The ways, whens and hows of installing an automatic sprinkler system

MJ INSURANCE
SORORITY DIVISION

PREFACE

The Sorority Department of MJ Insurance has specialized in delivering comprehensive insurance products and a full range of risk management resources for the leadership and volunteers of our clients for over twenty-four years. We feel our distinction as a Department is that we understand the risks inherent to women's fraternities and sororities, we know the organizational issues that you face day-in-and-day-out, and we appreciate the pressures the members and volunteers face in running a women's organization at the local and national level. We are especially appreciative of the work of the housing volunteers as you run the business of a fraternity chapter house.

We have been an additional source of information for the property owners of fraternity and sorority chapter houses over the years and when called upon, have pulled together pertinent information about the "ways, whens and hows" of installing a fire suppression system or a automatic sprinkler system. The thought occurred to us that maybe with a more pro-active approach, we could create a guide, which would address the multitude of issues and questions surrounding this massive and expensive project. For lack of a better name, we have chosen to call this guide, *The Automatic Sprinkler Tool Box*. This tool box or guide will address everything from "soup to nuts" of the major elements of a sprinkler installation, and will provide a tool which hopefully will make this process less overwhelming to you as the property owner and volunteer to your organization.

We have called upon an industry expert, **Buddy Dewar**, and his associates from the NFSA to assist us in the development of this guide. We have also called upon a client, **Kappa Alpha Theta** who was the first women's fraternity to make the decision to mandate fire suppression systems in all of their chapter facilities. **Rich Ackley** from Dalmatian Fire, Inc. also contributed his insight into the technical detail offered in the guide. **Larry Maruskin** from the United States Fire Administration was able to offer some valuable insight. Lastly, we have enlisted the services of a **House Corporation representative**, whose group just recently mandated fire suppression systems in their properties and their representative was the local volunteer involved in managing the process of sprinkler installation for her chapter house.

Appreciation is extended to our "partners" in assisting us in creating an easy to understand and a comprehensive "tool box" which addresses the matter of an automatic sprinkler system installation.

This guide will be used to better prepare you through the project, and ultimately help you extract out of this process, the best possible system for your chapter house at the most economical cost.

As with any document, it is a snapshot of what we know now. I would urge you to contact us with any other questions, in which you feel would be helpful to address in this guide.

INTRODUCTION

As a Fraternity chapter house property owner, you have the duty to provide a safe environment for your members who are housed in your facilities. Life safety takes on many different angles from good housekeeping and well maintained physical conditions, to protection from fire and security risks.

You are faced with a number of different issues competing for your attention and for the limited resources available to address them. You must decide how to best allocate these available resources among competing demands and interests. To make these decisions wisely, you need to understand the risk factors involved, the alternatives available to you and the relative costs and benefits of the different options.

The risk of fire is indeed one of the deadlier perils that threaten the safety of your chapter members. The National Fire Protection Association (NFPA) is the lead spokesmen for fire safety. In a recent report, they have cited that the number of fires in campus housing has risen dramatically in recent years, from a low of 1,800 fires in 1998 to 3,300 fires in 2007. This is an alarming trend and 2008 is showing similar results.

Fires in women's fraternities and sororities chapter houses have been relatively rare events. As a result, it is easy, perhaps even natural, to become complacent about fire safety, and to confuse good luck with good practice. But when fires do occur, and they do, they can develop with incredible speed and have devastating consequences. When death and disfiguring burn injuries result, the consequences last forever, impacting not only the victims and their families, but the entire chapter house and the organization. The property damage will have a substantial impact upon the operation of the fraternity and will significantly disrupt the college fraternity experience for your resident members.

Fatal fires are always difficult to accept; and when they occur in fraternity housing they are particularly devastating. There are a number of reasons for this:

- The fraternity members feel a special connection to their organization and are more than the traditional type tenants.
- College students are living away from the security of their parents' homes for the first time.
- Parents sending their children off to college have an expectation that the fraternity chapter house will be a reasonably safe environment for their loved ones.
- Students at this age have a certain sense of immortality as they embark on this exciting period of independence.
- Many students do not yet have the maturity or experience to recognize real threats to their personal safety.

A recent study by the *People's Burn Foundation* and *Campus Firewatch* reveals that most of the students did not know what to do if a fire broke out in their room and invariably their only recommendation was to "stop, drop and roll." This shows us that the fire professionals and educators did a great job with the fire safety message when they were kids, but they did not keep it up, or contemporize it, as they matured and assumed more responsibility for their own fire safety. Reacting to a fire as an adult requires a different mindset beyond the "stop, drop and roll".

The National Fire Protection Association (NFPA) and the U.S. Fire Administration have identified the very young and the elderly as high-risk groups because they have a higher-than-average loss of life from fires in comparison to the rest of society. However, in college communities, the highest risk group is that of college students because of the high number of students, students socializing in locations that they are not familiar with, and their riskier behavior especially the prevalence of alcohol on a college campus.

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CHAPTER ONE:

THE ELEMENTS OF FIRE SAFE CHAPTER HOUSING is making your physical property safe and educating your members to apply this thinking wherever they are. The fire safety of student housing can be considered in terms of four primary elements:

- Prevention
- Occupant awareness and training
- Detection and alarm
- Suppression

Together, these four elements have the acronym "PODS." The PODS terminology is appropriate for fraternity housing because the term connotes a protected living environment. The elements of the PODS concept are briefly highlighted below.

Prevention deals with identifying the elements required for a fire to occur of fuel, air and an ignition source and to remove one of these elements. Since air is always present, the prevention of fire generally requires control or elimination of either fuels or ignition sources.

Occupant awareness and training is critical as many of these resident members have never been responsible for their personal safety in dealing with fires, nor have they probably ever experienced a fire. In addition this training and education will not only help them to better react to a fire in the fraternity house but will also be invaluable wherever they are, be it an apartment or a social activity.

Detection and alarm provides timely notice to a resident so they can quickly react and take the necessary steps to prevent bodily injury.

Suppression is the best deterrent for fatalities and reduced property damage. The presence of a fire sprinkler system in a property virtually eliminates the risk of a fatality and reduces by roughly 85% the property damage caused by a fire.

Convincing argument for the merits of having your chapter housed sprinklered.

ADDITIONAL FIRE SAFETY RISK MANAGEMENT items to consider with a habitational property:

Fire Safety Risk Management

- Require that resident/members only use GFI power strips in their rooms.
- Prohibit use of halogen lamps.
- Prohibit use of cigarette smoking and the use of traditional candles and incense. Encourage use of the battery operated candles which are becoming so much more available in stores today.
- Prohibit the use of hotplate appliances.
- Fires drills are held once a semester.
- Discourage use of fire extinguishers unless resident is familiar with its use.

FIRE SAFETY: where you live and where you visit. Take it with you…all the time, no matter where you are.

CHAPTER TWO:

THE HISTORY OF FIRE SPRINKLER SYSTEMS AND MAJOR TYPES OF SYSTEMS AVAILABLE FOR HABITATIONAL USE

Fire Sprinkler Systems were developed in 1874 by an American piano builder by the name of Henry S. Parmalee, to protect his pianos. Until the 1940s and 1950s, sprinklers were installed almost exclusively for the protection of buildings, especially warehouses and factories. The Insurance savings, which could help offset the cost of the system in a few years time, was one of the major incentives. Much of the research on enhancing the sprinkler systems were geared towards this more commercial use and very little time and research was spent on residential or commercial housing/habitational usage.

Following fires with large losses of life (Coconut Grove Night Club, Boston in 1942 with 492 people perishing; LaSalle Hotel, Chicago in 1946 with 61 people perishing; Winecoff Hotel, Atlanta in 194 with 119 people perishing) fire and building officials searched for a means to provide improved life safety for building occupants. They found that factories and other building occupants equipped with automatic sprinklers had an amazingly good life safety record, compared with similar unsprinklered buildings.

Over the past few decades, city building codes continue to address the need for additional fire protection in specific public buildings such as hospitals, governmental and commercial residential properties to name a few.

There is one business segment that has recognized their responsibility for safe housing of their clients or guests, that being the hospitality industry. Over the past 25 years, they have embarked on an ambitious program to install sprinkler protection in most hotels and motels. As part of this effort, various technologies have been developed to reduce the costs, address the aesthetic impacts of an installation and reduce the inconveniences associated with the installation of automatic sprinklers in existing residential facilities. These technologies directly impact both new and exiting student housing facilities, providing the opportunity for college students to enjoy the facilities with the same high level of fire protection as the traveling public.

The ruling body on building codes is the National Fire Protection Association or NFPA, as it is commonly referred. In 1896 they developed the code NFPA 13, which was the first standard for the installation for Sprinkler Systems in residential or habitational type occupancies. Publication of an installation standard led not only to uniformity in system installation criteria, but more importantly to develop a reliable system performance in the control and extinguishment of fires.

The concept of putting fire sprinklers in habitational properties is a relatively young phenomenon; however, the professionals in the fire protection field would argue that the greatest exposure to a fire and possible death is in fact a habitational property. According to a National Commission on Fire Prevention and Controls' 1973 report, almost seven of every ten fires occurred in habitational occupancies and 87% of the fire deaths in building fires occurred in habitational occupancies.

Since that time, more research has been done to prepare a NFPA standard for sprinkler in habitational buildings, along with the influence of the hotel industries work in this area as referenced above.

As a result, the NFPA in 1989 developed a standard for habitational occupancies referred to as NFPA 13R to optimize fire sprinkler devices use with the dual goals of improved performance and low cost. NFPA 13R's standard has been developed for buildings that are four or less stories in height and the design standard does not require fire sprinklers in unoccupied spaces such as attics, which are not accessible by fixed stairs or ladders.

Briefly the three different types of sprinkler systems are:

- NFPA 13 to be used for commercial buildings including habitational properties of greater than 4 stories in height.
- NFPA 13R to be used for habitational occupancies of less than 4 stories in height.
- NFPA 13D to be used for one and two family dwellings only.

Fire Sprinklers used by 13R and 13D are also referred to as "fast response sprinklers." This refers to the general type of fire sprinkler, which exhibits a level of thermal sensitivity greater than that of the standard NFPA 13 sprinkler.

"FAST RESPONSE SPRINKLER"

The residential sprinkler was the first sprinkler to incorporate the new fast response technology. It was developed in the late 1970s in conjunction with federally funded research into a low-cost residential sprinkler system. Research showed that in order to make relatively small domestic water supplies effective for sprinkler protection, and to control a residential-type fire before small rooms could fill up with toxic smoke, a sprinkler needed to be considerably more sensitive to heat than the standard sprinkler used predominantly in the more commercial type of properties such as manufacturing. The NFPA 13R and 13D sprinklers are not only geared to be "fast response," but they also have special distribution and cooling abilities not available under NFPA 13 type sprinklers.

"QUICKER RESPONSE SPRINKLER"

These types of sprinklers are similar to "fast response sprinklers" in the speed of reacting to a fire; however, quick response sprinklers are not required to have special cooing and distribution abilities.

ADVANTAGE OF INSTALLING A NFPA 13R SPRINKLER SYSTEM:

Aside from the fact that the residential sprinklers were specifically designed to improve the effectiveness of fire safety in these types of occupancies, there are economical and aesthetic advantages to going with a NFPA 13R system.

The NFPA 13R system offers incentive in the form of a 4 sprinkler head design area, which can reduce the total water supply requirements thus creating a more cost effective system. The materials used in a 13R are also much less expensive. This is due primarily to the fact that unlike the NFPA 13, which requires steel pipes and is much more labor intensive to fabricate, the 13R can utilize CPVC piping, which is not only less expensive from a material standpoint, but the labor costs are substantially less. The ability to use the CPVC piping also gives the freedom to address the aesthetic concerns that exists in retro-fitting a fire sprinkler system into an existing structure. Certainly the property owners of a Fraternity chapter house are particularly sensitive to preserving the aesthetic beauty of their chapter house property and NFPA 13R gives them the latitude to properly address the look of the system.

CHAPTER THREE:

COMMUNITY PRESSURES ARE BEING EXERTED UPON PROPERTY OWNERS

An increased interest in Fire Safety has come from consumers and from numerous other interested parties, with many different agendas; however, with one ultimate goal and that is reducing injuries and deaths due to fires.

- Fire professionals see on average 100,000 fire fighters a year being injured.
- Fire professionals see on average 90 fire fighters killed annually in the line of duty.
- Property owners experience the tragedy of fatalities on average of more than 5,300 civilian fire deaths occur annually and on average more than 29,000 civilian fire injuries.
- Property owners experience annually on average property losses resulting from fire of $9.4 billion.
- Municipalities are absorbing the true cost of the fire services and have to deal with what fire damaged property can do to a community if not demolished or rebuilt. And fire damaged properties have a negative impact on a community's tax base.
- Universities are being challenged to meet their responsibility of providing safe housing for its resident students and are using their leverage to influence the off-campus student housing properties. If a student gets hurt, the newspapers always will draw the attention back to the university by stating "a student at XYZ University" was hurt or killed in a fire, regardless of where the student lived!

THE IMPACT UPON THE PROPERTY OWNERS OF GREEK CHAPTER HOUSING IS PROFOUND

Since the mid 1990s, more and more attention is being given to the life-safety condition of Greek Chapter Houses. Unfortunately, much of this interest comes about only after there has been a fatality from a fire in the chapter house. One of the most egregious fires that occurred was on Mother's Day in 1995 at the University of North Carolina, at the Phi Gamma Delta Fraternity house, where five young college students perished. The cause of the fire was lit cigarettes that were put in trash cans in the basement. The fire spread very quickly and consumed the entire house resulting in the loss of lives.

Another turning point in fire life-safety was the NFPA changing the codes for sprinklers in "residential type" housing with the acceptance of less expensive materials with the NFPA 13R rating. Rather than using the very expensive and labor intensive steel for the piping, 13R allows the plastic products to be used. This has presented more opportunities for the non-profit organizations of Greek lettered collegiate organizations to consider for their chapter building/house due to the more economical cost of this type of sprinkler installation.

The last remaining influence would be the growing interest of several third-party groups, to ensure that properties operating as a residential type facility be sprinklered. Examples of a third-party interest are numerous; however, to name a few, universities where the chapter is operating, the municipality and in some cases the state. The universities have certainly been taking a leadership position on this matter by significantly increasing the number of their residential facilities that have a sprinkler system. As universities continue to compete for new students, they are adding life safety on their campuses as one of the selling points to their promotion of their institution. The quintessential report on universities and colleges, "The Princeton Review," has included this information in this report, which has also heightened the awareness of parents as they help their child seek out the best college experience.

As this is written, there have been a number of States, Municipalities, and Universities mandate sprinkler systems in Greek Housing and we fully expect this to continue. There has also been recent legislation now signed into law Campus Fire Safety Right to Know Act which is a law that will require colleges and universities to annually report fire safety information to the Department of Education. This includes (but is not limited to):

- The number of fires, deaths and injuries
- How many beds are protected by automatic fire sprinklers and fire alarms
- The level of fire safety training that is provided to students and staff

With this as the back-drop, along with significant lobbying efforts by the Greek community for tax advantages helping to fund future sprinkler installations, many property owners are strongly considering this matter and setting forth long term plans to ultimately install fire suppression systems.

NFSA: National Fire Sprinklers Association

There are a number of different organizations that have been working aggressively over the years to improve the level of fire safety within student housing. One of the organizations leading this effort has been the National Fire Sprinkler Association or NFSA.

Founded in 1905, NFSA is one of two major trade organizations representing the sprinkler contractors in the United States. With a broad membership, they provide an invaluable resource for helping to promote the cause of campus fire safety.

Since 1996, the NFSA has had an aggressive program to help facilitate the installation of sprinklers into residence halls and Greek chapter housing. The objective is to help educate the leadership of the various Greek organizations, not only on the importance and value of sprinklers, but how best to get them installed.

Because of this commitment the NFSA has identified personnel with the responsibility of emphasizing their mission. Buddy Dewar heads up this effort as Director of the Regional Operations for NFSA. With an extensive and distinguished fire service career, he has served as a tremendous resource to the Greek community. He has been instrumental in helping many of our clients while they embark upon the significant project. You will find his contact information in the "Resources" section of this handbook.

CHAPTER FOUR:

THE MERITS OF HAVING A FIRE SPRINKLER SYSTEM IN YOUR CHAPTER HOUSE

As a property owner of a Fraternity chapter house, you have young people who either reside in your chapter house or have the occasion to visit your property on a regular basis. In addition, you may also have employees, other Fraternity volunteers and/or guests who may use your chapter house. As a landlord, you have the obligation to maintain a safe property.

Serious fires in student housing wreak almost unimaginable devastation and disruption to the chapter. This potential exposure warrants careful consideration of the best fire safety risk management options that are available.

Automatic fire sprinkler systems should be considered as the best option. Empirical evidence shows that in the last fifty years, there has been no fatality in a building above two stories where a sprinkler system was in place. Secondly, the presence of a sprinkler reduces the ultimate property damage from a fire by roughly 85%.

PROACTIVE VS REACTIVE ELEMENTS OF FIRE PROTECTION

As good as a fire department may be in responding to a fire emergency, it must be said that it can only respond to the alarm once it has been called in and/or dispatched. Until arrival at the scene of an emergency there is little that can be accomplished to control and extinguish a fire. Both the fire-fighter and the sprinkler system work a "24-7-365" schedule. The difference is that a sprinkler system is located directly over the area of the fire origin and operates as soon as the heat sensor is activated.

Similarly, an automatic fire alarm system works "24-7-365," but can only detect and alert the fire department or occupants in the event of a fire. While the need for detention and notification is essential for a balanced fire protection design, it must also be recognized that fire detection cannot proactively control the growth of a fire, while the residential fire sprinkler system designed and installed in accordance with NFPA 13R shall be expected to prevent flashover in the room of fire origin, where sprinklered, to improve the chance for occupants to escape or be evacuated and to significantly decrease the amount of property damage from the fire.

The following items are some additional reasons why a Fraternity chapter house should be sprinklered:

- Most building codes do require smoke detectors. Combined, sprinklers with hard wired smoke detectors improve the chances of surviving a fire by 97%; compared with just 50% with only smoke detectors.

- Most building codes require only battery operated smoke detectors rather than hard wired smoke detectors, which are less reliable. However, with collegiate members, there is an increased likelihood of batteries not being maintained properly, either being taken out and/or expiring and thus rendering the alarm inoperable.

- Fire Safety Education has been exclusively geared towards those students in elementary schools and has been effective in getting out the message of "Stop, Drop and Roll." The education; however, has not matured beyond his point and adults need a different, more effective message. Numerous surveys of college students have revealed that there is a lack of basic knowledge of the steps to take to save their lives in the event of a fire.

- Property insurance premiums are credited if 100% of your building is sprinklered.

- Having a sprinkler system is more eco-friendly as the amount of water used to fight a fire with a sprinkler system is significantly less than the amount of water used by a fire department to fight a non-sprinklered chapter house.

- Many communities in sun-belt states have passed ordinances requiring automatic sprinklers to save on fire personnel usage and to conserve water.

- Sprinklers preserve air quality, though they do not suppress the smoke and toxic by-products of fire, but they do reduce the toxins released by extinguishing or suppressing the fire much more quickly.

- Sprinklers preserve resources in that they contain a fire more quickly and thus less building products and raw materials normally required to replace the damaged structure are no longer needed to be used for construction.

We believe that the merits of sprinklering your property are indeed a convincing argument for significant risk management tool for life safety and property protection and preservation.

CHAPTER FIVE:

HOW EXACTLY DOES AN AUTOMATIC FIRE SPRINKLER SYSTEM OPERATE

The best weapon for controlling a fire in its early stages, before it becomes too hazardous, is an automatic fire sprinkler system. An automatic sprinkler system is an integrated system of underground and overhead piping connecting one or more automatic sprinkler heads. An automatic sprinkler is a specialized system requiring professional skills for design, installation and maintenance in conformance with recognized standards, set forth by the National Fire Protection Association (NFPA).

You already have water running throughout your chapter house to sinks, showers, toilets, and washing machines. Fire sprinklers use the same water supply to extinguish a fire. An automatic sprinkler is comprised of closed nozzles that hold back water under pressure within the piping, much like a hose nozzle does when it is closed. It also acts like a hose because it breaks the stream of water into a fine spray.

These closed nozzles have a metal seal over the sprinkler head waterway, which holds the water back. This seal is held in place by either a glass bulb or metal fusible link, which are designed to break or melt in the event of high temperatures from a fire.

Each sprinkler has its own heat sensitive element that must be heated to activation temperatures of about 165° Fahrenheit before the sprinkler will operate. A fire creates a narrow plume of hot air and gases that rise to the ceiling and spread out. When the hot gasses reach the nearest sprinkler head, they will heat the fusible element that holds the metal seal in place. The seat will fall away and the sprinkler will spray water on the fire.

The sprinkler system is sprinkler head specific, thus when one sprinkler is activated, it does not necessarily mean that the other sprinklers throughout the chapter house will activate. The sprinkler water discharges at a rate of approximately 20 gallons per minute in a fairly uniform spray pattern throughout the room.

There is some speculation that the water damage from extinguishing a fire is far more destructive from a sprinkler system than from the more standard fire extinguishing from fire departments. What follows is some empirical data on this point and pretty persuasive argument for sprinklers:

<u>Standard fire with a fire-fighter using fire hose</u>
175 gallons per minute x 5 minutes = 875 gallons of water
400 gallons per minute x 5 minutes = 2000 gallons of water

<u>Fire Sprinkler System</u>
18 gallons per minute x 5 minutes = 90 gallons of water
40 gallons per minute x 5 minutes = 200 gallons of water

Because the water immediately cools the hot fire gases in the plume, the other sprinkler will not open because there is not enough heat to melt its fusible element. This rapid cooling effect also prevents the deadly flashover to either other parts of the same room where the fire originated or the other rooms in the chapter house, thus minimizing damage caused by the fire and smoke.

The fire suppression industry has developed a more sensitive sprinkler for habitational occupancies, such as a fraternity house, than the more traditional sprinklers used in commercial and industrial buildings. In addition, they have improved upon the design to reduce the volume of the exterior sprinkler head components exposed in a room which is what residents notice while in a sprinklered building.

The original habitational sprinklers were pendents, which protected a maximum area of twelve feet by twelve feet in a given room. Today, however, there are at least a dozen different types of external sprinkler apparatuses, including flush, recessed, and sidewall styles. The coverage has also increased to an area of 20 feet by 20 feet, which can ultimately reduce the number of sprinklers themselves, thus reducing your aesthetic concerns as a property owner. As more and more fraternal housing becomes sprinklered, this industry will be in an even better position to perfect the look of sprinkler systems in chapter houses.

CHAPTER SIX:

WHO DETERMINES WHERE AND WHEN SPRINKLERS ARE REQUIRED

The NFPA (National Fire Protection Association) is the governing body on the standards for building codes in the many types of occupancies. Building codes over the past two decades have increasingly called for automatic sprinklers throughout buildings for the safety and preservation of property.

The design criteria are established "to prevent flashover (total involvement) in the room where the fire started and to improve the chance for occupants to escape or be evacuated." With a sprinkler system, there is indeed both a liability and property benefit.

Where the local building codes do not go far enough, many states and cities have been enacting special sprinkler ordinances that are tougher and more far reaching to other occupancies. This is especially true of fraternity and fraternity housing in a given community. We have seen an increase in governing bodies making this requirement of student housing and many times the off-campus fraternal housing is impacted.

Many jurisdictions will have far reaching sprinkler requirements on new construction, but on existing structures and occupancies, they are less aggressive for obvious reasons. The process of installing a new mechanical system like an automated sprinkler system in an existing structure is called retrofitting. The overall cost to retrofit a structure is more expensive than for new construction.

It is important that as a property owner, you keep informed on what if anything your community is considering and get involved to help develop a reasonable ordinance that you can comply with in your chapter house property. You know your property and how it is used so you are in a better position to represent your interests to a community discussion on fire safety.

CHAPTER SEVEN:

DIFFERENT TYPES OF SPRINKLER DESIGN STANDARDS AND CHOOSING THE OPTIMUM SYSTEM FOR YOUR PROPERTY

There are three fire sprinkler design standards that may be applied during fire sprinkler retrofit or in installing a new fire sprinkler system in a Greek house. The National Fire Protection Association (NFPA) cites **NFPA 13** as the fire sprinkler design standard used for fire sprinkler installations in most commercial buildings. This standard may also be used for fire sprinkler design criteria when the installation is in a Greek house. The standard requires water flow of not less than four fire sprinklers and may impose additional water flow if large places of assembly exist within the property. The NFPA 13 fire sprinkler design standard requires the installation of fire sprinklers in attics and other unoccupied spaces where fires rarely originate. Compliance with the NFPA 13 standard is the most costly of the three fire sprinkler design standards.

A fire sprinkler design standard has been developed specifically for residential occupancies that are four and less stories in height. The **NFPA 13R** fire sprinkler design standard does not require fire sprinklers in unoccupied spaces such as attics and allows design criteria of up to four fire sprinklers in the property. If the largest room can be protected with less than four fire sprinklers (400 square feet each maximum coverage), then the water supply needed can be reduced to the lesser requirement, which means smaller pipes and lower costs. NFPA 13R fire sprinkler design standard is the document that should be used for the vast majority of the fire sprinkler retrofit in Greek houses. Application of NFPA 13R is less costly than the NFPA 13 design standard.

There also exists an **NFPA 13D** fire sprinkler design standard, the least costly of all, which is designed for one and two family dwellings. While some Greek houses may have been originally classified as a single-family home, fire codes are applied based upon how a building is being used, not how it was originally constructed. Most fire officials will classify a Greek house as a rooming and lodging facility and may be reluctant to allow the use of a fire sprinkler design standard developed for single-family properties. The NFPA 13D design calls for water supply to feed up to two fire sprinklers, a criterion that should not be applied to the typical Greek house.

You need to specify that your fire sprinkler system be designed using the least cost fire sprinkler design standard which typically will be the criteria found in NFPA 13R. If NFPA 13R cannot be used, investigate why not. Let us know if you do run into issues as we have industry experts that we can call upon to help you fight this requirement. You don't want an uninformed person to put you in a position where by you have to make an unnecessary investment beyond what you are already doing.

There are two different types of sprinkler systems, a wet pipe system, which has water present in the piping at all times and a dry pipe system, which does not. There are distinctive differences in the costs and the response times of these two systems.

The wet pipe fire sprinkler system is much more common and is a "rapid response" sprinkler, unlike the dry pipe system, which is not common and does not respond as rapidly. The dry system is generally chosen for those more unique circumstances such as:

- Concern about freezing exposure for the pipes themselves, which in a habitational type property is not a problem and in problem areas such as attics, insulation with an R-19 rating will properly address this satiation.

- Concern about the potential for water damage being a greater risk than that of a fire, such as a fine arts museum.

In potential freeze conditions, some have attempted to use anti-freeze in the pipes, which is not recommended from a health standpoint to the occupants. While anti-freeze is code allowed in limited conditions, the added costs to adequately protect the drinking water could be prohibitive, as is increased liability exposure if frequent maintenance does not take place. Dry systems are more complex, require more maintenance, and are more expensive than wet systems because they require more hardware and have more design standards to comply with such as larger pipes to provide larger flows to offset time delays in getting water to the fire.

Our recommendation would be to go with a wet system with increased insulation packed around piping in freeze danger zones. We feel that it provides the best level of protection, along with the best response time, less expensive and has lower service requirements.

HOW TO SECURE A PROPERTY PREMIUM DISCOUNT ONCE YOUR SPRINKLER SYSTEM IS INTALLED

The merits of having an automatic sprinkler system in your chapter house have been sufficiently documented previously in this guidebook. Suffice it to say that it is the best risk management tool available to protect your property from a major fire, the disruption that this can create and to protect lives of your members and guests while in your chapter house.

Upon completion of the installation, the contractor will need to supply you with documentation of the system. This is commonly referred to as a "certificate of completion." You will find an example of one attached for your reference.

To qualify for the premium discount, the chapter house must be 100 percent sprinklered and must meet the applicable NFPA code for the occupancy.

Though currently not mandatory, except in some jurisdictions, we strongly urge that you "protect your investment" and contract for an annual inspection of your sprinkler system to ensure it maintains its effectiveness. The costs range from $200-$500 annually, and it is money well spent. To date, the insurance company has not mandated this service; however, there are some preliminary indicators that they may require the annual inspection in the near future. As with any piece of equipment, it is important to maintain it and an annual inspection just makes good business sense.

Once the certificate of completion is received by the Sorority Division, we will request an endorsement from the insurance company to apply the sprinkler discount. This substantial discount recognizes the significant improvement in the exposure of fire and life safety for your property.

As you have now introduced more water piping into your property, it becomes very important that where a freezing potential exists with your weather conditions, that you maintain your heat at a minimum of 55 degrees to ensure that the systems remains operable. This is especially important over the long holiday breaks.

Should you have any questions regarding this discount, please contract your service representative at MJ Insurance/Sorority Division or visit our website at www.mjsorority.com.

CHAPTER EIGHT:

WHO DESIGNS FIRE SPRINKLER SYSTEMS

Proper design and installation of sprinkler systems is standardized nationally in a consensus standard developed by NFPA. As explained earlier in this handbook, the applicable code is NFPA 13R. This function is carried out by a licensed professional engineer or architect in compliance with specific state requirements.

This "engineering" or judgment can be performed by several different types of professionals:

- Architect
- Engineer
- Sprinkler contractor with engineer on staff

Some states require that an independent architect or engineer be hired to perform this function as opposed to an engineer on staff with the sprinkler contractor. For example, where your project requires over 50 sprinkler heads, a state may require an independent professional to perform this function.

In hiring an independent professional, you can expect to pay roughly 30 percent more for the ultimate cost of your project. It would behoove you to be familiar with your state's requirements on this subject and from there, determine your best course of action.

Architects, engineers or sprinkler companies design and install sprinkler systems according to the applicable building codes. They will work with your building blueprints to plan the network of piping that will be needed in your building. The number of sprinklers or sprinkler heads is based on many considerations, including the size and configuration of each room, location of electrical lights, speakers and duct work. Proper design and installation is narrowly standardized and reputable sprinkler contractors will be knowledgeable of many design specifications and requirements needed to satisfy your project.

The basic design is developed through specifications or preliminary plans. The basic plan does indeed develop a design decision if it is designated as such by statements such as, "This area to be protected with a sprinkler system meeting the requirements of NFPA 13R," or "Light hazard sprinkler system to be provided in conformance with NFPA 13R" to illustrate a few of the statements you could expect to see. It is through the development of specifications and preliminary plans where the professional can provide additional preliminary information to the contractors who would be bidding the work for your project. This could include details as to occupancy and construction types, hazard classifications, and available water supplies. Special criteria regarding types of sprinklers and piping, pumps and other equipment and conditions are commonly detailed within the project specifications.

Once the preliminary plans have been prepared, they move into the next stage, which is referred to as the "working plans." These plans are generally prepared by fire protection engineering technicians working for a sprinkler contractor. These working plans are also used as shop drawings to permit economical and efficient system fabrication.

Since fire sprinkler systems are pre-engineered through reference to NFPA standards, no engineering design discretion is necessary on the part of the fire protection engineering technician. Should any situation arise, which is not addressed by the design standard, a qualified design professional should be consulted.

The basic premise of proper sprinkler protection is that sprinklers be installed throughout all areas of the building, commonly referred to as 100 percent sprinklered. To qualify for this substantial property premium discount, the entire structure must be sprinklered.

We have encountered some issues with one provision of the NFPA 13R code as respects "unoccupiable space." As such, the codes do not require fire sprinklers in these spaces. By definition, an "unoccupiable space" will mean an attic that may have access through an access point that is NOT accessible by fixed stairs or ladders. A space that is accessible by a stair or a ladder and is used solely for storage must be sprinkler protected.

Individual contractors and building owners need to be very mindful of this and deal honestly with the contractor in how a specific space gets utilized in the chapter house. We have experienced several large fires in these types of spaces that should have been sprinklered like the rest of the property.

To highlight this point, we had an unfortunate example of this very decision-making. We insured a three story chapter house with an attic that had a ladder to the attic space where the collegiate members stored their luggage and other miscellaneous items. As you can imagine, the items were all highly combustible.

The House Corporation had recently had a sprinkler system installed in their property; however, for cost reasons they chose not to sprinkler the attic. They were also receiving the full credit of a sprinkler system on their property premium. It also placed them in violation of NFPA 13R code in that the attic was not only accessible, but also used for storage. There was a ceiling fan in the attic that malfunctioned and started an electrical fire in the attic, which very quickly consumed the roof of the chapter house. With the collapse of the roof, the fan fell through the floor onto the second floor. This fire subsequently activated the sprinkler system on the second floor.

If there had indeed been a sprinkler in this attic, it would have been contained in that space and not only would the fire damage be minimal the water loss from the sprinkler system would have also been far less.

As such, with the extensive roof damage, the third floor/attic being destroyed and with the release of water throughout the chapter house, the loss became virtually a total loss. This would have certainly been a much smaller property loss if they had installed a sprinkler system in the attic space.

We have also run into two other items that we need to bring to your attention and offer a solution.

- Some local municipalities are not as current in their understanding of the new building codes for your type of occupancy NFPA 13R. We have seen some municipalities require a NFPA 13 system, which is not appropriate and/or much more expensive.

- Some municipalities believe that in retro-fitting your property with a sprinkler system that you are affecting a substantial change to your building and will now be required to address any and all new building codes that may have been implemented since either the structure was built or the last substantial change. As you can imagine, this could put you at a greater risk of being required to address substantial new building codes that heretofore you were not required to comply.

Should either of these situations arise or any other for that matter, we urge you to contact our office to explore the matter further on your behalf. We have a number of available resources that can closely examine any conflicts and work hand-in-hand with you to find a reasonable solution to the conflict.

As a consumer, it is incumbent that you secure the services of a qualified fire protection professional to design and install your sprinkler system. You are making a substantial investment in your property and the process must be done to the complete confidence of your organization.

CHAPTER NINE:

FINANCIAL COSTS OF THE SPRINKLER SYSTEM

We hopefully have made a convincing argument on the merits of a fire sprinkler system reducing the property damage from a fire and virtually eliminating the potential for bodily injury or death of your chapter members and guests.

Now the question remains of "what is it going to cost?"

As with most physical improvements to your property, the cost of which must be weighed against the "value" of the change and this is no different with a fire sprinkler system. The "value" becomes more difficult to define when the item or service is preventative in nature. We have highlighted the obvious values of having a sprinkler system:

- Eliminating significantly the potential for bodily injury and/or death from a fire in your facility
- Reducing the property damage from a fire by roughly 85 percent

The other intrinsic values of a sprinkler system would be the confidence that you would have as a property owner of having your members residing in a safe property and a property that is less subject to a total loss. This same confidence can be had by your members, their parents, volunteer and guests to your property. Lastly, the havoc that a large fire would have not only on your members but your volunteers can be disastrous and exhaust everyone involved, let alone the huge disruption it presents to the college experience for your members.

As with any project in an existing building, often times referred to as retro-fitting, the costs are often difficult to predict. The costs of establishing a sprinkler system can be divided into two major areas: interior and exterior.

Let's expand upon this further so you can get a better sense of the numerous and various complexities to a sprinkler system.

External influence is basically comprised of two components:

Water supply Municipality fees and taxes

Water supply is the most critical influence in the cost of the sprinkler installation as well as the ultimate performance of the system. In essence, for a sprinkler to work properly there must be sufficient pressure in the lines to push the water through the pipes once they are activated by a fire. This pressure is determined primarily by the size of the pipes that are exterior to our building or chapter house. If the diameter of the exterior piping is too small then the system will not work effectively and/or it will not meet the strict codes features of NFPA 13R.

The old saying "garbage in-garbage out" was never more accurate then when it comes to automatic fire sprinkler systems. If your community has maintained a good piping infrastructure, then the installation process will be far more reasonable from a cost standpoint, less time spent for the actual project and the end product will be more reliable. If they have not, then this becomes problematic on many different levels.

In many cases, the existing water supply into a chapter house will be sufficient to supply the automatic sprinkler system. In cases where it is not sufficient, supplementing the water supply will be required. This can be done in many ways, but in the majority of the cases the exterior piping is increased in diameter from the public water

main to the chapter house. As you can imagine, this would entail digging up the old pipe and converting it to the larger piping. As the property owner, you would be expected to bear the cost of this change. Costs associated with this project should include tapping fees, excavation, landscaping, materials and labor. Other costs would be charges that the city may make as you are changing the infrastructure, all be it an improvement.

This is one of the main reasons why it is so difficult to speculate what a sprinkler system will ultimately cost. It has been said that the price of a system does not vary too much within the confines of the "four walls" of the property; it is the piping from the exterior water supply that is hard to price out in a fire sprinkler installation quote.

It is becoming more and more common for there to be **Municipality fees and taxes** attached to the installation of a sprinklering system. Their motivations vary from trying to recoup costs of upgrading the piping coming into the property to it just being a form of taxation.

These additional costs can be both a cost of the project, as well as an ongoing cost. Approaching these types of issues up front in the REQUEST FOR PROPOSAL (RFP) process will significantly reduce any financial surprises and allow you the opportunity to get a better fix on the ultimate cost to your property for the sprinkler installation.

These costs come under different titles, to name a few:

impact fees	permit fees
connection fees	miscellaneous other assessments
plans review fees	inspection fees

Each local government will undoubtedly have one or more of these additional charges. It would behoove you to ask the local government for a waiver of these fees, which can significantly increase the cost of the installation. Automatic fire sprinklers ultimately reduce the government's fire suppression expenditures, and you should be able to use the argument in deflecting or minimizing the additional charges they are assessing.

Some local governments require the hiring of an engineer to approve the plans prior to them being submitted for the government's approval. If you have hired a qualified sprinkler contractor, this will not be necessary as their work is redundant over what the contractor would be offering as a professional. Should your local government have this requirement then build this into the Request For Proposal (RFP), so it is the contractors' obligation to secure this engineering assistance.

Lastly, many of the municipalities also require a property owner to have a monitoring system in place with annual inspections. This additional risk management tool does cost extra, and the annual sprinkler inspection costs vary by community, but range from $200-$350 a year.

As you work your way though your installation proposals and find any of the above, we encourage you to contact Buddy Dewar, Director of Regional Operations, National Fire Sprinkler Association at 850-222-2070 or GR8BUD@aol.com. His organization has been extremely supportive of the sprinkler installation efforts of our fraternity chapter house property owners and they have been very successful in negotiating with local governments on your behalf. (See also section on NFSA Membership)

INTERIOR INFLUENCE IS BASICALLY COMPRISED OF COMPONENTS

Labor **Material** **Pipe concealment**

In this toolbox, we have made several references to a peer group called the National Fire Sprinkler Association (NFSA), which is comprised of professional contractors, who install both commercial and personal sprinkler systems. They can be found at www.NFSA.org. The fire sprinkler industry, when compared to other construction
trades such as plumbing and electrical, is very small. Accordingly, it is common for contractors to bid work outside their city of residence.

The cost of **labor** certainly varies by locale and each bid secured will reflect this in their pricing. We have also heard of some contractors who are bidding on these retro-fit installations under an arrangement of "when work force is available". This can reduce the cost of the installation; however, the construction will indeed take a longer period of time to complete, which may or may not be a luxury you will have.

We have seen the majority of the installations occur during the summer months, as most of the other maintenance work is done at that time also. Rarely do we see installations over winter break, as there is not sufficient time to complete and it becomes too disruptive to resident members if the installation is going on during the school term. The timing of the project affects the overall price of the installation, so consider the different options you may have on this element of the project.

One last comment on the issue of labor: the price difference between a union labor company and a non-union labor company can be substantial in a project of this scope and size.

Material allowed under NFPA 13R is CPVC piping as opposed to the normal steel piping, so the cost will be significantly less not only for the product itself, but also for the labor costs associated with CPVC pipe installation.

There is more and more work being done by the sprinkler industry to address the cost of sprinklers for residential properties. This advancement in technique and materials will make the installation more attractive from a cost and aesthetic standpoint. A recent example of this is the use of prefabricated pipe concealing systems, which is not only attractive, but more economical. Secondly, the industry has addressed the look of the sprinkler heads and there are now many types and styles of automatic sprinkler heads are available for use in the chapter houses.

Pipe concealment is undoubtedly one of the biggest concerns for the property owners and resident/members of a fraternity chapter house. We have all seen the really offensive installations where they have just hung exposed steel pipes with sprinkler heads in the ceiling. NOT A GOOD LOOK, especially for the chapter houses!

This is the portion of the installation project's cost that is most controllable by the owner and is also the area where the property owner will have the strongest opinions about the ultimate look. Preplanning and a vision of the final installation are necessary in order to not only achieve the look you desire, but in ensuring that the costs associated with piping concealment or the aesthetics are addressed upfront.

If you have the opportunity to work with a sprinkler contractor who does residential property, you will find them to be more sympathetic to the overall look of the concealment. It is imperative that this subject be thoroughly discussed in the pre-planning. Rest assured the typical contractor will not be nearly as concerned about the aesthetics of the job as you would as the owner of a fraternity chapter house.

To achieve an appealing look, there will be extra construction costs associated with this installation. These are also typically outside the scope of the sprinkler contractor's responsibility; however, they are critical to the project. Therefore, there will be other "trades" that will also need to be involved.

These include: drywall, framing, plumbing, electrical and possibly, security contractors. The sprinkler contractors in some circumstances on a project are not allowed to perform certain aspects of the installation, such as wiring the flow switch or the alarm horn and/or strobe light.

It is critical that you work with a sprinkler contractor who has business dealing with other "trades" to incorporate the costs for these extra construction costs required.

We have seen from experience that a property owner's biggest frustration is where this matter was not addressed thoroughly up front in the pre-planning of the project.

As noted, it becomes very difficult if not impossible, to give an estimate of what you can expect to pay to have your chapter house retrofitted with a sprinkler system. We do have some empirical data for structures averaging roughly 15,000 square feet, that on the interior work you can expect to pay anywhere from $2.00-$4.00 per square foot. This is apparently the same footage cost you would expect to pay for new carpeting in your chapter house as well. The cost would be a little more per square- foot if your chapter house is smaller in size.

Credit Available

We have illustrated the potential costs of installing a sprinkler system; however, there are modest credits available to a property owner for having done so. The credits vary by type of property, so you will need to refer to MJ Insurance/Sorority Division for the applicable credits to you property. The credits are applied to your building premiums, as well as your contents and loss of income premiums.

You will need to notify MJ Insurance/Sorority Division once your installation is complete to qualify for the sprinkler credit to your annual property premium. To qualify you need to send a copy of the contractors' certificate of completion for a property that is 100 percent sprinklered and meets all NFPA 13R requirements.

We also highly encourage you to secure an annual maintenance contract with a fire sprinkler contractor/company to ensure that the system for which you are receiving a credit is operational. We have had some recent fires where there was a faulty sprinkler system, which could have easily been detected via an annual maintenance inspection.

There may also be some income tax savings by taking advantage of depreciation allowances for the value of the system, which typically is 27.5 years for residential type occupancies. You should seek the advice of your accountant in this matter.

CHAPTER TEN:

THE FIRE SPRINKLER SPECIFICATION AND BID PROCESS AND HOW TO MANAGE IT LIKE A PRO

Now that you have selected the contractors that you wish to secure a bid from, let's address the elements of the specification and bids that must be considered.

The NFPA fire sprinkler design standards require a specific gallon per minute flow of water over a specific area for habitational occupancies. The fire sprinkler systems must design and install fire sprinkler systems based upon the national standards or in your case the NFPA 13R standard code. Accordingly, the end result of fire control and suppression will occur regardless of the fire sprinkler layout design.

Unfortunately, it is not possible to arrive at a standard form to give you to secure a bid because there are too many options and other features to consider in this process. We can, however, share some additional insights that will hopefully better equip you for this review.

One fire sprinkler contractor may bid a project that will result in exposed pipes in rooms and corridors, while anther contractor may bid an installation that has piping concealed in the walls and ceilings. Obviously, the exposed pipe installation will be a lower cost. Therefore, it is critical that the bid clearly defines what it includes and what it does not, so you can not only make an "apples to apples" comparison between two competing bids, but more importantly, know what the ultimate cost of your project will be for budget purposes.

We would urge you to be very mindful of preserving the look aesthetically of your structure, which clearly does not have to be compromised. The sprinkler industry has developed many different types of sprinkler heads, which function as they should and are attractive to look at. In all likelihood, you will be working with male contractors, so do not let this topic escape their attention and commitment. My apologies to all male contractors for this gross generalization!

As mentioned previously, it is important that this process be as consolidated as possible of all the different "trades" that will be working on this installation. The most cost effective and efficient way is to rely on your sprinkler contractor for this "turn-key service" that includes ceiling removal and replacement, trim work, painting , and other restoration work. This eliminates the headaches of scheduling multiple vendors and simplifies the paperwork and coordination hassles.

As mentioned earlier, many costs that are "external" to the fire sprinkler installation costs may make substantial differences in the bid package from the contractor. An example of a difference might be where one contractor bidding on your project may include the cost of installing a device intended to protect a municipal water supply known as a backflow preventer. Because of the Federal Safe Drinking Water Act, most jurisdictions require a backflow preventer; some require redundant and excessive backflow prevention, so it is important to carefully review the bids to determine that the detail components of the bid are consistent or are in conflict.

Though we have stated that there is a pre-engineered standard for the NFPA 13R code, there can in fact be many differences outside the physical sprinkler product itself that can vary by contractor. This is another reason why it becomes important to have two competing contractors to ensure that you have a complete package of product, installation and governmental influences accounted for and priced out in your bid.

The bid and specifications will include generally the following information:

- Hazard analysis
- Site survey
- Estimating
- On-site design
- CAD design
- Hydraulic calculations
- System specifications
- Product selection
- Pipe fabrication
- System installation
- Central Station Monitoring
- Commissioning and testing
- Routine Inspection
- Annual maintenance inspection

Because the aesthetics are so critical in a fraternity chapter house, it is important that the bid address this matter in a thorough and concise manner. We would urge you to get a "ceiling plan," which will show all sprinkler head locations in relationship to walls, beams, and other obstructions. Review all concealment options available to ensure the best look.

For the property owner of a chapter house, the other important distinction is timing. This includes not only how long the installation project will take to complete, but also the limited times during the year that a project of this magnitude can be accomplished.

One of the most difficult features of reviewing a bid and its specifications will be the significant number of governmental influences (taxes/fees) on your project. Many jurisdictions view retro-fitting sprinkler installations as a good way to generate revenue for its coffers. They come under many different types of names, a few are:

Impact fees	Plan review fees
Connection fees	Stand-by water fee
Permit fees	

New construction may add to government's infrastructure costs, but the impact of an existing building has already occurred. Fire sprinklers reduce government's fire suppression ultimate expenditures, which include not only costs of the fire fighting equipment, but the cost of a fire fighter's life!

We have seem a variety of "taxes" being accessed to a sprinkler project that are clearly outrageous and an indication of a jurisdiction taking advantage of a fraternity chapter house property. It is important to be alert to this very likely possibility of a jurisdiction using this opportunity to create revenue.

If you should be faced with what appears to be excessive barriers and costs to installing fire sprinklers in existing Greek housing, we urge you to contact Buddy Dewar, Director of Regional Operations for the National Fire Sprinkler Association. He has been instrumental in getting many jurisdictions to re-think their "taxing" of these installations and has saved many of our clients thousands of dollars on a project.

We have found the more successful installations have taken the time initially to make sure that the ultimate contractor hired has a very good sense of aesthetic concerns that you have of your property. We strongly recommend that those individuals responsible for the project meet with the contractor before a bid is prepared. The purpose of a meeting and a "walk-through" is to explain the project in detail.

This meeting would include a floor-by-floor walk-through of the entire facility to detail issues of the building, such as making clear what sprinkler product will be exposed (i.e. sprinkler heads), issues of what gets painted and what does not, what gets soffitted, where emergency exit lights and signs will have to be lowered to accommodate the soffitts, to name a few critical elements of any installation.

Further detail includes a clear discussion of where plaster walls and ceilings get trenched, repaired and repainted, what type of sprinkler head is used in different circumstances: such as sidewall, recessed or flat concealed. Follow-up walk-throughs are necessary on a regular basis as the project progresses to insure 100percent agreement on issues and complete satisfaction of the work being done. In other words, painstaking detail needs to take place in the planning stages of a retrofit project and adequate means of communication should be established among the parties to work toward a common goal of completing a successful project.

We have mentioned previously that it would be in your best interests to find a contractor who has a "residential division." The reasons are many; however, what we have found is that working with a specific residential division as opposed to a commercial division is ultimately a much smoother installation. The main reason being that these personnel know that you are unfamiliar with not only their business, but have probably never participated in a project this far reaching. Their detail, their communication, and their whole thrust is geared towards a less informed consumer.

Once the sprinkler system design drawings are approved, it is important to note that any modifications to these plans will become "change orders" and can certainly drive up the cost of the project. Thus it is important that you address as much as you can in the original drawings.

Upon review of the bid(s), you are now prepared to hire the contractor to do our project. Putting the necessary time into this project on the front side will be to your advantage and maintaining open communication with the contractor will ensure a successful installation.

CHAPTER ELEVEN:

CHOOSING A CONTRACTOR FOR THE INSTALLATION IN YOUR AREA

As in the hiring of any contractor, you will want to secure the services of a reputable contractor and one who specializes in the installation of automatic fire sprinkler systems. This is a substantial cost to the property owners and ultimately your members so the firm must be well-trained, efficient and have reasonable pricing for their work.

There are a couple of different avenues that you could pursue to secure the names of sprinkler contractors that do business in your area:

- Inquire of other fraternity or sorority houses that are sprinklered on your campus of who they used for their installation.

- Call MJ Insurance/Sorority Division to see what locations we show on your campus as having sprinkler systems and check our database of the contractors performing this work.

- Go to www.NFSA.org, which is the website for the members of the National Fire Sprinkler Association.

If you will indulge me as I highlight the National Fire Sprinkler Association (NFSA) and the tremendous support that they have given to the efforts of many fraternal property owners in this very important matter for the Greek Community. The NFSA is a peer group organization that requires standard within their membership and represent the qualified contractors who can be called upon to provide the service you would expect in a project this complex and important to your property.

Members of the National Fire Sprinkler Association were so distressed by the needless loss of life in a fraternity house fire at Chapel Hill, North Carolina that established a Retrofit Task Force with the mission of providing technical resources to facilitate Greek house fire sprinkler retrofit. Many contractors within our nation's fire sprinkler industry have donated much time and effort to aid Greek housing leadership in determining fire sprinkler installation criteria. The Task Force polled the membership of the NFSA and determined that many members have historic ties to fraternities and sororities. The members of NFSA are available to help and assist Greek Housing leadership by providing free cost estimates which is an invaluable resource to you as a property owner.

By going to their website at www.NFSA.org, you can search for contractors in your area of the country. Simply go to Members, Search for Residential Contractors and input your State. The fire sprinkler industry, when compared to other construction trades such as plumbing and electrical, is very small. Accordingly, it is common for sprinkler contractors to bid work outside their city of residence.

The NFSA has a network of Regional Managers covering the entire nation. These Regional Managers have the expertise and experience in dealing with governmental officials on fire sprinkler related issues, as all have extensive fire service experience. The NFSA staff should prove to be a valuable resource in addressing excessive impact fees and the many externalities that increase the cost of fire sprinklers. The contact for identifying the appropriate regional manager is:

Buddy Dewar, Director of Regional Operations
National Fire Sprinkler Association
200 West College Ave.
Tallahassee, FL 32301
(850) 222-2070 Fax (850) 442-1752 Dewar@NFSA.org

Buddy is the former Director of Florida's State Fire Marshal's Office and is nationally recognized as a fire safety expert. He has been instrumental in saving our clients thousands of dollars in reviewing a contractors bid. Through the NFSA Regional Manager network, the property owners of fraternity chapter houses can obtain valuable guidance and assistance in dealing with complex fire safety issues that are typical with older housing. The Regional Manager network has acted as a "second opinion" on fire safety issues impacting Greek housing, which has resulted in significant cost savings.

Most of the business for a sprinkler contractor is commercial-related business, thus they may not be as proficient in the more habitational or residential type sprinkler installations. As such, you may find them more costly due to their commercially driven overhead. It is therefore important that you seek out contractors that have established a residential division.

The chapter house sprinkler installations pose an additional challenge for the property owner, in that you will in most cases wish to have the sprinkler system installed during summer break. This is a very narrow "window of opportunity" and may be difficult for a contractor to accommodate so this matter should be posed in your search for a qualified contractor.

Another item of consideration would be the differences in costs of the bids between contractors who are a union shop and contractors who are non-union. The union shops can be more costly; however, this is just one of several different elements that you must take into consideration in deciding who is awarded the project.

There are other costs associated with an actual sprinkler installation that are outside the authority and capabilities of a sprinkler contractor, such as electrical, plumbing and trim work. It would be important to determine if the contractor you are considering for the sprinkler installation has a business relationship with the other trades and can guarantee you access to these other contractors.

As with other contractors you hire to perform work on your behalf, is not only licensed to do the work that you are hiring them for but we also recommend the following minimum limits of insurance, which can be secured via a request for a Certificate of Insurance:

Workers' Compensation	State Statutory Limits
General Liability, including completed operations	$1,000,000 per occurrence
Automobile Liability	$1,000,000 per occurrence
Inland Marine and/or Builder's Risk	Varies by extent of the project
Umbrella Liability	$3,000,000 per occurrence

It is also recommended that you try to get a bid from a minimum of two contractors from which to consider. Depending upon your location, this may or may not be possible. This review can be overwhelming, so we have established several different resources for you should you need some assistance.

We have found that those sprinkler contractors who do have a residential division are more likely to be able to give your organization the quality service in a user-friendly fashion than other contractors. We recognize that virtually all of the property owners have never ventured into the area before and may be challenged in all aspects of the bid selection process. A contractor needs to be sensitive to this lack of experience and to take great strides to make his/her communication understandable to a lay person.

CHAPTER TWELVE:

HOW TO SECURE A PROPRTY PREMIUM DISCOUNT ONCE YOUR SPRINKLER SYSTEM IS INSTALLED

The merits of having an automatic sprinkler system in your chapter house have been sufficiently documented previously in this guide book. Suffice it to say that it is the best risk management tool available to protect your property from a major fire and the disruption that this can create and to protect lives of your members and guests while in your chapter house.

Upon completion of the installation, the contractor will need to supply you with documentation of the system. This is commonly referred to as a "certificate of completion." You will find an example of one attached for your reference.

To qualify for the property premium discount, the chapter house must be 100percent sprinklered and must meet the applicable NFPA code for the occupancy, which will invariably be NFPA 13R.

Though currently not mandatory, we strongly urge that you "protect your investment" and contract for an annual inspection of your sprinkler system to ensure it maintains its effectiveness. The cost range is from $200-$500 annually and is money well spent. To date, the insurance company has not mandated this service; however, there are some preliminary indicators that they may require the annual inspection in the future.

Once the certificate of completion is received by the Sorority Division, we will request an endorsement from the insurance company to apply the sprinkler discount. The substantial discount recognizes the significant improvement in the exposure of fire and life safety for your property.

One last statement on the applicable insurance coverage: as you have now introduced more water piping into your property, it becomes very important that where a freezing potential exists with your weather conditions that you maintain your heat at a minimum of 55 degrees, to ensure that the system remains operable. This is especially important over the long holiday breaks.

Should you have any questions regarding the discount, please contact your service representative at MJ Insurance/Sorority Division or visit our website at www.mjsorority.com.

CHAPTER THIRTEEN:

WHAT IF YOU ARE NOT THE OWNER OF THE PROPERTY AND ONLY A TENANT

Should you be a tenant in a building owned by someone else, you would still have an interest in ensuring that your members and guests are safe while using the facility. This is especially true if the members are in fact residents in the building or chapter house.

Not only would you have an interest, but so too do you ultimately have liability for the physical conditions of the property and the life safety of the residents. There is no question that a significant amount of the liability lies with the building owner or landlord as they generally are in a better position to "control" the physical conditions of the building.

It is important that you carefully review your building lease with the landlord and clearly understand their responsibilities and obligations, as well as your own. Depending upon these provisions, you many have some additional insurance obligations to address. We encourage you to call your Account Executive at MJ Insurance/Sorority Division with any questions or concerns you may have regarding your lease and/or regarding your liability as an organization.

The following steps should be considered as a tenant if your current building is not sprinklered and you have members sleeping in your property.

- After reviewing the lease and being clear on the landlord's responsibility to maintain the property, write to the landlord and inquire about his plans to install a sprinkler system in the building.

- If there are indeed plans to sprinkler the property, you should mark your records and periodically check-up on the status. Once the fire sprinkler system is installed, follow the steps noted in Chapter Twelve on qualifying for a premium discount on your property coverages.

- If there are no plans to sprinkler the property, we would highly encourage you to communicate to the landlord the strong case of the merits of having a sprinkler system and your concern as a tenant in the facility without this very important life safety protection.

At this juncture, you should at least go through the process of determining whether you should remain as a tenant at the conclusion of your lease. The practical reality is that with campus-housing being a premium in the campus/city, you will have no choice but to remain.

You can continue to use good risk management to reduce the potential of a fire in your chapter house. The most obvious recommendation is the prohibition of any incendiary devices like candles, incense burners, halogen lamps, etc.

Admittedly, as a tenant, you have very limited control over the physical conditions of a property. Your attempts at bringing the importance of a sprinkler system to the attention of the landlord and your continued risk management will serve as a valuable <u>defense</u> for your organization should a loss/tragedy occur, and you be named in a lawsuit.

CHAPTER FOURTEEN:

NOW YOU HAVE IT, WHAT DO YOU DO WITH IT AFTER THE CONTRACTORS LEAVE

As in any investment, it is important to ensure its continued effectiveness and performance. The sprinkler system is a working mass of piping and sensory parts that will need to be properly maintained, respected by the residents/members and inspected by a knowledgeable professional on a regular basis.

How often should our system be inspected?

At least annually, a full sprinkler system inspection should be performed by a sprinkler system professional. Some cities and states require more frequent inspections. Most sprinkler contractors offer economical long-term service agreements. These contractors can provide you with the test certificates, which will comply with your local fire department inspection requirement.

Many municipalities have required compliance of NFPA 25 code which specifically addresses the standard for a periodic maintenance inspection. This code expects an owner of a property to ensure that the sprinkler system remains operable over the life of the system.

Regular inspections provide for the peace of mind that comes in knowing your system is always ready and in top-working order. Like any other investment that you make to your property, you need to preserve the value. An annual maintenance inspection program will confirm system readiness, inspect components and provide you with a detailed report recommending any necessary corrective action that needs to be taken.

The contractor who has installed your system may not have a division that does these maintenance inspections. If they do not have this service available there are numerous national firms that can be retained to do this for your property. Refer to www.nfsa.org for some recommendations.

There are certainly some service items that you as a property owner can be responsible for on an on-going basis such as checking monthly to ensure the valves are open or that the water pressure gauge reports a pressure in an acceptable range. Your installation contractor will be responsible for giving you some training initially, so be sure and have this discussion with them.

Are there other times when the system should be checked?

Fire sprinkler systems are designed to the conditions which exist in a chapter house when the sprinkler system was installed. After any changes to the building or the use of the building, an analysis should be done to determine if the system is adequate.

Similarly, even if the building and its use remain the same, changes in the water supply or changes to equipment necessitates a reevaluation of the system.

How should the resident/members use the sprinkler system?

For the system to be effective, the equipment should be kept intact and not disrupted. There are a few simple ways residents can help:

- Never paint any fire sprinkler part
- Never hang anything from any part of a fire sprinkler system
- Never stack items close to fire sprinklers
- Always report damages to any part of the fire sprinkler system
- Always make sure control valves are in the open position

During winter breaks, should I be concerned about the sprinkler system freezing?

It is important during the bid and specifications process that you and the contractors identify any areas where the sprinkler piping could be exposed to temperature fluctuations, such as freezing and make certain that sufficient insulation is used to reduce this risk.

During the breaks, we recommend that the interior temperature be maintained at 55 degrees to ensure that the pipes do not freeze and ultimately break which would cause significant water damage and potentially render the system inoperable.

The risk of freezing pipes to a building can be far more damaging than an actual fire, as you are hindering the operation of the piping. Proper oversight during the winter months is critical.

CHAPTER FIFTEEN:

LIFE SAFETY: SPRINKLER LEGISLATION AND FRATERNAL SUPPORT

The Sorority Division has been an active participant in the joint lobby effort of the NPC and NIC to seek important legislation to help the property owners of the chapter houses raise money to make this life safety improvement to the physical structures.

We have made substantial progress on advancing this legislation, and I am very encouraged that we will see this bill pass. Having said that, I would strongly urge my clients to begin the process of preparing for this eventual opportunity and have communication pieces ready to go out to your property owners should the legislation get passed. I would presume that our Department would also be using our resources to communicate this message.

You would have recently seen some correspondence from me on the city of Champaign, IL mandating sprinkler systems to all fraternities and sororities. I expect to see more of this arbitrary action whether it be the state, the municipality or even the university, as parental peer pressure is mounting.

Help Pass the "Collegiate Housing and Infrastructure Act" (CHIA)

Colleges and universities nationwide are experiencing several housing shortages due to ever-increasing student enrollment. Schools are resorting to implementing unfavorable temporary policies in an effort to meet the demand for on-campus accommodations. For example, in New Orleans, Tulane University undergraduates were forced to live in lounges and study rooms because the dormitory rooms were filled to capacity.

Faced with the same problem, administrators at the University of Connecticut converted many two-student rooms into three-student rooms. At St. Louis University, the move-in date for a group of students was delayed until after the first week of classes because the university had not yet finished outfitting the nearby hotel to which they were assigned. With predictions that post-secondary enrollment will increase 15 percent between 1999 and 2011, quality collegiate housing options will become a more challenging issue confronting all of higher education.

Fraternities and sororities operate $3 billion in not-for-profit student housing. We help alleviate the housing burden on colleges and universities by housing 250,000 students each year, making us the largest not-for-profit student landlords in the nation. We are an important safety valve in the collegiate housing market. Frankly, if we closed our chapter houses tomorrow, colleges and universities would not have the financial ability to build residential spaces needed to accommodate the influx of students, and it is doubtful that most college towns want to see more students renting residences further out into their respective communities.

Fraternity and sorority houses currently face several challenges that other collegiate housing does not. First, we generally lack the total capacity to accommodate the increasing student population at a time when colleges and universities need us to handle our share of students. Second, our housing is significantly older than most other campus housing, which creates a number of hazards that challenges our future ability to operate effectively. We need funds to build new chapter housing, and we need funding to retrofit our housing to accommodate the modern conveniences today's students expect as part of their living and learning spaces. Most importantly, we need funding to install safety upgrades such as fire sprinklers, as safety issues are the top challenge facing fraternal housing.

Current federal tax law allows taxpayers to deduct almost all contributions to non-profit educational organizations, such as colleges and universities. These tax-deductible contributions may be used by these organizations to improve student facilities such as dormitories, dining facilities, meeting rooms, laboratories and study areas. Unfortunately, the same tax laws largely prohibit our fraternal educational foundations from using tax-deductible charitable contributions to make the same student infrastructure improvements colleges and universities can make with tax-deductible funds.

For the past several years, Greek leaders have been converging on Washington to educate them about the need to change the law and level the playing field for improving non-profit student housing.

The Collegiate Housing and Infrastructure Act "CHIA" (S.1246/H.R. 1523) was introduced in April of 2003 and the legislation would, if passed, ultimately allow tax deductible charitable contributions to fraternity and sorority foundations to be used for the same purposes that a college or university could use such contributions. That means a local chapter's house corporation who has needed property and life-safety improvements of all types could eventually use these contributions from your national fraternity's educational foundations. Fire sprinklers, a new roof, security equipment, new fixtures and other housing improvements could be funded with tax-deductible charitable contributions to your national fraternity's educational foundation.

The August 27, 2004 death of three Alpha Tau Omega brothers in a chapter house fire at the University of Mississippi is a stark and tragic reminder that we can do better to improve the safety of our fraternity housing. The installation of fire sprinklers in fraternal housing is especially important given the age and size of most fraternal living facilities. For instance, the injury rate in fraternity and sorority housing is twice that of other campus fires and the rate of property loss is significantly higher. Installation of safety systems is just one of the many necessary improvements that will make student living across the country safer and better suited to an environment of academic and personal enrichment. Passing the Collegiate Housing and Infrastructure Act will give our organizations a real chance to raise the money needed to install new safety equipment in our houses.

This bill is crucial to the welfare of the higher education community in general and the college fraternity community in particular, and its benefits will be widespread and significant. It will not only benefit the quarter of a million students comprising the nation's largest network of young volunteers, but also the colleges and universities that educate them.

If you would like to communicate your support of the Collegiate Housing and Infrastructure Act by writing a letter to your local Congressman, you may obtain a sample letter at: www.fraternalcausus.com (click on "Issues" and then click on the "Collegiate Housing and Infrastructure Act)

CHAPTER SIXTEEN:

RESOURCES:

FIRE SAFETY WEBSITES

www.usfa.dhs.gov\citizens\colleges

Fire Safe Student Housing-a guide for Campus Housing Administrators.

www.campus-firewatch.com

A number of states have now designated September as "Campus Fire Safety Month." Schools across the country will be holding events to educate and inform students about fire safety.

www.usfa.fema.gov

Unites States Fire Administration site

www.cpsc.gov

Consumer Product Safety Commission site

www.NFSA.org

National Fire Sprinkler Association is a peer group of professional fire sprinkler contractors throughout the United States.

www.NFPA.org

National Fire Protection Association

www.campusfiresafety.org

Center for Campus Fire Safety is a non-profit organization devoted to reducing the loss of life from fire at our nations' campuses. The mission of the Center for Campus Fire Safety is to serve as an advocate for the promotion of campus fire safety. The Center serves as the focal point for the efforts of a number of organizations and also as a clearinghouse for information relation to campus fire safety.

www.peoplesburnfoundation.org

A non-profit organization devoted to the services of helping burn survivors and works extensively with fire protection professionals in the development of educational resources to educate others on fire and its impact upon people.

www.igot2kno.org

Developed by the People's Burn Foundation and Campus Firewatch to be geared towards college students on fire safety education. Included in the site is a landmark video. "To Hell and Back: College Fire Survival."

RESOURCES TO SHARE WITH THE CHAPTER MEMBERS/RESIDENTS

DVD/Video:

Available from MJ Insurance:

"Living with Fire"-A program for Campus and Student Fire Safety

"Graduation: Fatally Denied"

"Empty Shoes"
http://www.youtube.com/watch?y=xFjsxS20PXM

"To Hell and Back: College Fire Survival"
www.igot2kno.org

Resources:

Buddy Dewar Director of Regional /Operation of the National Fire Sprinkler Association
Phone: 850-222-2070
Fax: 850-422-1752
Cell: 850-566-8733
Email: dewar@nfsa.org

MJ Insurance Sorority Department
Phone: 888-442-7470
Website: www.mjinsurance.com

CHAPTER SEVENTEEN:

"MYTHS" ABOUT SPRINKLER SYSTEMS

It is interesting that the misconceptions related to fire sprinklers continue to spread mistrust and false perceptions about fire sprinkler protection. These fictitious stories or "Hollywood" depictions reflect a lack of understanding and knowledge on the operation of fire sprinklers.

What follows below are some of the more common "myths."

FIRE SPRINKLERS MAY GO OFF ACCIDENTALLY

WRONG: Loss records have shown that the probability of a fire sprinkler accidentally discharging due to a manufacturing defect was only 1 in 16 million sprinklers per year in service.

FACT: Where a system has discharged water in the absence of fire, the typical reasons include inadvertent overheating, freezing, mechanical damage, corrosion, deliberate sabotage or misuse. Ninety-five percent of the accidental discharges are related to human behavior.

IF ONE FIRE SPRINKLER GOES OFF, THEY ALL GO OFF

WRONG: Fire sprinklers are manufactured to individually react to specific elevated temperature levels.

FACT: Normally only the one or two fire sprinklers nearest the fire will activate. In residential fire scenarios, data indicates that a single fire sprinkler usually controls the fire.

FIRE SPRINKLERS CAUSE EXCESSIVE WATER DAMAGE

WRONG: Consider this: a single firefighter would normally use between 175-400 gallons of water per minute when attempting to extinguish a fire. On the other hand, a single fire sprinkler will be flowing only 18-40 gallons of water per minute. Over a five minute period of time a firefighter uses 875 gallons of water whereas a sprinkler uses only 90 gallons of water.

FIRE SPRINKLERS ARE ONLY GOOD FOR REDUCING THE ULTIMATE PROPERTY DAMAGE TO YOUR PROPERTY

WRONG: It has a dual purpose; sprinkler systems reduce the property damage by 85 percent and virtually eliminate the potential of a loss of life.

SMOKE DETECTORS ARE SUFFICIENT FOR A RESIDENTIAL PROPERTY

WRONG: Most smoke detectors are battery operated and thus are not as reliable.

FACT: Replacement of these batteries requires a relatively high level of on-going maintenance as they should be replaced annually and tested periodically.

FACT: Research has shown that audible fire alarm signals that might reliably alert others age groups are less reliable at alerting children and young adults. When additional risk factors common to college students are considered, such as stress, sleep deprivation and possible alcohol or other drug use, the design of an effective fire-alerting system becomes challenging.

FACT: Smoke detector alarms only notify residents of a fire, they do nothing to suppress or limit a fire's damage.

RESIDENTIAL SPRINKLERS ARE UGLY AND WILL SPOIL THE APPEARANCE OF OUR HOUSE

FACT: Modern sprinklers are inconspicuous and can be mounted flush with walls or ceiling in most cases, no one will even know that they are there. Only a plain white disk or a low profile deflector show when mounted on a ceiling.

FACT: When was the last time you even noticed a sprinkler head in a restaurant, hotel or business?

FACT: Having a house that is protected by a sprinkler system is a major added value for potential residents and their families and can actually help sell your house as an alternative to on-campus housing.

FIRE SPRINKLER SYSTEMS ARE JUST TOO EXPENSIVE

FACT: New fire codes permit the use of modern materials and installation methods for residential sprinkler systems that greatly reduce the cost. Every building is different and every city has different building codes, but a typical job should cost less than $2.00-$4.00 per square foot or about the cost of good quality carpeting!

FACT: Your insurance company will provide a discount on your insurance for sprinkler protection. They will also waive the requirement for hardwired smoke detectors. (Note, however, that some jurisdictions may also require hardwired smoke detectors.)

FACT: New technology allows sprinkler piping to run against walls and ceilings and be covered by attractive moldings to limit the expense of working inside walls and between floors.

FACT: The code NFPA 13R allows for plastic piping instead.

OUR HOUSE IS FIREPROOF WHAT IS THERE TO BURN

FACT: Most of what burns in a fire are contents, not the building itself. In fact, brick walls can act like an oven allowing heat to buildup, contributing to flashover.

FACT: People who die in fires usually die from inhaling gases from the fire, carbon monoxide or the lack of oxygen. All of these dangers can exist well before the building itself is even involved in the fire.

SPRINKLERS ARE NOT PRACTICAL IN COLD CLIMATES. THE PIPES WILL FREEZE AND CAUSE WATER DAMAGE

FACT: Anchorage, Alaska has had a residential sprinkler bylaw in place for more than ten years and residents have not reported a single sprinkler system freeze-up.

FACT: Residential sprinkler systems utilize plastic or copper piping similar to that used for domestic water systems. If the heat in a house drops to a level where the sprinkler system will freeze, it is likely that the domestic system will also freeze. There is no unique danger of freezing with sprinkler systems that does not already exist with domestic water systems.

FACT: Damage from leaking sprinklers is covered by your insurance policy.