

FACILITIES manager

MAR/APR 2015

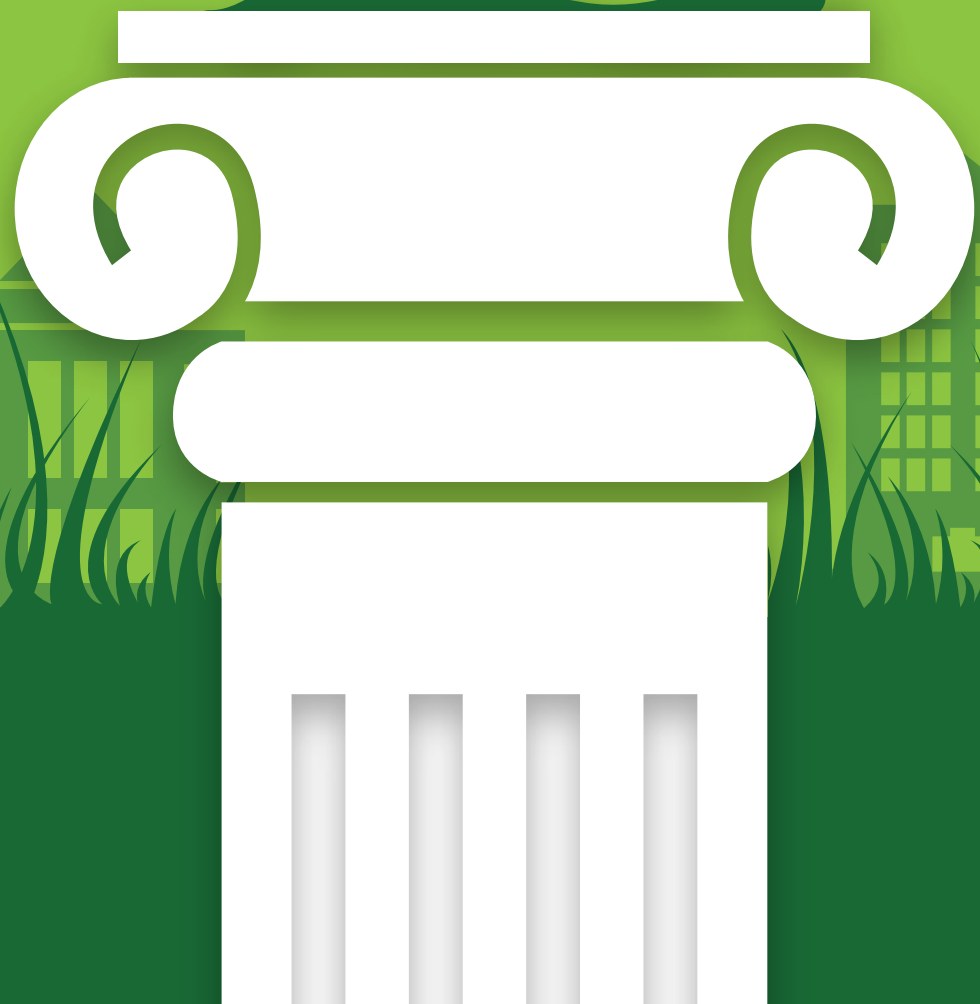
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ADVANCING SUSTAINABILITY

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Leveraging Campus Facilities to Advance Sustainability in Academics

By Daniel Aragon, Bill Elvey, and Alfonso Morales

The results of a sustainability initiatives inventory project at the University of Wisconsin Madison identify a diversity of existing relationships, partnerships, and collaborations around campus sustainability that serve as a baseline for further advancing campus sustainability initiatives.

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Association Partners Bring the Power of Collaboration

By Debra G. Rowe, Ph.D.

If you sometimes feel that a lot of the work for sustainability rests on your office alone; that if you could get more staff positions on the campus involved with sustainability, your efforts would be more efficient and effective; or if you want to explore new resources about sustainability that can help you collaborate more effectively with colleagues on campus, take a look at the Higher Education Associations Sustainability Consortium (HEASC).

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Expression in Landscape

By Carleton Beach

Achieving an exterior environment that makes a strong, positive first impression on visitors and passersby is not a random process. A landscape should communicate the unique philosophy and sense of mission embodied in the institution it surrounds.

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PGMS Offers Landscape Management Accreditation

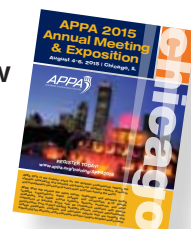
By Thomas C. Shaner, CAE

The grounds and landscape operations of a school has always been one of the top reasons why a potential student's parents select one higher education institution over another. Now there's a valuable tool to help enhance "first impressions" through an evaluation of a campus' grounds operations when measured by a series of best practices.

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APPA 2015 Conference Overview

Chicago, Illinois • August 4–6, 2015





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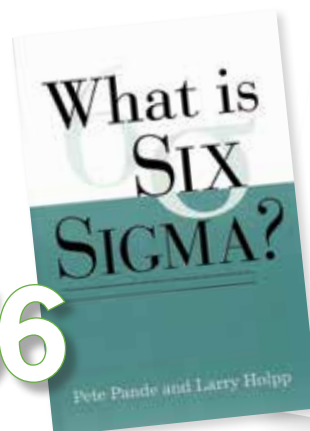
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RON FLINN RETIRES AFTER 57 YEARS AT MICHIGAN STATE

Ron Flinn started working

part-time in the physical plant department while an undergrad at Michigan State University back in the late 1950s. After 57 years of employment at MSU, many years of leadership to the Michigan chapter and Midwest region of APPA, and serving as APPA's 1996-97 President, Ron is now retired.

At Ron's retirement celebration on February 10, the MiAPPA chapter announced that its CEFPP scholarship would be named in his honor. In addition,



Pictured (l to r) Michael Hughes, AVP Ferris State University (MiAPPA VP); Ron Flinn, retired VP MSU and APPA Past President; Peter Strazdas, AVP Western Michigan University and APPA President-Elect; and Dan Bollman, AVP MSU and Ron's successor.

Lander Medlin, APPA's executive vice president, prepared a letter of commendation to be read and presented to Ron at the program. Following are some excerpts:


- "As President of APPA, Ron brought a new level of leadership to this elected position. He worked diligently to ensure the APPA organization and its staff had a clear set of expectations that were in

alignment with the strategic plan and long-term direction of the association."

- "He recognized that connecting the membership's needs and issues with the strategic vision and direction for APPA would ensure we remain the association of choice for all educational institutions."

Ron Flinn made a huge impression on me regarding leadership in the face of massive budget cuts. In the early 1990s he served on APPA's Rightsizing Task Force, whose work was published in the 1995 APPA book *Rightsizing Effectively*. Ron clearly and plainly described how the facilities department could, and should, do the following:

- set realistic albeit difficult expectations for the campus regarding reductions in service during major mandated cuts,
- communicate with the campus community at all stages,
- view the cuts as a "window of opportunity to reorganize" and innovate, and
- recognize the need to have "the best of everyone" involved in the changes and appreciate the staff's service to the institution.

Congratulations to Ron on his well-deserved retirement. 



Coming in May/June 2015

- The Human Side of FM
- Women in Facilities Leadership
- Diversity and Inclusion

FACILITIES manager

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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

By Anita Dosik

Save the Date!

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August 4–6, 2015 • Chicago, Illinois



Mark your calendars to attend next year's APPA Annual Meeting & Exposition!

APPA 2015 will be held August 4–6, in Chicago, Illinois. You won't want to miss this exciting gathering of fellow facilities professionals and exceptional speakers!



CANDIDATES FOR APPA OFFICE 2015-2016

The APPA Board of Directors is pleased to present the selected slate of officers for the 2015-2016 elections. The Nominating Committee was led by Immediate Past President Glenn Smith.

President-Elect

- Bob McMains, University of Alabama Birmingham
- Chuck Scott, Illinois State University

Vice President for Information and Research

- Tom Shewan, Florida State University
- Norm Young, University of Hartford

Vice President for Professional Development

- Tom Becker, Philadelphia University
- Ruthann Manlet, University of Minnesota



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 5:00 p.m. Eastern on April 28, 2015.**

Please note that the primary/institutional representative will have the option of having an associate member 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 or 703-542-3837.

DUES ARE DUE

APPA has sent membership dues invoices to all APPA members for the fiscal year April 1, 2015–March 31, 2016. Please pay your dues promptly to keep receiving APPA's many membership benefits. For more information, contact Kristin Witters at kristin@appa.org.

CONNECTING ON CLIMATE: A GUIDE TO EFFECTIVE CLIMATE CHANGE COMMUNICATION

Connecting on Climate: A Guide to Effective Climate Change Communication, a recently published guide for individuals and organizations involved with sustainability and climate reduction, includes research from a range of social science fields including psychology, anthropology, communications, and behavioral economics, and is designed to be useful for experienced and novice communicators alike. Included in the guide are strategies to boost engagement, common mistakes to avoid, and best practices that organizations have used to meaningfully engage individuals and groups on climate change.

This guide is a joint project between the Center for Research on Environmental Decisions (CRED) at the Earth Institute, Columbia University, and ecoAmerica, and is designed as a follow up to CRED's 2009 guide, *The Psychology of Climate Communication: A Guide for Scientists, Journalists, Educators, Political Aides, and the Interested Public*. To download the guide at no cost and for more information about ecoAmerica, their projects, and initiatives, visit www.ecoamerica.org.



WESTERN MICHIGAN UNIVERSITY RECEIVES USGBC 2014 BEST OF GREEN SCHOOLS HONORS

Recipients represent the best environmental efforts in U.S. schools

The Center for Green Schools at the U.S. Green Building Council's (USGBC's) 2014 "Best of Green Schools" recipients include Western Michigan University, where APPA's President-Elect Peter Strazdas serves as associate vice president for facilities management. The award recognizes ten individuals, institutions, projects, and events representing the best environmental efforts in schools across the country this year. Recipients include:

- **Higher Education Institution**—Western Michigan University (Kalamazoo, MI): Over the past two decades, the Western Michigan University (WMU) community has collectively served as a leader in sustainability through energy conservation efforts, recycling, and waste reduction programs and by facilitating cooperative research into green manufacturing practices.
- **K-12 School**—The Monarch School (Houston, TX): Since its founding in 1997, The Monarch School's environmental education program has offered students with special needs the opportunity learn about the environment on campus and to share that knowledge with their families and the greater Houston community.
- **Collaboration**—University at Buffalo, the State University of New York (Buffalo, NY): In partnership with the Community Foundation for Greater Buffalo, the University at Buffalo, worked to convene over 150 organizations and more than 300 members of the general public in three region-wide Environmental Congresses to create "Our Shared Agenda for Action," a blueprint for action on regional environmental issues.

View the full list of honorees at centerforgreenschools.org/bestof2014.

EVENTS

APPA EVENTS

Mar 30-31, 2015 Smart and Sustainable Campuses Conference, Baltimore, MD

Aug 3, 2015 Emerging Professionals (EP) Summit, Chicago, IL

Aug 3, 2015 Senior Facilities Officers (SFO) Summit, Chicago, IL

Aug 4-6, 2015 APPA 2015 Conference and Exposition, Chicago, IL

Sep 13-17, 2015 APPA U: Institute for Facilities Management and Leadership Academy, Scottsdale, AZ

Oct 19-22, 2015 ACUHO-I/APPA Housing Facilities Conference, St. Petersburg Beach, FL

REGION/CHAPTER EVENTS

Mar 6, 2015 MD/DCAPPA Conference, Baltimore, MD

Mar 9-15, 2015 SRAPPA Supervisor's Toolkit, Memphis, TN

Mar 10-12, 2015 NCAPPA Conference, Chapel Hill, NC

Mar 16-17, 2015 NNECERAPPA Conference, Colchester, VT

Mar 17-18, 2015 VAPPA Conference, Lexington, VA

Mar 25-27, 2015 FLAPPA Conference, Tampa, FL

Apr 8-10, 2015 MOAPPA Conference, Jefferson City, MO

Apr 12-13, 2015 WVAPPA Conference, Flatwoods, WV

Apr 13-17, 2015 SRAPPA Supervisor's Toolkit, Raleigh, NC

May 11-15, 2015 SRAPPA Supervisor's Toolkit, Morehead, KY

Jun 9-12, 2015 OAPPA Conference, Thunderbay, ON

Sep 8-11, 2015 RMA 2015 Conference, Big Sky, MT

Sep 19-23, 2015 MAPPA 2015 Conference, Milwaukee, WI

Oct 4-7, 2015 ERAPPA 2015 Conference, Providence, RI

Oct 9-15, 2015 PCAPPA 2015 Conference, Portland, OR

Oct 10-13, 2015 SRAPPA 2015 Conference, Baton Rouge, LA

Oct 11-14, 2015 CAPP 2015 Conference, Manhattan, KS

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

APPA APPLIES FOR ACCREDITATION AS AN ANSI STANDARDS DEVELOPER

APPA is pleased to announce the submission of its Application for Accreditation as a Standards Developer to the American National Standards Institute (ANSI). APPA's goal is to develop and publish American National Standards that support the principles of total cost of ownership (TCO) for educational facilities and infrastructure. Furthermore, APPA seeks to produce standards in support of facilities management, as applicable to the education sector and as it relates to APPA's four core areas. APPA looks forward to updating its members as the accreditation process progresses. For more information, contact John Bernhards at john@appa.org.

facilities digest

BOK
Body of Knowledge

IN SEARCH OF...BOK CONTENT COORDINATORS AND ASSISTANTS

Are you passionate about the field of educational facilities?

Do you have a desire to share your knowledge and ideas with your peers?

Do you want an opportunity to "give back" to the APPA community?

Do you have broad-based experience in campus facilities management?

Are you a good writer and editor, and well-organized?

Can you diplomatically but firmly motivate your peers to meet deadlines?

APPA is seeking dedicated volunteers who match these qualities to serve as the *primary content coordinator* for the General Administration and Management section of the BOK, and for the Operations and Maintenance section. In addition, we are looking for *assistant content coordinators* for those two areas, as well as the Energy, Utilities, and Environmental Stewardship section.

Contact Steve Glazner at steve@appa.org for more information. To learn more about the BOK and to view a full description of the content coordinators' duties, visit www.appa.org/bok.

The BOK is APPA's searchable, digital database that develops, updates, and disseminates the foundational information needed by facilities professionals to do their jobs. The BOK is a benefit to all APPA members and serves as the content resource for APPA's Institute for Facilities Management and the EFP/CEFP credentialing program.

APPA CONGRATULATES EFP & CEFP RECIPIENTS

The following professionals have successfully completed the requirements for APPA's CEFP and EFP credentials, from December 15, 2014–February 2, 2015.

Congratulations on their personal accomplishments.



CEFP RECIPIENTS

Luis Abreu, LIM College

Mike Averett, University of Nevada Reno

Doug Carter, University of Kansas

Hui-Ling Chan, Western Washington University

Arthur Chonko, Denison University

Agnes Donaldson, University of Pennsylvania

Chad Dragan, San Diego State University

Johnny Eaddy, San Diego State University

Maggie Hamilton, Iowa State University

Rusty Hamilton, San Diego State University

John Hashizume, San Mateo County Community College District



Nathan Marton, D'Youville College

Maurice McCambley, Montgomery College

Daniel Okoli, University of Wisconsin Madison

Neil Paskewitz, University of Regina

Nelson Wagner, University of Regina

Christopher Walsh, University of Nebraska Lincoln

EFP RECIPIENTS

Christopher Eichorst, Whitworth University

Daniel Sheets, Florida State University

Jonathan Terry, Quinnipiac University

Jane Vaughn, University of New Hampshire

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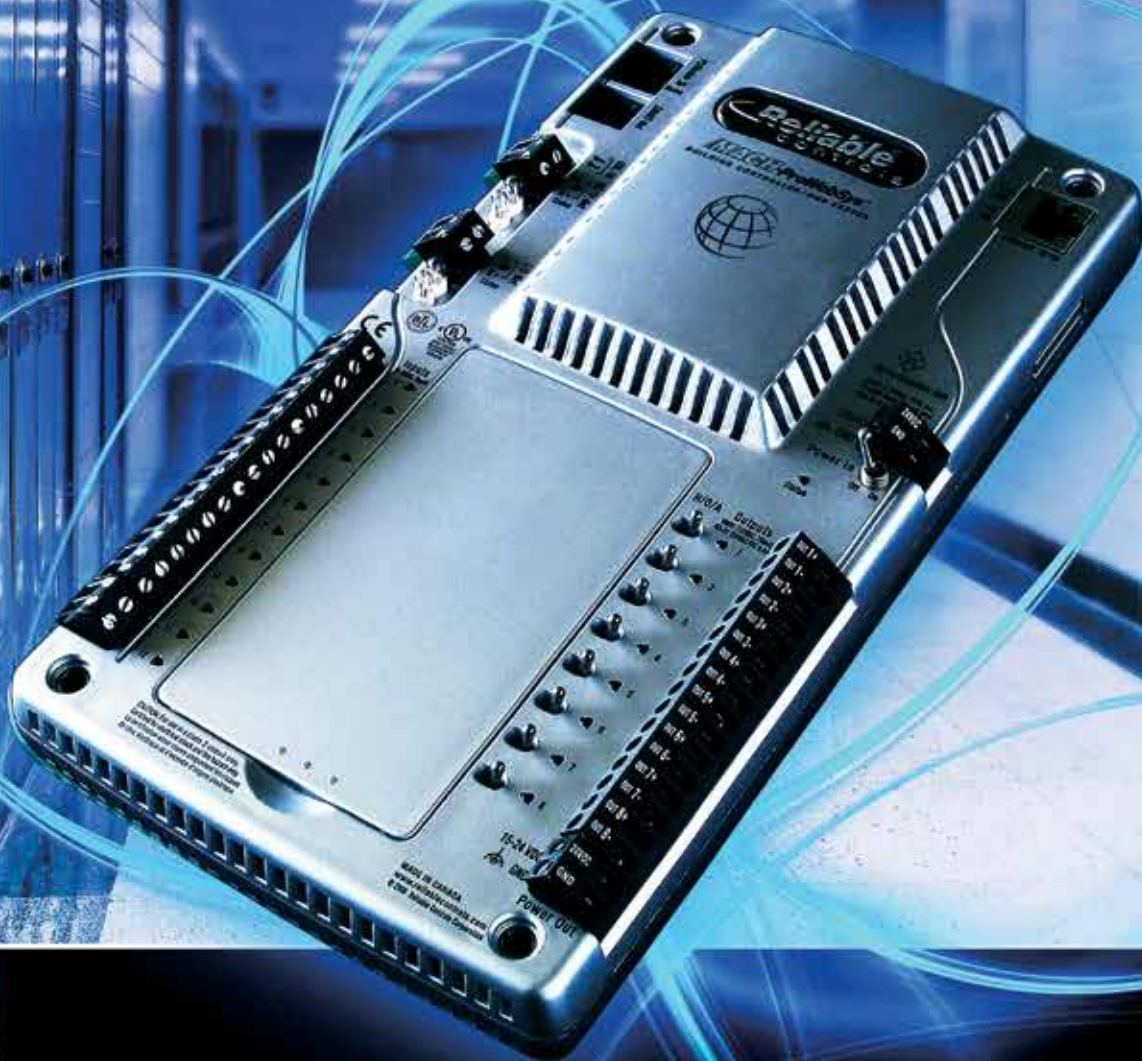
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Recommendations from APPA's 2014 General Membership Survey

By E. Lander Medlin

As APPA revises its strategic plan and prepares for the future, including moving from individual to institutional membership, the organization has spent recent months examining its value proposition and exploring members' challenges. We recently conducted a general membership survey and received a 17 percent response rate (1,660 individual members). As this research shows, current members place high value on APPA's role in training and professional development and offering them practical advice in support of the profession. In fact, they agree that APPA value meets (61%) or exceeds (23%) their expectations.

MEMBER CONCERNS

Members face a wide range of challenges in their *day-to-day work*, most notably dealing with aging infrastructures (89%), shrinking budgets (83%), expanding workload/staffing issues (83%), leveraging and adapting new technologies (72%), needing benchmarks and performance data (66%), and leadership development of staff (71%). The focus groups also revealed significant concern with workforce training and ensuring the workforce is prepared for future technologies.

Not surprisingly, members *expect the future of facilities management* to be most impacted by escalating deferred maintenance/aging buildings and utilities infrastructure (91%), significant budget pressures/reduced funding (86%), efficient and effective space utilization (81%), keeping

up with technology innovations (80%), and sustainability/energy volatility (74%).

The data indicates members rely on APPA for education and training, which is the highest-rated program/service provided (92%). APPA members also value access to a rich network of facilities professionals (86%) afforded by APPA, as well as networking opportunities at

APPA value meets or exceeds member's expectations.

meetings (81%), which speaks to APPA's focus on bringing attention to the professionalism of its audience. In fact, focus group participants mentioned the sharing of best practices, collaboration with others in the field, and meeting other professionals at conferences.

The level of importance members assign to APPA programs/services suggest the organization's continued viability. For example, more than nine in ten members consider APPA's best practices information will be "extremely important/important" to their needs in 2020, followed by performance data/benchmarking/research (86%), with seven in ten members reinforcing the importance of credentialing and certification opportunities for 2020.

Asked what would make the organization *indispensable* to them, members and

focus group participants frequently point to training and networking, as well as a wide range of other benefits including such things as:

- Better training opportunities *close to home*; more involvement at a regional level
- Online training on a variety of topics (e.g., sustainability, technology, etc.)
- Get me thinking beyond what I know *to what is possible*
- Identify and recognize "facilities management excellence" best practices
- Establish a global understanding of the requirements and skills required to be a technician for modern facilities
- Ensure the credentialing process is maintained at a high standard and promoted as a valuable asset for facilities teams
- Making sense of big data
- Mentoring/increased collaboration
- Access to the most pertinent knowledge, and sharing that information/those solutions

Clearly, young professionals seek similar benefits, but cost is an issue, making online training/webinars, social media outreach, and a mentoring program attractive in the near future. Emerging professionals also indicated the need to focus on issues such as their own marketability, advancement opportunities, and career priorities addressed now.

Like professionals in many fields, members say they will prefer to receive more content via e-mail/electronically

in the future (71%) and expect they will access more content on the website (43%). It's more likely preferences for receiving information via alternative media formats will continue to increase over time. APPA's continued exploration of and investment in alternative media formats is warranted.

SUGGESTIONS

Based on the research findings and best practices, a few suggestions were offered by Stratton Research to inform APPA's strategic plan and ensure the organization continues to invest in products/services of critical importance to members.


- Prepare future leaders by using the data to chart a path for future growth with specialized emphasis on senior/veteran members *and* preferences of emerging professionals.
- Increase focus on strong educational programming with heavy emphasis on pocketbook issues such as budgeting

and dealing with aging infrastructures, as well as adopting new technologies, an area sure to expand in focus and interest.

- Provide emerging professionals with specialized educational programming that targets technology, career advancement issues, and expands mentoring programs by pairing young professionals with veteran members.
- Plan for evolving communication preferences that focus more on new technologies, social media, and online programming, which will also offer economic benefits for all members.
- Market the credentialing program to communicate the existing offering for younger members who are new to the profession.
- Focus education, books, and sessions on best practices and performance measurement/metrics for success/effective operations across key member interests.

- Update the APPA website to focus on increasing access to research data and standards and codes.

Clearly, the insights and data revealed by members in this research provides valuable information to inform the revision and implementation of APPA's strategic plan and will help APPA ensure priorities are focused on areas of most importance to the membership. Thank you for taking the time to give us your valuable feedback!

During the coming few months, APPA's Board of Directors will be making further additions to and refinements of the strategic plan that utilize this input and feedback from the membership, build on current programming, and target or expand critical growth areas to meet your needs well into the future. 

Lander Medlin is APPA's executive vice president; she can be reached at lander@appa.org.

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Membership Participation DOES Matter!

By Arthur Chonko

Two months into my first facilities job in the fall of 1984, I attended my first APPA conference as “Bill”—a fellow employee who became ill and couldn’t attend, so I went in his place. I’ve been a member ever since.

membership *participation* does matter, in three important ways:

First, I would not be here without the support and mentoring of many others.

Second, the professional and personal growth opportunities provided through APPA have been critical to my development.

Third, while I’m a pretty strong “I” at times (“Introvert” according to Myers-Briggs), it has been fun meeting people and talking about a job I love!

GIVING CREDIT

I’ve had the opportunity to work with many wonderful, committed, and intelligent people over the years, but I would like to specifically recognize three of them: Chuck Culp, PT Farley, and Seth Patton. They supported and mentored me, and provided the base for my development and growth by fostering lots of dialogue and leading through their personal and organizational integrity.

They showed commitment to individual and organizational improvement, and they always did the right thing for the university—especially the staff—even when there may have been easier paths. They made a conscious effort to utilize available resources in the most

efficient and sustainable manner possible, and they showed me that in a true service organization, there is no place for ego, political grandstanding, or empire building. Like so many that I have met through my involvement in APPA, these individuals exemplified what it means to be true facilities professionals, and they supported me and allowed me the opportunity to participate and grow.

GROWING AND EVOLVING

Just as I have grown in my career, APPA has grown from an Association of “Physical Plant” Administrators into “The Association for Educational Facilities Officers”—the preeminent source of professional education, credentialing, and information related to the stewardship of educational facilities. A quick look at APPA’s website will reveal a multitude of opportunities for personal improvement and resources for benchmarking and organizational growth.

Whether you are an emerging professional or a seasoned veteran working at a small private college, community college, or large research institution, you provide many of the same services and share many of the same challenges. The resources that APPA International and its chapters and regions provide strengthen all of us. Opportunities abound for participation in educational programs, research, benchmarking, and in APPA itself.

In addition to attending MAPPA and APPA annual meetings, I have been



For many years, I just attended the conferences and listened—I did a LOT of listening. As I learned more, I began to ask questions and participate in discussions. Thanks to a MAPPA scholarship, I also had the opportunity to attend one of the early Institutes. As I got more involved it became clear to me that

fortunate to have had the opportunity to attend many of the APPA educational programs. Having served on the MAPPA Conference Educational Program Committee for a number of years, as MAPPA's Treasurer for the last four years, and now starting in my role as MAPPA's Membership Chair, I have had the opportunity to meet many wonderful and committed individuals and to see the dedication and hard work that goes into making this association what it is.

THE TRUE RESOURCE—PEOPLE

Just as in our own organizations, the people involved in APPA—the professionals in the APPA office and the many volunteers across the globe—are the true resource. They provide the ability to network with others, to hear how they have applied concepts and ideas (what

worked and what didn't), benchmark best practices, to meet business partners with new or innovative technologies and processes. They also make it possible for us to attend educational sessions in areas outside of our own expertise, build professional and personal relationships with colleagues, and ask questions and get real, proven answers to them. And at times, just being able to get away from the day-to-day grind and commiserate—to know that we are not alone in our particular struggle or frustration—makes it well worth the cost of membership.

APPA started out more than 100 years ago as an organization of like-minded people, working toward the betterment of their educational facilities. Today's APPA has evolved into a diverse professional organization dedicated to supporting the educational mission of

our organizations and, ultimately, the students who will be our future. We wouldn't be the organization that we are without the many volunteers who serve on the regional and international boards and committees and those who support the many educational and outreach programs for our membership.

We the members *are* APPA; *we* make this organization what it is. So, yes, membership *participation* does matter! If you have the interest or opportunity to help, please take it. You will help make our organization stronger, and just maybe, you'll learn something and have some fun along the way. I know I have. ☺

Art Chonko is director of physical facilities at Denison University in Granville, OH. You can reach him at chonko@denison.edu. This is his first article for *Facilities Manager*.

Helping Schools Create Ideal Learning Environments



The image shows a man in a green polo shirt and khaki pants operating a Tornado floor buffer in a bright school hallway. In the background, students are walking. A yellow 'CAUTION Wet Floor' sign is visible on the right. The top right corner features icons of a broom, a mop, and a wrench. The bottom left corner has the SSC logo and tagline. The bottom right corner contains a green box with white text.

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Leadership Under Pressure

By Joe Whitefield

Let's start with a simple little test. Name something made of wool. Name a type of bear. You are probably thinking these questions are not so hard. How about wool socks, a wool sweater, or a wool coat. How about polar bears, black bears, or grizzly bears. Like you thought, no problem. Any average person can handle these with ease. As it turns out, these simple questions become considerably more difficult when a little pressure is applied.

Imagine being asked these questions and to respond in a split second. Now imagine it is part of a competition with others—with money at stake. Oh, I almost forgot, you are on national TV. These are the exact conditions if you are a contestant on the *Family Feud* game show. Now try it. Something made of wool—a sheep (real answer). A type of bear—papa (another real answer).

You see, something changes when pressure is applied. There are libraries filled with books written about the effects of pressure and stress on human performance. Historically, there are occasions where amazing feats were accomplished in the midst of great pressure.

This article will focus on the pressure more often associated with diminished performance—on situations in which physical

skills, mental skills, and even social graces suffer when otherwise gifted people feel various forms of pressure. And everyone, at some time or another, is exposed to pressure. Let's unpack the concept a bit more.

PRESSURE SOURCES

In order to properly deal with pressure, we should begin with identifying the sources of pressure that cause so much disruption. We need look no

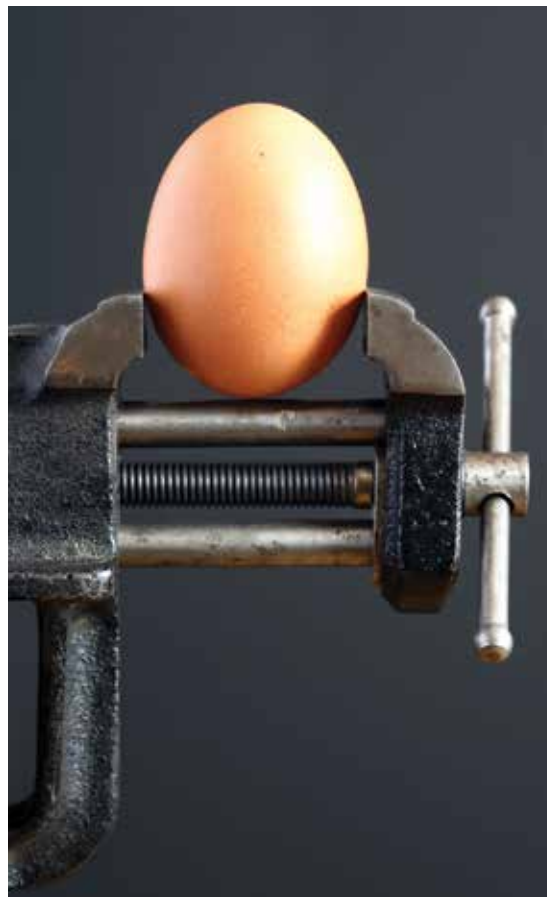
further than the basic pressures purposefully built into *Family Feud*. The first pressure source is time. If you want to evoke a response from people, put them on the clock. The tighter the deadline, the more stressed the person and the more strained or questionable the response.

Another source of pressure involves the stakes. Stakes refer to rewards and punishments that serve as incentives for performance. Revenue or budgetary goals, enrollment goals, and any number of performance goals often carry either positive or negative consequences. These consequences may even be of a personal nature ranging from diminished career opportunities to reduced job security.

Also, the element of competition plays an important role in establishing the stakes. It is one thing to fall short of a goal or expectation—it is another to lose to a competitor. The final source of pressure is publicity. Public performances are opportunities for societal judgments and review, causing anxiety for many people. Let's face it, if we make the headlines, it better be for something positive.

DEALING WITH PRESSURE

Pressure affects performance—often negatively and sometimes dramatically. For this reason, it is a great test of both personal and organizational leadership. Leaders who produce positive results in the face of pressure are most valuable. It begins with effectively




managing stressful situations to positive conclusions without alienating others in the process. It requires a unique blend of qualities such as composure, decisiveness, commitment, and forbearance. To develop organizational leadership, it's important to bring this skill set into the group. If you are looking for ways to improve this area, consider the following:

- Self-identification—there is great value in knowing who you are at all times. Self-knowledge helps you know your values and priorities and how they establish expectations and predetermine many responses. Pressure has a smaller impact on activities grounded in a self-aware, value-based organization. It follows the old statement, “If you know who you are, then you’ll know what to do.”
- Don’t add pressure unnecessarily and/or remove pressure when possible—to many people, this sounds obvious. However, at issue here is how to use a source of pressure (say a deadline or financial bonus) to motivate performance. People respond differently to different incentives depending on the creative or physical nature of the task. Those faced with physical tasks requiring effort typically respond well to external incentives. But those given tasks requiring diagnostics and creativity to address a problem, may find an external reward to be a distraction that causes a loss of focus and poorer results.
- Low-stakes training—to the degree possible, help people gain experience in dealing with different levels of pressure. This helps them see the effects of pressure and lets us measure the effectiveness of their responses. Begin with lighter pressure and lower stakes, and increase both as appropriate to refine skills.

In short, facilities managers face challenges every day, many compounded by some form of pressure. In addition

to making things more complicated, pressure has the added effect of making the easy things hard by distracting or disincentivizing people. Strong performance in the face of these pressure filled challenges is the mark of an effective leader. In order to perform better under pressure, it is helpful to

understand pressure and learn to handle it productively. 

Joe Whitefield is assistant vice president, facilities services, at Middle Tennessee State University, Murfreesboro, TN. He can be reached at joe.whitefield@mtsu.edu.

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Leveraging

Facilities managers are key players in advancing campus sustainability. Their efforts advance tactical value through the management of the facilities portfolio. However, this tactical value is not consistently translated to the strategic mission of educational institutions—educating tomorrow's leaders. Through a sustainability initiatives inventory project, facilities managers and academic faculty at the University of Wisconsin Madison collaborated to identify current and future opportunities to link sustainability in campus facilities with campus academics and research. The results of the inventory identify a diversity of existing relationships, partnerships, and collaborations around campus sustainability that serve as a baseline for further advancing campus sustainability initiatives.

Campus Facilities to Advance Sustainability in Academics

By Daniel Aragon, Bill Elvey, P.E., FMP, APPA Fellow, and Alfonso Morales, Ph.D.

Over the past few decades, efforts to improve campus sustainability have been transformed from the experiments of a few early adopters to a central concern of many modern educational institutions. The change can be seen both in the management of campus facilities, and in the educational objectives of many academic departments. Although sustainability efforts are unevenly distributed among institutions, sustainability investments deliver positive returns to the triple bottom line of economic value, environmental improvement, and increasing social capital.¹ As campus sustainability efforts become more widespread, it is worth evaluating how these successes are leveraged across educational and operational settings.

Facilities management and sustainable campuses are ultimately in service to the strategic institutional mission of educating tomorrow's leaders. Facilities managers contribute to this mission by advancing tactical value through ongoing activities, special projects, and emergent initiatives in their portfolios. Their leadership and management improve this complex system of human and physical resources. However, these tactical operations do not consistently deliver the strategic educational value they are capable of generating.

The sustainable university has the unique opportunity to translate tactical management into strategic value by advancing sustainability-based relationships between facilities management and academic partners. These relationships can produce a variety of goals through making the campus a living laboratory that teaches through operations design and management.²

To realize the full strategic value of a tight reciprocal relationship between education and campus operational sustainability we need a baseline understanding of existing partnerships that help identify opportunities for new sustainability efforts. This article describes one such scoping effort at the University of Wisconsin Madison, initiated by the associate vice chancellor of facilities planning and management.

SUSTAINABILITY AND RESPONSE TO CLIMATE CHANGE

Climate science tells us that avoiding dangerous climate change impacts on society requires limiting atmospheric temperature increases to less than 3.6°F above pre-industrial levels. This means the developed countries will need to contribute an 80 percent reduction in greenhouse gas emissions by 2050.³

Such reduction is daunting, even for those with experience implementing highly successful conservation projects.

The American College & University Presidents' Climate Commitment is a promising sign of educational institutions taking the lead on sustainability.⁴ But this commitment that includes developing climate neutrality plans, has been judged by some as too conservative to reach meaningful milestones in an adequate timeframe.⁵ Knowledge of climate change and climate change mitigation exemplifies the type of complex problems that students are grappling with in the classroom and that they will face in postgraduate professional environments.

There is a two-sided opportunity associated with this complex problem. On the one hand, when facilities professionals identify sustainability-related projects and goals, they can partner with their academic colleagues to advance mutually beneficial learning and research goals. On the other hand, when academic curricula are designed to employ campus sustainability as a teaching tool, the work of facilities management is creatively utilized to deliver new value. Both approaches may require additional tasks of facilities managers, yet the benefits are often reciprocal.

Faculty and students may already be engaged in projects implicating facilities offices and personnel. Systematically meshed with facilities, student organizations, and engaged faculty capably develop and implement activities and programs that expand the capacity of facilities managers to meet their sustainability goals. What is clear is that the challenges posed by today's sustainability problems call for *all* members of the campus community to work beyond conventional organizational boundaries and traditional educational paradigms.

ORGANIZATIONAL SUSTAINABILITY

Facilities managers directly affect the sustainability of their institutions. The physical assets they administer represent large investments that may be valued well above the endowment of the institution.⁶ These assets have direct and wide-ranging environmental impacts. However, such assets can also be harnessed to academic and pedagogical goals.

Besides directly enriching academic missions, the work of facilities managers will indirectly influence societal sustainability through the 50 percent of people over 25 who will have spent at least some time in a college setting.⁷ In short, campus sustainability has legitimate educational and social functions. While most facilities managers have a full schedule of day-to-day operational responsibilities, it is equally clear that facilities management works in the three dimensions of strategic sustainability—the economic, the environmental, and the social⁸, as well as the academic and pedagogical.

Complete integration of sustainability into the campus institution is not a straightforward task. Authors in *Facilities Manager* have described such barriers as commitment to short versus long paybacks periods, access to financing, greenwashing, politics, and the inevitable long-term commitment needed to achieve sustainability goals.⁹ Adopting sustainability into academic disciplines and education has its own related, yet unique challenges.

Ideally, sustainability would be incorporated into the highest levels of the campus organization—the mission and vision statements, and the subsequent decision-making activities.¹⁰ However, the reality is that most institutions are in an evolving process of adopting sustainability practices, defining curriculum in reference to sustainability, and developing the underlying organizational framework to support these efforts.

Facilities management can help advance sustainability initiatives across an institution by adopting a strategic perspective that is attentive to existing initiatives. Campuses are places of deep research, innovation, and domain expertise. Facilities management can engage these strengths by partnering with faculty and students to solve problems and discover new opportunities. Facilities managers' existing service role also makes them ideal connectors in the campus organizational framework. Facilities professionals advance sustainability—yet, facilities professionals that do a better job of integrating realize important goals that reach beyond the campus.



THE UNIVERSITY OF WISCONSIN MADISON'S EFFORTS

The division of Facilities Planning & Management (FP&M) at UW-Madison is a full-spectrum facilities management organization consisting of six major functional departments: Physical Plant; Space Management; Capital Planning & Development; Campus Planning & Landscape Architecture; Environment, Health & Safety; and Transportation Services. FP&M also has a long and successful tradition of integrating sustainability into its philosophy of doing business with programs such as WE CONSERVE, UW Builds Green, and management of a 300-acre Lakeshore Nature Preserve.

The challenge, however, is ensuring productive alignments among the departments, and further, producing productive partnerships with academic units. In 2010, UW-Madison published the *Sustainability Initiative Final Report*. The report challenged the institution to improve sustainability outcomes by enhancing strong, two-way communications between campus operations and the university's educational and research components.

To address the report's concerns, it is essential that not only facilities management extend operational sustainability efforts to educational and research settings, but that other campus operational components such as Athletics, the Division of Informational Technology, Wisconsin Union, Housing, Purchasing, and others also do the same.

PROJECT IMPLEMENTATION

Bill Elvey joined UW-Madison in 2012 as the associate vice chancellor for FP&M. In early 2014, he engaged support from professor Alfonso Morales of the Department of Urban & Regional Planning. Together they developed a scope of work for a year-long project to scope the interaction between FP&M departments and campus academic units. Elvey's initiative built on the 2010 report and infuses sustainability in every business decision made by FP&M departments. Operationally his leadership empowers department directors by fostering self-determined sustainability programs, projects, and initiatives. Professor Alfonso Morales identified the important partnerships to scope, engaged a team, and is directing the effort. In short, the UW-Madison academic/administrative collaboration

exemplifies firm and visionary leadership at a high level of the university administration with inventive and resourceful faculty and student talent.

The conceptual foundation for the assessment is based on dynamic, emergent, and multilayered partnerships. Our understanding of sustainability efforts on college campuses has evolved from two observations. The first is that motivated and

inspired actors might initiate sustainability efforts from nearly anywhere in the organizational structure of the institution.¹¹ This includes students and student organizations, research groups, academic instructors, and facilities management departments. Second, we observe that many sustainability projects are born of interdisciplinary partnerships within and across different interests. Our model captures the relationships and organizational structure of sustainability partnerships (see Figure 1).

Our assessment began with collecting data about prior and existing partnerships between facilities and academic units. Elvey emphasized the project to his leadership team and the academic partners examined documents and conducted interviews with

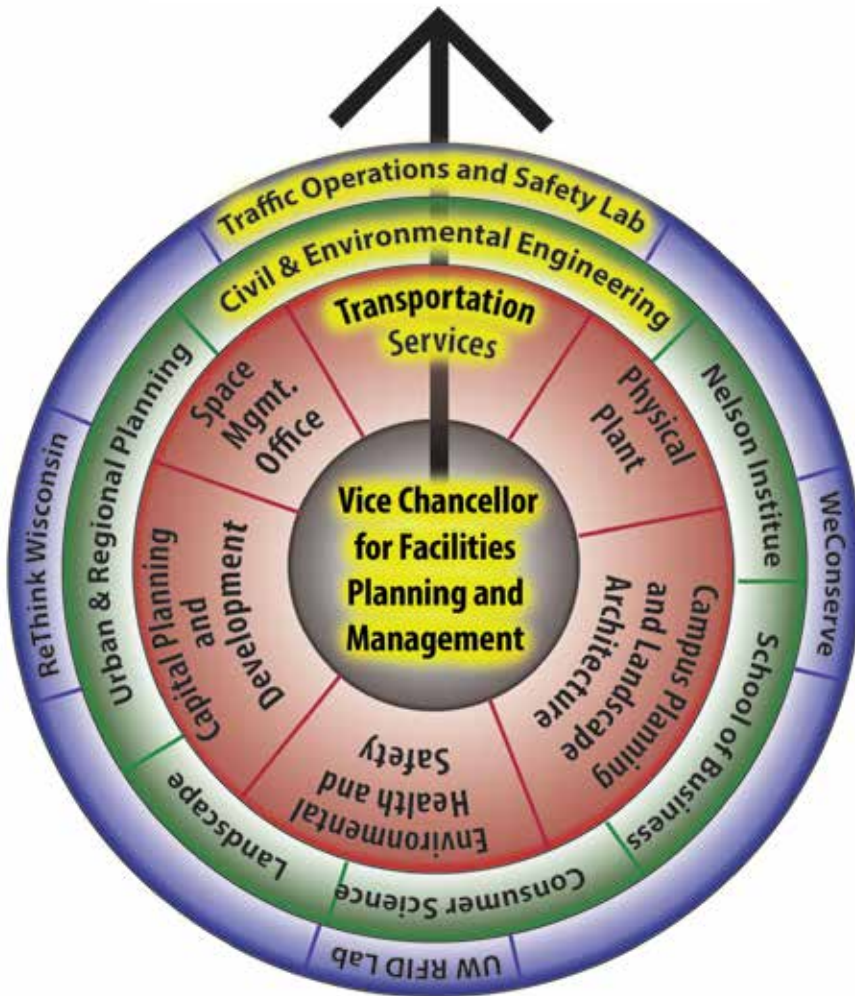
units in FP&M as well as across campus academic units. Some of these actors engaged research projects with units of FP&M, others crafted curriculum that uses campus sustainability as a teaching tool in a range of academic fields.

We also identified and interviewed student organizations at the university that work to advance a range of sustainability objectives. These various interviews collected the details of discrete projects, ongoing programs, curriculum and syllabi, published research, permitting activities, and proposed work that advance campus sustainability. We are intentionally framing this data collection through the lens of tactical and strategic institutional value. We also are careful to document the evidence of partnerships across the various university units.

This database of sustainability projects will inform the FP&M departments and the greater campus community of an active and often unseen network of findings and opportunities. By taking a thorough assessment of sustainability activities on campus we are identifying storehouses of knowledge and data that can be leveraged for multiple purposes—academic, pedagogical, and administrative.

**Facilities management
can help advance
sustainability initiatives
across an institution
by adopting a strategic
perspective that is
attentive to existing
initiatives.**

Figure 1. Emissions Reductions Study: Traffic light conversion to roundabout



The conceptual model for the inventory captures the products of collaborations across FP&M departments, academic classes, and research units. This emissions reduction study was a product of the Traffic Operations Safety Lab, Engineering faculty, and the Transportation Services Department in FP&M. An interactive Web version of the model makes clear the dynamic nature of such partnerships from the AVC perspective.


In this assessment we are able to identify the types of partnerships that are particularly productive and lead to sustainability innovations and we are beginning to understand the characteristics of those partnerships. The initial work confirms that the facilities management units have many sustainability assets to be proud of and that the strategic value of these assets is not lost on their managers. However, in the words of Dan Okoli, UW-Madison's capital planning & development director, "We are not skilled at broadcasting our successes." This challenge is central to our effort at UW-Madison and we are developing Web-based mapping and graphical platforms that use interactive data to communicate the breadth of sustainability initiatives on campus.

INTEGRATING

In short, facilities managers are important to engaging the behaviors and decision making of the campus community, and further, they can utilize campus assets to enhance academic and pedagogical missions. When these efforts are designed to integrate with the strategic mission of educational institutions, their value is further increased. For those managing campus facilities, developing the strategic value of the campus infrastructure will become even more important in the digital age as the campus is no longer a prerequisite for higher education.¹²

Taking stock of the existing efforts and relationships can help an organization become more self-aware and make better decisions on how to leverage the value of sustainable campuses. Furthermore, such scoping can identify emerging efforts from around the campus and point toward potentially significant opportunities for new initiatives. Creating sustainable campuses should infuse existing pedagogical methods with facilities concerns,



in this way concurrently addressing educational and operational sustainability challenges. 

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BY DEBRA ROWE, PH.D.

Association Partners Bring the **POWER** OF **COLLABORATION**

Do you sometimes feel that a lot of the work for sustainability rests in your office and, if you could get more staff positions on the campus involved with sustainability, your efforts would be more efficient and effective? Do you want to explore new resources about sustainability that can help you collaborate more effectively with colleagues on campus? Take a look at the Higher Education Associations Sustainability Consortium (HEASC). HEASC is a network of higher education associations with a commitment to advancing sustainable development in both their constituencies and in the system of higher education itself.

The members of HEASC include three professional associations for college and university presidents and chief academic officers that include most of the U.S. higher education institutions: the American Association of Community Colleges (AACC), the American Association of State Colleges & Universities (AASCU), and the National Association of Independent Colleges & Universities (NAICU). Other members of HEASC cover specific areas or interests for the campus, including student affairs, recreation, environmental health and safety, business and procurement offices, sustainability directors, and more, as follows:

- College Student Educators International (ACPA-Student Affairs)
- Association for the Advancement of Sustainability in Higher Education (AASHE)
- Association of College and University Housing Officers – International (ACUHO-I)
- APPA, providing Leadership in Educational Facilities
- Campus Safety Health and Environmental Management Association (CSHEMA)
- Council for Christian Colleges & Universities (CCCU)
- National Association of College & University Business Officers (NACUBO)
- National Association of Educational Procurement (NAEP)
- NIRSA: Leaders in Collegiate Recreation
- Hispanic Association of Colleges & Universities (HACU)

By working together, these associations develop and provide more useful publications, webinars, and other resources. Through ongoing discussions, collaborations, and the HEASC Fellows program, the associations are more effective at their efforts to create long-term systemic changes that will make a more sustainable future for all. APPA is a founding member of HEASC.

Since its beginnings in 2006, HEASC seeks to help higher education take the lead in making education, research, and practice for a sustainable society a reality. Higher education's leadership is critical to help businesses become sustainable, to promote thriving and secure communities, and to provide economic opportunities for the broadest number of people while preserving the life support system on which all current and future generations depend.

One strategy is to ask staff in other areas on your campus to review the online HEASC Resource Center (<http://heasc.aashe.org/content/heasc-resource-center>) and provide input about what might be helpful to use at your institution. Each HEASC member association graciously shares its key sustainability resources on the HEASC website. Visitors to the Resource Center and the News and Update page (<http://heasc.aashe.org/content/heasc-news-updates>) can learn about sustainability from a variety of staff perspectives, providing deeper insights and useful tools for a diversity of sustainability initiatives and applications.

HEASC supports its members' work in advancing sustainability by:

- Promoting and enhancing each others' sustainability efforts;
- Sharing and exchanging information, knowledge, and experiences;
- Building the capacity of the associations to make sustainability a goal of their programming and practices;
- Enhancing professional development, including training in sustainability for association staff and their constituents;
- Integrating sustainability into associations' professional development programs;
- Connecting the associations to the best expertise, resources, and information in sustainability for higher education;

- Producing publications on trends in sustainability in higher education; and
- Engaging in joint projects, and in projects with other associations and organizations that advance sustainability.

Within the past year, HEASC has furthered many of its initiatives, producing new resources for all involved in higher education. The key strategic direction for HEASC over the past four years has been to encourage using the campus and the community as a living lab for sustainability. Individual HEASC association members have developed tools to move this strategy forward.

For example, the American Association of Community Colleges produced three toolkits that can be used by all types of higher education institutions. The first tool focuses mostly on using the campus and is entitled *The Campus as a Living Lab*. It describes the potential for students to work with facilities staff to learn about and contribute to a more sustainable campus. The second tool, entitled *Creating an Environment to Grow Green Jobs: Community Colleges Shaping State and Local Policies*, recognizes and addresses the need for colleges to engage in governmental policy to remove the regulatory barriers to sustainability issues, such as energy efficiency and renewable energies. A third tool, *A Guide to Climate Resiliency and the Community College*, addresses the possible role of higher education institutions to convene and work with other regional stakeholders to prepare for climate change disruptions and build more resilient and sustainable regions.

Another example of individual association resources that benefit all HEASC members is AASHE's *Guide to Creating & Managing Sustainability Internship Programs*.

COLLABORATION AND HEASC FELLOWS

In addition to individual HEASC associations creating resources that are useful to all HEASC members and their constituencies, the HEASC Fellows program has created useful resources to advance sustainability solutions. HEASC Fellows are higher education staff or faculty who apply to work pro-bono for approximately three hours per week on a national level project. Anyone in higher education can apply using the forms on the HEASC site and their application is reviewed by all member associations. HEASC Fellows' projects are co-designed by the Fellow and the HEASC Fellows facilitator. The Fellows' work is then highlighted on the HEASC website.

Recent Fellow projects included papers on how to raise funds for sustainability, how to build community partnerships for sustainability, career information on sustainability jobs, and how to assess supply chain emissions in higher education. Fellows

have also coordinated webinars cosponsored by HEASC members, such as the recent webinar "Civil Discourse & Civic Engagement in Student & Academic Affairs through Planet Education." This recording focuses on how to help our states move forward with clean energy plans, removing barriers to the implementation of renewable energies and energy efficiency while teaching the skills of civil discourse and civic engagement.

Collaborations between HEASC members can produce powerful results. For example, APPA and NACUBO are working together on key metrics for sustainability performance. HEASC members work together to create the Smart and Sustainable Campuses Conference (March 30-31 in Baltimore) and to support the annual Campus Sustainability Day. ACUHO-I, American College Personnel Association (ACPA), NIRSA, and National Association of Student Personnel Administrators (NASPA) worked together to produce a series of webinars on sustainability topics.

HEASC and association members' staffs keep an eye on the policy arena and inform each other about policy opportunities to strengthen education and actions for a sustainable future. These have turned into opportunities to inform legislators about how to make policy more relevant and useful to sustainability efforts within higher education and within society as a whole. Recent efforts included information to inform better energy legislation and include sustainability in higher education reauthorization. Efforts also support the inclusion of sustainability in federal agency grant program design.

HEASC CALLS TO ACTION

HEASC has two active Calls to Action. One is a call to include sustainability in the job descriptions and performance reviews for all staff on campus. This is a way to institutionalize sustainability so it doesn't fade away as sustainability champions retire or move to other positions.

Secondly, HEASC has issued a call for more energy literacy on campuses for all students, with an emphasis on making students aware of the urgent need to reduce greenhouse gas emissions and the possibilities for using energy efficiency and renewable energies to create solutions that pay for themselves, provide jobs, and can often provide the majority of the institution's energy needs. This call to action comes with





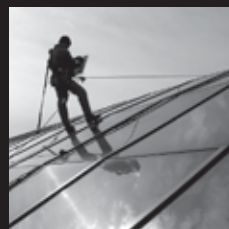
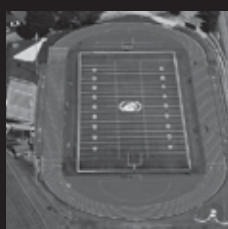
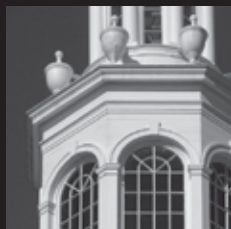
a list of resources that point to the potentials for such solutions. Too many students are either unaware of our need to implement more sustainable forms of energies or are taught only the doom and gloom facts instead of the successes and the analyses that point to the vast potential for more energy efficiency and renewable energies.

HEASC is presently exploring more collaboration with ecoAmerica in its Solutions Generation campaign. This initiative focuses on hidden opportunities within the climate crisis for system planning to reduce suffering from the crisis while enhancing economic and social sustainability. Multiple sectors of society (e.g., commu-

nities, healthcare) are working on creating similar initiatives with ecoAmerica via its Momentum program.

HEASC members agreed early on to support the American College & University Presidents' Climate Commitment (www.acupcc.org). This commitment, when signed by the president of a higher education institution, commits the college or university to measure their greenhouse gas emissions and create a climate action plan to eventually eliminate these emissions. Additionally, the pledge commits the institution to educating its students about climate change challenges and possible solutions. To date, 686 signatory institutions have submitted 2,151 greenhouse gas inventories and 533 climate action plans.

While the curricular side developed more slowly than the operations work, the national trend to increase sustainability literacy is growing more robust. *Interdisciplinary Environmental and Sustainability Education: Results from the 2012 Census of U.S. Four Year Colleges and Universities* describes how the curricu-



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...CLOSE TO ONE-QUARTER OF ALL COLLEGES AND UNIVERSITIES HAVE NEW EDUCATIONAL COURSES-PROGRAMS RELATED TO SUSTAINABILITY.

lar commitments to interdisciplinary environmental (IE) and sustainability have increased substantially in the past five years (Vincent et al., 2012).

The number of IE and sustainability academic programs has increased dramatically. The 2012 census identified 1,151 academic units/programs offering 1,859 baccalaureate and graduate degrees at 838 colleges and universities, a significant increase over the 840 academic units/programs identified in the original 2008 census. The number of schools offering IE and sustainability academic programs increased by 188 (29%), the number of academic units/programs by 311 (37%), and the number of degree programs by 676 (57%).¹


Sustainability Education: Results from the 2012 Census of U.S. Four Year Colleges and Universities (Vincent et al., 2013) noted that close to one-quarter of all colleges and universities have new educational courses/programs related to sustainability.

HEASC also agreed to call for and support a sustainability tracking system. In response, AASHE created the Sustainability Tracking and Rating System (STARS). STARS provides a self-assessment that higher education staff can use to understand the depth and breadth of their present efforts and plan for improvement. This year, 105 higher education institutions earned a STARS rating, representing institutions in the United States, Canada, Ecuador, Japan, the Netherlands, and Switzerland. An annual overview and data are available at <https://stars.aashe.org/pages/about/publications.html>.

HEASC has also become involved in international sustainability efforts. HEASC is a Senior Advisory Board member for the international Sustainability Literacy Test. The Senior Advisory board includes four United Nations agencies and other international networks of higher education institutions. The test is a useful tool for educators and staff, allowing for an across-institution and across-countries assessment of basic sustainability literacy. While version one focused on basic knowledge questions regarding sustainability, version two (under development) will focus more on proactive problem-solving

skills that will help create solutions to our shared sustainability challenges. HEASC staff is involved in the development of version two, which is due to be released in the fall of 2015. The test is presently being used in over 30 countries and is available in eight languages.

The work of HEASC has been recognized and shared via the U.S. delegation to the World Conference on Education for Sustainable Development, held in November 2014 in Nagoya, Japan. Other country and continent representatives, from England to Australia, Africa to Asia, have become aware of the HEASC collaborative structure and available resources.

HEASC staff is presently working with staff at the U.S. State Department to design next steps in this international arena, including the following: connecting higher education institutions to local and regional governments to build local solutions while developing students' skills for sustainability; improving communications regarding sustainability empowerment, tools, connections, and successes across countries; and developing policies for systemic change for sustainability. 

ENDNOTES

- 1 http://www.slideshare.net/lbirkey/ncse-2012-ies-full-report?utm_source=slideshow02&utm_medium=ssemail&utm_campaign=share_slideshow_loggedout, pg. 7

Debra Rowe is a faculty member in Sustainable Energies and Social Sciences at Oakland Community College, Bloomfield Hills, MI. She is the co-founder and program director of HEASC, and also serves as president of the U.S. Partnership for Education for Sustainable Development. She can be reached at dgrowe@oaklandcc.edu; this is her first article for *Facilities Manager*.



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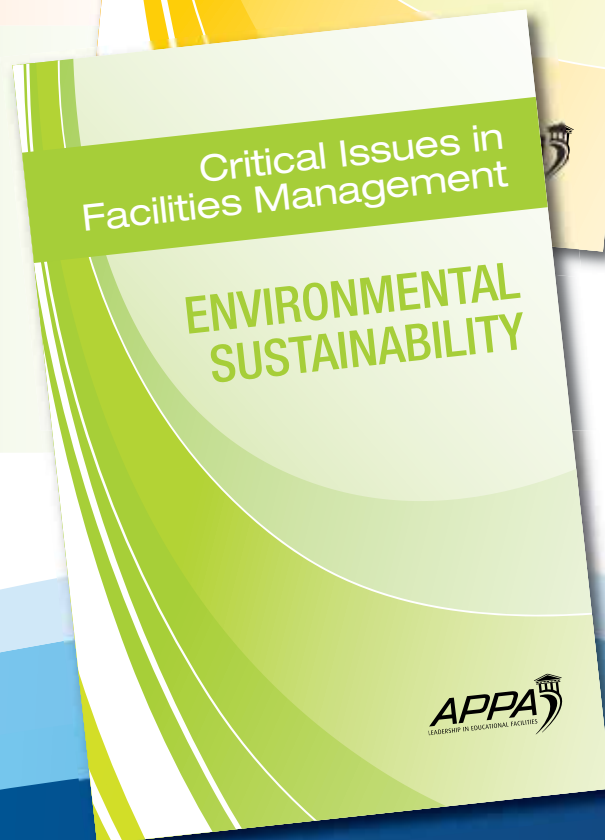
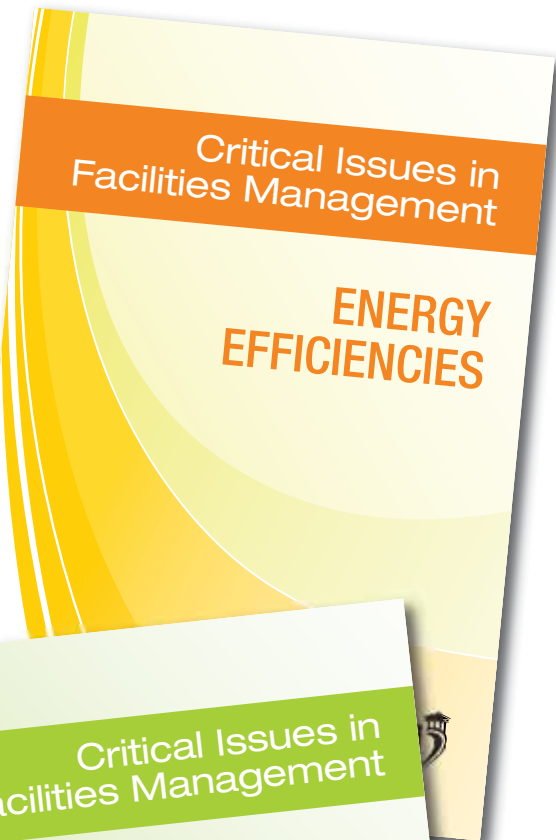
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Expression **IN LAND**

By Carleton Beach



SCAPE

A landscape should communicate the unique philosophy and sense of mission embodied in the institution it surrounds—even to those who never venture past the front gates.

Achieving an exterior environment that makes a strong, positive first impression on visitors and passersby is not a random process. When an institution works with a landscape architect or design firm to extend its message in a deliberate way, within and throughout the campus, the result can be lasting and powerful. Where a landscape environment is out of alignment with an institution's mission and purpose, or if any landscape is not properly maintained, that can tell a story of neglect or indifference, or potentially convey a lack of competence.

MISSION STATEMENTS—FROM THE STREET TO THE DOOR

For a person outside, a thoughtfully designed and carefully maintained landscape elegantly uses plants and materials to generate a spatial, intangible, human-scale link to buildings and the people in them. Landscaping elements can be used strategically to soften or even camouflage nondescript or severe building characteristics. A new community college might choose to welcome enrollees with wide, stately lawns that harken back to traditional university quadrangles—or it may adopt native plants and low-impact prairies to demonstrate an institutional commitment to sustainability.

The storytelling power of landscape design is just as important when an institution is housed in an architectural landmark. Consider the **Metropolitan Museum of Art** in New York City, which recently invested \$65 million in a new four-block plaza outside its Beaux-Arts façade on Fifth Avenue. The design brackets the museum's iconic grand staircase with a massive pair of contemporary fountains. The sidewalk is now shaded by two aisles of linden trees that when mature will be pruned into cube-shaped aerial hedges, similar to those at the Palais Royal gardens in Paris—a nod to the museum's magnifi-

cent collection of European art. Casual seating, shaded by trees and sun canopies, invite passersby to stop and enjoy the urban vista. At the project's groundbreaking in 2013, Daniel Brodsky, chairman of the museum's board of trustees, said the design was intended to extend the museum's reach to the 6 million pedestrians who walk past the building each year. "It will give the Met a portal outside that is truly worthy of the masterpieces that grace our galleries inside," Brodsky said.

Institutions in urban areas may need to take a more interior-centric approach to landscape design. Institutions are often nestled into bustling downtown streetscapes and commercial districts. When the **Poetry Foundation** chose an urban site surrounded by residential towers for its new headquarters in Chicago, the architect was asked to include a garden space that could be used to host events. The site was developed with an open frontage off the main sidewalk by way of liberating available interior square footage. The 4,000-square-foot courtyard is open to the public and offers a sanctuary from the urban bustle outside its walls. With its Zen approach, the building's minimalist garden serves as a serene place to promote individual reflection as easily as it invites formal gathering for recital.

"It's not something that screams at you," architect John Ronan told *Chicago* magazine when the building opened in 2011. "We wanted to arrange the materials and spaces analogously to how a poet arranges words—to help you see something you didn't see before."

PREREQUISITES TO SUCCESS

Landscapes are living things that grow, change, and develop over time. Essential to a successful landscape design is a comprehensive, well-thought-out plan for installation and maintenance that reflects the institution's mission and goals, and harmonizes with the surrounding environs. The plan must conform to local regulations and should seek to benefit the overall environment. Invariably, plans of the size and scope of these highlighted projects comprise complex documents requiring

Existing gardens and grounds provide inspiration for future landscapes at Princeton University.



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certified professional expertise. They also require cooperation with municipalities and a time commitment for thorough input from all stakeholders inside and outside the institution.

For example, it took a team of experts, stakeholders, and community members more than two years to produce **Princeton University's** campus plan, unveiled in 2008. Their campus plan, which reflected the university's strategic decision to limit new construction to the existing campus areas, included detailed landscape design projects as part of its overall goals of promoting environmental responsibility and a strong sense of community. The university's challenge included blending the several distinct styles that had been individually adopted over the century as the campus expanded. They were looking to develop a cohesive expression that benefited both old and new infrastructures and legacies.

To address one overall functional objective to better manage stormwater run-off, designers proposed to integrate a sustainable landscape region of bioswales and rain gardens around Princeton's new state-of-the-art chemistry building. The two entities serve together symbolically as well as through their practical applications.

In addition to large-scale infrastructure projects, Princeton has also continued its tradition of smaller, distinctive garden spaces within the overall landscape, with some recent additions of several "highlighting" gardens that greet the student body and interface purposefully within the surrounding departments. Through its overall initiative and investment in additional smaller garden spaces, Princeton further embraced the history of its 250-year-old campus and emphasized the university's commitment to landscape environments as an essential component of its educational mission going forward.

CONNECTION TO THE COMMUNITY

The importance of connecting buildings to their surrounding landscapes—and the perils of not carrying through—are demonstrated by Philadelphia's **Benjamin Franklin Parkway**, designed a century ago as a mile-long scenic parkway connecting City Hall to the Philadelphia Museum of Art. The original plan's vision to create a lush boulevard

were never fully realized; over the years, the formal character of the Parkway faded as its long rows of red oak trees withered and died. Civic neglect and increasing car traffic combined to turn the Parkway into a series of "big, vacant parcels framed by high-speed traffic," according to Harris M. Steinberg, executive director of PennPraxis, the University of Pennsylvania School of Design's research arm.

A public-private consortium recently invested nearly \$20 mil-



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lion in new lighting, street improvements, and enhanced green spaces for the Parkway. Now the refreshed landscape reflects the ongoing revitalization and expansion of Parkway institutions: The Philadelphia Museum of Art and The Barnes Foundation, which brought one of the world's greatest collections of 19th and 20th century French art to their Philadelphia campus in 2012. The old oak trees have been replaced with hardier new varieties, and the current design utilizes a diversification of tree species for improved sustainability—directing that a majority of the trees be oaks—to maintain the site's original legacy. To ensure the design intent enjoys faithful stewardship, a group of city organizations jointly developed a long-term maintenance plan. This provides a critical commitment toward sustaining a high standard of landscaping for a vibrant and green Parkway in years to come.

WORTH THE TIME, WORTH THE THOUGHT

The challenge of telling an institution's story through a landscape design is far from simple. A design that is attractive and aligned with the institution's mission should be the primary goal. The first step in achieving that end is defining design constraints. Among them: All landscape designs will need to meet

requirements defined by local ordinances. Increasingly, requirements include strict standards for sustainability and environmental impact. This trend may necessitate a creative, perhaps less conventional, solution.

Also essential is the architecture of the building or buildings. Colleges, universities, and schools facing new building projects of any scope are advised to consider the building architecture and landscape design requirements collaboratively to achieve optimal results.

The Washington State Higher Education Coordination Board faced these challenges with remarkable success when planning a new **University of Washington** branch campus and a new community college in **Bothell**, about 15 miles north of Seattle. Because available sites were severely limited, the board decided to co-locate the two institutions on a single 127-acre property that would ultimately serve 10,000 students.

The decision to combine the two and share facilities made it possible to limit the campus building footprint to about one-half of the site. Environmental regulations required the board to mitigate the building impacts by creating new wetlands areas of equal size elsewhere on the site.

Because one of their guiding principles for the landscape design was to maximize both natural form and campus function, the pair decided to exceed those regulations and transform the site's remaining 58 acres into one of the Pacific Northwest's largest wetlands restoration projects. As part of the project, a 3,200-foot stretch of the salmon-bearing North Creek's channel was re-routed through its original floodplain, and more than 400,000 trees, shrubs, and herbaceous plants were hand-planted throughout the adjoining wetlands. Since the project's completion in 2002, the campus wetlands have become an important educational resource for both college students and K-12 students throughout the area. Many classes at both institutions use the wetlands as a living laboratory, and the site has come to be used for professional training in wetland mitigation best practices.

RETURN ON INVESTMENT

Although the Bothell campus has been a great success, environmentally and educationally, the wetlands restoration also underscores the need for institutions to consider long-term maintenance costs when planning major landscaping projects. Over the first

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decade, wetlands maintenance required about 5,300 hours of labor each year, at an annual cost of more than \$145,000. Summer droughts killed young plants, requiring replacement and replanting, and constant vigilance (and weeding) was required to keep non-native plants from regaining their foothold.

Sustainable landscape designs are being looked upon to meet new regulations and potentially yield substantial operational savings. **Cal State Fullerton** recently claimed having spent \$250,000 in the last decade to retrofit irrigation systems and replace grassy lawns with new drought-tolerant landscapes to meet a state mandate for a 20 percent reduction in water use by 2020. Their motive for this approach is that the alternative groundcover has been locally surveyed to reduce water consumption 23 percent. Although that replacement cost is substantial, irrigation accounted for about 60 percent of the facility's total annual water bill of \$360,000 in 2013. Over the long run there is an outlook to realize a net benefit in both water conservation and cost reduction by watering less lawn—something to evaluate over time.

CONCLUSION

Whether an institution is centuries old or newly founded, the fundamental questions that shape a landscape plan remain the same: What is our budget, for the new design and for future maintenance? What practical and regulatory constraints do we need to consider? What sustainability goals are we trying to achieve? Who will see this space? How will it be used? How will it be maintained? And most importantly—What story do we want to tell?

These aren't questions answered easily. But an institution that invests the necessary time and thought into finding the right answers for them can create a new landscape that is beautiful, functional, and affordable, and provides a better work environment for staff, attracts new visitors, strengthens bonds to the surrounding community, protects the environment, and tells the story of its mission and its identity, both now and in the future. 

Carleton Beach is landscape management specialist at SMS Assist, LLC, in Chicago, IL. He can be reached at cbeach@sms-assist.com. This is his first article for *Facilities Manager*.

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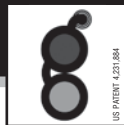
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PGMS Offers Landscape Management Accreditation

By Thomas C. Shaner, CAE

“Curb appeal” has always been one of the top reasons why a potential student’s parents select one higher education institution over another. The grounds and landscape operations of a school are obviously instrumental in this regard.

Now institutions of higher learning, as well as other facilities, have a valuable tool to help enhance their “first impression” through an evaluation of their campus’ grounds operations when measured by a series of best practices.

Developed over a two-and-a-half year period (including on-site evaluation testing), by the Professional Grounds Management Society (PGMS), a strategic partner of APPA, the new **Landscape Management and Operations Accreditation** program is a dynamic evaluation tool that can be utilized by facilities and having a landscape services or grounds component. Through peer expertise, the program evaluates strategic grounds management principles and practices that produce and guide the delivery of properties to an attractive, healthy, sustainable, and high-quality state. Only in its early stages, the accreditation program is already being favorably received and utilized.

It has four levels of accreditation and is designed to not only recognize excellence but to provide a means by which facilities can measure growth and improvements in meeting the goals of best practices. PGMS accreditations are awarded based on a 200-point evaluation system and on a four-star recognition system.

Rating System	Evaluation Points Required
1 Star	114-127 points
2 Stars	128-141 points
3 Stars	142-165 points
4 Stars	166+ points

If appropriate, once an applicant has undergone an evaluation and the results have been provided, the applicant will be given opportunities, including at time of re-accreditation, to address specific best practices and possibly gain additional stars.

EARLY ADOPTERS, EARLY ACHIEVERS

Since its launch in July 2014, the program has already awarded several institutions with accreditation recognition.

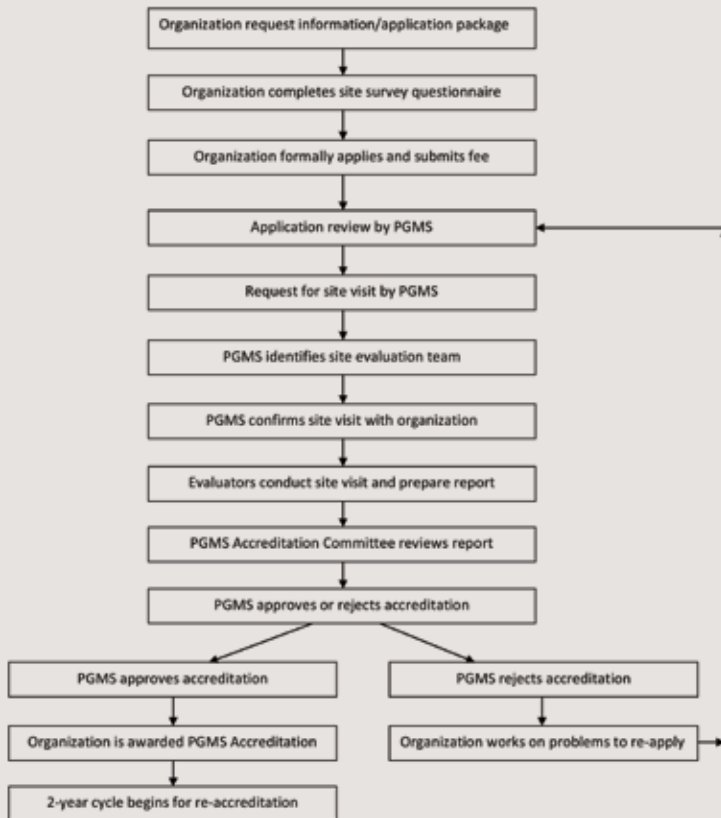
The **University of Delaware** (appropriate as the “First State”)—a beta-test site for the PGMS program—was the first to be awarded a 2-Star Accreditation; The **University of California-Davis** received at the same time the first 4-Star Accreditation. Also recognized thus far are the **College of Wooster** with a 2-star Accreditation, and the **Georgia Institute of Technology** with a 3-Star Accreditation. Several other institutions are already in the process of setting site evaluations.

“Applying to be evaluated in the PGMS Landscape Management & Operations Accreditation was one of the best decisions we have ever



Left page: Georgia Tech. Above, from left: Tyson Mantor and Cary Avery, University of California Davis, Joseph Jackson, PGMS accreditation facilitator, and Mike Loftus, University of Delaware.

PGMS Grounds Accreditation Program Flowchart



made,” says Cary Avery, Certified Grounds Manager (CGM), associate director for grounds & landscape services for the University of California-Davis. “Collectively the management team, staff, and administration all participated in the evaluation process. We were able to walk away with a wealth of knowledge for industry best practices in contemporary grounds management strategies that focused on environmental stewardship, economic performance, and social responsibility.”

To provide a high level of expertise for its program, PGMS has retained the services of Joseph B. Jackson, a CGM and the former facilities director at Duke University, as its landscape management and operations accreditation facilitator. We have additionally initiated training of site evaluators who must be proven grounds professionals, preferably CGMs. Part of Jackson’s role is to be available to assist applicants in preparing for and, most important, becoming successful in the accreditation process.

ACCREDITATION REQUIREMENTS

“Receiving the accreditation requires responding to 38 best practices derived from 18 key principles on effective grounds management categories,” Jackson points out. The key principles are outlined in three broad areas of review.

In the *Environmental Stewardship* category, PGMS looks at how the grounds operations provides leadership and effective



From left: PGMS Accreditation site evaluators John Burns, University of Texas Austin, and Ron Hostick, California Polytechnic Institute, are briefed by Cary Davis during the two-day evaluation visit of the University of California Davis.

communication, values ecosystem services, manages resources within natural limitations, evaluates existing natural resources to preserve and conserve, establishes environmental policies and evaluation processes, and implements environmentally sustainable initiatives.

As part of the *Economic Performance* review, evaluators hone in on the applicant’s use of renewable and sustainable resources, elimination or reduction of the use of resources that are difficult or impossible to renew, improved grounds management performance through policies and programs, the investigation and use of advanced and emerging technologies, the conducting of life-cycle assessments and costing, and the contingency plans that reflect budget reductions.

Social Responsibility is the third broad category of review, and here, PGMS accreditation evaluators look to see that ecosystems are safe, healthy, and productive; natural processes and human activities coexist; stakeholders are involved to define and link long-term maintenance strategies; new resources and technologies that enhance the user’s quality of life and the environment are being found and utilized; routine assessment of training and development needs are performed; and workforce environment is responsive to employee’s health, safety, and welfare needs.

The PGMS Landscape Management and Operations Accreditation verifies and recognizes an environmental management systems approach applied to a grounds management template. It is PGMS’s belief that to meet current demanding environmental challenges and expectations, grounds and landscape operational functions should integrate effectively with sound management strategies.

This accreditation offers the roadmap for this process and provides organizations with the following benefits:

1. Utilizes a systematic and objective assessment of an organization’s grounds management component by a nationally recognized independent entity;



College of Wooster.

2. Increases the organization's ability to realize the highest return on its grounds investment;
3. Provides a means of evaluating the grounds program against industry standards and best practices to improve performance;
4. Evaluates the grounds program relative to established benchmarks for grounds excellence and environmental awareness;
5. Ensures that the grounds component within the organization is properly set up to best implement existing and new stewardship and sustainability initiatives;
6. Reinforces grounds management focus on productivity and effectiveness through critical evaluation of programs and services;
7. Integrates activities that exhibit a proactive approach to ensuring the success of grounds related projects;
8. Demonstrates that the organization is dedicated to the continuous improvement of grounds management practices and successful in translating good management to good grounds;
9. Promotes predictability and consistency in achieving grounds management obligations;
10. Obtains stakeholder feedback and participation in meeting

- grounds component goals and objectives; and
11. Generates information for grounds adaptation measures that align with the organizations capacity to meet maintenance requirements.

CHALLENGING PERCEPTIONS

In addition to an onsite visual inspection of the applicant campus and discussion with chief grounds personnel, PGMS evaluators challenge grounds crew on their perception of the operations as well as various stakeholders including students and faculty.

Offers UC-Davis' Avery, "I would strongly recommend the accreditation to anyone who is serious about looking at (Best Practices) and how you can improve your programs, and what your strengths are."

Beau Mastrine, CGM, director of grounds at the College of Wooster, agrees. "The PGMS Landscape Management and Operations Accreditation has helped us identify areas of improvement. It has also reassured our board of trustees and administration that the Grounds Department is continually thriving to make sustainable operating decisions now and in the future."

Getting started in the accreditation process is easy.



An interested applicant simply requests and completes an application and a site survey questionnaire and submits back to PGMS. There is no obligation on the part of the applicant until an agreement has been reached with PGMS.

Applications are reviewed by the PGMS Accreditation Committee, which then initiates the scheduling of a site visit by a team of PGMS evaluators who will conduct the evaluation and prepare a report. The report is then reviewed by the Accreditation Committee for needed clarifications. The committee approves or denies accreditation and provides a detailed report of its findings. Applicants need to do a fair amount of prep work prior to the evaluation team showing up on site, and a guideline of the types of questions and materials that will be required is provided by PGMS in advance.

"The Evaluation Report given to the Accreditation candidate institution details the peer review finding, the assessment process, and rating level," explains Jackson. "This document serves

as a continuous improvement tool for the grounds organization."


A goal of the accreditation program is to be attractive and feasible for all grounds organizations represented by the PGMS membership and other professionals responsible for large campus (educational, corporate, and/or athletic) landscape services or overall grounds operations. Cost calculations include all necessary travel expenses needed to send a team of professional evaluators to the evaluation site, as well as general administration/professional support. Fees will range from \$7,500–\$20,000 depending on the size and complexity of the grounds operation being evaluated.

According to Jackson, "The accreditation process and subsequent follow-up measures combine to exemplify a commitment to continuous improvement. The PGMS Landscape Management and Operations Accreditation is initially awarded for three years. An accredited facility must then seek to be reaccredited through a mandatory update report provided by the organization that verifies the continuing conformance to best practices and the adherence to the principles of the accreditation."

With peer evaluations and other assessments and procedures,

this program goes much deeper than what some might call a "beautification recognition." During our testing stage, it was rewarding to watch as evaluation marks were tabulated and to see how final result differed from the first impression of a campus' maintenance.

In a time of tight budgets and high competition for students, a first impression and exciting curb appeal can make a difference. Knowing that a campus' grounds and landscape operations are running at a level of excellence is worth the investment necessary to challenge oneself in the PGMS Landscape Management and Operations Accreditation process.

For more information on the PGMS Accreditation program or to secure an application, visit www.pgms.org or contact pgms@assnhqtrs.com. 

Tom Shaner is executive director of the Professional Grounds Management Society, Baltimore, MD. He can be reached at tomshaner@assnhqtrs.com. This is his first article for *Facilities Manager*.

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APPA'S 2015 HEADLINING OPENING SESSION

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Natalie Hammond
*Former Lead
Teacher of
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Elementary*



Frank DeAngelis
*Principal,
Columbine HS
(Retired)*



Kristina Anderson
*Tech Survivor
& Founder,
The Koshka
Foundation
for Safe Schools*

Over the last 15 years educational settings like Sandy Hook Elementary, Columbine High School, and Virginia Tech University, have become synonymous with the term “active shooter” on campus. This August, APPA 2015’s opening session will feature three individuals (*including two survivors*) whose lives changed the day an active shooter showed up at their educational institution. All too well do we know that an active shooter situation is not just a public safety/security issue, as facilities professionals are asked more and more to interact with responders about buildings, mechanical and locking systems, personnel, and overall building management.

On December 14, 2012, **Natalie Hammond** was wounded multiple times in the shooting at Sandy Hook Elementary School in Newtown, Connecticut. Natalie Hammond has been an elementary educator for 19 years. She began her career as a classroom teacher. After sixteen years of teaching in third and fifth grade classrooms, she moved to the role of Lead Teacher coaching other teachers and completing building administration duties. In August as she has done throughout the past two years she will be part of the three-person panel to encourage increased “communication and positive partnerships” that lend themselves to preparedness and action not only in Public Safety but with Facilities. Natalie now serves as an Assistant Principal in a Connecticut elementary school and works with her 26 Angels Foundation.

Frank DeAngelis became principal of Columbine High School in the Jefferson County School District in Littleton, Colorado in 1996. Frank was the lead administrator on site on April 20, 1999 when two students entered the high school with weapons; he came in contact with one of the shooters and was able to shepherd students to safety. Frank was looked upon to lead during in the immediate aftermath of the violence that occurred in Columbine. Frank will talk about the importance of being prepared to know your building and understanding the importance of relaying information about systems in your building. He retired in June of 2014 after 35 years at Columbine High School. He is presently serving as a consultant for safety and emergency management for the Jeffco School District and continues to talk with audiences about school security. Frank is actively involved in the Frank DeAngelis Columbine High School Academic Foundation, and serves on the board for the Columbine Permanent Memorial.

Our third panelist is **Kristina Anderson**, a survivor of the 2007 Virginia Tech tragedy. As a sophomore in college at the time, Kristina was shot three times inside Norris 211, one of the most critically affected classrooms. Since then, Kristina has started the Koshka Foundation for Safe Schools, a nonprofit dedicated to improving campus safety education by incorporating the perspective of survivors and lessons learned from past experiences, to trainings. Speaking to law enforcement, educators, first responders, and the public, the Koshka Foundation shares the importance of personal preparedness, pre-planning for emergencies, and steps to prevent future violence.

APPA is honored to welcome Frank, Natalie, and Kristina to our annual meeting and community for a first time ever panel discussion where they will share their very personal stories. The design of this unique session allows for a lot of interaction between our guest speakers and you the attendee, permitting you to garner the answers to critical questions to bring back to your campus.

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Emerging Professionals Summit

Today across our campuses we are facing unprecedented challenges and uncertainties that require us to remain flexible and adapt rapidly. Traditional methodologies and ways of thinking are proving to be sluggish and woefully inadequate in dealing with this radical pace of change. Like no time before we must nourish new sources of energy and ideas. In other words, we must find, embrace, and listen to our emerging professionals. Recognizing the importance of expanding our emerging professional ranks and allowing their ideas to flourish, APPA is thrilled to announce that our Emerging Professionals Summit will be back by popular demand! The Emerging Professionals Summit will take place August 3rd at the Sheraton Chicago Hotel & Towers in Chicago, Illinois. The 2015 Summit will provide a unique opportunity for emerging professionals to network with senior leaders in the educational facilities field, hear from invited panelists on the importance of facilities management from an academic perspective, and much more! If you consider yourself to be one of our emerging professionals, this is an event you simply don't want to miss. If you are one of our "more seasoned" educational facilities professionals, you can't afford not to send your emerging professionals to this summit. Our future rests on their shoulders and the opportunities we afford them today!

Senior Facilities Officers Summit

APPA's Senior Facilities Officers Summit, now in its ninth year of programming, provides a unique opportunity to engage with leaders in the higher education facility management profession in environment built for networking and idea sharing for those who are new to this level of leadership as well as those who have been leading for some time. As APPA prepares for the next 100 years of service to the facilities professionals community, our Senior Facilities Officers Summit will explore the Impact of Student Success, Continuity vs. Succession Planning, Executive Health Wellness, and much more! This highly rated and thoughtfully constructed program is designed with input from leading facilities officers within APPA's own membership. We encourage you to register today!

Programming Just for YOU!

Your 2015 Programming Committee has worked to create a powerful slate of breakout sessions that will address the critical needs of today while providing best practices for your success tomorrow! We will be delivering sessions such as:

With over 60 offerings—there is truly something for everyone!

Future of Built Environment

Changing Landscape of Renewable Energy
Sustainability of the Physical of Aspect
Dealing with the Rising Costs of Higher Education
Staying Ahead of the Curve—What's Next in Regulatory Codes?

Disruptive Innovations & Technology

Click Here—Technology What's Next & Are You Ready?
Check Mate—Space Utilization/Management
Impact of Facilities and the Student Experience
Be Safe—Security for the Whole Campus Community

Creative Approaches to Justifying/Obtaining Resources

RSVP—Facilities Seat at the Table
Deferred Maintenance & Asset Renewal
A Little R&R: Best Practices in Recruiting & Retaining
We Are FACILITIES—Marketing Your Departments Assets

Taking Care of Business—Day-to-Day Stuff

A World of Many Hats ... The Professional Facilities Professional Juggler
The Art of Succession Planning
Put Me In Coach—Building the Best Team for Success
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And much more!

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APPA 2015 Annual Meeting & Exposition

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chicago



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The APPA 2015 Annual Meeting & Exhibition will be held in Chicago, Illinois at the Sheraton Chicago Hotel & Towers. A perfect location for programming, exhibiting, and networking with colleagues while reminiscing with old friends. APPA's 2015 annual meeting and exhibition will be a fantastic event full networking—this is where you need to be!

Research has shown that nothing compares to exhibiting at a conference where you will have the ability to meet many potential clients face-to-face. Studies have also shown that exhibiting at conferences and meeting with attendees is one of the most effective ways to acquire new clients.

The APPA annual meeting attracts top decision makers in the facilities arena. If you want to do business on a college campus, your product or service should be in front of our attendees.

APPA 2015 Booth & Sponsorship Packages are designed to get you the best ROI!

10' x 10' Bronze Booth

Member: \$4,000

Non-Member: \$5,750

Package Contents—Booth Only & 3 Fully Registered Booth Personnel

10' x 10' Silver Booth

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Package—Booth Only and Ambassador Scholarship Support, Allowed 3 Fully Registered Booth Personnel

10' x 10' Gold Booth

Member: \$9,500

Non-Member: \$11,250

Package—Booth Only, Ambassador Scholarship Support and Sponsorship Recognition of ONE the following items:

APPA's Board of Directors Breakfast

APPA's Board of Directors Luncheon

APPA's Committee Breakfast

APPA's Executive Committee Reception & Dinner

Banquet Wine

Daily AV Supporter

International/VIP Reception

Governance Breakfast

Closing Breakfast

10' x 20' Platinum Booth

Member: \$16,000

Non-Member: \$17,750

Package—Booth Only, Ambassador Scholarship Support and Sponsorship Recognition of ONE the following items:

APPA Awards Breakfast

APPA's After Party

APPA's Bookstore

APPA's Resource Center

Conference Badge Holders

Conference WiFi

Cyber Café

Emerging Professionals (EP) Summit

Exhibit Hall Lunches

Invited Guest Speakers

Portfolios w/ Pens

Opening Breakfast

Senior Facilities Officers (SFO) Summit

10' x 20' Diamond Booth

Member: \$20,000

Non-Member: \$21,500

Package—Booth Only, Ambassador Scholarship Support and Sponsorship Recognition of ONE the following items:

APPA's Awards Reception

APPA's Banquet Reception

APPA's Banquet & Awards

APPA's Board of Directors Reception & Dinner

Guidebook App

Fun Run & Walk

Welcome Party

Spaces are limited! For the current availability of booth & sponsorship, visit us at www.appa.org/training/APPA2015 and click on Exhibits/Sponsorship.

For additional ways to support APPA 2015, please contact Suzanne Healy, Director of Professional Development, at suzanne@appa.org for a personalized package plan.

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HOME of APPA 2015
***Where the Neighborhoods
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chicago

APPA is pleased to hold our 2015 Annual Conference and Exhibition at the Sheraton Chicago Hotel & Towers. Located in the heart of downtown Chicago, the Sheraton Chicago Hotel & Towers, one of the finest hotels in Chicago, is ideally situated on the Chicago River, within walking distance of Navy Pier, Magnificent Mile shopping, Millennium Park, the Loop business district, and all of the other local favorites that make Chicago a one-of-a-kind destination. APPA has secured a special conference rate of \$195 single/double occupancy for APPA 2015. Your special conference rate includes complimentary WiFi access in your guest room as well.

For reservations please call **888.627.7106** and mention APPA to receive the special conference rate.





APPA Welcomes the American National Standards Institute (ANSI)

By John Bernhards

APPA was pleased to welcome Joe Bhatia, the CEO of the American National Standards Institute (ANSI), to a meeting of its Executive Committee, officers, and senior staff at APPA office on January 30. The meeting provided an opportunity for APPA to familiarize itself with opportunities to further engage with ANSI in several areas, to include ANSI standards development activities, Technical Advisory Groups, and cross-sector collaborative activities.

ANSI coordinates standards, conformity assessment, and related activities within the United States. Founded in 1918, ANSI is a private, nonprofit membership organization widely known as the accreditation body for over 200 U.S. standards bodies. Those standards bodies include the National Fire Protection Association (NFPA) and the American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE), among numerous others whose ANSI standards directly influence educational institutions and their facilities.

APPA currently serves as a full voting organizational member of ANSI and is actively engaged with ANSI's activities, including service on the U.S. Technical Advisory Group to TC 267. TC 267 is

the Facilities Management Technical Committee within the International Organization for Standardization (ISO).

Another area of engagement is also on the horizon for APPA. In November 2014, APPA's Standards and Codes Council submitted an application on APPA's behalf to become an ANSI Accredited Standards Developer. Assuming the application is approved, APPA will seek to develop and publish American National Standards that support the principles of total cost of ownership (TCO) for educational facilities and infrastructure. The areas of work for APPA's proposed standards activities would include the four core areas of the educational facilities management practice: General Administration & Management; Maintenance & Operations; Energy & Utilities; and Planning, Design & Construction. APPA and its Standards and Codes Council believe that such standards can lend support to facilities business models and best practices, and will aid institutions in managing the cost of education delivery.

APPA's large membership, with 1,300 educational facilities organizations and more than 11,000 educational facilities professionals, should ensure that APPA's standards setting activities are

populated by varied and diverse users of such standards, as well as producers and suppliers to institutions and other education stakeholder interests.

According to APPA President Randolph Hare, "APPA is the most appropriate venue for purposes of reaching consensus on ANSI standards that impact the construction, operation, and maintenance of educational facilities...(and) to bring the largest and most diverse population of subject matter experts to the table, for purposes of creating such standards."

During his visit with the Executive Committee, Bhatia applauded APPA's engagement with NFPA, ASHRAE, the International Codes Council, and the Technical Committee 267 of the ISO. ANSI serves as the U.S. representative to ISO as well as numerous regional standards bodies across the globe. Bhatia also encouraged APPA to consider engagement in a number of other activities and areas within ANSI, to include the following:

ANSI Smart and Sustainable Cities Collaborative—APPA recently joined the collaborative, which provides a rich network among standards setting bodies, membership organizations, and others throughout both the public

IN NOVEMBER 2014, APPA'S STANDARDS AND CODES COUNCIL SUBMITTED AN APPLICATION ON APPA'S BEHALF TO BECOME AN ANSI ACCREDITED STANDARDS DEVELOPER.

and private sectors where technical information, benchmarking, innovative practices and other resources may be shared with regard to sustainable building and infrastructure. Bhatia noted that APPA educational institutions have been in the forefront of addressing sustainable buildings, infrastructure, and systems that reduce the carbon footprint and create a cleaner, more environmentally responsible environment. APPA has a long history of collecting sustainable best practices through its research, publications, and sustainability and best practices awards programs,

and which could be shared through the collaborative.

U.S. Technical Advisory Groups (TAGs) to TC 205 *Building Environmental Design* and TC 268, *Sustainable Development in Communities*—These two ISO Technical Committees are underway with the creation of ISO standards that may ultimately influence building, design and sustainable development within the United States, Canada, Mexico, and other nations, should they be adopted for use. The opportunity to influence direction and outcomes in

these standards is a consideration for involvement. The APPA Standards and Codes Council will evaluate the opportunity in coming months.

APPA's growing involvement in the standards, codes, and conformity assessment arena—to include the expansion of its standards Work Group activities already underway—provides an invaluable opportunity for APPA members to engage and influence outcomes that can benefit the institutional mission, enhance learning, and perhaps assist us in managing the cost and delivery of education over time. ☺

John Bernhards is APPA's associate vice president and serves as staff liaison for the APPA Standards and Codes Council. He can be reached at john@appa.org.

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Technical to Managerial Transitioning

By Matt Adams, P.E.

The “Career Ladder” built into our organizations is one feature that helps us attract talent to the facilities department. While these ladders and their stair-stepped position descriptions are not always utilized, the opportunity needs to be there. In theory a newly hired housekeeper-in-training can one day work her way to the director of the department slot. We want our staff to reach their highest potential; even if that means one day moving onto greater challenges outside of the facilities department.

SUCCESS REQUIRES HARD WORK (FROM EVERYONE)

However, creating and encouraging this career growth takes hard work—and not just from the prospective candidates moving up to new positions. Thoughtful and intelligent position designs are required from management (and human resource representatives). The work done by management needs to receive increased emphasis and priority. Those in management for years know all too well the cliché about the person who proved to be the best master plumber the department ever had—he was promoted to plumbing supervisor and failed miserably. More than likely this would not have happened if management had done the hard work required to perfect the career ladder for



this tradesperson.

Managers within facilities departments often excel at identifying internal or external candidates by their technical skills, such as plumbing, grounds, boiler operations, and so on. However, what policies

and practices do we have in place when a skilled stationary engineer wants to become the manager of the boiler plant? From one perspective you could say that the success of a manager, supervisor, or other mid-level manager has more impact on the organization than individual staff. Thus the investment into new managers must be significant and based on winning strategies. One clear strategy is training.

CONTINUOUS THOUGHTFUL TRAINING

In any successful department there is training of all kinds taking place continually, year after year, in a planned way. Each person has a professional development plan that they are executing each year and is receiving the training that enables them to grow professionally. This same approach should be applied to potential managers. Staff members who have elected to seek managerial positions should be entered into a program of apprenticeship and training.

The sources of training, including APPA, are considerable. A schedule and menu of classes should be organized and kept current.

Candidates desiring managerial skills should complete classes to learn a wide range of skills that fall under the broad scope of management (customer service, business communications, project management, management systems, and many others.) This process

is built around an initial assessment of the candidate's strengths and weaknesses, which is critical so that good managers have the confidence to empower their staff. A common mistake of new managers coming from a skilled trade position is to misunderstand the new paradigm of job performance.

For example, as a journey-level plumber, a candidate is judged primarily by his or her individual performance. The paradigm changes dramatically when the same plumber becomes the plumbing supervisor, and is judged based on the performance of the department. This seems like an obvious distinction, but it remains one of the most repeated failures of new managers. They do not delegate or empower effectively and sometimes micromanage their direct reports into a culture of mistrust and poor morale.

MENTORING NEW LEADERS

Robyn Maynard, facilities services coordinator for the award winning Brownsburg Community School Corporation, supports the idea of mentoring new leaders. In her career she has seen the benefits of gradually increasing the candidate's exposure to actual leadership situations. This is another example of the work required of existing managers to develop new leaders. Although a carefully selected protégé would be expected to gain leadership experience by working with his or her mentor, this privilege should extend to others that have expressed interest as well.

Shadowing is one technique that provides a new perspective to management candidates. This practice can be used for any direct report or for staff from other service centers as well. A candidate that can shadow a manager from a department other than their own would be a useful perspective. In addition, small projects should be assigned to candidates, to help them become more confident leading others and delegating tasks.

As managers, we want to identify strengths and weaknesses in that candidate and adjust their apprenticeship

accordingly. However, this process may also identify some character flaws that cannot be overcome. There is no better way to identify potential new leaders within the organization than by giving them the opportunity to demonstrate their ability in actual situations over an extended period of time. It is one thing to lie or exaggerate one's skills during an interview, and another to fake those skills over the course of a year of apprenticeship.

THE DREADED INTERVIEW—A WINDOW TO THE APPLICANT

Ultimately there will always be the dreaded interview! Whether it be for only an hour or over the course of several days, little has changed during interviews within our industry over the years. As mentioned before, we are great at discerning a candidate's technical skills. We already know they have technical skills if they have mastered their technical discipline before applying for a management position. But what we really need is to identify an entirely different set of skills, character traits, and emotional intelligence.

Recently, at the APPA Leadership Academy, new leaders in our industry were asked to design questions for interviews to identify both desirable and undesirable personality traits of management candidates. One idea brought up several times was the utilization of scenario interview questions. For example, you could present the candidate with a scenario where there are multiple campus customers with service needs on a given day, and you as the supervisor are short-handed due to absenteeism and cannot complete the work. How do you manage this situation? Others suggested that candidates be given a scenario where their boss was micromanaging them. How would they address this situation or could they even identify it as micromanagement?

Some other character-based interview questions from the "Integrity Training Institute" were also useful:

- How do you reinforce behavior you

want repeated (in a non-monetary way)?

- How do you develop untapped potential in your staff?
- How do you build and maintain morale with your staff in a non-monetary way?
- What are the primary management styles? Describe each. Which is *your* predominant style? How have you applied those characteristics? What successes and shortcomings have you experienced with your management style?
- How do you demonstrate that you value people for who they are rather than for what they accomplish?
- How would you handle an employee who upsets you in front of other employees in the middle of a rush?
- How would you handle an unusual problem you never encountered before?
- When there was serious conflict within the team, how did you resolve it?
- On projects that were behind schedule, what are some of the ways you successfully got them back on track?
- How would you handle a person who has to wait for a long time?
- How would you deal with an angry customer on the phone? In person?
- What three things most likely would make you angry when dealing with customers?
- Give us an example of a difficult situation and how you handled it?
- You have learned that a fellow employee found some cash in a vacant apartment and did not turn it in. What would you do?

Our staff is the most valuable resource we have within any facilities department. Our managers are responsible for that staff. There is every reason to rethink how we develop, identify, and support our up-and-coming leaders. 💰

Matt Adams is president of Adams FM², Atlanta, GA. He can be reached at matt@adamsfm2.com.



The APPA BOK: A Benefit for You (and Just About Everyone at Your Institution)

By Gary L. Reynolds, P.E., APPA Fellow

Occasionally we find ourselves in need of information we may not ordinarily have at our fingertips. In the past I may have phoned a colleague, gone to the library, or dug out old textbooks and thumbed through pages to find the answer to my question. (I wouldn't dare ask my boss and show my ignorance.) This search may or may not have been successful.

Today, we can e-mail, tweet, Google, or Bing our way to thousands or millions of responses, that may or may not have relevance to our question. However, in the industry of educational facilities, our need for information is often more narrowly defined, and it would be good to have a resource that could provide answers in a more focused form.

That is where APPA's Body of Knowledge (BOK) comes into play.

A WEALTH OF RELEVANT INFORMATION

The 60 chapters in the BOK are divided into four main parts: General Administration and Management; Operations and Maintenance; Energy, Utilities, and Environmental Stewardship; and Planning, Design, and Construction. These parts cover a wide range of topics from accounting to building systems, and from construction contracts to sustainability. The chapters are written by our colleagues with many years of experience in higher education, or by business partners with specific expertise on certain topics. With the latest version of the BOK in electronic format, the

APPA staff is able to work diligently with the content coordinators and individual authors to update the electronic BOK on a continuing basis. But more important, it is instantly searchable.

For many of us long-time APPA members, our roles have changed over the years. When I moved from being mechanical engineer into roles of increasing responsibility, the type of information I required was different from my past needs and thus difficult to find. I simply didn't know where to look. In the early days of my career the research process was often difficult and time consuming. Today, a simple query in the BOK search engine can provide links to appropriate sections. For example, I just queried "architect agreements" and

Accessing the BOK:

Go to the APPA website (www.appa.org) and using your APPA credentials, and log into myAPPA. Click on the BOK link in the section called myBookstore.

Take advantage of this tremendous membership benefit and ensure that everyone in your organization can easily access the BOK. You won't regret it!



was immediately directed to the section on AIA documents in Michael Haggans' chapter, "Design Management."

Perhaps more important, the BOK is an APPA member benefit and is available to everyone within your institution, not just to your institutional representative. I'm not sure many of us understand the implications of this important benefit. As staff within our organizations get promotions or change roles, they will be facing the same dilemma I faced in my career, but now they have a resource that can quickly provide answers to questions they may have.

For example, you may ask an up-and-coming staff member to take over the recycling program. If I were that person, my first response would be, "What do I do in that capacity?" Now, a

PERHAPS MORE IMPORTANT, THE BOK IS AN APPA MEMBER BENEFIT AND IS AVAILABLE TO EVERYONE WITHIN YOUR INSTITUTION, NOT JUST TO YOUR INSTITUTIONAL REPRESENTATIVE.

quick search in the BOK can lead them to multiple sections on recycling in parts 2, 3 & 4. This search took seconds and provided a wealth of information on recycling.

GETTING FROM HERE TO THERE

So how do you get access to this wonderful resource? Easy access to

the BOK by anyone at your institution may be its most important attribute. I would suggest that you show anyone who may benefit from using the BOK how to access it. Even for staff who aren't tech-savvy, you could be open to a whole new world by showing them how easy it is to access the BOK. To be sure, providing access to the type of industry-relevant information that the BOK provides can be nothing but beneficial to you, your staff, and to your institution. ☺

Gary Reynolds is a Past APPA President and assistant vice chancellor for administration at the University of Colorado, Colorado Springs. He can be reached at greynold@uccs.edu.



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APPA U in Tampa

By Corey Newman

APPA U, held January 18-22, 2015, in Tampa, Florida, showcased another successful professional development gathering of the Institute for Facilities Management and the Leadership Academy. APPA U welcomed colleagues from around the globe 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, Jay Klingel, Lynne Finn, and Don Guckert**; and our academy faculty members **Glenn Smith, Michelle Frederick, Shawna Rowley, Jim Jackson, Matt Adams, Viron Lynch, and Doug Christensen**.

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. Close to 450 facilities professionals from across North America (and one from Egypt) attended, and we welcomed 75 first-time attendees, proving that APPA's popularity within the profession continues to grow!

As the week drew to a close, we celebrated with graduation ceremonies for the class of January 2015 (including 66 new alumni). A big kudos to all 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/training for more on all of APPA's program offerings. ☎

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



Academy Graduates



Institute Graduates

PHOTOS BY RHONDA HOLE

Academy Graduates

In alphabetical order; not all graduates are pictured.

Kimberly Bauer, *Georgia State University*

Gary Bowersock, *Colorado School of Mines*

Terri Carlton, *Middle Tennessee State University*

Kirk Conger, *University of Nebraska/Lincoln*

James Cunningham, *Brigham Young University/Utah*

Keith Gregory, *Portland Community College*

Thomas W. Jones, *Clemson University*

William J. Kerbusch, *Baldwin Wallace University*

Khaison Reed, *Dallas County Community College District Office*

Mary Romano, *University of Colorado/Boulder*

Larry Schmid, *University of Nebraska/Lincoln*

Khosrow D. Vaghari, *University of Maryland/Baltimore*

Patrick Van Duyne, *Joliet Junior College*

Christopher Walsh, *University of Nebraska/Lincoln*

Institute Graduates

In alphabetical order; not all graduates are pictured.

Tony Alessandro, *Bentley University*

Mike Averett, *University of Nevada/Reno*

Daniel Barlup, *Pennsylvania State University*

David Baskett, *Western Kentucky University-Housing/Resident Life*

Darryl Brotemarkle, *Arkansas State University*

Kenneth Buenting, *University of Illinois/Urbana-Champaign*

Ishmael Carranza, *University of California/Santa Barbara*

Joshua Carroll, *University of Wyoming*

Frank D. Cox, *Texas A&M University*

Darryl Crider, *University of Alabama/Birmingham*

Mark David, *St. Olaf College*

Michael Doherty, *University of Pennsylvania/Philadelphia*

Christopher Eichorst, *Whitworth University*

Kirby Fisch, *Assiniboine Community College*

Colin Gaalswyk, *South Dakota State University*

Matt Green, *Snow College*

John Hashizume, *San Mateo County Community College Dist*

Michael Hicks, *Michigan State University*

Hemlata Jhaveri, *University of Texas at Austin*

Jon Kettering, *University of Iowa*

Benjamin Kunka, *University of North Carolina at Greensboro*

Henry Lacher, *Belmont University*

Kelly Lund, *Salt Lake Community College*

Peter M. MacDonald, *St. Francis Xavier University*

Caesar Martinez, *University of California/Santa Barbara*

Nathan Marton, *D'Youville College*

Donna McInnis, *Fanshawe College*

Gregg Menning, *St. Olaf College*

Thomas Millward, *Bryn Mawr College*

Luis Morales, *University of Texas at El Paso*

JaNae Nelson, *Regis University*

Daniel T. Okoli, *University of Wisconsin*

Tim Overgaauw, *California State University-Stanislaus*

Sam Paolini, *University of Rochester*

Terry Pritchett, *Howard Payne University*

Daniel Ridgway, *Kent State University Main Campus*

Gary Saak, *University of Northern Iowa*

Terry Sattler, *Waynesburg University*

Daniel Sheets, *Florida State University*

David Simpson, *University of New Mexico*

Eugene Stroh, *Colorado State University*

David Van Hook, *Kennesaw State University*

Jane Vaughn, *University of New Hampshire*

Charles Vela, *California Baptist University*

Rick Waligora, *Philadelphia University*

Daniel Warren, *University of Southern Maine*

Mark Watson, *Bryn Mawr College*

James Weiss, *South Dakota State University*

Marie Wells, *Brigham Young University-Idaho*

William West, *University of New Mexico*

John Will, *Wilfrid Laurier University*

Robert Young, *University of Iowa*



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

Facility officers are a busy bunch and often don't have time to read lengthy books even if they contain valuable information. This month, the focus is on meaningful material that doesn't require a significant commitment of time. So as the end of the academic year comes into view and time is short as you prepare for summer projects, consider these two options.

WHAT IS SIX SIGMA?

Pete Pande and Larry Holpp,
McGraw-Hill, 2002, 86 pp.,
Softcover \$16.

There is no shortage of books about Six Sigma. A recent search identified over 80,000 publications, although there may have been some duplicates. I followed a colleague's recommendation to use *What is Six Sigma?* for my library.

First, for those not familiar with Six Sigma, it is a process that looks for potential errors in a customer service delivery mechanism and works to eliminate errors to nearly zero (3.4 per one million). Why is it important to drive errors to nearly zero? Because every error has the potential to make a customer dissatisfied, and every dissatisfied customer tells nine or ten people about their bad experience. Even with Six Sigma results there are going to be over 30 people who are dissatisfied or are no longer potential customers because of the ratio between errors and people who are turned-off as a result of those errors.

The challenge is to count the number of places where errors could occur and then devise methods to eliminate those errors. Take the typical work request on a campus where someone calls the facilities organization and asks for some kind of service. Errors can occur when the request is transcribed into the CMMS 1) when it is reviewed to become an actual work order, 2) when a person is



assigned, 3) to do the work (they might not have the correct skill set to complete the work), when the work is done, 4) whether or not the work is done to the requestor's satisfaction 5) and, in some cases the charge to the requestor for the work. All of a sudden, it's no longer one million work requests, it's fewer than 200,000. Many facility organizations never see 50,000 work requests in a year, which translates down to less than one

error every year for a Six Sigma organization. Are you there yet?

A lot of people make the Six Sigma process difficult. Certainly, there are difficulties when trying to implement the process due to human nature. It is also difficult if the teams have not been appropriately trained; one typical problem is short-cutting to a solution once the perceived problem is identified. But the concepts of Six Sigma are not difficult. That's probably why so many books have been written about it.

Although it is not the only reference that should be in your library if you want to pursue Six Sigma, it's definitely a good book to have if elimination of errors is your goal and you're unsure if the Six Sigma approach is right for your setting. It's a small investment of time to get a good understanding of the subject. I'm happy to have *What is Six Sigma?* in my library.

TO OWN OR LEASE SOLAR: UNDERSTANDING COMMERCIAL RETAILERS' DECISIONS TO USE ALTERNATIVE FINANCING MODELS

by David Feldman and Robert Margolis,
National Renewable Energy Laboratory,
Golden, CO, 2014, 32 pp., Technical
Report, NREL/TP-6A20-63216, available
at www.nrel.gov/publications, no cost.

The pressure to be more sustainable is not going to stop and neither will financial pressures on higher education. When I teach colleagues prior to their taking APPA's certification exam, I always point out that *energy, utilities, and sustainability* are "where the money is" because the campus CFO will always pay the utility bill. Capital renewal will be deferred, cleaning frequencies may be reduced, and staff downsized, but the utility bill will always get paid. So any facility officer who can find a way to

reduce the utility bill *ought to have found* some money.

Twenty years ago, many of us worked with an ESCO (energy service company) to provide guaranteed reductions to the campus utility bill and perhaps to address some deferred maintenance needs. These goals were often accomplished by replacing old, energy-gulping equipment with new, energy-sipping equipment. Campus CFOs liked the deal because someone else was on the hook for the work and savings. Life was simpler then; we had to deal with energy, deferred maintenance, and savings.

Now, we have to add sustainability, reducing the carbon footprint, and renewable resources. *To Own or Lease Solar* is a short study of two options to acquire solar energy for your campus or business. It looks at two businesses with facilities across the United States, analyzing the

hows and whys of their financial decisions.

The cost of solar photovoltaics, has dropped since it became a popular renewable alternative. When I installed solar at my home it cost about \$8/watt. I knew the payback would be about 20 or more years, but determined it was a good investment due to lower maintenance costs as compared to other renewable options. Costs are now less than \$2.50/watt, so the payback is better.

The companies studied in the pamphlet are taxable, so they were able to take advantage of several incentives to improve their payback. Although educational facilities can't get these tax benefits directly, they may be able to structure a deal allowing an indirect benefit. However, when combined with lower utility costs and carbon footprint reductions, the tax benefits may not be as large an issue for some institutions.

Though dense in some financial topics and structures, the pamphlet is an easy read. It identifies many metrics that are valuable in decision making. There's also good discussion about the sensitivity of the payback due to several potential risks. The approaches used and factors considered by the two businesses are not unique—they are factors we should all consider. Facility officers looking for a quick discussion and analysis of solar issues and options should grab this free resource to address their next set of challenges. 💰

Ted Weidner is an associate professor at Purdue University, West Lafayette, IN, and consults on facilities management issues primarily for educational organizations. He can be reached at tjweidne@purdue.edu. If you would like to write a book review, please contact Ted directly.



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Archetype Ltd., announces its easy-to-use line of low-cost, loud, and effective water leak alarms designed to point out undetected water leaks. Used to ensure that a flooring installation is not damaged by water leaks, patent-protected Flood Buzz™ alarms are a cost-effective method of avoiding the issues that come from undetected water leaks. For additional information please visit Archetype Ltd. at www.FloodBuzzAlarms.com.

Trojan Battery Co., LLC, presents a true deep-cycle AGM battery, Reliant AGM. Reliant AGM maximizes sustained performance and increases total energy output to meet demanding deep-cycling requirements in Trojan's wide range of market applications. Applications include aerial work platform, floor cleaning, material handling, recreation, renewable energy, and remote telecom. All will benefit from its deep-cycle design. Reliant AGM is also designed for power equipment used in locations where regulatory mandates require use of non-spillable batteries (such as airports, health care facilities, and educational institutions). For further information on Trojan Battery products visit www.trojanbattery.com.



SelecTech, Inc. BioLock tiles employ a patented interlocking technology that enables adhesive-free installation. This feature allows for faster installation. Additionally, access floor panels are not required to be coated with adhesive, which can leak between the panel seams, stick the panels together, and clog the corner screws. Panel access, moves, and changes are much



easier to accomplish when flooring adhesive is not slowing down installation. Also, because each tile has its own commercial grade polyurethane finish, maintenance is quicker, easier, and less expensive over the life cycle of the floor. For additional product information on SelecTech visit at www.selecttechinc.com.

Verilon Products Company's vinyl strip doors are designed for environmental control. Made up of a series of overlapping flexible transparent vinyl strips, Verilon vinyl strip doors are designed to provide safety by allowing visibility for pedestrians and vehicles. The strips part for passage, then fall back into place automatically. The Verilon vinyl strip door seals out dust, dirt, fumes, smoke, and airborne contaminants. Vinyl strip doors minimize the chance of birds, flying insects, and rodents entering through door openings. Verilon doors keep conditioned air in and inclement weather out, and can be used to divide areas with differing temperature or humidity zones. For more information regarding Verilon Products Company visit www.verilonvinyl.com.



CPR RsQ Assist® is a FDA-approved, hands-only chest compression device designed to eliminate the intimidation factor of performing cardiopulmonary resuscitation (CPR). CPR RsQ Assist significantly increases results while reducing fatigue. CPR RsQ Assist has easy-to-follow voice commands, along



with an audio visual metronome. The device talks you through the steps of calling 911, and placing the device in the center of the victim's chest, and instructs you to push 100 times per

minute until help arrives. To address fatigue, the product also has an ergonomic design with an easy-to-grip, non slip handle. The design allows you to leverage upper body strength and weight as you push down, delivering quality compressions in the center of the chest. For additional information visit CPR RsQ Assist at www.cprrsqassist.com.

New Avionics Corporation announces the availability of a new ice sensor for HVAC cooling towers. The Ice*Meister Model 9734-HVAC industrial ice detecting sensor system conveniently automates the facility manager’s important task of monitoring ice. The system limits inconvenient and hazardous

topside ice inspections during slippery winters, eliminates guesswork of “seeing” ice formations inside the tower, increases situational awareness, and reduces the risk of icing damage. For further information about New Avionics Corporation products visit www.newavionics.com.

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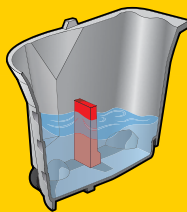


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