



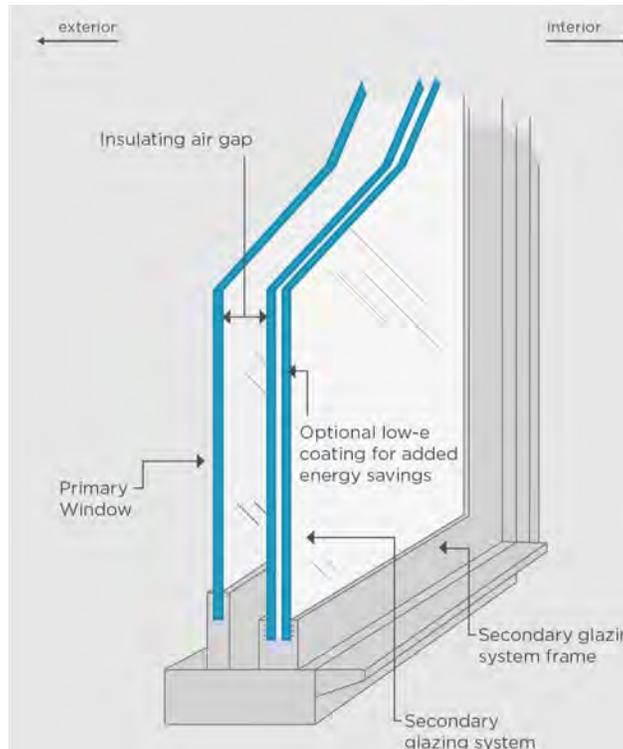
Existing Building Energy Consumption

AND THE OPPORTUNITY OF SECONDARY GLAZING SYSTEM WINDOW ATTACHMENTS

By Christopher Meek, AIA, IES

Secondary glazing systems (SGS), sometimes referred to as interior window retrofitting products or accessory window products, are a simple straightforward solution to improving the performance of existing buildings at a reasonable cost and without disrupting occupants. The vast majority of energy consumption in the commercial and residential building sector stems from buildings that are more than 10 years old, as increased energy efficiency requirements have significantly reduced the carbon emissions and energy use of new buildings. These inefficient existing buildings include a large cohort of buildings built before 1990 and prior to the widespread adoption of double-pane insulated glazing. As the owners and tenants of existing buildings have become more aware of building performance due to municipal disclosure ordinances and energy tune-up programs such as programs in Seattle and New York City, and energy transparency tools such as EPA's ENERGY STAR Portfolio Manager, they have sought innovative and cost-effective improvements in existing and operating buildings. SGS has emerged as a cost-effective, non-disruptive answer.

High costs and associated disruptions have historically been major barriers to deep



energy improvements to the building envelope, and particularly to the replacement of outdated window technology. To address this challenge, a number of window manufacturers have developed a variety of new technology options that are relatively easy to install, including SGS. Without requiring a full window replacement, SGS improves the

window's thermal performance by adding a new double-pane insulated glazing unit (IGU) to older single-pane or non-low-e glass.

As HVAC systems generally represent the largest energy end-use of most existing buildings, and improved window performance dramatically decreases the heating and cooling loads that must be met by a building's HVAC system, windows are the key to unlocking deep savings in existing buildings. While the reduction in HVAC energy use provided by SGS can save substantial energy in and of itself, the vastly improved building envelope allows for further high-efficiency technology including advanced, super-efficient radiant heating and cooling systems and very-high efficiency heat-recovery ventilation technology. In many cases, this comprehensive approach has been shown to cut a building's energy consumption in half.

Beyond improving the building's envelope, SGS offers additional occupant comfort and business benefits. For instance, by reducing the heat and glare of the window, SGS products increase the comfort and productivity of people who occupy the perimeter spaces. In cooler climates, SGS technology will dramatically reduce the radiant cold effect of those positioned near existing single-

(Continued on page 10, see CONSUMPTION)

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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 on page 10.

BOC and BOMA Work Together TO ACHIEVE RESULTS IN GEORGIA AND WASHINGTON

Introduce yourself and the people you work with at BOMA:



Cher Brister

Cher Brister, Director, Green Technologies at Gwinnett Technical College in Georgia. I manage BOC for Georgia. We have trained over 800 students since 2010. We work with various BOMA Georgia representatives and have served on the

Community Service and Government Affairs committees. We attend the annual trade show and have facilitated sessions with the BTO- BOMA Technical Organization which caters to Building Engineers.

Explain/describe how your relationship works:

Because we are BOMA members we enjoy the ability to network with various property management companies, allied members and industry vendors and the BOMA Georgia team. This is great for Building Operator Certification in Georgia because it not only gives us the opportunity to recruit students for classes, but we are also able to connect with potential program partners and sponsors.

How long has GTC and BOMA had this relationship?

Gwinnett Tech has participated in BOMA Georgia since 2009 and we attend events quarterly. We also attend committee meetings and events throughout the year.

What is a highlight of this relationship? BOMA and BOC naturally fit together. While our audience isn't exactly the same, due to the fact that BOMA serves a wider group of professionals, our niche audience of Building Engineers is not only part of BOMA, but they attend BOMA events creating opportunities for networking. Due to the nature of their jobs, BE's need to be in their buildings most of the day and are often unable to attend community and professional events. BOMA creates events specifically catered to them and allows Gwinnett Tech to participate and even facilitate which puts us right in front of our potential students. BOC students looking to maintain their certification can also attend BOMA seminars and obtain CEUs for recertification.



Introduce yourself and the people you work with at BOMA:



Melanie Danuser

I am Melanie Danuser, Director of the National BOC Program and I also manage the administration of the program here in Washington state. We work closely with the local BOMA Seattle King County chapter to serve both our

organizations members through education that fits their needs for professional development, maintenance of BOC and BOMA credentials, and promotion of activities that mutually benefit our stakeholders. I serve on BOMA Seattle King County's Education Committee and work with Christine Miclat, their Director of Marketing and Education, to schedule the annual Engineers Skills Hours, a series of lunch and learns targeted to those in the building engineering and operations fields.

Explain/describe how your relationship works:

BOMA Seattle King County and the Northwest Energy Efficiency Council have an informal agreement to support each other's missions through working together to offer relevant education and networking sessions, participation on committees, and recruiting for each other's programs to find the best fit for local real estate and building staff.

How long has BOMA King County and NEEC had this relationship?

NEEC has been a member of BOMA for over 15 years and partnered on the Engineer Skills Hours since 2014.

What is a highlight of this relationship? Being able to bring content from the BOC into a program that involves BOMA's engineers. The topics presented provide continued education and relevant information that is helpful to their work. Each year, this program brings in more and more engineers and we hope to continue this partnership!

Special thanks to Christine Miclat for her contribution to this information.



HEALTHY BUILDINGS MEAN HAPPY TENANTS

LOW COST AND LOW MAINTENANCE, SECONDARY GLAZING SYSTEM WINDOW ATTACHMENTS LEAD TO BETTER BUILDINGS.

[Learn more >](#)

BOC Instructor Chuck Frost



Chuck Frost.

How did you become involved with Facility Management?

I started my career at the Lawrence Livermore National Laboratory. I worked for the Lab for 28 years and held various positions. I also worked

at UC Berkeley overseeing the operation of wet labs in the Chemistry Department and Laser Labs in Physics Department.

When and how did you first hear about the BOC?

I first heard about the BOC program from a friend about 15 years ago.

What is your area of expertise in Facility Management?

I would say laboratories, data centers, and cleanrooms.

What do you see as the greatest challenge to Facilities Management in your particular field or to facility management in general?

I think the biggest challenge is preparing the technicians for the high performance buildings that are now being built.

Is there anything that surprises you when you teach BOC classes?

I have been teaching a long time and over the years I have pretty much seen it all.

Do you have any Facility Management tips to share?

When you hire people look at their personalities as much as you do their job skills. You can accomplish a lot with a good team.

How do you spend your free time?

I spend most of my free time with my family. I have 4 kids and 5 grandkids.

BOC Sponsor Highlight TACO, Rhode Island

A Building Operator Certification (BOC) Level I course sponsored by National Grid, the Energy Efficiency & Resource Council, Office of Energy Resources, and Taco Manu-

facturing was held at Taco Comfort Solution's LEED Gold facility in Cranston, Rhode Island during Fall 2018. The twenty students who participated in the course work in state municipal buildings, K-12 schools, higher education, hotels, hospitals, and non-profit housing.

All students' tuition was paid for in full by the course sponsors. Guest speakers and topics included Linda Darveau, Boston

EPA, Measuring & Benchmarking Energy Performance; Margie McNally, Evergreen Consulting Group, Efficient Lighting Fundamentals; Fred McKiernan, Automatic

Temperature Controls, HVAC Controls

Fundamentals; Jerry Drummond, National Grid, Opportunities for Low-Cost Operational Improvements; and Dr.

Carrie Gill, Office of En-

ergy Resources, and John Bafle, Northeast Energy Efficiency Partnership, Facility Electrical Systems. Students in the course also learned about Rhode Island-based funding opportunities including programs, incentives, rebates, and project funding options.



John Bafle from the Northeast Energy Efficiency Partnerships speaks to BOC students.



BOC Grad Making a Difference

Can you tell us a little about your background and when you got involved with BOC?



Bob Corrente

I just completed my BOC training on December 12, 2018. I am employed at the Scituate School Dept. in Scituate, RI and have served as the Director of School Facilities since February of 2018.

Prior to this, I worked for the Warwick Public Schools in Warwick, RI as the Assistant Director of Buildings and Grounds from 2014-2018

What energy saving projects would you like to highlight?

In Scituate, RI I am working to install LEDs at all four schools in the district. I am also installing all new controls for HVAC and

completing long overdue maintenance and repairs on the HVAC system as we incorporate new controls. I have also been working to assist the Town of Scituate with their energy saving measures. We are doing all new LEDs in all town buildings as well as some insulation and HVAC replacements. All of the LED lights are being manufactured right here in Rhode Island by Renova Lighting Systems Inc. Renova has manufactured a flat panel with the Philips EasySense sensor that incorporates on/off features as well as daylight harvesting. Having a local manufacturer gives us the ability to work through any application that off the shelf LEDs cannot handle.

I have worked on many projects while I have been employed by the school districts. I have completed LED projects in 15 schools as well as managed an \$8.5 million HVAC project at a 216,000 square foot high school in Warwick, RI. I am working at this moment on a 1.4-million-dollar energy project in Scituate, RI.

What was the reason behind your project?

The reason for these projects is to save as much energy as we can while cutting costs. We have saved \$191,000.00 a year on electricity for just the school department, which frees up funds to have a much better preventative maintenance program that will keep all of these measures working at an optimal level.

"Bob has been instrumental in accomplishing many longstanding buildings and grounds updates district wide. The LED project, led by Bob, has impacted our school beyond financial savings. The quality of lighting has provided a bump in physical energy to our school building. Teachers and students are excited about the updates. In essence, these building updates positively influences the morale and pride felt about our school. This concept is not lost on Bob. In essence, Bob's work has been instrumental in showing our staff and students that our district and greater community cares about the quality of our buildings and making it an inviting place to teach and learn."

— Courtney Francis, Principal
Clayville Elementary School
in Clayville, Rhode Island

When was this project done?

These projects are just beginning to roll out and will be completed by December of 2019.



No matter the business, we all want to save money.

With Idaho Power's *Commercial and Industrial Energy Efficiency Program*, you can get incentives now on upgrades that will save you even more in the future. You'll also be supporting wise and efficient use of resources in the place we all call home.

idahopower.com/business



James Bay communities develop local expertise

HEALTH CARE FACILITIES STAFF APPLY ENHANCED ENERGY MANAGEMENT TRAINING

By Kent Waddington

Energy conservation initiatives have reduced some of the cost premium that is an inescapable fact of living in Canada's north, while supporting skills development that make health care operations more self-reliant in five James Bay communities. The Canadian Coalition for Green Health Care and the Weeneebayko Area Health Authority (WAHA) — providing health care services for a largely First Nations clientele in the northern Ontario communities of Attawapiskat, Kashechewan, Fort Albany, Moose Factory and Moosonee — joined forces in 2016 to assess energy use in WAHA facilities and find savings through retrofits, operational adjustments and promoting a conservation mindset.

As part of that effort, the first group of certified building operators to graduate from a training program in a remote northern community are now applying their enhanced energy management knowledge in the facilities where they work. Their instructor, JJ Knott, who heads up HealthCare Energy Leaders Ontario (HELO), notes that other kinds of efficiencies have also been achieved through the development of in-house expertise.

"WAHA's First Nations facility staff are now confident to tackle a much broader spectrum of building maintenance and retrofit tasks," he reports. "Their previous reliance upon expensive fly-in technical support has been replaced by enthusiasm, competence and a newfound determination to make their buildings more energy-efficient and climate-change-ready."

Capacity building is all about enabling and embedding this kind of technical knowledge within an organization. Energy awareness supports energy-conserving behaviour. In turn, that helps to ensure energy retrofit and management projects achieve maximum payback and steady savings over time. Training facility staff to be energy champions creates role models within the organization who then influence others to become involved in improving the environmental stewardship and climate change resiliency of their health care infrastructure.



The Enlighted lighting controls system was the ideal choice for building system integration and lighting flexibility.

Ontario's Independent Electricity System Operator (IESO) provided funding support for the competency-based building operator certification (BOC) training. Through the course, facilities personnel got the opportunity to improve their technical expertise and job skills in a number of core areas including: energy-efficient operation of building HVAC systems; measuring and benchmarking energy performance; efficient lighting and HVAC controls fundamentals; indoor environmental quality; common opportunities for low-cost operational improvements; facility electrical systems; and operation and maintenance practices for sustainable buildings.

As a result, WAHA staff have taken a more proactive role in project design and application. "The training has led to a new sense of pride and ownership," Knott maintains.

Graduates' assessments of the program were similarly positive, with comments such as: "The BOC training has helped make me more aware of possible [energy] savings to be had and helped develop better maintenance strategies." Others credited it with refining "knowledge of HVAC systems, how to properly maintain and upkeep buildings and showed me other options to use to solve issues" and "planning and coordination of annual maintenance of building systems".

They've since applied that knowledge at the Weeneebayko Hospital where steam trap audits were completed and corrections were made to systems. Outside the hospital, condensate return lines from community housing steam distribution systems were

re-designed, re-constructed, steam traced and re-insulated, contributing to a 40 per cent gain in condensate return to the boiler systems.

Other significant energy savings have come from installation of a new summer boiler at the Weeneebayko Hospital, which has reduced fuel consumption by 5 per cent. Improved R values from a window and door replacement project translated into an additional annual saving of 76,000 litres of fuel oil and 41,000 kWh of electricity. Lighting retrofits have cut electrical consumption a further 600,000 kWh annually, with a concomitant annual savings of \$90,000.

A new energy and expense tracking system is a complementary investment in monitoring and verification that will help operations staff and facility administrators spot any anomalies in consumption that require attention. Purchasing policies have also been updated to prioritize energy efficiency, with an emphasis on ENERGY STAR, for the procurement of new equipment and design services, and consideration for re-use and recycling has been added to decision-making criteria.

The Canadian Institute of Energy Training (CIET), the governing body for building operator certification, commends the initiative and foresees future collaboration with the Canadian Coalition for Green Health Care.

"We were excited when the Coalition requested our help in developing and deploying the BOC course in a remote northern First Nations community. It was a first for us," recalls Mathieu Côté, CIET's



Kent Waddington is communications director for the Canadian Coalition for Green Health Care.

executive director. "We are very pleased with the results of having knowledgeable and empowered building operators now in the James Bay communities."

Dealing with un-healthy (smoky) air caused by wildfires

By Carol Lewellen and Britton Rife

Facilities personnel in California had to deal with two of the largest, most destructive wildfires in state history in 2017 and 2018. In addition to the devastating structural effects and loss of human and animal life, the smoke from the wildfires created dangerous air quality levels that stretched across state lines. Wildfire smoke is a mixture of gases and fine particles from burning trees and other plant materials. This smoke can hurt eyes, irritate respiratory systems, and worsen chronic heart and lung diseases. Many colleges and universities decided to shut down because of the poor indoor and outdoor air quality. Unfortunately, not all buildings/businesses/campuses are able to close until the air clears up. What actions can be taken to help keep buildings healthy for occupants during wildfires?

One of the most important things is to closely monitor the outside air quality index (AQI) near your buildings. The U.S. Environmental Protection Agency's website [AirNow.Gov](https://www.airnow.gov) is a great resource that allows you to check the AQI and monitor the location of fires and paths of smoke plumes. You can select your state and see if the air near you is safe or not. You can also sign up for alerts from the site.

The next step would be to go outside to see if the smoke is beginning to drift in your direction. If you can see it, that means the particulate level is very high. This method is used only during daylight avoiding sunrise and sunset, when relative humidity is less than 65%. Focus on the darkest object (black is better than green) and figure out how far that object is away from you (see table above). Particulate matter is the principal pollutant from wildfire smoke often experienced by the public. Particulate matter is a generic term for particles suspended in the air, typically as a mixture of both solid particles and liquid droplets. The size of particles affects their potential to cause health effects. Particles larger than 10 micrometers do not usually reach the lungs, but can irritate the eyes, nose, and throat (for comparison, a human hair is about 60 micrometers in diameter). Small particles with diameters less than or equal to 10 micrometers, also known as particle pollution or PM10, can be inhaled

deep into the lungs; exposure to the smallest particles can affect the lungs and heart.

Smoke from fires is not the only thing that can affect the air quality. Another pollutant of concern during smoke events is carbon monoxide, which is a colorless, odorless gas produced by incomplete combustion of wood or other organic materials. Carbon monoxide levels are highest during the smoldering stages of a fire, especially in very close proximity to the fire. Smog (generally worst in cities) that is trapped by weather inversions is also a detriment to clean, healthy indoor air quality.

- Portable air cleaners using HEPA filters and ElectroStatic Precipitators (ESPs) can help reduce indoor particle levels, provided the specific air cleaner is properly matched to the size of the indoor environment in which it is placed, and doors and windows are kept shut. Check to make sure the device does not produce ozone as those devices may increase indoor air pollution. California Air Resources Board maintains a list of portable air cleaners that are certified by the State to not emit excess ozone: <https://www.arb.ca.gov/research/indoor/aircleaners/certified.htm>

DISTANCE YOU CAN SEE	YOU ARE	OR	YOU HAVE:
	A Healthy Adult, Teenager, or Older Child	Age 65 and Over, Pregnant, or A Young Child	Asthma, Respiratory Illness, Lung or Heart Disease
> 10 miles	Watch for changing conditions and moderate outdoor activity based on personal sensitivity		
5-10 miles	Moderate outdoor activity	Minimize or avoid outdoor activity	
< 5 miles	Minimize or avoid outdoor activity	Stay inside or in a location with good air quality	

One of the most important actions to take to keep IAQ safe is to limit the outside air coming into the building. If the building has a central air conditioning system, set it to recirculate or close outdoor air intakes to avoid drawing in smoky outdoor air. Consider upgrading your filters to a High-Efficiency Particulate Air (HEPA) filter with the highest Minimum Efficiency Reporting Value (MERV) rating suitable to your system.

Other steps the U.S. Environmental Protection Agency recommends taking include:

- Reduce other sources of indoor air pollution such as using gas and propane, spraying aerosol products, frying or broiling meat, burning candles and incense, and vacuuming as these activities can increase indoor particle levels and should be avoided when wildfire smoke is present.

- While cleaning after wildfire smoke events, use cleaning practices that reduce re-suspension of particles that have settled, including damp mopping, damp dusting and using a HEPA filter-equipped vacuum.
- Be aware of designated community clean air shelters where people can go for relief from smoky conditions. Places to consider going include public libraries, hospitals, movie theaters, and other public buildings with good HVAC systems.
- Respirator masks can be effective in reducing exposure to smoke particles, however they

should only be used after first implementing other, more effective methods of exposure reduction, including staying indoors with doors and windows closed, reducing activity, and using HEPA air cleaners indoors to reduce overall smoke exposure. Effective masks are labelled NIOSH N95 or P100 and must fit properly or they are ineffective. Surgical masks, dust masks, and bandanas or other face coverings do not offer protection from particle pollution.

Hopefully these tips will help you keep your building's IAQ as healthy as possible and allow you to provide helpful advice for others during wildfire smoke events.

Information for this article was sourced from https://airnow.gov/index.cfm?action=topics.smoke_wildfires_faqs

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 2019 webinars focus on occupational health and safety practices in buildings, utilize energy management information systems to identify and communicate energy savings opportunities, as well as explore advancements in HVAC and lighting.



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 20, 2019**
Latest on Lighting – Luminaire Level Lighting Controls
- **March 14, 2019**
Design for Off: Dedicated Outdoor Air Systems with Heat Recovery as the Fundamental Building Block
- **April 23, 2019**
Building Tune-ups in Buildings with a BAS
- **May 15, 2019**
Energy Management Information Systems: How Do You Track and Communicate Savings Over Time.

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.

BOC Informational Webcasts

Wednesday, February 20, 2019 and Wednesday, August 21, 2019 at 8:30AM PST/11:30AM EST

Learn more about the BOC program, credential structure and how the program can benefit your career and organization.

Exam Preparation Webinars

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.

- **Maintain Energy Using Building Systems, Equipment & Envelope to Minimize Energy Use.** Overview of materials related to performing preventive & predictive maintenance; troubleshooting system & equipment problems & performing diagnostic testing; documenting equipment maintenance.
- **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 session 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/certifications/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 29, 2019**.

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 a few for the first half of 2019.

FEBRUARY 2019

Midwest Energy Solutions Conference

February 20-22, 2019 • Chicago, IL

MARCH 2019

Central Valley Facilities Expo

March 13-14, 2019 • Modesto, CA

GLOBALCON Conference & Expo

March 20-21, 2019 • Boston, MA

National Facilities Management & Technology Conference

March 26-28, 2019 • Baltimore, MD

APRIL 2019

Powerful Business Conference

April 4, 2019 • Lynnwood, WA

SPEER Clean Energy Exchange

April 8-9, 2019 • Austin, TX



Oregon Schools Facilities Management Association Conference

April 10-12 • Albany, OR

WSSHE Spring Conference

April 17-19, 2019 • Chelan, WA

National Grid Energy Efficiency Summit

April 30, 2019 • TBD, MA

MAY 2019

Southern California Facilities Expo

May 1-2, 2019 • Anaheim, CA

Energy/Facilities Connection Conference

May 7-9, 2019 • Leavenworth, WA

Northwest Facilities Expo

May 8-9, 2019 • Portland, OR

Oregon Society for Healthcare Engineering Conference

May 8-10 • Bend, OR



Environmental Leader & Energy Manager Conference

May 13-15, 2019 • Denver, CO

Efficiency Exchange

May 14-15, 2019 • Coeur d'Alene, ID

IBOA Convention

May 29-31, 2019 • Bozeman, MT

JUNE 2019

West Coast Energy Management Congress Conference & Expo

June 5-6 • Santa Clara, CA

IFMA Education Symposium

June 19, 2019 • Seattle, WA

AUGUST 2019

ACEEE Summer Study

August 12-15, 2019 • Portland, OR

SEPTEMBER 2019

NFMT Critical Facilities Summi

September 23-25, 2019 • Dallas, TX

North Texas Facilities Expo

September 25-26, 2019 • Arlington, TX

OCTOBER 2019

GridFWD

October 2-3, 2019 • Seattle, WA

WAMOA Fall Conference

October 2-4, 2019 • Yakima, WA

Northern California Facilities Expo

October 9-10, 2019 • Santa Clara, CA

National Conference on Energy Efficiency as a Resource

October 15-17, 2019 • Minneapolis, MN

WSSHE Fall Conference

October 15-18, 2019 • Yakima, WA

IFMA World Workplace Conference & Expo

October 16-18, 2019 • Phoenix, AZ

SEEA Annual Conference

October 21-21, 2019 • Atlanta, GA



For a complete list of FM tradeshow around the country, visit the BOC website at www.theBOC.info and go to the Continuing Education tab and click on **Tradeshows**.

Unique Partnership Advances Energy Efficiency Expertise

In 2018, the Northwest Energy Efficiency Council partnered with nonprofit Emerald Cities Seattle and the Washington Building Engineering Consortium (WBEC) to offer the customized BOC1 course. The primary goal was to elevate professionals in the field by advancing their expertise in energy efficient building operations. The course was incredibly successful and all 22 attendees earned their Training Certificate of Completion.

The course was a team effort with WBEC and Emerald Cities recruiting the participants; senior building executives selecting the course elective; and NEEC providing an accelerated schedule and space at their Smart Buildings Center to allow completion of the course in 12 weeks.

Property/asset management firms signed up trainees on short notice, quickly lifting enrollment 10 percent above goal.

Roughly 90 percent of training costs were covered by public funds. The project leveraged state grant funds awarded through the King County Economic Development Council, Seattle City Light scholarships, and private investments from property/asset management firms in the region.

The Building Operators and Managers Association (BOMA) also supported the effort through an email campaign to recruit trainees and by co-hosting a joint meeting with WBEC and the BOMA Operations and Maintenance team last September. You can read more about BOMA's support of BOC on page 2.



All 22 enrollees completed the course. Select graduates are shown above on the last day of class with Emerald Cities Economic Inclusion Manager Rosalund Jenkins (center in blue dress) and NEEC BOC 1 Project Director Melanie Danuser (second row, far right).

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 an **Energy Saving Kit** is **April 17, 2019**.

Congratulations to the winner of our April drawing, **René Fraser**, Building Services Lead with Nova Scotia Community College's Marconi Campus.

Enter to win here:

<https://www.surveymonkey.com/r/bo-capril2019>

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/>

We'll help your business save money and energy.



A Wide Range of Solutions

Our nationally recognized energy efficiency portfolio includes solutions that address lighting, heating, cooling, appliances, process equipment and more.



Cost Savings

Providing your business significant, persistent savings that can be used to reinvest in your core business—helping to deliver a competitive edge.



Optimizing Energy Usage

Helping your business do more with less through sustainable energy management.



Incentives and Rebates

Connecting you to the right incentives so you can implement energy-saving measures that will benefit your business and bottom line.

EVERSOURCE



CREDENTIALS EARNED IN 2018!

LEVEL I TRAINING CERTIFICATES OF COMPLETION: **998**

LEVEL II TRAINING CERTIFICATES OF COMPLETION: **63**

CERTIFICATIONS: **64**



CONSUMPTION (Continued from page 1)

pane window surfaces. In addition, in urban environments or near sources of noise such as airports, rail lines, and other transportation infrastructure, SGS products reduce the noise coming through the windows.

And building occupants will enjoy SGS for more than just improved thermal and acoustic comfort—they'll also enjoy the non-disruptive installation process. In many cases, replacing windows in leased or otherwise occupied buildings can be disruptive to tenants, especially in the case

of tall buildings where access to the exterior is difficult. Installed in 20 to 30 minutes per window, SGS solves this problem by offering a non-disruptive alternative to conventional full window and frame replacement.

According to a Navigant Report, SGS offers a cost-effective solution to the more than 3,000 commercial buildings in the Pacific Northwest with single-pane windows. This includes historic buildings, as SGS can adapt to existing window systems and therefore conform to historic buildings' often significant restrictions about alterations to existing window systems.

While the main obstacle to the adoption of this technology is the limited awareness of its existence

as an effective solution to under-performing single-pane windows, awareness is growing thanks to organizations like the Attachments Energy Rating Council (AERC)—a collaboration between the US Department of Energy and windows manufacturers. By providing scientifically supported industry-wide metrics for the performance of SGS, storm windows, blinds, and shades, AERC empowers decision-makers in the building industry to select products that decrease energy use and increase the thermal and acoustic comfort of their occupants – all without the disruption of a full window replacement.

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ABOUT THE AUTHOR:

Christopher Meek, AIA is Associate Professor of Architecture at the University of Washington and a registered architect. He is Director of the Integrated Design Lab (IDL) at the University's College of Built Environments. In this role, he consults with design teams and building owners in the Pacific Northwest and nationally with a focus on building energy performance, daylighting, visual comfort, electric lighting, and climate responsive design.

The Integrated Design Lab has extensive experience providing tools and practices that meet the most aggressive performance targets in existing and new buildings. Currently the IDL is providing



Christopher Meek

technical support for deep-energy retrofits under the City of Seattle's Tune-Up Accelerator program which is funded by the US Department of Energy to drive energy efficiency in existing commercial buildings. Professor Meek

teaches graduate and undergraduate level courses on building design, day-lighting, electric lighting, and indoor environmental quality at the UW Department of Architecture.

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