



# FIRE BUCKET



January, 2023

A publication of the Central Ohio Chapter of the Society of Fire Protection Engineers

[SFPECOC Web Site](#)

## Next Meeting

**Date:** January 11, 2023

**Location:** TAT Ristorante Di Famiglia  
1210 S James Rd, Columbus, OH 43227



**Speaker:** Danielle Purewal – Radix Wire & Cable – Business Unit Manager - Fire Protection Products

**Topic:** Two Hour Fire Rated Products For Pathway Survivability Requirements

**Cost:** \$22.00 (Members)  
\$25.00 (Non-members)

Make Reservations with:  
Bob Fischer  
bfischer@supplynet.com  
440-463-0720

Reservations Deadline: **Friday January 6, 2023**, 10:00 am.

**Everyone who plans to attend, including pre-paid members, must make a reservation and check-in with John Falk at the meeting.**

Ordering items not on our set menu options will require additional payment.

This meeting is covered by those who have paid the One-Pay option.

Meeting fees can be paid online at <https://sfpe-centralohio.square.site/>

## Annual Chapter Dues

The annual chapter dues are \$20. The dues are used to support the chapter operations and promote our chapter.

You can pay your annual dues on our Chapter On-Line Payment Center. This secure site is operated by Square. Click here to go to the site.

<https://sfpe-centralohio.square.site/>

The site works in Chrome, Edge and on iPhone. It does not work on Internet Explorer.

**SFPE - Central Ohio Chapter  
On-Line Payment Center**

## Future Meetings

Chapter Meetings  
March 8, 2023  
May 10, 2023

## [New Chapter Web Site](#)

[Click Here](#) to check out our new chapter web site. Our old host has been sold and is no longer available for us to update. We have been working on a new site. If you have any comments, please let us know.



Benefiting

 **THE OHIO STATE UNIVERSITY**  
WEXNER MEDICAL CENTER

 Benefiting  
**NATIONWIDE CHILDREN'S**  
When your child needs a hospital, everything matters.™

This year's outing included a special guest.

## [Burn Center Outing A Great Success](#)

We are pleased to announce that this year's SFPE Burn Center outing generated a donation of **\$36,000**. Checks for \$18,000 each were presented to the Burn Programs at the Ohio State University Wexner Medical Center and Nationwide Children's Hospital!



We have tons of pictures from the outing on our web site. Please click on the picture below or link to check them out.

Thanks to everyone who participated in this year's outing. It was our largest event ever!



For pictures from this year's outing, [click here](#).

<https://www.sfpecoc.com/burn-center-outing>

The 2023 outing will be held on Monday September 25, 2023, at the Medallion Club. Registration information will be available in June 2023.

## **Why do lithium-ion batteries catch fire?**

Source: [Money Control](#)

In light of the recent incidents involving two scooters from prominent EV brands bursting into flames, the subject of EV safety has come under the spotlight. Are all lithium-ion battery systems inherently a fire hazard? Are there specific conditions which make it more likely for EVs to catch fire?

Lithium-ion batteries came to be the preferred energy storage solution for consumer electronics and EVs because of their power density. Compared to a lead-acid battery which stores roughly 25 watts-hour per kg or a nickel hydride battery which can store 100 watts-hour per kg, a lithium-ion battery can store 150 watts-hour per kg. Given that lithium-ion batteries are an inescapable part of everyday life, powering everything from our phones to other electronic items, it's clear that they're here to stay, until more sophisticated forms of battery technology arrive. The fact that the li-ion battery

market is projected to be worth \$193.13 billion is testament to the efficacy of the technology and its ability to withstand a multitude of charging cycles and retain energy. While li-ion batteries have proven to be safe by and large, there have been enough incidents with both consumer electronics and EVs to throw their overall safety levels into doubt.

A lithium-ion battery comprises multiple cells, which contain lithium. Each battery has electrodes at either end, with one containing an anode while the other contains a cathode. The anode and the cathode both contain lithium but are made of different elements with the former being made of carbon while the latter is made of lithium cobalt oxide.



When you plug a lithium-ion battery, a charging current is given to the cell with the lithium ions moving from cathode to anode through the electrolyte that lies in the middle. When it's supplying energy in the form of electricity, the opposite happens where the lithium ions flow from the anode to the cathode. When all the lithium ions have moved to the cathode, the cell is out of charge.

## **A BATTERY MANAGEMENT SYSTEM**

Unlike other battery systems, lithium-ion cells get extensive battery safety functions. The key to managing the battery's temperature is a battery management system. It's responsible for both, maintaining cell temperature and managing currents and voltage. All lithium-ion cells also feature a separator which can melt when core temperatures become too high and cease the transport of ions. Another key requirement for a battery system is the presence of proper ventilation. A pressure-

sensitive vent can prevent other cells in the battery from catching fire.

A good battery management system is key to a battery pack's overall health. It protects the battery cell from being overcharged or over-discharged, manages the overall heat levels, checks for loose connection and shorts and constantly communicates with the vehicle's onboard computer.

#### WHEN DO THEY POSE A FIRE RISK?

Improper manufacturing, external damage or inefficient or malfunctioning software can cause a lithium-ion battery to catch fire. According to technology platform Ion Energy, excessive heat generation can occur within a failed or damaged cell, leading to what is known as a "Thermal Runaway" in which the heat generated from a failed cell can pass on to the next cell, causing a chain reaction resulting in a fire. This can happen when a flaw in manufacturing allows impurities to seep into a lithium-ion cell. Battery management systems can also be compromised when manufacturers try to make a very compact design which can damage the separator.

Lithium is an inherently reactive and flammable substance. At present, li-ion batteries use organic liquid electrolytes to supply charge. While this continues to be the only form of technology available for mass-produced li-ion batteries, manufacturers like Toyota and VW are in advanced stages of testing solid-state batteries, which not only carry a greater charge, but feature solid electrolytes which possess greater immunity against extreme temperatures.

More solutions do appear to be emerging, in the interim while the standardisation of solid-state tech is awaited. According to Techbrief, a California-based tech company, Nanotech Energy Inc has opted for graphene-made electrodes that can prevent thermal runaway. Graphene being an incredible conductor of electricity and a generally strong material, is an excellent way to prevent overheating.

#### THE SOLUTION?

From a consumer point of view, lithium-ion batteries have, statistically, proven to be a reliable form of technology. However, until more flame-resistant forms of technology enter the battery manufacturing process, it's best to avoid overcharging the battery or keeping it directly under the sunlight. If a battery is portable, do not charge it where you sleep.

With swappable battery units, always inspect for external battery damage, as it can be a cause for chemical leaks which can lead to thermal runaways. When running low on charge, ensure that the battery charge doesn't go below 10 percent before being recharged. Frequent fast charging can also lead to the battery losing its ability to retain charge, with the average EV battery only managing 100-150 fast charging cycles in its life span.

For the complete article, [click here](#)

### **IGNITIBLE LIQUIDS AND NFPA 30**

[Source: NFPA](#)



During 2014–2018, local fire departments responded to an average of 970 structure fires per year that began with the ignition of flammable or combustible liquids. These fires caused an estimated average of three civilian deaths, 57 civilian injuries, and \$180 million in direct property damage annually. The fires occurred on manufacturing, industrial, warehouse (including cold storage), and storage tank properties, as based on data from a March 2021 analysis by National Fire Protection Association® (NFPA®) Applied Research.

Ignitable (flammable and combustible) liquids generate vapors that can burn. Baseline fire and explosion prevention requirements for using and storing ignitable (flammable and combustible) liquids are provided in NFPA 30, Flammable and Combustible Liquids Code, and they can help protect people and property from such incidents

**EXAMPLES OF IGNITABLE LIQUIDS**

**Fuels**  
Gasoline, diesel, home heating oil



**Hand Sanitizers**  
Many types contain alcohol



**Coatings**  
Paints, stains, varnishes, and other finishes



**Cooking Oils**  
Peanut oil, olive oil, canola oil

[Click here](#) to see the NFPA Fact Sheet on Ignitable liquids.

## **Wind Turbine Goes Up in Flames**

[Source: Fire Engineering](#)



Firefighters battled a burning wind turbine in Iowa and a secondary fire caused by pieces of flaming debris, according to officials.

The Williamsburg Fire Department, in eastern Iowa, responded to a call at 12:39 a.m. on Oct. 24, the department said in a news release. Minutes later, they arrived at the rural address south of Interstate 80 to find a flaming wind turbine, its head “fully engulfed” by fire.

Williamsburg is roughly 35 miles southwest of Cedar Rapids.

“This type of fire is unique and challenging,” the department said.

Falling debris and the massive turbine blades looming overhead all present additional dangers.

The field surrounding the turbine was also burning, firefighters said.

Firefighters secured the area and went to work extinguishing the flames.

With the fires put out, MidAmerican Energy workers showed up to the scene and “took over operations of the wind turbine” at 3:01 a.m., the department said.

Nobody was hurt during the incident.

## **Multiple OK Departments Respond to Massive Hand Sanitizer Facility Fire**

[Source: Fire Engineering](#)

According to a report from News9, multiple Grady County, Oklahoma, fire departments responded to a massive commercial fire fueled by expired hand sanitizer Wednesday in Chickasha. The fire represents the third storage site in the area to be destroyed by fire in recent months.

Once again, Department of Environmental Quality (DEQ) and OSBI investigators were on site, which is one of three locations now under investigation after two fires struck other facilities on August 7 and August 11. The DEQ said Wednesday’s site stored approximately 1,500 to 2,000 pallets of expired alcohol.

To stop the alcohol from running into a nearby creek, firefighters said they were going to let the fire burn itself out.

The Office of the State Fire Marshal and OSBI are now investigating the incidents.



Click on picture for video.

**California wildfires wiped out nearly 20 years of greenhouse gas emission reductions – in 2020, alone**

[Source: USA Today](#)

California's catastrophic wildfires in 2020 put twice as much greenhouse gas emissions into the air as the state's reductions in those same gases over nearly 20 years – erasing gains going back to 2003, according to a new study.



It's part of a positive feedback loop that's very negative, say the researchers.

"Climate change is creating conditions conducive to larger wildfires. And the wildfires are adding to the greenhouse gases that cause climate change," said lead author Michael Jerrett, a professor in the Department of Environmental Health Sciences at the University of California, Los Angeles.



The historic megafires of 2020 released an estimated 127 million metric tons of carbon dioxide into the air. That compares to the 65 million metric tons of greenhouse gas emissions California was able to reduce between 2003 and 2019, the study, published in this month's edition of the journal Environmental Pollution, showed.

For the complete article, [click here](#):

**The Windsor Castle fire: 25 facts**

[Source: The History Press](#)



On 20 November 1992, Windsor Castle, the largest inhabited castle in Europe and one of the official residences of Queen Elizabeth II, suffered extensive damage in a huge fire.

The fire began in the Queen's private chapel at around 11:30 a.m. and the blaze quickly spread to the neighbouring Brunswick Tower, St George's Hall banqueting space and the private apartments in the eastern wing of the building. The main fire burned for almost 12 hours, causing severe damage and making headline news across the world.

1. The fire began in the Queen's Private Chapel where it is believed a 1,000-watt spotlight being used by renovators overheated and ignited a curtain pressed up against it.
2. Due to a lack of firebreaks and fire-stopping materials in cavities and roof voids, the blaze spread quickly into Brunswick Tower, St George's Hall, and into the private apartments in the eastern wing of the building.
3. Castle staff and soldiers, helped by Prince Andrew, Duke of York who had been working in the castle at the time the fire broke out, formed a human chain in order to try and rescue precious furniture, artworks and antiquities.
4. Fortunately, because rewiring works were being carried out in the areas of the building most affected by the blaze, many valuable paintings and pieces of furniture had already been removed.
5. At the time, Windsor Castle had its own fire department of 20 men, six of whom were full-time. Based in stables two miles south of the castle, they arrived on the scene after only a few minutes, equipped with a Land Rover and pump tender.

For the rest of the article, [click here](#):



## **Join National SFPE**

**Source: SFPE**

Becoming an individual member is the first step to SFPE membership and is the Society's most popular membership level. Individual membership includes any person who supports the goals and objectives of the Society, regardless of educational and professional background.

Membership starts immediately upon completing the online membership application and submission of \$225 USD (less than \$20 per month!) in annual dues.

- Lowest cost continuing education and free PDHs, saving time and money. Examples topics include smoke management, code requirements for elevator fire protection, industrial fire protection, design and planning of water supplies, sprinkler design, dust explosions and more.
- Cutting-edge technical innovations, trends, and resources to be the best. These include FPE Magazine, the Fire Technology Journal, and more.
- Connections and networking that count, providing high impact professional opportunities to network, meet new people, learn and share including online

discussion forums, virtual committees and special interest groups, and more.

- Knowledge-sharing to discuss and solve real time challenges and opportunities vis-à-vis SFPE Connect Online, committees and working groups, webinars and virtual seminars, and events and symposia.
- Discounts on publications, educational programs, and conferences that matter, requiring minimal investment but a high return such as the Fire Protection Engineering Compensation & Benefits Report, and SFPE's Handbook of Fire Protection Engineering.

*If you were previously a student member, please inquire about our new graduate membership, allowing you to pay \$75 per year in membership dues for your first three years after graduation.*

*There is also a Retired Membership. To be eligible for Retired status, individuals in the grade of Fellow, Professional Member or Member a) shall have retired from ALL professional income producing activity AND b) shall have had at least 10 years continuous membership except Student Member immediately preceding the attainment of Retired status AND c) be 67 years of age or older. The retired discount rate is \$75 USD.*

[Click Here](#) for more information.

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# Society of Fire Protection Engineers Central Ohio Chapter

## APPLICATION FOR MEMBERSHIP IN THE CENTRAL OHIO CHAPTER OF SFPE September 2022 – August 2023

NEW

RENEWAL

NAME \_\_\_\_\_

COMPANY \_\_\_\_\_

ADDRESS \_\_\_\_\_

PHONE NUMBER \_\_\_\_\_

E-MAIL ADDRESS \_\_\_\_\_

ARE YOU A NATIONAL MEMBER IN SFPE?     YES     NO

The annual are \$20. The One-Pay option is back for this year. For \$108, you get you annual dues and 5 chapter meetings. The MCACO meeting is not included. You must pay the full \$108.00 with this membership application or renewal to take advantage of this new program. Membership in the Chapter includes the member fee for meetings, and a subscription to *The Fire Bucket*, our Chapter's Newsletter

You can pay your annual dues on our Chapter On-Line Payment Center. This secure site is operated by Square. Click here to go to the site.

<https://sfpe-centralohio.square.site/>

The site works in Chrome, Edge and on Iphones. It does not work on Internet Explorer

PLEASE MAIL APPLICATION TO:    John C. Falk, Sr.  
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Please make check payable to *Central Ohio Chapter, SFPE*.

Applications can be submitted at the next meeting. Please complete a new application every year, so we can keep our database current. Dues run from September 1<sup>st</sup> to August 31<sup>st</sup> of each calendar year.