

DEC. MEETING AGENDA

DATE:

TUESDAY, DECEMBER 11, 2018

WHERE: OFFSITE

Lawrence Technological University's
Taubman Engineering, Architectural and
Life Sciences Complex (maps on back page)

AGENDA:

11:30 PM - 12:00 PM - LUNCH

Lunch and Vendor Table Top

12:00 - 1:00 PM - PANEL DISCUSSION

*Plumbing Design Coordination and
Constructability*

Moderator: Kari Rosteck

Panelists: Pam Hartsell, Steve Lodge and
Alfred Culbreath

REGISTRATION REQUIRED

Registration link: <https://www.eventbrite.com/e/aspe-emc-december-2018-technical-program-tickets-51103362533>

SEE INSIDE COVER FOR TABLE OF CONTENTS

Cost: ASPE, ASSE, MBPA Mbrs: NC
Non-members: \$20.00 FOR CLASS

From Theresa Card, P.E., CPD, LEED AP BD+C, GGP, President of ASPE EMC



Hello from your EMC President

I trust everyone had a good Thanksgiving Holiday and had their fill of turkey, pie and football. Thanks to everyone who came out to November's meeting on Steam Traps and Fire Protection. Judging from the evaluation responses – I think we will try and do more than one session on Fire Protection next program year. Please remember to RSVP for our meetings, it not only helps us give an accurate head count to the caterer, but

also ensures we can contact you with important information about the session beforehand, like to email out the session handouts that are too large for us to print for everyone.

Next up: ASPE needs you! All of the Standing Committees are looking for volunteers to join their group. No matter what your interests in the plumbing world, there is a Standing Committee that I know we would benefit from you being a part of. You can find a list of all the committees below as well as here: <https://aspe.org/content/committees>. If you would like to make a difference and help represent Eastern Michigan at the national level, please consider filling out an application today! The application can also be found at the link above. Don't be scared of the time commitment; many of your current Board members are also members of one (or more!) Standing Committees and if you are curious about what this volunteer effort entails, please reach out to me and I will find someone to tell you all about it. I, personally, am on the Credentialing Committee and although it means I can't help you study for the CPD or CPDT exams - I find it very rewarding to put forth my time to help ensure both these programs are a success and fair.

THESE COMMITTEES NEED YOU!

- Bylaws
- Credentialing
- Education
- Finance
- Legislative
- Long-Range Planning
- Membership
- Nominating

Continued on page 2

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REACH OUT TO OUR NEW MEMBERS AND SPONSORS!

ASPE EMC BOARD MEETING

Wednesday, December 5, 2018 from 4:30 PM to 6:00 PM
 @ Strategic Energy Solutions in Berkley.
 Hope to see you there! Please RSVP so we know if we will have quorum. We hope you can make it!

ASSE ANNUAL BANQUET - SAVE THE DATE

To take place on January 26th, 2019.
 More info to follow

NASPE RACE - SAVE THE DATE

To take place at the March 12th meeting in 2019.
 More info to follow

CPDT AND CPD EXAM AND REGISTRATION

2018 CPDT exam registration deadline has passed.
 2019 CPD exam will take place April 4th and 5th and registration will open in December.

HITS 2019 - SAVE THE DATE

To take place in Buffalo, NY in August, 2019.
 More info to follow

ASPE IS ACCEPTING APPLICATIONS FOR THE ALFRED STEELE SCHOLARSHIP

This scholarship is limited to ASPE members and their immediate families who have a GPA of 3.0 or higher, who are enrolled in or plan to enroll in an engineering program at a college, university, or technical school on a full-time basis. Contact Stacey Kidd for more information at (847) 296-0002, or email skidd@aspe.org

President's Report (cont. from page 1)
 Theresa Card, P.E., CPD, LEED AP BD+C, GGP

- Publication and PEDH
- Technical and Research
- Design Standards

Another reminder about the Alfred Steele Scholarship: it is a great way to get some extra cash for school! Go to <https://aspe.org/SteeleScholarship>. It is open to all ASPE members and their immediate families. So come get some funding, don't delay!

It's never too early to start planning something for the 2019 Engineer's Week! Next year those of us in the Engineering profession will be celebrated February 17th -23rd. This is a great time to educate young people in college, high school or those even younger about what we do and why it is important to society. You can find more information: <http://www.discovere.org/our-programs/engineers-week>

See you all in December for a great LUNCH meeting that I hope all will enjoy. If we don't see you then – have a very Happy Holiday Season!

Theresa Card, PE, CPD, GPD

allethe@gmail.com

tcard@sesnet.com

SAVE THE DATE
ASSE Annual Meeting and Banquet. It is on 1/26/19
 Due date for table registrations will be in early January - more info to follow

SAVE THE DATE
NASPE RACE
3/12/19

SAVE THE DATE
HITS 2019 - Buffalo, NY
 Healthcare Infection Transmission System (HITS)
8/6-8/2019

DECEMBER PROGRAM - OFFSITE JOINT MEETING WITH ASPE AND AIA

Lawrence Technological University's Taubman Engineering, Architectural and Life Sciences Complex Room T210 "The Gallery" - on the main floor of the Taubman building, which is off of Northwestern Highway, by Parking lot E. (address and map on back page of this newsletter and on ASPE EMC website)

TOPIC: Panel Discussion on Plumbing Design Coordination and Constructability

MODERATOR:



Kari Rosteck
Field Engineer at
Horizon Engineering

PANELISTS:



Pam Hartsell
Senior Plumbing
Designer at SES



Steve Lodge
Head of
Architecture at
SGJR



Alfred Culbreath
Maintenance
Supervisor at
University of
Michigan

In this joint program between AIA and ASPE we hope to uncover the questions many of us ask when it comes to plumbing coordination in building design. The series of experts will touch on topics regarding team efficiencies, increasing building performance, and how to go after the LEED Integrative Process Credit.

11:30 PM - 12:00 PM Lunch & Vendor Table Top

12:00 PM - 01:00 PM Panel Discussion on Plumbing Design Coordination and Constructability

Kari Rosteck is Field Engineer at Horizon Engineering and is Young Professional Liaison of the ASPE Eastern Michigan Chapter.

Pam Hartsell is a Senior Mechanical/Electrical Designer and Project Manager at Strategic Energy Solutions in Berkley, MI. With a background in management and nearly 30 years of design experience, Pam is responsible for leading engineering teams through the design and construction process. She has experience with a wide variety of project types including commercial, healthcare, food service and multi-

tenant residential. Pam is Certified in Plumbing Design through ASPE and has served on the ASPE EMC Board of Directors for the past 7 years. Pam is also a member of the Engineering Society of Detroit, the World Plumbing Council and the Project Management Institute.

Steve Lodge is an experienced architect that has delivered consistent results to several municipal and education clients over the last 30 years. As the Director of Architecture for SmithGroup's Detroit office, Steve has extensive skills in managing projects and producing construc-

tion documents as well as being the primary contact to clients. His proven track record includes extensive experience with complex spaces, with specialization in gymnasiums, natatoriums, music rooms, and specialty classrooms. In addition, Steve is an active mentor through the AIA and has a keen interest in training and mentoring younger staff in the various aspects of the architectural profession.

Alfred Culbreath - See AYP Liaison Report on page 9 for an interview with Al.

IN THE KNOW

CONGRATULATIONS

to

Bill Grayzar who has obtained his GPD!

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ASPE Mentoring Program

The Women of ASPE are excited to introduce ASPE's new Mentoring Program!

This program, which is available to all members of the Society, has been designed to connect ASPE members who have a particular skill set (mentor) with individuals (mentee) who are searching to acquire the same skills to develop and make progress toward their personal and professional goals.

Who Is a Mentor?

A mentor is someone who can help the mentee develop skills for success and long-range career planning, is able to be a good listener, is willing to share experiences and views, is willing to commit time and effort, provides an "open door" to questions and problems, points out both strengths and opportunities for improvement, and has a vested interest in the growth and development of their mentee.

Benefits to the mentor:

- Satisfaction in helping someone mature, progress, and achieve goals
- Meeting and sharing experiences with other mentors
- Personal ongoing support to help the mentee succeed
- Personal fulfillment through contribution to the Society and the individual

Who Is a Mentee?

Having a mentor can contribute to a successful and satisfying career. Without a mentor, that learning occurs mostly through trial and error. With a mentor, even experienced professionals can benefit from the experiences and expertise of someone who has withstood the trial and can help the mentee avoid the mistakes. Similarly, those new to the industry will discover that being a mentee shortens the learning curve for acquiring the skills and knowledge most critical to a fruitful career.

Benefits to the mentee:

- Discover new talents about yourself
- Career satisfaction
- Expand your personal network
- Maximize your strengths

aspe.org/aspe-mentoring-program



VP Technical Report

Mark Lamberson, CPD



I cannot believe it is December already! I must have said this a hundred times now. From the time that the kids went back to school until now has flown by seemingly faster than any time in my memory. Now the turkey has been carved and we are rounding the corner on a New Year, and all of the activities that lead up to it.

Because of the blistering pace this fall, I left a number of winterization projects undone, and will be paying the price for sure. Because of this, I thought I would put a couple of them in my article to hopefully spark a reminder and save someone from an expensive repair in the spring.

First, put the hose away! Leaving the garden hose connected to an outside faucet will cause the hose and hose bibb to stay full of water, especially if you have a nozzle attached to the end of it. That little atmospheric vacuum breaker on the hose bibb doesn't work properly when a valve is downstream of it, and is probably going to be the first part to be damaged when the water inside freezes. Remove the hose and drain the water out of it so that it is good to go in the spring. Then, make sure the valve is turned off to the hose bibb and open it to drain any water that is trapped inside. If you don't have a frost free hose bibb, you should make a point to install one. They are a very good safeguard against property damage from freezing and are not that hard to install... famous last words. Pitch the hose bibb down towards the outside of the building to allow proper drainage. Also, a valve is required by code to isolate every hose bibb or wall hydrant.

In the spring, damage to a frost free hose bibb is usually identified when it is turned on and a stream of water starts pouring down the interior wall of the house. This means that the fixture froze and split downstream of the internal valve, so when it is turned on, the water pours out of the split. Time to remove it and install a new one.

Next, winterize your irrigation system. Obviously, leaving water in it will cause freezes and breaks all over the yard that will be difficult to find. Hopefully they don't happen inside a valve box, or at another hard-to-get-to location. Besides the irrigation piping, there should be a backflow preventer on the exterior wall of the building protecting the potable water system from your favorite lawn chemicals. If the water isn't blown out of this valve, you can expect it to freeze and crack. You can also expect to pay a lot of money to replace it in the spring. While we are on the subject, and no matter what Lansing has to say about testing these devices, they are there to protect your family from the latest crab-grass killer, so it is a good idea to have them tested periodically to make sure they are working properly; every year or two is highly recommended.

I was out of town when the November Meeting occurred. Thanks to everyone that picked up my slack. I definitely

wanted to be present for the sessions. For this month's article, I am including the highlights that were given to me by the other board members that were present.

The design session was on Steam Traps. The main types of steam traps are thermostatic, thermodisc, float and thermostatic, and inverted bucket. Each of these has its strengths and weaknesses depending on the system and application, like pressure and efficiency, for example.

All steam traps require maintenance. There is no visual identifier to tell the facilities manager that a trap has failed, but there are commercially available monitoring systems that can help. Without the use of a monitoring system, the traps need to be inspected and cleaned. This should be done in the off season, if possible.

The piping arrangement at the steam trap should be designed in accordance with the requirements for the trap in mind. For example, thermostatic traps require 5 feet of discharge piping between the equipment and the trap to allow the condensate to "subcool." The various requirements of traps can dramatically affect the placement of equipment to keep coils free of condensate and allow proper operation of the traps.

Finally, lifting condensate with steam pressure can create issues within the system. For example, never lift condensate in a modulating application. Use a condensate pump and vent it to atmosphere.

Next in the lineup was Ray Parham, P.E. and his presentation on Fire Protection for Storage Applications. Here are the highlights.

There are three main types of storage sprinklers: ESFR, CMDA and CMSA. Only ESFR is designed to extinguish a fire – the other two are meant to control the fire.

The designer needs to understand the owner's intent; what they are storing, what it will be stored in/what type of pallet, how high the building is, and how high the storage will be. Most new warehouses are specified with a 25 feet maximum storage height with ESFR sprinklers, which allows the most flexibility, except for flammable liquid storage. If you have solid shelves or solid pallets, though, ESFR is not the answer.

The designer also needs to understand the requirements of the insurance underwriter. For example, some require two sources of water for storage applications.

The designer must also be very adept at understanding various obstruction types, and the requirements surrounding them for proper fire protection. To see the effects of some obstructions, check out the video at the link below.

<https://www.youtube.com/watch?v=6KMUPAn8KxY>

Ray Parham wrapped up the night with "Fire Protection Shop Drawing Review." Here are the highlights of the session.

On bid documents, Designers should communicate special items

Continued on page 7

VP Tech's Report (cont. from page 6)

Mark Lamberson, CPD

to the Contractor, like architectural cloud ceilings, perforated ceilings, etc. It is the Designer's job to give the Contractors proper documentation so they can provide competitive bids to the Owner.

Designers shouldn't review the shop drawings without having all of the submittals for product data, shop drawings, and hydraulic calculations. Ray also recommended that all designers perform one hydraulic calculation by hand once in their career to understand what the design programs are calculating.

When reviewing Product Data, be sure to check the manufacturers provided are listed in the specification and that the product itself meets the specifications, like pipe types and fittings allowed. Does your system require high pressure rated products? Be sure they mark what is to be provided, especially where the submittal contains multiple choices.

On the Shop Drawings, there are many things to check but some items include checking for the correct remote area, check the nodes against the calculations, be sure they have been coordinated with lighting and diffusers, and that special ceiling circumstances have been considered.

On the Hydraulic Calculations, check the sprinkler layout and make sure the data is consistent with the Product Data and Shop Drawings. Make sure the node to node pathway and water supply flow test data is correct. Do a quick flow check using your densities. Make sure on water supply vs. demand curve that the hose allowance has been accounted for. Finally, is the safety factor enough to satisfy the requirements of your company or the AHJ? NFPA does not require a safety factor, but many AHJs like to see 10 psi or 10%, whichever is less.

Remote areas can be increased (dry pipe, sloped ceilings) or decreased (quick response heads) per code. Be sure you understand when and where these provisions take place. Remote areas also have different requirements when a gridded system versus a tree system is utilized.

You are not the AHJ, but you are the Engineer of Record. It is in your best interest to properly review the Fire Protection submittals even though it is a delegated design. In some states, like TX and FL, you are required to verify that the submittal conforms to your design criteria.

In closing, December's meeting will be held on December 11th, 2018, at Lawrence Technological University. The specifics for the location and lunch choices are in our Eventbrite invitation. If you have any questions or concerns, or if you are not receiving our invitations, please feel free to contact me.

Thank you!

Affiliate Liaison Report

Dann Holmes, ASPE Region 2



The Holidays are upon us, let us give thanks

It is that time of year when we reflect on just how much we have to be thankful for. We give thanks for our families, friends, military, police, fire, all first responders, our professional career and employers.

I'm almost tempted to add our government officials to this list but I'm going to reserve my thanks until the politicians, mostly Federal, State and Provincial realize they are supposed to serve the citizens of our great nations' best interest over their own.

We have to be grateful for the roofs over our heads and the indoor environments we can control with the turn of a dial. When we need some heat we turn up the thermostat. If you're too warm, we adjust the temperatures down. Of course, there is an app for that to make things simpler.

When we want a drink of fresh, clean, potable water we just walk over to the nearest faucet or drinking fountain. Or we reach for a bottled water. Rarely do we give such common luxuries second thought.

Travel around the world and see how quickly things we take for granted here in the USA and Canada change. Are you going to fill up a glass of water from any tap? Maybe the first day, probably not after that, especially if you're suffering from stomach cramps and intestinal "irregularities".

So as you take a look around the room you're sitting in right now, consider yourself truly blessed and let's continue to find ways to spread what we have learned delivering clean, potable water to our friends and neighbors in North America to everyone around the globe. If we can get help from the self-absorbed politicians that don't ask "what's in it for them before they act" then I'll be the first in line to thank them too. I won't hold my breath.

Dann Holmes – ASPE Region 2 Affiliate Liaison

NSF International – Building Water Health

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<http://aspe.org/Pipeline>

VP Legislative Report

William Grayzar, CPD



I hope you enjoyed a great Thanksgiving with family and friends and are preparing for the Christmas Holidays and possibly some much needed time off. If you have time off over the holidays it would be a great time to design and build your race car for the upcoming NASPE Race being held at the Training Center following the March 12, 2019 ASPE Design and Technical Sessions.

For those of you who do not know what a NASPE Race is, it is a Pinewood Derby Car race developed by the Eastern Michigan Chapter of ASPE to celebrate World Plumbing Day. World Plumbing Day is celebrated on March 11th every year. World Plumbing Day is an international event initiated by the World Plumbing Council that recognizes the important role plumbing plays in our health and safety.

This is a chance to show off your technical skills and possibly win a trophy, prize or just some additional recognition for you and/or your company. **Look for the NASPE RACE flyer in this and upcoming newsletters.** The flyer will contain the Codes and Standards (rules) for car construction.

Car kits are available for free to ASPE members. Just ask any of the Eastern Michigan Chapter Board members if you need a car kit. Kits will be available at the December, January and February chapter meetings.

I want to thank those members that have participated in the past and look forward to their participation again in 2019. One of our past racers was named "The Drop" this was simply a car with a sticker of a big drop of water on top of the car. Thinking about this car always makes me wonder, how much is lost from a dripping or leaking faucet?

If we consider a leaky faucet drops a *drip* of water every 5 seconds, that's 12 *drips* per minute, which equates to 720 *drips* in an hour, and 17,280 *drips* per day, and 120,960 *drips* per week, and 6,307,200 *drips* per year. According to a scientific investigation, a small *drip* has a volume of about 1/4 of a milliliter. It is estimated that there are about 4,000 *drips* of water in a liter. Using a conversion from liters to gallons there are about 15,100 *drips* in a gallon of water. This indicates that our one leaky faucet wastes approximately 1.1 gallons of water per day, 8.0 gallons per week, and 417.7 gallons per year. This may not seem like a lot of water, but remember this is just one faucet. If we consider there might be 10,000 leaky faucets in Michigan at any given time that number jumps to 4,177,000 gallons of water wasted by Michigan residences in one year. What if we applied this number as an average to the fifty states? This would equate to 208,850,000 gallons of wasted water from dripping faucets in the United States alone annually. What if the *drip* rate was 2 seconds in lieu of 5seconds? The water wasted annually in the United States would jump to 522,125,000 gallons. Please remember these are just estimates using rough numbers and quick math. However, it does indicate that if everyone simply fixed a dripping faucet, the overall impact on water savings could be substantial.

This was just a little food for thought to get you thinking about World Plumbing Day and water conservation. Hope to see you at the Monthly ASPE meeting and at the NASPE Races in March.

Warmest wishes for a very Merry Christmas and a Happy New Year!

Bill

CODE BOOK ORDER FORM

Please use the most current book order form from the Code Study & Development Group found in this newsletter. Contact Mr. Dann Holmes with questions at dholmes@nsf.org or (734) 214-6222

TABLE TOP SPONSORSHIP PRICING

ASPE Members

- \$150.00 for the 1st table per meeting/per vendor
- \$100.00 for each additional table per meeting/per vendor

Non-Members

- \$200.00 for the 1st table per meeting/per vendor
- \$150.00 for each additional table meeting/per vendor

If a vendor purchases table tops for 3 meetings during the year, a 4th meeting table top will be provided for free.



AYP Liaison

Kari Rosteck



The 'Day in the Life' series continues as we get to know another member of the Eastern Michigan ASPE Chapter! I am always excited to interview members of our group, so we can familiarize ourselves with all the unique jobs, roles and career paths in the plumbing industry.

This month, I have asked **Alfred Culbreath, a Maintenance Supervisor at University of Michigan** to answer some questions about his daily grind - which truly seems like an impossible feat. Al is also going to be one of the panelists at our December 11th program on Coordination and Constructability at LTU. I hope this interview gives a little more background on his perspective for the panel discussion. I hope to see you all there!

Q: What was your first job out of College?

A: I started into the plumbing apprenticeship after high school and went to Washtenaw Community College while going through the apprenticeship program and my first job was at DC Cook Nuclear Power Plant, Bridgeman, MI.

Q: What kind of buildings have you worked with?

A: I have worked on Banks, Industrial Factories, Educational Buildings, Wastewater Plants and Nuclear Power Plants.

Q: What is your day to day schedule like?

A: Up at 4:20am daily and at work by 6:15 am and my day doesn't end till about 6 pm. When I'm doing on call for work my phone & pager is on 24/7 a week at a time.

Q: What resources do you find most useful today?

A: I use blueprints on my computer a lot to look up room locations for problems and shutdowns, Med Gas piping diagrams. Internet to look up manufacture diagrams & parts listing.

Q: When you started your career, what was your method of learning all the new information? How did you keep track of it all?

A: When I started everything came from books and from the experience from the journeyman you worked with and for. Vendor catalogs were a resource, also.

Q: If you're brave – what was a design mistake you made and will never forget?

A: Being on the installation side of the industry was not involved with design very much, but I did make mistakes while coming through the trades. Don't be afraid to own up to your mistakes if you make one and you won't make the same one again.

Q: What was the most exciting project you worked on? Why?

A: It was DC Cook Nuclear Power Plant, working on the plant while under construction and over the years seeing it under operation and having pride in the work I had accomplished. Having followed blueprints and design changes to installing piping & hangers that I designed while working at the site. Was able to do the same at Fermi II Power Plant in Monroe, MI and Monticello Nuclear Plant in Minnesota.

Q: What should our profession be working towards in the future? Is there anything we aren't prepared for?

A: There is a saying, keep your eyes open, look left & right. There will always be something you aren't ready for but face the challenge head on and don't be afraid to ask for help if needed. If you have the opportunity to visit a project you're designing, take it; if you can see what you're designing it gives you a better perspective for that project and future ones.

Q: Do you have any advice for an ASPE Young Professional?

A: Never stop learning, continue your education as the industry keeps changing so does design and installation of materials, some things may seem redundant but that's fine. Keep networking with others, they may have seen a problem you have and have a resolution, or you may be able to help them and there is never a dumb question. If you don't know ask no matter how long you've worked in the industry.

Happy Holidays,

Kari Rosteck, Eastern Michigan AYP Liaison
Kari.rosteck@gmail.com

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GO TO: http://eastern-michigan.aspe.org/PDF/Michigan_Chapter_ASSE_Scholarship_Application_Form.pdf



In celebration of
World Plumbing Day
the EMC-ASPE will be
hosting the following
event at the
March 12th, 2019 meeting:



NASPE racing is a timed race similar to a Pinewood Derby Race utilized in the Cub Scouting Program around the world.

The NASPE Race is themed to celebrate World Plumbing Day.

World Plumbing Day is an international event held every year on March 11 and was initiated by the World Plumbing Council to celebrate the important role plumbing plays in the health and safety of modern society.



EMC-ASPE is encouraging chapter members to design, build and race cars in celebration of World Plumbing Day. A trophies, awards and prizes will be provided at the event. Based on the number of entries prizes will be awarded for:

- Fastest race time 1st, 2nd and 3rd place.
- Best representation for World Plumbing Day
- Best representation of a plumbing product.
- Best representation of a plumbing tool.
- Best green design

EMC-ASPE Board members will serve as Official Judges for the event and William Grayzar chapter V.P. Legislative will serve as the race moderator and official.

OFFICIAL RACE AND ASPE TECHNICAL MEETING:

WHEN: Tuesday, March 13th, 2019.

WHERE: Plumbing Industry Training Center located at 1911 Ring Drive in Troy, Michigan

AGENDA:

- | | |
|---------------------------------|---|
| ➤ Race Registration & Weigh-In: | 4:30 P.M. till 7:00 P.M. |
| ➤ Design Class | 4:30 P.M. till 5:30 PM |
| ➤ Dinner | 5:30 P.M. till 6:00 P.M. |
| ➤ Technical Meeting | 6:00 P.M. till 7:30 P.M. |
| ➤ NASPE Race | 7:30 PM till completion (approx. 8:00 P.M.) |



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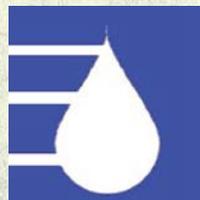
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NOVEMBER'S MEETING STATS

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Theresa Card
Alfred Culbreath
Robert Frey
Rufina Golshteyn
Bill Grayzar
Brianna Hall P.E.
Pamela Hartsell CPD

Joseph Hodur
Dann Holmes
Rick Johnston
Hank Koppelo CPD
John Linton
Anwar Maroki
Larry Mitchell
Sean McIntosh G.E.
Adam Meeker
Michael Melaragni
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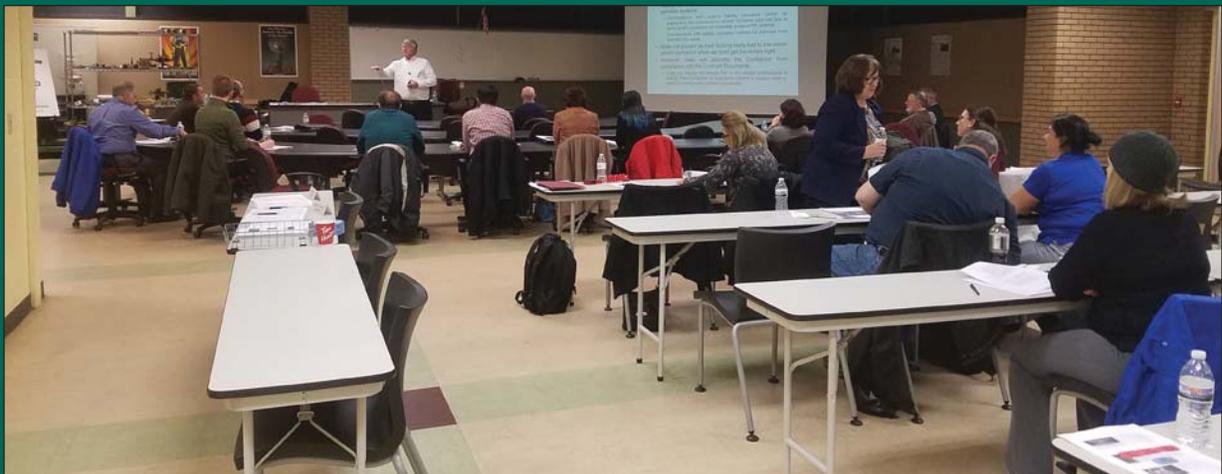
Brenda Pesmark P.E.
Kari Rosteck
Manar Saied
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Kyle Tevault
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NOVEMBER MEETING PHOTOS



Michael Melaragni presents design class on Steam Traps and Components



Raymond Parham, P.E. presents on Fire Protection: Storage Sprinkler Design & Shop Drawings Review



Theresa Card (left) ASPE EMC President presents speaker Raymond Parham, P.E. (right) with the ASPE EMC Certificate of Appreciation

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| Item No. | Description | Price Each* | Order Date |
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| 3200S15MI | 2015 MI Plumbing Code | \$ 82.50 | |
| 3300S15MI | 2015 MI Mechanical Code | \$ 82.50 | PO Number |
| 3000S15MI | 2015 MI Building Code | \$ 139.00 | (If required) |
| 3100S15MI | 2015 MI Residential Code | \$ 125.00 | |
| 3550S15MI | 2015 MI Rehab for Existing Buildings | \$ 90.00 | |
| 3210S15 | 2015 IPC with Commentary | \$ 95.00 | |
| 3310S15 | 2015 IMC with Commentary | \$ 95.00 | |
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| 3610S15 | 2015 IFGC with Commentary | \$ 95.00 | |
| 3200S18 | 2018 IPC without Commentary | \$ 77.00 | |
| 3300S18 | 2018 IMC without Commentary | \$ 73.00 | |
| 3600S18 | 2018 IFGC without Commentary | \$ 73.00 | |

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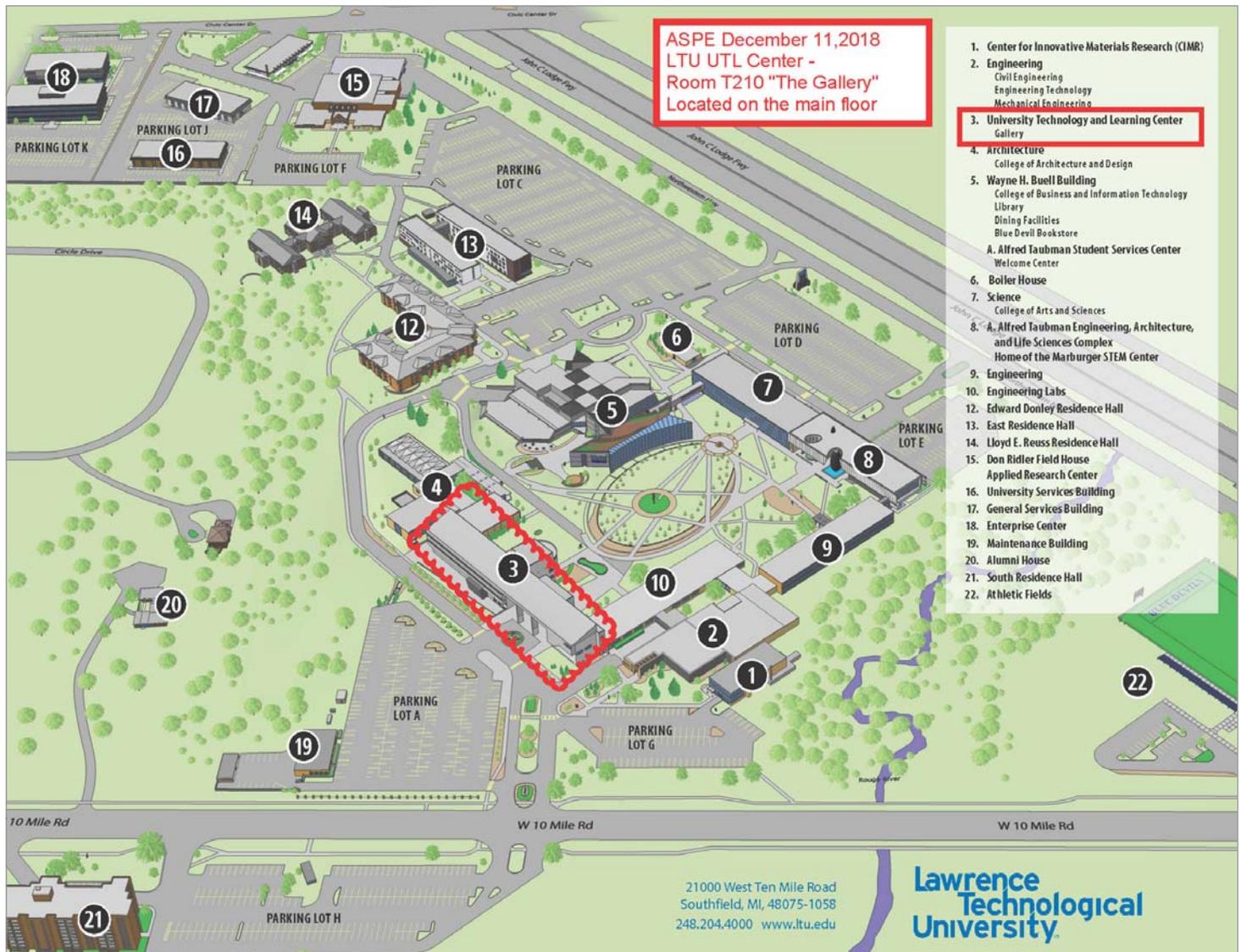
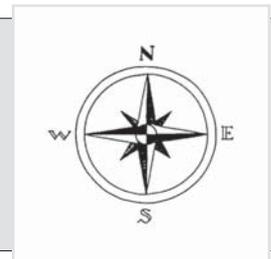
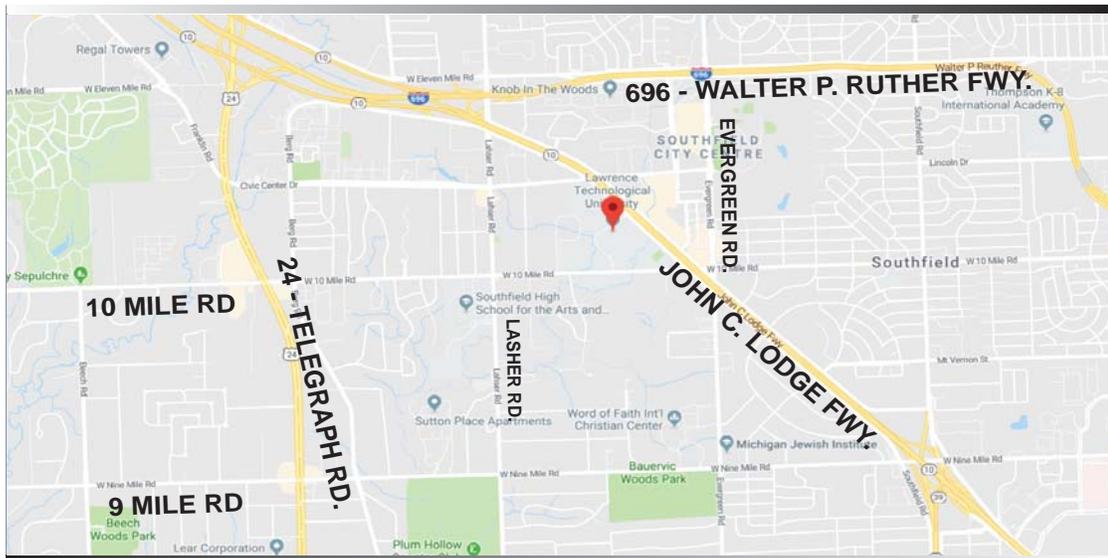


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