2005 SUNRISE REVIEW

Colorado Department of Regulatory Agencies
Office of Policy, Research and Regulatory Reform

Fire and Burglar Alarm Systems

October 14, 2005

STATE OF COLORADO

DEPARTMENT OF REGULATORY AGENCIES
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Bill Owens
Governor

October 14, 2005

Members of the Colorado General Assembly
c/o the Office of Legislative Legal Services
State Capitol Building
Denver, Colorado 80203

Dear Members of the General Assembly:

The Colorado Department of Regulatory Agencies has completed its evaluation of the sunrise application for regulation of the fire and burglar alarm industries and is pleased to submit this written report. The report is submitted pursuant to section 24-34-104.1, Colorado Revised Statutes, which provides that the Department of Regulatory Agencies shall conduct an analysis and evaluation of proposed regulation to determine whether the public needs, and would benefit from, the regulation.

The report discusses the question of whether there is a need for the regulation in order to protect the public from potential harm, whether regulation would serve to mitigate the potential harm, and whether the public can be adequately protected by other means in a more cost-effective manner.

Sincerely,

Tambor Williams

Tambor Williams
Executive Director

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The Sunrise Process

Background

Colorado law, section 24-34-104.1, Colorado Revised Statutes (C.R.S.), requires that individuals or groups proposing legislation to regulate any occupation or profession first submit information to the Department of Regulatory Agencies (DORA) for the purposes of a sunrise review. The intent of the law is to impose regulation on occupations and professions only when it is necessary to protect the public health, safety or welfare. DORA must prepare a report evaluating the justification for regulation based upon the criteria contained in the sunrise statute:

> (I) Whether the unregulated practice of the occupation or profession clearly harms or endangers the health, safety, or welfare of the public, and whether the potential for the harm is easily recognizable and not remote or dependent upon tenuous argument;
>
> (II) Whether the public needs, and can reasonably be expected to benefit from, an assurance of initial and continuing professional or occupational competence; and
>
> (III) Whether the public can be adequately protected by other means in a more cost-effective manner.

Any professional or occupational group or organization, any individual, or any other interested party may submit an application for the regulation of an unregulated occupation or profession. Applications must be accompanied by supporting signatures and must include a description of the proposed regulation and justification for such regulation. Applications received by July 1 must have a review completed by DORA by October 15 of the year following the year of submission.

Methodology

DORA has completed its evaluation of the sunrise proposal requesting the regulation of those who sell, design, install, repair, replace and monitor fire and burglar alarm systems. As part of the sunrise review process, DORA performed a literature search; reviewed the licensure laws of other states and local jurisdictions; interviewed representatives of the sunrise applicants; contacted representatives of various associations, including the Fire Alarm Reduction Association, Apartment Association of Metro Denver, Inc., Colorado Municipal League, Colorado Counties, Inc., International Code Council-Colorado Chapter, Rocky Mountain Insurance Information Association, Joint Commission on Accreditation of Healthcare Organizations, and the Building Owners and Managers Association.

DORA contacted representatives of the Colorado Department of Labor and Employment, the Colorado Department of Public Safety, the Colorado Department of Personnel and Administration, the Colorado Department of Public Health and Environment, the Colorado State Electrical Board, the Colorado State Board of Licensure for Professional Engineers and Professional Land Surveyors, and the Colorado Division of Insurance.

Additionally, DORA interviewed fire and burglar alarm inspectors, installers and designers, including self-employed small business owners and employees of larger companies. DORA also interviewed several local fire marshals, a county building official, a National Institute for the Certification in Engineering Technologies (NICET)[1] instructor, and the operations director of a rural area hospital and a metropolitan area hospital. To better understand the industry, a representative of DORA visited a NICET certification review class at Red Rocks Community College and observed fire alarm system inspections of a hotel, state college, and condominium complex.

[1] National Institute for the Certification in Engineering Technologies (NICET) is an independent, private, certifying body sponsored by the National Society of Professional Engineers. This certification program was designed for engineering technicians working in the fire alarm industry.

Proposal for Regulation - Introduction

This sunrise application, filed as a joint endeavor of numerous applicants, requests a combined licensing program for the burglar and fire alarm industries. Applicants include, the Colorado State Fire Chief's Association, Fire Marshals' Association of Colorado, Colorado Association of Chiefs of Police, County Sheriffs of Colorado, Colorado Burglar and Fire Alarm Association, and the Rocky Mountain Automatic Fire Alarm Association. (Applicants) The Applicants submitted a sunrise application to the Department of Regulatory Agencies (DORA) for review in accordance with the provisions of section 24-34-104.1, Colorado Revised Statutes (C.R.S.).

The sunrise application requests state licensure by DORA or the Department of Public Safety for those who sell, design, install, repair, replace and monitor fire and burglar alarm systems. The Applicants are not requesting regulation for larger commercial security systems. The Applicants assert that individual licensure and state regulation of the alarm industry will decrease false alarms and increase public safety. According to the application, law enforcement and fire officials are expending unnecessary time and resources responding to false alarms, leaving them unavailable for community protection work and real emergencies.

False alarms were presented as the primary reason for the sunrise application, but are essentially the only commonality between two distinct occupational groups. One group is comprised of technical professions specific to commercial fire alarm systems. The other group specializes in residential burglar alarms. The two occupational groups have some overlap in residential combined burglar and fire alarm systems. During the research process, the practicality and feasibility of combining the two groups was questioned, especially since the professions within the groups are varied in terms of complexity, specialization and potential for harm. Therefore, in the interest of clarity and organization, the remainder of this report will address the two occupational groups separately.

Proposal for Regulation - Fire Alarm Systems

The Applicants request a regulatory program parallel to the Colorado Fire Suppression System Program (Suppression Program). The Suppression Program has been regulated by the State of Colorado since 1989, after a sunrise review found that poorly installed, designed and maintained fire suppression systems are a threat to public safety. Following the 2004 sunset review, the General Assembly continued the Suppression Program until 2014.

The Applicants recommend a licensing framework similar to the Suppression Program, including the following suggestions:

- Program regulation by DORA's Division of Registrations or by the Department of Public Safety's Division of Fire Safety;
- A strong enforcement program, preferably through a licensing board;
- Certification of fire alarm inspectors, granting them the authority to approve fire alarm designs, prepare fire alarm layout plans and conduct acceptance test inspections on newly installed systems;
- Registration for fire alarm installers, granting them the authority to sell, install, repair, maintain and perform maintenance inspections on fire alarm systems;
- Require fire alarm-specific knowledge and personal accountability for fire alarm designers;
- Authorize local government to administer fire alarm regulatory programs, provided local regulations do not conflict with state standards;
- Allow fire alarm manufacturing companies to register as entities, allowing installers to work under the company's registration. Installers would have to work under the direct supervision of an individually registered fire alarm installer;
- If a locality did not have a certified local inspector, state fire alarm inspectors would review and approve fire alarm design plans and provide necessary inspections;
- Register fire alarm monitoring companies and allow companies to self-regulate their employees; and
- Certification and registration for all occupations based on demonstration of training and qualifications applicable to the profession.

Profile of the Industry - Fire Alarm Systems

Society's need to protect citizens from fire is a tradition of timeless importance. Historically, fire protection came in the form of citizen-organized volunteers. During the industrial revolution, volunteer fire departments struggled to meet the needs of growing cities and increasing populations. In 1853, Cincinnati, Ohio became the first city to have a paid fire department, shifting the fire protection industry from volunteerism to a paid occupation.[2] Recognizing that adding professionalism and technology would increase citizen protection, and other jurisdictions quickly followed Cincinnati's lead. Today, rural areas without paid fire departments continue to rely on volunteers for fire protection. Historically and currently, whether paid or volunteer, the purpose of fire protection is simply to save lives.

[2] Dunnings Jr., Thomas J. "Fire Departments", The Reader's Companion to American History, Houghton Mifflin. http://college.hmco.com/history/readerscomp/rcah/html/ah_031400_firedepartme.htm visited 20 May 2005.

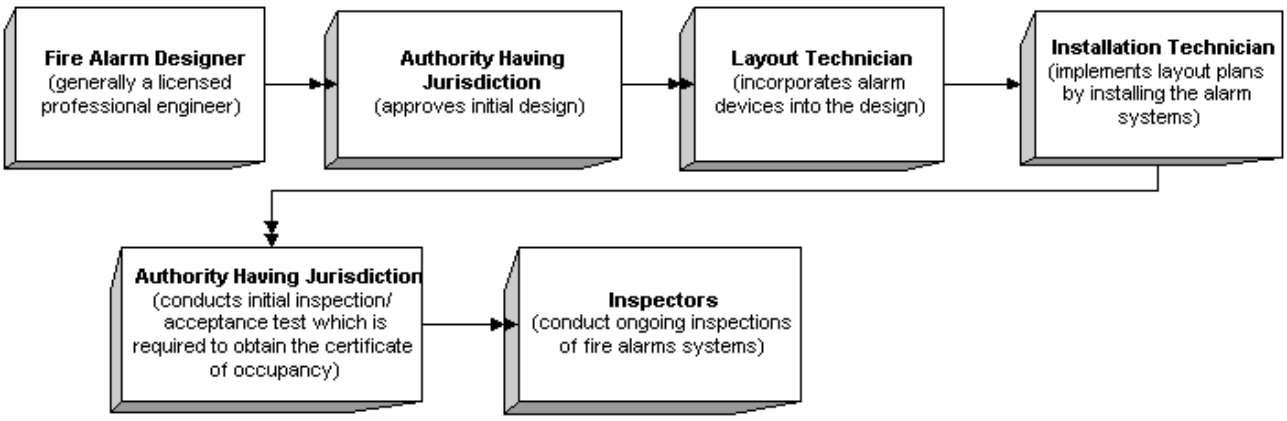
Fire code regulations, intended to prevent fires and minimize human harm, began in ancient Rome when fire brigades patrolled the streets, inflicting corporal punishment on those violating fire-prevention codes.[3] In 1648, New York City (then called New Amsterdam), appointed fire inspectors to impose fines for violations of fire codes.[4] Chimney laws were another early form of fire code regulation.[5]

In 1852, the first fire alarm telegraph system was installed, and fire alarm boxes were installed throughout communities. The fire alarm call boxes were initially tall, black, gas-lighted fixtures, similar to lampposts. In the late 1880's, fire alarm call boxes were painted red and the police call boxes were painted blue -- a distinguishing color characteristic of the two emergency services that continues today.

The fire alarm call boxes provided the public with the means to warn others of fire, as well as the opportunity to create false fire alarms. False alarm regulations began when communities tried locking the fire alarm call boxes and dispersing the key to entrusted individuals. This defeated the purpose of emergency notification, since time was wasted attempting to locate the person with the key. In 1875, pull handles encased in red keyless fire alarm boxes were used to sound fire alarms.[6]

In addition to the pull handles, modern fire alarm systems are comprised of numerous components with various levels of complexity. The construction of a complete fire alarm system, from beginning to end, usually involves several occupations and levels of professional expertise.

The following diagram describes the process for installing a fire alarm system and the professions involved:



[3] "History of Fire Fighting." Encyclopedia.com. HighBeam Research, Inx. 2005. Visited 20 May 2005. http://www.encyclopedia.com.
[4] Ibid.
[5] Dunnings Jr., Thomas J. "Fire Departments", The Reader's Companion to American History, Houghton Mifflin. http://college.hmco.com/history/readerscomp/rcah/html/ah_031400_firedepartme.htm. Visited 20 May 2005.
[6] Williams, Paul K. "History of District of Columbia fire and Police Call Boxes." Oct. 2000. DC Heritage Tourism Coalition. Visited 20 May 2005. http:///www.foxhall.org/preservation/CallBoxHistory.htm.

Fire alarm systems begin with a design, usually created by professional engineers and sometimes created by certified engineering technicians. Fire alarm designs determine the type of fire alarm system best suited for a particular building, considering factors such as building use, size, occupancy, patterns of exit and "passive building systems," such as principles of building construction and construction materials.[7] Fire alarm designs incorporate all applicable building, fire and fire alarm codes in addition to applying fire science to human behavioral responses to fire and evacuation.

Completed designs are usually reviewed and approved by the Office of the State Fire Marshal, if the jurisdiction has such an office. Sometimes a local fire marshal will review and approve fire alarm designs. In jurisdictions without any local fire marshal, an "Authority Having Jurisdiction" (AHJ) would review and approve the plans. An AHJ can be a sheriff's department, building owner, insurance company, or hired contractor. The design reviewer should have enough fire alarm system and applicable code knowledge to identify design problems.

The approved design is sent to a layout technician. The layout technician implements the design by drafting the alarm system devices onto the design. Devices consist of all the hardware used in the system, such as horns, pull handles, smoke and heat detectors, elevator recall apparatus, fire doors and smoke control system equipment. Fire alarm system layout plans are also referred to as shop drawings. Layout technicians are often employed by device manufacturers, and implement their employers' products. Layout technicians must understand and implement the purpose of the design. Training and qualifications for fire alarm layout technicians varies by state, ranging from licensed professional engineers to on-the-job training.

Fire alarm installers implement the layout plan by installing the fire alarm hardware and devices and then wiring the devices to the fire alarm panel.[8] Correct installation and panel wiring is essential. In the event of an emergency, the panel notifies either a local fire department or a monitoring company, which then contacts local fire authorities. Fire alarm installers may also repair, replace or inspect fire alarm systems. As with layout technicians, the kind and amount of training required for fire alarm installation technicians varies by state. Training requirements can range from professional electricians, specialized electrical low-voltage licensure, secondary vocational requirements, specialized fire alarm installer licensure or no requirements.

After the fire alarm system is installed, the fire marshal or AHJ conducts the final inspection, also called the acceptance test. This test verifies that the system is operational and ready for use. An acceptance test is conducted prior to issuing the certificate of occupancy. Once issued, whether a fire alarm system is ever tested again depends on state laws, local ordinances, insurance requirements, independent certifying entities or the building owner.

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[7] Society of Fire Protection Engineers, "The Engineer and the Technician: Designing Fire Protection Systems", Position Statement. (April 2005).

[8] Fire Alarm Control Panel is a central control device for detecting, reporting and acting on occurrences of fires within a building.

National Institute for the Certification in Engineering Technologies (NICET)

NICET certification is a nationally recognized certification offered by the National Association of Professional Engineers. This certification is obtained by demonstrating competence through written examination, verifiable work experience and personal recommendation. Levels of certification range from level I through level IV. An Associate's Degree, Bachelor's Degree or Professional Engineering license can substitute for up to 18 months of experience towards NICET certification requirements. The examination is offered in Colorado for $180.

National Burglar and Fire Alarm Association (NBFAA)

Established in 1948, the NBFAA is a national organization composed of over 2,400 companies engaged in manufacturing, selling, installing servicing and/or monitoring electronic life safety and security systems.

In 1985, this organization established The National Training School (NTS). NTS provides education and training programs for those who sell, monitor, install and service fire and burglar alarm systems. Online training and classroom training is offered to prepare for the NICET level I and level II examinations. Classroom training is available in Colorado through the Colorado Burglar and Fire Alarm Association and online training is available through DigitalNTS. The cost is $100 per credit hour with a $50-application fee. Applicants must pass a written examination to obtain certification. The following certifications are offered and valid for one year: (1) Certified Alarm Technician (CAT) -- 24 hours ($2,400); (2) Advanced Fire Alarm Technician -- 16 additional training hours after obtaining a CAT ($1,600); and (3) Advanced Alarm Technician -- additional 16 hours after obtaining the CAT ($1,600).

Automatic Fire Alarm Association (AFAA)

Established in 1953, this association represents the automatic fire detection and fire alarm system industry and offers an introductory certificate program in fire alarm system design and operation. The on-line program focuses on the interconnection of fire alarm systems to other fire protection and building control systems, and the operation and placement of all types of fire alarm-initiating devices and notification appliances. The cost is $199 for the entire course or $34 for each 30-minute training segment. The Rocky Mountain Fire Alarm Association is the Colorado chapter of this national association.

False Alarm Reduction Association (FARA)

This association was formed to provide government and law enforcement agencies working in local False Alarm Reduction Units, with a central resource service. The FARA website offers publications and resources for local governments seeking to reduce false alarms. False Alarm Reduction Units are created within local police departments to address their jurisdictions' false alarm problems.

Summary of Current Regulation – Fire Alarm Systems

The Colorado Regulatory Environment – Fire Alarm Systems

Colorado does not have an Office of the State Fire Marshal, which would typically adopt a state fire code and regulations. Without a statewide fire code, Colorado has a patchwork of fire codes, fire alarm codes and pockets of local regulation. Fire alarm designs are within the scope of practice for professional engineers, but because the fire suppression statute allows a National Institute for the Certification of Engineering Technologies (NICET) level III or higher engineering technician to design fire suppression systems, fire alarm designers have interpreted the statute as extending to fire alarm systems. Currently, both professional engineers and engineering technicians are designing fire alarm systems. Fire alarm layout technicians, installers and inspectors do not have state-mandated training or qualification requirements.

Electrical Code

The National Electrical Code, adopted by the Colorado State Electrical Board, applies to the entire state. Licensed electricians must install the high voltage portions of fire alarm systems, but not the low voltage portions. According to section 12-23-111(24) Colorado Revised Statutes (C.R.S.), a licensed electrician is not needed for "installation, maintenance, repair, or alteration of fire alarm systems operating at 50 volts or less." The wiring inside the fire alarm panel is low voltage, and therefore, not subject to state electrical inspection. Although fire alarm systems are often a combination of high and low voltage wiring, state electrical inspectors are not required to ensure that the high and low voltage aspects of the fire alarm system operate together properly and do not test the overall operability of newly installed fire alarm systems.

Building Codes

Building codes set standards for new building and remodel construction. The most frequently adopted Colorado building codes are the Uniform Building Code and the International Building Code. Some counties have not adopted a building code, which allows them to choose either code or no code at their discretion. Those counties are Baca, Cheyenne, Costilla, Custer, Delta, Dolores, Kiowa, Kit Carson, Montezuma, Morgan, Prowers, Saguache, Sedgwick and Yuma. In these counties, buildings such as schools, hospitals, hotels, and multifamily dwellings are subject to building codes via another agency or credentialing authority. Other types of buildings, such as movie theatres or shopping malls may or may not have building requirements. Where applicable, building codes are enforced by local building officials.

Building codes require maintenance, testing schedules and procedures for fire alarm systems conducted in accordance with fire codes, which refer to the National Fire Alarm Code (NFPA 72). According to one county building official, building inspectors visually inspect fire alarm systems for reasonable device placement and do not test fire alarm systems. Depending on individual knowledge, building code officials may or may not recognize fire alarm code violations.

Fire Codes

Colorado does not have an Office of the State Fire Marshal. In states where it exists, this office typically adopts, interprets and enforces state fire code. In Colorado, city fire departments, fire districts and special districts may adopt fire codes. Fire code jurisdiction is not delineated by city or county boundaries. Fire code jurisdiction can serve multiple municipalities, overlap counties and still leave areas without any adopted fire codes. For instance, Jefferson County has over 20 fire districts, yet many areas in Jefferson County are not included in a fire district, leaving those areas without fire marshals or fire codes.

National Fire Alarm Code (NFPA 72)

Where adopted, the NFPA 72 sets minimal standards for all aspects of fire alarm systems. The NFPA also sets guidelines for fire alarm system occupations, but does not mandate specific qualifications or training.

Fire Suppression Program

Fire alarm systems and fire suppression systems are separate systems with at least one point of interconnection. Installation of the two systems is often a cooperative effort between fire suppression installers (state regulated) and fire alarm installers (not state regulated). According to the Director of the Colorado Division of Fire Safety, state fire suppression inspectors are qualified to inspect the fire alarm systems, but they do not have authority to do so. When the suppression inspectors discover fire alarm system problems, they report the problems to the building owner, but have no authority to ameliorate those problems.

Public Schools

The Colorado Department of Labor and Employment (DOLE) has jurisdiction of Colorado K-12 public schools, including the fire alarm systems. DOLE may authorize in-house district staff, independent contractors, or local fire officials to conduct school fire alarm inspections.

Hotels/Motels

The Hotel and Motel Fire Safety Act of 1990[9] is a federal law requiring government employees who travel, to stay in hotels with smoke detectors installed according to the NFPA 74 (the predecessor to NFPA 72). This law provides financial incentive for hotels seeking to gain government business.

Hospitals/Health Facilities

The Colorado Department of Public Health and Environment has seven multiple trade inspectors who conduct general safety inspections, including fire alarm systems, for approximately 1,158 Colorado healthcare facilities. Some facilities are inspected annually, some every few years, and others are inspected only upon initial licensure.

The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) accredits and inspects hospitals and health care facilities that receive Medicare and Medicaid funding. As part of the accreditation process, JCAHO mandates regular inspections of fire alarm systems and equipment in accordance with NFPA 72, as well as the Life Safety Code (NFPA 101). Bids are typically accepted for fire alarm inspections, and the inspection records are kept on the facility premises. JCAHO conducts its own inspections at least every three years, providing facilities with six months notice.

State Buildings and Colleges

The Department of Personnel and Administration (DPA) is responsible for new building and remodel construction on all state agency buildings, including the State Capital, the Colorado Historical Society, state prisons, the Colorado Supreme Court and all state colleges except for Colorado Mountain College, Colorado College and Aims Community College. DPA does not have any jurisdiction over bridges, highways or the Department of Natural Resources' buildings, such as visitor centers.

DPA fire alarm systems are designed by licensed professional engineers and initially inspected by state-authorized contractors. After the initial construction is completed, responsibility for ongoing fire alarm system maintenance and inspections transfers to individual state agencies.

Authority Having Jurisdiction (AHJ)

An AHJ reviews and approves fire alarm designs and conducts new and ongoing fire alarm system inspections. The local fire marshal usually acts as the AHJ. In areas without a fire marshal, the sheriff's department or another designated entity, such as an insurance company or building owner, acts as the AHJ. In Colorado, an AHJ requires no specialized training or qualifications.

[9] 15 U.S.C.A. § 2201, *et seq*.

Colorado Requirements for Fire Alarm System Designers

Poorly drafted fire alarm designs, if implemented, become defective fire alarm systems. In Colorado, the legally allowable qualifications for fire alarm designers are the subject of dispute, even among the parties submitting the sunrise application (Applicants).

Engineering Times describes the technician/engineer debate as,

> a state-by-state debate over the right to design fire protection systems, which is becoming a heated issue among engineers and contractors in Oregon and the rest of the country.[10]

At the center of the debate in Colorado is whether NICET-certified engineering technicians can or should design fire alarm systems. In Colorado, the Board of Licensure for Professional Engineers and Professional Land Surveyors (PE/PLS Board) interprets the language of section 12-25-102(10), C.R.S., through Rule 2.2. This rule places fire alarm system designs within the scope of the practice of engineers.

Rule 2.2 states:

> The design of fire protection systems constitutes the practice of engineering as defined by § 12-25-102(10), C.R.S. Fire protection systems are interpreted by the board to include, but not be limited to, fire detection systems, fire alarm systems, and fire suppression systems.

The Colorado Division of Fire Safety statute, section 24-33.5-1206.2(2), C.R.S, allows NICET level III and higher engineering technicians to design fire suppression systems in addition to licensed professional engineers.

Some fire alarm system designers have interpreted this statute as allowing engineering technicians to design fire alarm systems. This interpretation is not shared throughout the profession. Specialized fire protection engineers, interviewed by DORA, assert that fire alarm and suppression designs require specialized knowledge beyond the standard knowledge of professional engineers and NICET engineering technicians. They endorse specialized fire protection engineers as the proper qualification for fire alarm designers. Colorado does not license engineers by specialty, although specialized knowledge is needed in most engineering practice areas. According to section 12-25-108(g), C.R.S., professional engineers can be subject to disciplinary action for "performing services beyond one's competency, training or education."

The Applicants voice concern over the quality of fire alarm system designs submitted by professional engineers. However, the Program Director for the PE/PLS Board reports that the PE/PLS Board has not received any complaints against engineers for faulty fire alarm designs, leaving the argument that engineers are submitting poor quality designs without evidence.

[10] "Contractors, Engineers Debate Fire Protection Design Issues," Engineering Times, Vol. 27, No. 6, p. 1, June 2005.

Local Regulation – Fire Alarm Systems

A number of local jurisdictions have, or are in the process of, adopting regulations to oversee various components of the fire alarm industry. The approach taken by the City and County of Denver, outlined below, is representative of one approach taken by local governments.

Denver issues two licenses pertaining to fire alarm installation and inspection. Conducting a fire alarm business in Denver requires a low voltage contractor license issued by the Denver Building Department and a fire alarm installer license issued by the Denver Fire Department. Company employees without a license can work under the company license, but must register as apprentices.

The Denver Fire Department is developing a fire alarm installer license that could be issued to those meeting the following requirements:

- Four years of documented experience;
- Passing a 50-question, NFPA 72-specific examination; and
- Passing a 25-question, Denver code-specific examination.

A NICET level II or higher certification can substitute for the NFPA 72 examination, but not the Denver code examination.

All designers and layout (shop drawing) technicians must be licensed professional engineers. Denver has six licensed professional engineers who perform all fire alarm plan reviews.

Fire alarm inspectors must be licensed as a fire alarm installer.

Denver's examination is comprised of a pool of 250 questions specific to the NFPA 72 and randomly selected for the examination. The examination was developed by the Denver Fire Department.

Regulation in Other States – Fire Alarm Systems

Table 1 below reflects regulatory programs found in eight neighboring states. Additional information regarding state regulation throughout the nation can be found in Appendix A on page 37.

Table 1

Fire Alarm Regulation in Select States

State	Office of the State Fire Marshal		State Inspectors		Regulation of Fire Alarm Design		Regulation of Fire Alarm Layout Plans		Regulation of Fire Alarm Installers		Comments
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	
Arizona	X		X		X		X		X		Three levels of licensure for fire alarm installers.
Kansas	X		X		X		X			X	Installation business must be registered with the state.
Nebraska	X		X		X		X		X		Fire alarm installers are regulated through the Electrical Board.
Nevada	X		X		X		X		X		Two levels of licensure for fire alarm installers.
New Mexico	X		X		X		X		X		Fire alarm installers are licensed through the Construction Industries Division.
Oklahoma	X		X		X		X		X		Two levels of licensure for fire alarm installers. Fire alarm panel tagging system.*
Utah	X		X		X		X		X		Fire alarm installers must obtain a low-voltage electrical license.
Wyoming	X		X		X		X		X		Fire alarm installers must obtain a low-voltage license.

*Oklahoma's tagging system is modeled after fire extinguisher regulations. The purpose of tagging fire alarm panels is to provide a visible indicator of the operability and inspection history of fire alarm systems. Green tags signify an operable system without impairments. Yellow tags signify an operable system with minor impairments. Red tags signify major impairments. Impairments are listed on the tag and specify whether they do or do not render the system inoperable. Building owners must make repairs to yellow and red tag systems.

Analysis and Recommendation – Fire Alarm Systems

Public Harm – Fire Alarm Systems

The first sunrise criterion asks:

> Whether the unregulated practice of the occupation or profession clearly harms or endangers the health, safety or welfare of the public, and whether the potential for harm is easily recognizable and not remote or dependent on tenuous argument.

Faulty fire alarm installation and poor fire alarm inspections cause the most harm or create the most potential for harm. The parties submitting the sunrise application (Applicants) and their peers submitted the following examples of harm. Department of Regulatory Agencies' (DORA's) analysis appears in italicized text.

Case #1: Mountain resort hotel inspection with a NICET certified inspector

On June 9, 2005, a NICET[11]-certified, self-employed fire alarm inspector,[12] guided a DORA representative through a resort hotel for the purpose of identifying fire alarm system deficiencies. In 2004, this same inspector had found numerous fire alarm deficiencies, which the hotel was still in the process of correcting. Inspections conducted prior to 2004 (and by a different inspector) did not identify the same fire alarm system problems.

This hotel is endorsed and listed as a U.S. Fire Administration "Fire Safe Hotel,"[13] which means that this hotel is listed as compliant with The Hotel and Motel Fire Safety Act of 1990.[14] This federal law was enacted after 400 hotel-related fatalities occurred within a five-year time period during the 1980's. In spite of the "fire safe" listing, the following deficiencies were observed:

[11] National Institute for the Certification in Engineering Technologies (NICET) is an independent, private, certifying body sponsored by the National Society of Professional Engineers. This certification program was designed for engineering technicians working in the fire alarm industry.
[12] The DORA representative met this inspector while attending the NICET certification class at Red Rocks Community College. The inspector offered to provide a visual reference for the terminology discussed in class.
[13] Department of Homeland Security, Federal Emergency Management Agency, U.S. Fire Administration. "Hotel/Motel Fire-Safe List Search Results." Visited July 29, 2005. http://www.usfa.fema.gov/application/hotel/search_results.cfm.
[14] 15 U.S.C.A. §2201, *et seq.*

- The fire alarm panel was divided between an old zone system, and a new addressable system.[15] The zone panel displayed trouble signals, indicating fire alarm system problems in certain areas of the hotel. The panel was also partially disconnected, and "dummied," so the panel wouldn't signal a problem in another area due to the disconnection. The newer, addressable panel was working properly. In the event of a fire, only half of the fire alarm system would have been wired to a reliable panel system capable of communicating the emergency to a fire department.

- Numerous smoke detectors, originally white, were yellow with age. The inspector estimated that the smoke detectors were at least 20 years old. According to the National Fire Alarm Code (NFPA 72), smoke detectors must be replaced at least every 10 years.

- Throughout the hotel, emergency pull handles were encased in glass boxes, all of which were missing the glass-breaking hammers. According to the inspector, the enclosed pull handles were outdated and constitute a violation of the NFPA 72.

- All fire doors[16] were inoperable due to physical obstructions or were disconnected from the alarm system.

- Elevators did not have a recall system [A system that detects smoke outside of the elevator and automatically sends the elevator to a safe floor].

- Contrary to the NFPA 72, the hotel lobby (approximately 10,000 square feet) contained a large wood-burning fireplace and no fire alarm devices or signals.

  This case represents a potential for harm. However, there are confounding factors that complicate the assumption that state regulation would have prevented the potential harm. As an example, if the hotel sought the inspection in order to identify and correct potential shortcomings in the fire alarm system, one could reasonably conclude that market forces are successfully working to ensure that this business creates a safe environment for guests. If, on the other hand, the inspection is brought about through the need to comply with local regulations, it is apparent that state intervention is not needed.

[15] An addressable system signals a fire emergency to a specific room, a zone system signals an emergency to a large area, such as an entire building floor.
[16] When a fire alarm goes off, magnets on each side of fire doors should release the doors, allowing them to close and contain a fire.

Case #2: Acceptance test with a fire marshal at a Denver area college

On June 22, 2005, A DORA representative observed an acceptance test[17] conducted by a local fire marshal for a newly installed, complex fire alarm system. All computer equipment and software for the college is housed in the portion of the building with the new fire alarm system. The system is closely connected to the suppression system and includes specialized ventilation, which circulates cool air for equipment maintenance, detects early signs of smoke and will not activate suppression equipment precipitately, or in the absence of a real fire.

According to the fire marshal, prior to an acceptance test, the fire alarm system should be pre-tested, and the installers prepared to demonstrate system operability. This was the second acceptance test inspection due to several deficiencies identified during the prior test. At this second testing, the alarm installers were not prepared to test the system, and did not know how to test the system. The fire marshal obtained the manufacturer's instructions for testing the alarm equipment and attempted to demonstrate system settings and the testing process. After two hours, he left the inspection site without any progress toward completing the acceptance test.

This example does not demonstrate harm, but rather, a fire marshal's frustration with fire alarm system installers. If fire alarm installers had minimal qualifications and training, they might know how to test the system they installed. However, one must question if solving such problems is an appropriate use of state resources.

Case #3: Inoperable smoke control system in county jail

A NICET-certified fire alarm contractor provided this example to DORA. In 2003, a county jail roof caught fire while construction workers were re-roofing the facility. Smoke control fans did not shut down properly, and smoke was pulled into the building, exposing several inmates to smoke.[18] Coincidentally, the reporting fire alarm contractor was working on a project in another area of the building and was able to shut down the fans. No one was seriously injured, but a potential for harm was created. According to the reporting contractor, the prior alarm installer did not wire the duct detectors to the fans or to the alarm panel. He also stated that the last annual inspection sheet reflected that the smoke control system had been tested and was without deficiencies.

[17] The final fire alarm system test before the certificate of occupancy is issued. A signed acceptance test means that the system is safe and operable.

[18] A smoke control system is a necessary part of a fire alarm system for jails, hotels or any type of building where quick evacuation of many people would be difficult or impossible. Duct detectors are one component of smoke control systems. Duct detectors are fire alarm devices that are installed inside air ducts to detect smoke and to automatically shut ventilation fans down to prevent smoke from being pulled into the building. Smoke inhalation, not fire, is the cause of most fire-related fatalities.

This case fails to establish that the installer and inspector did not meet the proposed qualifications under review. Their qualifications, like their identity, are unknown. While the assertion that the prior installer failed to install the system properly supports the Applicants' sunrise argument, it is not known if the example is true. There is no documentation of who installed the original system and there is no showing that the system has been untouched since the original installation. To the contrary, the last annual inspection (inspector identification and date unknown) shows that at least one person had contact with the system. Finally, those persons responsible for business or government decisions, such as the one cited in this case are, or should be, highly informed consumers. The creation of new state regulation to replace such consumers' due diligence requirements (according to the facts of the case study) is not an appropriate use of state resources.

Case #4: Inoperable smoke detectors and sparking fire alarm panel in rural area hospital

In 2004, the same fire alarm inspector who conducted the hotel inspection in Case #1, discovered an overextended fire alarm panel and inoperable smoke detectors in a small rural hospital. According to this inspector, previous inspection records did not identify any problems. During the inspection, a sensitivity test[19] revealed inoperable and low-functioning smoke detectors. According to the inspector, the fire alarm panel was approximately 40 years old, overworked with additions and threw sparks during the testing process.

This hospital is accredited and certified by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO), which requires documentation of two inspections per year. JCAHO has no specific inspector qualifications, although the organization has adopted the NFPA 72. JCAHO may check the inspection records every three to six years, when it conducts its own inspections.

While this case establishes a potential for harm in an environment that houses at-risk individuals, one cannot draw the conclusion that state regulation would have any impact on the case as presented. The example attempts to implicate previous inspectors but does not establish that the inspectors were not qualified. In any event, the JCAHO-adopted standards represent a voluntary attempt to improve safety without state intervention.

Case #5: No warnings of fire due to disconnected smoke alarms and a malfunctioning fire alarm panel in Vail, Colorado

This example was submitted by the Vail fire marshal. In March 2005, a fire broke out in Vail, Colorado with damage totaling $500,000. The power supply to the fire alarm panel malfunctioned, causing evacuation horns to stop working. The smoke detectors did not work because they were disconnected 20 years prior. According to the NFPA 72, smoke detectors should be replaced every 10 years. Inspection records for the prior three years had not identified any problems.

[19] A sensitivity test utilizes a device that hooks up to smoke detectors to analyze their level of function.

This case shows potential harm in that a licensed inspector with adequate knowledge of the NFPA 72 may have identified fire alarm system deficiencies before the devices became non-functional. However, the question remains whether state regulation would have prevented this situation because the power supply to the fire alarm panel malfunctioned.

Case #6: No warning of fire due to disconnected smoke and heat detectors

In 2005, fire alarm system problems were discovered after a fire occurred. Heat detectors were 20 years old and were not connected to the alarm panel. The building had annual inspection reports on record, but the inspection reports did not identify the old and inoperable detectors. Also, the monitoring company did not have current phone numbers and called a fax machine several times, trying to verify the fire, while the fire was occurring.

This case establishes some level of harm (there was a fire) and it is reasonable to assume that an inspection program, state or local, may have detected the discrepancies.

Case #7: Inoperable fire alarm system discovered in Denver museum

Approximately four years ago, A NICET-certified alarm installer/inspector discovered a non-functioning fire alarm system in a Denver museum. The previous fire alarm installer had connected the first smoke detector to the end-of-line in the panel box to prevent the panel from displaying a trouble signal. According to the inspector, the only proper way to test is to methodically test each device and clear the panel after each one. This method is time consuming but it is the only way to reveal the end-of-line issues. This particular museum exhibit area contains irreplaceable items of historical significance, is very popular, and usually contains large groups of schoolchildren and other spectators.

This case does not establish that the installer a) did not have the proposed level of qualification and b) was in fact responsible for tricking the system. Such modifications could easily have been accomplished subsequent to the installation.

Case #8: Photograph of an improperly mounted, inoperable specialized smoke detector

This photograph shows a smoke detector mounted underneath a computer room floor in a four-story building. This detector is incorrectly installed vertically instead of horizontally. Additionally, this sensitive smoke detector is supposed to shut down computer equipment upon early smoke detection. This smoke detector is inoperable since it is completely wrapped in plastic and taped shut.

This case does demonstrate potential harm but also shows that an inspection revealed the problem before actual harm occurred. Again, there is no evidence of the identity or the qualifications of the installer.

Case #9: Photograph of an expired fire alarm battery

This photograph was taken in 2004 and submitted to DORA by a fire alarm system inspector. The photograph shows large batteries, which provide power to a fire alarm panel in a three-story building. The battery in the photograph is dated March 1994. The NFPA 72 directs battery replacement every four years. Annual inspection records did not reflect this deficiency.

This case does not establish that the batteries were not operational, only that they should be replaced according to the proposed standard. This deficiency was discovered during an inspection, raising a doubt as to the need for state oversight.

Case #10: Faulty installation of fire alarm systems in Denver area school district

This example was submitted by a Denver area fire marshal. According to the fire marshal, approximately four years ago, a Denver area school district contracted with a fire alarm installer to upgrade the fire alarm systems at several local schools. The installer failed to install many of the pull stations as agreed, failed to conduct audibility testing, and never requested final inspections or re-inspections for several schools. The missing pull handles and low audibility problems were discovered by the local fire department four years later.

This case demonstrates potential harm. However, a number of the factors cited appear to be enforceable through the contract. Also, without evidence of the installer's qualifications, one cannot assume that he/she failed to meet the Applicants' proposed standards. On the other hand, regardless of installer qualifications, a state-licensing program may have imposed discipline against the licensee depending on the facts of the case.

Need for Regulation – Fire Alarm Systems

The second sunrise criterion asks:

> Whether the public needs and can reasonably be expected to benefit from an assurance of initial and continuing professional or occupational competence.

An assurance of initial and continuing competence, in almost all cases, will provide some benefit to consumers. However, consumers will pay for this assurance through reduced supply and increased costs.

As pointed out repeatedly in the analysis of the cases in the sunrise application, there is no reporting on the qualifications of the installers and inspectors cited in the cases. They may have had the necessary qualifications proposed by the Applicants. Without significantly more information for these cases, it is not possible for the state to determine where to establish the standard of competence. This is an important consideration because the state standard becomes the point of entry into the occupation. If the standard is set too high the state participates in reducing competition in the market to the detriment of consumers.

Alternatives to Regulation- Fire Alarm Systems

The third sunrise criterion asks:

> Whether the public can be adequately protected by other means in a more cost-effective manner.

The first alternative to requiring state regulation is continuing the existing regulatory condition, which leaves individual agencies and local government to determine which fire alarm standards best meet their respective needs. The disadvantage to this approach is that many areas in Colorado, particularly rural areas, lack fire marshals, fire departments and the financial resources to regulate fire alarm systems on any level. This alternative requires no additional state funding.

Another option is to create a regulatory program within the Department of Regulatory Agencies, Division of Registrations, State Electrical Board (Electrical Board). This plan would enable state electrical inspectors to inspect, test and approve wiring and operation of entire fire alarm systems. However, the Electrical Board lacks specialized fire code and fire alarm code knowledge and may have difficulty testing and certifying occupations requiring this knowledge.

Another solution is to create a regulatory program for fire alarm system occupations within the Department of Public Safety, Division of Fire Safety, parallel to the fire suppression program. Placing both the fire alarm program and the fire suppression program under a single regulating entity creates the opportunity to consolidate certification requirements for those who work with both systems. Fire marshals would benefit from combined certification because they typically inspect both fire alarm and fire suppression systems. State fire suppression inspectors could expand the scope of their inspections to include fire alarm systems.

The fire suppression program is a well-respected program with a strong reputation for balancing local government interests with state regulation and public protection. Expanding an existing, successful program is also more cost-efficient than creating a new program.

The fire suppression program certifies local fire suppression system inspectors, authorizing them to review and approve local plans and conduct local inspections. State inspectors provide services for jurisdictions without certified local inspectors. The state sets minimum code and occupational qualification standards. Local government can exceed state standards as long as they do not conflict with the state minimums.

Conclusion – Fire Alarm Systems

This sunrise proposal establishes that there is a lack of centralized state standards for the regulation of the fire alarm industry including installers, inspectors, and system designers. Further, the proposal shows some evidence of harm, as well as evidence of what could be termed shoddy workmanship, that may create a potential for harm. The question for the General Assembly to determine is whether the evidence of harm indicates a need for state regulation in the form of a licensing and inspection program.

This report's Summary of Current Regulation, beginning on page 8, reports significant levels of regulation and other oversight components that address, in varying degrees, fire alarm systems. While some proponents of state regulation see this as part of the problem, it does demonstrate that the fire alarm industry does not operate in a completely unregulated market. As examples, recall that the Colorado Department of Labor and Employment, the Colorado Department of Public Health and Environment, and the Colorado Department of Personnel and Administration all have some regulatory oversight over fire alarm systems within their individual jurisdictions. Further, some local jurisdictions have established or are establishing standards, and private entities, such as the Joint Commission on Accreditation of Healthcare Organizations, mandate regular inspections. These are but examples of various responses to improving fire safety through the use of fire alarm systems.

This review finds that the evidence of harm to the public is, in most cases, evidence of potential harm that should be addressed by the industry but perhaps not through the creation of a new state bureaucracy and more layers of governmental regulations. This proposal offers 10 cases of harm. Two cases presented incidences of actual harm (one case of smoke inhalation by two individuals and one case of financial harm) and one other case presented the occurrence of a fire. The remaining seven cases demonstrate the potential for future harm if they had gone undetected and uncorrected. Of course, all of these instances were detected by subsequent inspections or in the course of daily business. It is this series of outcomes, coupled with the multiple layers of public and private sector regulation already in existence that argues so strongly against the creation of new state regulation. The proposed response by the state to create a new program that examines and licenses members of this occupation and then inspects every system installed seems out of proportion to the scope of the problem.

This is not to argue, however, for a *laissez faire* dismissal of the Applicants' evidence. The examples of harm and potential harm delineated in this sunrise review should be addressed in a couple of ways.

First, it appears that local governments are in the best position to respond to the cases discussed in this review. Should local governments decide that more regulation is called for, based on the experiences in their jurisdictions, as Denver has recently determined, they can create customized responses that fit the needs of their respective communities. The examples of harm presented in this review can serve as a reasonable starting point for such deliberations.

Second, Colorado law creates the Fire Service Training and Certification Advisory Board (Advisory Board) in the Colorado Department of Public Safety. While the Advisory Board's current duties are focused on other fire safety areas, the Advisory Board houses a great deal of expertise germane to the issues presented in this review. Membership includes representatives from a number of fire safety associations, as well as a representative of the property and casualty insurance industry.

The representation and/or duties of the Advisory Board could be amended to aid in further researching the issues brought forward by the Applicants. At the very least, the Advisory Board could serve as a point of collection for complaints against fire alarm installation companies and installers who appear to perform unsafe installations or inadequate inspections.

Recommendation - Impose no regulation on the fire alarm industry.

Proposal for Regulation – Burglar Alarm Systems

Although the sunrise application was submitted as a joint effort by several parties (Applicants), the Applicants do not necessarily agree on the same regulatory proposal. The Applicants represented by law enforcement, request licensure for those who sell, install and maintain burglar alarm systems or burglar/fire alarm combination systems. These Applicants propose licensure as a remedy for false alarms, disreputable door-to-door alarm system salespersons and installers, and as a means to prevent criminals from gaining unlawful entry into homes by posing as residential alarm salespersons. Applicants affiliated with alarm occupations and associations do not see the same need for regulation as law enforcement, but have joined law enforcement as Applicants for the purpose of industry representation.

According to law enforcement Applicants, false alarms directly and indirectly place the public at risk by diverting limited and valuable law enforcement resources away from legitimate public safety endeavors. According to the Applicants, false alarms require law enforcement to leave patrol duties and investigations to respond to intrusion alarms, which are false between 94 and 98 percent of the time.[20]

The Applicants also request licensure for monitoring companies. Monitoring companies are responsible for dispatching local law enforcement after receiving an intrusion signal. The Applicants assert that monitoring companies unnecessarily dispatch law enforcement to false intrusion alarms. According to the Applicants, monitoring companies, especially out of state companies, lack accountability for negligent dispatches. The Applicants request certification for monitoring companies and registration for company employees.

Profile of the Industry - Burglar Alarm Systems

The U.S. Department of Labor identifies "security and fire alarm installers" as one of the fastest growing occupations between the years 2002 and 2012, and defines the profession as those who, "install, program, maintain, and repair security and fire alarm wiring and equipment."[21]

In contrast to fire alarm systems, one person can typically conduct the sale, site assessment[22] and installation of a home or small business burglar alarm system. The burglar alarm system is installed based on the site assessment, and ideally, the consumer is instructed in proper system use. Typically, the consumer initiates any ongoing repairs or inspections to a home or small business burglar alarm system.

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[20] Sunrise Application, Burglar and Fire Alarm Systems page 4, footnote 2 citing Spivey, K. & Cobb, R., "Public Safety/Private Sector, Working to Solve the Problem," *Police Chief*, 1997, LXIV (6) pp. 44-52.
[21] U.S. Department of Labor, Bureau of Labor Statistics, "Security and Fire Alarm Systems Installers", Occupational Outlook Handbook, 2004-05 edition, visited 26 April 2005, http://bls.gov/oco/oco2058.htm
[22] A site assessment consists of sketching out a burglar alarm system plan based on a visual assessment of the property floor plan and recommending devices based on the customer's lifestyle patterns and security needs.

According to the Applicants, installing burglar alarm systems requires minimal knowledge, and the systems are comprised of inexpensive devices. The combination of easy access to alarm equipment and minimal training allows disreputable alarm salespersons and installers, referred to throughout the industry as “trunk slammers,” to take advantage of consumers. This facet of the burglar alarm industry gains business by soliciting door-to-door and offering immediate installation, with all necessary equipment literally warehoused in a car trunk. The Applicants express frustration with this group of alarm system installers. The Applicants assert that the door-to-door solicitors are transient, difficult to track, and install poor products that cause false alarms.

In addition to the independent solicitors, large companies also sell, install and monitor burglar alarm systems. Larger companies often provide more specialized employee services. For instance, some employees might conduct site assessments and sell devices while other employees might install, maintain and repair systems. Larger companies typically engage in a form of self-regulation by conducting background checks and motor vehicle checks on their employees. Larger companies often provide in-house training for new employees, especially when the company markets its own brand of alarm equipment.

After a burglar alarm system is installed, a monitoring company is typically responsible for contacting the police when the system indicates an intrusion. Self-employed burglar alarm installers usually contract with other companies, some of which are outside of Colorado, to provide monitoring services for the systems they install. Larger companies might provide their own monitoring service.

Summary of Current Regulation – Burglar Alarm Systems

Most burglar alarm system regulation takes place at the local government level. Regulations are typically divided into two categories. The first category regulates industry professionals, by requiring the installers to register or obtain permits. The second category of regulation attempts to resolve the false alarm problems. These regulations include local policies regarding police response, false alarm fines and alarm system permits or inspection requirements for alarm system owners. Listed below are some examples of current Colorado regulation.

Verified Response Policies (VRPs)

A VRP is a local policy, which provides police officers with individual discretion in determining whether to respond to certain types of intrusion alarms. For example, if an intrusion alarm gives one indication of a break-in (such as an open door signal), police do not have to respond. If an intrusion alarm gives more than one indication (such as an open window and a motion detector signal), then the alarm is considered valid, requiring police response. Witness reports, multiple alarm trips and camera or audio verification are some examples of verifying conditions requiring police response.

Intrusion alarms initiated by banking institutions, schools, facilities containing drugs or weapons and property owned by the city, require police response and are exempt from the VRP. Robbery, panic and fire alarms are also exempt from this policy.

In June of 2004, the Lakewood Police Department implemented a VRP on an experimental basis. During the first six months of the VRP, the police department received 2,899 intrusion calls, 13 of which were valid, meaning that in the end, they were not false alarms. Ten of the calls received a police response, because they met validity criteria. Three calls only had one intrusion signal, and did not receive a police response. Thus, a properly implemented VRP can lead to a drastic reduction in the number of false alarms to which police are expected to respond. However, as the experiment in Lakewood also demonstrated, a certain percentage of valid calls will not receive a response by police.

The Lakewood Police Department estimated saving approximately $45,920 during the first six-month period, due to the VRP. Additionally, Lakewood noted an increase in felony arrests made during the six-month time period: possibly attributable to the increased availability of officers to follow up on open investigations. Lakewood, Arvada, Westminster, Broomfield and Aurora currently have VRPs.

VRPs are a relatively new concept, with limited research on the policies' community impact. Because VRPs limit police response, alarm companies fear that burglary rates will increase in VRP jurisdictions. These concerns were addressed by Kelly R. Buck, Ph.D., in her article, *Assessing Available Research on the Effects of Verified Response Policies*. According to Dr. Buck, after Salt Lake City, Utah implemented VRP, the burglary rate did increase. However, because two other cities without VRPs also showed increases in burglary rates, Dr. Buck concluded that more data was necessary and more time would have to lapse before any reliable conclusions could be drawn.[23]

Enhanced Call Verification (ECV)

ECV is a policy requiring the alarm monitoring companies to make one to two additional calls before contacting authorities after receiving an intrusion alarm signal. By making the additional calls, the implementation of an ECV policy is expected to lower the police response to false alarm calls. ECV requires cooperation between alarm monitoring companies and law enforcement, but does not require any additional funding or personnel to implement the policy.

The Colorado Burglar and Fire Alarm Association presented the idea of ECV to the Boulder Police Department, which agreed to test ECV beginning June 1, 2004. By May of 2005, Boulder saw a 46 percent reduction in alarm calls.[24]

False Alarm Fines

Some local jurisdictions impose fines on the alarm system owner for excessive false alarms. Usually, the fine increases with each additional false alarm. Some cities that currently impose fines for false alarms include Colorado Springs, Longmont, Thornton, Estes Park, Bow Mar, Durango, Fort Lupton, Telluride, Fruita, Sterling and Pueblo.

Some local governments have successful fining policies, while others are repealing fining policies in favor of response-oriented policies. For example, the Lakewood Police Department spent $250,000 per year to operate a false alarm fining program, which generated approximately $100,000 in revenue. The fining policy did not reduce the number of false alarms and was discarded in favor of a VRP.[25]

Local Permit/Licensing/Registration Requirements

Some local municipalities require alarm system owners to obtain installation permits and require annual registration and/or inspections. Examples of jurisdictions requiring permits and/or periodic inspections for alarm system owners include Aspen, Denver, Fort Collins, Golden, Cherry Hills Village, Broomfield and Vail. Local municipalities requiring licensure or registration for alarm system installers and/or alarm system businesses include Aspen, Denver and Fort Collins.

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[23] Buck, Kelly R. Ph.D., "Assessing Available Research on the Effects of Verified Response Policies," p. 3.
[24] Stocking, Dan, "Boulder Police and ECV Prove Successful," p.1.
[25] Internal Lakewood Police Department memorandum from John Camper, Division Chief, Support Services Division, to Ron Burns, Chief of Police, regarding 6-Month Review of Verified Alarm Response, February 9, 2005.

Non-Response

Some local jurisdictions do not respond to intrusion alarms after receiving numerous false alarms. Some examples of jurisdictions with non-response ordinances include Denver, Longmont, Sterling, and Douglas County.

Insurance Companies

Insurance companies may provide discounts to homeowners with alarm systems, or they may require burglar and/or fire alarms for homes valued over a certain amount. Insurance companies may or may not inspect the systems and may or may not require proof of actual installation. Van Guilder Insurance provides some examples of residential burglar and fire alarm requirements and discounts:

- Employer's Mutual Casualty (EMC) requires alarm systems in any home valued over $500,000. EMC requires an alarm installation certificate and inspects the system upon installation. EMC does not follow up with ongoing inspections. EMC allows up to a 15 percent credit for alarm system installation.

- Safeco requires alarm systems on a case-by-case basis, depending on the location and value of the home. Safeco does not inspect or require a certificate of installation. Safeco offers insurance discounts ranging from 5 percent to 10 percent.

- Foremost has no alarm requirements, but does offer discounts between two percent and five percent for homes with alarm systems. Foremost requires a certificate of installation before applying the credit.

- AIG requires alarm systems in homes valued over $1.5 million. No alarm certificate is required, but the system is inspected upon installation. AIG offers a five percent discount.

- Fireman's Fund requires alarm systems in homes valued at $1 million or more. It requires a certificate of installation and allows a 15 percent discount for combined burglar/fire alarm systems.

National Electrical Code

The National Electrical code does not apply to burglar alarm systems. Section 12-23-111(18), Colorado Revised Statutes, exempts security systems and burglar alarm systems from any kind of licensure requirement as an electrician for installation, maintenance, repair, or alteration.

Regulation in Other States – Burglar Alarm Systems

As part of this sunrise review, DORA reviewed the regulation of the burglar alarm industry in other states.

Arizona

The Arizona Registrar of Contractors offers three types of burglar alarm licensure. The residential low voltage communication system license requires one year of experience plus passage of a state examination. The commercial low voltage communication system license and the specialty commercial contracting license require two years of experience plus passage of a state examination.

Florida

The Office of Program Policy Analysis and Government Accountability reviewed the Electrical Contractors' Licensing Board in November 1996, pertaining to burglar alarm licensure. Florida's current licensure system allows both local and state licensure. Florida has experienced problems with the dual licensing system such as duplication of effort, licensee confusion and lack of uniform qualifications.

Hawaii

Alarm businesses have been regulated in Hawaii since 1986, and are required to keep records of alarm activation dates, times, reasons and monthly count of activations per site. In July of 2001, the State of Hawaii Auditor conducted an "Analysis of a Proposal To Expand the Regulation of the Alarm Industry" (similar to a sunrise review), in response to the increasing false alarm problem. The proposal requested expanding regulation to include licensing requirements for all persons engaged in the industry.

Hawaii ultimately recommended regulation at the local level, rather than at the state level. Some suggestions included local ordinances requiring permits or registration for users, service fees for excessive false alarms and permit revocation or restricted police response if delinquent fees go unpaid.

Oklahoma

The Oklahoma State Department of Health offers licensure for burglar alarm technicians, technician trainees, salespersons and burglar alarm companies by examination and upon passing a background check. No education or training is required prior to taking the examination.

Texas

In Texas, the Department of Public Safety regulates burglar alarm system companies under the Texas Board of Private Investigators and Private Security Agencies. Burglar alarm system salespersons and installers are required to register, pay fees and provide fingerprints for background checks. Texas requires a training program of at least 20 hours and may require passage of an examination. Alarm system monitoring companies must have a certificate issued by the board.

Utah

The Utah Department of Commerce, Division of Occupational & Professional Licensing Boards licenses burglar alarm agents who install, maintain, alter, repair replace or service alarm systems. Utah requires a National Institute for the Certification in Engineering Technologies level I certification, National Burglar and Fire Alarm Association level I certification, or state certification by examination.

Analysis and Recommendation – Burglar Alarm Systems

Public Harm – Burglar Alarm Systems

The first sunrise criterion asks:

> Whether the unregulated practice of the occupation or profession clearly harms or endangers the health, safety or welfare of the public, and whether the potential for harm is easily recognizable and not remote or dependent on tenuous argument.

The parties that submitted the sunrise application (Applicants) cite direct and indirect public harm as a result of the false alarms that plague local law enforcement. Local government has struggled with maintaining a balance between easy access to emergency services and the inherent problems pertaining to abuse and overuse of burglar alarm systems.

Home security systems are becoming increasingly popular, and in new homes, they are practically a standard feature. As the number of home security systems increase, so do the number of false alarms. Local jurisdictions have responded with varying degrees of local regulation. Numerous local ordinances have been adopted, discarded, and revised over the years in an attempt to find the best solution.

In 1970, the City and County of Denver passed a local ordinance addressing the false alarm problem by requiring permits to install and operate a "police alarm." In addition, Denver imposed fines for false alarms and officer time spent responding to the false alarm. A 1973 article, *Cooperation For Burglary Prevention*, discussed the false alarm problem, and the tenuous relationship between the alarm industry and law enforcement, and addressed the need for communication and cooperation.[26]

According to a 1988 *Rocky Mountain News* article, false alarms were costing the city of Denver approximately $450,000 a year in wasted police time. Again, the article discusses a new ordinance proposing permits for alarm installation and fines for false alarms. Other possible solutions proposed included alarm company verification of alarms and/or placing owners of regularly malfunctioning alarms on limited response or low priority response.[27]

[26] Gray, Harold Jr., "Cooperation For Burglary Prevention," NBFAA Signal, 4th Quarter, 1973. p. 6.
[27] Weiss, Suzanne, "Crackdown Looms on False Alarms," Rocky Mountain News, February 12, 1988, p.8..

False alarms have been problematic since the inception of the alarm industry. The Applicants assert that numerous harms are a direct result of false alarms, and state regulation through licensure would lead to decreased harm and increased public safety. According to the Applicants, false alarms have a detrimental impact on public safety in the following ways:

- Emergency vehicles "running hot" through the streets on false alarm calls have posed a danger to the public. According to the application, in 1995, one traffic fatality occurred when the Pueblo Sheriff's Department was responding to a false alarm.

- Limited financial resources are being diverted during false alarm problems. False alarms increase the need for law enforcement personnel, false alarm training, publications, public education, notices and citations.

- Time spent on false alarms could be spent on investigations and community work.

- False alarms lead to officer complacency and affect police response time and attitude. According to the application, a police sergeant in Boulder decided against responding to an alarm site, which had a history of false alarms only to later discover that a genuine burglary had taken place.

- Police are unavailable to respond to genuine emergencies while responding to false alarm calls.

According to the False Alarm Reduction Association (FARA), the most common cause of false alarms is user error. Residential systems typically create false alarms any time a household routine changes. False alarms are usually caused by new domestic help, guests or children coming home after school. The Applicants assert that other reasons for false alarms are underestimated, such as motion sensors by windows which are affected by wind, salespersons not performing appropriate site evaluations, pet habits and new pets, sensitivity of glass, improper wiring and environmental factors like lightening. FARA agrees that these other factors can contribute to false alarms, but cites user error as the number one cause of false alarms.

According to FARA, in the commercial arena, staff turnover and inadequate training of new staff members create false alarms. Hanging holiday decorations, which move when the heat turns on, can trigger motion detectors, causing false alarms. FARA asserts that providing better training to consumers would provide the most effective means for combating false alarms. Most false alarm research and documentation indicates that people, not systems, cause false alarms.

Other types of harm cited by the Applicants include:

Criminal acts committed by those posing as burglar alarm industry representatives

Because burglar alarm sales typically take place in residences, the law enforcement Applicants are requesting background checks as a prerequisite to licensure. Law enforcement Applicants are concerned that door-to-door burglar alarm system sales expose the public to unscrupulous vendors and possible physical harm. According to the Applicants, persons fraudulently posing as alarm representatives are a threat to the public, and background checks would screen out the criminal element. Applicants were not able to provide any examples of crimes committed in Colorado by those posing as burglar system representatives, but one example of harm was found in another state.

In 1994, a person committed sexual assaults in Maryland by posing as a home security system consultant to gain residential and personal information. Background checks for licensed burglar alarm representatives would not have deterred this crime, since the perpetrator was not an actual alarm representative. A background check can only identify previous criminal activity or convictions.

Background checks are difficult to justify without evidence supporting the connection between public harm and the lack of background checks. The alarm industry claims that it is conducting the types of background checks that best suit its needs, and it does not support state-mandated checks.

Alarm industry Applicants, as opposed to law enforcement Applicants, are not requesting background checks. Some alarm companies conduct their own background evaluations, such as driver's license checks (for insurance purposes), drug screens, Colorado Bureau of Investigation and/or Federal Bureau of Investigation background checks and fingerprinting. Many alarm companies prefer to train their employees by providing product-specific training.

Disreputable alarm industry

The Applicants expressed concerns regarding a disreputable faction of the alarm industry, known as "trunk slammers." The term refers to those persons in the alarm business who go door-to-door offering to sell and install alarm systems at discounted rates, with all needed supplies in their car trunks. Some local jurisdictions are frustrated because transient salespersons can be difficult to track and hold accountable for poorly installed systems or for violating local alarm permit ordinances. According to the Applicants, without state-mandated licensure, door-to-door salespersons are taking advantage of consumers by marketing and installing poor products, which in turn create false alarms.

> Local law enforcement may not embrace this faction of the industry, but it did not provide specific examples of any harm, other than generalized consumer fraud and poor quality work. Door-to-door sales have been a long-standing American entrepreneurial marketing tactic, sometimes leading to long-term entrepreneurial success. Mary Kay Cosmetics, Tupperware, and Hoover vacuum cleaners are some examples door-to-door sales success stories.

Most consumers are savvy enough to know that any purchase from an unknown door-to-door salesperson at a discounted rate, usually involves some amount of risk. Consumers also bear some responsibility for weighing the pros, cons and risks associated with such purchases. If such sales advances are not desired, a "no soliciting" sign is usually a sufficient deterrent. State regulations would not deter those operating a "trunk slammer" business as long as consumers are willing, paying participants.

Need for Regulation – Burglar Alarm Systems

The second sunrise criterion asks:

> Whether the public needs and can reasonably be expected to benefit from an assurance of initial and continuing professional or occupational competence.

The Applicants propose that regulation will protect the public by decreasing the number of false alarms. The Applicants assert that false alarms result from improperly installed burglar alarm systems and irresponsible monitoring companies. FARA, and other sources claim that false alarms are primarily the result of user errors, with minor contributions by monitoring companies and poor installations. According to the Applicants, false alarms impact public safety by diverting law enforcement resources. The Applicants assert that the public will benefit by the increased availability of law enforcement to prevent crimes and follow up on open investigations.

Local governments are increasingly implementing ordinances and policies directed at curbing false alarms. Some ordinances regulate the burglar alarm industry by requiring permits for owners, contractors and monitoring companies. Some ordinances impose fines for false alarms or limit police response to intrusion alarms. Although the Applicants do not deny the success of various local ordinances, they request state regulation as a solution to confusion and disparity between local municipalities. The Applicants also assert that state regulation is usually implemented faster than local ordinances.

Law enforcement asserts that state licensing, by imposing minimum standards for professional competence, would reduce false alarms. In contrast, FARA and other sources claim that consumers cause most false alarms. If true, state regulation would not reduce false alarms, since the state cannot regulate consumer behavior. Regardless of the exact cause, local government policies are successfully reducing false alarms, often with little to no administrative costs.

Alternatives to Regulation – Burglar Alarm Systems

The third sunrise criterion asks:

> Whether the public can be adequately protected by other means in a more cost-effective manner.

The sunrise application identifies state regulation as the most effective means to reduce false alarms. No state regulation is one option. Lack of state regulation costs taxpayers nothing. Currently, without state regulation, local governments have established a variety of local policies and ordinances directed at tackling the false alarm problem.

An Enhanced Call Verification (ECV) policy requires alarm-monitoring companies to make one to two additional calls before contacting authorities. This policy requires no additional staff or funding. The only requirement necessary to implement this policy is obtaining agreement from monitoring companies working within the jurisdiction to comply with the policy. The city of Boulder experienced a significant reduction in false alarms within six months of implementing this policy. Alarm companies are usually in favor of this type of policy. Although they are responsible for making an additional call or two, police still have to respond.

Another type of local government policy aimed at reducing false alarms is a Verified Response Policy (VRP). A VRP requires intrusion alarm verification prior to police response. This policy costs nothing to implement and drastically reduces false alarms. The Lakewood Police Department experienced a 99 percent drop in false alarms after implementing this policy. However, the disadvantage to this policy is the risk of valid calls not receiving a response. Alarm companies are typically opposed to VRPs. VRPs allow police to not respond to intrusion alarms. Since the burglar alarm business essentially sells police response, VRPs hurt business. Those who live in a jurisdiction with a VRP may be less likely to install burglar alarm systems if local police require verification of intrusion prior to response.

Some local jurisdictions impose false alarm fines for systems that repeatedly create false alarms. False alarm fines have received mixed reviews. Fines typically involve administrative costs associated with enforcement. Some jurisdictions report successful fining policies and others are repealing fining policies in favor of response-oriented policies, due to the administrative costs associated with enforcement.

Local government licensing, registration and permitting requirements are being implemented as a means to increase consumer protection and reduce false alarms. The positive aspect of local regulation is that programs can be tailored to meet the needs of a specific area. Various jurisdictions may experience various problems and want to enact ordinances specific to their needs. Burglar alarm contractors express frustration with the varying local requirements as they must contact authorities before beginning work in any given area.

Conclusion – Burglar Alarm Systems

The law enforcement Applicants have found themselves in the undesirable position of third-party to contracts formed between the alarm industry and consumers. The alarm business relies upon, and basically sells, police response. To a consumer, purchasing a burglar alarm system may be equivalent to purchasing priority police response. Law enforcement is a civil service, available to all citizens equally. Law enforcement does not benefit from the consumer/alarm company contract. Given that 98 percent of intrusion alarms are false, law enforcement's frustration with the *status quo* is valid.

The Applicants propose individual licensure as a solution for false alarms and the community-wide harm that results from those false alarms. The Applicants propose that requiring minimal training standards and background checks will facilitate better alarm system installation and operation.

However, faulty installation is responsible for only a portion of false alarms. Most false alarms are consumer-generated. Licensing requirements may regulate the behavior of those working in the profession, but they would not regulate consumer behavior, which is the primary cause of false alarms.

Fortunately, local ordinances and policies are rapidly addressing many of the concerns and harms presented by the Applicants. A variety of low to no-cost solutions are proving successful at the local government level.

Recommendation - Impose no regulation on the burglar alarm industry.

Appendix A – Current Organizational Functions of States' Fire Marshal Offices

STATE	Code Enforcement	Fire Investigation	Plans Review	Fire Prevention	Fire Data & Analysis	Fire Service Training	Public Fire Education	Fire Legislation Developmt.	Manufactured Housing Reg.	Mechanical Inspects	Electrical Inspects	Boiler Inspects	FPE on staff	Distribution of Funds to FD's
Alabama	X	X		X	X	X	X				X			
Alaska	X	X	X	X	X	X	X	X						X
Arizona	X	X	X	X		X								
Arkansas	X	X	X	X	X		X	X			X			
California	X	X		X	X	X	X	X					X	
Colorado									X					
Connecticut	X	X	X	X	X			X		X		X		
Delaware	X	X	X	X	X		X	X						
DC	X	X		X			X	X						
Florida	X	X	X	X	X	X	X	X	X		X			X
Georgia	X	X	X	X	X		X	X	X				X	
Hawaii	(NONE)													
Idaho	X	X	X	X	X									
Illinois	X	X	X	X	X	X	X	X				X	X	
Indiana	X	X	X	X	X	X	X	X		X	X			X
Iowa	X	X	X	X	X	X	X		X					X
Kansas	X	X	X	X	X	X	X	X						X
Kentucky	X	X	X	X	X	X	X	X	X	X	X	X		X
Louisiana	X	X	X	X	X		X		X	X		X		
Maine	X	X	X	X	X		X	X		X				
Maryland	X	X	X	X	X		X	X					X	X
Massachusetts	X	X			X		X							
Michigan	X	X	X	X	X	X	X	X						
Minnesota	X	X	X	X	X		X							
Mississippi	X	X		X	X			X	X					X
Missouri		X	X	X	X	X	X	X				X		
Montana	X	X	X	X	X	X	X	X						
Nebraska	X	X	X	X	X	X	X	X						
Nevada	X	X	X	X	X	X	X				X			
N. Hampshire	X	X	X	X	X		X	X		X	X			
New Jersey	X	X		X	X	X	X	X						X
New Mexico	X	X	X	X	X	X	X	X						X
New York	X	X		X	X	X	X		X					X
N. Carolina	X		X		X	X	X	X	X	X	X		X	X
N. Dakota	X	X		X	X		X							

STATE	Code Enforcement	Fire Investigation	Plans Review	Fire Prevention Inspections	Fire Data & Analysis	Fire Service Training	Public Fire Education	Fire Legislation	Manufactured Housing Reg.	Mechanical Inspects.	Electrical Inspects.	Boiler Inspects	FPE on staff	Distribution of Funds to FD's
Ohio	X	X	X	X	X	X	X	X					X	X
Oklahoma	X	X	X	X	X		X						X	
Oregon	X	X		X	X		X	X						
Pennsylvania		X												
Rhode Island	X	X	X	X	X	X	X	X			X			
S. Carolina	X		X	X	X		X	X			X		X	X
S. Dakota	X	X	X		X	X		X	X			X		
Tennessee	X	X	X	X	X	X	X	X	X		X			
Texas	X	X	X	X	X		X							
Utah	X	X	X	X	X		X						X	
Vermont	X	X	X	X	X		X	X			X	X		
Virginia	X		X	X		X							X	
Washington	X	X	X	X	X	X	X	X						X
West Virginia	X	X	X	X	X	X	X	X		X	X	X		X
Wisconsin	X	X	X	X	X		X	X	X	X	X	X	X	X
Wyoming	X	X	X	X	X	X	X				X			

NOTE:

Many states have given State Fire Marshal Offices additional statutory responsibilities such as licensing of fire extinguisher, fire detection or fire suppression system installers; building access and CCTV system installers, elevator inspections, pyrotechnic/ fireworks handlers and amusement rides. While the variation in the nature of these duties from state to state makes it difficult to represent them in a table of limited size, these duties are very appropriate functions and well suited for a State Fire Marshal's Office to carry out.

Source: *A Profile of a State Fire Marshals Office*, National Association of State Fire Marshals.