

# National Fire Sprinkler Magazine

The Flagship Publication of The National Fire Sprinkler Association

March-April 2022

No. 231



## THE FIRE PUMP ISSUE



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Layout Techs**

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THE FIRE PUMP ISSUE



ON THE COVER

Welcome to the "Everything you ever wanted to know about fire pumps but were afraid to ask" issue. You'll find in-depth articles and great learning opportunities in this issue. Feel free to reach out to our authors should you have any questions or comments.

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The following calendar was current at time of publication. We are adding events often. Please go to <https://community.nfsa.org/events/calendar> to view our latest offerings.

### MARCH

#### **Sprinkler Protection of Rack Storage**

When: Mar 1, 2022 from 08:00 AM to 05:00 PM (CT)  
Where: Pharr Fire Department, 118 S. Cage, Pharr, TX 78577

#### **Pumps for Fire Protection (NFPA 20 2019)**

When: Mar 2, 2022 from 08:00 AM to 05:00 PM (CT)  
Where: Pharr Fire Department, 118 S. Cage, Pharr, TX 78577

#### **Understanding, Applying and Enforcing NFPA 25 (2020)**

When: Mar 3, 2022 from 08:00 AM to 05:00 PM (CT)  
Where: Pharr Fire Department, 118 S. Cage, Pharr, TX 78577

#### **Learning Branches: Common Inspection Issues**

When: Mar 7, 2022 from 03:00 PM to 04:00 PM (ET)

#### **Tech Tuesday: Fire Pumps 101**

When: Mar 15, 2022 from 12:30 PM to 01:30 PM (ET)

#### **Sprinkler Installation Requirements**

When: Mar 29, 2022 from 08:00 AM to 05:00 PM (CT)  
Where: Lubbock Fire Rescue's Training Facility, 1515 E Ursuline St, Lubbock, TX 79403

#### **Fire Service Mains and Their Appurtenances**

When: Mar 30, 2022 from 08:00 AM to 05:00 PM (CT)  
Where: Lubbock Fire Rescue's Training Facility, 1515 E Ursuline St, Lubbock, TX 79403

#### **Learning Branches: Fire Pumps for Multiple Water Supplies**

When: Mar 30, 2022 from 03:00 PM to 04:00 PM (ET)

#### **Rough and Final Inspections of Fire Sprinkler Systems**

When: Mar 31, 2022 from 08:00 AM to 05:00 PM (CT)  
Where: Lubbock Fire Rescue's Training Facility, 1515 E Ursuline St, Lubbock, TX 79401

### APRIL

#### **Learning Branches: Fire Pumps for High-Rises**

When: Apr 7, 2022 from 12:00 PM to 01:00 PM (ET)

#### **Tech Tuesday: Freeze Protection – A Panel Discussion**

When: Apr 19, 2022 from 12:30 PM to 01:30 PM (ET)

### MAY

#### **Tech Tuesday: Environmental & Trending Issues: Lithium Batteries**

When: May 17, 2022 from 12:30 PM to 01:30 PM (ET)

### JUNE

#### **Tech Tuesday: Environmental Issues with ITM**

When: Jun 21, 2022 from 12:30 PM to 01:30 PM (ET)

### JULY

#### **Tech Tuesday: Best of NFSA's Expert of the Day:**

##### **NFPA 13 – Installation Rules**

When: Jul 19, 2022 from 12:30 PM to 01:30 PM (ET)

### AUGUST

#### **Tech Tuesday: Best of NFSA's Expert of the Day:**

##### **NFPA 13 – Discharge Rules**

When: Aug 16, 2022 from 12:30 PM to 01:30 PM (ET)

### SEPTEMBER

#### **Tech Tuesday: Best of NFSA's Expert of the Day:**

##### **NFPA 14 – Standpipes**

When: Sep 20, 2022 from 12:30 PM to 01:30 PM (ET)

### OCTOBER

#### **Tech Tuesday: Best of NFSA's Expert of the Day:**

##### **Model Codes – ICC and NFPA**

When: Oct 18, 2022 from 12:30 PM to 01:30 PM (ET)

### NOVEMBER

#### **Tech Tuesday: Best of NFSA's Expert of the Day:**

##### **NFPA 25 – ITM**

When: Nov 15, 2022 from 12:30 PM to 01:30 PM (ET)

### DECEMBER

#### **Tech Tuesday: Best of NFSA's Expert of the Day:**

##### **NFPA 20 – Fire Pumps**

When: Dec 20, 2022 from 12:30 PM to 01:30 PM (ET)

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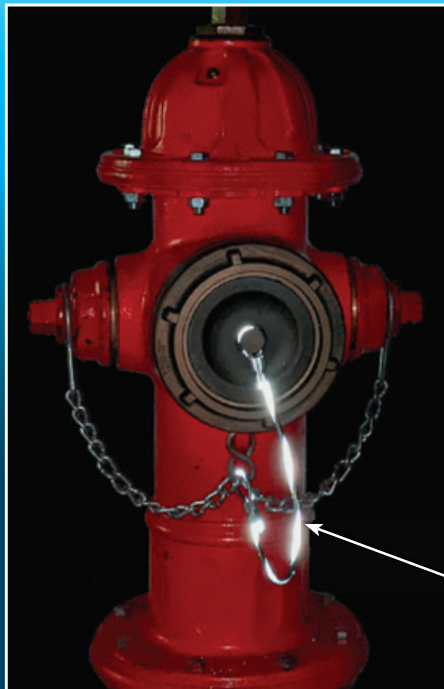
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## A Record Year

“I owe you a beer for my record year.” This is a line from the Eric Church song, Record Year. The “my” is the fire sprinkler industry. 2021 was a record year for fire sprinkler shipments in the United States. We celebrated 2019 with a record year that finally broke the previous record set in 2006. Well, 2021 broke all of those and you should celebrate within your companies. NFSA’s vision, “A Stronger Industry...A Safer World” is coming to fruition.

NFSA is working hard to create a Fire Sprinkler Institute, which will enhance our data, research, test, and demonstration abilities. We have had a research fund established by the Manufacturers Council many years ago following issues in the fire sprinkler industry that needed to be resolved collectively by all in the industry. As we work daily to collect fire sprinkler saves across the country, and as we experience more fires in buildings protected with fire sprinklers, we realize how much more work there is to complete.

As you see news headlines of tragic fires where people die in buildings without fire sprinklers, and as you see fires in extremely large warehouses burning down, the questions begin rolling in. Rest assured that NFSA is working around the clock to answer those questions and to provide positive perceptions of the fire sprinkler industry.

As I write this article, we are beginning several campaigns to engage you, our members, and our advocates, to reach out to your elected officials encouraging them to co-sponsor legislation we have in Congress that would provide incentives and funding for fire sprinklers systems in these high-risk occupancies, such as high-rises and public housing. Where you sleep must have fire sprinklers. It doesn’t matter if the building was built during 2021 or 1921 and coined as “fire proof,” it’s not the building that is killing the occupants, it’s the contents. If you are going to have a better than reasonable chance of surviving a fire in the modern built environment, you must have fire sprinklers.

The fires that occurred early in January 2022 in Philadelphia and New York City that claimed 29 lives, 17 of them children, and injured over 60 more, caught national attention. They are tragic, and they are a failure of the federal, state, and local governments to implement requirements that would have saved those people’s lives, limited the risk and horror faced by firefighters, and prevented the millions and millions of dollars that will be handed over in lawsuits. I am an advocate for NFPA’s Fire & Life Safety Ecosystem. Some reading this column will say government wasn’t the only failure causing these deaths, which I agree with, and why I am a fan of the Ecosystem that demonstrates we all play a role. NFSA is engaged, very actively, in all the cogs of the Ecosystem, we just need a lot more people and organizations collectively involved.

NFSA has been active in Washington, D.C. for over 20 years and it’s making a difference. As we walk the halls of Congress, they know us, and the agencies know us. Since all the infusion of public money into the economy has been going on with COVID, we have made sure the “Voice of the Fire Sprinkler Industry” has been loud and clear. Fire sprinklers are the answer to reduce fire deaths, and as it was once called, “fire waste”, which included money, people, resources, and the environment. We are ensuring laws are passed at the local, state, and federal level that are saving lives and protecting property.

I could go on and on with the daily impact the fire sprinkler industry is making, but let’s pause and realize that we are celebrating a record year, which is over 100 years of collective work to ensure fire sprinklers are included in codes and standards. Let’s use this high to keep pushing.

I’ll close with data NFSA derived from analyzing information from NFPA and the United States Fire Administration. Let me insert a thank you to President Joe Biden (regardless of your politics) for appointing Lori Merrill-Moore as the US Fire Administrator. She is refreshing leadership in that role, as she is active, engaged, and out-front.

When we wrote press releases after the tragic fires, and as we celebrated success of a high-rise retrofit law passed in Minnesota, we realized this statistic: From 2010 until January 11, 2022, 35,591 people died in residences without fire sprinklers, 63 died in residential occupancies with fire sprinklers. We have the answers and will continue a quest to reduce those numbers.

Let’s celebrate a record year and let’s use that high energy to have high impact. Please join us in September 2022 at the NFSA Business and Leadership Conference in Clearwater, Florida. We will have Clifton Truman Daniels acting as his grandfather, President Harry S. Truman, to remind us of our vital role in reducing fire waste. We will also have Business Analyst Gene Marks, who encourages us with the past and future. I enjoy both these gentlemen because they set the bar high for high-energy, high-impact.

Thank you for the support and for the blessing of serving this great industry.

May God Bless,



Shane Ray, President



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## Together, We'll Make it Happen

Having been part of the NFSA for several years now, I have had the opportunity to serve the members, as well as collaborate with other sprinkler manufacturers to better position our businesses for long term growth. What makes NFSA unique relative to other industry associations is the balance of interests on our Board. Our Board represents fitters, contractors and distributors, as well as the people who manufacture and design our systems and products. Whether you hold a union card, a NICET certificate, a US patent, or a wrench, you have board representation helping to guide our association. This balance makes it happen.

This past year, facing a barrage of issues (including keeping our workforce safe) forced rebalances of construction schedules, supply and labor shortages and regulatory changes. We kept our compass headed straight ahead and closed a record year. Our various councils and committees collaborated to develop the guidance which provided stability during this uncertain time by proposing, discussing, and distilling issues internally. This ensures the final product is both durable and accurate.

The members of your NFSA Manufacturers Council are proud to have been a part of this process and remain fully committed to accommodating whatever new set of issues develop for our businesses since Spring of 2020 and going forward. Our role is to set aside our competitive interests, listen to other industry partners (including our regulatory bodies) and deliver products which incorporate the latest technology to make the business of fire sprinklers as efficient as possible. This year, a particular challenge for us has been to meet supply demands. We thank you for your patience as we have learned to navigate the minefield of everything from raw material outages, to operating on skeleton crews, to jostling for space for our containers on cargo vessels.

One of the key roles of the Manufacturer's Council is to assist in budgetary forecasting to ensure the prudent use of funding provided by membership. This is a logical role, as projecting business activity is part of our normal business operations and is a multi-year and multi-market process. For fire protection, we develop our estimates by market segments, then aggregate this data into an overall percentage relative to the prior year. We also incorporate general construction, code, architectural and population trending such as urbanization (or deurbanization). Fortunately, over the long term, our indicators have produced steady growth projections since the financial crisis of 2008. This process was considerably more challenging recently due to highly volatile impacts of the many factors previously mentioned. Not all were negative, since our industry's role in life safety, continuity of critical services and public health got us recognition as an "essential" industry in many states. Similarly, the migration to online sales has resulted in a strong demand for warehouses and other construction related to commerce infrastructure.

In recognition of these wide, sudden swings in market conditions, and with a responsibility to ensure the Association has the best information possible, we voted to meet monthly. We have been operating on this schedule for over a year and believe it has helped us be more effective. Frankly, to my surprise, every time we tabled a discussion to revert to less frequent meetings the measure received no support. The market dynamics were just too volatile for quarterly evaluation. It remains the strong consensus of all our council members that our collective wisdom as a group serves NFSA better than our thoughts as individual companies, and that the time spent is a sound investment.

In a world where manufacturers in a relatively small industry meet regularly, the Manufacturers Council has a special obligation to maintain our discipline to conduct all our discussions in such a way that we support free and open competition. The Association General Council Fred Barall also attends all our meetings, as does President Shane Ray and Executive Officer Vickie Pritchett. They provide input, observe and monitor the proceedings. In support of maintaining an inclusive council, we recently voted in support of a recommendation to change the bylaws to better accommodate new manufacturers.

We believe the staff has done an outstanding job in using our financial investments in the various initiatives, including implementation of our marketing plan, conducting outreach to individuals considering career options, legislation, web development, training and code development and support. Our EOD (Expert of the Day) support is back on track and building toward a strong future. In particular, the fast response focus we now provide following a fire tragedy has helped the public realize there is an answer and a clear path to increased safety for lives, as well



*continued on page 8*

## From the Chairman's Desk

Larry Thau

*continued from page 7*

as goods and services. Business interruption or loss of use is what the insurance companies track, and we are seeing our efforts have resulted in improving awareness of the relationship of fire sprinklers to continuity of use.

In addition to this progress, where do we as a council believe future NFSA investment should be made? Frankly, DATA. Based upon our continuous efforts to turn adversaries into allies, we often face situations where our supporting data isn't updated, large enough or adequately substantiated to be effective. If we are truly preparing for "prime time" we need to get this part of our message up to

speed with our enthusiasm. I've previously used the concept of addressing the empty chair in the room to represent those outside our industry. When these individuals have an economic interest in opposing fire sprinklers and are investing as such, only data will be effective in supporting our position. We need market facing documentation, like our recent video commercials, to counter the dissenters. I believe President Ray is already acting on this matter and I urge you to be as supportive as possible if our staff reaches out.

We've come a long way and have a strong future ahead, irrespective of the "speed bumps" which are certainly on the way. As in the past, together we'll make it happen.

*Stay well and see you soon,*

*Larry*

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SCAN FOR MORE INFO

# How Do You Scale Up Your Business Using Technology?

by Jon Allo

Scaling a business is not an easy task. Between keeping past clients happy, converting new leads, and ensuring you have the right team on board, scaling a company involves focusing on many things. And, if you look away for a minute, your development can slip.

Scale your business the smart way by using technology. Using technology isn't even optional these days. No matter the size of your company, how many clients you have or how much you want to grow, there's someone looking to take your business.

And, if your competitors are using software, apps, and tools you're ignoring, they'll have an easy time getting ahead. By using the right tools, you can track where you are, where you're going and the areas in your business that are lagging.



## Technology improves customer experience

Customers are the main drivers of your company, so it's crucial to do everything to offer them a positive experience when they interact with your firm.

By using chatbots, you can improve customer-service response time. Chatbots can answer a big percentage of your clients' queries. They can direct clients to customer service agents if the questions

need human intervention. They can also help to keep your clients engaged. For instance, they can prompt customers to view or write a product review and encourage them to view tutorials.

## Automate daily tasks with machine learning

Machine learning can help your company to reduce the need for employees performing repetitive tasks such as purchasing and billing operations. You can use software and apps to handle most of these duties. Automation will do these tasks quickly and accurately, and this will free up your employees' time to do jobs that demand critical and creative thinking.

Automation and integrating operational processes help businesses achieve end-to-end visibility, and it enables teams to scale speed while delivering excellent service to customers.

## Releasing data for future growth

Investing in the right technology and integrating business processes will make your company responsive enough to compete with bigger competitors and deliver sustainable growth.

By using a cloud-based business management system, you'll have full oversight of your company operations and easy access to data to make insightful decisions on how and where to grow the firm.

## Use technology to streamline onboarding

As your company grows, your human-resource department will use technology solutions to smooth the onboarding process. Software and apps enable new members to complete paperwork and make introductions before they arrive for their first day of work.

Also, onboarding apps provide new employees with detailed information of the company's culture, and they assist them to set goals for their first 90 days. This helps to ensure an employee is ready for their first day of work and it prepares them to help the company grow.

Putting automatic systems like streamlining, outsourcing and automation to work in your business can make it more efficient and productive. To discover more on how to effectively reduce the amount of time you work on your business, while simultaneously building your business reach and productivity, download the free checklist Work Smarter with Business Systems & Automation at <https://jonallo.com/biz-systems>

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# Fire Pumps 101

By Jeff Dunkel, PE, Fire Protection Engineer



This year, the NFSA is providing a series of courses and articles involving the design installation and testing of fire pumps. This article will be the first installment. The intent of this article is to provide a general guide for the placement and arrangement of basic fire pump components. Fire pump arrangements can vary greatly depending on the application and type of pump. However, for the purposes of this article, we are going to focus on the parts and pieces of a basic horizontal split-case fire pump system. By walking through the basic components of a fire pump system and identifying their purpose, we will provide a starting point to learning about fire pumps and how to apply the requirements of NFPA 20, 2022 edition. The following diagram is only for reference. An actual fire pump arrangement can vary depending on the parameters that surround the pump. The diagram is simply to provide a visual for what the article is describing. We will start at the beginning; the suction side of the fire pump.

## Suction Pipe and Fittings

The suction line consists of all the pipe, valves, and fittings from the pump suction flange to the connection to the public or private water service main, storage tank, or reservoir that feeds water to the pump. The primary goal in designing and sizing of the suction piping is to ensure the pump has sufficient pressure at the suction flange and the water entering the pump is not overly turbulent. A horizontal split-case fire pump can be fed from a public main, private main, suction tank, an elevated tank or a combination of water supplies. The source can impact the fire pump design and will need to be considered at very early stages of the design.

## Suction Sizing:

Many requirements for the suction pipe are intended to minimize turbulent flow on the suction side of the fire pump. The first of which is the maximum suction water flow velocity. Table 4.28 provides a minimum pipe size based on rated flow of the fire pump. These pipe sizes were derived to limit the flow velocity to 15 feet per second at 150 percent of the pump's rated flow. This is one of the few times NFPA restricts velocity. The goal is to minimize turbulence. If the suction water is too turbulent it could create cavitation and damage the pump impeller.

Another item to consider for the fire pump suction is the suction pressure. While NFPA 20 dictates a minimum suction

pipe size, if the suction pipe size creates too much friction loss, the suction pipe may need to be increased. As mentioned above, suction pipe sizing is based on 150 percent of the pump's rated flow. By calculating the friction loss from the water supply to the fire pump suction flange, the pressure available to the pump suction flange cannot be less than 0 psi at 150 percent of the fire pump flow rate. It's important to remember that while NFPA 20 allows for a suction pressure of 0 psi, it is not good practice to have a suction pressure that low, especially when the source is a public water supply. Many municipalities do not allow their system pressure to drop below 20 psi.

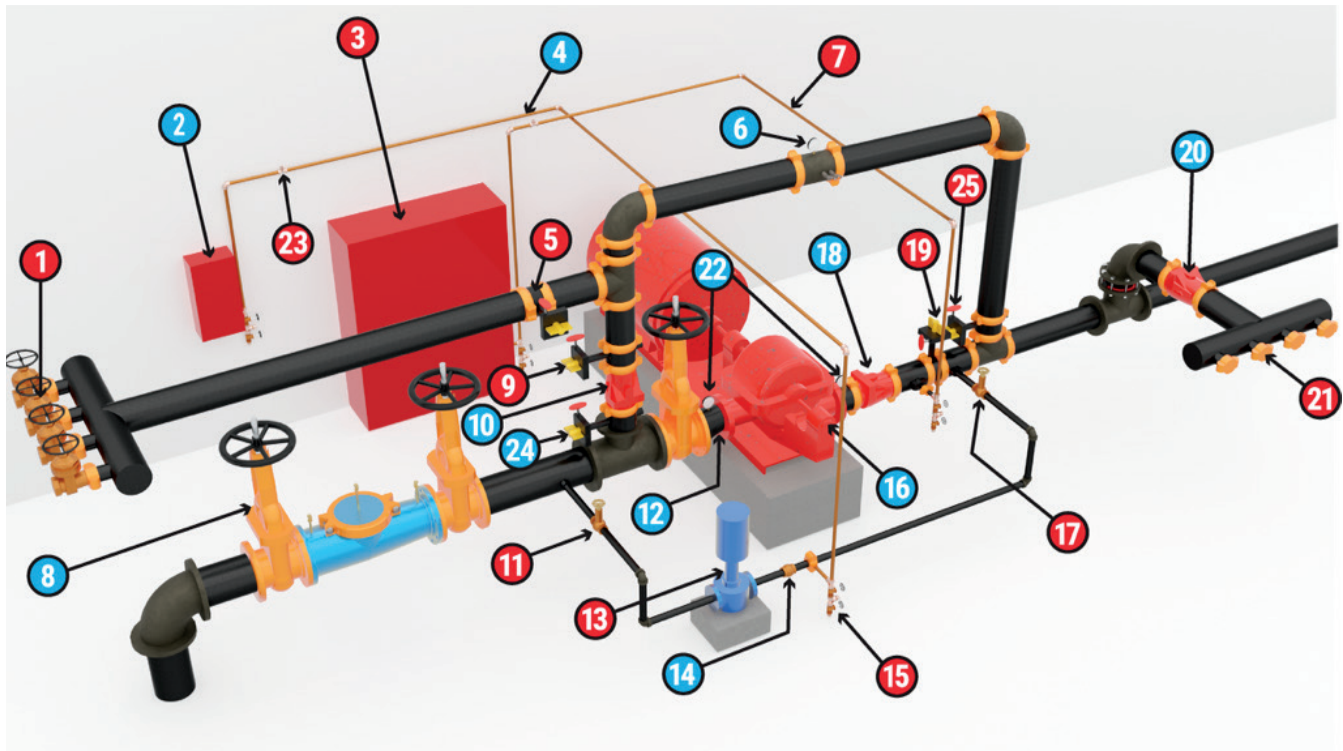
When being supplied by suction tank, with the lowest water level at or above of the pump discharge, the suction pressure can drop to a minimum of -3 psi at 150% of rated flow. The reason for this is to allow the use of all the water in the suction tank. Otherwise, since there is always friction loss in the suction piping there would be a volume of water that would be considered not usable in the tank. This allowance is, in essence, limiting the pressure loss in the suction line to 3 psi. When the friction loss exceeds 3 psi, water can be added to increase the supply elevation and offset the loss. This added volume of water would be in addition to the required capacity and not considered usable water for calculation purposes.

While not a good practice, there may be situations where the supply piping, such as a public water supply, is smaller than the dictated suction line sizing in NFPA 20. In these cases, the size provided by table 4.28 must extend a minimum of 10 pipe diameters upstream of the fire pump. Since the minimum sizes provided by NFPA 20 are intended to limit turbulence, the minimum 10 pipe diameters length would allow the water to streamline into a more laminar flow with a lower flow velocity. The minimum pressure to the fire pump flange will still need to be met.

## Suction Isolation Valve

Per section 4.16.5.1, a listed outside screw and yoke (OS&Y) gate valve shall be installed in the suction pipe. This is another case where NFPA 20 is limiting the turbulence. For obvious reasons, this valve is required to isolate the fire pump from the water supply. However, the purpose behind the OS&Y requirement is to ensure an unimpeded water flow upstream of the fire pump. An OS&Y valve is designed so the gate of the valve will lift completely out of the waterway. This is not the case with other valves such as a butterfly valve, which would create an obstruction to flow and

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increase the turbulence of the water. No other types of control valves can be installed within 50 ft of the pump suction flange.

### Backflow Preventer

While NFPA 20 limits the devices that can be installed on a suction line, most jurisdictions require a backflow prevention device to be installed. For this reason, backflow preventers are permitted to be installed in the suction pipe when required by other standards or the authority having jurisdiction. When a backflow is installed on the suction pipe it should be equipped with OS&Y valves. Even when the backflow assembly is equipped with OS&Y valves it is required to be installed a minimum of 10 pipe diameters upstream of the fire pump suction flange. This is due to the check valve portion of the back flow potentially causing turbulence. A backflow assembly equipped with butterfly valves is permitted, however it must be installed a minimum of 50 feet upstream of the pump suction flange.

### Suction Piping

As we have seen, many of the requirements for the suction piping are intended to prevent an overly turbulent flow. While the high flow rates seen for many pump applications would never see laminar flow, the goal is to reduce the turbulence in the flow as much as possible. The routing of the pipe upstream of the suction flange also impacts the turbulence of the water in the piping. Any time there is a change in flow direction, turbulence is created. For this reason, there are restrictions on how elbows and tees are installed on the suction pipe of horizontal split-case pumps. Per NFPA 20, when an elbow or tee is installed in a manner where the change in

direction is perpendicular to the rotation of the pump impeller, it must be located a minimum of 10 pipe diameters upstream of the suction flange. In cases where the change in direction is parallel to the impeller rotation the elbow or tee can be installed anywhere along the suction piping. The purpose for the direction restriction is to prevent water from rotating in the opposite direction of the impeller rotation. A parallel turn may create turbulence, however it has less impact since it is in the same direction as the pump rotation.

### Reducers

NFPA 20 requires a minimum suction pipe size, but it does not limit the size. There are cases where the suction pipe is larger than the suction flange of the fire pump. In this event a reducer is required. While more common reducers are concentric (shaped like a cone), the reducers installed on the suction of a fire pump must be an eccentric type of reducer (flat on one side). When installed, the flat portion of the reducer must be on top. The purpose of this arrangement is to prevent air pockets from forming in the pipe, which could cause cavitation.

### Fire Pump Bypass Piping

In cases where the suction supply is of sufficient pressure to be of material value, the fire pump is required to have a pipe bypassing the fire pump. A bypass is just that, a pipe that is routed from the suction side of the fire pump and connects to the discharge side of the fire pump, bypassing the fire pump. This allows water to

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1	Test Header
2	Jockey Pump Controller
3	Fire Pump Controller
4	Jockey Pump Pressure Sensing Line
5	Test Header Isolation Valve
6	Flow Meter
7	Fire Pump Pressure Sensing Line
8	Backflow Assembly
9	Check Valve Isolation Valve
10	Bypass Check Valve
11	Suction Control Valve
12	Eccentric Reducer
13	Jockey Pump
14	Check Valve
15	Inspection Test Valve
16	Fire Pump
17	Discharge Isolation Valve
18	Discharge Check Valve
19	Discharge Isolation Valve
20	F.D.C. Check Valve
21	Fire Department Connection (FDC)
22	Pressure Gauge
23	3/32" Oriface Union
24	Bypass Isolation Valve
25	Discharge Isolation Valve
26	Suction Control Valve

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flow from the water supply directly to the system. A bypass is not needed in cases where the water supply without the pump is of no value such as a suction tank. In the case of a suction tank, if the fire pump were to fail, then the water pressure provided by the tank is not sufficient for the fire protection systems, therefore a bypass would not provide any value. It's often assumed the bypass is to allow for water supply to continue during pump maintenance. This is not the case; it is provided for the rare event of a pump failure. The minimum diameter for the bypass piping is based on the flow of the fire pump and is provided in Table 4.28.

### Bypass Flow Meter

A flow meter is just one method of measuring the flow rate of the fire pump. While not required to be installed on the pump bypass line, this is a common location. It must be in the flow path of the test header. Most manufacturers require a minimum length before and after the flow meter from any other fittings or valves on the piping. The bypass often provides enough space for this purpose. With the correct arrangement, the flow meter can be installed with a closed loop allowing for performance testing without flowing water out of the system. In a closed loop pump test the water will simply circulate back to the suction side of the fire pump. While a closed loop pump test is allowed, it is only allowed every two out of three years, per NFPA 25. Every third year a discharge performance test is required in which the water will flow through the fire pump test header.

### Test Header

The test header provides a convenient means to measure the fire pump's performance and compare to the rated capacity and previous performance tests. This evaluation is needed to verify the pump is functioning as intended and continues to provide the required flow and pressure. The minimum test header pipe size, as well as the number and size of the hose valves required on the test header, are provided in Table 4.28. However, the test header pipe diameter is required to be increased by one pipe size when its length exceeds 15 feet. The 2022 edition of NFPA 20 also added a requirement that the test header pipe needs to be increase by one size when there are more than four fittings that change the direction of the flow. The test header pipe size can also be hydraulically calculated.

### Discharge Piping

The discharge components consist of all piping, valves, and fittings between the discharge flange of the fire pump and the fire pump discharge control valve. Any components beyond the discharge control valve do not fall under NFPA 20. Piping and components located beyond the fire pump discharge control valve are required to comply with the NFPA 13, 14, 24 or any standard applicable to the system being supplied.

### Check Valves

As with any system, a sudden valve closure could create water hammer. To prevent water hammer, a listed check valve must be

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installed in the discharge side of the fire pump. If water hammer or a pressure surge from the discharge side of the system were to occur, it can create a reverse flow in the fire pump impeller and damage to the fire pump. In systems with considerable flow, it may be warranted to install a listed anti-water-hammer backflow preventor. If a backflow preventor is installed on the discharge of the fire pump, no check valve is needed.

### Discharge Isolation Valve

Like the suction portion of the fire pump assembly, the discharge side also requires an isolation valve. However, in this case, since there is no concern of turbulence, the discharge isolation valve is not required to be an OS&Y valve. While an OS&Y valve is allowed on the discharge side, any listed gate or butterfly valve is acceptable.

### Discharge Pipe Sizing

Like the suction pipe and other pump components, the sizing for the discharge portion of the fire pump assembly can be found in Table 4.28. While suction pipe size is based on a maximum flow velocity of 15 feet per second, discharge pipe size is based on a maximum velocity of 20 feet per second when the pump is flowing 150% of the rated flow. For this reason, you may find some instances where the discharge piping is smaller than the suction piping.

### Pressure Maintenance Pump (Jockey Pump)

A pressure maintenance pump, commonly called a jockey pump, is not directly required by NFPA 20. However, the standard does provide criteria for when they are provided. The intent of a jockey pump is to maintain a minimum pressure in the system piping and to prevent the fire pump from starting unless there is a significant flow of water. While systems are hydrostatically tested, they may lose pressure over time. Without the jockey pump maintaining the system pressure, the fire pump could start when not required. Section 4.27.2.1 simply states the jockey pump shall be sized to replenish the fire protection system pressure due to allowable leakage and normal changes in pressure. It does not provide specific required jockey pump sizes. A general rule of thumb is the jockey pump should be rated at one percent (gpm) of the fire pump rated flow and 10 psi higher than the fire pumps pressure rating. Since jockey pumps are not specifically required and typically not considered a critical portion of the system, they are only required to be approved and are not required to be listed.

The jockey pump suction pipe is connected to the suction side of the fire pump. Like the fire pump suction pipe, it needs to be equipped with an isolation valve. This valve should meet the same requirements as the suction pipe of the fire pump. The same criteria for the jockey pump discharge pipe also applies. This includes the required discharge check valve and isolation valve. The jockey pump discharge pipe connects to the discharge side of the fire pump.

### Pressure Sensing Lines

Each pump (fire pump and jockey pump) requires dedicated pressure sensing pipe. The pressure sensing pipe connects to the pump discharge piping to the pump controller. The controllers will monitor the system pressure and activate the pump upon pressure drop at the set start pressure. The pressure sensing pipe is required to be connected to the system on the discharge side of the pump it controls between the discharge check valve and the discharge control valve.

One unique aspect of the pressure sensing piping is that they are not meant for flow. As their name implies, they are only used to sense pressure changes. Pressure surges when the pump starts could damage the controllers. For this reason, devices need to be provided to allow the controller to monitor pressure changes and at the same time protect the controllers from sudden pressure surges. One option is to provide a diaphragm fitting with a 3/32-inch orifice. In cases where the water supply is not "clean", which could block the orifice, such as a raw water source, there is an option to provide two check valves, spaced five feet apart, both with 3/32-inch holes drilled in the check valve clappers. These small orifices will limit the flow in the line, protecting the controller from sudden pressure increases while still allowing the controller to monitor the pressure in that line. An inspection test valve is required at each end of the pressure sensing line consisting of a tee, a valve and second tee with a one plugged outlet.

While this article is by no means a complete list of fire pump requirements, the intent is to identify the basic components and shed light on the reasons why each piece is an important part of fire pump systems. Future content will continue to focus on fire pumps and their applications including fire pump sizing, fire pumps application for high-rise buildings, and fire pumps with multiple water supplies. •



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# Fire Pumps and Rooms Rules for Layout Techs

by Jeffrey M. Hugo, CBO, Vice President of Codes and Public Fire Protection



The design, installation, and maintenance rules for fire pumps exist in many codes and standards. The beginning and end of fire pumps does not just exist in NFPA 20, *the Standard for the Installation of Stationary Pumps for Fire Protection*. This means, while many fire pump rules live in NFPA 20, there are a variety of many different codes and standards that have additional critical rules. This article serves as a brief aid for navigating the rules path for fire pump installation, design, and maintenance.

## New construction starts with a code

The codes and standards path for new fire pumps in new buildings starts in the building code. In the US, the *International Building Code (IBC)* is used in every state and jurisdiction. The IBC has three important areas for the sprinkler industry user to know:

- Section 902 – Provides rules for the fire pump room, such as size, clearances, marking, access, lighting and more. Many of the rules here are similar from NFPA 20, but the IBC, as a code has hierarchy over the referenced standard.
- Section 913 – Provides specific rules for fire pumps and extends the authority to use NFPA 20 where the IBC is not specific.
- Chapter 35 – Provides the referenced edition of NFPA 20 that is legally enforced. For example, the 2021 IBC references the 2019 edition of NFPA 20.

The NFPA 101, *Life Safety Code* is often used in tandem with the IBC. NFPA 101 does not get into construction details as does the IBC but provides the same path to use and reference specific editions of NFPA 20.

## New fire pumps get to NFPA 20 and more

From the IBC, NFPA 20 is applied. It becomes the base document and standard for fire pumps. Its scope, per Section 1.1.2 covers the “... liquid supplies; suction, discharge, and auxiliary equipment; power supplies, including power supply arrangements; electric drive and control; diesel engine drive and control; steam turbine drive and control; and acceptance tests and operation” (National Fire Protection Association 2019).

NFPA 20 does not stand alone. Chapter 2 of NFPA 20 references several other standards (and edition years) that are needed

to consider and include when designing systems with fire pumps and fire pump rooms:

- NFPA 13, *Standard for the Installation of Sprinkler Systems* – fire pumps are connected to sprinkler systems to increase demand pressure for storage buildings, high-rise buildings, and areas without a public water supply.
- NFPA 14, *Standard for the Installation of Standpipe and Hose Systems* – fire pumps are connected to standpipe systems to increase demand pressure in high-rise buildings for firefighting operations.
- NFPA 22, *Standard for Water Tanks for Private Fire Protection* – fire pumps connect to interior and exterior water tanks in areas without a public or private water supply, and in vertical fire protection zones.
- NFPA 24, *Standard for the Installation of Private Fire Service Mains and Their Appurtenances* – fire pumps connect to private water supplies to increase demand pressure.
- NFPA 37, *Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines* – fire pumps operating with diesel engines.
- NFPA 110, *Standard for Emergency and Standby Power Systems* – transferring power to fire pumps.
- NFPA 70, *National Electrical Code* – all fire pumps have electrical connections, wiring, and equipment. Annex D and Table D.1 of NFPA 20 ties to NFPA 70 requirements.
- NFPA 72, *National Fire Alarm and Signaling Code* – fire pumps are connected to communications, supervisory, alarms, and monitoring equipment.

## Maintaining existing fire pumps start with codes

The codes and standards path for maintaining existing fire pumps in existing buildings also starts in a code. In the US, the *International Fire Code (IFC)* or *NFPA 1 Fire Code* is used in nearly every state and jurisdiction. Some jurisdictions also use the *International Property Maintenance Code (IPMC)*. When maintaining existing fire pumps and existing fire pump rooms, it starts in one of these widely adopted codes and then directs to the appropriate standards listed below. It is important to know that each of the aforementioned codes do not have retroactive construction rules

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for fire pumps and rooms, but provide the legal path for applying and enforcing the following standards:

- NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems (ITM)* – this standard applies to maintaining existing fire sprinkler, standpipe, fire pumps and many other water-based system in working order.
- NFPA 70E, *Standard for Electrical Safety in the Workplace* – protective equipment and procedures for servicing electrical equipment.

### Is that it?

The list and hierarchy of codes and standards necessary for layout techs to know are found in the May-June 2021 *NFSM* article titled, “Codes for Layout Techs.” This article is not an inclusive list of every document, but covers many rules, or regulations tied to fire pumps. Other areas to know and understand rules are in:

- The list of referenced standards in NFPA 20 also includes several manufacturing standards, plus additional installation standards, such as for welding and pressure tanks.
- Local ordinances, laws that adopt with the authority to change model code and standards, often modify installation, maintenance, edition year of any or all the documents mentioned in this article.

- Federal or federally funded projects such as the *Unified Fire Code, CMS, DoD* and other federally instituted codes or rules can increase from the minimum codes and standards.
- Project or engineer specifications can increase from the minimum codes and standards.
- Factory Mutual (FM) and other insurance underwriters often have more restrictive standards.

### We have you covered

This entire edition of *NFSM* is dedicated to fire pumps. However, this is not the first time the NFSA has dedicated an entire issue to fire pumps. Other entire editions of *Sprinkler Quarterly* or *SQ* exclusive to fire pumps can be found in 2009, 2011, 2013, and 2015. These articles, past *TechNotes*, and past and future fire pump education can all be found at:

<https://community.nfsa.org/home>.

### REFERENCES AND RESOURCES

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# A New Way to Learn Fire Sprinkler Layout

by Evan Combs, **Manager of Learning & Development**



Whether you are a leader looking to invest in your employees, retain top talent and develop your organization's sprinkler layout capabilities, or an individual looking to learn more about the world of layout for fire sprinklers in an immersive experience, the NFSA is offering a brand-new Layout Technician Program in May 2022 you must be sure to check out.

For a long time, our industry has viewed training as an effective tool to transfer knowledge from one entity to many individuals. This knowledge transfer used top-notch, industry-leading experts to take their experience and wisdom and design classes that instruct in a predominantly one-directional experience. This has worked for many years, and we are not looking to diminish the value a Subject Matter Expert brings to the course development process. However, there is a lot of science to be brought to the table to help answer questions in understanding how adults learn best. For example, how should delivery of instruction differ based on the needs of a topic? How do we effectively retain, develop, and apply skills in the workforce? Or even, how do various individuals learn best? It is with these thought-provoking questions and more that we strategically planned and designed a new curriculum to help continue driving the industry into more innovative and effective learning experiences.

When designing curriculum, there is one driving factor that influences every decision made, the students. Our development process has continuously been learner-centric, from planning, through production, downstream to delivery. In the early phases of development, we first wanted to understand the needs of potential students, so we surveyed several partners that have frequently enrolled employees in NFSA's previous version of the class. Results showed which topics were most critical to the role, that breaking up our large curriculum into chunked experiences is favorable, and even the importance of functionality like understanding more granular performance throughout the program.

Pairing those results with 21st century learning science, we designed a new program in three distinct levels. Though the levels are separate experiences, there are activities and concepts woven throughout to create an overarching project-based learning approach with real world/context-based experiences integrated every step of the way. The three levels are:

**Layout Technician: Fundamentals** – A series of self-paced learning with opportunities for instructor office hours, intervention,

and support. These modules focus on the various core concepts necessary to understand and function as a Layout Technician in the 21st century. Learners explore content as simple as parts of a sprinkler using advanced 3D technology, up through and including carefully instructed hydraulic calculations – all while developing the soft skills necessary to overcome design challenges with the codes and standards in hand.

**Layout Technician: Application** – A three-day, in-person, with a virtual option available, instructor-led class that applies the fundamental content learned in the previous course. Using project-based learning theory, students apply their knowledge of fire sprinkler layout concepts to a legitimate plan, learning through problem solving, research, and simply doing.

**Layout Technician: Advanced Topics** – To be released in 2023, this class will take students that have been through previous courses and have spent time in the field further applying and developing their knowledge and skills to dig into advanced challenges a seasoned Layout Technician would face in the field. For example, scenarios include high-rises, sizing fire pumps, and special hazards.

After designing goals and strategies for each class, we began planning and producing learning content, and keeping with the learner-centric theme, invited even more members to take part in this process. Our members continuously provided feedback, driving the direction of the classes, and ultimately influencing the entire project. The types of assets created for this curriculum range anywhere from composing rich and engaging learning plans, to three-dimensional interactive model sets for all levels of learning, and even crafting intricate plans that incorporate all necessary topics for a Layout Technician to be successful.

To explore more or take part in this industry-leading class, follow the QR code listed here. If you have questions or would like to share any thoughts, please contact our Learning and Development team at [learning@nfsa.org](mailto:learning@nfsa.org).



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# Fire Pumps Learning Opportunities

by Evan Combs,  
Manager of Learning & Development

Fire pumps are a critical component to the fire sprinkler industry, so there is no surprise that it is an area of learning with high interest. Prior to 2022, the NFSA offered a few classes on pumps that covered a couple of perspectives and applications of fire pumps. In 2021, the NFSA brought Jeff Dunkel onto the team, a Fire Protection Engineer with many years of experience designing and implementing fire pumps with various applications. When he was brought on board, Jeff reviewed the content that exists and has been working closely with the Learning and Development team to redesign the NFSA course offerings surrounding fire pumps. In doing so, it gave the NFSA the opportunity to better focus our content, as well as incorporate stronger, innovative, and more effective delivery strategies.

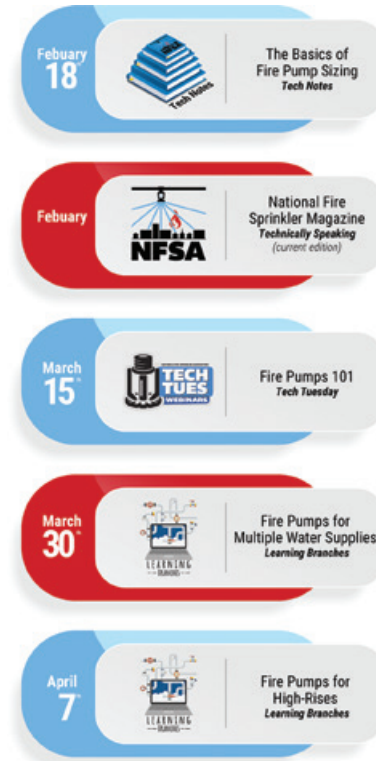
## 2022 Content on Fire Pumps

NFSA now provides learning opportunities for both basic and advanced pump topics, starting with this magazine's edition of *Technically Speaking*, which focuses on the basic fire pump layout, exploring the fire pump arrangement, and required fittings and valves for a standard horizontal split-case fire pump.

The February *Tech Notes* article extended basic fire pump design, discussing sizing of the fire pump and component sizing requirements in NFPA 20 (*Standard for the Installation of Stationary Pumps for Fire Protection*), and will also be accompanied by March's *Tech Tuesday presentation, Fire Pumps 101* led by Jeff Dunkel, on the same topic (Tuesday, March 15th, 2022). With the combination of the *Technically Speaking* article, *Tech Notes*, and *Tech Tuesday's Fire Pumps 101* content, the NFSA offers a solid foundation for those seeking to learn the basics of fire pump layout and design.

Building on the basics, two instructor-led courses are being offered, taught by Jeff Dunkel, covering more advanced topics. On March 30th a virtual class, *Fire Pumps for Multiple Water Supplies*, will cover design requirements for fire pumps that have multiple water supplies. This class details the challenges of fire pump application with multiple, sometimes drastically different, water supplies and how to address those challenges. The second virtual class will occur on April 7th and will cover the specific fire pump requirements for high rise buildings in both NFPA 20 and the International Building Code.

## 2022 Content on Fire Pumps at a Glance



## Fire Pumps Learning Strategy

The classes being presented as part of the Tech Tuesday webinar series and the new Learning Branches technical webinars will be CEU-ready and are incorporating some of the Learning and Development team's updated educational technology. Expanding the instructor's palette from a strictly PowerPoint™ delivery, these classes incorporate real-time feedback using surveys and smart technology. For example, QR codes for smart devices that allow users to submit and interact with class-wide data. Classes also include opportunities to relate the content to learner's everyday work by promoting discussion and activity surrounding application and implementation. In addition, visual learning is being enhanced with highly technical infographics that provide more literal perspectives on various pumps, their designs, and their larger function within systems.

The NFSA is committed to creating deeper learning experiences, ensuring that participants walk away from class having learned integral information about fire pumps and develop the necessary skills to excel in the workplace. Learners enter back into the work environment having already thought about how relevant content will impact them and have worked through potential scenarios and challenges that promote problem solving and critical thinking development. •

*For more information about upcoming classes or inquiries about NFSA learning opportunities, visit the Learning and Development website at: [community.nfsa.org/learning](https://community.nfsa.org/learning), or visit the QR code here.*



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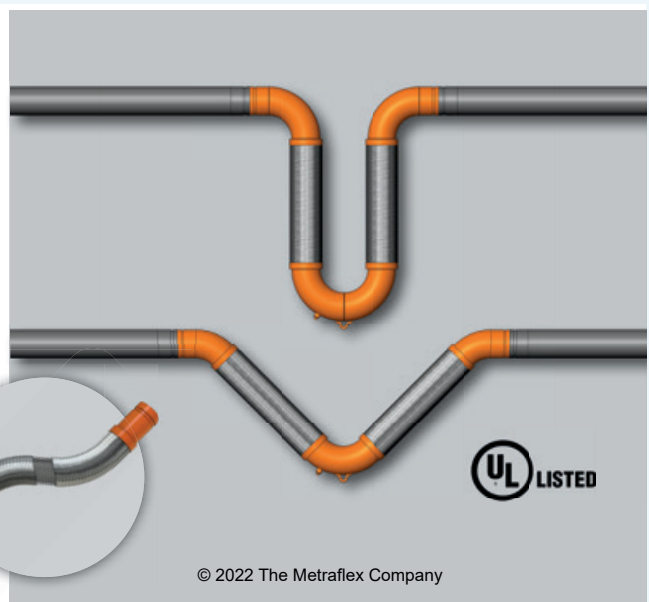
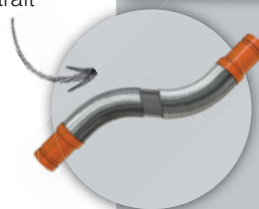
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## NFSA and Legislative Issues



by Vickie Pritchett, Vice President/Executive Officer

Fire pumps? What in the world do I know about fire pumps? Admittedly, not much! So, I'll leave that topic to our esteemed technical team, and I'll devote some time in this issue to speak about our efforts on your behalf in the federal legislative arena. (Something I'm happy to know a little bit about).

I'm quick to admit, there is a true "fire in my belly" to be engaged, involved, and realize the difference we can make with that engagement in our nation's capital. Washington, D.C. It is a city that has a vibe all its own, and we all know that today's DC is much different from the days of Tip O'Neill and President Ronald Reagan getting things done on both sides of the aisle. To be honest, there are far more examples of discord and our elected officials working AGAINST each other, than there are examples of their working together. Even with that scenario, I am so grateful for the opportunities we have to be engaged on your behalf and "in the trenches," working to help others understand our mission: "To protect lives and property from fire through the widespread acceptance of the fire sprinkler concept."

However, when tragic fires occur, the discord changes, and policy makers come together to ask why and to try to create change through codes and standards that can prevent future loss. Advocating for fire sprinklers is easy to me, most of you know me and know that my passion is not easily hidden. When tragedy strikes, there are "teachable moments" that allow us the chance to help people understand that we do indeed have the **SOLUTION** to America's fire problem. **And this is a cause that both Democrats and Republicans can embrace.** This is a topic that can cross party lines, and bi-partisan legislation can still happen!

Such is the case for our High-Rise Fire Sprinkler Incentive Act (H.R. 6192/S. 3346). The aim of this legislation is simple: to provide property owners with the financial incentive they need to retrofit high-rise buildings with fire sprinklers. Our tax code inadequately treats fire sprinklers the same as plumbing. This leg-

islation improves cost recovery, reducing it to 15 years. Following the tragic Philadelphia and New York City fires at the beginning of 2022, we quickly responded with information to all Congressional leaders. As a result, many co-sponsors were recruited. Thank you to everyone who joined us with our *Voter Voice* campaign, by advocating together we did influence this legislation.

Another example is the Public Housing Fire Safety Act (H.R. 2638/ S.265). In 1992, Congress passed the Federal Fire Safety Act. This law required newly built multi-family housing units to have fire sprinklers. The Department of Housing and Urban Development estimates that there are approximately 570,000 public housing units that were in service before 1992 that may need to be retrofitted with fire sprinklers.

To always know the latest information on legislation and our advocacy efforts, visit [www.nfsa.org/advocacy](http://www.nfsa.org/advocacy) -- we have worked hard to gather relative information all in one place, and provide ways for you to engage with your legislators in an efficient way.

I hope your Spring is off to a good start, and I also hope that you are making plans to join us in beautiful Clearwater Beach, Florida September 28-30, 2022, for our 2022 Business & Leadership Conference. Full details will be shared in our next issue of National Fire Sprinkler Magazine, but you can find the latest online now at [www.nfsa.org](http://www.nfsa.org) - I sure hope to see you at the beach!

*Until next time, Stay safe,*

*Vickie*

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# FIRE SPRINKLERS IN ACTION

## Colorado

### Single Sprinkler Extinguishes Balcony Fire



On December 5th, 2021, at 6:07 am, the Arvada, CO Fire Protection District (AFPD) was dispatched on a reported fire at a four-story, multi-family structure with 120 units. The building is fully fire sprinkler-protected, including the exterior balconies.

AFPD units arrived on scene and noted a sprinkler activation on a second-floor balcony with no active fire. Crews proceeded to the unit and found one exterior sidewall fire sprinkler actively flowing. The crew noted that a fire had been extinguished on the balcony.

The owner of the apartment stated that she had lit an incense stick in a flowerpot on the balcony the night before. She was awoken by the fire alarm sounding and found fire on her balcony with the fire sprinkler activated. She then called 911 to report the fire.

Investigation found only minor damage to the balcony railing from the fire with no extension into the building. There was no water damage to any apartments as all patio doors were closed and the water simply ran off the balcony.

The owner was able to remain in her apartment and all residents were allowed back in the building within an hour.



This is an older building, compartmented, full fire sprinkler, and fire alarm. The apartments house many seniors, and disabled people. No injuries were reported.

### Single Sprinkler Extinguishes Apartment Fire

*Thanks to South Metro Fire Department Assistant Fire Chief/Fire Marshal Terry Johnson for sending us this sprinkler save.*



On January 9th, firefighters were called to an apartment fire in South St. Paul at 2:48 am. Upon entering the unit, the crews were met with smoke, but no fire. One sprinkler in the bedroom/office activated to extinguish what appears to be a paper shredder that caught fire.

## Minnesota

### Sprinkler Save at Affordable Housing Apartments

*Thanks go to Minnesota State Fire Marshal Division Fire Safety Supervisor Jon Nisja and West Metro Fire Dept. Deputy Fire Marshal Shelby Wolf for sending us this sprinkler save.*

On December 13th, a fire broke out at an apartment building in New Hope, MN around 9:30pm. The fire began in a mattress in a bedroom. It is suspected that the fire was caused by smoking.

continued from page 24

## Sprinkler Save at UPS

*Thanks go to Rochester, MN Fire Marshal Chris Ferguson for sending in the two following sprinkler saves.*



A fire originated in a vehicle(s) parked next to the UPS building. The fire began to make its way inside via an overhead door breach. A single sprinkler activated in this area and kept the fire from being able to spread inside until extinguished by Rochester firefighters. The sprinkler activation also provided notification to the Fire Department.

## Two Fire Sprinklers Control Apartment Fire

Firefighters located smoke coming from a door of a unit on the second floor of an apartment building. The door was locked, and firefighters had to force it open. Once inside, crews encountered heavy smoke. A victim was located just inside the door. Crews pulled the victim from the apartment and carried her to the ground floor, where she was transferred to an ambulance.

Additional firefighters entered the apartment and located flames in the kitchen, as well as two activated sprinklers in the living room. The fire sprinkler system was activated by the fire and helped keep the flames in check until firefighters could arrive. Firefighters extinguished the flames and searched for additional victims; none were found. Crews then opened the ceiling above the fire location and determined there was no fire extension. Once the fire was deemed out, the sprinklers were shut down and crews began ventilating smoke and dangerous gases from the building in order to make it safe for residents to reoccupy.

## New Jersey

### Single Fire Sprinkler Extinguishes Apartment Balcony Fire

A fire started on the balcony of an apartment in a three-story building in Evesham, NJ. The homeowner had pet rabbits that were put outside with a space heater. The space heater ignited the straw being used as bedding for the rabbits. Fire ran up the siding



next to the sliding glass door and activated a single sprinkler. The fire was knocked down immediately. No person or animal was displaced. The rabbits survived.

The apartment building is in a complex with seven different apartment buildings. All built between 2017-2021. All are sprinklered.

After reaching out to the AHJ in Evesham, we have since booked the burn trailer for a Township event in September. NFSA's Dave Davis is currently working with the training officer to schedule NFPA 13E training for the career firefighters on staff.

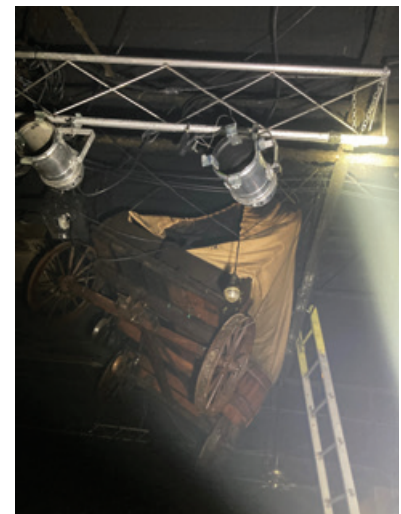
## Tennessee

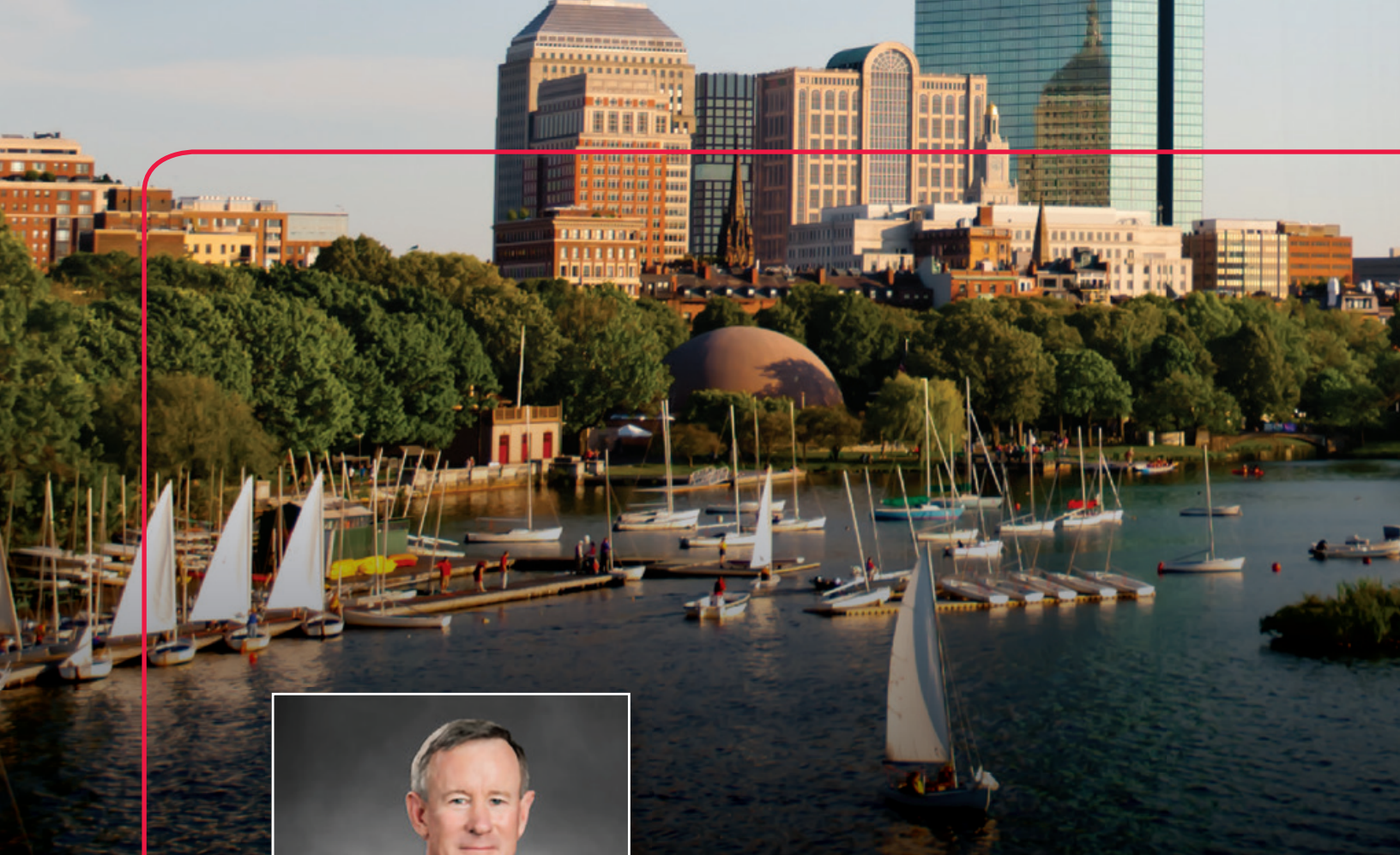
### Two Sprinklers Save Nightclub

*Thank you to Farragut, TN Fire Marshal Daniel Johnson for reporting this sprinkler save.*

On January 11th, the Rural Metro Fire Department responded to a fire at Cotton Eyed Joe, a nightclub in Knoxville, according to RMF Spokesperson Jeff Bagwell.

*continued on page 28*





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## Fire Sprinklers in Action

continued from page 25

When firefighters arrived, they saw a fire in the ceiling level of the building.

“The fire was controlled by two fire sprinklers,” said Bagwell. “The cause of the fire appears to be accidental, and the ignition source appeared to be electrical in nature.”

Firefighters removed smoke from the venue and extinguished the remaining fire that wasn't put out by the sprinkler system.

“The property sustained some water damage however damage was limited due to the activation of the fire sprinkler system minimizing further fire development,” said Bagwell.

No injuries were reported, and the business reopened within a few days.

### Texas

#### Fire Sprinkler Contains Dryer Fire at Days Inn

*Thanks go to Matthew Baker and Rachel Neutzler of the Harris County, Texas Fire Marshal's Office for sending us this sprinkler save.*

On January 13th, firefighters were dispatched to an automatic alarm located at the Days Inn in Houston. Upon arrival firefighters found an extinguished dryer fire in the laundry room of the hotel.

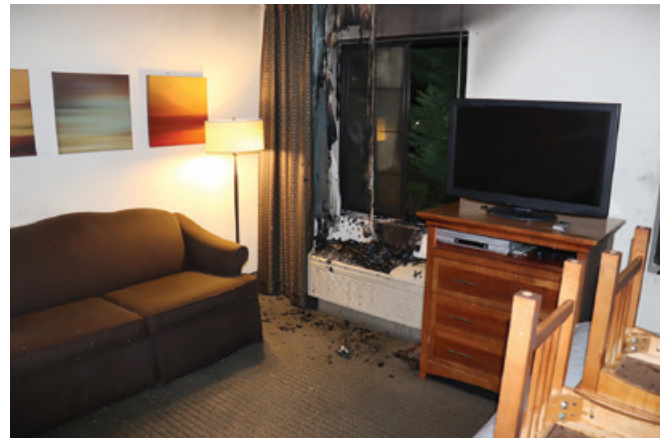
The fire activated the fire sprinkler system, which contained the fire to the appliance. The hotel manager completed extinguishment with a portable extinguisher.

The fire was determined to be accidental, due to an electrical failure of the dryer. No injuries were reported.

### Washington

#### Single Sprinkler Extinguishes Hotel Fire

*Thanks to Vancouver, WA Assistant Fire Marshal Chad Lawry for sending in this sprinkler save!*



On January 16th, a single sprinkler extinguished a fire in a Sonesta Extended Stay hotel room.

Drapes were in direct contact with the room heating equipment which had been left on for three days. The room was vacant at the time and there were no injuries.

The hotel's estimated value is 16.4 million dollars. The estimated damage was approximately \$27,000. There was water damage to the room and the rooms, below but guests were relocated to other rooms and the business continuity was unaffected.

#### Sprinklers Save Building Despite Huge Fire Load

*Thanks to Spokane Valley Fire Marshal Greg Rogers and his team for letting us know about this sprinkler save that occurred on Dec. 29, 2021!*

After an employee was finished using a blow torch to unclog paraffin wax, the employee left the area while the burning wax dripped down into a bin containing about 1,000 pounds of paraffin. The resulting fire activated numerous sprinklers. Spokane Valley Fire officials concluded that “had it not been for the rapid activation of the sprinkler system, the building would likely have been a loss.” The officials also estimate that approximately 20 sprinklers activated to control the massive blaze that drew a response of more than a dozen fire units. All employees evacuated safely, and the business owner anticipated getting back into business soon. •

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# Inspection, Testing, and Maintenance of Fire Pumps 101

by Vince Powers, *Inspection, Testing and Maintenance Specialist*



In this article we will take the ten-cent tour of Chapter 8 of NFPA 25. NFPA 25 is the *Standard for Inspection, Testing, and Maintenance of Water Based Fire Protection Systems*, and Chapter 8 is specific to fire pumps. A fire pump system, if installed, is the heart and soul of a water-based fire protection system. It is imperative to maintain these systems properly. If fire pumps fail, it is likely the fire protection system(s) they are attached to will be ineffective.

During routine inspection, testing, and maintenance (ITM) there are many items that must be checked and inspected throughout the chapter. This all starts in Section 8.1, specifically 8.1.1.2, which states that the minimum ITM frequencies must be in accordance with Chapter 8 and the manufacturer's recommendations. In Section 8.1 there are almost 40 different tasks at different frequencies that must be completed. This ranges from checking pump alignment and changing oil filters to ensuring the internal electrical components are in good condition. As we should know by now, checking electrical components cannot be accomplished unless the power to the controller is disconnected. Simply opening the isolating switch at the controller does not meet this requirement, power must be disconnected before the controller. As with most chapters in NFPA, the 1.1.2 table lays out most of these requirements. I call it the 1.1.2 table because this table is in the beginning of all chapters except for chapter 12, and it is designated with the chapter number followed by 1.1.2, for example Chapter 8 table is 8.1.1.2.



The next section to be aware of is 8.2.2. This section contains weekly requirements that include checklists for the pump room, the fire pump system, electrical conditions and specific electric, steam, or diesel driven pump requirements. One thing I like to

point out when teaching a class is that the control valves of a fire pump system must be inspected weekly, regardless of how they are supervised. In other sections of NFPA 25, how the control valve is supervised will dictate the inspection frequency, usually monthly or quarterly.

Also note that if a contractor is only on site annually to conduct a pump test or inspection, the technician must complete all the tasks that are required more frequently, such as daily, weekly, monthly items.



Before testing can begin, and of course after all the appropriate checks and inspections are complete, one must ensure that the testing equipment meets all the required calibrations. These requirements can be found in an NFSA blog from June of 2020. <https://nfsa.org/2020/06/05/tis-the-season-for-calibration/>

## **Now the fun stuff, Section 8.3, Testing!!!**

There are several tests required but essentially two main tests that are commonly spoken about on a fire pump assembly; the churn test and the annual flow test. The churn test is required monthly for ten minutes for electric driven assemblies (with four exceptions as outlined in Section 8.3.1.2.1, which require weekly tests) and weekly for 30 minutes for all diesel driven fire pumps. The run times are not necessarily for the pump head itself, but is more for the driver. For an electric driven fire pump the initial startup is the hardest on the electric motor, as there is a great deal of heat generated when the pump starts. The ten minutes allows for the motor windings to cool off. This time also allows for visual observations and adjustments to be conducted in accordance with Section 8.3.2.9. The 30-minute requirement for a diesel al-

*continued on page 32*

continued from page 31

lows the engine to reach operating temperature, uses some of the fuel from the bottom of the tank, and burns off any condensation internally, as well as in the exhaust piping. It is easy to determine if a diesel is being run 30 minutes per week by simply looking at the engine run timer. If the pump is run weekly for 30 minutes, it will have a minimum of 26 hours per year on the run timer plus any other tests or inadvertent times it has run. All too often we see diesel pumps that are ten-plus years old with 30 to 40 hours on the run timer, and therefore it is required to record the engine run timer reading.



As required by Section 8.3.3.1 for the annual flow test, there are three flow points at which the test must be recorded. They are no-flow (churn), 100% (rated), and 150% (peak flow). Variable speed fire pump requirements found in Section 8.3.3.2 were added in the 2020 edition of NFPA 25 and require these seven flow test points: churn, 25%, 50%, 75%, 100%, 125%, and 150%. The caveat with a variable speed pump other than testing at seven flow points is in Section 8.3.3.3 and states that the variable speed function must be bypassed, and the test run again at no-flow (churn), 100% (rated), and 150% (peak flow). This is to verify two things; first the variable speed function works as designed and then bypassing the variable speed function to test the pump against the name plate or manufacturer's curve like a traditional test.

There are three methods of flowing water to obtain the flow points required for the annual flow test. First, the most common is the use of hose streams. There are many alternatives to using diffusers and play pipes when using this method, such as attaching nozzles directly to the test header valves. For example, there have been situations where in lieu of having to use long runs of hose for a 1500 GPM fire pump, the contractor attached a six-inch pipe to where the test header would be, then used a UL-listed measuring device at the end of the pipe run to verify flow volume. The second method is the use of a flow meter to drain or back to the suction reservoir. The third method is when the flow meter is piped back to the suction side of the fire pump (closed loop metering). This method is only permitted to be used for two years. Once every three years, methods one or two must be used. When using the third method attention must be paid to verify the water temperature does not raise enough to damage equipment.

Once the test is complete, the results must be evaluated to determine how the fire pump is operating as compared to the day it was installed. Section 8.3.7 requires the test results to be interpreted by qualified individuals to verify the flow test performance. The next several sub-sections of NFPA 25 should be read carefully to verify



and interpret the data collected from the test. Section 8.3.7.1.3 requires speed and velocity adjustments be applied to determine compliance with Section 8.3.7.2.3, which states the pump must meet at least 95 percent of the fire pump rating at each flow point.

How to interpret test results can be found in an article from NFSM May/June 2021:

<https://flipflashpages.uniflip.com/3/58987/1118373/pub/html5.html>

There are several other sections that need to be mentioned, and certainly must not be overlooked when a fire pump system is involved. These Sections are:

**8.3.4 Diesel Fuel Testing**, no less than annually.

**8.3.5 Positive Displacement Pumps**, typically found on foam systems. There are some requirements in NFPA 25, but essentially ANSI National Standard HI 3.6, Rotary pump Tests must be followed to complete these tests.

**Section 8.3.6, Other Tests**, requires Heating, venting, and illumination tests along with the annual transfer switch test

**8.4 Reports**, there is additional information required by this section that is not required in the reports Section 4.3, it is necessary to read this section as it requires the raw data from the pump test to include volt, amp, suction, and discharge readings. The fire pump system demand. Pump performance, and any deficiencies noted, manufacturer's data, time delay intervals, and comparison to previous tests.

While this article is by no means an in-depth look into all the required ITM for fire pumps, it is focused to bring attention to the many requirements for properly maintaining a fire pump assembly, and to point out that conducting a churn or flow test is only the tip of the iceberg. If all the tasks are not completed, like when hitting an iceberg with a ship, the fire pump will sink into the abyss. The NFSA has many in-person and online training programs for fire pumps that include ITM, design, and installation.

*For these and other training opportunities visit our learning and development page:*





# “The Trials of Job”

by Tom Brace, *Minnesota State Coordinator*

*Editor's Note: The opinions expressed in this article represent solely the view of the author and should not be construed as a policy of the National Fire Sprinkler Association or the MN Chapter.*

The famous English “Bard” (Shakespeare) once wrote “The world is a comedy for those who think and a tragedy for those who feel.” One interpretation of this saying is that the world is not logical or rational, and that for those who care it is indeed a sad place. We have had two recent fires in New York and Philadelphia that have had tragic consequences. As of the writing of this article, 50 people are still hospitalized in The Bronx, New York.

We have the solution to prevent these tragedies and this technology is not new or difficult to provide from a technological construct. They are called fire sprinklers. It is not an overstatement to say that sprinklers are the ultimate fire protection. The technology is over 100 years old and is continually improving. An example would be the quick response sprinkler. Some have argued that there are other solutions that can be used such as compartmentation, smoke detectors, and rope ladders that you throw out a second story window. If you are in the cement industry you might like the sound of a house with concrete walls, ceilings, floors, and a metal door to exit or enter. Smoke detectors do a great job of alerting to the presence of a fire but do nothing to prevent or extinguish a fire. Another attribute is that they are cheap. So cheap that we hand them out, and yes, even the batteries to go with them. One of my all-time favorites is the new rope ladder that you attach to something, throw out the window and then attempt to climb down. If you are young, in excellent shape and athletic you have a chance. If you are old, pregnant or disabled, you have a genuine challenge.

If you are talking about a high-rise residential structure, there are additional concerns such as firefighting, evacuation and manpower to help people exit, and manpower to fight the fire. In the above-mentioned New York fire over 200 firefighters responded in three minutes. Very few departments in the country could match that response. In Minnesota, Minneapolis and St Paul together would have difficulty. This fact is not a negative reflection on any fire department. It is a statement that says we need to find another solution.

The optimum way to install any sprinkler system is when the building is under construction or during a major remodeling. When we talk about retrofit, the cost goes up and there are other considerations that come into play. These additional costs get added to the overall cost of the project, which has the net effect of raising the cost the per square foot or whatever indices is used.

This is a surprise to some. When you take your automobile in for servicing there is a labor cost and a material cost. You do not divide the bill by what part must be removed before the service can be accomplished. The same criteria should be used for the cost of sprinklers, and the add-ons, such as shop environmental costs, are part of the overall charge.

If you believe in something you support it with your time, energy, and treasurer. If the only way sprinklers are going to be installed is to find the money to accomplish it so, be it. It is counterproductive to argue with someone who states that the only way sprinklers are going to be installed is to fund them. It is important to try to educate decision makers about the value of sprinklers,



but the key is to develop programs both at the the State and National level that provide incentives that make it attractive to provide sprinklers. An old but important incentive was saving on property insurance for sprinkler installation.

The hope is that some decision makers may become converts and work with you to sprinkler their buildings. Some you will never be able to convert. The primary goal is to get the property sprinklered to protect the residents and the staff. Let us also not forget the firefighter who is called upon in case of a fire.

I have spent an adult lifetime promoting sprinklers and it is a great sense of satisfaction when you can convince an owner to sprinkler their building. My start in this effort was as the State Fire Marshal of Washington State, dealing with historic properties, including Bed and Breakfasts. I was struck with the flexibility that occurred using sprinklers to bring about code compliance.

Recognize that some people do not have the same passion about sprinklers that you do. Your concern is for the residents and the staff who live and work in an unsprinklered building. •

# I Know A lot of People

by Joel Hewitt, *Minneapolis Local Coordinator*



During my time as fire chief in Maplewood (my first career chief's job) we were in search of a new police chief. I was fortunate to have been tapped by my boss, the city manager, to be involved in the selection process with the final panel interview. This would be a first for me in my young career as a full-time fire chief.

We had three candidates all who were leaders in law enforcement, but all had very different career paths. During the interviews, one particularly stood out, although he was ultimately not the one who received the nod for the job. The majority of this candidate's career was being an agent for the FBI, and most notably, the lead agent of a very high-profile case in Minnesota that was a focus of the nation for several years. At the time, he was the police chief of a growing suburb of the cities.

One of the first lines of questioning included the question, "What will you bring to the position of Police Chief?" His answer was "I know a lot of people." After that response, the silencing was deafening throughout the room. I first thought: "What an answer, why would someone answer a question like this in an interview? A well-dressed, experienced, former FBI Agent, and a current metro chief with an answer like this?" My second thought was: "Well, this will be a very quick interview, ending with him being eliminated from consideration." After what seemed a very long time, he stated that over his year in his career he met, worked with, and became friends with people from across the country, state and nearby localities that he could call on for assistance, opinions and counseling. I know now that he was talking about his vast network of associates, colleagues and friends. This, his network, he would bring to the job, assisting not only himself as police chief, but providing assistance the city staff in our duties. Contrary to my first thoughts, his interview was an interesting conversation, one where I learned many things, I could call upon during my career.

As we all know, having a network of people is such a value to have and is essential in one progressing through a career. As I have traveled through my career, I have remembered this interview. Creating several "dah" moments with the reembrace throughout my careers work. I have used a form of this person's answer (latter portion of the answer) in a couple interviews. But most importantly, I have used my network in various aspects in my work.

Two come to immediate mind. The first was during my tenure as chief in Moorhead. In the Spring of 2009, the region was facing a flood of epic proportions with a higher crest forecast than the 500-year flood of 1997. We had about a week's time to construct a dike system running the length of the city, protecting us from a dev-

astating event. Early during the week, we ran out of dump trucks to haul sand for sandbags, in addition to dirt and clay used for constructing the dikes. It seems the local contractors had contracts with the bigger city of Fargo across the river, which provided their service during an emergency (such as a flood), leaving Moorhead to scramble for the trucks. During a conversation with my chief in charge of construction regarding the challenge, I said, "I know a person from my time at Roseville Fire who owns a large regional excavating company in the cities. Let me give him a call and see if he can help us." Within minutes of the conversation with him, he committed to sending 32 trucks to us and would arrive within hours. My network!



Recently, my network paid dividends once again. Two years ago, the NFSA Team in Minnesota, wanted to conduct a Christmas tree side-by-side demonstration and holiday safety message. Unfortunately, we had to cancel the event due to the pandemic. This past December, we tried again. I called a friend of mine who was fire chief in Lino Lakes and asked him if their department would host the event, which he was most happy to do. I then remembered back several years ago that there was a Christmas Day fire in Edina that left a man critically burned. I thought having this person speak at our event sharing his story would soundly deliver the message of being safe during the holidays. Again, turning to my network, I reached out to someone at Edina Fire to inquire if I could find this fire survivor named Steve. He sent me to a guy he knew at the state fire marshal's office who was the investigator for this fire, who then gave the information to Steve. Steve was more than happy to partner with us to deliver a safety message by sharing his story. In

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planning for this event, The Lino Lakes Chief said, "One of my guys is a professional journalist and he will video the event for us."

We had partnered with Lino-Lakes Public Safety, the Minnesota State Fire Marshals office, Steve Mosborg the fire survivor to bring the event to fruition. The media event included holiday safety, history, information, Steve's story, and ended with a side-by-side burn, all captured by our videographer. In the days following I was provided with a press release from Lino Lakes Public Safety to be distributed to our contacts and outlets. The press release was created by a Lino Lakes communications person, and also, to my surprise, we received a six-minute video crafted by the videographer. The press release was a grand piece. The video was an edited product that told our story. It was heart-warming, touching and powerful to hear Steve's story in his own words, highlighted by video of the burn. I never dreamed the

end product of our efforts would be so good. It illustrates how people will do great work together by combining their talents. This outcome would have never happened without a network of people. It shows the importance of having such a network to assist you in your work and in your successes, both individually and as an organization.

So, returning to the interview answer to the question, "What will you bring to the position," "I know a lot of people" has a new meaning to me, a meaning I fully understand and will think differently of if I ever hear it again or reminisce about my past. In fact, it may be an answer I use someday. All the people you know and all the people they know; what a great network to have and call upon! It will help you and your organization to realize the tremendous assets one brings to the table in their career and to your successes as an individual and an organization in achieving the mission. •

**G-1X: MOST VERSATILE  
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ON THE MARKET**

**1" to 12" pipe  
Schedule 40  
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**Swap out shafts  
in 30 Seconds**

**Complete with  
Carrying Case**



**GRUVMASTER**

- Model G-1X Max Strength
- Model G-2X lighter weight for in-the-air grooving





## Have You Dipped Your Toes in Our Fastestwater Forum?

*Fastestwater Forum* is an online community page where members can ask questions, answer questions, share articles, and find information, all in one place. We created this member benefit to foster meaningful relationships that are nurtured with feedback, thoughts, and engagement between NFSA members. The

forum is easy to use and easily accessible through your online member account. If you haven't participated yet, now's the time to take the leap!

*Fastestwater Forum* is your community. It was built with our members in mind, and it is shaped by your posts and level of engagement. You drive what the forum is and what it will be!

Unlike in-person meetings that have often been postponed and cancelled due to COVID, the forum is always there at your disposal.

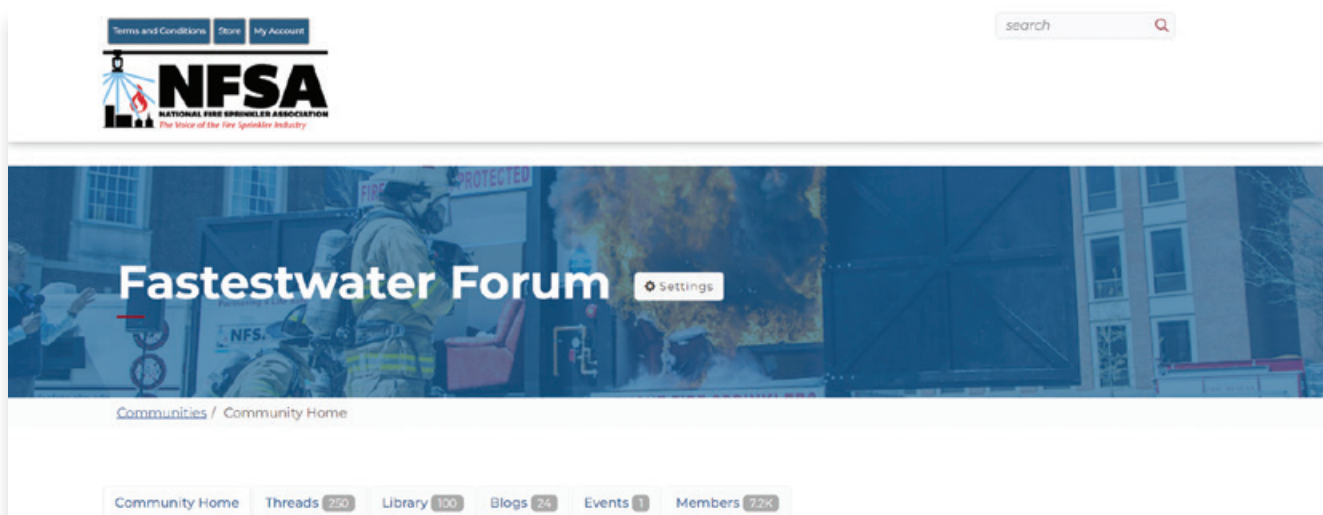
Need some ideas on how to get involved? Here's some other ways to engage your fellow members. Noteworthy news that is posted will also be shared on NFSA's thriving social media accounts. It's a win-win situation! Get started today!

- Post company news-get your Marketing Dept. involved! The forum is a perfect to share company news with other NFSA members. Got a press release? Post it and we'll be sure to share the news on social media.
- Post a sprinkler save! We love getting member-submitted saves! We've even got an established Sprinkler Save Thread. Post your save to the thread, upload a photo if you have one and get ready to see your save in Spotlight on Fire Sprinklers and National Fire Sprinkler Magazine.

- Do a review! Have you had a great experience at a hotel or traveling with a specific airline? Do you have a new electronic gadget you can't live without? Bought a new fleet of trucks your employees love? Find some hand sanitizer that smells like lilacs? We'd love to know about it!
- Have a tip or trick that makes your workday easier? Start a thread and start sharing! Before you know it, you'll be getting tips from fellow members that may help you and your business. If nothing else, I've got tons of household life hacks (did you know tossing ice cubes in the dryer gets out wrinkles?). Let me know if you'd like me to share!
- Working on an interesting project? Post some photos in the forum with a brief description. As the project progresses, you can update your thread with more photos and comments. If you'd like, we can do a feature of the project in our magazine! Give us some content and let's get going!

As I said, this is your community. It can be whatever you want. You can drive engagement and steer the subject matter. Team NFSA is standing by to help along the way and answer any questions you may have. With so many of us continuing to social distance, missing out on face-to-face meeting opportunities, and working from home, the community is your lifeline to peer engagement and a great way to continue or establish member-to-member relationships. Don't miss out! If you have any questions or need help in accessing the forum, contact Member Services at [memberservices@nfsa.org](mailto:memberservices@nfsa.org).

Joanne



## NFSA Election Results

First and foremost, we thank all candidates and everyone who voted in our nominations and election process held in November and December of 2021. We are pleased to announce election results for the following contested races:

### SAMs Council: (4 seats)

- Bob Bussiere, *Wheatland*
- Sean Heskett, *Potter Electric*
- Bob Knose, *Ferguson*
- Larry Sander, *Victaulic*

We are also pleased to announce those elected in non-contested races:

### Contractors Council: (4 Areas)

- Area 3:* Ken Brinkley
- Area 7:* James Lewis
- Area 9:* Harry Notthaft
- Area 11:* Peter Hulin

All terms are for 3 years and will be sworn in at the March 4, 2022 Board of Directors meeting. The NFSA Board of Directors is made up of representatives from our Manufacturers Council, Contractors Council, and Supplier and Manufacturers Council (SAM). There is also a non-voting member who is the Chair of the NFSA Future Leadership Committee.

Thank you to all who serve on our Board, Councils, and Committees, which are appointed by the Chair of the Board at the Spring meeting, which will be held March 4th, 2022 in Los Angeles, California.

We look forward to continued progress as an inclusive association and serving with these great fire sprinkler industry leaders. By working together, our future is bright.

## Are You an Advocate on Voter Voice?



### ***Voter Voice is:***

- NFSA’s way of alerting supporters to important legislation
- Your way of connecting directly to legislators on important issues

We need everyone (industry professionals, fire officials, families, friends, survivors, and anyone that supports fire sprinklers) to register for this powerful outreach and advocacy too.

### ***To access voter voice:***

1. Go to [www.NFSA.org](http://www.NFSA.org)
2. Choose the ABOUT tab
3. Choose ADVOCACY from the pull-down menu

### *You'll be able to:*

- Find your state & national elected officials and communicate directly with them
- View a scorecard on how well your elected officials supported sprinklers
- View key sprinkler-related legislation for your state
- Sign-up for alerts for your area – something we really encourage you to do!
- View state & national “campaigns” and provide your unique perspective to lawmakers

2022 will a year of concentrated work to advance sprinkler legislation and code adoption. Voter Voice provides a powerful voice - YOUR'S - to the local and national effort, but you've got to use the tool and make your voice heard!

## NFSA Sponsors & Participates in High-Rise Operations Conference

NFSA was a proud sponsor of County Fire Tactics – 4-day **High-Rise Operations Conference (HROC) 2021** in Pensacola, Florida. The NFSA Live Fire Sprinkler Demonstration/Training Trailer was on hand and was part of the operational residential high-rise fire track, providing hands-on fire sprinkler and standpipe systems training.



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Some 50 firefighters rotated through the trailer and received hands-on training. This training was developed through a partnership with Charlotte Fire Department looking at buildings above the level of fire department pump capabilities and continues to flourish thanks to Deputy Chief Samuel Jones and rest of the Charlotte Fire Department's progressive leadership. Big thanks to Deputy Chief Jones, Fire Marshal Miller and Plans Examiner Siegrist for their commitment to training and southern hospitality. •



This conference saw 400+ firefighters from around the world and continues to be a one-of-a-kind high-rise conference event. Many thanks to County Fire Tactics, Hilton Pensacola Beach Gulf Side Convention Center, and all our members that continue to support the Live Fire Sprinkler Demonstration/Training Unit Trailer Program. *Photos credited to Jillian Stewart, Photographer*

## Fire Sprinkler Demo/Training Trailer Makes Appearance in Charlotte, NC

NFSA's Live Fire Sprinkler Demonstration/Training Unit Trailer was in Charlotte, NC at the Police and Fire Training Academy, providing sprinkler and standpipe system training for all downtown Charlotte engine companies.



CHARLOTTE, NC



### FFSA Florida Carries On!

The Florida Fire Sprinkler Association (FFSA) created the initiative entitled Carry On, a movement that encourages companies to get involved in the Association, specifically by empowering future leaders within their organizations to be involved. The Carry On initiative promotes developing leaders, Association involvement, educating legislators and simply moving fire sprinklers forward.

The FFSA Board of Directors recognizes our responsibilities to build up the next generation of contractors, inspectors and AHJs, and to promote the mission to protect lives and property through the acceptance of fire sprinklers. The challenge was issued for members to identify young leaders within their organizations to be involved in FFSA committees, legislative actions, fire sprinkler initiatives and more.

FFSA is excited to empower future leaders to grow with the Association. We can't expect the next generation to be prepared to protect our industry and have a passion for saving property and lives if we don't get them involved. If you are interested in getting involved, scan the QR code below and an FFSA Carry On member will reach out to get you plugged in! Stay Calm and Carry On!



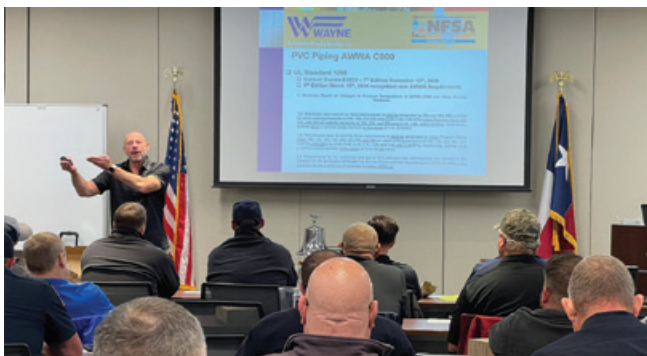
Conor Kauffman, President, Kauffman Company, presenting Underground Panel Discussion.

On February 10, 2022, the NFSA Texas Chapter hosted a virtual training session focused on Supply Chain Issues & Answers. The goal was to present current Supply Chain Shortages and potential future solutions, and to update and educate fire protection professionals regarding fire sprinkler supply chain shortages or challenges. The training agenda featured a 15-minute panel presentation by each of the four major fire sprinkler manufacturing companies.

### Texas Chapter



The NFSA Texas Chapter persevered during the third COVID variant and hosted two new Virtual Training/Panel Discussions focused on Texas "Hot" Issues



Pete Schwab, Vice President, Wayne Automatic, teaching Underground Fire Service Lines in Texas

On January 27, 2022, the NFSA Texas Chapter hosted a virtual training session focused on Underground Fire Service Lines. The goal was to educate all Texas fire protection professionals who install and regulate the installation of Underground Fire Service lines.

### Puget Sound Chapter



NFSA's Puget Sound Chapter wrapped up 2021 with a presentation by Andrew Loeffelman, Vice President of Sales at Engineered Corrosion Solutions. Thank you to Patriot Fire Protection, Inc. for hosting our meeting. Both northwest chapters will be launching the 2022 schedule in March.

### Wisconsin Chapter

The NFSA WI Chapter, in cooperation with the Wisconsin Fire Sprinkler Coalition, hosted a booth at this year's Metropolitan Builders Association's Home Show on January 14 -16, 2022 at Wisconsin State Fair Park in Milwaukee, Wisconsin. This weekend event attracts thousands of people interested in home remodel-

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# PEOPLE

## Beth Tubbs, PE, FSFPE, Elected President of Society of Fire Protection Engineers

## Jimmy Jönsson named President-Elect; Christopher Butts, PE, PMSFPE, AET, SET, CFPS, ARM, Elizabeth Pennacchio, PE, PMSFPE, Michael Wojcik, PE, PMSFPE, and John Denhardt, PE, FSFPE, join SFPE Board of Directors

The Society of Fire Protection Engineers (SFPE) has named **Beth Tubbs, PE, FSFPE**, as its 2022 President.

Beth Tubbs at the International Code Council (ICC), headquartered in Washington D.C., USA, serves as a key engineering resource and contributor to the International Existing Building Code (IEBC), the International Fire Code (IFC), the International Building Code (IBC), and the ICC Performance Code (ICCPC) as a Senior Staff Engineer with the Codes and Standards Development Department.

Tubbs has been an SFPE member since 1995, elected a Fellow of SFPE in 2010, and has served on and/or chaired numerous SFPE committees and boards. She holds degrees in Fire Protection and Civil Engineering from Worcester Polytechnic Institute. As SFPE President, Tubbs is currently serving as the Program Committee Chair of the SFPE International Conference on Performance-Based Codes and Fire Safety Design Methods scheduled for March 2022 and the SFPE Annual Conference and Expo scheduled for October 2022 in Detroit, MI, USA, among other SFPE committees.



**Jimmy Jönsson**, Director with JVVA in Madrid, Spain, was named President-Elect. Jönsson has worked on a wide range of fire- and life-safety projects internationally over the last 20 years, with extensive experience in developing performance-based fire engineering design and analysis. He has been an SFPE member since 2002, past President of SFPE Europe, and current President of the SFPE Spanish Chapter.

**Christopher Butts, PE, PMSFPE, AET, SET, CFPS, ARM, Elizabeth Pennacchio, PE, PMSFPE, Michael Wojcik, PE, PMSFPE, and John Denhardt, PE, FSFPE**, have joined the SFPE Board of Directors effective January 2022.

**Amanda Kimball, PE, FSFPE, Jack Poole, PE, FSFPE, John Campbell, PE, PEng, CFPS, FIFireE, PMSFPE, Shaun Kelly, PEng, CEng, MIEI, PMSFPE, Bob Libby, PE, FSFPE, Albert Simeoni, PhD, PMSFPE, and Shamim Rashid-Sumar, PE, FSFPE**, continue their service on the Society's Board of Directors.

SFPE will be establishing its 2022 Nominating Committee and soliciting nominations for the Society's future leadership roles in the coming months.

*Additional information about the Society of Fire Protection Engineers and its programs is available at [sfpe.org](https://sfpe.org).*

# CHAPTERS IN ACTION

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ing or new construction. Hundreds stopped by to see the Home Sprinkler Coalition's virtual reality video capturing 360-degree real time fires (protected and unprotected), created in cooperation with NFSA. We also co-sponsored the Vendor Reception on Friday night. There were over 100 vendors that stopped by to attend and ask more about fire safety in the home. •



*Vendor Night Reception co-sponsored by WI Fire Sprinkler Coalition and NFSA WI. Pictured L-R are NFSA WI Asst State Coordinator Mike Gundersen, State Coordinator Marty King, WI Fire Sprinkler Coalition Representative Mike Vos and MBA Director of Government Affairs Toby Van Sistine.*



**Advertising Members:**  
Our 2022 Media Kit is now available online at <https://bit.ly/22MediaKit>.  
Get all the info you need to hit your target market all year round!

# SPRINKLERING OF NEWS

## ■ Redesigned Tyco® LFII Residential Concealed Pendant Sprinkler Provides Installation Flexibility and Efficiency

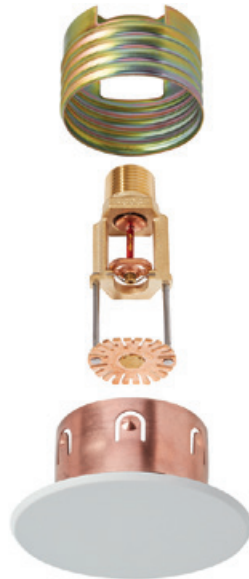
Johnson Controls announces the newly redesigned Tyco Series LFII Residential 4.9 K-factor Concealed Pendant Sprinkler. With an increased vertical adjustment level of 3/4 inch (19.1 mm), the new LFII sprinkler provides more adjustability than many current products available which only offer 1/2-inch (12.7 mm) adjustability. This gives contractors added flexibility when cutting fixed sprinkler drops. The flat profile of the cover plate assembly conceals the sprinkler operating components above the ceiling for appealing design in homes, apartments, dormitories and hotels.

The Tyco Series LFII Residential Concealed Pendant Sprinkler is available in both ordinary

155 F (68 C) and intermediate 200 F (93 C) temperature-rated configurations. Both sprinkler models are designed with heat sensitivity and water distribution characteristics proven to help control residential fires and improve the chance for occupant evacuation.

The sprinklers are intended for use in wet pipe systems for one- and two-family dwellings, mobile homes, residential occupancies up to and including four stories in height and residential portions of any occupancy, per NFPA 13, 13D and 13R. They are UL and C-UL Listed and have a maximum working pressure of 175 psi (12.1 bar). A disposable protective cap is provided to protect the sprinkler during ceiling installation.

Visit [www.tyco-fire.com](http://www.tyco-fire.com) to learn more.



## ■ New TYCO® Sprinkler Shields

Johnson Controls introduces the Tyco Model ES-1 and ES-2 Sprinkler Shields for the protection of in-rack early suppression fast response (ESFR) sprinklers in storage facilities and warehouses. The all-metal shields work to protect sprinkler elements from cold soldering, which occurs when cascading water from ceiling-mounted and high-mounted in-rack sprinklers cool down and inhibits the operation of in-rack sprinklers mounted at lower heights.

As storage ceiling and rack heights continue to trend higher



and hold higher-hazard material like non-expanded and expanded plastics, the need for in-rack sprinklers has increased. When used in conjunction with ceiling protection, in-rack ESFRs have become an integral component in an overall fire protection solution. FM datasheets 8-9 and 8-34 now require that when multiple levels of ESFR sprinklers are used, the sprinklers below the highest level have shields to protect them from getting wet should a sprinkler above them operate.

The sprinkler shields are designed for use with Tyco Model ESFR pendant sprinklers. The ES-1 Shield is designed for a thread size of 3/4-inch and works with ESFR-14 and ESFR-17 sprinklers. The ES-2 Shield is designed for a thread size of 1-inch and works with ESFR-22 and ESFR-25 sprinklers.

Tyco ES-1 and ES-2 Sprinkler Shields are available zinc-coated or painted red, allowing for aesthetics that meet the needs of the operational space in which they are installed.

The new Tyco Sprinkler Shields complement a full line of Johnson Controls fire suppression products. Together, they help serve the Johnson Controls mission of reimagining building performance to serve healthy people, healthy places and a healthy planet.

For more information on Tyco ESFR Sprinkler Shields, visit [tyco-fire.com](http://tyco-fire.com).

## ■ ASC Engineered Solutions Acquires Value Engineered Products



ASC Engineered Solutions (formerly Anvil & Smith-Cooper International) has acquired Value Engineered Products (VEP) of Denver, Colorado. Value Engineered Products (VEP) offers the plumbing, mechanical, and industrial piping industries a series of insulated pipe supports designed to meet the broadest range of applications and piping material types, such as hot piping from 120 °F to 1200 °F to cold piping from -250 °F to 225 °F.

Founded in 1990, VEP provides a patented shield product designed for all types of piping, as well as seismic applications, and has built its reputation on providing responsive customer service and innovative product design.

For more information, visit [www.asc-es.com](http://www.asc-es.com).

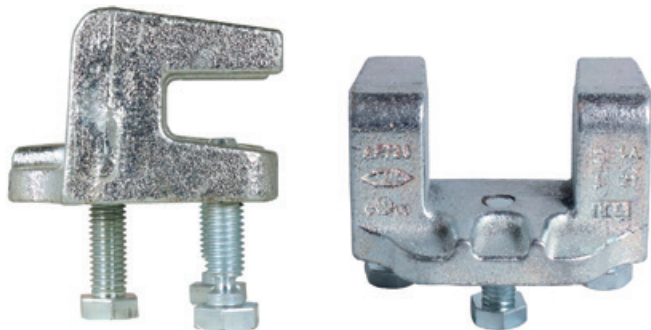
## ■ ASC Engineered Solutions™ Introduces a Universal Structural Brace Attachment for Fire Protection Piping Systems

ASC Engineered Solutions introduces the AF720 Afcon® universal structural brace attachment, designed for use as the structural attachment component of a complete sway brace assembly for fire protection systems.

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Made of ductile iron with carbon steel hardware, the AF720 brace attachment can attach to any structural steel member from 1/8" to 3/4" thick, including I-beams, bar joists, steel trusses or steel columns. AF720 rigidly braces piping systems that are subjected to horizontal and vertical seismic loads.



The AF720 universal brace attachment has the highest UL listed load rating in the industry for similar structural attachments. It is cULus Listed (ANSI/UL 203a) and FM Approved (FM 1950-13). It also complies with NFPA 13, ASCE 7, IBC & MSS SP-27 bracing requirements.

The AF720 is ready for installation right out of the box; it comes with all required installation hardware. It can be installed fast, saving time and money. The AF720 universal brace provides built-in visual verification that the required installation torque on set screws has been met. (Note: The AF720 is for use only with other ASC Engineered brand components for a Listed seismic bracing assembly.)

*Proudly made in the USA, the AF720 complies with the Buy America, Buy American and American Iron & Steel Act (AIS) program requirements. For more information on the AF720 Afcon brace attachment, visit [www.asc-es.com](http://www.asc-es.com) or contact a local ASC Engineered Solutions sales representative.*

## ■ Society of Fire Protection Engineers Announces International Conference on Performance-Based Codes and Fire Safety Design Methods

The Society of Fire Protection Engineers is pleased to announce its 14th "SFPE International Conference on Performance-Based Codes and Fire Safety Design Methods" will be held virtually on March 23-25, 2022. The conference features three days of content from global experts on current and future trends in fire regulatory systems for performance-based design.

*The six keynote and general session presentations include:*

**Genesis and Findings from Three Office Compartment Fire Experiments with Cross-Laminated-Timber Slabs;** by Danny J. Hopkins, Meng, EngD, CEng, FIFireE, FIMechE, PMSFPE

**Engineering Tools for Fire Protection Engineers;** by Colleen A. Wade, Ph.D

**Structural Fire Protection Engineering;** by the Charles Pankow Foundation

**The Continued Contribution of SFPE to Implementing Performance-Based Fire Safety Design;** by Gregory B. Baker, Ph.D

**A Sociotechnical Systems Framework for Performance-Based Design for Fire Safety,** by Brian J. Meacham; Ph.D., PE, CEng, EUR ING, FIFireE, FSFPE

**Opportunities and Challenges for Fire Engineering in Australia;** by Brian Ashe, Ph.D, CE

The conference will begin at 08:00 EST and run for six hours each day. To accommodate attendees from across the globe, all keynotes, general sessions, and technical presentations will be available for registered attendees to view on-demand through May 16, 2022.

In addition to the keynotes and general session presentations, conference programming includes the topics of mass timber, building envelope, wildland urban interface, numerical simulations, environmental impacts, structural fire engineering, evacuation, monitoring/performance, smoke detection/management, practical issues, fire dynamics, unique egress strategies, and more. An additional virtual lounge will be available to facilitate communication between registered attendees and speakers throughout the duration of the live and on-demand viewing.

*Visit [sfpe.org/pbd2022](http://sfpe.org/pbd2022) for more information.*

## ■ Viking SupplyNet Announces New Branch in Fairfax, VA

Viking SupplyNet is pleased to announce a new location in Fairfax, VA. The new branch is Viking SupplyNet's second location in Virginia and will service the Virginia, Maryland and D.C. areas.

The new location offers a fully staffed Viking SupplyNet branch in a 12,000 square foot facility. This location's proximity to the I-495 and I-66 interchange makes a straight shot to Washington, D.C. simple in just 30 minutes. In addition to its convenient location to the city, the branch is only about 20 minutes from the Dulles airport, 45 minutes from the Jessup, MD Viking SupplyNet branch, and 90 minutes from the Richmond, VA Viking SupplyNet branch.

The Fairfax branch can be reached by phone at (571) 307-6600 or email at [fairfax@supplynet.com](mailto:fairfax@supplynet.com). The branch's hours will be from 5:30 AM – 4 PM from Monday to Friday each week. You may visit [www.vikinggroupinc.com/locations](http://www.vikinggroupinc.com/locations) to find your nearest SupplyNet branch.

## ■ New Additions to InstaSeal® CPVC Sprinkler Head Adapter Line Offer Even More Versatile Installation Capabilities

The Viking Corporation introduced new additions to Viking's line of InstaSeal® CPVC Sprinkler Head Adapters, which allow for installation without the use of thread tape or sealant. The new additions include both tees and 90° elbows.

The InstaSeal® elbows and tees offer the same great features that

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Viking's original InstaSeal® CPVC Sprinkler Head Adapter offer, including brass threads with an EPDM seat for efficient installation. To install, the contractor will hand-tighten the sprinkler until it makes contact with the rubber seat. An additional ½ to 1-¼ turn by hand or with the appropriate wrench completes the installation. The final position of the sprinkler is adjustable, allowing the installer to properly align pendent or horizontal sidewall sprinklers with ease.

The new elbows and tees range in size availability, with tees available in ¾ x ¾ x ½" and 1 x 1 x ½" sizes, and 90° elbows available in sizes ¾ x ½" and 1 x ½". The products can be used with sprinklers having a K-factor of 5.8 or less. The new products join Viking's industry-leading line of CPVC sprinkler pipe and fittings. Viking is vertically integrated to ensure CPVC material compatibility and product dependability at every step of the supply chain, from manufacture to jobsite delivery.

To learn more about residential fire protection solutions from Viking, visit [www.vikinggroupinc.com](http://www.vikinggroupinc.com) or contact your local Viking SupplyNet distribution center.

## ■ Summit Fire & Security Announces the Purchase of Fire & Life Safety America

SFP Holding, Inc. (Summit Companies) announced that Summit Fire & Security, a subsidiary of SFP Holding, has completed the purchase of Fire & Life Safety America (FLSA).

Fire & Life Safety America was founded in 1997 as East Coast Fire Protection. As the company expanded outside of their original offices in Richmond, Baltimore and Roanoke, the company changed its name to better reflect its growing geographic footprint. Today, Fire & Life Safety America has 17 locations in 9 states, serving the southeastern United States as well as a National Accounts team serving regional and national customers. They provide installation, inspection, service and repair services for fire alarms, fire sprinkler systems, backflow prevention devices, fire pumps, extinguishers and fire suppression systems. With over 200,000 completed projects in a variety of verticals, Fire & Life Safety America is proud of its reputation for quality work and its talented, experienced workforce.

The addition of the Fire & Life Safety America locations complements Summit Fire & Security's existing branches, making it a strong fit moving forward. Summit Fire & Security now has 45 locations in 18 states. With this acquisition, customers can expect to continue receiving the same level of service and care as always. The companies are confident this milestone will better support customers with greater expertise and resources going forward. Summit Fire & Security is committed to maintaining the integrity of Fire & Life Safety America's culture and customer relationships. The company is proud to honor Fire & Life Safety America's legacy and looks forward to the future together as a united team. Learn more at: [www.SummitCompanies.com](http://www.SummitCompanies.com).

## ■ Valcom Joins Potter Electric Group of Businesses



Potter Electric Signal Company, LLC ("Potter") announced that Valcom, Inc. ("Valcom"), an established leader in voice paging, intercom and mass notification communications systems, has become a new division within Potter. Potter's investment in Valcom will allow the business to expand its engineering, marketing, and sales initiatives to drive growth in new applications. With this acquisition, Potter now offers a portfolio that covers the broadest range of emergency communication systems used in commercial projects. Valcom's range of mass notification systems complement Potter's fire and life safety offering, including their voice evacuation and emergency responder communication systems. Valcom's management team will continue to lead the company.

Potter's CEO, Gerry Connolly, commented, "We have had a longstanding respect for Valcom's products and culture. With more building owners and facility managers looking to manufacturers to provide better platform and system integration across their mission-critical life safety and communication systems, we see the potential for additional strategic growth given our complementary products and channels. Both companies have invested in IP and cloud-connected platforms, while maintaining intense focus on quality and reliability in the digital era. We are excited to welcome Valcom to the Potter family."

"Valcom's long tradition of communication leadership, innovation, and customer care is what has driven us for over 40 years," said Jack Mason, CEO of Valcom. "We are thrilled to join the Potter organization as our cultures and strategies closely align. Being part of a company with the longevity and reputation of Potter will allow us to drive our business even further."

## ■ Home Fire Sprinkler Coalition Virtual Reality Resource – A Better Side-By-Side



The Home Fire Sprinkler Coalition (HFSC) is taking home fire safety education to the next level with a new virtual reality, 360-degree house fire flashover and sprinkler comparison video created with actual fire footage.

Thanks to state-of-the-art cinematic technology, viewers can experience the fires without and with an installed sprinkler as if they were inside the burning house. They can watch flames and smoke from any angle and hear the fire crackle and smoke alarms activate. In the video without a fire sprinkler, viewers will see flashover occur in real time and watch how fast the flames and smoke spread. When they watch the video with an installed fire sprinkler, they'll learn how the high heat from the fire activates the water flow and see the sprinkler quickly control the blaze and minimize smoke spread.

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# SPRINKLERING

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## Free, Online Viewing

The virtual reality video can be viewed on demand at no cost on HFSC's website. Viewers using a computer can move their mouse or trackpad to look all around inside the active fire rooms. Turning a tablet or other smart device will achieve the same 360 views of the fires.

## Immersive Formal Education

For a more immersive educational experience, HFSC will provide members of the fire service with an advanced virtual reality kit. The kit includes high-tech headsets where viewers can experience the two fires as a realistic 3D home fire scene. The videos can be presented to target audiences in individual or group settings. The kit is ideal for fire service education outreach to any local stakeholder involved in the decision to protect new homes with fire sprinklers, such as builders, developers, planners, building officials and water purveyors.

## FEMA-Funded Fire Service Resource

HFSC produced the VR video in 2021 with a seed grant from State Farm. HFSC was later awarded a FEMA Fire Prevention & Safety Grant to build on that initial production, promote it to the fire service and the public, and purchase a set of the Immersive Kits in order to work directly with the fire service to present and evaluate the effectiveness of the virtual reality experience.

HFSC is partnering with U.S. fire departments in the grant-funded formal evaluation. With guidance from HFSC team leaders, these departments will plan and present the virtual reality education resource as a method to mitigate the home fire problem in their jurisdictions, based on the high-risk local populations they've identified

as part of their community risk reduction work.

The grant allowed for an initial purchase of portable, reusable, Immersive Virtual Reality Education Kits, each containing 15 headsets and a presentation laptop. Fire educators will have the option to present the video to all viewers at one time, or individually. HFSC is working with the kit vendor to offer a turnkey, at-cost purchase option available to any interested fire department/safety advocate. The online virtual reality video will be offered universally at no cost.

## A Better Side-by-Side

To extend reach, the online version can be added to fire department websites, shared via social media accounts, built into PowerPoint presentations, run on video monitor loops, and sent via email.

While public fire demonstrations have been effective as community events for many years, they are not feasible for every fire department. Many jurisdictions have environmental regulations and fees pertaining to burns; and there are costs to build, store and transport side-by-side units. Additionally, it can be difficult to get targeted stakeholders to attend public events. With this new virtual reality education, fire educators can bring dramatic and memorable home fire side-by-sides directly to their local stakeholders using the free online video or with a one-time purchase of the kit option.

Fire departments are encouraged to use the new video as part of their community risk reduction outreach. They can visit HFSC's website to download the video and share the link. The new video will also be featured during **Home Fire Sprinkler Week May 15-21, 2022**. Consumers and all those who plan to build new homes are encouraged to view the video at no cost at [myhomefiresprinkler.org](http://myhomefiresprinkler.org).



NFSA is excited to announce that we will be hosting our **2022 Annual Seminar and Business & Leadership Conference Sept 28-30, 2022**, at

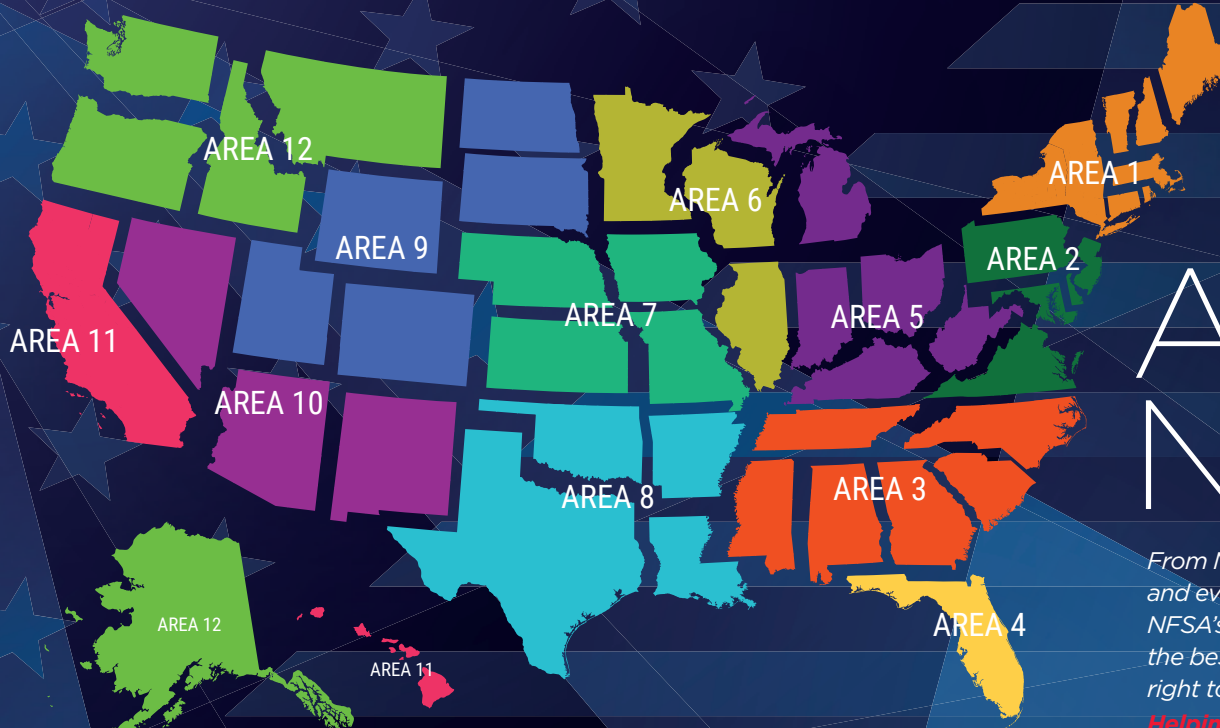
*Sheraton Sand Key in beautiful Clearwater Beach, FL.*

You won't want to miss this event! The Sheraton Sand Key boasts 13 acres of private white sand beach and warm gulf waters!

**Stayed tuned for more details and mark you calendars!**

Vendors: We have a limited number of tabletops available! Be sure to contact **Joanne Genadio at [genadio@nfsa.org](mailto:genadio@nfsa.org)** to reserve yours today.





# Area News

From Maine to California, and every place in between, NFSA's Field Ops Team brings the best of the Association right to your doorstep.

*Helping our members is Job #1.*

## AREA 1

CONNECTICUT, MASSACHUSETTS, MAINE, NEW HAMPSHIRE, NEW YORK, RHODE ISLAND, VERMONT

### A Salute to Sandy

by Elizabeth LaFond Coppez

Sandy Salois of Holyoke, Mass., was recently surprised with an 11-vehicle salute – three Holyoke Fire command vehicles, six fire apparatus trucks, and two police cruisers – to mark his 96th birthday.

Salois, “*The Sand Man*,” is Holyoke’s oldest living retired firefighter, having served with honor as Lieutenant for over 30 years. He was surrounded by family, friends, and retired members of the Holyoke Fire Department, who greatly enjoyed the lights and sirens at the end of his driveway.

Recalling his days responding to emergencies, he said, “I could write a book!

“I grew up in ‘the flats,’ went to church in ‘the flats,’ did it all in ‘the flats,” he said, including fighting some of Holyoke’s most historic fires. “The Flats” is a neighborhood that lies at one of the lowest elevations in Holyoke, but also gets its name from all the brick tenement “flats” that were built in its early days of development.

Cake, cookies and champagne were shared to celebrate the milestone, and a dinner at the East Side Grill in Northampton, MA, with his longtime companion



Retired Firefighter Sandy Salois of Holyoke, Mass., center, joins companion Helen LaMagdeleine, and retired NFSA New England Regional Manager and Holyoke and Chelsea, Mass., Fire Chief David A. LaFond during a special 11-vehicle salute to commemorate Salois’s 96th birthday.

Holyoke Fire apparatus salute on Jarvis Ave., in Holyoke, Mass., for celebrating retired firefighter Sandy Salois’s 96th birthday.



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of over 30 years, Helen LaMagdeleine, who lives a few houses away from Salois.

**AREA 2**

DELAWARE, MARYLAND, NEW JERSEY, PENNSYLVANIA, VIRGINIA, DISTRICT OF COLUMBIA

**Philadelphia Row House Fire**

On January 5th, people living in and near the Fairmount duplex in Philadelphia, PA were in a state of mourning after a fatal fire claimed the lives of nine children and three adults in the cold, early hours of the morning.

The Philadelphia Fire Department responded to a fire that broke out on the second floor of the three-story duplex at 6:38 in the morning. Once the fire department arrived on scene, they made entry with an aggressive attack on the fire. Officials on the scene reported that as firefighters were discovering an increasing number of fatalities the further they pushed the fire back.

Eight people self-evacuated while the fire department rescued two. Both victims that were rescued were transported by Philadelphia EMS. One, a child, was taken to the Children’s Hospital of Philadelphia where they later passed away. The other victim was taken to Temple University Hospital for treatment.

The fire chief reported there were eight people living on the first floor and 14 people living on the 2nd/3rd floor. Four more people were in the apartment at the time of the fire because of the holiday season, bringing the total to 26 people in just two units.

The Philadelphia Fire Marshal’s office is leading the investigation with the help of the ATF. One of the children that was able to escape the flames later confessed to officers on scene and then again to the hospital staff that he was playing with a lighter he found in the house. The child went on to say they may have accidentally set a Christmas tree on fire. That disclosure was included in a search warrant application as city and federal investigators sought to determine the cause of the blaze, the city’s deadliest in more than a century. The city’s fire marshal, Deputy Chief Dennis Marrigan, said the building was a “very, very sophisticated scene, it’s a very traumatic scene, and it’s very complicated. It’s a very complex investigation.” He declined comment on the possibility that the flames had spread from a Christmas tree.

Fires involving Christmas trees are much more likely to be fatal than other types of house fires, according to the National Fire Protection Association. Christmas trees are the cause of about 160 fires per year, causing two deaths annually and \$10 million in property damage. A live tree that has dried out can be fully engulfed within 15 or 20 seconds.

The fire chief later said that the fire is the worst he has responded to in the past 35 years while serving on the Philadelphia Fire Department.

The NFSA Mid Atlantic Regional Team extends its condolences



to the families and the community affected by this fatal fire. The circumstances surrounding this fire highlight the need for more public education and stricter fire codes. Tragedies such as this are always preventable and can hopefully become a thing of the past through increased outreach and code changes that includes fire sprinklers in all residential occupancies, old and new.

**AREA 5**

INDIANA, KENTUCKY, MICHIGAN, OHIO, WEST VIRGINIA

**NFSA Indiana Chapter Elections**



L to R: Jon Ackley, Steve Carroll, Steve Schipp, Brian Roberts, Dan Whitman, Shane Ray, Gary West, Bob Knose, and Ron Ritchey

NFSA President Shane Ray, NFSA Director of Field Operations Gary West, and Area 5 Director Jon Ackley attended the November 16th Indiana Chapter Meeting and welcomed newly elected Officers and Board Members. President Ray thanked the outstanding list of candidates who participated in our election and officially welcomed the following elected or reelected members:

**Officers**

- Chairman **Dan Whitman** (*Dalmatian Fire*)
- Vice Chairman **Corey Lee** (*RSQ Fire Protection*)
- Treasurer **Brian Roberts** (*Plumbers Supply*)

**Board Members**

- Steve Schipp** (*Ryan Fire Protection*)
- Pete Murphy** (*Core & Main*)

**AREA 6**

ILLINOIS, MINNESOTA, WISCONSIN

**Wisconsin Winter Code Updates**

NFSA WI State Coordinator Marty King will present at the 2022 Winter Code Updates hosted by the Wisconsin Code Officials Association, in cooperation with the Wisconsin Department of Safety and Professional Services. These training sessions are offered at four regional locations in Wisconsin during February and March to provide updates in the areas of Electrical, Dwelling, Plumbing and Commercial Building Codes for related state certification CEUs. The session will cover fire barriers and partitions, fire sprinkler systems, and handicap accessibility codes. Marty will present on rough and final inspections of fire sprinkler



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system installations with a brief overview of the antifreeze issue.

### The Minnesota Fire Sprinkler Alliance

The Minnesota Fire Sprinkler Alliance was formed in the Autumn of 2021 with a mission to “promote the installation of fire sprinklers from homes to high-rises.” The focus of the Alliance to date has been to assist the State Fire Marshal Division and the League of Minnesota Cities in conducting a statewide assessment of Minnesota high-rise buildings, including where they are located, details regarding the size and occupancy classification, ownership details, and status of sprinkler installation. The effort spanned the 854 recognized cities in Minnesota and has discovered 631 high-rise buildings in the state. Of those, 205 are fully sprinklered, 57 have at least partial sprinkler installations, and 15 are known to have no sprinklers. Details on the remainder are still being gathered.

The Alliance is also working on several approaches to increasing the number of single-family homes protected by fire sprinklers. Exploring financial incentives, continued public education efforts, review of a state court ruling on Minnesota’s redacted IRC requirements on new homes, and increased use of local adoption rules are all ideas being discussed.

The Alliance is open to all passionate sprinkler advocates. Scheduled Alliance meeting details will be posted on the NFSA website under the “Events” tab. Questions can be addressed to butler@nfsa.org or any Minnesota-based NFSA staff member.

### Retrofitting a Historic District in Iowa



Part of the Historic District of downtown Nevada, Iowa



Meeting to discuss retrofit strategies for the historic theater building in Nevada, Iowa. L to R: West Des Moines Fire Marshal Mike Whitsell, NV Fire Chief Ray Reynolds, Ahern Project Manager Zack Willard, Theater Owner Dave Sly, NFSA Minneapolis Local Coordinator Joel Hewitt.

NFSA staff recently met with Nevada, Iowa officials to discuss continued efforts to retrofit the town’s historic district. Nevada Fire Chief Ray Reynolds invited Mike Whitsell, the Fire Marshal of West Des Moines, and Zack Willard, a Fire Protection Engineer from the Des Moines office of Ahern, to the meeting to examine ideas for a shared water supply for a block of historic buildings.

Fire Marshal Whitsell described his successful strategy of leveraging state economic development grants to retrofit buildings in the historic Valley Junction area of West Des Moines. The grants allowed Valley Junction officials to provide shared water supplies to four blocks of historic buildings, provided for future expansion and reuse of existing structures, and provided individual building owners the opportunity to retrofit at a time of their choosing. The ideas can be replicated in Nevada and other cities across Iowa.

## AREA 8

ARKANSAS, LOUISIANA, OKLAHOMA, TEXAS

### Arkansas

#### Proposed Legislative Rule –Arkansas State Board of Health

“Under leaking water lines, including leaking automatic fire sprinkler heads, or under lines on which water has condensed”. See the Arkansas State Board of Health – “Rules Pertaining to Retail Food Establishments.”

### Oklahoma

**Proposed Computer Data Privacy Act** - An Act relating to privacy of computer data; enacting the Oklahoma Computer Data Privacy Act of 2022. See Oklahoma House Bill 2968

### Texas

**Passed and Funding Available** - Apprenticeship Pilot Program – An Act relating to a sales and use tax refund pilot program for certain persons who employ apprentices. See Texas Senate Bill 1524

### City of Dallas – Two New Policies Passed!

- **Plan Review** – *Effective February 1, 2022*; the City of Dallas is terminating its Third-Party Fire Code Review and will revert to all submissions being made directly to Building Inspections.
- **Backflow** - City of Dallas will immediately enforce a Double Check Backflow Prevention Assemblies will be enforced on all water supplies to include dedicated fire lines

### NFSA Area 8/South Central –Legislative Session Dates

NFSA is preparing for another successful year on the legislative front. We are already monitoring pre-filed bills and anticipating other bills to be filed related to previous sessions. Rarely does a controversial industry issue go away after one year in the political system. We will continue to track all proposals related to fire sprinklers, contractors, and codes, as well as other industry topics.

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The following are legislative session dates for Area 8.

Arkansas - February 14, 2022, to March 2022

Louisiana - March 14, 2022, to June 2022

Oklahoma - February 7, 2022, to May 2022

Texas – January 2023

Please let [cindy@nfsa.org](mailto:cindy@nfsa.org) know if you would like to attend “Meet Your Legislator Day” in Texas.

**In-Person Texas Classes**

8 Contact Hours/\$158 Early Member Fee

**Protection of Rack Storage**

When: March 1, 2022, from 8 a.m. - 5 p.m.

Where: Pharr Fire Department, 118 S. Cage, Pharr, TX

**Pumps for Fire Protection (NFPA 20 2019)**

When: March 2, 2022, from 8 a.m. - 5 p.m.

Where: Pharr Fire Department, 118 S Cage, Pharr, TX

**Understanding, Applying and Enforcing NFPA 25 (2020)**

When: March 3, 2022, from 8 a.m. - 5 p.m.

Where: Pharr Fire Department, 118 S. Cage, Pharr, TX

**Sprinkler Installation Requirements**

When: March 29, 2022, from 8 a.m. - 5 p.m.

Where: Lubbock Fire Training Facility, 1515 E Ursuline St, Lubbock, TX

**Fire Service Mains and Their Appurtenances**

When: March 30, 2022, from 8 a.m. - 5 p.m.

Where: Lubbock Fire Training Facility, 1515 E Ursuline St, Lubbock, TX

**Rough and Final Inspections of Fire Sprinkler Systems**

When: March 31, 2022, from 8 a.m. - 5 p.m.

Where: Lubbock Fire Training Facility, 1515 E Ursuline St, Lubbock, TX

*Register for all NFSA Trainings at [nfsa.org/events](https://nfsa.org/events)*

**AREA 9**

COLORADO, NEBRASKA, NORTH DAKOTA,  
SOUTH DAKOTA, UTAH, WYOMING

**Colorado Sprinkler Fitter Renewal Exam**

Sprinkler fitters operating in Colorado are reminded that they will need to take an exam in order to renew their state registrations. According to the State’s Suppression Rules, fitters must take one of four recognized exams after DFPC has updated to a new code set. Since DFPC has updated to the 2021 I-Codes, an exam is required.

The exams currently recognized by DFPC include the UA-Star, CSA ASCR2, and Denver Fire Department. The Division is currently developing its own exam which should be available prior to the renewal deadline. This exam will be offered throughout under

the Division’s current firefighter testing regime. It is intended as another option and will NOT replace the other exams. •



**Ned Sparks Retires from Loveland Fire Rescue Authority**

After 38 years, Division Chief Ned Sparks has retired from the Loveland Fire Rescue Authority. Ned started as a volunteer and became a paid member after less than five years. He quickly rose through the ranks and served in every leadership capacity within the Authority, including a stint as acting Fire Chief during 2021.

Ned spent most of the last decade as Division Chief of the Community Safety Division. It was in this position where he made his greatest impact on life safety. Through his incredible persistence, he was able to convince the Loveland City Council to adopt a resolution to provide up to \$25K to install sprinkler systems within the existing historic downtown area. Many of these businesses within this area have taken advantage of this benefit.

One of these was a historic hotel, which had been converted to a low-income housing apartment building. The retrofit on this building was completed in late 2019. Within three weeks, a fire broke out in a large, concealed space on the first floor. A single sprinkler extinguished the fire before the fire department arrived. Community Safety Division Chief Carrie affirmed that had the system not been in place, many people would have died in the fire. City Council Member John Fogle agreed that Ned’s persistence in getting these buildings sprinklered “saved 42 lives.”



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## AREA 12

ALASKA, IDAHO, MONTANA, OREGON, WASHINGTON

### A Busy First Quarter!

The first quarter of the year always brings a busy legislative season to the Northwest. NFSA Northwest Manager Suzanne Mayr is monitoring proposed legislation and rules that could potentially affect the sprinkler industry. As of the deadline for this magazine, Washington state was considering a bill that would create a dedicated position in the State Fire Marshal Office for licensing compliance. The position would be paid for by an fee increase for Level I and II fire sprinkler contractor licenses, as well as a substantial increase in fines for operating without the correct license and certificate.

While NFSA is not actively pursuing a fire sprinkler contractor license bill in the 2022 Oregon legislative session, the Columbia-Willamette Chapter is continuing to lay the groundwork for another run at this issue in 2023.

### HFSC Grant

As part of a Home Fire Sprinkler Coalition grant, the Northwest Region had received one of the “virtual reality” kits to bring a side-by-side burn to audiences where a live side-by-side burn is

not feasible. This kit will be particularly useful for city council and other policy maker meetings in which fire sprinkler ordinances are being considered. If you have ideas on venues for using the virtual side-by-side kit, please contact Regional Manager Suzanne Mayr.

### Alaskan Training Lab

NFSA is lending support to the training lab being developed at Central Mat-Su Fire Department outside of Anchorage. When completed, the lab will provide a very comprehensive and innovative facility to train fire department, sprinkler and fire alarm industry personnel, and other community members. Those interested in learning more or contributing may contact Jeffrey Anderson at [Jeffrey.Anderson@matsugov.us](mailto:Jeffrey.Anderson@matsugov.us).

### New Class Comes to Northwest Area

In early summer, we are planning to bring a new NFSA class to the Puget Sound and Portland areas. The class, entitled Estimating and Proposals for Installation of Water-Based Fire Protection Systems, will use an interactive format. Watch your inbox or log onto the NFSA website for more information on this resource-rich class. If you have any training needs, be sure to contact Northwest Regional Manager Suzanne Mayr. NFSA is willing and able to bring training throughout the Northwest!•

# Fire happens fast...thankfully, so does this.



U.S. fire departments respond to an average of one home fire *every 86 seconds*.

On average, seven people per day die in U.S. home fires where fire sprinklers are not present.

Fire sprinklers can control and may even extinguish a fire in less time than it would take the fire department to arrive on the scene.

In a home with sprinklers, the average *property loss per fire is cut by about 70% compared to fires where sprinklers are not present*.

Residential fire sprinkler systems cut the risk of dying in a fire by about 80%.



[www.nfsa.org](http://www.nfsa.org)



# These Incentives Improve Community Safety and Provide Developer Savings

In exchange for installing home fire sprinklers in entire developments, authorities having jurisdiction can offer locally negotiated trade-ups as incentives to developers. These incentives may include:



- Street-Width Reduction
- Longer Dead-End Streets
- Tee Turnarounds Permitted
- Increased Street Grades and Building Setbacks
- Additional Units Permitted
- Expansion of Existing Water Supply May Not Be Needed
- Increased Hydrant Spacing
- Subdivision Single Access Point
- Gated Communities

## HOME FIRE SPRINKLERS PROTECT THE ENVIRONMENT\*

Reduce greenhouse gas emissions by 98%

Reduce fire damage by up to 97%

Reduce water usage to fight a home fire by as much as 91%

Reduce water pollution

\* Environmental Impact of Automatic Fire Sprinklers, FM Global, 2010



For more information about home fire sprinkler incentives, including case studies, video testimonials, fact sheets and NFPA 13D information, visit our website at [HomeFireSprinkler.org/crr](http://HomeFireSprinkler.org/crr).

## Home Fire Sprinklers: A Win-Win for Your Entire Community

Home fire sprinkler incentives can reduce construction costs, while protecting residents and firefighters, and help to protect the environment.



# National Fire Sprinkler Magazine

The Flagship Publication of The National Fire Sprinkler Association

## NFSM Article Submission Guidelines

National Fire Sprinkler Magazine (*NFSM*), a members-only publication of the National Fire Sprinkler Association, is published six times a year. It offers Fire Sprinkler Industry news and articles of interest to Association members.

### Query

Send an e-mail or letter briefly describing your article proposal, why the topic is important, and how it is relevant to our audience. Say something about the sources of your information (*personal involvement? interviews?*) and about your present position and background. Tell us what types of photographs and graphics are available to illustrate your story. Be sure to include an email address and a daytime phone number.

*NFSM* runs full-length feature articles of approximately 800-1200 words.

### Feature Articles

Articles for *NFSM* should be on a topic of significant interest to the industry. Articles promoting a specific product or service will not be published. We have advertising opportunities available to boost your sales.

### Writing Guidelines

*NFSM* tries to maintain a straightforward style. Accuracy is vital. All facts should be double-checked before a manuscript is submitted. All manuscripts must be submitted as Word docs, single-spacing between sentences. Images must be submitted as separate hi-rez jpegs. Charts and tables must be submitted as separate pdfs.

Each manuscript should be accompanied by a list of resources on the topic at hand: relevant books and reports, conferences, and/or contact people and their phone numbers. To settle points of style, use *The Chicago Manual of Style* (University of Chicago Press).

### Illustrations

*NFSM* uses a variety of photographs, line art, charts, and maps.

We prefer to receive artwork electronically, and all illustrations should include credit and caption information.

### Copyrights

Articles must be exclusive to *NFSM* magazine and not submitted to any other industry publication, unless prior agreement has been reached. Author is responsible for the accuracy of article and that it does not infringe on any other copyright. All published submissions become the property of NFSA.

### Payment

*NFSM* does not pay for articles; we do recognize an author with a byline and credit. NFSA reserves the right to reject any submission at its own discretion.

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# Shifting the Sprinkler Paradigm



**tyco**

## Introducing the Tyco Series LFII 4.9K Sprinkler Lead-Free for 13D

What was once thought to be impossible, is now a reality...a lightweight, high-heat tested, anti-corrosive polymeric sprinkler. Rigorous UL 199 test protocol shows the Tyco Series LFII 4.9K Lead-Free for 13D Concealed Pendent Sprinkler performs to standard brass sprinkler testing and beyond. And, it's an industry first - a dependable, cost-effective alternative to brass, with  $\frac{3}{4}$ " adjustability and ease of installation using Tyco Rapid Seal Adapters. Check with your local representative for availability.

[www.tyco-fire.com/LFII-lead-free-NFSA](http://www.tyco-fire.com/LFII-lead-free-NFSA)



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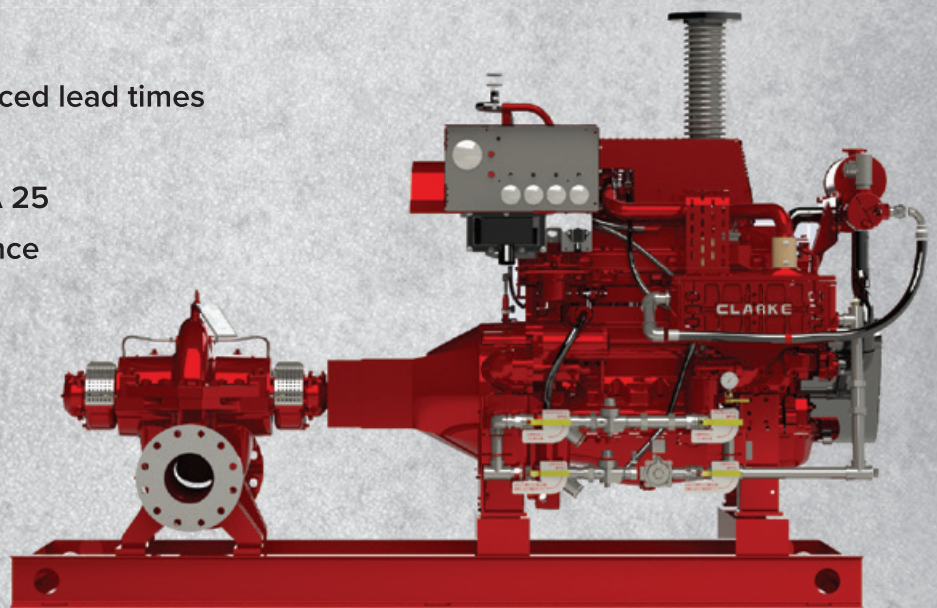
# THE PRODUCTS YOU NEED WHEN YOU NEED THEM

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Electric motor and diesel engine driven systems available

### FEATURES & BENEFITS

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- Over 500 pumps in stock for reduced lead times
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- Vertical in-line fire pumps
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