

U.S. Fire Administration/Technical Report Series

# Four-Fatality Fire in Residential Board and Care Facility

Bessemer, Alabama

USFA-TR-043 / September 1990



Homeland  
Security



## **U.S. Fire Administration Fire Investigations Program**

**T**he U.S. Fire Administration develops reports on selected major fires throughout the country. The fires usually involve multiple deaths or a large loss of property. But the primary criterion for deciding to do a report is whether it will result in significant “lessons learned.” In some cases these lessons bring to light new knowledge about fire--the effect of building construction or contents, human behavior in fire, etc. In other cases, the lessons are not new but are serious enough to highlight once again, with yet another fire tragedy report.

The reports are sent to fire magazines and are distributed at National and Regional fire meetings. The International Association of Fire Chiefs assists USFA in disseminating the findings throughout the fire service. On a continuing basis the reports are available on request from USFA; announcements of their availability are published widely in fire journals and newsletters.

This body of work provides detailed information on the nature of the fire problem for policymakers who must decide on allocations of resources between fire and other pressing problems, and within the fire service to improve codes and code enforcement, training, public fire education, building technology, and other related areas.

The Fire Administration, which has no regulatory authority, sends an experienced fire investigator into a community after a major incident only after having conferred with the local fire authorities to insure that USFA’s assistance and presence would be supportive and would in no way interfere with any review of the incident they are themselves conducting. The intent is not to arrive during the event or even immediately after, but rather after the dust settles, so that a complete and objective review of all the important aspects of the incident can be made. Local authorities review USFA’s report while it is in draft. The USFA investigator or team is available to local authorities should they wish to request technical assistance for their own investigation.

This report and its recommendations were developed by USFA staff and by TriData Corporation, Arlington, Virginia, its staff and consultants, who are under contract to assist the Fire Administration in carrying out the Fire Reports Program.

The U.S. Fire Administration greatly appreciates the cooperation received from the City of Bessemer Fire and Rescue Service. Particular thanks go to Bessemer Fire Marshal Bill Avery and also Alabama State Fire Marshal John S. Robinson.

For additional copies of this report write to the U.S. Fire Administration, National Fire Data Center, 16825 South Seton Avenue, Emmitsburg, Maryland 21727.



# **Four-Fatality Fire in Residential Board and Care Facility Bessemer, Alabama**

Reported by: Jack Yates  
Randolph Kirby

This is Report 043 of the Major Fires Investigation Project conducted by TriData Corporation under contract EMW-90-C-3338 to the U.S. Fire Administration, Federal Emergency Management Agency.

Revised: March 2011



**Homeland  
Security**

Department of Homeland Security  
U.S. Fire Administration  
National Fire Data Center



## **U.S. Fire Administration**

### **Mission Statement**

*As an entity of the Department of Homeland Security, the mission of the USFA is to reduce life and economic losses due to fire and related emergencies, through leadership, advocacy, coordination, and support. We serve the Nation independently, in coordination with other Federal agencies, and in partnership with fire protection and emergency service communities. With a commitment to excellence, we provide public education, training, technology, and data initiatives.*



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# **Four-Fatality Fire in Residential Board and Care Facility Bessemer, Alabama**

Investigated by: Jack Yates  
Randolph Kirby

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City of Bessemer  
Fire and Rescue Service  
800 North 18th Street  
Bessemer, Alabama 35020

John S. Robinson  
State Fire Marshal  
135 South Union Street  
Montgomery, Alabama 36130-3401

## **OVERVIEW**

A fire at the Wilson Home for the Elderly on September 19, 1990 killed four residents. The fire is believed to have been caused by an elderly resident dropping lighted pipe tobacco or a match on a sofa having a cloth material covering a polyurethane cushion. There was no indication of a slow smoldering fire having occurred, making investigators further believe that ignition was most probably a discarded lit match, causing immediate ignition. Eleven other residents were saved by the quick action of a 16-year-old son of an employee.

Although the structure was equipped with an automatic sprinkler system, the system failed to extinguish or control the fire because it was being supplied only by a 1/2-inch domestic water line, rather than a 2-inch dedicated line off the main which it should have had. The fire resulted in the deaths of four residents who were asleep in their rooms in the rear portion of the structure.

Presented in Appendix F is a supplementary fire report which shows, in contrast, the effective control of a fire by a sprinkler system. A fire started by a candle was contained to the room of origin in a large, 600-bed dormitory at Montevallo State College, Alabama, on October 4, 1990.

## SUMMARY OF KEY ISSUES

Issues	Comments
Cause of Fire	Smoking material dropped on a sofa.
Casualties	Four fatalities.
Fire Protection Features	Smoke alarms – some hard-wired and some battery operated. Fire alarm pull stations for sound alert only, not connected to fire department. Sprinkler system – present but ineffective due to improper installation.
Sprinkler Contractor Certification	Sound testing procedure for the business owner/principle. Questionable regarding the actual installers.
Failure of Notification of a Newly Installed Sprinkler System	No agency capable of examining the system to see if properly installed was notified prior to the fire.
Multiple Fire Protection Features	Smoke alarms augmenting the sprinkler system saved lives.
13D System in a Domiciliary Facility	NFPA 13D verses 13 was not the problem– properly installed, 13D would have worked.
CPVC Use Within 13D Systems	Properly installed and properly coded material does work.
Post-Installation Test	Must be made part of regulations.

### THE BUILDING

The original structure was a one-story wood frame six room house believed to have been constructed in the late 1930s. Over the years, with what appears to have been two additions, it was expanded to 17 rooms.

The interior finish consisted of drywall ceilings and walls and class A floor coverings. All patient rooms exited through one of two open sitting rooms making this structure fail to be in compliance with NFPA Standard 21, which under the Life Safety Code requires patient rooms to exit onto a hallway leading directly to the outside. Installation of a proper sprinkler system would not enable the home to overcome this deficiency.

### THE FIRE

In the early morning hours of September 19, 1990, a 16-year-old son of a staff employee was awakened by a smoke detector alarm. When he reached the sitting room furthest away from the front of the structure, he observed one of the residents sitting on a sofa which was extensively involved with flames. He immediately began alerting the residents by yelling and began assisting them to

the outside. Many of the residents required walking aids such as canes or walkers. Eleven of the 16 patients were able to evacuate the structure. During the course of this evacuation, a second staff member, a young woman, who had been asleep, apparently panicked, left the building, and was of no value to the evacuation effort.

After 10 of the 14 residents were evacuated, the 16-year-old awakened his mother and stepfather in a separate building on the property. The mother called the fire department, and information received is that the stepfather and son attempted to enter the house again but fire and smoke drove them back.

The alarm was received by the fire department at 2:23 a.m. Equipment was dispatched at 2:24 a.m. and arrived on the scene at 2:27 a.m. As a side note, both the local and state fire marshals commented on the thoroughness and professionalism of Bessemer's dispatcher. Bessemer is not on enhanced 9-1-1 at this time and the call was apparently routed to the dispatcher by the telephone operator. The fire marshals indicated that the caller was hysterical and it was only through the dispatcher's diligent efforts that he was able to calm the caller enough to get the proper address.

Upon arrival, the first unit observed heavy smoke and flames coming from a side exit of the structure. The fire was extinguished by the use of hand lines. The son of the staff employee who was awakened by the smoke alarm stated that two sprinkler heads in the sitting room did function, but the water only lasted approximately 25 to 30 seconds and then stopped. Indications are that this 25 to 30 second burst of water was not the normal flow or pressure had it been on a properly installed system. Rather, it was only the water held in the pipes.

During the rescue and overhaul of operations, four of the residents were found in their rooms located off the sitting room which separated them from the outside exit. One victim, a 33-year-old male with muscular dystrophy, was found face down in his room next to the bed on the floor; two victims, ages 70 and 83, were found in their beds; and one victim, age 80, was found in a wheelchair. Carbon monoxide levels of the victims ranged from 56 percent to 78 percent.

There were no other injuries. Fire damage was extensive. Twenty-eight Fire Department personnel were utilized to extinguish the fire.

## **CODES AND INSPECTIONS**

This facility was an adult domiciliary licensed by the Alabama Department of Public Health. Inspections were made from time to time by the State Health Department, the most recent occurring approximately ten days before the fire. As best as can be determined, only minor violations were noted during the inspection.

The Bessemer Fire Department did not assume the responsibility for inspecting this facility. Due to needed inspections to facilities within their jurisdiction, the Bessemer Fire Prevention Bureau does not have sufficient personnel to inspect state regulated facilities on a regular basis. If there are any additions, expansions or alterations to a state-regulated facility that require a permit to be issued, the Fire Department would normally inspect the property.

As mentioned earlier, the facility did not comply with NFPA 21 and also did not have written emergency procedures as required by state codes. They did, however, conduct evacuation drills on a periodic basis.

## **FIRE PROTECTION EQUIPMENT**

Approximately six to seven months prior to the fire, an automatic sprinkler system was purportedly installed in conformance with NFPA 13D to meet an Alabama Department of Public Health mandate. This regulation was to have had all domiciliaries in compliance by the end of 1990. The Alabama State Fire Marshal and Department of Public Health both have authority to issue regulations. A licensed sprinkler contractor was engaged to install the system which consisted of plastic piping (Blaze Master) and residential heads throughout the complex. An examination of the system after the fire revealed that the system was being supplied by a 1/2-inch galvanized domestic water line flowing approximately five gallons per minute. The sprinkler system should have had its own totally dedicated 2-inch line off the main.

The minimum requirement for the sprinkler system under NFPA 13D was 26 gallons per minute using water other than from the domestic intake water supply.

The piping arrangement and sprinkler head locations appear to have been in compliance with NFPA 13D. It appears the sprinkler installation company did not submit plans nor obtain any approval for this system which clearly would not have met a function test due to the water system deficiencies.

The building was also equipped with smoke detectors employing both hard-wired and battery operated units. Many of the battery units did not contain batteries, but those that did gave warning of the impending danger.

The city water system is considered very good by the State Fire Marshal's Office. The street on which this facility is located is equipped with a 6-inch water main connected to a 12-inch main one-half block away. A flow test conducted by the Fire Department at a hydrant one-half block away revealed a flow of 500 gallons per minute with a residual pressure of 80 pounds.

Residents stated to fire officials that water pressure was poor inside the building. In fact, only one toilet or lavatory could be used at one time with adequate flow. It was found that a 1/2-inch pipe supplied the only water to the structure.

The water meter is a 5/8-inch Rockwood located near the street approximately 35 to 40 feet from the facility. The water meter was not removed as test on both sides of the meter indicated approximately the same flow. Local officials do not believe it malfunctioned in any way.

## **FIRE DEPARTMENT**

The City of Bessemer is approximately 20 square miles with a population of 35,000 people. There are five stations with 78 firefighters plus staff personnel. It is a full-paid department. The inspections department consists of two inspectors.

## **FACTORS AND QUESTIONS REGARDING THE FIRE AND PROTECTION EQUIPMENT**

Although there was no written emergency procedures plan, evacuation drills were conducted by the staff from time to time, according to the Fire Department.

The fact that the structure did not fully comply with NFPA 21 regarding designed egress routes was a critical factor for those residents having the fire between their rooms and the exit. Their escape routes from their room doors would have taken them directly through the area of the fire. The windows in their rooms were so high that it would have been extremely difficult for the residents to escape through them. It was also felt that lateral spread of the fire was escalated by a hole in the hall ceiling where an attic fan had been installed.

It is estimated by the Fire Department that alarm notification may have been delayed as much as eight minutes while the son of a staff member was evacuating the residents. This is not to say that what he did was wrong. It is felt by some that the fatality count would have been even higher had he not acted as he did. His warning the residents of the impending danger most assuredly prevented some of them from being overcome.

The sprinkler system's failure can be attributed to an inadequate water supply, even though the Department of Public Health inspected the building to ascertain if the order to install the sprinkler system had been complied with before this fire. No one from that agency apparently is qualified to attest to the system's correctness of design and reliability. The fact that this system was installed without any prior plans, review and/or approved by code authorities is an indication of lack of communication between the installing company and any available inspector, whether that would be from the city or state.

The Department of Public Health inspectors are not required to report information of sprinkler installation to the state or local fire marshal. Additionally, there is nothing currently in the licensing procedures to file pre-installation plans.

There were questions as to whether all persons fully understood the NFPA Automatic Sprinkler System Handbook. The Alabama State Fire Marshal's Office thinks that anyone capable of passing the required state licensing test should be able to read or interpret anything in the handbook. The minimum requirement for a license is that the certificate holder pass a competency test administered by the National Institute for Certification in Engineering Technology (NICET) as a Fire Protection Layout Technician--Level III. They feel the code is clear enough for this NICET Level III person.

Questions have also been raised as to whether systems such as this should be allowed to use plastic pipe (CPVC) as opposed to metal pipe. Both the state and local fire marshals felt that as long as it was properly coded and properly installed, there were no problems using CPVC in 13D installations.

Both fire marshals also indicated that this fire clearly pointed out that one should not rely on one fire protection system. They feel in facilities such as this or those that require a higher degree of care, both smoke alarms and sprinkler systems should be in place.

The State Fire Marshal's report will not be completed until all domiciliaries are checked and cleared. They will be determining what systems were installed under NFPA 13 versus NFPA 13D and have been checked within the last 12 months by approved personnel.

A letter has been sent from the State Fire Marshal's Office to all domiciliaries to identify the type of system installed and who the installer was.

## **LESSONS LEARNED**

### **1. Facilities of this description must comply with NFPA 101, Life Safety Code, Chapter 21.**

Even though evacuation drills were conducted, egress routes for the four victims would have taken them through the room of fire of origin. That is precisely the situation the code is designed to prevent.

### **2. A notification process to alert inspection agencies of pending sprinkler system installation should be included in licensing regulations.**

Had an appropriate notification been made to the state or local fire offices regarding the installation, perhaps they would have been able to provide assistance on the system's layout and testing.

### **3. Installation personnel must be monitored.**

Many sprinkler companies operate over a large area and the certificate holder for the license may not be able to physically oversee each step of the installer. Perhaps a test of lesser standards could be implemented to the actual installation personnel to make certain they can read the layout plans, i.e., require installers of safety systems to be certified.

### **4. Multiple types of fire protection devices are most desirable in this type of facility.**

This fire was a dramatic illustration of the fact that multiple safety systems are needed. Had there not been smoke detectors in this facility, most certainly the fatality count would have been greater. Smoke will be detected quicker than heat will build. With this type of facility, the earliest possible warning is most desirable.

### **5. All people that can sign off a system on this type facility must be qualified.**

Information indicated that a Department of Public Health inspector had checked this facility a short time prior to the fire. While the level of expertise is not known of this particular inspector, it is felt that most inspectors in the Department of Public Health are not trained for conducting sprinkler system tests.

### **6. The use of CPVC within 13D systems does not appear to present any additional problems.**

The key to the use of CPVC is that as long as it is properly coded material and properly installed, it will serve its intended purpose within 13D systems.

### **7. A post-installation test must be included in NFPA regulations.**

Even though a system appears to be well designed and has been properly installed, the only true assessment of its capabilities is by an actual flow test, which must be conducted by qualified people. The first test should be immediately after installation and should be repeated in 12-month intervals at a minimum.

## **APPENDICES**

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- A. Bessemer Fire Incident Report**
  
- B. Letter from the Alabama State Fire Marshal's Office for Locating and Identifying Types of Sprinkler Systems in Domiciliaries**
  
- C. Copy of Alabama Law Regarding the Sprinkler Industry and Requirements**
  
- D. Floor Plan Diagrams Showing Exterior Measurements and Area Identification, Fire Protection Features and Area of Origin, and Victim Locations**
  
- E. List of Photographs and Slides of Bessemer Fire**
  
- F. Supplement: Dormitory Fire Contained to Room of Origin by Working Sprinkler System, Montevallo State College, Montevallo, Alabama**
  
- G. Lists of Photographs and Slides of Montevallo State College Fire**



## **APPENDIX A**

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# **Bessemer Fire Incident Report**

# ALARM AND FIRE RECORD

Recorded by:

Lt. CRAIN  
OFFICIAL

BESSEMER, ALABAMA

2740  
ALARM  
NUMBER

ALARM: FIRE FOR FIRE      FOR NON-FIRE

*Non-Fire Alarms viz: False, Smoke Scares, First Aid, Accidents, Emergency Calls.*  
**IF ALARM FOR FIRE COMPLETE FORM IN DETAIL.**

Date 9-18-90 Day WEDNESDAY Time OUT 0224 O.S. 0227 IN 0528

Alarm Transmission: \_\_\_\_\_

Name and/or Location: \_\_\_\_\_

Out on Arrival: NO If not out on arrival, how extinguished: 300' 3" SUPPLY LINE  
150' 3" HAND LINE      600' 1 3/4" HAND LINE

If other than Building, so state:  GRASS  AUTO  WASH STREET  MEDICAL  OTHER

If Automobile: MAKE N/A MODEL N/A TAG NO. N/A

Name & Address of Owner: \_\_\_\_\_

Name of Tenant or Driver: RHONDA LACY AND MARGARET ALDRIDGE

Type of Business or Occupancy: -BOARDING HOUSE

Type of Building: FRAME      MERCANTILE — MANUFACTURING — STORAGE — ETC.  
FRAME — BRICK — FIRE RESISTIVE — OTHER      No. of Stories: 1

Floor Originating: 1 Confined to Floor: YES Confined to Building: YES  
YES — NO      YES — NO

Extending to Adjoining Building: No Extending beyond Adjoining Building: No  
YES — NO      YES — NO

CAUSE OF IGNITION: UNDER INVESTIGATION BY INSP. AUERY  
STATE PROBABLE CAUSE

MATERIAL IGNITED: HOUSE AND CONTENTS  
STATE PROBABILITY

Persons Injured: 0 1 Persons Killed: 0 4  
FIREMEN — CIVILIANS      FIREMEN — CIVILIANS

Insurance UNKNOWN Amount UNKNOWN  
AGENT OR COMPANY

ESTIMATED LOSS:  LIGHT  MODERATE  HEAVY      RESPONSE MEN: See other side

APPARATUS: See other side

Use Other Side for Remarks  
- OVER -

LT. CRAIN  
ZITO  
WILLIAMSON

(ENGINE 1 BROKE DOWN IN  
ROUTE TO THE FIRE)  
LT. PICKENS  
MARTIN  
WEBB

PATTERSON  
GLASGOW  
SHADIX

CAPT. DAVIS

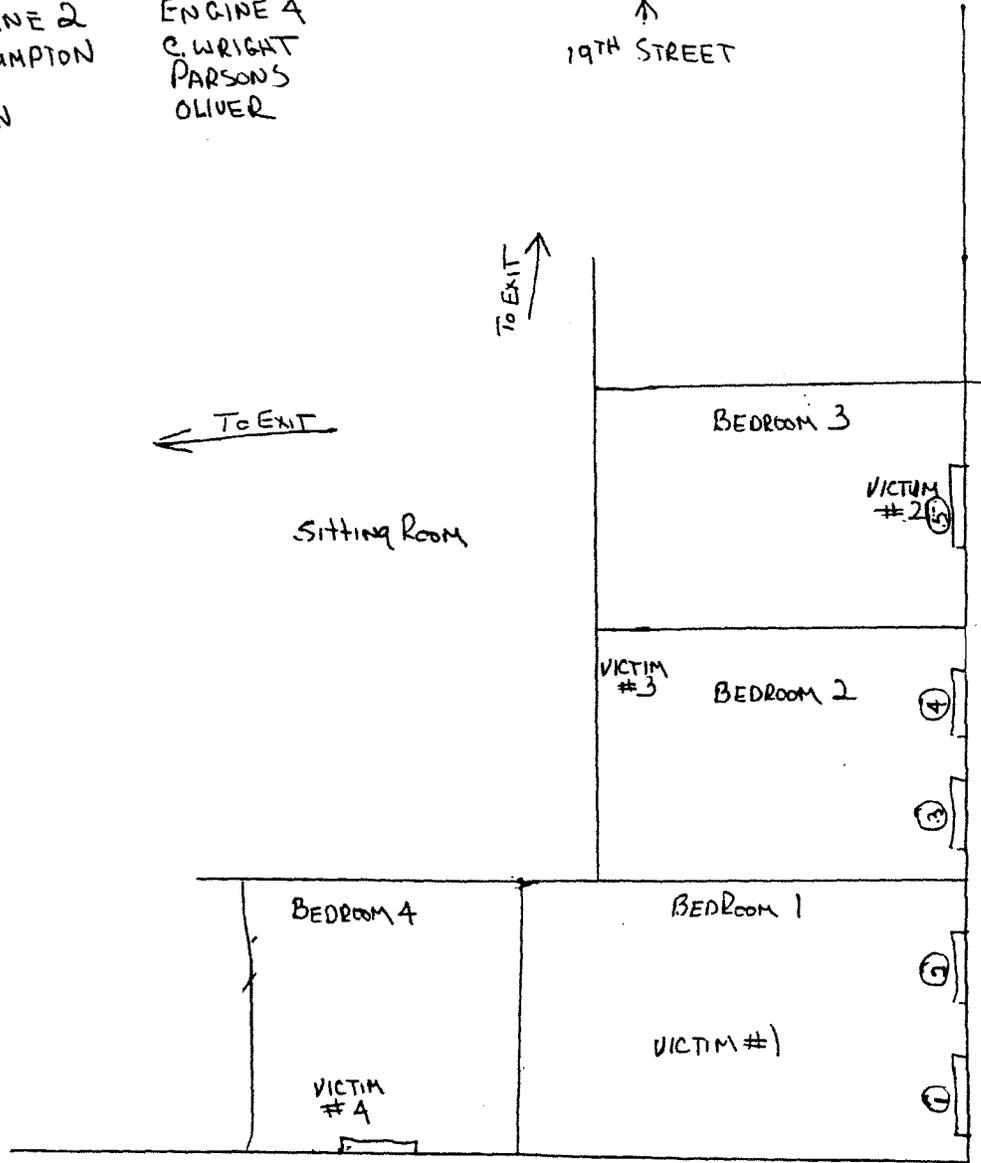
INSP. AVERY

RESCUE 5  
G. DAVIS  
CAIRNS

ENGINE 2  
LT. CRUMPTON  
DUNN  
SPANN

ENGINE 4  
C. WRIGHT  
PARSONS  
OLIVER

↑  
19TH STREET



VICTIM #1 was found by <sup>CAIRNS DC</sup> ~~CAIRNS~~, 2' from bed in the center of the room.  
TIME - 2 MIN. after RESCUE 5 ARRIVED.

VICTIM #2 + #3 was found by Greg Davis. #2 was in bed under the window.  
#3 was in wheelchair in the doorway.  
TIME - 3 MIN after VICTIM #1 was found.

VICTIM #4 was found by Shadix in bed.  
TIME - SAME AS VICTIMS 2+3.



## **APPENDIX B**

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# **Letter from the Alabama State Fire Marshal's Office for Locating and Identifying Types of Sprinkler Systems in Domiciliaries**



MIKE WEAVER  
COMMISSIONER OF INSURANCE

**STATE OF ALABAMA  
DEPARTMENT OF INSURANCE**

FIRE MARSHAL'S OFFICE  
135 SOUTH UNION STREET  
MONTGOMERY, ALABAMA 36130-3401

AREA CODE 205 · 269-3575

ASSISTANT COMMISSIONER  
RALPH A. BLYTHE, JR. C.I.C.

STATE FIRE MARSHAL  
JOHN S. ROBISON

October 30, 1990

TO: Administrators  
Domiciliaries Located in Alabama

FROM: John S. Robison  
State Fire Marshal

RE: Fire Protection Sprinkler Systems

The State Fire Marshal's Office is attempting to develop information regarding fire protection sprinkler systems, which have been installed in domiciliaries throughout Alabama. Specifically, we are attempting to identify the different types of systems used in domiciliaries. This information is very important and can only be obtained from each of you and the fire protection sprinkler company who installed your system.

For these reasons, I am asking you to take two or three minutes to provide the information requested on the questionnaire, on the reverse side of this letter.

As stated previously, the information is very important, as is the time frame in which the information is received. I realize each of you faces a heavy work load, however, if at all possible, please complete and return this form to us by Friday, November 9, 1990.

After completing the questionnaire, please mail this back to the State Fire Marshal's Office, 135 South Union Street, Room 140, Montgomery, AL 36130-3401.

Your assistance in providing this information is greatly appreciated! Once all of the forms have been received, I will be back in touch with you.

## **APPENDIX C**

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# **Copy of Alabama Law Regarding the Sprinkler Industry and Requirements**

Each Probate Judge, Sheriff, District Court Clerk, the Clerk and Register of the Circuit Court, County Commission Chairman and Municipal Clerk is required by law to preserve this slip or pamphlet in a book kept in his office until the Act is published in permanent form.

## ALABAMA LAW

(First Extraordinary Session, 1988)

Act No. 88-919

S. 165-Senator Langford

### AN ACT

To amend Sections 34-33-1, 34-33-2, 34-33-3, 34-33-4, 34-33-5, 34-33-6 and 34-33-10 of the code of Alabama 1975, relating to fire protection sprinkler systems, so as to redefine such systems and to further regulate the fire protection sprinkler system business in this state.

*Be It Enacted by the Legislature of Alabama:*

Section 1. Sections 34-33-1, 34-33-2, 34-33-3, 34-33-4, 34-33-5, 34-33-6 and 34-33-10 of the Code of Alabama 1975, are hereby amended to read as follows:

“§34-33-1.

“(1) FIRE PROTECTION SPRINKLER CONTRACTOR. An individual, partnership, corporation, association, or joint venture engaged in the business of installation, repair, alteration, addition, maintenance, or inspection of fire protection sprinkler systems. This does not include local building officials, fire inspectors, or insurance inspectors when acting in their official capacity.

“(2) CERTIFIED FIRE PROTECTION SPRINKLER CONTRACTOR. A fire protection sprinkler contractor who has qualified and received a permit from the state fire marshal.

“(3) CERTIFICATE HOLDER. An individual who is listed on the state fire marshal’s permit as the responsible managing owner, partner, officer or employee who is actively in charge of the work of the certified fire protection sprinkler contractor.

“(4) STATE FIRE MARSHAL’S PERMIT. The form issued by the state fire marshal to a fire protection sprinkler contractor upon application being approved and fee paid. The permit shall be issued in the name of the fire protection sprinkler contractor, with the name of the certificate holder noted thereon.

“(5) FIRE PROTECTION SPRINKLER SYSTEM. A system of overhead piping designed in accordance with fire protection engineering standards. The system is supplied from a reliable, constant and sufficient water supply, such as a gravity tank, fire pump, reservoir or pressure tank, and/or connection by underground piping to a city main. The portion of the sprinkler system above ground is considered the fire protection sprinkler system for purposes of this chapter, and is a network of specially sized or hydraulically designed piping installed in a building, structure, or area, generally overhead, and to which sprinklers are connected in a systematic pattern. The system includes a controlling valve and device for actuating an alarm when the system is in operation. The system is usually activated by heat from a fire and discharges water over the fire area. Fire protection sprinkler systems shall include the following types: wet-pipe systems, dry-pipe systems, pre-action systems, deluge systems, combined dry-pipe and pre-action systems, antifreeze systems, and circulating closed loop systems, all as defined in National Fire Protection Association Pamphlet 13, Standard for the Installation of Sprinkler Systems, latest edition, or National Fire Protection Association Pamphlet 13D, Standard for the Installation of Sprinkler Systems in One and Two Family Dwellings and Mobile Homes, latest edition.

“§34-33-2.

“The administration of this chapter is vested in the state fire marshal who shall have the power to set or make changes in the amount of the fee charged as necessary for the administration and enforcement of this chapter.

“§34-33-3.

“It shall be unlawful for any individual, partnership, corporation, association, or joint venture to engage in the business of installation, repair, alteration, addition, maintenance, or inspection of a fire protection sprinkler system in this state except in conformity with the provisions of this chapter. Nothing in this chapter, however, shall be construed to apply to fire protection sprinkler system owners who employ registered professional fire protection engineers, and skilled workers who regularly and routinely design, install, repair, alter, add to, maintain, and inspect sprinkler systems on and within the premises of their employer, provided such systems are for the owners’ use only.

“§34-33-4.

“Any individual, partnership, corporation, association, or joint venture desiring to engage in the business of fire protection sprinkler contractor shall submit to the state fire marshal on standard forms provided by the state fire marshal a completed application. The applicant shall include a fee of \$100.00 when making the application. The applicant shall designate in the application the name of the proposed certificate holder and provide written proof that such individual has passed a competency test administered by the National Institute for Certification in Engineering Technology (NICET) as a Fire Protection Layout Technician – Level III. A copy of the NICET letter of notification that the proposed certificate holder has passed the competency test shall be sufficient written proof. The state fire marshal, shall issue, upon receipt of the application and fee, a state fire marshal’s permit to a fire protection sprinkler contractor who has a current state fire marshal’s permit, or who produces evidence of having a current state permit from another state, if such state shall have entered into an agreement of reciprocity with the state of Alabama.

“§34-33-5.

If the required fee has been paid, satisfactory written proof from NICET has been provided that the competency test was passed when required by this chapter and the proposed certificate holder found to be at present a responsible, managing owner, partner, officer, or employee of the fire protection sprinkler contractor, the state fire marshal shall within 30 days issue a state fire marshal’s permit in the name of the fire protection sprinkler contractor with the name of the certificate holder noted thereon.

“§34-33-6.

“In no case shall a certificate holder be allowed to obtain a state fire marshal’s permit for more than one fire protection sprinkler contractor at a time. If the certificate holder should leave the employment of the fire protection sprinkler contractor, he must notify the state fire marshal within 30 days. The certificate holder shall not be eligible to obtain a state fire marshal’s permit for more than one other fire protection sprinkler contractor for a period of 12 months thereafter. If the certificate holder should leave the employment of the fire protection sprinkler contractor, or die, the contractor shall have nine months to submit a new application proposing designation of another individual as the certificate holder for the applicant. If such application is not received and a new permit issued within the allotted time, the state fire marshal shall revoke the permit of the fire protection sprinkler contractor.

§ 34-33-7. Expiration of permit; renewal procedure.

The state fire marshal’s permit shall expire annually at midnight on September 30. At least 30 days prior, the fire protection sprinkler contractor must submit a renewal application. A renewal fee must be submitted with the application. Failure to renew the permit prior to the expiration shall cause the permit to be null and void as of the expiration date, and it shall be unlawful under this chapter for any individual, partnership, corporation, association, or joint venture to engage in the business of installing, repairing, altering, adding, maintaining, or inspecting a fire protection sprinkler system without a valid state fire marshal’s permit. The permit may be reinstated by making application as before, and payment of the fee; however, until such a time as a new permit is issued, it shall be unlawful for the fire protection sprinkler contractor to engage in installing, repairing, altering, adding, maintaining, or inspecting fire protection sprinkler systems. (Acts 1982, 2nd Ex. Sess., No. 82-774, p. 271, § 7; Acts 1984, No. 84-250, p. 399, § 1.)

770§ 34-33-8 FIRE PROTECTION SPRINKLER SYSTEMS § 34-33-9

The 1984 amendment, effective May 7, 1984, deleted “and provide a sworn affidavit that the certificate holder has supervised the sale, design, and installation of at least three fire protection sprinkler systems of more than 200 sprinklers in size (complete with name, description and location of each) in the last six months” at the end of the second sentence and inserted “business of” near the middle of the fourth sentence.

§ 34-33-8. Presentation of permit to local building official; payment of local license fees.

If a certified fire protection sprinkler contractor desires to do business in any part of the state, he shall be required by this chapter to deliver to the local building official a copy of his state fire marshal’s permit. The local building official shall require a copy of the state fire marshal’s permit before issuing a license or building permit. The certified fire protection sprinkler contractor shall be required to pay any fees normally imposed for local licenses or permits, but the local official shall impose no other requirements on the certified fire protection sprinkler contractor to prove competency other than proper evidence of a valid state fire marshal’s permit. (Acts 1982, 2nd Ex. Sess., No. 82-774, p. 271, § 8.)

§ 34-33-9. Chapter imposes no limitation on power of municipality, etc., to regulate work of contractors.

Nothing in this chapter limits the power of a municipality, county, or the state to regulate the quality and character of work performed by contractors, through a system of permits, fees, and inspections, which are designed to assure compliance with, and aid in the implementation of, state and local building laws or to enforce other local laws for the protection of the public health and safety. Nothing in this chapter limits the power of a municipality, county, or the state to adopt any system of permits requiring submission to and approval by the municipality, county, or the state, of plans and specifications for work to be performed by contractors before commencement of the work. If plans for a fire protection sprinkler system are required to be submitted to and approved by any municipality, county, or the state (or any departments or agencies thereof), the plans must bear the permit number of the certified fire protection sprinkler contractor or proof that the person, firm or corporation that designed such fire protection sprinkler system is an exempt owner under section 34-33-3. The official authorized to issue building or other related permits shall ascertain that the fire protection sprinkler contractor is duly certified by requiring evidence of a valid state fire marshal's permit. (Acts 1982, 2nd Ex. Sess., No. 82-774, p. 271, § 9; Acts 1984, No. 84-250, p. 399, § 1.)

The 1984 amendment, effective May 7, 1984, inserted the next-to-last sentence of this section.

§ 34-33-11. Disposition of funds collected pursuant to chapter; grants and donations allowed.

All funds collected pursuant to this chapter shall be deposited in the state treasury to the credit of the state fire marshal's fund authorized by section 24-5-10. The state fire marshal shall be authorized to expend moneys from the state fire marshal's fund for the administration and enforcement of this chapter. The state fire marshal shall be allowed to receive grants and donations from associations, firms, or individuals who are interested in the upgrading and quality of fire protection sprinkler systems. (Acts 1982, 2nd Ex. Sess., No. 82-774, p. 271, § 11.)

§ 34-33-12. Penalties.

Whenever the state fire marshal shall have reason to believe that any individual, partnership, corporation, association, or joint venture is or has been violating any provisions of this chapter, he or his deputy or assistant may issue and deliver to such individual, partnership, corporation, association, or joint venture an order to cease and desist such violation. Failure to comply with any order under this section shall constitute a Class B misdemeanor and shall be subject to punishment within the

limits and as provided by state laws. In addition, the state fire marshal may impose a civil penalty not to exceed \$250.00 for each day the violation exists. Violation of any provision of this chapter or failure to comply with a cease and desist order shall be cause for revocation of the state fire marshal's permit. (Acts 1982, 2nd Ex. Sess., No. 82-774, p. 271, § 12.)

Collateral references. – 53 C.J.S., Licenses, § 56.

“§34-33-10.

“(a) This chapter also applies to any fire protection sprinkler contractor performing work for any municipality, county, or the state. Officials of any municipality, county, or the state are required to determine compliance with this chapter before awarding any contracts for the installation, repair, alteration, addition, or inspection of a fire protection sprinkler system. Bids for such shall be accompanied by a copy of a valid state fire marshal's permit.

“(b) All architects and engineers preparing plans and specifications for work involving fire protection sprinkler systems to be contracted in the state of Alabama shall include in their invitations to bidders and their specifications a copy of this chapter or such portions thereof as are deemed necessary to convey to the invited bidder, whether he is a resident or nonresident of this state and whether a license has been issued to him or not, the information that it will be necessary for him to show evidence of license before his bid is considered.”



## **APPENDIX D**

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# **Floor Plan Diagrams Showing Exterior Measurements and Area Identifications, Fire Protection Features and Areas of Origin, and Victim Locations**



## APPENDIX E

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# List of Photographs and Slides of Bessemer Fire

Slides and photographs are included with the master report at the U.S. Fire Administration. The items asterisked below are presented on the following pages.

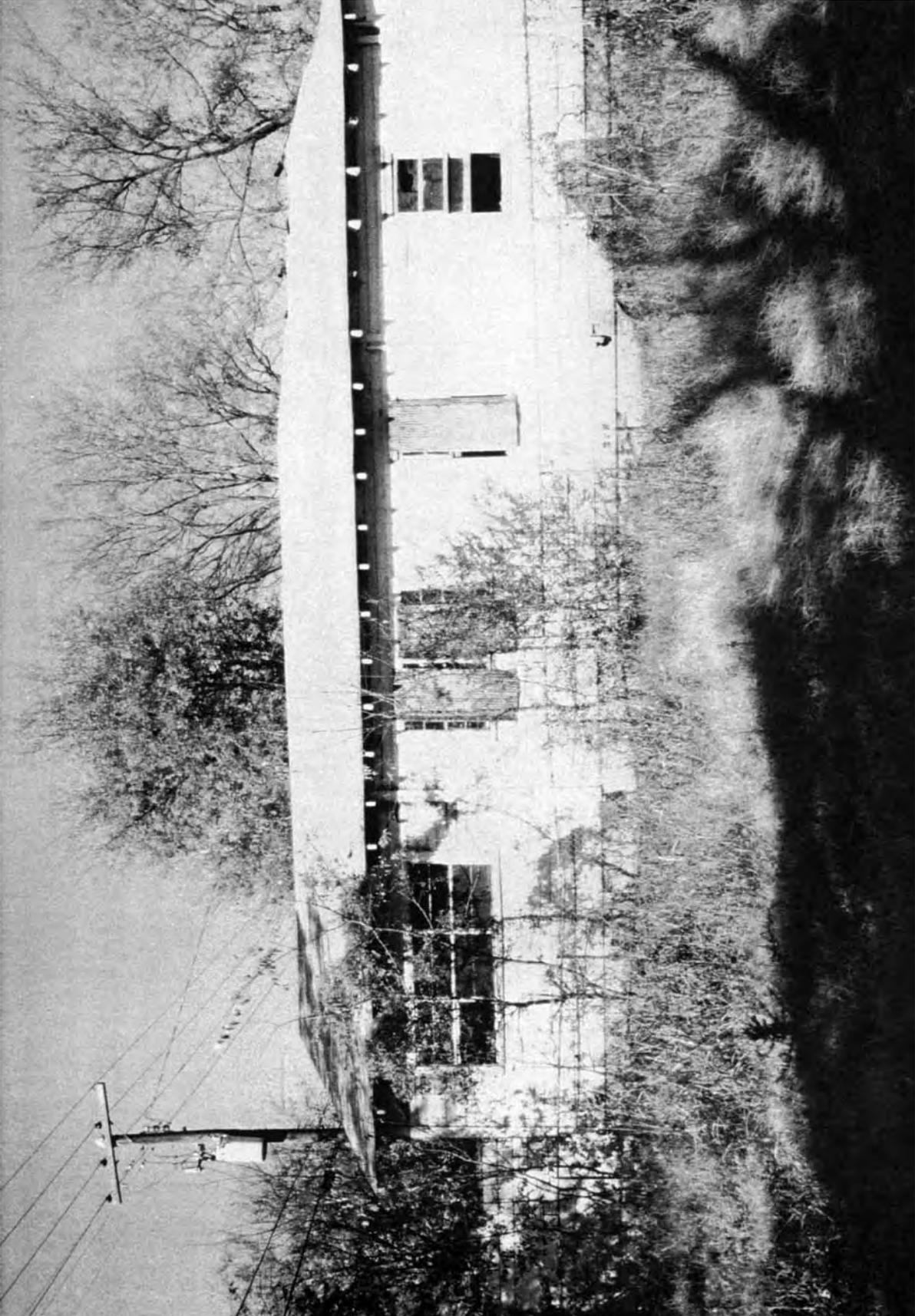
- \*1. The exterior of the structure as seen from the northeast and looking toward the southwest. The front is to the extreme right. The structure did not face a true north, but for this report it will be shown as that. The greatest roof damage is in the north half.
2. An exterior view from the northeast toward the southwest showing the separate structure where office and manager's quarters were located. These are located approximately 25 feet to the west of the main structure. The front building is the office while the second building was the manager's sleeping quarters.
- \*3. An exterior view of the east side near the southeast corner, showing the rooms where victims were found.



1. The exterior of the structure as seen from the northeast; the front is to the extreme right.



2. An exterior view from the northeast showing separate structure where office and manager's quarters were located.



3. An exterior view of the east side, showing the rooms where victims were found.

## **APPENDIX F**

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### **SUPPLEMENT**

# **Dormitory Fire Contained to Room of Origin by Working Sprinkler System Montevallo State College Montevallo, Alabama**

Investigated by: Jack Yates

Local Contacts: John P. Lee, Chief of Security  
Dutch Beasley, Chief of Maintenance

#### **OVERVIEW**

On October 4, 1990, a fire occurred in the "Central" wing of "Main Hall." This is a large coed dormitory housing 600 beds. There are three wings to the dormitory: West, Central, and East.

#### **THE FIRE**

The fire occurred in the girl's section of "Central." The fire began as a result of an unattended candle that ignited class A common combustibles as it melted down. The college stated there were strict rules regarding the use of candles or any flammable material and the girls were in violation of these rules. Disciplinary measures were taken by the college in regard to the fire.

The positive aspect of this fire is that it was totally controlled and extinguished by the sprinkler system. The only direct damage was to a desk and some clothing next to it. There was water damage as a result of the sprinkler action. The fire occurred at approximately 10:00 p.m. The flow alarm on the sprinkler and smoke detector alerted the Montevallo Fire Department as well as campus security, but upon arrival it was found that the fire had been controlled and extinguished.

## THE BUILDING

Main Hall at Montevallo started out as one dormitory and expanded three wings as the college grew. The original sprinkler system was installed in 1939, and the last renovation was thought to be in 1985.

## FIRE PROTECTION FEATURES

The system is designed and laid out in accordance to NFPA 13 standards. It has a 75,000 gallon reserve tank adjacent to the domestic water supply tank. It is 25 feet higher than the domestic water tank. Booster pumps are between the two tanks giving it an additional 400,000 gallons of water in reserve. Each wing has separate cutoff valves in the event that additional reserves are needed to be diverted to one of the other wings. Each system has its own alarm system and test valve.

The college personnel indicated they had a greater confidence in multiple alarm systems as opposed to relying on one. They indicated in most cases the smoke alarm would alert more quickly than the flow alarm within the sprinkler system.

## LESSONS LEARNED

- 1. Maintenance Chief Dutch Beasley stated the only problem was in the failure to open the drain valves in the system after the activated heads had extinguished the fire.**

Mr. Beasley indicated some water damage could have been prevented had these valves been opened as opposed to the water continuing to come through the heads. Mr. Beasley indicated that perhaps in university or college situations the installation company should supply or show the police or security personnel plans of the system and a basic working knowledge of how the sprinkler system works.

- 2. Montevallo State College is soundly convinced of the value of a sprinkler system and multiple alarms.**

They indicated over the years there have been other minor incidents such as this, but the early warning and automatic suppression systems have prevented any major loss to property and any loss to life.

## APPENDIX G

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# List of Photographs and Slides of Montevallo State College Fire

Slides and photographs are included with the master report at the U.S. Fire Administration. The items asterisked below are presented on the following pages.

- \*1. Exterior view of “Main Hall.” West Wing is to the left, Central Wing is in the center, and East Wing is to the right. The fire referred in this report occurred in Central Wing. The reserve tank for the sprinkler system is shown over West Wing.
- \*2. The 75,000 gallon reserve tank and the 400,000 gallon domestic water supply tank with dormitories in the background the system is designed to protect.



1. Exterior view of "Main Hall." West Wing is to the left; Central Wing, where fire occurred, is in the center; and East Wing is to the right.



2. The 75,000 gallon reserve tank and the 400,000 gallon domestic water supply tank with dormitories in the background the system is designed to protect.