The buildings industry is abuzz with talk about “smart buildings” and their promise for improving operational efficiency and occupant comfort while reducing the carbon footprint of buildings. Technology continues to evolve at a rapid pace, automation touches every corner of our lives, and climate concerns continue to grow. Buildings use about 40% of our total energy in the U.S., and it is inevitable that automation to enhance efficiency is expanding into every corner of buildings as well. Building owners and organizational leaders are taking note of the possibilities that smart technologies present, since energy consumption accounts for about 20% of operational costs across most industries. An increased focus on occupant experience and resultant productivity gains is also driving this transformation.

So, what is a smart building? Smart buildings integrate data information and communication technologies to connect previously independent systems together, optimizing operations and whole-building performance. Smart buildings can also communicate with the power grid, which is becoming increasingly important as utilities look for ways to accommodate increasing energy needs and the growing incorporation of distributed energy resources (DER) such as solar and wind energy production.

This evolution toward automation in buildings doesn’t decrease the need for human interaction; buildings will always need operators. But with the changing landscape in building operation, required skill sets are also expanding. Understanding smart technologies and their components, in relation to long-established building science concepts, is key for building operators to maintain their edge in the industry and ensure robust, sustainable career opportunities.

It is also important to understand that the term “smart buildings” doesn’t only apply to the newest, fanciest buildings designed with state-of-the-art technology. Most of our existing building stock consists of aging, inefficient buildings, which provide ripe potential for improvements that can lead to vast savings. Smart technologies and strategies can be applied in any building and can be scaled over time. Because you can’t save what you don’t measure, this starts with paying attention to whole building energy use and benchmarking with free tools like Energy Star Portfolio Manager, which can help identify the energy use profile for the building and specific systems to target for improvement. Portable submetering equipment can be employed short-term to get a snapshot of what is happening with specific systems. This type of equipment is becoming more widely available, often for free, from energy diagnostic tool libraries located in many parts of the country.

As a clearer picture emerges of where the opportunities exist, further movement along the continuum of smart can happen, such as integrating sensors and more advanced control systems. To deepen the impact, systems can begin to be integrated. For example, instead of HVAC controlled by a thermostat located on the wall away from the occupants themselves and separate lighting controls, all these controls can be integrated into the lighting fixture itself (including occupancy and daylighting sensors). This strategy can provide more accurate information for the building control systems to condition and light the spaces that need it, but only when they need it. Smart technologies can also give occupants more control over their immediate environment, resulting in higher productivity.

Analytics, a term for tools that analyze data to create actionable value by detecting patterns, trends, and deviations, can iden-
BOC Grads Making a Difference

**What is your name and title and can you tell us when you attended BOC and a little about your work?**

Mike Durham, Maintenance Mechanic 1 - I attended BOC 1 in 2018. I was owner and mechanic of a car repair shop for 30 years giving me a good background in general mechanics and machines. After closing my business I wanted to find another career in a new field and found my opportunity at Edmonds Community College.

**Where do you work currently and what is your favorite thing about your job?**

Currently I work for Edmonds Community College in Edmonds, WA in the Maintenance Department. I enjoy working with my team, and facing a wide variety of challenges throughout nearly 700,000 sq ft and numerous buildings old and new.

**What energy saving project have you completed since you completed the BOC training?**

I’m overseeing HVAC upgrades including VAV boxes and controls in an older building (1972) with ACM abatement involved. These upgrades with new equipment will make the system more energy-efficient and improve comfort levels in rooms. I look forward to seeing improved quality and consistency of heating and cooling in this building for the comfort of students and staff who use this space.

**Why have you chosen this project?**

I chose this project to be able to work with multiple contractors, meetings, walkthroughs, and time lines as this project needs to be finished over winter break. I’m interested in HVAC work and wanted the experience of seeing a project from planning to completion.

**When was your project started and completed?**

My involvement in the project started in October and is expected to be complete in December, 2019.

**Did your employer encourage BOC training?**

My supervisor Rich Hust encourages continued education and training for all of his staff. BOC is highly encouraged as a way to gain further knowledge and understanding of building operations. Edmonds Community College in the past and now is very proactive in energy efficiency.

**How did the BOC training influence the decision to do an energy efficient project?**

In class I saw examples of energy efficient systems and wanted to apply what I learned at work. Also caring about managing resources in a responsible manner, I wanted to help ensure this project considered efficiency as part of the plan.

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**Where do you work currently and what is your favorite thing about your job?**

I started working for Clearwater County September 10, 2007 as Maintenance Supervisor. We take care of the Courthouse, Jail, Nursing Service, and Human Service. At the time I had experience operating boilers but not much with HVAC systems so I went searching for classes to help me. I came across BOC training and decided it would benefit me and complete my skill set.

**What energy saving project have you completed since you completed the BOC training?**

I worked on an HVAC project at our courthouse and jail which consist of one building made up of 40,000 square feet.

The company that installed our HVAC system recommended we run our boilers year-round, which didn’t make sense to me, so when spring time came around, we shut them down. They are located in the basement and the heat that was let off from them would rise throughout our 3-story building. Our air conditioning would have to come on at 35% to keep the building comfortable. After shutting down the boiler, the chiller didn’t have to kick in until it reached 55 degrees.

We also installed CO2 sensors in our air handlers. We were able to cut down the amount of outside air by a huge amount.

**How did the BOC training influence the decision to do an energy efficient project?**

BOC training has opened my eyes regarding how one saves money on heating and cooling within a building and makes the building more comfortable. It would be a good idea to have mandatory BOC sessions for buildings equal to or greater than 20,000 square feet. The cost of the training pays for itself and then some.

(See Steve’s Accompanied Report data on page 3 see STEVE FALDET).
Q&A with BOC Instructor

How did you become involved with building operations and energy management?
After leaving the military, I was offered a position in commercial real estate in Hawaii. When conducting an assessment of the assets at the buildings, I became aware of the need to conserve and manage energy. To improve the assets and reduce cost would become a priority in the building we managed. Developing standards for Operation and Maintenance of buildings for energy conservation and sustainability quickly followed our goals.

When and how did you hear about BOC?
In 2007 I was President of the Hawaii Building Engineers Association and we were developing our own local teaching subjects. These classes were on subjects related to building Basic Heating, Ventilation and Air conditioning. We also taught and promoted basic electrical safety and basic electrical classes. We were looking for a National certification course to teach in Hawaii. Elizabeth Ramen Ph. D. worked for (DBEDT) Department of business Economic development & tourism told me about the BOC program. I applied for a grant to purchase the course and later decided that the association did not have the man power resources to manage the program. Later I was happy to learn that the University of Hawaii had accepted the program at their outreach college.

Rory Reiley

What is your area of expertise in the field?
I have multiple years of education in engineering followed by practical on hands experience managing commercial real estate in Hawaii. I hold an educational degree and a Master in Business. I currently develop courses and teach at various colleges around the islands of Hawaii.

What do you see as the greatest challenge to facilities operations and maintenance in your particular field or to facilities management in general?
Technology is constantly changing the way we manage and maintain buildings. Our workers must be educated on the latest’s trends in building technologies to understand how their buildings operate and to maintain them. An example is the smart buildings of tomorrow that will know who you are when you approach a building. The controls in the building will make changes based on your preferences such as lighting levels and temperatures in your work place.

Buildings will require educated workers that understand these adaptive environments in the new smart builds. This all starts with understanding the building systems and the Building Operator Certification program offers them the opportunity to add value to themselves and their employers.

Is there anything that surprises you when you teach BOC classes?
I have found after teaching a BOC course years later a student will come up to me and thank me for helping them understand their buildings. Some of my student have been promoted to upper executive positions and have a great understanding of the systems and assets of a commercial building.

Do you have any best practices or tips you’d like to share?
Best practices should include annual assessment and audits of your departments to find better ways to improve your operations.

How do you like to spend free time?
I spend my free time doing what my true passion is and that is motocross. I recently competed in the World vet race in California. I enjoy teaching, hiking and surfing.

STEVE FALDET TABLES (Continued from page 2),

<table>
<thead>
<tr>
<th>Electric KW</th>
<th>Gas CCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006-07</td>
<td>992,360 (average)</td>
</tr>
<tr>
<td>2008</td>
<td>883,600</td>
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<tr>
<td>2009</td>
<td>724,800</td>
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<tr>
<td>2010</td>
<td>662,080</td>
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<td>651,640</td>
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<td>2012</td>
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<td>2013</td>
<td>616,320</td>
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<td>512,800</td>
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<td>2018</td>
<td>481,440</td>
</tr>
<tr>
<td>** x .043 KW**</td>
<td>** x $1.00**</td>
</tr>
</tbody>
</table>

** these were the rates when I started and we left the same for comparison sake.

TOTAL SAVINGS 2008: $16,819.68
AVERAGE SAVINGS PER MONTH 2008: $1,401.64

TOTAL SAVINGS 2009: $34,915.08
AVERAGE SAVINGS PER MONTH 2009: $2,909.59

TOTAL SAVINGS 2010: $39,669.00
AVERAGE SAVINGS PER MONTH 2010: $3,305.00

TOTAL SAVINGS 2011: $39,115.00
AVERAGE SAVINGS PER MONTH 2011: $3,258.00

TOTAL SAVINGS 2012: $42,390.00
AVERAGE SAVINGS PER MONTH 2012: $3,532.00

TOTAL SAVINGS 2013: $37,136.00
AVERAGE SAVINGS PER MONTH 2013: $3,094.66

TOTAL SAVINGS 2014: $36,927.00
AVERAGE SAVINGS PER MONTH 2014: $3,077.00

TOTAL SAVINGS 2015: $40,401.00
AVERAGE SAVINGS PER MONTH 2015: $3,366.00

TOTAL SAVINGS 2016: $42,359.00
AVERAGE SAVINGS PER MONTH 2016: $3,529.00

TOTAL SAVINGS 2017: $42,981.00
AVERAGE SAVINGS PER MONTH 2017: $3,581.00

TOTAL SAVINGS 2018: $42,528.00
AVERAGE SAVINGS PER MONTH 2018: $3,544.00
1. What is PG&E’s history with energy efficiency initiatives?
Through a wide range of rebates, incentives, and professional services, PG&E has been offering its customers energy efficiency programs for over 30 years to better understand, manage, and reduce their energy use.

2. How did PG&E first hear about the BOC program?
BOC has been available to PG&E customers since 2002. The program has trained over 1300 operators in the service territory who are improving the performance of their buildings and delivering energy savings to their facilities.

3. How do you go about promoting the training to your commercial and institutional customers?
PG&E works closely with BOC staff and with internal commercial building program managers and customer account managers to promote the BOC program. PG&E also includes the BOC program in its print calendar that goes out to hundreds of building professionals throughout the PG&E service territory.

4. What benefits does BOC provide for your customers?
The BOC program benefits our customers in two primary ways. For the individual going through the BOC training program, she/he gains valuable knowledge and skills on how to reduce a building’s energy use and how to improve occupant comfort. In turn, the PG&E customer and building owner sees lower utility bills and increased occupant satisfaction.

5. What would you say is the sector breakdown for BOC training participants?
PG&E sees a good combination of both public and private sector commercial building customers attend BOC including higher education, K-12, property management, and local governments.

6. What type of feedback do you get on the training?
Overall, students who go through the BOC training have expressed that they acquired valuable knowledge and skills they wouldn’t have learned on the job solely from their day-to-day work, and for that, they are grateful to their employers for supporting their professional development. The classroom environment also allows students to network and learn from their colleagues about how they go about solving building operations issues that they encounter in their workplaces. BOC participants appreciate the hands-on component of the program that requires them to return to their facilities and perform on-the-job tasks for saving energy and/or improving occupant comfort.

The BOC Level 1 training needs approximately 20 students per class to be cost-effective and is therefore usually offered in denser urban areas around the San Francisco Bay Area where there are hundreds of large commercial buildings and building operators. The location of the trainings can present a barrier to building operators who would need to travel several hours or stay overnight. To address this, in 2019, PG&E worked with the BOC program to pilot an Internet livestream option. BOC students would have the option to participate remotely. Remote participants are able to see and hear the instructor. They are able to ask and answer questions through their computers’ microphones. Furthermore, they have the option to be seen by the other students through the use of their laptops’ video cameras. So far, this option has received positive feedback with some room for improvement. In 2020, PG&E will continue to work with BOC to improve the student experience and continue to offer students the option of participating remotely over the Internet.

Pacific Gas and Electric also actively supports the training of unemployed and underemployed workers in its territory. PG&E and BOC have worked with local Workforce Development Boards and agencies to seek and place qualified individuals into the BOC training with the goal of these individuals finding family wage jobs in the O&M field. In addition to becoming gainfully employed, these individuals have the potential to help PG&E commercial building customers manage and reduce their energy use.

In 2018-2019, PG&E and BOC worked with the Sacramento Employment and Training Agency (SETA) to enroll students into the BOC Level I program held at Sacramento City College. PG&E subsidized students’ tuition for the 8-day training series. The BOC program provided a facility mentor, ensuring students had access to a facility to complete project assignments and a resource for questions about the material. SETA provided resume development and job search and placement services to the students as well.

Thanks to Robert Marcial with PG&E for this article.
SOUTH LANDER BUSINESS PARK ADOPTS LUMINAIRE LEVEL LIGHTING CONTROLS
Reduces Costs and Achieves Long-Term Flexibility

Seattle’s South Lander Business Park boasts a variety of tenants from small retail spaces to large warehouses—all with differing lighting needs that may change over time. Starting in 2016, the owners knew they needed to upgrade their outdated fluorescent lighting to something more adaptable, flexible and cost-effective. The answer? LED fixtures with luminaire level lighting controls (LLLCs).

**The Solution:**
After first learning about LLCs, the executive team at South Lander decided to test out the technology in some of its smaller tenant spaces. With embedded sensors in each LED fixture, LLCs offer innovative controls strategies that provide maximum energy savings, easy installation and maintenance and flexibility in space utilization.

With the help of Seattle City Light and their energy efficiency incentives to offset the cost of LLC projects, South Lander installed the Cree SmartCast LLC system in several 2,000-3,000 sq. ft. tenant spaces and the Philips EasySense LLC system in a 30,000 sq. ft. space occupied by BNSF. These installations revealed both owner and tenant could reap benefits from energy savings to reduced maintenance costs—for essentially just the added cost of a sensor.

**Increased Flexibility**
For the South Lander owners, installing an LLC system meant they didn’t have to worry about time intensive and costly wiring in the event a tenant’s lighting needs changed, or a tenant moved out.

“The main features we were looking for in this project were flexibility, tenant turnover and energy savings, and improved light quality was also an added bonus,” South Lander Business Park owner Joe Mitter said. “With just a phone app, I can now reconfigure the lighting in a space which gives us way more flexibility for switching things over when a tenant moves out.”

(Continued on page 6. See TECH HORIZONS)
“The maintenance savings are just as great as the energy savings. BNSF was able to track several years of invoices and found they were spending somewhere between $5,000 and $8,000 per year just on replacing fixtures and ballasts. Now, that’s almost zero.”

Joe Mitter
South Lander Business Park Owner

South Lander’s Largest Tenant Makes the Switch

After successfully using LLLC in several of its spaces, South Lander helped BNSF, its largest tenant, make the switch. According to Mitter, BNSF features nearly 30,000 sq. ft. of space across two buildings and has unique tenant needs: they regularly change over their spaces for different uses, and employees have varying lighting preferences throughout various offices and conference rooms.

With LLLCs, BNSF has addressed all of those challenges – including the ability to create lighting zones in their warehouse so they don’t have to turn on lights in all 5,000 sq. ft. at once. In terms of energy savings, BNSF and the business park’s other tenants have significantly cut their utility bills – for many, the system now pays for itself with energy costs lower than the monthly costs of the system. And, they’ve eliminated maintenance and ballast replacement costs. In just the first year alone, BNSF has saved $7,500 on its utility bills.

“Energy and maintenance costs are the top two reasons, in addition to overall better quality of light. In almost all cases, I would tell people to spend the extra amount for controls because they give you so much future flexibility. We’re future-proofing our lighting for the next 15-20 years.”

Joe Mitter
South Lander Business Park Owner

Why Luminaire Level Lighting Controls?

Many utilities also offer incentives to offset the costs of Luminaire Level Lighting Controls systems. South Lander Business Park worked with Seattle City Light to make the switch to LLLCs – contact your local utility to find out if incentives are currently available in your area.

For more information on LLLCs, visit: www.betterbricks.com/LLLC
Technical Webinars
BOC offers live instructional webinars throughout the year to keep you informed on the dynamic field of facilities management. Learn practical solutions to deal with the energy hogs in your building from industry experts. The 2020 webinars focus on the topic of smart buildings and how evolving technologies and best practices integrate with the role of the building operator.

For the BOC graduate, successful completion of the webinar and accompanying quiz provides 1.5 points towards maintaining your BOC Certification and .15 IACET CEU’s towards the renewal of industry certifications, certificates and licenses including but not limited to AIA, PE, LEED, IFMA, ASHRAE, and AEE.

BOC Technical Webinar Spring Schedule
- February 26, 2020 - Emerging Smart Building Technology & Enhanced Building Performance
- April 1, 2020 - Improving the Energy Consumption of Pumps in Buildings
- April 22, 2020 - Resiliency & Security in Smart Buildings
- May 14, 2020 - HVAC Controls Including Demand-Control Ventilation

Live webinars are held from 2pm to 3pm EST and once held are available online at our webinar library. Check out the BOC web site for details. And remember, BOC graduates who maintain their credential receive a 20% discount on the BOC webinar series. For more information please visit: https://www.theboc.info/continuing-education/webinars/

Exam Preparations
The BOC program offers a variety of resources to help you prepare for the Certification Exam and achieve the designation of Certified Building Operator. Visit our website for the full complement of resources, including resource guides, a test taking tips webcast, and information on purchasing updated class materials. We also offer a series of four recorded webinars to help you prepare for the BOC Certification Exam. Each session focuses on a critical work function from the exam blueprint.

These are the four webinars, the price is $59 for a single webinar and $199 for the series of 4.
- Operate Energy Using Systems for High Performance. Learn more about what the exam covers related to equipment settings & system control points; measuring & monitoring energy performance; and sustaining energy performance.
- Perform Technical and Administrative Duties. Brush up on what you will need to know about maintaining records & reports, communicating with management, co-workers and occupants, and understanding building codes.
- Maintain Indoor Environmental Quality to Standards. This will review information related to: measuring and monitoring IEQ parameters; IEQ issues; and developing and implementing an IEQ plan.

Exam Prep Bundle
We also offer an Exam Prep Bundle that includes the 4 webinars, 7 handbooks and 8 practice tests for $399.

For more resources please go to: https://www.theboc.info/fulfills/exam/preparing-for-exam/

Complete Your BOC Credential Maintenance Now!
The BOC’s credential maintenance season is happening now. We have notified our active graduates of their options to renew credentials, so check your mailbox for information! You can also refer to the BOC website to renew your credential in just a few easy steps.

To maintain your BOC credential, graduates must accumulate maintenance points each year following a full calendar year after they’ve earned their credential. Level I maintenance requires five points each year and Level II requires ten. If you have earned your Certification, it auto renews when you maintain your training certificate. Points may be earned as follows:

- Continued employment in building operations – 2 points/year
- Continuing education in building operations – 1 point per hour of classroom time
- Energy efficiency projects completed at your facility – Up to 11 points/year
- Membership in a building operations association – 1 point/year
- Offices held in membership associations – 2 points/year
- Awards received for efficient building operations – 2 points/award
- BOC newsletter tech article or blog quiz (see page two for details) – 1 point/passed quiz
- Completion of an energy consumption benchmark for the previous twelve-month period using ENERGY STAR Portfolio Manager or alternative energy accounting tool – 3 points/year
- Enrollment in a BOC webinar and completion of its quiz (See webinar announcement details on page 7) – 1.5 points/passed quiz
- Attendance at a facilities trade show – 1 point/year

Use our HELP Desk (1-877-850-4793), whose knowledgeable staff can address questions and assist with the maintenance application. The deadline for application submission is March 31, 2020.

BOC Informational Webcasts
Thursday, Feb 27, 2020
Thursday, Aug, 22, 2020
8:30AM PST/11:30AM EST

Learn more about the BOC program, credential structure and how the program can benefit your career and organization. Register here: https://www.theboc.info/
We are very excited to share that we are launching an annual Smart Buildings conference in September 2020 in Seattle! The two-day conference and tradeshow will connect participants to the latest information and technologies in the smart buildings industry. We will showcase smart city and building projects and initiatives located in the PNW and will provide educational tracks to highlight the ‘why, what and how’ for smart buildings.

About the event
Buildings are digitizing. Throughout the built environment, new technologies are connecting building systems and occupants in ways that generate confusion, opportunity, challenges and concerns over risks. From enabling buildings to perform for occupants and owners in previously unimaginable ways, to leveraging buildings to accelerate smart cities and electrification of transportation for a cleaner and healthier Earth, the opportunities are countless and exciting. Smart Buildings Exchange brings together the key audiences to challenge the hype, bear witness to the innovation, and explore the business case for accelerating the adoption and commercialization of smart buildings technologies and practices.

Exhibitor & Sponsorship Opportunities
Smart Buildings Exchange will host a boutique style exhibition highlighting industry leading vendors and sponsors that represent the Pacific Northwest vision for “smart” including the latest in smart building technologies and practices. Exhibitor & Sponsorship opportunities are limited – please download our Sponsorship Prospectus or contact britton.rife@neec.net for more information about ways your organization or business can participate in the conference.

Registration & BOC Discount
A limited number of early-bird tickets are now available – register now and save $100! BOC graduates and current students also receive a 15% discount on registration. Use the code “BOCSBX” at checkout to receive the discount.

Smart Buildings Exchange (SBX) 2020
September 2-3, 2020
Bell Harbor Conference Center, Seattle
https://smartbuildingscenter.org/sbx
## Conferences and Symposiums

Conferences and Symposiums are a great way to get exposure to new technologies and techniques in facilities management, as well as an opportunity to network with your peers. Attendance at a trade show earns you one point toward maintenance of the BOC credential. Attending educational sessions as part of a conference earns one maintenance point per hour of educational time as well! Here are some 2020 opportunities.

### FEBRUARY 2020

- **Association of Energy Services Annual Conference**  
  September 23-25, 2019 • Dallas, TX

- **MEEA Midwest Energy Solutions Conference**  
  February 26-28, 2020 • Chicago, IL

### MARCH 2020

- **Massachusetts Plumbing, Heating and Cooling Conference (PHCC)**  
  March 2020 • Marlborough, MA

- **National Facilities Management and Technology Conference**  
  March 17-19, 2020 • Baltimore, MD

- **WAMOA Leadership Seminar**  
  Mar 19-20, 2020 • Leavenworth, WA

- **CA Association of School Business Officials Annual Conference**  
  March 29-April 1 • Palm Springs, CA

### APRIL 2020

- **Central Valley Facilities Expo**  
  April 1-2, 2020 • Modesto, CA

- **Building Innovation Conference (NIBS)**  
  April 6-9, 2020 • Arlington, TX

- **Architectural Engineering Institute (AEI) Conference**  
  April 1-3, 2020 • Cincinnati, OH

- **Oregon Schools Facilities Management Association**  
  April 8-10, 2020 • Albany, OR

- **Northwest Facilities Expo**  
  April 15-16, 2020 • Portland, OR

- **WSSHE Spring Symposium**  
  April 15-17, 2020 • Chelan, WA

- **Globalcon**  
  April 21-22, 2020 • Boston, MA

- **CA Society for Healthcare Engineering**  
  April 2020 • Sonoma, CA

- **Spokane Facilities Maintenance Expo,**  
  April 2020 • Spokane, WA

- **National Grid EE Summit**  
  April 2020 • Worcester, MA

### MAY 2020

- **LIGHTFAIR International**  
  May 3-7, 2020 • Las Vegas, NV

- **Southern California Facilities Expo**  
  May 5-6, 2020 • Anaheim, CA

- **International Living Future**  
  May 5-8, 2020 • Seattle, WA

- **Efficiency Exchange**  
  May 12-13, 2020 • Portland, OR

- **Powerful Business/IFMA Educational Symposium**  
  May 18, 2020 • Lynnwood, WA

- **Association of Energy Services Professionals (AESP) Spring 2020 Conference & Expo**  
  May 18-20, 2020 • Ponte Verde Beach, FL

### JUNE 2020

- **Better Buildings Summit**  
  June 8-10, 2020 • Arlington, VA

- **BOMA International Annual Conference & Expo**  
  June 27-30, 2020 • Philadelphia, PA

- **ACEEE Summer Study**  
  August 16-21, 2020 • Pacific Grove, CA

### AUGUST 2020

- **Smart Buildings Exchange**  
  September 2-3, 2020 • Seattle, WA

- **ERAPPA**  
  September 27-30, 2020 • Saint John, New Brunswick, Canada

### SEPTEMBER 2020

- **PCAPPA**  
  October 11-13, 2020 • Portland, OR

- **WAMOA Fall Conference**  
  October 7-9, 2020 • Yakima, WA

### OCTOBER 2020

- **Association of Energy Services Professionals (AESP) Spring 2020 Conference & Expo**  
  May 18-20, 2020 • Ponte Verde Beach, FL

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For a complete list of FM tradeshows around the country, visit the BOC website at [www.theBOC.info](http://www.theBOC.info) and go to the **Continuing Education** tab and click on **Tradeshows**.
Another Benefit for BOC Credentialed Operators

BOC graduates who maintain their credential receive a **20% DISCOUNT** on the BOC webinar series. Check out the webinar schedule and library at:  
http://www.theboc.info/continuing-education/webinars/

**First Annual BOC Operator of the Year Award Announced**

The Smart Buildings Center (SBC) and Building Operator Certification (BOC) program are proud to announce our first annual BOC Operator of the Year, Stephanie Carlisle, Compliance Coordinator for the Town of Medway, MA!

Stephanie was nominated by her co-worker, Bobby McGee, who completed the BOC training with her and wanted her to be recognized for her hard work “making the world a little greener” and being known as Medway’s “Green Community Coordinator.”

In her role as the Compliance Coordinator for the Town of Medway, Stephanie is responsible for all energy savings projects. BOC training equipped her with the necessary skills to analyze the energy usage of all building equipment, produce reports, and implement changes and repairs as needed. She tracks and records natural gas, electricity, heating oil and propane consumption and analyzes data to identify energy and cost savings opportunities. Stephanie then works with consultants on the cost and energy savings metrics and submits grant applications to obtain funding for the energy savings projects.

A few projects Stephanie has helped receive funding include:

- **Blown-in insulation for the Senior Center roof/attic space**  
  - Cost: approximately $70,000

- **Building envelope weatherization repair and weather stripping to save energy and money on heating/cooling costs for Fire Station, Town Hall and Senior Center**  
  - Cost: approximately $20,000

- **Installation of the Town’s first EV charging stations**  
  - Worked with Eversource on the Make Ready Program for no cost “behind-the-meter” installation, and with the Metropolitan Area Planning Council on reduced cost of the station equipment

- **Purchase of the first electric vehicle for the Town’s fleet**  
  - Obtained two electric vehicles to date

- **Replacement of boilers, AHUs, and condensers at the Police Station**  
  - Cost: approximately $200,000

The SBC and BOC program applaud Stephanie on her efforts to improve the energy efficiency of the Town of Medway’s operations, and congratulate her on being named as 2019 BOC Operator of the Year!

Know someone who deserves recognition for their work in the industry? Nominations will open for the 2020 BOC Operator of the Year award in May, so stay tuned!

**Are you a Current Credential Holder? WIN FREE STUFF!**

Twice a year, current credential-holders may enter a drawing to win merchandise such as BOC gear from our Shop, diagnostic tools, or reference manuals.

Our next drawing for a Watt Stopper Isolé IDP-3050-A power strip, which turns plug load devices on and off based on occupancy as well as a $10 Starbucks gift card is April 15, 2020. Congratulations to the winner of our September 2019 drawing: **Ed Hunter**, Manulife Investment Management.

**Enter to win here:**  
https://www.surveymonkey.com/r/bocopapr2020

**BOC TRAINING, ANNOUNCEMENTS & CONTINUING EDUCATION**

**10 WINTER/SPRING 2020 BUILDING OPERATOR CERTIFICATION NEWSLETTER**

**We Bring You The Power to Succeed**

**We have incentives for your Energy Efficiency Projects:**

- Lighting & Lighting Controls
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**Another Benefit for BOC Credentialed Operators**

BOC graduates who maintain their credential receive a **20% DISCOUNT** on the BOC webinar series. Check out the webinar schedule and library at:  
http://www.theboc.info/continuing-education/webinars/

**Stephanie Carlisle**
First WAMOA/BOC Scholarship Awarded

The Washington Association of Maintenance and Operations Administrators (WAMOA) and the Building Operator Certification (BOC) Program are excited to announce Britton Vanness with North Franklin School District (NFSD) in Connell, WA as the first recipient of the joint WAMOA/BOC scholarship for completing the BOC training and certification program which will begin in Spokane, WA this fall.

WAMOA is an organization of educational facilities maintenance professionals in Washington State whose mission is to promote diversity and foster the highest degree of professionalism in its members engaged in the management of maintenance and operations in educational facilities; to enhance the professional competence of members through education.

BOC is the leading competency-based training and certification program for building engineers and maintenance personnel in Washington State and across the country. BOC Program graduates help fulfill one of the overarching missions of schools across Washington state: to provide comfortable and safe buildings to foster learning. BOC teaches operators to find practical, low-cost, and no-cost efficiency solutions by working with existing systems. They also learn how to create a preventive maintenance program that improves the building environment and prolongs the life of equipment. BOC graduates can better communicate with occupants so they can improve comfort while maximizing facility efficiency. Schools and districts appreciate the bottom-line savings graduates deliver and recognize them as a professional who cares about quality and efficiency.

After serving in the U.S. Naval Construction Force as a builder, Britton began working at NFSD in March 2010 and is currently the Facility Maintenance and Operations Supervisor. He directly supervises fourteen custodial staff and two maintenance staff.

Due to the small size of the district and vast coverage area spanning three rural communities, it is vital that NFSD conducts many of their improvements in-house. Over the past 10 years the district has been able to build a new elementary school and renovate and modernize a middle school along with adding new additions and upgrades to an older high school and elementary school. With these improvements they have also added new energy efficient controls from HVAC to lighting.

Britton believes that BOC training will enable him to better identify areas for improvements in operational efficiency, assess the needs and begin documenting the scope of work to be performed. Having a well-informed BOC certified employee who can help with the decision-making process in the ever-changing and complex areas of energy efficiency and building management will benefit the NFSD and reduce out-of-house contracting costs. Britton has worked on multiple projects in the district improving facilities for usage and modernizing spaces to better suit the needs of the students. He’s excited to take the next step in advancing his knowledge of energy efficiency and building management so he can continue to improve the facilities for the students and district.

The WAMOA/BOC scholarship illustrates both organizations commitment to professional development in the field of facilities management for WAMOA members. WAMOA and BOC congratulate Britton on receiving the scholarship and for his commitment to advancing his career and bringing further improvements to the NFSD.

To learn more about WAMOA, please visit http://wamoa.org/. To learn more about the BOC program, please visit https://www.theboc.info/.

SMART BUILDINGS (Continued from page 1)

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You can earn 1.0 maintenance point towards your BOC credential renewal by taking a quiz on the material in this Feature Article (page 1) at: https://www.theboc.info/continuing-education/newsletter-quiz/quizzes/quiz-continuum/
Do you own or operate a building that is undergoing significant capital equipment upgrades? If you are considering energy efficient improvements, Puget Sound Energy (PSE) is looking for projects for the Pay for Performance (P4P) program. The P4P approach rewards a total building approach to managing your facility’s resources.

What It Is:
P4P is a whole-building approach to energy efficiency. This means that you are incentivized for capital, O&M, and behavioral savings.

When to choose P4P:
- Existing commercial building that is 50,000 sq ft or larger
- Pursuing two or more capital measures to be installed within one year, resulting in at least 15% whole building energy reduction
- Measures with difficult-to-quantify savings and/or high capital costs, like replacing windows

Examples:
PSE currently has two P4P projects. The first project is undergoing a complete HVAC retrofit that involves decommissioning several large pieces of equipment. The project is estimated to save over 20% of the electric load.

The second project is replacing numerous HVAC units, adding VFDs, upgrading to LED lighting, and doing significant control system upgrades and scheduling. The project is estimated to save 25% of the electric load.

Program Benefits:
- Streamlined utility process
- Opportunistic savings rewards
- Simpler measurement & verification
- Financial incentive stream over multiple years
- PSE does the building modeling using the prior 12 months of energy consumption as the baseline
- Access to interval data to visualize energy consumption trends
- Potential to earn more than through a traditional incentive program

So if you are significantly upgrading a building, and energy savings is a priority, consider P4P.

For further information, or to fill out an application, please visit the PSE website at https://www.pse.com/rebates/business-incentives/commercial-retrofit-grants/pay-for-performance or contact Beth Robinweiler at beth.robinweiler@pse.com or 425-424-6476.

This information is provided by BOC sponsor, Puget Sound Energy. If you are outside the PSE service area, BOC encourages you to contact your local utility for the most up to date information on incentive and rebate programs.

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