# 

# Practicing Campus Sustainability

### **3 Dozen Best Practices**

Lessons Learned from California's Drought

Challenging Employee Engagement

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PRACTICING CAMPUS **SUSTAINABILITY** 

features

#### **14 3 Dozen Sustainability Best Practices** *Compiled by Steve Glazner*

Our call for short case studies on recent campus sustainability programs resulted in 80 submissions. From Arizona State University to Western State Colorado University, we publish 36 from a variety of North American institutions.

#### **36** Water Conservation Shouldn't Depend on a Drought: Lessons Learned from California Universities By Jake Torrens

While water shortages can impact regions across North America, nowhere has it been felt as severely as it has in California with its recent droughts. The lessons that the state learned – and the best practices and planning implemented by California universities – can serve as an inspiration, as well as a blueprint, for other facilities and regions.

### **40** Challenging Employee Engagement

#### By Jason Wang

This article delves into how true motivation—the type that takes employees to levels of full engagement and high performance comes from within. Managers and supervisors can assist employees by providing environments, coaching, and programs that inspire engagement.

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### Financial and Reputational Risks Top Survey Concerns

Earlier this year, in preparation of APPA's 2018 Thought Leaders symposium, we conducted a survey to all Primary Reps on issues related to risk management on campus. Among the key results, members told us that Financial risks were of their highest concern, with Reputational Risk and Natural Disaster close behind. Terrorism/Active Shooter and Loss of Students/ Reduced Applications were also of notable concern. Fifty-nine percent of respondents were from public institutions; 41 percent from private institutions.

When asked who "owns" risk at the institution, nearly 40 percent responded the Chief Financial Officer, while a disconcerting 30 percent said that "It's not really owned by one department or individual." Nearly 60 percent said that they spent "perhaps an hour or two" per week on risk assessment.

It was encouraging to see that nearly 58 percent of respondents said that their institutions had conducted a thorough risk assessment within the past four years, but nearly 9 percent said they had never done a risk assessment, and 28 percent said they didn't know when or if they had done a risk assessment.

When asked "How effective is your institution at mitigating risk," 21 percent said that it was Very Good/A Top Priority, and another 42 percent said they were Good at mitigating risk. A third of the respondents said that their mitigation efforts Could be Better, while 3 percent said they are Not Effective at mitigating risk.

Fully half of the respondents said that



their institution has a formal strategic plan in place to mitigate risk. When asked about the role of the institution's Board of Trustees in assessing future risk, 49 percent said the Board was Somewhat Involved, while 28 percent were Highly Involved.

This was an unscientific study but gives an indication of the place and areas of concern that risk management and mitigation play on our campuses and in our facilities departments. APPA's 2018 Thought Leaders report will address risk in greater depth and detail and will be published and distributed at the SFO Summit and APPA 2018 Annual Conference, held August 2-5 in Washington, D.C. Note that the Thought Leaders report will be available exclusively to attendees of the conference; all others may download the report at no cost on September 1.

We are pleased to announce the publication of our newest ebook, *APPA's 2012-2017 Effective and Innovative Practices Award Winning Entries: With Updates.* 



With more than 30 case studies and best practice entries, this collection provides you with a great resource of ideas, success stories, and programs to consider for your own institution. The book is available as a PDF download, which you can order through the APPA Bookstore at *www. appa.org/bookstore.* (5)

#### COMING IN MAY/JUN 2018

- Design and construction standards
- Standards for admissions centers
- More sustainability best practices



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#### About APPA

APPA promotes leadership in educational facilities for professionals seeking to build their careers, transform their institutions, and elevate the value and recognition of facilities in education. Founded in 1914, APPA provides members the opportunity to explore trends, issues, and best practices in educational facilities through research, publications, professional development, and credentialing. Formerly the Association of Physical Plant Administrators, APPA is the association of choice for more than 13,000 educational facilities professionals at more than 1,500 learning institutions throughout the United States, Canada, and abroad. For more information, visit us at www.appa.org.

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# facilities digest

industry news & events

#### Candidates Announced for APPA Office—2018-2019

The APPA Board of Directors is pleased to announce the selected slate of officers for the 2018-2019 elections. The Nominating Committee was led by Immediate Past President Chuck Scott.

#### **PRESIDENT-ELECT:**

- Ruthann Manlet, University of Minnesota
- Shelton Riley, Texas Christian University

#### VICE PRESIDENT FOR INFORMATION AND RESEARCH:

- Dan Gearan, New England College
- David Handwork, Arkansas State University

#### VICE PRESIDENT FOR PROFESSIONAL DEVELOPMENT:

- · Beth Clark, Penn State University
- Terri Willis, University of Colorado Boulder

Voting is now open to primary/institutional representatives. Those eligible to vote will be able to do so online or via paper ballot. The online ballot will include a link to a video statement from each candidate. The ballots close at 11:59 p.m. Eastern Time on April 24, 2018.

Please note that the primary/institutional representative has the option of allowing an associate member to vote on their behalf via proxy (only one vote will be accepted from each institution). The associate member with proxy rights has been listed on the dues invoice.

To learn more about the candidates and to vote, go to *www.appa.org/vote*. If you have any questions, contact Anita Dosik at *anita@appa.org*.

#### **APPA Dues are Due**

APPA has sent membership dues invoices to all APPA members for the fiscal year April 1, 2018- March 31, 2019.

Please pay your dues promptly to continue receiving APPA's many membership benefits. For more information, contact member services at *membership@appa.org.* 

# WASHINGTON DC

### SAVE THE DATE

#### APPA 2018 ANNUAL MEETING & EXPOSITION

#### Washington, DC *August 3-5, 201*8\*

Mark your calendar to attend next year's meeting and exposition. You won't want to miss this exciting gathering of fellow facilities professionals and exceptional speakers!

\*SFO Summit, Aug. 2

#### Add Your Own FM Events to the APPA Online Calendar



APPA maintains a calendar of events taking place in your region or chapter, as well as other events focused on educational facilities. You can view the calendar at http://www.appa.org/calendar/index. cfm and also add events of interest to your APPA colleagues.

#### Upcoming Chapter Conferences-2018

March 20-22: Michigan (*Kalamazoo*) March 22-23: Illinois (*Chicago*) March 23: Maryland/DC (*Rockville*) March 28-30: Arkansas (*Magnolia*) April 7-10: Texas (*Austin*) April 8-9: West Virginia (*Morgantown*) April 8-9: West Virginia (*Morgantown*) April 18-20: New Jersey (*Galloway Township*) April 25-26: Colorado (*Greeley*) May 14-15: Tennessee (*Chattanooga*) May 16-18: North Carolina (*Cullowhee*) May 26-30: Georgia (*Jekyll Island*) June 6: Delaware Valley (*location TBD*) June 12-14: New York (*Lake Placid*) October 6-10: South Carolina/in conj. with SRAPPA

This list is actively being compiled; for the latest information visit *https://www.appa.org/regions/chapters.cfm*.

To submit your chapter information, please email APPA's webmaster with your chapter contact, email, and URL if available.

#### New Part 1 BOK Content Coordinator

We are pleased to announce that Vic Pesiri will be the new BOK Content Coordinator for Part 1, General Administration and Management. Vic is director of facilities and construction at Brentwood School in Los Angeles, CA. A graduate of NYU, he has a successful history of man-



aging large and complex educational institutions. He is the PCAPPA rep to APPA's Information and Research Committee. Welcome, Vic! We look forward to your guidance and support of APPA's Body of Knowledge.

#### CALENDAR OF EVENTS

#### **APPA Events**

Mar 19-22, 2018 APPA's Supervisor's Toolkit Radisson Plaza Hotel, Kalamazoo, Ml

Apr 23-27, 2018 APPA's Supervisor's Toolkit Baton Rouge, LA

#### Jun 11-15, 2018

**APPA's Supervisor's Toolkit** Northern Kentucky University, Highland Heights, KY

#### Aug 2, 2018 Senior Facilities Officer (SFO) Summit, Washington, DC

#### Aug 3-5, 2018

APPA 2018 Annual Meeting & Exposition Washington, DC

#### Oct 15-18, 2018

APPA's Supervisor's Toolkit Richmond, VA

#### Oct 29-Nov 1, 2018 APPA/ACUHO-I Housing Facilities

Pittsburgh, PA

#### **Regional Events**

Sep 24-26, 2018 RMA 2018 Conference Aurora, CO

Sep 29-Oct 2, 2018 CAPPA 2018 Conference Spearfish, SD

Sep 29-Oct 3, 2018 PCAPPA 2018 Conference Spokane, WA

Sep 30-Oct 3, 2018 ERAPPA 2018 Conference Manchester, NH

Oct 6-9, 2018 SRAPPA 2018 Conference Greenville, SC

Oct 13-17, 2018 MAPPA 2018 Conference Cleveland, OH

For more information or to submit your organization's event, visit *www.appa.org/calendar.* 

# digest

### APPA'S EDUCATIONAL OPPORTUNITIES

#### APPA U:

APPA U combines APPA's **Leadership Academy** and the **Institute for Facilities Management** in one location twice a year. The next APPA U will take place September 9-13, 2018 at the Omni Shoreham Hotel in Washington, D.C. For more information, visit *http://www.appa.org/training/appau.cfm*.

#### The Leadership Academy—

The purpose of the Leadership Academy is to enhance and further develop leadership throughout the educational enterprise. The Leadership Academy provides opportunities for professionals to increase their awareness of industry issues, to learn the skills necessary to handle today's changes, and to discover the leadership potential within each of us.

The Leadership Academy has been developed for, and focuses on, the educational institution's administrative professionals. These include: facilities staff, procurement agents, business/ finance professionals, and auxiliary services professionals. The program is designed in tracks, with each track emphasizing a different perspective and type of leadership skill.

Upon completing the week-long session, students receive a certificate of completion designating their core area of study and 3.0 continuing education units (CEUs).

#### The Institute for Facilities Management—

The Institute curriculum is composed of four core areas:

- General Administration & Management
- Operations & Maintenance
- Energy, Utilities & Environmental Stewardship
- Planning, Design & Construction

Institute students select one core area to be the focus of their classes for that week. Morning classes consist of required courses, centering on the core area selected. Afternoon classes will be electives chosen by the student and may be a combination from any of the four core areas.

Upon completing the week-long session, students receive a certificate of completion designating their core area of study and 3.0 continuing education units (CEUs).

For more information about APPA U, please contact Suzanne Healy at *suzanne@appa.org*.

#### **DRIVE-IN WORKSHOPS:**

The Drive-In Workshop is designed to support staff education needs at a time when resources are difficult to come by for employee technical training. This four-hour program is designed purposely to allow local professionals to drive in mid-morning for several short sessions, advance their understanding of the latest facilities technologies, network with peers, and get back to their work or home quickly and conveniently with little travel costs, if any.

For more information about APPA's Drive-In Workshops, please contact Corey Newman at *corey@appa.org*.

#### SUPERVISOR'S TOOLKIT: NUTS AND BOLTS OF FACILITIES SUPERVISION

The Supervisor's Toolkit has been specifically designed to meet the needs of the facilities management supervisory professional.

It is a structured, open-ended, and pragmatic approach to developing supervisors. It is not so much a training program as a development process, designed to help supervisors realize both personal and professional growth. The program is designed for a full week of training and includes opportunities to network with peers.

For more information about the Supervisor's Toolkit, please contact Corey Newman at *corey@appa.org*.



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# The Meaningful Impact of Saying Thank You

By Timothy Carey, Ed.D.

acilities organizations regularly deal with emergencies and calamities of one kind or another. A fierce snowstorm or hurricane; a broken pipe or sprinkler head; an uncooperative boiler at two a.m. in January—we have all been there. Like my team, I suspect that yours always rises to the occasion and returns the building or grounds to normal operation in timeframes that are oftentimes amazing. Following such incidents, there is typically an outpouring of appreciation from facilities leadership, customer cohorts, and the institution's senior leadership. Front-line staff members are acknowledged-oftentimes publicly-for their herculean efforts. And appropriately so.

My purpose in writing this piece, however, is to share my strategy to convey thanks to the facilities team at times other than those stressful, all-handson-deck scenarios noted above. Indeed, the most impactful thank you can occur when an employee is simply doing his or her routine task. I care about the people in my organization. They work very hard—and many hustle to a second job when their on-campus shift concludes. I also recognize that the salaries paid to some members of the team are among the lowest of all full-time employees on campus. I therefore want my team members to know that I value their hard work, dedicated service, and loyalty to our core values of supporting the recruitment and retention efforts of students as well as faculty and staff members. As I have mentioned to my team on numerous occasions, we never want a student, faculty, or staff member to not choose Ithaca Collegeor to leave-because of a facilities issue.



Accordingly, I have found that saying "thank you" in varied ways is both meaningful and impactful to the valued men and women who work on the facilities team. Although this may sound far from profound, I believe it becomes commonplace-unintentionally, of course-to neglect to acknowledge employee performance during times of normal operation. My sense is that a major component of the chief facility officer's responsibilities is to ensure that our staff members feel valued in an environment where their efforts are oftentimes taken for granted. After all, good facilities performance means that staff members are largely invisible. If the classroom is clean, if the temperature is at an appropriate and comfortable level, if the lights are not flickering, if the elevator works, if the ceiling tiles are not stained, few customers notice. Said differently, a quiet day at the Facilities Help Desk typically means good performance; however, this does not mean that it should be a day without thanking and acknowledging employee performance.

Examples of the some of the ways I routinely demonstrate and/or express my thanks to facilities team members:

Saying thank you during informal walk-throughs of buildings and grounds. One of the things I truly

enjoy is something I refer to as "walk-around time." My walking tours can occur at any time—including nights and weekends. Showing up unannounced and seeing an employee perform their task well is fulfilling to me, and is a value of the organization that I lead. Saying thank you in this environment is indeed impactful to employees.

Hand-written birthday cards for every member of the Facilities Team. I value the impact this practice has on the members of my team. A birthday card provides an opportunity to wish a staff member an enjoyable day as well as a chance to acknowledge the significant contributions they have had on the team and institution during the past year. By doing this via an actual birthday card (not an email or virtual card), the level of appreciation becomes personalized and magnified.

*Life-Skills training sessions as a component of divisional meetings.* Exposing facilities employees to important non-work related topics is another way that I say "thank you" to my team. In addition to budgetary updates, discussions about upcoming institutional strategic imperatives, and other impor-

tant information sharing during my All-Facilities Gatherings, I also include a session on a topic that has nothing to do with being an employee within a facilities department, but, rather, will provide information and insight into a topic that could impact their personal lives. A recent example: a guest speaker who presented Retirement 101 (because I am convinced that too many facilities employees do not pay close enough attention to this topic). Said differently, I strive to ensure that staff members feel valued as persons who have lives and responsibilities outside of the academe.

Give "Props" to the facilities team during presentations around the campus—even when they are not in attendance. As the chief facilities officer, I have the distinct privilege to present updates about exciting new capital projects, deferred renewal initiatives, and plans for continued pursuit of carbon neutrality—to name a just a few topics —to trustees, senior leadership, and faculty, staff, and student governance groups. I feel compelled to always begin my remarks by saying something along the lines of: "I proudly stand before you representing 190 hard-working facilities employees." This is, of course another way to acknowledge and thank the folks who are truly deserving of recognition within the facilities organization.

Much of what I have written in this piece is not earth-shattering or cutting-edge to many readers. Furthermore, I suspect some of you have additional means to express informal thanks to team members. I am hopeful, however, that my written words provide all of us with a reminder that acknowledging your team in varied informal forums is beneficial to your department's work product, to your recruitment and retention efforts, and dare I say, to your bottom line. Perhaps most importantly, however, it is the absolute right thing to do. With that, I say "thank you!"

Tim Carey is the associate vice president and chief facilities officer at Ithaca College in upstate New York. He can be contacted at *tcarey@ithaca.edu*.



# Facilitating the Transition from Military Service to Higher Education

By Randy Culver, with Scott Hanson

eing the main provider of education for over 60 years for Ellsworth Air Force Base's 28th Bomb Wing in Rapid City, South Dakota, Black Hills State University (BHSU) has a long history of working with the military. In fact, BHSU has been honored as one of the best colleges for student veterans by *Military Times* for six consecutive years.

Employees with military service have a unique and valuable benefit to offer our universities, as they have the ability to both communicate directly and express their opinions in a respectful manner. The bottom line is that the United States military does a great job training our veterans to be huge assets for the civilian workforce—in fact, the military is undoubtedly the greatest leadership development institution on the planet! As an educational facilities professional and

the father of a Marine veteran, I am proud to support veterans' transitions to a career in educational facilities by employing several veterans at BHSU Facilities Services.

This initiative is so important to our profession that APPA has established a subcommittee specifically to help military personnel transition to a successful career in higher education. APPA and SAME (the Society of American Military Engineers) also formed a strategic alliance specifically to support military personnel who are seeking a career change.

The following is a real-life example of a personal transition from military service to educational facilities. Scott Hanson, facilities services business manager at BHSU, has worked for me for the past four years. Here is his story:

ransitioning in life is a daily occurrence, but making a career change after 25 years can be fearful for some.

During my time in the United States Army, I had the privilege to serve my country with honor, respect, and



loyalty. There are some who may not understand that, but in others it instills a personal pride that is hard to explain. Yes, there were days that were more difficult than others, but the best part was that I was doing something I chose to do: making the Army my career.

Having a career in the Army is different than one in educational facilities in many ways, but more similar than most realize. Both career paths have similar attributes and responsibilities, with the main difference being what's at stake. Yes, the military sector is a different discipline than higher education with respect to how things are done, but they are similar in that a final outcome is attained in both sectors. In the Army, our job is to defend our nation, so we were constantly training to ensure we were able to comply at a moment's notice. In facilities management, our job also requires contact training and complying at a moment's notice to protect and maintain our universities.

One may think changing a career after so long would be easy because it is just moving on to a new chapter in life. I thought I was prepared for what was next, but the truth is that I wasn't. I have started a new life, transitioning from an extremely disciplined environment including something as simple as wearing a uniform every day, to a more casual environment. One's wardrobe is only a part of the transitioning from the military. You have to adapt to new environments, civilian terms, and also learn how not to communicate in military terms or acronyms.

Military service means a soldier must accept being deployed at a moment's notice. During my military service, I was deployed numerous times. Transitioning to civilian life alleviated the stress associated with deployment; however, it was replaced with the stress of choosing which career path to take in the future. I wanted to do something in business, help others, and work with a team. This challenge made me nervous because I only knew the Army life; civilian life had not been a focal point in my life for 25 years. Now that I am on this new journey, I am learning an entire new life which is at times both stressful and enjoyable.

I was fortunate to begin working at Black Hills State University, where I could do everything that I was looking for when it came to my next career. Here at the university, I am working in my field of study, helping others, working with a team, and truly enjoy my job. Working in facilities management has shown me a different aspect of working with a team, because facility management personnel are the hidden gems of any campus. I found that this career can be somewhat like working in the military, because of the hidden value of the work that our team does every day. —*Scott Hanson* 



I offer a special thank you to APPA for making this a professional priority. Please help support military veterans by hiring them in your organization. It will be a rewarding experience!

*I want to personally thank Scott, my son, Chris, and all veterans for their dedicated service to our country.* (§)

Randy Culver is associate vice president of facilities and sustainability at Black Hills State University, Spearfish, SD, and can be reached at *randy.culver@ bhsu.edu*.





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# Sustainability Best Practices

Compiled by Steve Glazner

ince 2003 at least one issue per year of *Facilities Manager* has had a focus or special theme related to campus sustainability, energy efficiencies, and environmental stewardship. In 2016 I sent out a call for short case studies and received 17, all of which we published to show the variety and innovation of our campus sustainability, energy, and facilities departments. I expanded the call for case studies last year and was pleased to see an increase of submissions to 27; again, I published them all.

For this third installment of sustainability best practices, I reached out to the members of AASHE, the Association of College and University Housing Officials-International, my colleagues at the Higher Education Associations Sustainability Consortium, the Green School listserv, and several other venues. I planned to increase the number of published case studies to an even three dozen. The call was so successful that I had received a whopping 80 submissions for these 36 slots. A number of schools submitted more than one, with one university sending write-ups of seven separate projects. Clearly, there are innumerable positive and beneficial programs going on throughout North America that provide leadership to students, efficiencies to campuses, and a hopeful future.

The best practices included in this issue are from small private liberal arts colleges, large public research universities, community colleges, and one K-12 organization, with half a dozen from across Canada. What's going to happen to the 44 projects that were not included? Because of the wonderful response, we will include several more best practices in our May/June issue. In addition, APPA will soon be publishing a collection of all case study submissions from the past three years into a new publication later this spring. Be watching for it.

In the meantime, dive into the interesting and exciting programs that follow. There's a lot of great stuff here.



#### **ARIZONA STATE UNIVERSITY**

#### Tempe, Arizona

Submitted by Kendon Jung, Student Involvement Coordinator, Leadership & Sustainability

## EXPERIENCE THE CENTER OF STUDENT ACTIVITY AND LEADERSHIP

Changemaker Central @ ASU exists to create a universitywide culture that empowers students to apply their passion, knowledge, and expertise to create innovative solutions to local, national, and global challenges. We provide opportunities and resources to inspire, catalyze, and sustain student-driven social change through community service, high-impact careers, and social entrepreneurship.

Born from a student forum with President Michael Crow, change agents from the ASU West location, with a passion for bridging the gap between food waste and food insecurity, introduced Borderlands Food Bank. Since then, Changemaker Central @ ASU has worked with Borderlands Food Bank and volunteer student organizations to divert fresh, nutritious produce from the landfill into the hands of Arizona families.

During 2016 - 2017 academic year, ASU Borderlands has....



- Hosted 12 P.O.W.W.O.W.s
- Engaged 176+ student volunteers in food insecurity educational awareness
- Diverted 135,695+ lbs of food from landfill
- Supplemented 206,183 meals
- Connected 8,644 people to fresh produce
- Generated \$73,876+ community stimulus

As #1 in innovation for three years running, this partnership initiative on the ASU Poly, Tempe, and West locations emulates personal action and social embeddedness characteristics that have driven ASU's design aspirations as the New American University.



# AUGSBURG

#### **AUGSBURG UNIVERSITY**

Minneapolis, Minnesota Submitted by Allyson Green, Chief Sustainability Officer

#### INTRODUCTORY ENVIRONMENTAL STUDIES COURSES LEARN TO "LOVE LOCAL WATER"



Augsburg University has a multipronged approach to implement a policy phasing out bottled water, including infrastructure changes, education, and culture shift. Using the campus and community as lab, Environmental Studies faculty participated by integrating experiential learning into two courses, one focusing on the global water crisis and one on water quality. Students undertook learning projects to address knowledge gaps, perceptions of health and safety, and infrastructure needs on campus.

Environmental Connections, an introductory environmental studies course, spent the semester exploring sustainable water use and our local Mississippi River watershed. Environmental Science students conducted water quality testing, taking samples from taps and fountains across campus. Minneapolis city water consistently exceeds clean drinking water standards, but building trust in our own taps is identified as a priority as we move away from bottled water.

Alongside experiential learning with community partners, including a trip in Voyageur canoes with Wilderness Inquiry, conducting surveys, and water "tasting" at Water Bar, these students also took action on campus. Students helped shift culture through blogs, our own "water bar" taste-test, waste audit, and reuseable water bottle sharing program. All efforts to shift the entire campus culture in recognition of local water as a valuable, safe, human right.



#### **BROWN UNIVERSITY**

Providence, Rhode Island Submitted by Jessica Berry, Director, Sustainability Initiatives

#### OFFICE OF ENERGY & ENVIRONMENTAL INITIATIVES COMPOSTING PROGRAM

Brown University's Office of Energy & Environmental Initiatives implemented a composting program in FY17 after two years of planning, piloting, training, and infrastructure placement. With the University's increased focus on greenhouse gas mitigation and waste diversion, and the RI landfill expected to be at capacity by 2038, adopting compost program at the University was a natural fit to Brown's commitment to sustainability. Each dining facility has a pre-consumer composting program, and three facilities are piloting post-consumer programs.

Additionally, three office compost pilots are underway and, as momentum grows, more are expected to be added. In an ef-



fort to promote RI's economy, a key component to the program was for the life cycle of the material to stay within the region. The material is hauled by a locally owned small business to an aerobic facility in RI. The compost is in turn sold as a locally owned small business product. The successful implementation of the program can be attributed, in large part, to the many student interns and volunteers who dedicated their time to marketing, training, and education efforts. In FY17 Brown University diverted 485 tons of material to be composted, and the University is slotted to reach about 550 in FY18.



#### **CALIFORNIA STATE UNIVERSITY**

#### San Bernardino, California

Submitted by Jennifer Sorenson, Assistant Vice President Facilities Planning and Management, and Dr. Jennifer Braswell Alford Assistant Professor Geography & Environmental Studies, Co-Chair Resilient CSUSB Taskforce

#### DEFINING RESILIENCY FOR A SUSTAINABLE FUTURE

Located in the heart of the Inland Empire, California State University San Bernardino (CSUSB) serves communities characterized by diverse social, economic, and environmental settings that present numerous challenges. Throughout its history, the campus has implemented several sustainability-focused projects; however, ensuring an integrated sustainability effort campuswide has proved challenging.

In April 2017, the campus refocused its commitment to sus-

tainability through Resilient CSUSB. The plan aims to engage the campus community through working groups focused on Energy, Water, Food & Waste, Education & Sustainable Community, Transportation & Mobility, and Land Use & Buildings. Supported by faculty, staff, student, and alumni membership, these groups assist the Office of Sustainability with identifying specific strategies, actions, timeframes, and resources. The Resilient CSUSB platform allows for a more coordinated approach centered on student success and the Triple Bottom Line. The goal of this effort is to understand what resources exist on campus, what the campus community needs are and to build, operate, and nurture a healthier more resilient community both on campus and in our region.

Fall 2017 marked the launch of *Resilient CSUSB* planning and brought together students, faculty, staff, and alumni to shape the future of sustainability on the campus and in the region.







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# Caltech

#### **CALIFORNIA INSTITUTE OF TECHNOLOGY**

Pasadena, California Submitted by John Onderdonk, Director, Sustainability Programs

# CHARTING A COURSE TO DECARBONIZED ENERGY FUTURE

Caltech, a world-renowned science and engineering institute located in Pasadena, California, has achieved a 22% reduction in GHG emissions since 2008 as a result of a focus on energy efficiency, the deployment of on-site distributed energy resources, and the construction of high-performance LEED certified buildings.

Recognizing that further reductions in GHG emissions will require reimagining current practices, Caltech embarked on a strategic planning process to identify a path to decarbonize the electrical utilities while reducing risk, addressing reliability, and improving adaptive capacity. Over the course of 2017, sustainability staff, supported by a faculty committee and a task force of facilities engineers, evaluated current operations, forecast future growth, identified tipping points and key drivers, and evaluated 15 unique generation technologies. Sixty-eight future scenarios



were modeled and analyzed to identify the lowest life-cycle cost generation technologies. The end result is a pathway to decarbonize the electricity supply by 2024 through a transition away from on-site cogeneration, deployment of additional on-site PV and fuel cell resources, and the integration of a large offsite renewable energy project into Pasadena's grid. The energy resource planning process also identified the need to develop a utility master plan to decarbonize thermal utilities that will be completed in 2018.



#### **Canada's Capital University**



#### **CARLETON UNIVERSITY**

Ottawa, Ontario Submitted by Philip Mansfield, Manager, Sustainability Programs

#### **BIKE SHARING TAKES OFF AT CARLETON UNIVERSITY**

Carleton University expanded its bike share program on campus in 2017 to allow for greater and easier access to bikes by students and the wider Carleton community. In addition to the existing bike share program, right bike, which is available through the student residence reception desk, an additional program was launched.

The introduction of VeloGo bike share program, which is appenabled and allows for hubs across campus and enables both cross-campus bike travel as well as off campus cycling. VeloGo also taps into an existing bike infrastructure in Ottawa. A new student tariff was launched and bike hubs were added to existing bike parking on campus.

In the past year there has been a 200% growth in student and visitors to the campus (through our conference services in the summer) who have been using these services. The Carleton campus sits adjacent to the UNESCO world heritage site, Rideau Canal, so allowing cycle access to the canal path is of great benefit.

Carleton provides a broad sustainable travel program, including both onsite electric charging stations in two of our covered parking garages, carshare programs, and a car pool program aimed at staff and faculty sharing rides to and from work.





#### **CULVER ACADEMIES**

#### Culver, Indiana

Submitted by Chris Kline, Senior Instructor, Leadership Education and Sustainability Director

#### FOOD WASTE AND FOOD RECOVERY

Reducing food waste is one focal area in Culver's ongoing efforts to improve sustainability. Culver serves 2,500 meals per day and double that during our summer camp program. Our recovery program addresses both food scraps and prepared, unserved food. For the past three years, we have tried to compost our food waste, but our mixed food waste stream just wasn't composting satisfactorily. Last fall, we took a different tack. We now send 1,000 pounds per week of food scraps to a nearby dairy farm that operates a methane digester. The digester creates methane fuel used to power an electricity generator. For the second component, as part of a student initiative, stakeholders came together to develop a solution for prepared, unserved food. We acquired a machine that students use to package food into individual containers. These containers are labeled and frozen. Twice a week, we deliver the frozen containers to local organizations who serve people in need. We averaging 280 recovered meals per week, making quite a difference for our rural community of 1,500!





#### **DUKE UNIVERSITY**

Durham, North Carolina Submitted by Rebecca Hoeffler, Tavey Capps, and Jason Elliott, Sustainable Duke



# UNDERGRADUATE CERTIFICATE IN SUSTAINABILITY ENGAGEMENT

Over the past three years Duke University has expanded sustainability education with the new Undergraduate Certificate in Sustainability Engagement. Earned upon graduation in conjunction with their major degree, students are eligible to apply until the first semester of their junior year. The Certificate provides interdisciplinary learning through gateways courses in combination with experience hours, giving students the hands-on education and application of their sustainability studies.

The Sustainability Engagement Certificate is designed to facilitate learning and research among students that confronts the interconnections between environmental, economic, and social aspects of sustainability. The program requires students to connect multiple disciplines, such as environmental science, economics, public policy, and or social justice. Through two immersive cocurricular experiences, students gain real-world application and knowledge. One of the experiences must exceed 300 hours, the other must exceed 150 hours. With the creation of the public facing ePortfolio, students creatively capture artifacts from their work and experiences throughout the certificate. This is meant to deepen their reflection of their participation in the program and provide tangible accounting of students' learning. The programs fosters critical analysis, systems thinking, and practical skills to create engaged leaders in sustainability.



#### ENDICOTT COLLEGE

Beverly, Massachusetts Submitted by Cat Bartolini, Associate Director of Sustainability

# STORMWATER MANAGEMENT FOR A COASTAL CAMPUS

Endicott College is located in Beverly, Massachusetts, adjacent to the Salem Sound Watershed, an inlet leading to the Atlantic Ocean. Due to the college's proximity to the ocean, Endicott has implemented a robust stormwater management system to adapt to the effects of climate change and conserve the surrounding ecosystem.

Several detention basins exist throughout the Endicott College campus. The pond in the center of campus acts to catch, slow, and then release stormwater. In addition, several rain gardens are used to capture and treat water from multiple buildings on campus, including the green roof on the Walter J. Manninen Center for the Arts. These are vegetated areas that are engi-



neered to collect water from the building, treat it with plant material, and release it slowly into the campus system.

The college's most recent parking lot was constructed with pervious pavement, allowing water to be absorbed into the ground with little runoff. By flowing through the rock-filled bed, the water is able to recharge the wetlands and allow the natural water cycles to continually flow.

These systems mimic the natural hydrologic cycle and assist in reducing nutrient pollution caused by surface runoff. In turn, decreasing erosion, increasing biodiversity, and protecting the ecosystem services that wetlands provide.



#### FURMAN UNIVERSITY

Greenville, South Carolina Submitted by Hannah Dailey, Program Coordinator

#### COMMUNITY CONSERVATION CORPS: HOME WEATHERIZATION FOR EFFICIENCY, STABILITY, AND NEUTRALITY

Imagine a \$500 energy bill during the winter months because you are using space heaters after your furnace failed. Then, picture some of that expensive heat escaping through cracks in the windows and floors. The Community Conservation Corps (CCC), a collaboration between Furman University, Habitat for Humanity, and Piedmont Natural Gas, addresses these issues through free home weatherization services to low-income families in the greater



Greenville area. Weatherization includes anything that lowers energy consumption, like attic insulation, LED lighting, air sealing (caulking), HVAC unit servicing, and duct sealing. Since its founding in 2009, the CCC has weatherized 119 homes. On average, the program saves 25% on a homeowner's utility bill.

Not only is the program increasing energy efficiency and financial stability, but it is also contributing to Furman's goal of carbon neutrality by 2026. Because Furman is providing the service and measuring the energy savings, we are able to claim the carbon offset in our greenhouse gas reporting. Thus far, the pro-

> gram has prevented the release of 410.89 metric tons of CO2. This combination of tangible and intangible benefits makes the program both trusted and valuable in our community.





#### JOHNSON COUNTY COMMUNITY COLLEGE

Overland Park, Kansas Submitted by Dr. Jay Antle, Executive Director, Center for Sustainability

# JOHNSON COUNTY COMMUNITY COLLEGE'S POWERSWITCH PROGRAM

Johnson County Community College's Center for Sustainability and Campus Services staff are tackling the escalating cost of electricity, reducing the college's carbon footprint, and providing learning opportunities for students.

These energy efficiency efforts, branded Powerswitch, have created a cost avoidance of almost \$3 million in costs with electrical usage down by 25 percent since 2008, despite new buildings on campus. Solar PV panels are now being installed on rooftops as the second "switch" of the Pow-

erswitch program.

Powerswitch began with upgrades to HVAC systems, particularly motors in the college's original buildings. Next came more efficient lighting through aggressive conversion to efficient LEDs (including parking lots). Housekeeping services, once performed at night, are now completed during the day so building temperatures can be adjusted to save energy overnight. Most campus rooms are now fitted with motion sensors. Retrocommisioning is currently underway, which includes chiller optimization, HVAC system rebalancing, equipment replacement, and instituting a more robust building automation and scheduling system.

JCCC currently has 242kW of photovoltaic solar power



throughout campus which is paired with student learning opportunities. A plan of retrofitting most roofs with solar is underway in stages. Further, JCCC students have built five solar charging tables on campus.

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#### MCGILL UNIVERSITY

Montreal, Québec Submitted by Shona Watt, Sustainability Officer

#### MCGILL LAUNCHES SUSTAINABLE WORKPLACE PROGRAM

McGill University has launched the Sustainable Workplace Certification Program to challenge staff and students throughout the University to foster healthier, more environmentally-friendly, and connected workplaces through individual and collective practices.

After gathering feedback from students and staff throughout the university with expertise in areas such as accessibility, energy management, procurement, mental health and equity, a framework was created to evaluate and improve their workplace's sustainability performance. The certification uses teamwork to achieve four increasingly rigorous levels: Bronze, Silver, Gold, and Platinum. Each level includes approximately 15 actions and one bonus initiative. The program incorporates a range of beneficial actions, from reducing air travel and disposable cups



to encouraging employees to take a lunch break. 75% of the designated team must commit to doing all points to get certification. An office determines the scope of the team, identifies key stakeholders, and decides on a vision and goals that will help achieve the desired level.

The Sustainable Workplace Certification Program is one of many priority actions listed under the recently released Vision 2020 Climate & Sustainability Action Plan, which outlines Mc-Gill's plan to mitigate its greenhouse gas emissions and boost its sustainability from 2017 to 2020.

MOUNT ROYAL UNIVERSITY

#### **MOUNT ROYAL UNIVERSITY**

Calgary, Alberta Submitted by Priscilla Rajan, Space and Communications Specialist

# MOUNT ROYAL UNIVERSITY REDUCES CARBON FOOTPRINT

The Mount Royal University main campus building is an approximately 2,957,807 sq.ft. campus on 48 hectares of land. The University Strategic Plan outlines the commitment to reduce the University's carbon footprint. The Facilities Management department is responsible for the efficiency of operational sustainability and savings on campus.

Grant Sommerfeld, associate vice-president of facilities management, has overseen the move at Mount Royal University to cuttingedge technology that will reduce the university's environmental footprint while also saving money that can then be invested back into the University. He believes Mount Royal will become a leader in sustainability amongst postsecondary institutions.

Mount Royal is currently integrating a combined heat and

power (CHP) unit within the base building electrical and heating distributions. Executing this project is Owen Zarazun, the director of facilities operations. "This installation demonstrates our commitment to sustainability and our ongoing quest to reduce our power consumption," he says. "Saving energy saves money, and our electricity provider has estimated the CHP will reduce greenhouse gas reductions by 1,800 tonnes per year. Within seven years, we'll see a payback." Zarazun says the combined heat and power unit is one of many projects that achieves energy savings on campus in an overall sustainability campaign that also encourages students, staff, and faculty to adopt more sustainable practices. Next up - piloting a 400 kilowatt solar power install!





#### NORTH CAROLINA STATE UNIVERSITY

Raleigh, North Carolina Submitted by Carla Davis, Communications Coordinator

#### A BEE-FRIENDLY GARDEN HIGH IN THE SKY

Atop the roof of NC State's Talley Student Union is a feast of a living lab. Vegetables, herbs, and pollinator-friendly plants are growing in a rooftop garden that NC State installed during fall 2017.

The garden is divided in two regions: the pollinator garden and the produce garden. The pollinator garden is managed by two Department of Horticultural Science professors, who received a \$23,306 grant from the university's Sustainability Fund. This garden will expand research and education of green roofs and pollinator habitat in the southeastern United States.

The produce garden is managed by Campus Enterprises. This unique garden supplies food such as salad greens, herbs, onions, and garlic to the chefs at a campus restaurant.



The Division of Academic and Student Affairs and the Park Scholars Class of 2017 Legacy Gift also partnered to help fund

this rooftop garden. Together, both gardens serve as a living lab for the university community and the public, as well as a model of local food production in an urban campus environment.



# Northwestern sustainNU

#### **NORTHWESTERN UNIVERSITY**

Evanston and Chicago, Illinois Submitted by Stephanie Folk, Communication and Engagement Manager

# KRESGE HALL RECEIVES NORTHWESTERN'S FIRST LEED PLATINUM CERTIFICATION

Extensive renovations transformed a 63-year old Northwestern University academic building into one of the greenest facilities on campus. Following a two-year renovation project, in 2017, Kresge Centennial Hall received Leadership in Energy and Environmental Design (LEED) Platinum certification from the U.S. Green Building Council. It is the University's first LEED Platinum building and the 11th to earn LEED certification.

Home to the Weinberg College of Arts & Sciences humanities programs at Northwestern, virtually all undergraduates pass through Kresge Hall at some point in their academic careers. Sustainable features of the renovated building include:

- A 254-panel rooftop solar array that provides 5 percent of the building's electricity
- 100 percent low-emitting interior materials (paints, flooring, sealants, etc.) that dramatically reduce indoor air pollution
- Daylight sensors that automatically dim or brighten the building's high-efficiency LED lights based on sunlight
- · Highest-grade possible exterior insulation and windows
- Radiant ceiling panels that use chilled water from the Central Utility Plant to reduce the amount of energy needed for air conditioning

Kresge Hall earned 86 points on the LEED certification's 110-point scale. A minimum of 80 points is needed to achieve Platinum status.



#### **PORTLAND STATE UNIVERSITY**

Portland, Oregon

Submitted by Amanda Wolf, Program + Assessment Coordinator

#### CREATING A SUSTAINABLE CAMPUS THROUGH INCLUSIVE RESTROOMS

Portland State University recently unveiled several new all-gender restrooms across campus in accordance with the newly adopted All Gender Restroom Policy. The policy was created to provide accessible, safe, and convenient facilities to all people, including all gender identities and people with attendants or caregivers of a different gender.

Creating an inclusive and welcoming campus for all students, faculty, and staff is one of Portland State's sustainability goals, serving as a driving force for the All Gender Restroom Policy. The policy



requires the addition of at least one all-gender restroom in all new construction and major renovations giving preference to multi-stall over single-occupancy restrooms. Additionally, the renovation of existing restrooms is prioritized in an effort to increase all-gender restroom options throughout campus.

Units across campus identified 18 restrooms for retrofit, receiving support and funding from administration and students. The University now has a total of 63 all-gender restrooms in 25 buildings, with more to come, including two major renovation projects that will include a multi-stall all-gender restroom.

# SJSU SAN JOSÉ STATE UNIVERSITY

#### SAN JOSE STATE UNIVERSITY

San Jose, California Submitted by Debbie Andres, Utilities and Sustainability Analyst

#### CONVERSION OF STEAM MAKE-UP FROM POTABLE WATER TO RECYCLED WATER

San Jose State University (SJSU) is the oldest public institution for higher education in California and occupies 155 acres in the heart of downtown San Jose. The campus has more than 20 years of experience with recycled water project planning, construction, staff development, annual cross-control testing, and four-year certifications.

In October 2017, SJSU converted its existing boilers that generate steam from potable water to recycled water, using their existing reverse osmosis (RO) equipment, saving approximately 25,000 CCF annually in potable water usage. Use of reclaimed water as a source for steam make-up was an ambitious technical challenge due to the high purity required and it now eliminates the single remaining largest potable water usage at SJSU. The second phase will design and implement a system that will include design of a duplex media filter and reclaimed water pretreatment complete with coagulant mix tank, filtered water tank, chemical feed system, pumps and pipelines within the central plant, and improvements to the plants mixed bed softener and RO membrane system. This project is in the first phase of development and will be completed in June 2018.





#### SIMON FRASER UNIVERSITY

Burnaby, British Columbia Submitted by Ashleigh Erwin, Communications and Engagement Manager, Sustainability Office

# FACILITIES SERVICES LEADS INTERNATIONAL ZERO WASTE EXCELLENCE

A leading institution in pursuing ecological, social, and economic sustainability, Simon Fraser University (SFU) has been the recipient of multiple national and international awards for quality, innovation, productivity, and communication for its Zero Waste Initiative, thanks in part to a collaborative Facilities Services team.

In response to SFU's ambitious waste diversion and reduction targets set out in the university's sustainability goals, Facilities Services teamed up with SFU's Sustainability Office, Ancillary and Procurement Services to develop the Zero Waste Initiative

in January 2014. The Initiative developed a new standard for public space waste management, employed infrastructure improvements, cross-departmental governance, a comprehensive communication strategy, and demand-side management; it also achieved its goal of diverting 70% of the university's total waste in just 18 months.

Going beyond waste management, the Initiative looks upstream at innovative ways to incorporate circular economy principles into everyday university functions, such as developing packaging standards for food vendors and caterers to eliminate non-recyclable or compostable packaging, and introducing a life-cycle assessment tool to guide purchasing decisions. The next phase is to remove approximately 150 stand-alone external bins with strategically placed four stream stations to further improve diversion rates.

By standardizing recycling across three campuses within three municipalities, Facilities Services has helped SFU to achieve financial and greenhouse gas emission savings, improve operational efficiencies, enhance sustainability education institutionally, and produce tools and services to support other groups and partners to achieve zero waste.



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# ST. LAWRENCE

#### **ST. LAWRENCE UNIVERSITY**

#### Canton, New York

Submitted by Ryan Kmetz, EFP, Assistant Director of Sustainability and Energy Management, and Marcus Sherburne, Assistant Director of Grounds and Campus Support

#### LOW-MOW ZONES: PROMOTING SUSTAINABILITY THROUGH CAMPUS BEAUTIFICATION

Low-mow zones began as a pilot project at St. Lawrence University and today have blossomed into 70 acres of sustainable landscape on campus. These areas, located throughout the entire campus, serve to provide both sustainability and beautification benefits to the University and the surrounding community. The low-mow zones are populated with native wildflowers and feature over 20 bird houses. The areas provide habitat for native flora and fauna - including bees, butterflies,



birds, and wildflowers. Our students, faculty, and staff also use these area to create unique outdoor field learning experiences. Additionally, these areas allow the University to see a reduction in emissions, noise, and costs associated with traditional turf maintenance.

STMARY'S COLLEGE of MARYLAND

#### The Public Honors College

#### ST. MARY'S COLLEGE OF MARYLAND

St. Mary's City, Maryland Submitted by Bradley Newkirk ASP, CHMM, Environmental Health and Safety Coordinator

#### THE ESTABLISHMENT OF A GREEN REVOLVING FUND

In the spring of 2010, students at St. Mary's College of Maryland voted in favor of establishing the College's first green revolving fund. GSMRF (Green St. Mary's Revolving Fund) is funded by annual student fees of \$25 per student. It aims to finance on-campus green projects that demonstrate a quantifiable return on investment and fiscal responsibility. Since its creation, GSMRF has funded numerous green projects that have increased the energy efficiency of several facilities on campus.

One highlighted example of a GSMRF funded project is the installation of energy efficient heat pumps in the townhouse style residence halls on campus. The switch from poor energy performing models to newer, more efficient heat pumps saves approximately 372,478 kWh annually. In turn, the College sees approximately \$40,972.56 in savings on electricity bills each year.

These savings will be put back into the revolving fund each year until the initial cost of the project is paid back. Once the initial cost of the project is put back into the revolving fund, the savings will then be returned to the College.







#### **TEMPLE UNIVERSITY**

Philadelphia, Pennsylvania Submitted by Katherine Switala Elmhurst, PhD, LEED AP

#### **TEMPLE TINY HOUSE**

The Temple Tiny House project is a student-designed and student-constructed sustainable building located at the university's urban garden site on main campus. The 175 square foot net-zero structure features a high-performance thermal envelope, vegetated roof, rainwater harvesting system, off-grid photovoltaic system, a thermal energy collection system, and a composting toilet.

Designed as an interdisciplinary project, the Temple Tiny House proved to be one of the most collaborative projects on campus, and involved the participation of a diverse group of faculty members, students, and administrative staff from around the university. With an overall goal of creating a small-scale sustainable showpiece for the university, the project facilitates interaction with and demonstration of its systems and provides co-curricular and community engagement opportunities.



The project is registered under the rigorous building performance standard, the Living Building Challenge, and was the first project to be registered under this program in the city of Philadelphia. Since its completion in spring 2017, the Temple Tiny House continues to offer educational opportunities to students and the larger Philadelphia community and serves as a food access programming and demonstration space for the student-run Temple Community Garden.



#### UNIVERSITY OF ALBERTA

Edmonton, Alberta

Submitted by Michelle Hauer, Project Planner, Office of Sustainability

# GREEN BUILDING SIGNAGE - MORE THAN JUST A PLAQUE

While certification plaques indicate how green buildings score in rating systems, the University of Alberta's signage goes further by explaining the sustainable features of the building to the people using it every day. Large displays in several certified buildings highlight resource-saving features, like recycled flooring or water-saving lab equipment. Strong statistics are also displayed to illustrate the impact of green building design.

These displays have been installed in three of UAlberta's certified buildings and more are on the way. They are designed to suit the aesthetic of each building, while maintaining similar design elements between displays for a cohesive look across campus. The designs have aimed to minimize resource use, and have in-



corporated FSC-certified wood and composite board made with locally sourced agricultural residues.

In addition to the large central displays, smaller signs are installed in five buildings to prompt sustainable actions or draw attention to green building features where they can be seen close-up. Examples include pointing out green roofs, encouragement to commute sustainably near bike racks, and showing how low-flow fixtures have reduced water consumption by up to 40%.

Together with plaques that demonstrate the university's commitment to sustainability, this signage is an important part of UAlberta's green buildings.



#### **UNIVERSITY OF DELAWARE**

Newark, Delaware Submitted by Michelle Bennett, Sustainability Manager

#### REDUCE, REUSE: UNIVERSITY OF DELAWARE ADDRESSES WASTE WITH WATER

The University of Delaware has installed over 50 water bottle refill stations across its Newark Campus in an effort to reduce waste. By placing the refill stations in popular locations, including most Residence Halls and our Athletics centers, UD seeks to encourage students to reuse their water bottles instead of buying and discarding bottled water.

The refill stations have proved so popular that students are calling for them in all Residence Halls and on each floor. Informal surveys have found that students prefer the refill stations, stating that they look cleaner and more inviting than traditional water fountains. A recent audit of the water bottle refill stations found that, collectively, they had been used over 3 million times, totaling nearly 500,000 gallons of water refilled into reused containers. That's the equivalent of over 5 million disposable plastic 12oz water bottles and 75% of an Olympic swimming pool.

UD will continue to roll out more water bottle refill stations and is completing a comprehensive maintenance plan for new and existing water fountain infrastructure. This is part of a larger strategy to improve UD's municipal recycling rate to meet our goal of diverting 60% of all waste from landfill by 2020.





#### **UNIVERSITY OF IOWA**

lowa City, lowa Submitted by Katie Rossmann, Manager, Data Analytics & Commissioning

# UNIVERSITY OF IOWA FAULT DETECTION & DIAGNOSTICS PROGRAM

In 2014, University of Iowa Facilities Management began an exhaustive study of a Big Data evolution in building systems management - Fault Detection and Diagnostics (FDD). After visiting Microsoft's Redmond Campus and seeing the substantial impact FDD had on their operations, UI embarked on a groundbreaking, large-scale effort to implement FDD in a campus environment.

By March 2017, UI deployed FDD in 20 buildings across campus encompassing academic, lab, recreational, and office

spaces. Integration included all major HVAC equipment, airhandling units (AHU), heating water/chilled water (HW/CHW) systems, pumps, terminal units, and four different Building Automation Systems (BAS).

Within six months, UI realized \$600,000 in energy savings and demonstrated 24% of quarterly work orders were generated by FDD for predictive maintenance—transitioning the organization from reactive to planned mode. During this time, the UI team addressed 117 energy issues, 171 comfort issues and 304 maintenance issues. UI also leveraged FDD for commissioning two newly constructed buildings and warranty punch lists.

The successful adoption of a new data-driven culture generated insight and best practices, which UI shared publicly on-stage at APPA's Annual Conference and APPA Institute in 2017.





#### UNIVERSITY OF KENTUCKY

Lexington, Kentucky

Submitted by Nic Williamson, Agriculture Extension Associate, Department of Forestry

#### THE UK URBAN FOREST INITIATIVE: PROMOTING HEALTH AND WELLNESS THROUGH (AND FOR) CAMPUS TREES

The Urban Forest Initiative (UFI) is a faculty-led working group of the Tracy Farmer Institute for Sustainability and the Environment. The mission of the group is to advocate for, and elevate the function, value, and perception of urban forests in the Bluegrass Region, from the UK campus to broader regional communities, by providing a dynamic framework for opportunities across organizational and community boundaries to enhance urban forests. UK Grounds and Sustainability staff are active stakeholders and assist with many of the ongoing initiatives.

This summer, UFI launched an exciting new initiative led by



UK nursing student Brianna Damron. Brianna received a Summer Sustainability Research and Creativity Fellowship to work with UFI to create a series of tree walks on campus that promote mindfulness, wellness and stress relief. These self-guided walks have accompanying audio and text guides that combine information about campus trees with tips for personal health and wellness. The trees included on these walks will be marked with labels that include species identification and web links to information about the program. The initiative will be promoted through partnerships with UK HealthCare, the UK Counseling Center, and during exam periods at campus libraries.





#### UNIVERSITY OF NEBRASKA MEDICAL CENTER

Omaha, Nebraska Submitted by Melanie Stewart, Sustainability Manager

# ACTIVE TRANSPORTATION PROGRAM REAPS MULTIPLE BENEFITS

Parking and traffic congestion can be a challenge on urban campuses, and the University of Nebraska Medical Center

#### (UNMC) is no different.

To alleviate this problem, the Office of Sustainability was challenged to quickly move the needle on their newly released sustainability master plan's transportation goal: increase the percentage of commuting trips to campus other than singleoccupancy driving from 12.7% to 20% by 2023.

In 2015 UNMC, along with its primary clinical partner Nebraska Medicine, launched the "TravelSmart" program. TravelSmart incentivizes employees and students to walk, bike, ride the bus, or carpool to campus by providing free bus passes, indoor bike storage, access to showers and locker rooms, as well as free parking for carpoolers. TravelSmart also provides trip planning, carpool partner matching, a free emergency ride home, and a flexible, pay-by-the-day parking for days when active transportation is not used.

By the end of 2017 TravelSmart had increased the number of active transportation trips to campus to 22%, exceeding the goal six years early.

TravelSmart saves participants money while decreasing parking pressure and traffic congestion. It also promotes healthy lifestyles and reduces an estimated 29,000 single-occupant-vehicle travel miles per week, and all the carbon-based pollution that comes with them.



#### **UNIVERSITY OF RICHMOND**

Richmond, Virginia Submitted by Rob Andrejewski, Director of Sustainability

#### INNOVATIVE SOLAR ARRAY EXCEEDS EXPECTATIONS AT UNIVERSITY OF RICHMOND

The first solar installation in Dominion Virginia Power's service territory to operate under a pilot power purchase agreement has outperformed expectations by nearly 20 percent. The University of Richmond installed a 205 kW solar array on the roof of the Weinstein Center for Recreation & Wellness in 2016 to move closer to achieving its 2050 carbon neutrality goal. The 22,000 square-foot, 749-panel project produced 283,400 kWh of electricity (about the same as the annual electricity usage of 32 homes) in its inaugural year.



The solar array was designed as a living lab for sustainability. Students on campus have compared the different energy production rates of the installation's bifacial and monocrystalline panels on both gravel roofs and white rubber TPO surfaces. The array employs string inverters and micro-inverters, which allows for further performance comparisons to be made. Between student research, tours of the site, and educational signage, the solar array has become a well-known symbol for sustainability on campus.





#### The University of Texas at Austin Housing and Dining Division of Student Affairs

#### **UNIVERSITY OF TEXAS AUSTIN**

#### Austin, Texas

Submitted by Jess Cybulski, Assistant Director of Communication, Office of the Vice President for Students Affairs

# INCREASING SUSTAINABILITY THROUGH RESIDENTIAL COMMUNITY

Serving as campus ambassadors for environmentalism, social justice, and economic longevity, 40 students in the Sustainability Living Learning Community (LLC) are raising awareness about these issues. The University of Texas at Austin on-campus residential community supports University Housing and Dining's robust sustainability program, including two on-campus gardens, an on-campus farmer's market, food waste reduction initiatives, and educational programs.

This LLC gives students the opportunity to interact and learn from faculty and staff, City of Austin employees, and community members. Partnering with the Office of Sustainability to develop the curriculum, University Housing and Dining staff teach students about the surrounding ecosystem and the impact personal behavior has on the environment.

"These Longhorns will use their academic and social skills beyond the Forty Acres to enact positive change in their community. UT Austin is a leader in the field of sustainability and this community furthers our efforts to bring education and best practices into all areas of life," says University Housing and Dining's Sustainability Coordinator Neil Kaufman.

This initiative complements degree programs in the College of Liberal Arts and School of Undergraduate Studies. It is one of five communities integrating academic and social learning through faculty and staff involvement, and holistic education. The others include Healthy Lifestyles, Global, Women in Engineering, and Women in Natural Sciences.



#### University of Victoria

#### UNIVERSITY OF VICTORIA

Victoria, British Columbia Submitted by Melanie Groves, Uvic Communications and Marketing

# REDUCING ENERGY THROUGH HEAT RECOVERY

The swimmers in UVic McKinnon Pool on a sunny afternoon probably don't realize it, but the warm water they're enjoying is—in a feat of engineering—heated by the air above them.

From his office laptop, UVic energy manager David Adams can log in to monitor the performance of the heat recovery air handling unit for the pool along with other campus buildings and systems. The silver rooftop boxes and piping network use dehumidification and heat pump technology to transfer energy from building exhaust air into heat for the swimming pool, leading to "huge energy savings and reductions in greenhouse gas emissions," says Adams. "From this unit alone UVic is saving \$25,000 in natural gas costs and reducing its CO2 emissions by more than 200 tonnes annually-the equivalent of taking 77 cars off the road."

"I wanted to contribute by engineering solutions that reduce our impact to global climate change," says Adams, a UVic alumnus with a master's in clean energy engineering. "The university is well on its way to meeting and exceeding our energy reduction targets, and beyond 2019 we'll be looking at alternative energy sources and technologies so that we can shrink our carbon footprint even further."



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### UNIVERSITY VIRGINIA

#### **UNIVERSITY OF VIRGINIA**

Charlottesville, Virginia Submitted by Sandra A. Smith, Manager of Quality Assurance and Staff Development, Custodial Services

#### JUST TAKE THE FIRST STEP: MAKING SUSTAINABILITY "SECOND NATURE" WITH FOOD, FUN, AND A FAIR!

In late 2015, FM's Sustainability Council wanted to help building occupants make sustainability "second nature."

As a Green Partner in this effort, I was assigned the top floor of FM's Leake Building to help inspire occupants to adopt as many sustainable office practices as possible.

To kick off this effort, I planned for a Sustainability Fair to be held in one of the conference rooms. The idea was to promote it as an Open House—drop by when you can and enjoy some bulkpurchased almonds, fresh fruit that would be composted, and receive a colorful personal mini trash bin to replace your regular office trash can.

Our objectives were to:



- Showcase sustainability initiatives in a festive, but informative, setting
- Provide visual demonstrations of these initiatives

Enlist Subject Matter

Experts to help answer occupants' questions

 Promote, educate, and excite so that the majority of attendees would just take the first step toward reducing the usage of energy, paper, copier ink, and disposable paper products used for meals

Some demonstrations that we showcased were zero waste meals, battery collection units, centralized trash, energy-saving computer settings, and composting.

As it turned out, most of the folks came at the opening of the fair and stayed throughout so we were able to present information and answer questions for the majority of floor occupants in one setting.

It received a lot of good press and it was the perfect way to introduce easy ways to make sustainability second nature while on the job.



# THE UNIVERSITY OF WISCONSIN-MADISON

Madison, Wisconsin Submitted by Timothy Lindstrom, Boxable Project Advisor, Doctoral student, Nelson Institute for Environmental Studies

#### CAMPUS INITIATIVE DIVERTS EXPANDED POLYSTY-RENE WASTE FROM LANDFILL TO RECYCLING

For the past four years, students, faculty, and staff at the University of Wisconsin-Madison have collaborated to keep a particularly pesky product out of the landfill: expanded polystyrene (EPS), commonly but incorrectly known as Styrofoam<sup>™</sup>. EPS is a widely used material for shipping and packaging due to its low density, durability, and insulating properties. However, these characteristics often doom EPS products to landfill after a single use, as most recycling facilities do not accept EPS with mixed plastics. These issues present specific concerns at large research institutions like UW-Madison, where over 3,000 labs receive roughly 14,000 EPS boxes each month.



To address the issue of landfilled EPS, students at UW-Madison created Boxable, an EPA-funded\* project to pilot an EPS collection and recycling program. Boxable partnered with facilities employees and laboratory staff to establish drop-off sites in buildings with high

volumes of EPS waste. Campus services then collected the EPS and trucked it to a recycling facility 10 miles from campus where the material was densified and remanufactured into new products. So successful was the Boxable project that EPS recycling at UW-Madison is now an institutionalized practice. Campus services employees collect roughly two cubic yards (100 pounds) of EPS from more than 25 dropoff sites each week. The Boxable project and its legacy are testament to what a campus can accomplish when campus operations, academics, and research align their efforts in the name of sustainability.

\*Grant title: U.S. Environmental Protection Agency, P3 2014 Phase II - SU835731, "Exchange Network for Expanded Polystyrene Shipping Containers"



#### UNIVERSITY OF NORTH CAROLINA ASHEVILLE

Asheville, North Carolina Submitted by Sonia Marcus, Director of Sustainability

#### INTENSIVE MENTORING AND SUPPORT FOR SUSTAINABILITY PROJECTS

The McCullough Fellows program at UNC Asheville offers intensive mentoring and support to undergraduate students engaged in sustainability projects and research in the greater Asheville area. Each fellowship includes funding for students, materials support, a faculty stipend, and an honorarium for partnering businesses and organizations.

Applicants are invited to propose faculty advised, applied research projects addressing one or more of the following areas: land use and conservation; urban planning; sustainable agriculture; resilience; and environmental sustainability. Past projects include native plant and pollinator meadow workshops, urban redesign charrettes, stormwater impact mitigation at a retirement community campus, reestablishment of native chestnut populations along the Blue Ridge Parkway, edible city parks and greenways, tool libraries for community garden networks, point of sale micro-donations to support land conservation, gardening, and food preservation classes in Section 8 housing communities, and control strategies for rhododendron after the decline of the Eastern hemlock.

UNC Asheville's multidisciplinary approach to environmental and community resiliency is ideally suited to tackling sustainability challenges while supporting the character of the Asheville region, the values of its residents, the strengths of its local businesses and non-profits organizations, and the interests of students and faculty.



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Charlotte, North Carolina Submitted by Michael Lizotte, University Sustainability Officer

#### BRINGING LIGHT RAIL SERVICE TO CAMPUS

Commuting is a barrier for campus sustainability, contributing to both pollution and costs associated with obtaining a college education. For urban universities, mass transit projects can create a cascade of opportunities.

UNC Charlotte anchors a 9-mile extension of the light rail system by the Charlotte Area Transit Service that opened March 2018. The university is a signature location for the



terminal station, and arrival of light rail has contributed many smaller improvements to meet our community's needs.

Bringing the station into campus required land for elevated tracks over a floodplain and space to reverse trains. The campus added sidewalks, crosswalks, directional signage, and bus pull offs to support pedestrian traffic from stations. For a station on the edge of campus, the University, in part, funded a pedestrian bridge over a major roadway.

Several "last mile" upgrades assist arriving commuters and vis-

itors. Campus bus service expanded frequency of stops and service hours to meet the demand of over 100 daily train arrivals. Ten new bike share locations provide 100 bicycles.

With a discounted transit pass for enrolled students, light rail provides affordable and reliable transportation, including access to Uptown Charlotte. As light rail trips replace automobile use, the university anticipates lowering commuting costs and the carbon footprint.



#### **VASSAR COLLEGE**

Dutchess County, New York Submitted by Colin Peros, Collins Fellow in the Environmental Research Institute

#### ASSESSING AND IMPLEMENTING ENERGY PRACTICES AND POLICIES

As Vassar strives for sustainable stewardship, the energy policies established in their Climate Action Plan must be implemented to reach their goal of carbon neutrality by 2030. In summer 2017, the Office of Sustainability deployed 25 Bluetooth loggers (HOBO MX100) in public, academic, and administrative spaces to compare internal building temperatures to the established energy policies. Additionally, 67 employees were surveyed to gauge thermal-comfort levels to ensure optimal conditions for the college community.

The temperature profiles illustrated discrepancies between

policy setpoints and actual setpoints that, if corrected, could cut annual energy costs (~\$3,000) and carbon emissions (~1,000 tons of carbon) for the cooling season alone. Most employees surveyed (78%) expressed being too cold or no thermal discomfort, underscoring the potential savings by coordinating building temperature setpoints to the established energy policies. Building-cooling performances were also visualized with the data loggers. These building-performance assessments revealed that central AC units more efficiently cooled spaces than window AC units. The benefits of replacing window units with central AC are multifold: more efficient cooling in the cooling season and less thermal loss in the heating season. Altogether, a comprehensive knowledge of current practice and performance is instrumental to implement modified energy policies.







#### VOLUNTEER STATE COMMUNITY COLLEGE

Gallatin, Tennessee

Submitted by William Newman CFM, PEM, Senior Director of Plant Operations

#### FINDING THE MIDDLE GROUND IN SUSTAINABILITY

Prior to any sustainable project a college or university must ask themselves if they are interested in saving money, being "green," or both. Yes it's true, some "green" or sustainable endeavors do not end up saving money in the long term. Volunteer State Community College has elected to find the middle ground through automated controls and active management.

In 2013, Vol State was working hard to reduce campus utilities cost. The campus consisted of 19 buildings totaling 468,814SF. The control systems were all pneumatic and prone to inefficiencies. The thermostats were analog and unreliable. Annual utilities CPSF was \$1.66.

Working under funding from the American Recovery & Reinvestment Act, VSCC began implementing electronic automated controls throughout the entire campus. The project took two years to complete and cost \$1.3 million. This was just a building block to the long-term plan of sustainability and cost savings.

After seeing quick ROI, VSCC elected to implement variable frequency drives and lighting controls across campus. These changes paired with daily active management from Plant Ops Staff have made a dramatic impact. Now, almost four years later and with an additional four buildings that increased square footage by 24%, VSCC is maintaining electrical operating cost at \$1.50 per square foot!

WESTERN STATE COLORADO UNIVERSITY Learning, Elevated.

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### UNIVERSITY

Gunnison, Colorado

Submitted by Nathan King, Director of Sustainability, and Ayodeji Oluwalana, Campus Sustainability Director

#### ROAD MAP TO INSTITUTIONALIZING ZERO WASTE

During the 2015-16 academic session, eight graduate students in the Master in Environmental Management program in partnership with Facilities, conducted a campuswide waste audit. Their results showed a diversion rate of 24% despite existing infrastructure being able to handle up to 72%. This led to identifying several target areas for increased waste reduction.

A year later, our President institutionalized a goal to be zero waste by 2020. This meant that departments must ensure they minimize waste and recycle as much as possible to increase overall diversion. Collaboration efforts were intensified among three major departments (Residence Life, Athletics, and Facilities) to pilot this process during the 2016-17 academic year.



Several campus-wide zero waste events were held with rigorous outreach to ensure full participation. Results showed that diversion rates increased to 55-62% across those departments which increased the overall campus diversion rate to 34%.

Another focused effort occurred in October, 2017 when the University Center sought and was awarded a \$25,000 RREO Mini-Grant from the State of Colorado to

upgrade their recycling infrastructure. This will allow the purchase of new recycling bins with better labeling and education to further zero waste.

These case studies were compiled by Steve Glazner, editor of *Facilities Manager*, who can be reached at *steve@appa.org*.

WATER CONSERVATION Shouldn't Depend on a DROUGHT: LESSONS LEARNED from California Universities

BY JAKE TORRENS

ater is a critical yet unpredictable natural resource that requires stewardship. Freshwater represents less than 3.5 percent of all the water available on the planet, and extreme weather events, such as droughts, are making its availability even less predictable. Such conditions force us to confront our reliance on this diminishing precious resource and the vulnerability it creates for humans and our environment.

While water shortages can impact regions across North America, nowhere has it been felt as severely as in California with its recent droughts. The lessons the state learned—and the best practices and planning implemented by California universities—can serve as an inspiration as well as a blueprint for other facilities and regions.

California suffered through two droughts within eight years. Low rainfall and increased demand led to the 2007-09 drought and a statewide emergency. Interrupted by a brief respite, the state then experienced its four driest years on record from 2011-15. This prompted Governor Jerry Brown to declare a drought state of emergency and issue executive orders, including mandatory statewide water reductions, increased conservation and enforcement efforts, and incentivized investments in new technologies. Higher education followed suit; University of California President Janet Napolitano initiated a sweeping goal to decrease water usage across the university system by 20 percent.

Fortunately, California's drenching storms of 2017 assuaged the drought, leading Governor Brown to declare an end to the crisis in April 2017. That action, however, may have been premature. While it may be tempting to think that water scarcity and mandated reductions are a thing of the past and that facilities can refocus attention on other pressing issues, forwardthinking facility leaders recognize that water sustainability is a long-term priority that must be addressed on an ongoing basis. Just as quickly as the torrential storms appeared in California last year, the spigot could be turned off again and the drought could reoccur.

#### **INCORPORATING WATER CONSERVATION** INTO CAMPUS OPERATIONS

California campuses are leveraging the critical lessons learned from the drought to make water conservation a way of life. Camille Kirk, director of sustainability and campus sustainability planner for the University of California Davis (UC Davis), sums up this perspective in a quote she paraphrases from Louis Pasteur, "Luck favors the prepared mind."

One major obstacle to preparedness is the harsh reality that it's hard to get the attention-and budget-for water sustainability from university decisionmakers without an immediate threat. These executives are juggling competing priorities and are hard pressed to meet the demands of multiple, diverse constituents. They must meet a level of service expectation, such as providing "curb appeal" (e.g., landscaped campuses and mission-critical lab operations) to compete with other institutions. Water projects are a hard sell because the cost of water is undervalued and payback time frames can be long-term.

#### FOUR STRATEGIES FOR SUSTAINABILITY

Forward-thinking leaders at higher education institutions across the state have successfully established water stewardship initiatives and engaged broad-based involvement. Following are some of the successful change-making practices gleaned from interviews with seven facility managers and sustainability professionals at California campuses, as well as our own experience working with our clients:

• Make the business case—money talks. While there can be many factors determining which projects a university funds, there is no arguing with initiatives that improve the bottom line. University of California San Francisco (UCSF) Sustainability Director Gail Lee has established a culture within UCSF for successful sustainability initiatives, which include making a business case that a particular initiative would save the university money while achieving a sustainability target.

Eli Perszyk, UCSF's facilities services water program coor-

dinator, leveraged a rebate program that the City of San Francisco had implemented to make a case for water savings at UCSF. When the UC Office of the President established a new policy requiring its campuses to eliminate single-pass water cooling of laboratory equipment, he developed a rebate program for UCSF that was similar to the city's model.

Under the program, water usage was metered on old sterilizer equipment for two months to establish a baseline. Then, facilities installed and metered new, waterefficient equipment until a water savings of \$5,000 was demonstrated—at which point the rebate was paid to the laboratory. By replacing seven outdated sterilizers, UCSF is on track to annually conserve 6 million gallons of water, coupled with \$125,000 in water utility cost savings. This initial program was implemented in one building as a pilot, with the intent to roll out the program throughout the campus.

• Look for opportunities to leverage the energy/ water nexus. While water is typically needed for energy production, conversely, energy is often needed to make water useable. Given this interrelationship, it's important to use water conservatively to produce energy and look for creative sources of water to support the process.

A cogeneration power plant at the University of California Los Angeles (UCLA) represented 20 to 30 percent of the university's overall water use on campus. The university's facilities group turned this operational fact into an opportunity for innovation; it developed a water reclamation project that captures water from various sources across the campus to augment water needed to cool the cogeneration power plant. The project currently reclaims over 28 million gallons of water annually, from sources such as condensate from air conditioners and water captured from laboratories across campus.

Kelly Schmader, assistant vice chancellor for facilities management, says, "We are saving 110,000 gallons of water a day just from condensate alone." The condensate is collected from 25 buildings, and as of Q1 2018, three more buildings are in the works. Nurit Katz, UCLA's chief sustainability officer, credits a lot of the project's success to the collaboration that came from "bridging silos within [the] facilities [department]," which led to the creation of a high-functioning, cross-disciplinary team including building engineers, project managers, and plumbers.

· Engage student researchers to champion water conservation pilot projects. Universities have unique access to eager, talented students looking for research projects to support their academic pursuits and résumés. Ryan Todd, sustainability manager at California State University (CSU) Sacramento, explained that he recently worked with a student who conducted a feasibility study on the water-saving benefits of infrared faucets. That research project showed a 54 percent reduction in water usage for each faucet and ultimately helped secure a \$600,000 grant from the California Department of Water Resources to swap out all the inefficient water faucets across campus with infrared faucets.

• Seek and be open to bold, creative solutions. UC Davis' Camille Kirk was looking for an innovative approach to address short- and long-term water conservation measures across campus during the drought. Realizing she would get better ideas, results, and long-term benefits if she reached outside the Office of Sustainability, she convened a diverse group of university stakeholders, including staff at various levels within operations, dining services, landscape management, research water use, communications, engagement and outreach, utilities, infrastructure and new construction, and renovation. As a result, the group identified nearly 50 drought response ideas and actions to address the problem.

One of the ideas that was implemented led to significant, permanent water savings for the campus. Kirk says, "We now have a fantastic wastewater treatment plant with tertiary treated water." Michael Fan, director of utilities, adds, "Out of 10 campuses in the UC system, we're the only one that has a wastewater treatment plant." The university reduced total campus water use 15 to 20 percent by leveraging its existing treatment plant to use recycled wastewater instead of domestic potable water in two of its cooling towers—saving about 61 million gallons of potable water.

CSU Fullerton considered several options for reducing water usage to determine which would provide the greatest impact. Megan Moscol, sustainability programs manager at the university, in collaboration with the university's executive board, realized that there was a substantial upside if they just stopped watering the grass on campus. Keeping the campus green wasted a lot of water, and by not watering the grass, the campus could gain substantial water savings at no cost. As the idea evolved, it became clear that the university could make the landscape more reflective of the native environment. The university decided to hydroseed a custom blend of native California wildflowers, and by cutting out 20 acres of turf grass, it was able to cut its water use in half —an annual reduction of 40 million gallons. "Keeping the campus green through the summer, when we have the fewest students on campus, was where we achieved our biggest savings," adds Moscol.

Moscol's office collaborated with the Division of Student Affairs to lead campus informational tours about these initiatives and used posters to inform campus stakeholders about the new native landscape. The transformed campus provided greater curb appeal and received positive feedback from students, many of whom posted pictures on Instagram (#csufcapoppyday) and other social media sites. The Division of Student Affairs noted that the flowers were a welcome morale booster for stressed students during finals.

#### TAKING A LEAN APPROACH

Regardless of the approach universities take to promote water stewardship, by applying Lean principles they can achieve greater consensus and participation, and also ensure better results. In addition to focusing on reducing waste and increasing value, these principles are based on respecting the contributions of people at all levels throughout the institution and broader community.

By bringing together a multidisciplinary team and engaging key constituents across all areas of the university and neighboring community, institutions benefit from different perspectives and expertise. These working groups focus on identifying key factors contributing to water waste, determining shared goals and a unified vision of what they want to accomplish, establishing processes, brainstorming solutions, and assigning responsibilities.

There are other effective conservation and sustainability ap-

proaches universities can take in the months and years ahead. One key trend is fit-for-purpose water usage, which avoids use of potable water (i.e., drinkable water) for nonpotable uses (e.g., landscape irrigation, cooling towers). It's also important to keep in mind the value of embedding water stewardship into master planning, capital planning, and campus-wide building guidelines.

Water is one of the most widely used natural resources, but it is vulnerable. The lessons learned by California campuses about water conservation, and the actions they have taken to address the issue, serve as proof for facilities everywhere that significant, longstanding gains can be achieved when institutions make a concerted effort to address sustainability head on. (5)

#### RESOURCES

*California's Drought of 2007–2009: An Overview.* Available: http://www.water.ca.gov/waterconditions/docs/DroughtReport2010.pdf.

"Gov. Jerry Brown Lifts Drought Emergency for Most of California." Available: https://www.npr.org/sections/thetwoway/2017/04/07/523031241/gov-jerry-brown-lifts-drought-emergency-for-most-of-california.

Jake Torrens is a sustainability associate for Haley & Aldrich, an environmental and engineering consulting firm, in their Oakland, CA office. He can be reached at *jtorrens@haleyaldrich.com*. This is his first article for *Facilities Manager*.

# Challenging Employee Engagement

## By Jason Wang

"The reasonable man adapts himself to the world; the unreasonable one persists in trying to adapt the world to himself. Therefore all progress depends on the unreasonable man."

-George Bernard Shaw

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mproving employee productivity is a challenge dating as far back as the first agreement between two people to compensate someone for doing work on behalf of another. This challenge involves both stick and carrot—including corrective action, employee handbooks, fair and consistent human resources practices, alternative schedules, improving physical work environments, valuing others, compensation bonuses, and other workplace perks, to name just a few.

Managers and supervisors can provide incentives to encourage productive behavior or dole out punishment to deter bad; however, often this merely funnels human behavior toward minimally acceptable performance set points rather than sparking intrinsic motivation that transcends performance expectations. It is important to note that true motivation, which lifts employees to full engagement and high performance, comes from within. Managers and supervisors can assist employees by providing environments, coaching, and programs that inspire engagement (Loehr and Schwartz, 2003).

Playing organized sports demonstrates the most important aspects of developing a team: having a shared set of values and understanding a common goal. The 1986 movie *Hoosiers* was based on a 1950s' Cinderella story in which a small-town team wins the Indiana State high school basketball tournament against a larger, stronger, and better-funded rival (Daly, 1986). The values expressed for the team in the movie are: focusing on fundamentals; having structure; respect; and hard work. The team's primary goals were to play together as a team and to win. These factors are transferable and true in other genres as well, including the military. However, military teamwork and engagement are often associated with having a common enemy in addition to a common goal (i.e., to win).

Demonizing university management or departments for their lack of knowledge or understanding of the complex work we do as facility, energy, and construction managers can be a frighteningly common experience when attempting to build a facilities team against a common "enemy." Yet, this approach inevitably damages relationships, demonstrates disrespect, and often becomes more important than positive organizational goals. While this is often done unconsciously and can make individuals feel good, as facility managers and leaders we share a responsibility to confront and stop such detrimental behavior and focus instead on positive team-building efforts.

#### **CSU'S CHALLENGE COIN INITIATIVE**

The remainder of this article will focus on positive engagement, as I review a recent initiative within the California State University (CSU) system with military origins dating back to ancient Rome, and finish with a short list of employee engagement reminders—principles that we can easily forget in the harried world of facilities management.

According to one story, the modern "challenge coin" originated during World War I:

During World War I, American volunteers from all parts of the country filled newly formed flying squadrons. Some were wealthy scions attending colleges such as Yale and Harvard who quit in mid-term to join the war. In one squadron, a wealthy lieutenant ordered medallions struck in solid bronze and presented them to his unit. One young pilot placed the medallion in a small leather pouch that he wore around his neck. Shortly after acquiring the medallion, the pilot's aircraft was severely damaged by ground fire. He was forced to land behind enemy lines and was captured by a German patrol. In order to discourage his escape, the Germans took all of his personal identification except for the small leather pouch around his neck.

In the meantime, he was taken to a small French town near the front. Taking advantage of a bombardment that night, he escaped. However, he was without personal identification. He succeeded in avoiding German patrols by donning civilian attire and reached the front lines. With great difficulty, he crossed no man's land and eventually stumbled onto a French outpost.

Saboteurs had plagued the French in the sector. They sometimes disguised themselves as civilians and wore civilian clothes. Not recognizing the young pilot's American accent, the French thought him to be a saboteur and made ready to execute him. He had no identification to prove his allegiance, but he did have his leather pouch containing the medallion. He showed the medallion to his would-be executioners and one of his French captors recognized the squadron insignia on the medallion. They delayed his execution long enough for him to confirm

his identity. Instead of shooting him they gave him a bottle of wine.

Back at his squadron, it became tradition to ensure that all members carried their medallion or coin at all times. This was accomplished through challenge in the following manner: a challenger would ask to see the medallion; if the challenged could not produce a medallion, they were required to buy a drink of choice for the member who challenged them. If the challenged member produced a medallion, then the challenging member was required to pay for the drink. This tradition continued throughout the war and for many years after the war by the surviving members of the squadron. (Source: *http:// www.coinforce.com/challenge-coin-history.htm*)

Directors of Facility Operations in the CSU system, led by Dana Twedell at CSU Los Angeles, began a challenge coin initiative in August 2016. Seven of the 23 universities in the system have followed, and while the CSU challenge coins may never need to be shown to save a life, they are intended to do the same as the original coins—to show membership and instill pride.

#### Figure 1: CSU Northridge Challenge Coin



Each coin (Figure 1) recognizes unique aspects of the individual campus on the front side, shows commitment to working together to support university values, and most importantly demonstrates that employees are part of something special something larger than themselves. The back of the coin is shared by all 23 universities of the CSU system. The triangle on the back features CSUEU, SETC, and MPP—which are acronyms for two of the collective bargaining units (who work in facilities in the CSU system) and management personnel. They are listed on each of the three sides of the equilateral triangle to show that all are of equal importance and that all are valuable to each other. The triangle also signifies that we are all one, working toward a shared common goal, and that this goal is accomplished by communication, transparency, and teamwork.

#### WE'RE IN THE PEOPLE BUSINESS

The coins are carried to recognize great work and remind us of why we are here—to serve something bigger than ourselves. We are not here because we are in the maintenance, grounds, custodial, logistics, financial, postal, delivery, or asset management businesses. Rather, we are in the *people* business. Everything we do serves people—students, faculty, staff, and each other. The coins remind us of the importance of our call: to transform the environment, equipment, and people; all as

### The coins are carried to recognize great work and remind us of why we are here—to serve something bigger than ourselves.

part of the institution's important goal of graduating students. Education is a shared and noble calling, and every one of us plays a vital role.

In the CSU system, the coins come with two challenges. The first is to carry them every day to remind us of why we are here, even when it is difficult and sometimes cumbersome. The second is to for us to challenge each other to show that we have our coins with or near us. To do so, the challenger first shows their coin; those challenged must respond by showing their coin in return. If you challenge someone and they do *not* have their coin, they owe you a cup of coffee. The military has other traditions associated with their challenge coins, but the point here is both to have fun with them and to carry them with honor and pride.

#### FOUR ACTION ITEMS

Our employees are our organizations (Bolman and Deal, 1997; Bolman and Gallos, 2011). We cannot change the cultures of our organizations without first engaging and changing ourselves and our employees (Bergquist, 1992). Below are four key action items that will help you with employee engagement and give initiatives such as the challenge coin a lot more punch.

*Have a clear mission statement* that is broadly shared and understood. If you aim at nothing, you will hit it every time. A crucial part of your statement should be that colleges and universities exist to educate students. There are some institutions that may wish to emphasize or add research, service, or state their philosophical or ecumenical approach to education, but without the students, colleges and universities simply would not exist.

*Develop and share departmental values* that drive action toward the mission. Your specialized approach toward the mission can be defined during this process. Values should describe and encourage behaviors that support the mission and the institution's individual character. Once established, ensure that both your values and mission are clearly and regularly articulated and rewarded.

*Engage in initiatives* appropriate for the unique work environment. Challenge coins are one way to engage employees, but there are many others. The quote at the beginning of this article encourages "unreasonable" innovation. Be willing to think innovate, and act outside the box.

*Collaborate with employees* from all levels of the organization. Beyond demonstrating respect and value in employees for their voice and opinions (Ury, 1993), there is significantly more support for an organization's mission, values, and initiatives if employees feel involved in the process (Kotter, 1996).

The work we do every day in the college and university facilities management field transforms lives that will echo into eternity. Dwell on that concept for a moment. To believe otherwise is to cheapen and diminish the nobility of our work. Any means by which we can remind employees of that idea shows them the value of their work and encourages their engagement. (§)

#### RESOURCES

Author Unknown (2017). "Challenge Coin History." Available: http://www.
coinforce.com/challenge-coin-history.htm.
Porgeniat WILL (1002) The Form Calterney of

- Bergquist, W.H. (1992). The Four Cultures of the Academy: Insights and Strategies for Improving Leadership in Collegiate Organizations. San Francisco: Jossey-Bass.
- Bolman, L.G. and Deal, T.E. (1997). *Reframing Organizations: Artistry, Choice, and Leadership.* 2nd ed. San Francisco: Jossey-Bass.
- Bolman, L.G. and Gallos, J.V. (2011). *Reframing Academic Leadership*. San Francisco: Jossey-Bass.
- Daly, J. (Executive Producer) and Anspaugh, D. (Director). (1986). *Hoosiers* [film]. DeHaven Productions, Hemdale Film Corporation.
- Kotter, J.P. (1996). *Leading Change*. Boston: Harvard Business Review Press.
- Loehr, J. and Schwartz, T. (2003). *The Power of Full Engagement: Managing Energy, Not Time, Is the Key to High Performance and Personal Renewal.* New York: The Free Press.
- Ury, W. (1993). *Getting Past No: Negotiating Your Way from Confrontation to Cooperation*. New York: Bantam Books.

Jason Wang is senior director, physical plant management, at California State University Northridge; he can be reached at *jason. wang@csun.edu*. This is his first article for *Facilities Manager*. WASHINGTON, DC

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educational vacation destinations in the U.S. It is also a fun city to explore with a wide variety of entertainment, outdoor recreation, great restaurants, and plenty of places to relax and people-watch. Our event is conveniently located near Penn Quarter, Chinatown, and Capital One Arena, making this modern downtown hotel the perfect home base to explore the city's best attractions.

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# APPA and ASHRAE—A Historic Collaboration

By David L. Handwork

ankind often does not understand or perceive the significance of "in the moment" historic events, especially events that occur by chance or coincidence. The accidental discovery of penicillin by Alexander Fleming, the chance finding of the Dead Sea scrolls by a Bedouin shepherd searching for a stray sheep, and the adhesive "mistake" of 3M researcher Spencer Silver that led to Post-It notes, are a few examples of significant occurrences that almost didn't happen. Events such as these can have dramatically positive effects on immense groups of people. The greater the positive effect and the more serendipitous the occurrence, the greater the appreciation that usually results. As such events relate to the confluence of building science and facilities management (FM) practice, something very special is occurring, a collaboration

that can have tremendous benefit to facilities professionals.

#### CHANCE AND DELIBERATE ACTIONS

The current engagement of APPA and ASHRAE (the American Society of Heating Refrigeration and Air Conditioning Engineers) is important to report and appreciate. The newfound relationship between these two organizations would not be occurring without what could be characterized as the result of both chance and deliberate actions. The recent January 2018 ASHRAE Winter Conference saw a new and higher level of APPA presence, thanks to more than three years' work by elected leadership in both organizations. The vision of Pete Strazdas, 2016 APPA President, was to actively name and seek deeper collaboration and alliances with other



FM-related organizations, including ASHRAE. Strazdas' leadership resulted in the signing of a Memorandum of Understanding between APPA and ASHRAE in 2016, to foster mutual executive communications and collaboration. ASHRAE's 2016 President, Tim Wentz, as a long-standing faculty member at the University of Nebraska, also happens to have a deep appreciation of university facilities managers.

The current ASHRAE leadership also happens to have current or past ties to university facilities. Darryl Boyce, current ASHRAE treasurer and ASHRAE Fellow, is the assistant vice president of facilities management and planning at Carleton University in Ontario, Canada. Boyce was instrumental in the joint ASHRAE/APPA research that preceded the publication of the APPA standard *APPA 1000, Total Cost of Ownership for Facilities Asset Management.* Boyce has assembled a multidisciplinary task group (MTG) to address operations and maintenance (O&M) of high-performance buildings, a group which APPA represents with voting members. The inaugural MTG meeting occurred at the January 2018 ASHRAE meeting. The specific

MTG outcomes are yet to be determined. Strategic goals of the MTG include training programs for FM professionals and technicians, and feedback to designers on more effective buildings that address best O&M practices.

ASHRAE President Elect Sheila Hayter also has historic connections to APPA. Her grandfather, Kenneth Hayter, was South Dakota State University facilities director for several decades, and was one of the founding CAPPA (Central Region APPA) members in 1953. This FM/APPA connection has noted nostalgic value for Hayter, thanks to memories of her grandfather's leadership in APPA and CAPPA. She has also emphasized the importance of facilities professionals, specifically APPA members, because of their input on ASHRAE standards, design guidelines, and other ASHRAE publications.

#### PERFECT TIMING AND ENVIRONMENT

All these circumstances have created a perfect environment for APPA facility professionals to impact HVAC design standards and codes. This is an exciting time, considering the compilation of the TCO standard Facilities Informatics Maturity Matrix Technical Report, and the opportunity for applying APPA expertise to ASHRAE standards, guidelines, and related codes. The APPA Standards and Codes Council also assembled an ASHRAE Work Group in the fall of 2017. Five of the Work Group members met at the January ASHRAE meeting to begin collaborative work on technical committees. To repeat, the timing could not be more perfect for the Work Group members' engagement.

The outcome of this collaboration may

not be as widely notable as that of Post-It notes, but certainly has the potential to create more sustainable, effectively operated, and well-maintained facilities. (§)

David Handwork is director of planning, design and construction at Arkansas State University, Jonesboro, AR, and a member of APPA's Code Advocacy Task Force. He can be reached at *dhandwork@astate.edu*.



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# Our Future Leaders: An Introduction to Leadership and Management in APPA

#### By Matt Adams

hile some take it for granted, APPA is a rich source of continuing education for its members. In fact, an APPA member can continue to participate in continued education throughout their facilities management (FM) career. The material spans the spectrum, but is most likely associated with technical and FM-related topics associated with our industry. However, APPA offers much more than this. APPA U, for instance, includes both the APPA Institute for Facilities Management and the Leadership Academy.

#### A CLOSER LOOK AT THE LEADERSHIP ACADEMY

The popularity of the Leadership Academy is growing each year, demonstrating the desire for nontechnical education within our ranks. Currently, it comprises four levels:

- Level I: Individual Effectiveness
- Level II: Interpersonal Effectiveness
- Level III: Managerial Effectiveness
- Level IV: Organizational Effectiveness

These classes provide the full range of training for our up-and-coming leaders. They also provide a sounding board for the opportunities and challenges facing our leaders today.

The Leadership Academy is a microcosm of the real world of leadership in the FM industry. This not only benefits a members' educational experience, but provides useful insight into the current business environment. As the head of faculty for Level III, I see that our classes include a mix of technical and managerial backgrounds. The typical class consists of approximately a 1:2 ratio, with some participants having experience in industries not associated with APPA; these include hospitality, contracted services (outsourced FM services), and often the construction industry. The remaining students have been in the FM industry for most of their careers and are moving up the management ladder.

I find this initial statistic useful. Much is said about the lack of competitive pay within our industry, but there is obviously something intrinsically attractive about the industry, otherwise 50 percent of our leadership students would not be part of FM's essentially life-long career path. At least 50 percent of our future leadership likes this industry enough to become further indoctrinated and specialized in it, so they can succeed and stay put! This fact is consistent with most surveys related to job satisfaction (the pay scale of any job is typically ranked at number 4 or 5 on a 10-point scale, with more satisfying aspects ranking higher).

While the desirability of sticking with a career in educational FM is attractive to many, the skills needed to move from technical positions into management are rarely provided by APPA member institutions. Unless a participant had worked for a traditional large corporation prior to joining our industry, there is little chance he/she received formal education in leadership skills. In fact, virtually none of our peer educational institutions provide leadership training to their FM employees. It's all on-thejob training for our colleagues, unless they come from another industry. While this further strengthens the case for APPA training, it clearly indicates that our rising colleagues will likely have farther to go in their training than many of their corporate counterparts.

There is irony in the fact that some of the missing training and skills needed by our rising APPA colleagues are provided in business schools and other departments on their respective campuses. In general, many APPA U students could benefit from training in institutional accounting (GASB 34), fundamental cost accounting, modern information and systems technology, organizational design, and planning and control. But most important of all is the need for every rising APPA leader to learn business communications skills—to this day, I still say it is one of the most important classes I took in school.

Nevertheless, many of our peers reach management positions without knowledge of these basic management functions, and it slows their growth in the institutional business environment. Hopefully, our APPA members will soon arrange for these classes to be readily available at the business schools on their campuses, in order to help their rising FM stars.

#### **BEYOND A SIMPLE PAYCHECK**

On the other hand, the nature of the institutional FM profession is such that just by virtue of participation, it develops unique skills in individuals that they would not gain in other industries. While many industries have a simple set of "carrot-and-stick" management tools at their disposal, this is not true in FM. In fact, we cannot give out large pay raises, stock op-

tions, cars, or fancy vacations as rewards for great performance. Furthermore, we do not fire people at-will, demote them on a whim, or abandon them when they suffer personal setbacks.

Some will say this is a weakness of FM, while others will say it is one of the many attributes that makes our industry so attractive—something that goes beyond a simple paycheck. This lack of brute force as a tool compels our leaders to become more sophisticated and creative. It means, we must address the "whole-person paradigm," as the late Stephen Covey coined the term. Our homegrown leaders are well versed in recognizing their employees as people, and not as though they were expendable equipment.

FM staff are motivated by a job well done, recognition of the same, and knowledge that there is stability in their work. These less tangible rewards are more subtle to recognize and foster. The new leaders in FM have risen with the whole-person mentality always in place, which has demanded of them a skill set that incorporates the next generation of management theory. Many of our peers from other industries have little or no experience with this more mature and ethical leadership approach—however, our APPA colleagues have learned it from day one!

Something else to keep in mind is that the new leaders of the FM industry are very pragmatic. Four out of five have experienced at least one significant budget reduction during their career. They have come to understand that a fundamental tenet of educational FM is "do more with less." Despite this, they succeed and do exactly that. At least half will remain with their institution for their entire career, and some will encourage their children to work for the same institution—and many will do just that.

As we like to say in the Level III class: Nobody started a career in higher education FM to get rich quickly. With that acknowledgment, our new leaders can move on to more profound issues that directly impact the satisfaction that they, and their direct reports, find daily in their work. (§)

Matt Adams is president of Adams FM<sup>2</sup>, Atlanta, GA and head of faculty for Level III of the Leadership Academy. He can be reached at *matt@adamsfm2.com*.



# APPA's Credentialing Program—the Path to Distinction

By Kelly Ostergrant



he APPA Credentialing Program has been through many changes over the years, but the one thing that has remained consistent is what it represents—the highest standard of performance and understanding in educational facilities management.

# IN THE BEGINNING—THE DEVELOPMENT OF THE CIL

When the credentialing program started, it consisted of an exam with the option to purchase a prep course to prepare for it. Once the member made that choice, he or she traveled to a designated location where the testing would take place, and where they would study with other APPA members for 8 hours before taking the exam.

The program worked for the most part, but APPA realized that a larger proportion of its membership

did not have the time and resources needed to travel to a venue to prep and test. It was necessary for APPA to develop an online prep course that would allow people to control the time, place, and choice of prep course options.

From these ambitions, the online course was developed. It included both the exam and the prep course, and made it possible to take the exam at various locations, enabling members to lessen travel or avoid it altogether. Additionally, APPA's six regions agreed to offer financial support to make the program more affordable for members. To this end, the regions offered coupons to their members so they would only pay a portion (if any) of the total cost. APPA now had an affordable professional development course that didn't require travel.

The course was called the Customized Interactive Learning Platform (CIL), and by then, the need for someone to manage all these moving parts became quite obvious—which is where I came in. I was hired to help manage and fine-tune the CIL. I wasn't sure what I was getting into, but I knew I wanted to help people, and with the guidance of Christina Hills, APPA's director of credentialing and benchmarking, we became an awesome team. The new course had many online learning tools that the old program didn't have (i.e., study guides, webinars, flashcards, learning modules, and practice exams), so we started advertising these tools and how they could be used to help prepare for the exam.

#### THE LIVE WEBINARS

One of the main tools of the 90-day online course are the live webinars. We weren't sure how they were going to work at first, but we knew that they were the key to making the course successful.

The live webinars became the connection that

brought members together to interact as a group. At that point, there were about 100 members who had not taken the exam. Some had taken the older course, while others had



One of the tools used by the cohort groups were quizzes. We took questions from the practice exam, which we separated into four practice quizzes according to each of the four core areas of the APPA Body of Knowledge (BOK)-general administration and management; operations and maintenance; energy, utilities, and environmental stewardship; and planning, design, and construction. The study guides were already divided into those same four areas, so it made sense to focus each live webinar in the same fashion, and break the study time down into threeweek increments. The members even created their own study plan to cover the material prior to each call, using the online tools. This approach kept them focused and on track, reminding them that they had material to cover prior to each webinar, and added a bit of competition within the cohort groups.

#### A TWEAK TO THE COHORT GROUPS

The program was working, but it wasn't being reflected in the numbers. We had people in the cohort groups, but they weren't taking the exam and we couldn't understand why. Members invariably had issues that kept them from being available during the time I had scheduled them to test. That's when I realized what was wrong—they needed to schedule their own exams, based on their own schedules. So, I listed the available cohort groups on the website, and allowed members to decide which group worked best with their schedule. It was a huge improvement to the course and was reflected in the increase of members taking the exam, because they were now in control of their schedule and prepared for their exams.

# CREDENTIALING ON CAMPUS—COMING SOON

The next step for APPA's Credentialing Program will be the ability to host customized cohort groups on your own campus! A select group from your insti-



tution will work closely with APPA to develop a customized schedule that works for members. APPA will support the group with registration, coordinating meeting space, ordering lunches, and moni-

toring the process. This is the type of fellowship and training that allows for growth, self-confidence, and camaraderie among participants.

#### LOOKING BACK

The Educational Facilities Professional (EFP) Program began in 2007 and had 15 members earn the certificate that year, while the Certified EFP (CEFP) Program started in 2009, with 14 earning the first credential. In July 2017, we reached a milestone with 1,000 total CEFP and EFP recipients, and now we have 1,115 total recipients. This year we started see-

#### "Earning the credential demonstrates your willingness to be the best you can be, and to distinguish yourself from others in the field."

ing the pass rate increase for both the CEFP and the EFP, and as of January 2018, the CEFP pass rate has reached 79.5 percent. The program's success would not have happened without the financial support of the six APPA regions. They have made it possible for anyone who wishes to attain the CEFP or EFP to be able to do so without the financial hurdle.

We continue to make changes, find opportunities for growth, and make tweaks as needed. But the one thing that will remain consistent is the value of the APPA CEFP and EFP certification. It will always be worth the time and effort put into this course, because earning the credential demonstrates your willingness to be the best you can be, and to distinguish yourself from others in the field.

I'm here to help you on your credentialing journey  $\dots$  what are you waiting for? (5)

Kelly Ostergrant is APPA's credentialing coordinator, and can be reached at *kelly@appa.org*. This is her first article for *Facilities Manager*.

# APPA U in Portland, Oregon, 2018

#### By Corey Newman

PPA U, concluded January 25 in Portland, Oregon, showcasing another successful professional development gathering of the Institute for Facilities Management and Leadership Academy. Colleagues from around the globe were welcomed to learn, network, and collaborate. We are grateful for the dedicated faculty who make these offerings such a success.

A special note of thanks goes to Institute Deans: Mary Vosevich, Chris Smeds, Lynne Finn, and Don Guckert; and our Academy Faculty: Chuck Farnsworth, Glenn Smith, Julius Williams, Michelle Frederick, Paula Farnsworth, Shawna Code, David Patten, Matt Adams, Chris Walsh, Terri Willis, Viron Lynch, Lindsay Wagner, and Ana Thiemer.

Throughout the week, students had opportunities to interact with experts who brought their knowledge and experiences from vast backgrounds and provided a rich environment for all attendees. Approximately 500 facilities professionals from across the United States, Canada, and Egypt attended.

As the week drew to a close, we celebrated with graduation ceremonies for the class of January 2018 (including 81 new alumni). A big kudos to all of those institutional leaders who supported the professional development of their staff! The professional development of any individual must be as customizable as the individuals themselves, and APPA is here to help everyone achieve their personal, organizational, and institutional goals.

Please visit *www.appa.org* and click on Training for more on all of APPA's program offerings. (5)

Corey Newman is APPA's associate director of professional development and can be reached at *corey@appa.org.* 



**INSTITUTE GRADUATES >>** 

#### ACADEMY GRADUATES

Walter Banziger, Montana State University Jaime Baro, San Diego State University James P. Byrd, Wake Forest University Michael J. Carmagnola, University of Texas at Austin Doug S. Carter, University of Kansas Emily C. Casper, University of Nebraska - Lincoln Robert Condley, Arkansas Tech University Mark Eichenberg, Ferris State University Jenna Elmer, University of Arizona Blaine D. Grindle, Monroe Community College Blake Guyer, University of Colorado Boulder Gabriel A. Hampton, University of Nebraska - Lincoln Tom Kalasky, Washington and Lee University Brian Lasey, Arkansas Tech University

#### In alphabetical order; not all graduates are pictured.

Bruce MacNeil, Mount Saint Vincent University Kevin Marshall, University of North Carolina Jan Mason, Pennsylvania State University James Mathwin, University of California-Berkeley Phillip R. Melnick, Pennsylvania State University Ivan M. Mercado, Weber State University T. Mark Miller, University of Nebraska - Lincoln Steven Morris, University of North Carolina at Chapel Hill Stefan Newbold, University of North Carolina at Chapel Hill Stefan Newbold, University of Nebraska - Lincoln Elizabeth Rains, University of Cincinnati Main Campus Mark Scott, The Ohio State University Travis Sleight, Monroe Community College Ryan Stock, Sisters School District Jeff Vienneau, Sam Houston State University

#### INSTITUTE GRADUATES

Alex Acosta, University of Colorado Boulder Mark R. Allen, SUNY at Binghamton David W. Barber, San Jose State University Mindy Baylor, University of South Dakota Joe M. Benner, University of Pennsylvania/Philadelphia Melissa Bergeron, University of Massachusetts Adam Cannon, University of Iowa Julie A. Carl, SUNY at Binghamton Patrick H. Chavez, New Mexico State University Mark Conway, University of Pennsylvania/Philadelphia Derek T. Crouse, University of Kentucky David J. Dowler, University of Illinois at Urbana/Champaign Donny Edwards, University of North Carolina/Charlotte Peggy L. Emerson, Cornell University Lester J. Felder, University of Texas/Austin Tony Flores, Colorado State University Lee Fox, Illinois State University Brian Fritz, Bucknell University Frank D. Harris, Portland Community College William Hopper, University of Arizona Mike Iley, University of Waterloo Drew Jahr, Texas Technical University Sherif Khaled, American University in Cairo Kevin J. Koesters, The Ohio State University Frank Lahr, University of Alaska/Anchorage William Langley, Florida State University Brandi Latterell, Iowa State University

#### In alphabetical order; not all graduates are pictured.

Joel Long, University of Arizona Roy Marquez, Waukesha County Technical College Aaron Matej, Illinois State University Julie M. Maxwell, University of Nevada/Las Vegas Steve McKenzie, Humboldt State University Garry D. Moore, Texas Technical University William C. Nash, Norwich University Raymond Orr, Pacific Lutheran University Brian Pinkston, University of Virginia Leanna M. Pitts, University of Oregon Ronald D. Pond, University of Wisconsin/Madison Michael M. Rea, Johnson County Community College Sandy Redmon, University of Kentucky Russell Reese, Pennsylvania State University Don Rogers, University of Mississippi Greg Scott, Wake Forest University Jonathan Sherman, University of Colorado/Boulder Shawn Skeese, University of Kentucky/Medical Center Margaret Tennessen, University of Wisconsin/Madison Richard Tetrick, California State University/Dominguez Hills Joey Tombs, University of Virginia Christopher J. Vendola, Quinnipiac University Thomas L. Webb, University of Arizona Mark Whitmer, Southeastern Louisiana University Matt Winowiecki, Michigan State University Roland Zumbrunn, University of Virginia

#### Book Review Editor: Theodore J. Weidner, Ph.D., P.E., CEFP, AIA

acility officers never have enough resources, and some resources are harder to come by than others.
 The two books reviewed this month are valuable resources that can make a facility officer's job easier, even if they don't fall into the normal categories of added resources (people and money).

# THE DISASTER RECOVERY HANDBOOK: A STEP-BY-STEP PLAN TO ENSURE BUSINESS CONTINUITY AND PROTECT VITAL OPERATIONS, FACILITIES, AND ASSETS, 3RD ED.

Michael Wallace and Lawrence Webber, AMACOM Books, 2017, 519 pp., hardcover, \$65.00

As we hear about hurricanes, floods, earthquakes, wildfires, hacking, shootings, and other disasters, facility officers consistently ask themselves, "Is my organization prepared for something like what happened to the other guy?" If that question isn't asked, then it's likely that you just became the "other guy."

Development of a disaster recovery plan can be a daunting task. If it doesn't seem daunting, then

you're forgetting a lot of possible disasters and the processes required that make your organization work smoothly in those situations. *The Disaster Recovery Handbook* reminds you of the possible disasters that require planning and presents a system to help you be as thorough as possible when dealing with them.

> Since the notorious shooting at the University of Texas clock tower in 1966, colleges and universities have been aware of the need for an emergency action plan and a disaster recovery plan. Events since then have simply reinforced the need for these documents and made

it clear that a particular disaster or emergency is not unique to a particular campus or region—any disaster may affect any size institution, anytime, anywhere. (I'd list the events and places since 1966, but sadly, the list is far too long.) Federal programs and resources for disaster response, such as FEMA ICS-100 and others, provide us with an organizational structure to respond to a disaster in a uniform way, so everyone in the area understands that structure and how it fits into the response, and so that the disaster is handled effectively and efficiently and the public receives a clear message about the disaster. *The Disaster Recovery Handbook* helps with developing a clear organizational strategy to recover from the disaster (or operate during the disaster), so customers are affected as little as possible and so the business (particularly the income generation portion) gets back into normal operation.

The first half of the handbook identifies a meaningful list of functions that should be addressed in the recovery plan as well as several approaches to develop that plan and avoid omissions. It also identifies a structure to organize a plan, so it is focused while still addressing a wide range of needs, constituencies, and services. The second half gets into details of systems, providers, and personnel to help complete the plan. Overall, it is organized, clear, and useful.

I've experienced my share of disasters as well as the need to recover normal customer services quickly. I've assisted in the development of disaster plans that we all hoped we would never have to use. We didn't look at a neighbor's plan and copy it; we used a structure similar to the *Handbook's* recommendations. It's an approach I often fall back to—one of principles, customers, priorities, and services. Because the *Handbook* fits with my style, I recommend it highly. If you prefer to copy someone else's plan, which may address a service or process you don't have, then continue doing so and avoid the *Handbook*.



#### THE TYRANNY OF METRICS

Jerry Z. Muller, Princeton University Press, 2018, 184 pp., hardcover, \$24.95

Those who know me know I'm all about data and measuring things. I suppose it comes with my background, but it's also an area I've found many bosses

consider important. This attitude of measuring things, making predictions on the measurements, or using metrics to indicate whether goals have been achieved has become more widely popular outside financial and technical areas. However, when I encountered *The Tyranny* of *Metrics*, I was both intrigued and concerned to see that measurements could be considered something bad.

There are many cases where metrics and measurement can result in a bad outcome. The measurement may not be bad if the inputs resulted in the correct output, but the behavior to be influenced by the measure-

ment may have been counter to the goal

of creating the metric in the first place. Consider a custodian who is measured by the number of cleaning complaints arising from customers served. The supervisor or manager equates complaints about cleaning services as an appropriate measure of customer satisfaction and part of the custodian's annual appraisal.

The custodian may find that customers are more satisfied by small favors provided, such as preparing coffee in the department break room or distributing the student newspaper to faculty offices. These non-cleaning tasks are performed in lieu of doing assigned work tasks, but they result in reduced complaints even when the area develops unsatisfactory characteristics, which could be characterized as "moderate dinginess." Alternatively, an HVAC mechanic's performance might be measured by hot-cold callbacks, and yet he or she manipulates the control system so equipment is not operated efficiently, resulting in no callbacks, but also tremendous wasted energy.

I'm sympathetic to negative opinions about metrics arising from poor selection. The author cites many failures ranging from college rankings to healthcare outcomes. The way metrics are used can also result in failures; I'm assisting APPA with the FPI (Facilities Performance Indicators) to move the survey beyond comparisons with other institutions to something that will demonstrate value and support institutional goals. Metrics are not the



support institutional goals. Metrics are not the only solution; they are a tool among others used to achieve a solution.

> The author concludes with a checklist of points to consider when selecting and using metrics. Rather than provide the checklist, I will simply recognize it as being consistent with best practices for management and validation of goal achievement, rather than measurement for measurement's sake.

When challenged by a business to utilize metrics and demonstrate an organization's accomplishments, I recommend reviewing *The Tyranny of Metrics*. You will make better choices and be subject to less gaming

(unless that's your goal). 🕥

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If you would like to write a book review, please contact Ted Weidner at *tjweidne@purdue.edu*.





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# new products

#### Compiled by Gerry Van Treeck

**CHICAGO FAUCETS** introduces new Emergency Shower and Eyewash Fittings. These fittings provide fast, reliable flushing for eyes or the entire body in laboratories or wherever personnel are at risk of exposure to hazardous chemicals. The safety fittings feature a highly visible yellow exterior finish and photoluminescent signage for easy identification. A maintenance card included with every fitting makes it easy to keep a visual record of important periodic testing. All products are tested and certified to meet the ANSI 358.1 standard for emergency eyewash and shower equipment. For more information visit Chicago Faucets at www.chicagofaucets.com.

JELMAR, LLC, the manufacturer of CLR and Tarn-X cleaning product lines, announces the addition of CLR PRO Heavy Duty Cleaner to its professional line of cleaning products. CLR PRO Heavy Duty Cleaner is a ready-to-use, multisurface, industrial-strength cleaner, which provides powerful cleanup capabilities for the toughest industrial and commercial messes. It lifts out oil and tar and cuts through other soils to bring consistent, clean results. It is also a water-based, biodegradable solution,



meaning it will not harm areas surrounding grass, shrubs, or vegetation. For additional detailed information on Jelmar, LLC visit *www.jelmar.com*.

**KIREI** announces EchoBlade, the decorative acoustic baffle designed to refresh and redefine traditional T-Grid ceilings in any environment. These blades install easily and break up the monotony of lifeless ceiling tiles by introducing creative outlines, vibrant colors, and functional acoustics. EchoBlade also provides movement, definition, and wayfinding in larger spaces with its



color, dimension, and motion. EchoPanel is responsibly sourced and made from recycled polyethylene terephthalate (PET) materials to qualify for LEED credits and other green building or sustainability certifications. EchoBlade hardware includes both magnetic and T-Grid installation options. Standard blade lengths are 23 in. or 47 in. with a 12-mm thickness; actual depth varies per blade. For more information on Kirei products visit *https://kireiusa.com*.

**HOSPECO** introduces TASKBrand SureGrip absorbent adhesive floor mats, featuring the next generation of sorbent technology, to help prevent slips, trips, and falls. SureGrip features superior absorption that protects floors from moisture with an impermeable adhesive backing. It is fast-drying, won't slip, and is easily custom-cut for those hard-to-fit areas—use what is needed and keep rolls in storage for the next application. SureGrip mitigates the sobering statistics of slip-and-fall injuries. Falls caused by slips—12 percent of total falls—account

for over 1 million hospital emergency room visits, and are the primary cause of lost days, the leading cause of workers' compensation claims, and, for people 55 and older, the leading cause of occupational injury. Industry-leading absorbency combined



with high durability means SureGrip has you covered when the unexpected happens. For additional information on HOSPECO products visit *www.hospeco.com*.

**AVMOR LTD.** provides EP50 Cleaner Disinfectant, designed for use in schools, hospitals, long-term care facilities, and for cleaning pet kennels. It is a safe, green-certified cleaner disinfectant. Used properly, it can kill 99.99 percent of the following bacteria within 5 minutes: Staphylococcus aureus, Salmonella choleraesuis, and Pseudomonas aeruginosa. To use,



clean surface, removing solid debris and bodily fluids. Apply EP50 with a spray bottle, then clean surface with a cloth or mop. Allow surface to air dry. Easy to use, providing a more complete clean. For further information on Avmor visit www.avmor.com.

**AFFLINK** advises that this is a good time for school and health care administrators as well as building owners and managers to start evaluating their building goals and purchasing practices.

This way you can plan for the future and find ways to streamline procurement and reduce costs. AFFLINK is a global leader in supply-chain management, providing innovative process and procurement solutions for today's leading businesses.

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name suggests-a critical link offering clients innovative products, market expertise, and improved profitability, all of which is fueled by our leading-edge information technology. For more information on AFFLINK visit *www.afflink.com*. (3)

New Products listings are provided by the manufacturers and suppliers and selected by the editors for variety and innovation. For more information or to submit a New Products listing, email Gerry Van Treeck at gvtgvt@earthlink.net.

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