, and Permitting

Fire protection equipment vendors sell and service fire extinguishing equipment to schools, churches, daycares, restaurants, etc. In order to do so, they and their employees, must be licensed by the OSFM. The OSFM is charged with informing vendors of changes in fire safety issues, inspecting vendors’ facilities, fining vendors for violations, and ultimately revoking a vendor’s license for cause if necessary.

Resident fire marshals are responsible for the safety of privately-owned and certain government buildings in their jurisdiction. Resident fire marshal jurisdiction is determined by city, county, or state government authority. The Office of State Fire Marshal certifies resident fire marshals by requiring them to pass an examination showing knowledge of the fire codes. Resident fire marshals are employees of their respective state agency or local government and the OSFM has no direct control over them, other than hearing appeals on a resident fire marshal’s inspection of a business and verifying the required number of training hours.

Interpretation of Fire Codes and State Law

We found areas in which the Office of State Fire Marshal (OSFM) acted in a manner inconsistent with the fire codes and state law.

- The Office of State Fire Marshal’s interpretation regarding the replacement of fire extinguishers that are no longer manufactured is not consistent with the fire codes.
- The Fire Marshal’s requirements regarding extinguishers for commercial cooking stoves have not been consistent with the grandfather exemption requirements of state law and the fire codes.
- Fire equipment servicing companies have been required to purchase one hard copy service manual for each technician, conflicting with the NFPA fire code which calls for the manuals to be “available.”

As a result, restaurants, churches, and other organizations have unnecessarily been required to replace their portable fire extinguishers or upgrade their commercial stove hood fire extinguishing systems.

Adoption of Fire Codes

The OSFM is authorized to adopt nationally recognized fire codes for the state by S.C. Code §1-34-10, which states:

The public policy of South Carolina is to maintain reasonable and consistent standards . . .in order to protect the public health, safety, and welfare of its citizens. Accordingly, all agencies should enforce the same editions of nationally recognized codes and standards....

New editions of these national and international fire codes are published every 3–5 years. OSFM adopts the codes by amending state regulations, through joint resolutions, and by formal public announcement in the South Carolina State Register as initiated by the OSFM.

The OSFM initiates the adoption of the fire codes for the state organizations over which they have jurisdiction, such as schools, detention facilities, other state facilities, and foster homes. Local authorities, such as county and municipal governments, are responsible for adoption of the fire codes through their government bodies such as city and county councils, in order to protect regulated organizations in their locale, such as churches, restaurants, and certain public buildings.

The fire codes adopted by the OSFM and local authorities that are most relevant to our audit objectives are the International Fire Code (IFC) and the National Fire Protection Association (NFPA) codes 10, 96, 17, and 17A.

Generally speaking, the IFC informs a regulated organization of the requirements it must meet and then the IFC refers to the NFPA codes for the details on how the regulated organization is to accomplish the requirements set forth in the IFC.

Equipment No Longer Manufactured

The Office of the State Fire Marshal has not adequately interpreted the code regarding the replacement of fire extinguishers that are no longer manufactured. Maintenance parts for discontinued fire extinguishers sometimes become unavailable. However, the OSFM required organizations such as businesses, churches, schools, and hospitals to replace fire extinguishers, whether or not parts were available. These organizations have incurred unnecessary costs because they have had to needlessly replace working equipment.

Background

The NFPA 10 fire code was adopted by the state and is the code that is interpreted, communicated, and enforced by state and local fire officials for the regulation of portable fire extinguishers in public and some private buildings.

The applicable NFPA 10 code is 6.1.4, which states:

Maintenance, servicing, and recharging shall be performed by trained persons having available the appropriate servicing manual(s), the proper types of tools, recharge materials, lubricants, and manufacturer's recommended replacement parts or parts specifically listed for use in the fire extinguisher.

In reviewing the issue of equipment made by a manufacturer that had gone out of business, being taken out of service, we primarily focused on the General brand fire extinguishers since they were the most prevalent in the industry. The General Fire Extinguishing Company, the manufacturer of the General brand portable fire extinguishers, went out of business in 2001 due to bankruptcy.

Another portable fire extinguisher manufacturer, Amerex Corporation, bought the General brand UL Listings, trademark, and trade name of the General fire extinguishers. The Brooks Company, a fire equipment distributor, bought the inventory of parts, according to officials with Amerex.

In response to the company going out of business, with their manufactured portable fire extinguishers still in service in 2005, the OSFM developed enforcement policies that affected fire equipment dealers and customers owning General brand fire extinguishers.

Fire Marshal Ruling on General Brand Fire Extinguishers

In 2005, the OSFM required working, code-compliant fire extinguishers to be replaced because it assumed parts and chemicals would not be available.

In 2005, the OSFM interpreted the national fire code, (NFPA 10 Section 6.1.4) to mean that portable fire extinguishers previously manufactured by a company that has gone out of business must be removed from service at either the 6-year maintenance or the 12-year hydrostatic test. The policy is based on the assumption that either parts, manuals, or recharging agent was not or would not be available when needed.

The division reasoned that the fire extinguishers should be removed at the 6-year maintenance or the 12-year hydrostatic test because these procedures require that the internal cylinder of the extinguisher be inspected. In doing so, the fire extinguishing chemical or agent, has to be expelled and the extinguisher recharged with chemical or agent at the conclusion of the inspection. Also, parts may need to be replaced in order to reassemble the unit even though often they are not required. Division officials were unable to show us when parts and recharging agent were not available.

We found the following information about the availability of parts, manuals, and recharging materials.

- The OSFM required the General brands to be removed beginning in 2005. However, some General brand fire extinguishers remained in service until their six-year maintenance or a hydrostatic test was due.
- We asked division officials for records supporting their assertion that parts were not available. They were unable to provide any documentation supporting their assertion.
- We found General brand parts still listed today in one distributor's 2010 catalogue. A distributor representative informed us he thought most of the General brand parts in stock at their company were depleted over the last three to five years.
- The OSFM, in the August 1, 2005, memorandum, stated: "...the manufacturer is no longer in business. As a result, these manuals and parts lists cannot be obtained from the manufacturer or updated." The division has offered no evidence that "updating" was necessary or that manuals were needed from the manufacturers. After February 2001, there were no new General brands manufactured, so the vendors simply

continued to service the ones in use with the manuals they had been using previously.

- One major distributor had UL classified dry chemical agent that could have been used with some of the older manufactured General brands. The NFPA 2007 edition required the stored pressure dry chemical models manufactured before 1984 be removed from service at the next six-year maintenance interval or hydrostatic test.

Review of Other States' Policies

Our review of other states' fire marshals' policies found that states allow the extinguishers to be used until they could no longer be serviced.

For example, a deputy fire marshal from Alaska responded to a 2005 survey from the S.C. OSFM and indicated that "...as long as parts exist the fire extinguishers that are in service today are considered Listed extinguishers"... "When they can no longer be serviced, they will have to be replaced."

This implies that as long as any servicing company has the manuals, the parts, and the agent, a fire extinguisher can remain in service, even beyond the 6-year maintenance or 12-year hydrostatic test. We surveyed six southern states' fire marshals and found that four of the six states allow the extinguishers to remain in service as long as parts, agent, and manuals, (items listed in NFPA 10, 6.1.4) are available. This means the extinguishers could remain in service beyond the 6-year maintenance and the 12-year hydrostatic test as long as they are serviceable.

Table 2.1: Other States' Replacement Policies

STATE	NO LONGER SERVICEABLE	6- OR 12-YEAR MAINTENANCE
Alabama	✓	
Florida	✓	
Georgia	✓	
North Carolina	✓	
South Carolina		✓
Tennessee		✓
Virginia		✓

Listed fire extinguishers removed at 6- or 12-year maintenance or when the fire extinguisher is no longer serviceable.

Source: LAC survey of states.

Financial Impact of Fire Marshal Ruling

After enforcement to remove General brand fire extinguishers began in 2005, we were unable to determine the extent to which organizations have had to take their General brand fire extinguishers out of service due to the OSFM policy. Three reasons for our inability to determine this include:

- We were unable to precisely document the availability of parts, manuals, and recharge agent for General brand fire extinguishers in the years after they were discontinued. A parts distributor stated that they do not keep these kinds of records and, due to the length of time involved, recall is not highly reliable.
- Resident fire marshals do not keep records on sales transactions or numbers regarding removed or upgraded equipment.
- Organizations affected by the Fire Marshal's ruling could not or would not collect the records, such as invoices of the old units and invoices of the replacement units. These records may have provided a basis for us to determine how many extinguishers were replaced earlier than necessary and the cost to replace them. Therefore, we were unable to quantify the expense to the customers of taking the units out of service earlier than their useful life instead of allowing them to remain in service.

Portable fire extinguishers cost between \$45 and \$65, depending on the type and purpose of the extinguisher. For an organization replacing approximately 300 extinguishers, this represents an average estimated cost of over \$16,000.

Missing Files

The OSFM was unable to provide documentation supporting its decision to remove certain fire extinguishers from service.

We asked for the division's records supporting the decisions about when to remove the General brand fire extinguishers from service. Agency officials informed us that they do not have the files — they were either destroyed or taken by a former employee. This prevented us from examining notes on the discussion including possible engineers' technical notes, how the code was interpreted and by whom, discussions with other fire marshals from other states, comments on the feedback the OSFM may have received from the fire industry servicing companies and resident fire marshals, and comments or documents about what parts, recharging agent, and manuals were available. The content of the file may have helped us determine if the ruling was a reasonable one given the circumstances.

Our review of the availability of parts, manuals, and agent for servicing the fire extinguishers consisted of interviews with interested parties. These interviews were with fire equipment servicing companies, a major fire

equipment distributor, a letter from a major fire equipment manufacturer, division officials, and organizations who own the fire extinguishers.

Conclusion

The OSFM could have issued a policy that required the General brand and other discontinued fire extinguishers manufactured by a company that had gone out of business, to be replaced only when they could not be properly serviced because there were no parts, manuals, or recharging agent available. This could have allowed some extinguishers to remain in service longer and given organizations a longer time to replace them, saving the organizations money.

Our review focused on the General brand portable fire extinguisher, however, our findings and recommendations could apply to all brands and types of fire equipment in similar circumstances.

Recommendations

1. The Office of State Fire Marshal should ensure that its policies and practices are consistent with fire codes and state law.
2. The Office of State Fire Marshal should allow fire extinguishing equipment to remain in service until vendors cannot properly service the equipment, consistent with national and international fire codes.
3. The Office of State Fire Marshal should document major fire code policy decisions in the future and document the basis of the decision. This information should be available for reference for interested parties, to increase transparency of government operations, and to maintain an adequate audit trail.
4. The Office of State Fire Marshal should establish procedures to protect division files from loss or theft.

Grandfathering Exemptions

The Office of State Fire Marshal (OSFM) required commercial stoves to have updated fire extinguishing systems even though the fire codes contain grandfather provisions exempting most existing businesses from having to meet the standard. The fire codes provide for exemption from enforcement provided there have been no changes to the existing cooking stove or cooking oil. Also, there was no authority in state law for the department to disregard the grandfather clauses from July 2005 through September 2009. Finally, in September 2009 the OSFM promulgated regulations exempting

South Carolina from the grandfathering exception in one fire code, but not the other, leading to confusion for regulated organizations.

Background

Many organizations regulated by fire marshals, such as schools and churches, use commercial stoves. The fire codes require a hood-based fixed fire extinguishing system positioned over the stove that will automatically deploy a chemical to extinguish a fire.

S.C. Regulation 71-8300.2.C states:

The requirements of the IFC, 2006 Edition (omit Chapter 1), shall constitute the minimum standards for fire prevention and life safety protection for construction, occupancy, and use of all buildings and structures within the scope of these regulations except as modified by these regulations.

In addition, this regulation states that the NFPA standards shall constitute the minimum standard for portable fire extinguishers and fixed fire extinguishing systems in South Carolina.

According to the OSFM, a commercial cooking stove is any stove within a commercial setting. For example, even a “residential” type of stove that is located in a setting, such as a home economics room or at a daycare, would be “commercial” because it is in a commercial setting.

The UL 300 (Fire Testing of Fire Extinguishing Systems for Protection of Restaurant Cooking Areas) standard that concerns commercial cooking stoves was passed by UL in 1994. This standard was meant to address the changes in cooking stoves and cooking oils. Newer stoves are better insulated and tend to heat faster and stay hotter longer. Also, largely because of health reasons, businesses started moving towards using vegetable oils for their cooking instead of animal oils. These new vegetable-based oils are harder to extinguish with older dry chemical fixed fire extinguishing systems.

The IFC and the NFPA standards contain “grandfather clauses,” which allow businesses to be exempt from the UL 300 standard if they previously installed an old fixed fire extinguishing system under previous standards. However, the NFPA 96 standard requires a business to upgrade to UL 300 if it has changed to vegetable-based cooking oils, has moved its stove to another location in the business, or if the old cooking equipment has been replaced.

UL 300 Policy in South Carolina From 2004-2009

The OSFM required businesses, churches, and other organizations to replace stove fire extinguishing equipment, although the law did not require replacement.

This equipment can cost up to \$3,000 per stove.

Current UL 300 Policy

Although Underwriters Laboratories created the UL 300 standard in 1994, no major changes in state law or regulation happened in South Carolina with regard to UL 300 until approximately 2004. For many years, the OSFM allowed some churches, daycares, and other businesses to just post signs near their stoves stating that no vegetable oils were allowed and have additional portable fire extinguishers on hand instead of upgrading to UL 300. This was done by the OSFM largely because of the cost to small businesses of upgrading to the UL 300 standard.

The OSFM required compliance with the UL 300 standard for commercial cooking stoves from July 2005 through September 2009, when there was no authority in state law for the department to do so. As a result, we found that some organizations were required to upgrade their systems unnecessarily or prematurely.

The following is a brief timeline of the UL 300 issue within South Carolina.

- In 2004 to mid-2005, the OSFM overrode the grandfather provisions of the adopted fire code effectively requiring the updating of fire extinguishing systems to the new standard.
- From 2005 to 2009, the OSFM adopted the fire codes without overriding the grandfather provisions. During this time, operators of commercial cooking stoves were required to upgrade their fire extinguishing systems even though there was no authority in state law. The fire codes were enforced as if there were no grandfathering.

The OSFM has overridden the “grandfather clauses” in the IFC pertaining to UL 300 fixed fire extinguishing systems by the division’s adoption of the code. However, it has not overridden the grandfather clauses in the NFPA 17, 17A, and 96 standards, which may lead to confusion for businesses in the state.

The OSFM requires universal compliance with the UL 300 standard in our state. An average UL 300 fixed fire extinguishing system may cost as much as \$2,500 to \$3,000, depending on the type of system and other factors.

Some other southeastern states we contacted do not require universal UL 300 compliance (see Table 2.2). We found that five of the six states we surveyed do not require universal upgrade to the new standard and only require upgrade when changes to the cook stove have been made or the unit is no longer serviceable.

Table 2.2: State UL 300 Policies Concerning Replacement of Commercial Stove Fire Extinguishing Systems

STATE	AFTER A CHANGE OR NO LONGER SERVICEABLE	ALL COMMERCIAL STOVES
Alabama	✓	
Florida	✓	
Georgia*	✓	
North Carolina	✓	
South Carolina		✓
Tennessee		✓
Virginia	✓	

* Georgia also requires an upgrade to UL 300 if the system is discharged or at the 6- or 12-year maintenance.

Source: LAC survey of southeastern states.

In the OSFM’s current regulations, the division has omitted chapter 1 of the IFC code, which has effectively removed the IFC “grandfather clause” in South Carolina. However, the NFPA fire codes currently in use in South Carolina also contain “grandfather clauses.” The OSFM has not addressed the “grandfather clauses” present in NFPA 17, 17A, and 96.

The National Fire Protection Association fire code "grandfathers" most existing facilities from upgrades.

NFPA 17 and 17A both contain the following statement in the first chapter of the standards:

Unless otherwise noted, it is not intended that the provisions of this document be applied to facilities, equipment, structures, or installations that were existing or approved for construction or installation prior to the effective date of this document.

In addition, the NFPA 96 standard contains the following statement in the first chapter of the standard:

Unless otherwise specified, the provisions of this standard shall not apply to facilities, equipment, structures, or installations that existed or were approved for construction or installation prior to the effective date of the standard. Where specified, the provisions of this standard shall be retroactive.

The NFPA 96 standard requires regulated organizations to upgrade to the UL 300 standard if a organization has changed to vegetable-based cooking oils, has moved its stove to another location in the restaurant, or if the old cooking equipment has been replaced.

The fact that the OSFM has not addressed the “grandfather clauses” in the NFPA standards may lead to confusion for regulated organizations in the

state. The reason for this confusion is the fact that the OSFM has omitted the “grandfather clause” in the IFC from being used in the state, but the IFC itself refers to the NFPA, which contains non-omitted “grandfather clauses.”

Recommendation

5. The Office of State Fire Marshal should promulgate regulations that clearly communicate the circumstances under which independent South Carolina organizations are required to meet UL 300 fire extinguishing equipment standards.
-

Service Manual Requirement

In February 2005, the OSFM issued a memorandum which included a requirement for servicing companies to have the hard copy service manual for each type of fire extinguisher and commercial stove hood extinguishing system for each technician. The applicable NFPA 10 fire code above, 6.1.4, states “Maintenance, servicing, and recharging shall be performed by trained persons *having available* the appropriate servicing manual(s). . . .” We have concluded that the interpretation, communication, and enforcement of this code are more aggressive than the code allows.

The OSFM unnecessarily required each technician to have hard copy service manuals.

This requirement may have created unnecessary costs for vendors.

Recommendation

6. The Office of State Fire Marshal should only require that the service manuals be available to service technicians, consistent with the relevant fire codes.

Communication

We found that there has been inadequate communication among the Office of State Fire Marshal (OSFM) and resident fire marshals, fire protection equipment vendors, and regulated organizations. For example we found that resident fire marshals, vendors, and regulated organizations have not been given adequate access to the fire codes. Also, regulated organizations have not been adequately informed of appeal rights and procedures.

Current Communication Practices

Currently, most of the OSFM's communication with resident fire marshals and fire protection equipment vendors consists of:

- Certification examination process for resident fire marshals.
- Licensing and permitting examination process for fire protection vendors in the state.
- Annual training on fire code enforcement and other issues.
- News updates sent to resident fire marshals by the OSFM.

Most of the OSFM's communication with the general public consists of:

- A frequently asked questions (FAQs) section and other information on the division's website.
- Occasional news releases on the division's website.

Access to Fire Codes

The OSFM has not provided adequate access to the state fire codes. The International Fire Code (IFC) and the National Fire Protection Association (NFPA) standards are the fire codes used in the state of South Carolina (the NFPA standards are often referred to as "codes" in an interchangeable manner by the fire safety community). The OSFM does not have links to the free IFC and NFPA fire codes on the main webpage of its website.

During the course of our audit, we spoke to numerous resident fire marshals, fire protection equipment vendors, restaurants, churches, schools, daycares, etc. Some of the resident fire marshals we spoke to were unaware that the IFC and the NFPA codes were available for free, in a read-only form, on the OSFM's website. If resident fire marshals are unaware that the codes are available for free on the OSFM website, then it is likely that many in the general public would also be unaware. If resident fire marshals, vendors, or regulated organizations were to purchase these codes themselves, it can be expensive. The IFC codes cost between \$90 – \$100, depending on the version selected (online or hard copy, etc.), and a full set of the NFPA codes costs between \$900 – \$1,025.

The OSFM has not made state fire codes easily accessible on its website to resident fire marshals and other interested parties.

The OSFM has not publicized that the IFC and NFPA fire codes are available on the division's website at no charge. During our audit, we spoke to a county fire marshal whose county could not afford the NFPA codes. As a result, the county fire marshal sometimes travels to a city fire marshal's office within his county to research the NFPA codes. The inspection forms we reviewed that are given to regulated organizations by the OSFM, resident fire marshals, and fire protection equipment vendors do not state that editions of the fire codes are available on the OSFM's website. If regulated organizations are unaware that the codes are available for free, they may have no means to research fire inspection issues when an inspection is performed on their organization; thus, many regulated organizations have no method to check a vendor's or fire marshal's inspection report for accuracy. Although, the OSFM has these codes available for free, in a read-only form, on its website, they are difficult to find.

Contradictory Memorandums

In 2005 the OSFM issued two contradictory memorandums about the removal of portable fire extinguishers from service. As a result, resident fire marshals, vendors, and the general public may be unclear regarding the official policy.

Memorandum One

The OSFM first issued a memorandum to the state's fire equipment dealers, all deputy state fire marshals, and all resident state fire marshals on August 1, 2005. Resident state fire marshals refer to local county and city fire marshals and certain state agency employees. The memo cited NFPA 10 section 6.1.4 and required the General brand dry chemical, CO₂, and water-filled types of extinguishers, as well as those types of other brands whose manufacturer had gone out of business, be removed from service when their next annual maintenance was due.

The memorandum explained that since the manufacturer was out of business, service manuals and parts lists could not be obtained from the manufacturer or updated and that obtaining service manuals and parts lists from the manufacturer is required by the NFPA 10 fire code 6.1.4. Therefore, the extinguishers could no longer be maintained in accordance with Section 6.3 of NFPA 10, the annual maintenance and inspection section, which describes maintenance procedures on each type of extinguisher.

NFPA 10, Section 6.1.4 states:

Maintenance, servicing, and recharging shall be performed by trained persons having available the appropriate servicing manual(s), the proper types of tools, recharge materials, lubricants, and manufacturer's recommended replacement parts or parts specifically listed for use in the fire extinguisher.

Memorandum Two

The OSFM issued a corrected memorandum on August 12, 2005, indicating the General brand fire extinguishers could remain in service until its six-year maintenance was due, needs recharging, needs any new parts, does not pass the annual or monthly maintenance/inspection service, or needs a hydrostatic test (a pressure test of the cylinder to check for leaks or weak spots).

Even though the second memorandum corrected the first, experts and workers in the fire industry were confused about what was in effect. The OSFM did not take additional steps to ensure that all parties were fully aware of the correction. Even now, a local fire marshal is not clear on the policy. One resident fire marshal we interviewed stated that whenever a manufacturer of portable fire extinguishers goes out of business, the fire extinguisher has to be removed at the next annual maintenance, even though this action is implementing the first directive, rather than the second directive.

One large school district was incorrectly advised by its fire equipment sales and servicing company and required to replace several hundred district fire extinguishers because of vendors acting on the first memorandum. At a cost of about \$45 to \$65 per extinguisher, the early replacement cost could have been \$36,000 - \$52,000. The school was unable to supply the exact number of the extinguishers removed.

Notice of Fire Code Violation

Some inspection forms given to regulated organizations by fire equipment vendors do not include a designated space for the specific law, regulation, or fire code, which identifies the nature of the violation. As a result, it may be more difficult for a regulated organization to confirm the infraction.

Appeal Rights

Several of the regulated organizations we spoke to were unaware that they could appeal resident fire marshals' inspections to the OSFM. The inspection forms do not inform regulated organizations of their appeal rights to the OSFM and do not contain the contact information for the OSFM.

In addition, regulated organizations only have 24 hours to appeal a resident fire marshals' inspection to the OSFM.

S.C. Code §23-9-70 states:

If such order is issued by any deputy or resident fire marshal, such occupant or owner may, within twenty-four hours, appeal to the State Fire Marshal, who shall, within ten days, during which time the order appealed shall be stayed, review the order and file his decision.

Organizations can also appeal the OSFM's appeal decision to an administrative law judge within five days.

The resident fire marshal inspection forms we reviewed gave regulated organizations up to 30 days to file an appeal at the local level.

Twenty-four (24) hours may not be an adequate period of time to appeal a resident fire marshal's ruling to the OSFM when an inspection violation is not an imminent danger to the public. In addition, five days may not be an adequate period of time to appeal an OSFM ruling. An amendment to the law is required to provide regulated organizations a reasonable amount of time to file an appeal.

Website Communication

The OSFM website communication with resident fire marshals, businesses, and the public needs improvement.

The OSFM does not have an adequate process for providing information on new or confusing issues that will have a large impact on resident fire marshals, fire protection equipment vendors, or regulated organizations. Although the OSFM has a frequently asked questions (FAQs) area on the division's website, many issues are not addressed in these questions. For example, as of August 2010, there were no meaningful questions relating to the portable fire extinguishers or UL 300 issues.

The OSFM does not have a webpage on the division's website that solely addresses new or confusing issues. This type of webpage could serve as a resource for resident fire marshals, fire protection equipment vendors, and the general public. A link to the webpage that addresses these important issues should also be displayed on the main webpage of the OSFM's website.

The OSFM does not have a listserv for resident fire marshals, vendors, and regulated organizations. This listserv should have a link to join it on the main webpage of the OSFM website. A listserv could send out emails to resident fire marshals, vendors, and organizations that joined the listserv in order to keep them up-to-date on fire issues within the state.

Out-of-Date Policies

The OSFM's outdated policies remain on the agency's website.

In the past, the OSFM issued policy memorandums that addressed certain fire safety issues within the state. However, the OSFM has ceased issuing these policy memorandums, and instead relies on state law and the fire codes to provide guidance to resident fire marshals, vendors, and the general public. The OSFM informed us that the policy memorandums had been rescinded; however, we found these policies were still available on the OSFM's website. Allowing these rescinded policy memorandums to remain on the OSFM website could lead to confusion for regulated organizations that use the OSFM's website for guidance.

Recommendations

7. The Office of State Fire Marshal should update its website by:
 - Creating a link on the home page to the current, free, read-only editions of the International Fire Code and the National Fire Protection Association standards.
 - Implementing a policy to update its website to notify all fire marshals and fire equipment vendors of new policies, new fire codes, corrections to fire codes, interpretations of fire codes, and fire safety issues of public interest.
 - Creating a listserv with a link on the main webpage for resident fire marshals, fire equipment vendors, and regulated organizations to join in order to facilitate notification of fire safety policies and information.
 - Removing the division's rescinded policy memorandums.
8. The Office of State Fire Marshal should require that all OSFM, resident fire marshals', and fire equipment vendors' inspection forms be updated to include the following:
 - Information informing the general public that resident fire marshals' inspections can be appealed to the OSFM, and including the contact information for the OSFM.
 - The Internet address for the free, current editions of the IFC and NFPA fire codes available on the OSFM website.
 - The specific law, regulation, or fire code regarding the infraction.
9. The General Assembly should amend S.C. Code §23-9-70 to increase to 30 days the time period for regulated organizations to appeal a resident fire marshal's inspection to the OSFM when no imminent danger is present.
10. The General Assembly should amend S.C. Code §23-9-70 to increase to 30 days the time period for regulated organizations to appeal an OSFM decision to an administrative law judge when no imminent danger is present.

Oversight

The Office of State Fire Marshal (OSFM) does not have the authority to revoke the certification of resident fire marshals that are negligent in performing their duties or in fulfilling their responsibilities. Also, the OSFM does not have a quality review process to verify that resident fire marshals and fire protection equipment vendors in the state are accurately performing their duties.

Authority Over Resident Fire Marshals

The OSFM has no authority to revoke a resident fire marshal's certification if the resident fire marshal is negligent or incompetent.

Resident fire marshals are employees of the local city, county, or state agency they serve. The only authority the OSFM has over resident fire marshals is judging appeals on resident fire marshals' inspection decisions and ensuring resident fire marshals have their required annual 20 hours of continuing education training to keep their certification valid.

For example, if a resident fire marshal were to perform illegal or negligent acts, the OSFM cannot revoke the fire marshal's certification unless the resident fire marshal is fired by his employer. Currently, the only way a resident fire marshal loses his certification is when he leaves the employment of the local government or state agency. However, in other states the state fire marshal is allowed to revoke the certification of a resident fire marshal for cause. For example, in Florida, Georgia, and Tennessee, the state fire marshal can revoke a resident fire marshal's certification because of negligence of duty or failure to perform job responsibilities.

Table 4.1: Regulation of Resident Fire Marshals in Other States

STATE	STATE FIRE MARSHAL CERTIFIES RESIDENT FIRE MARSHALS	
	YES	NO
ALABAMA		✓
FLORIDA	✓	
GEORGIA	✓	
NORTH CAROLINA	✓	
SOUTH CAROLINA	✓	
TENNESSEE	✓	
VIRGINIA	✓	

Source: LAC survey of southeastern states.

Quality Review Process for Resident Fire Marshals

The OSFM does not have a process to ensure that the fire codes are enforced consistently.

The OSFM does not have sufficient policies in place to provide consistency among resident fire marshals across the state. During the course of our audit, we spoke to numerous resident fire marshals, fire protection equipment vendors, restaurants, churches, schools, daycares, etc. Several of the individuals expressed concerns over the inconsistency among the various fire marshals.

For example, one school official expressed concern over how many different opinions he receives from various fire marshals. The official stated one resident fire marshal required light switches to be moved three inches higher when the light switches had been in that position for years. Throughout all of the inspections that had been performed, no other fire marshal cited this as a violation that required correction.

Another school official expressed concern that a resident fire marshal in his area would cite one of his schools for a violation that the OSFM deputy did not point out in his inspection. The OSFM is ultimately responsible for inspecting schools within the state. According to the OSFM, if there is a difference between a resident fire marshal's inspection and a OSFM's inspection, then the OSFM's authority takes precedence per S.C. Code §6-9-110 (B).

The LAC experienced similar inconsistent enforcement. A resident fire marshal conducted an unannounced fire inspection of our office building two business days after we submitted an audit draft report to the OSFM for review. We were cited for having file cabinets that hindered access to a fire exit in a hallway. This situation had existed in our office for approximately eight years.

If the OSFM were to develop a quality review process to review a representative sample of resident fire marshals' inspections, it may help improve consistency among resident fire marshals across the state.

Vendor Conflict of Interest

The OSFM does not have a review process in place to check for unnecessary upgrades of fire extinguishing equipment installed by fire equipment vendors. As a result, vendors may be profiting from selling unneeded fire extinguishing equipment, while also increasing costs for regulated organizations. This conflict of interest is inherent in how the fire safety industry operates, since vendors are in the position of selling replacement equipment for systems the vendors deem noncompliant with the fire codes.

Owners of fire extinguishing equipment are required to have their equipment inspected and maintained. Regulated organizations select fire equipment vendors to perform these services. Vendors sell fire equipment, upgrade existing equipment, and advise organizations on whether or not equipment is compliant. This creates a conflict of interest, since vendors may benefit from the decision to require upgrades or new equipment.

There is a conflict of interest, since vendors sell replacement equipment for systems the vendors determine are noncompliant with the fire codes.

Based on interviews we conducted and the vendor inspection forms we reviewed, there is no evidence that regulated organizations are properly informed as to the actual authority of vendors. Resident fire marshals, and ultimately the OSFM (not fire protection equipment vendors) have the authority on whether an upgrade or purchase is necessary. By updating vendors' inspection forms to include information about contacting the appropriate resident fire marshal or OSFM's office with questions, the actual authority of vendors may become clearer to regulated organizations.

The OSFM, by implementing a review process in which the division makes targeted and random reviews of inspections and maintenance performed by fire equipment vendors, could help ensure that unnecessary upgrades and replacement of fire equipment due to conflicts of interest are detected.

Other States

We contacted six southeastern states to determine how the state fire marshals in those states handle resident fire marshals' and fire protection equipment vendors' issues. South Carolina is similar to the majority of these states in requiring licensing of vendors and the maintenance of fire protection equipment.

Table 4.2: Regulation of Fire Protection Equipment Vendors in Other States

STATE	SFM LICENSES FIRE PROTECTION EQUIPMENT VENDORS		VENDORS CLEAN, SERVICE, AND INSPECT FIRE EQUIPMENT	
	YES	NO	YES	NO
Alabama		✓	✓	
Florida	✓		✓	
Georgia	✓		✓	
North Carolina		✓	✓	
South Carolina	✓		✓	
Tennessee	✓		✓	
Virginia*	✓		✓	

*In Virginia a state agency other than the SFM licenses vendors.

Source: LAC survey of southeastern states.

Recommendations

11. The General Assembly should amend S.C. Code §23-9-30 to authorize the Office of State Fire Marshal to revoke a resident fire marshal's certification for cause.
12. The Office of State Fire Marshal should implement a quality review process to ensure that a sample of resident fire marshals' inspections is conducted consistently.
13. The Office of State Fire Marshal should require fire protection equipment vendors' inspection forms to include a statement directing regulated organizations to contact the resident or state fire marshal with questions about the inspection.
14. The Office of State Fire Marshal should implement a process to check fire protection equipment vendors' inspections for unnecessary upgrades. If it is determined that unnecessary upgrades have occurred the OSFM should impose fines or other disciplinary measures.

Agency Comments



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November 3, 2010

Mr. Thomas Bardin, Jr.
Legislative Audit Council
1331 Elmwood Avenue, Suite 315
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Dear Mr. Bardin:

Thank you for the opportunity to respond to the draft report entitled *A Review of the Office of State Fire Marshal*. The Office of State Fire Marshal (OSFM) appreciates the professionalism exhibited by the auditors and their obvious efforts to master the intricacies of fire code enforcement work. The process of working with the auditors has improved our systems and made us better at our primary job of protecting the life and property of the residents of the State from fire. We especially appreciate the constructive criticism of the design of our website. When one uses a site regularly, one can lose sight of the difficulties it presents to the occasional user. Many of the report recommendations have already been implemented in our on-going efforts at quality improvement.

Other recommendations are also valuable. OSFM cannot undo policy decisions made in 2005. It can, however, learn lessons for use as it is required on a daily basis to harmonize the inconsistent terminology used in the International Codes Series, the publications of the National Fire Protection Association, and the various statutes governing its operations. While each of these sources of authority uses different language, each has as its purpose - the protection of the citizens of South Carolina from the ravages of fire. Each fire that occurs in this state does some property damage. Too many of these fires also injure, or kill, our citizens.

OSFM believes that it is required to interpret regulations and codes in a manner that provides for the protection of life and property. See S.C. Code §23-9-60 OSFM's decisions must be made with consideration of potential liabilities to the public health, safety, and welfare, as well as the costs of compliance. Both types of costs are difficult to quantify. The auditors' report documents extensive efforts to quantify the costs of replacing portable fire extinguishers and updating stove fire extinguishing equipment. It also recites significant difficulties in arriving at a reliable number. The audit report does not attempt to quantify any costs and liabilities associated with the use of extinguishers or extinguishing systems, whether they have lost their UL listing, or are otherwise obsolete. OSFM also cannot quantify these costs, but does recognize them. In addition, OSFM orders and interpretations are always subject to review, whether by direct appeal or by informal request for reconsideration. To our knowledge, neither the interpretations, nor any subsequent orders by the OSFM or local fire marshals referencing obsolete fire extinguishing systems / non UL fire extinguishers have ever been appealed.

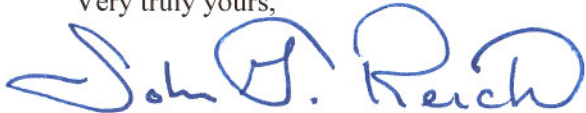
OSFM agrees with the audit conclusion that current statutes do not provide authority for adequate oversight of the performance of fire codes enforcement. Under current law, codes enforcement of the codes is largely a local government responsibility. Resident state fire marshals may be employees of city, county or state agencies. They may also be employees of special purpose districts and membership

organizations. Some of these entities have authority to create enforcement mechanisms by ordinance, others do not. Similarly, OSFM has no authority to regulate the business practices of vendors of fire equipment. Some regulated equipment vendors are subject to S.C. Code §23-9-45; some are not. The statute allows revocation of a license for giving a false answer to certain mandatory questions. It does not provide for discipline of the license for any other reason.

Finally, OSFM agrees that the provisions of S.C. Code §23-9-70 are internally contradictory, and are limited to review of codes enforcement questions that rise to the level of describing structures which are “especially liable to fire “ or “so situated as to endanger lives or other property.” To address the kind of concern articulated by the LAC as result of its own recent unannounced fire inspection, will require a much more extensive statutory revision than discussed in the audit report.

Again, I wish to state that OSFM largely agrees with the recommendations in the draft report entitled *A Review of the Office of State Fire Marshal*. We look forward to working with you and the General Assembly on the very complex issues presented by the proposal to update sections of Title 23 to reflect changes in state and local government organization since the enactment of §§23-9-10 through 23-9-180. We offer, as a starting point, the final draft of a proposal developed by a large group of stakeholders in 2004. While it does not reflect recent legislative developments, it represents a sincere effort by a large and diverse group of people to design a fair and functional fire safety regulation system for the state, allowing for all of the existing local enforcement options and focusing the resources of all levels of government on assuring the protection of life and property from fire.

Very truly yours,



John G. Reich
State Fire Marshal

This report was published for a total cost of \$29; 65 bound copies were printed at a cost of 44¢ per unit.