

## DECEMBER MEETING

DATE: MONDAY DECEMBER 11, 2017

LOCATION:

GREAT AMERICAN PUB

123 FAYETTE ST,

CONSHOHOCKEN, PA 19428

TIME:

5:30 FELLOWSHIP TIME

6:00 DINNER

DINNER PROGRAM:

THIS MONTH'S SPEAKER WILL BE MARK HOPKINS. MARK IS THE DIRECTOR OF TRAINING FOR THE NFSA. MARK WILL BE PRESENTING HOT TOPICS CURRENTLY IN THE FIRE SPRINKLER INDUSTRY.

COST: \$30.00 FOR DINNER AND PROGRAM

RESERVATIONS BY: 12:00 NOON FRIDAY DECEMBER 8, 2017

PLEASE RSVP WITH:

JERRY FORSTATER

jif@profsyseng.com



## PRESENTER BIOGRAPHY

**Mark Hopkins, P.E.** – is Vice President of Engineering for the National Fire Sprinkler Association (NFSA). Mark has both a Bachelor of Science Degree and a Master of Science Degree in Fire Protection Engineering from the University of Maryland College Park. Mark has experience as a sprinkler fitter, designer and engineer. Mark is a member of the Society of Fire Protection Engineers (SFPE), the National Association of Corrosion Engineers (NACE) and the National Fire Protection Association (NFPA). Mark currently serves as a member on multiple NFPA Technical Committees including NFPA 13, NFPA 25, NFPA 101, NFPA 232, NFPA 909, NFPA 914 and NFPA 5000.

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## *PRESIDENT'S SPARK*

### President's Message

December 2017 Flashpoint

Every year it seems we hear stories about home fires during the holidays due to some preventable accident. Whether it's a rogue pet knocking over a candle, inattentiveness to potential hazards, or just plain carelessness, nothing will ruin the spirit of the holidays quicker than an unwanted fire. Here are some random thoughts on fire safety for the holiday season. Please share these and other fire safe practices with your family, friends, and neighbors this season. Enjoy the warmth of the season in safety.

- Keep Christmas trees watered. Don't let the basin go dry.
- Exercise care in the use of electricity. Don't overload electrical circuits, use appropriate fuses, replace lights and extension cords when they become frayed or cracked.
- Keep a clear distance of at least 12 inches around candles. Extinguish any unattended candle.
- Space heaters need space. Every winter, we read about fatal fires attributed to improper use of a space heater. Never use kerosene heaters indoors and give electric heaters plenty of clearance from clothes or furniture.
- Shut off all lights when you retire for the evening.
- Plan for escape from your home. Practice EDITH (Exit Drills In The Home). "Yea, yea, I know how to get my family out in case of a fire." Don't wait for the real thing to learn that you really don't know.
- Sleep with bedroom doors closed. In case of a fire this may give more time for escape.
- Install and maintain smoke detectors in accordance with NFPA 72.
- Buy children's sleepware that meets federal flammability standards. Don't wear or allow children to wear loose frilly garments if there is any chance at all of accidental contact with a stove or other source of fire.
- Smokers need watchers. Never smoke in bed or late at night when you're tired and comfortable in the Laz-E-Boy. It's a recipe for disaster. If you live with a smoker, make sure they know this too.
- Keep matches and lighters away from children. Don't give children the opportunity to explore their fascination with fire in a closet. Keep tight controls on these tools.
- Invest in fire extinguishers and escape ladders for your home. Know how to use them.

Wishing you a fire safe holiday season,

Jeff LaSalle



## ENGINEERS WEEK 2018

Engineers Week in the Delaware Valley will be celebrated from February 16-24, 2018. This will be our 66th year (!) of celebration of Engineers Week locally.

Planning is underway for the three events that Delaware Valley Engineers Week will conduct; the Kickoff Luncheon (Friday, February 16), the Young Engineers Social and the Awards Reception. More information will be provided on this as it is finalized.

The 2018 Sponsorship Brochure is now available on our website ([www.dvewc.org](http://www.dvewc.org)). We are hopeful that you can consider a donation to E Week.

Nominations for the various Engineers Week awards are now open and forms/information are available on our website ([www.dvewc.org](http://www.dvewc.org)). We would ask engineering and technical societies to begin consideration of nominations for the Delaware Valley Young Engineer of the Year in particular.

We look forward to nominations for all these and all E Week awards from our partner societies to help make E Week the success it has been.

TRIVIA:

WHAT WAS THE  
ORIGINAL NAME  
OF THE  
PHILADELPHIA  
PHILLIES?



Engineers' Club of Philadelphia  
Founded in 1877

## ANNUAL MULTISOCIETY MEETING

The Engineers' Club of Philadelphia annual Multi-Society Meeting will be conducted on **Friday, December 8**, starting at **1:00 PM**, at the **Sheraton Philadelphia Society Hill Hotel**, 1 Dock Street (near 2nd and Walnut Streets).

The topic will be "Begin with the Past: Building the National Museum of African-American History & Culture," part of the Smithsonian Institution, which opened earlier this year in Washington, D.C.

Please see the attached [flyer](#) for more details. RSVP's will be due December 4.

If your society would like to be a co-sponsor of this event, please advise us at [contact@engrclub.org](mailto:contact@engrclub.org).



Solar panel arrays are now ubiquitous for gathering sunlight and converting electromagnetic radiation into energy. But this is not a simple task. Basically, the sunlight must convert photon energy – photons – onto large plates which convert into bundles of electricity in a direct current mode. This must then be converted to alternating current through inverters. This is where conversion get tricky, and we'll come back to this at the end of the story. To continue, NFPA requires that there be fused disconnect at each location. This is no different than air-conditioning starter motors, spas, and outdoor pumps. It makes complete sense. Stop the power where a short-circuit occurs or where the local live system needs shutdown.

Now comes the risk part of the story and, unfortunately, this is real and local to Philadelphia. A major corporate center had a large office building and decided to go green. It was part of their social promise. Unfortunately, keeping this social promise undermined business continuity directly due to improper fire and emergency response procedures that were never tested or acted upon within the emergency procedure response

plan by first responders nor the owner.

So, here's the unfortunate outcome of the story. Let's start with a flat roof, membrane style, and the roof is completely covered with solar panels, fused disconnects, and the soon-to-be-famous inverters. Not to mention conduits running all over the place.

A fire breaks out in one of the electrical systems after the fused disconnect. The fire burns for over 15 minutes until fire service comes, at which point the roof is fully engaged around the area fire and is burning through the membrane roof and into the structure below, into the interstitial space, and into the protected areas. I think you know where this might be going.

The fire service, sensing imminent danger to first responders on the roof, decides to turn off all main power to the building. Yep. They got the electrical service disconnected from the entire building and site. The fire burns through the roof while fire service attempts to mount suppression proving not only inadequate, but insurmountable.

No power; no fire pump. No fire pump; no water. No water; no suppression. No suppression; yikes, a catastrophe.

Inverters are generally only 50% efficient because they have to cycle through the DC power and rectified by making the power a sinusoid. You can do this a number of ways. One way is to convert multiple square waves of DC and combine them into one clean sinusoidal wave, or have one massive rectifier, that blows out significant heat as a by-product. Whenever one of these two methods goes awry, the heat buildup is caused by DC flowing where AC should be. Heat, oxygen, and readily accessible fuel from plastics, silicon, circuit boards, and conductors make a great combination for combustion, which is exactly what happened.

This is a multi-million-dollar lawsuit with subrogation claims going to the fire alarm contractor, the solar system contractor, the engineer, the fire department, and yes, you got it, the deep pockets of the roof manufacturer.

And you know, it's the roof manufacturer with the deepest pockets who had nothing to do with the installation and who strenuously avoids any loads, penetrations, and especially solar systems on roofs.

So, the moral to this story? Think fire protection and fire service. The two are inseparable. Just like good engineering and property/life safety.

*Jerry 'Dutch' Forstater, PE, PSP, CET, is CEO/Managing Principal of PSE, a planning, design, and project management firm with over 35 years in code studies, life safety analysis, annual fire door/gate inspections, conditions reports, wet-pipe/dry-pipe/pre-action sprinkler systems, clean agent suppression, fire detection and notification, etc. You can contact 'Dutch' at 800.839.5060 x107 or by email @ [Jerry 'Dutch' Forstater](mailto:Jerry 'Dutch' Forstater)*

# DECEMBER 2017

SUN	MON	TUE	WED	THU	FRI	SAT
					1	2
3	4	5	6 NJ ASCET MEETING	7	8	9
10	11 PHILA-DEL VAL SFPE MEETING	12 HANUKKAH START	13	14	15	16
17	18	19 BERKS COUNTY ASCET MEETING	20 DELAWARE ASCET MEETING	21	22	23
24	25 CHRISTMAS	26	27	28	29	30
31 NEW YEARS EVE						

## *Inside Story Headline*

DECEMBER 6: NJ ASCET MEETING

DECEMBER 11: PHILADELPHIA-DELAWARE-VALLEY SFPE MEETING

DECEMBER 12: HANUKKAH START

DECEMBER 19: BERKS COUNTY ASCET MEETING

DECEMBER 20: DELAWARE ASCET METTING

DECEMBER 25: CHRISTMAS EVE

DECEMBER 31: NEW YEARS EVE



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**Society of Fire  
Protection  
Engineers**

We're on the web at  
[www.sfpephiladelphia.org](http://www.sfpephiladelphia.org)

*MISSION STATEMENT*

*The Philadelphia/Delaware Valley Chapter purpose is to advance the science and practice of fire protection engineering and its allied fields, to maintain a high ethical standard among its members and to foster fire protection engineering education.*

*Recognition of fire protection engineering as a discrete engineering discipline is a prime goal. Engineering disciplines exist because there is a special body of knowledge based on the fundamentals of mathematics, physics, chemistry, engineering science and economics.*

*The chapter strives to facilitate sharing of sound engineering experiences and knowledge between its members and the fire protection community in general with an active program of education and scholarship activities.*

**TRIVIA ANSWER:**

From 1883-1889 they were known as the Quakers.